Translation of the original operating instructions /
Project planning manual EN

# Inverter

## i550 protec frequency inverter

0.37 kW ... 75 kW
0.5 hp ... 100 hp

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# About this document

## Document description

This document is intended for all persons who want to configure inverters with the products described.

This document assists you with the configuration and selection of your product. It contains information on mechanical and electrical installation, on product expansions, and on accessories.

## Further documents

For certain tasks, information is available in further documents.

| Document | Contents/topics |
|---|---|
| Mounting sheet | General safety instructions and important UL/CSA instructions, connection diagram and technical data.<br>• The mounting sheet is included in the delivery of the product. |
| Operating instructions | Basic information on installing and commissioning the product. |
| Commissioning manual | Detailed information on setting and parameterizing the product. |

### More information

For certain tasks, information is available in other media.

| Medium | Contents/topics |
|---|---|
| Engineering Tools | For commissioning |
| AKB articles | Additional technical information for users in the Application Knowledge Base |
| CAD data | Download in different formats from the EASY Product Finder |
| EPLAN macros | Project planning, documentation and management of projects for EPLAN P8. |
| Device descriptions | Standardized files for network configuration |

Information and tools with regard to the Lenze products can be found on the Internet:
www.Lenze.com → Downloads



## Notations and conventions

Conventions are used in this document to distinguish between different types of information.

| | | |
|---|---|---|
| Numeric notation | | |
| Decimal separator | Point | Generally shown as a decimal point.<br>Example: 1 234.56 |
| Warnings | | |
| UL Warnings | UL | Are used in English and French. |
| UR warnings | UR | |
| Text | | |
| Engineering Tools | " " | Software<br>Example: "Engineer", "EASY Starter" |
| Icons | | |
| Page reference | 🕮 | Reference to another page with additional information.<br>Example: 🕮 16 = see page 16 |
| Documentation reference | ⓚ | Reference to other documentation with additional information.<br>Example: ⓚ EDKxxx = see documentation EDKxxx |

**Layout of the safety instructions**

**⚠DANGER!**

Indicates an extremely hazardous situation. Failure to comply with this instruction will result in severe irreparable injury and even death.

**⚠WARNING!**

Indicates an extremely hazardous situation. Failure to comply with this instruction may result in severe irreparable injury and even death.

**⚠CAUTION!**

Indicates a hazardous situation. Failure to comply with this instruction may result in slight to medium injury.

**NOTICE**

Indicates a material hazard. Failure to comply with this instruction may result in material damage.

# Product information

## Product description

The i550 protec frequency inverter uses the same tried-and-tested technology used in control cabinet inverters and only differs in terms of a higher degree of housing protection and an adapted design. If there is not enough space in the control cabinet or the inverter has to be mounted close to the motor in various machine modules, then this versatile and reliable device is the right solution. Thanks to the extension box, a disconnect switch and operating elements can be used.

The requirements of the Ecodesign Directive, standard EN 50598-2, are met.

Application areas: Conveyor drives, traveling drives, winding drives, hoist drives, extruders, packaging machines, pumps, fans, ...

| Overview | | | | | | |
|---|---|---|---|---|---|---|
| Power range | 0.37 ... 75 kW | | | | | |
| Mains connection | 1 x 120 V | 1 x 230 V | 3 x 230 V | 3 x 400 V | 3 x 480 V | 3 x 600 V |
| Degree of protection | IP31, IP55/IP66 | | | | | |
| Communication | CANopen, EtherCAT, EtherNet/IP, Modbus RTU, Modbus TCP, PROFINET | | | | | |

**Highlights**

- 0.37 ... 22 kW with IP31 protection (NEMA 1) and IP66 protection (NEMA 4X)
- 30 ... 75 kW with IP55 protection (NEMA 12)
- IP66 protection (Indoor & Outdoor NEMA 4X) with protection against high pressure water jets from any direction and dust tightness allows for use in harsh environment applications
- Decentralized drive with IO-Link interface V1.1
- Integrated diagnostic interface (micro USB) for service purposes
- Versions with or without disconnect switch, with keypad or WLAN module for easy commissioning
- Optionally available with "Safe Torque Off (STO)" with SIL 3 (EN IEC 62061/EN IEC 61508) and Performance Level e (EN ISO 13849-1)
- Industry standard fieldbus network options: ▸ Topologies / network 🕮 14
- The "Light Duty" load characteristic enables a higher output current for inverters with IP31 protection (NEMA 1): ▸ Load characteristics 🕮 13
- High internal functional range: ▸ Overview 🕮 19



**Product variants**

The i550 protec frequency inverters are available in these product variants:

- i550 protec without extension box
- i550 protec with empty extension box
- i550 protec with extension box and disconnect switch

The variants with an extension box offer additional installation space for optional accessories, e.g. brake switches, rotary switches/potentiometers, or an additional terminal block.

▸ Accessories for installation in inverters with Extension box 🕮 18

The i550 protec with extension box and disconnect switch is ideal for a looping-through connection. ▸ Mains installation with several devices 🕮 225

For easy operation and diagnostics, the inverters can be equipped with a keypad or WLAN module. ▸ Operation and diagnostics 🕮 28

For fieldbus communication, the following network options are configurable:

- CANopen
- Modbus RTU
- I/O-Link
- EtherCAT
- EtherNet/IP
- Modbus TCP
- PROFINET

**Degrees of protection**

The version with protection class IP31 (UL/NEMA 1) allows for use in less rough environments, i.e. protection against foreign particles ≥ 2.5 mm and dripping water.

The version with protection class IP66 (UL/NEMA 4X, indoor or outdoor installation) allows for use in rough environments, i.e. it is hoseproof and dust-tight.

## Overview

Overview of mains connections with load characteristics and additional connection options for power supply:

| Feature | i550 protec | | | |
|---|---|---|---|---|
| | Without extension box | | With empty extension box | With extension box and disconnect switch |
| Product illustration |  |  |  |  |
| Protection class EN | IP31 | IP66 | IP66 | IP66 |
| Protection class UL/NEMA | 1 | 4X | 4X | 4X |
| **Mains connection 1-phase, 120 V** | ● | ● | ● | ● |
| "Heavy Duty" load characteristic | ● | ● | ● | ● |
| "Light Duty" load characteristic | - | - | - | - |
| DC bus connection | - | - | - | - |
| Brake resistor connection | ● | ● | ● | ● |
| Integrated RFI filter | - | - | - | - |
| **Mains connection 1-phase, 230/240 V** | - | ● | ● | ● |
| "Heavy Duty" load characteristic | ● | ● | ● | ● |
| "Light Duty" load characteristic | ● | - | - | - |
| DC bus connection | - | ● | ● | ● |
| Brake resistor connection | - | ● | ● | ● |
| Integrated RFI filter | ● | ● | ● | ● |
| **Mains connection 1/3-phase 230/240 V** | ● | ● | ● | ● |
| "Heavy Duty" load characteristic | ● | ● | ● | ● |
| "Light Duty" load characteristic | ● | - | - | - |
| DC bus connection | ● | ● | ● | ● |
| Brake resistor connection | ● | ● | ● | ● |
| Integrated RFI filter | - | - | - | - |
| **Mains connection 3-phase 230/240 V** | ● | ● | ● | ● |
| "Heavy Duty" load characteristic | ● | ● | ● | ● |
| "Light Duty" load characteristic | ● | - | - | - |
| DC bus connection | ● | ● | ● | ● |
| Brake resistor connection | ● | ● | ● | ● |
| Integrated RFI filter | - | - | - | - |
| **Mains connection 3-phase 400/480 V** | ● | ● | ● | ● |
| "Heavy Duty" load characteristic | ● | ● | ● | ● |
| "Light Duty" load characteristic | ● | - | - | - |
| DC bus connection | ● | ● | ● | ● |
| Brake resistor connection | ● | ● | ● | ● |
| Integrated RFI filter | ● | ● | ● | ● |
| **Mains connection 3-phase 600/480 V** | ● | ● | ● | ● |
| "Heavy Duty" load characteristic | ● | ● | ● | ● |
| "Light Duty" load characteristic | ● | - | - | - |
| DC bus connection | ● | ● | ● | ● |
| Brake resistor connection | ● | ● | ● | ● |
| Integrated RFI filter | - | - | - | - |

● Available
- Not available



**Load characteristics**

The i550 protec frequency inverters with protection class IP31 have two different load characteristics: "Light Duty" and "Heavy Duty".

The "Light Duty" load characteristic allows for a higher output current with restrictions regarding overload capacity, ambient temperature and switching frequency. This allows the motor required for the application to be driven by a less powerful inverter. Select the load characteristic according to the application.

| | **Heavy Duty** | **Light Duty** |
|---|---|---|
| Characteristic | High dynamic requirements | Low dynamic requirements |
| Typical applications | Main tool drives, travelling drives, hoist drives, winders, forming drives and conveyors | Pumps, fans, general horizontal materials handling technology and line drives |
| Overload capacity | 3 s/200 %, 60 s/150 %<br>See technical data | Restricted<br>See technical data |

## Features

### Connections and interfaces

The i550 protec frequency inverters are outfitted with these interfaces:

- Standard I/O:
  - 5x digital input
  - 1x digital output
  - 2x analog input
  - 1x analog output
  - PNP/NPN logic
  - Cycle time: 1 ms
- Frequency input: 0 ... 100 kHz
- 1x NO/NC relay (DC 24 V max. 2 A; AC 240 V max. 3 A)
- External 24 V supply and internal 24 V power supply unit
- Spring terminals
- Motor PTC input
- Diagnostic interface (micro USB)

### Functional safety (optional)

- Safe Torque Off (STO)

Exceptions for 600 V devices:

No PTC input X109.

No safety module.

### Topologies / network

The inverters can be equipped with different fieldbus networks.

The topologies and protocols typical for the prevailing networks are supported.

Currently available networks:

| | |
|---|---|
| CANopen | CANopen® is a communication protocol based on CAN.<br>CANopen® is a registered community trademark of the CAN user organisation CiA® (CAN in Automation e. V.).<br>Device descriptions for the download: EDS files for Lenze devices |
| Modbus | The Modbus protocol is an open communication protocol based on a client/server architecture and developed for the communication with programmable logic controllers.<br>Further development is carried out by the international user organisation Modbus Organization, USA. |
| IO-Link | IO-Link is the standardized IO technology (IEC 61131-9) for communication with sensors and actuators. Point-to-point communication is based on the 3-wire sensor and actuator connection without additional requirements concerning the cable material.<br>IO-Link is a registered trademark. It may only be used by members of the IO-Link community and non-members that have purchased the corresponding license. Detailed information on the usage can be found in the IO-Link Community Rules at www.io-link.com. |
| EtherCAT | EtherCAT® (Ethernet for Controller and Automation Technology) is an Ethernet-based fieldbus system meeting the application profile for industrial real-time systems.<br>EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.<br>Device descriptions for the download: XML/ESI files for Lenze devices |
| EtherNet/IP ODVA CONFORMANT | EtherNet/IP™ (EtherNet Industrial Protocol) is an Ethernet-based fieldbus system that uses Common Industrial Protocol™ (CIP™) to exchange data.<br>EtherNet/IP™ and Common Industrial Protocol™ (CIP™) are trademarks and patented technologies, licensed by the user organization ODVA (Open DeviceNet Vendor Association), Inc., USA.<br>Device descriptions for the download: EDS files for Lenze devices |
| PROFINET | PROFINET® (Process Field Network) is a real-time capable fieldbus system based on Ethernet.<br>PROFINET® is a registered trademark and patented technology licensed by the PROFIBUS & PROFINET International (PI) user organisation.<br>Device descriptions for the download: GSDML files for Lenze devices |



**Inverters without Extension box**

The following figure gives an overview of the elements and connections on the devices. Position, size and appearance of elements and connections may vary depending on the power and size of the devices.

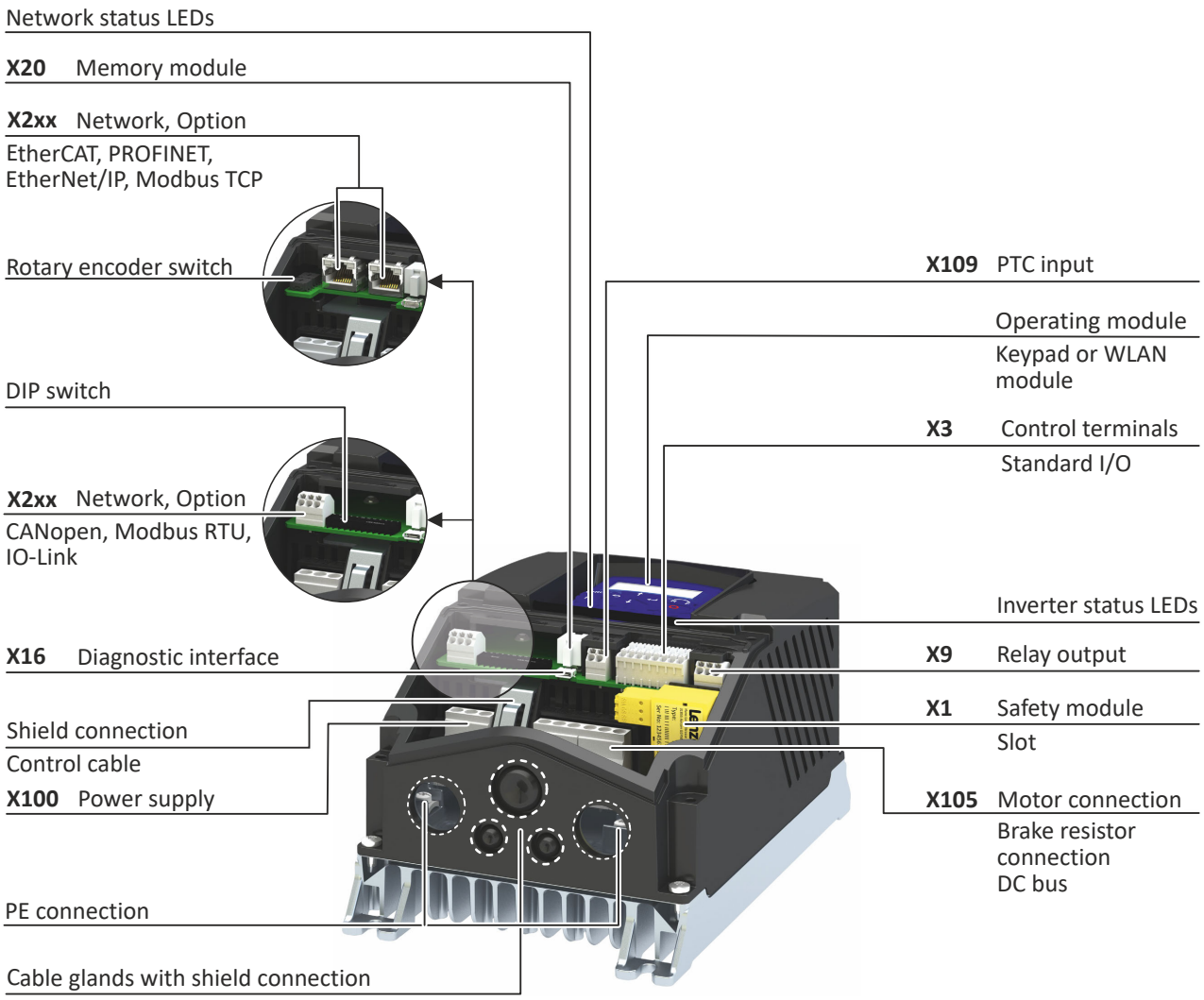



Fig. 1: Example for i550 protec without extension box

**Inverters with Extension box empty**

The following figure gives an overview of the elements and connections on the devices. Position, size and appearance of elements and connections may vary depending on the power and size of the devices.

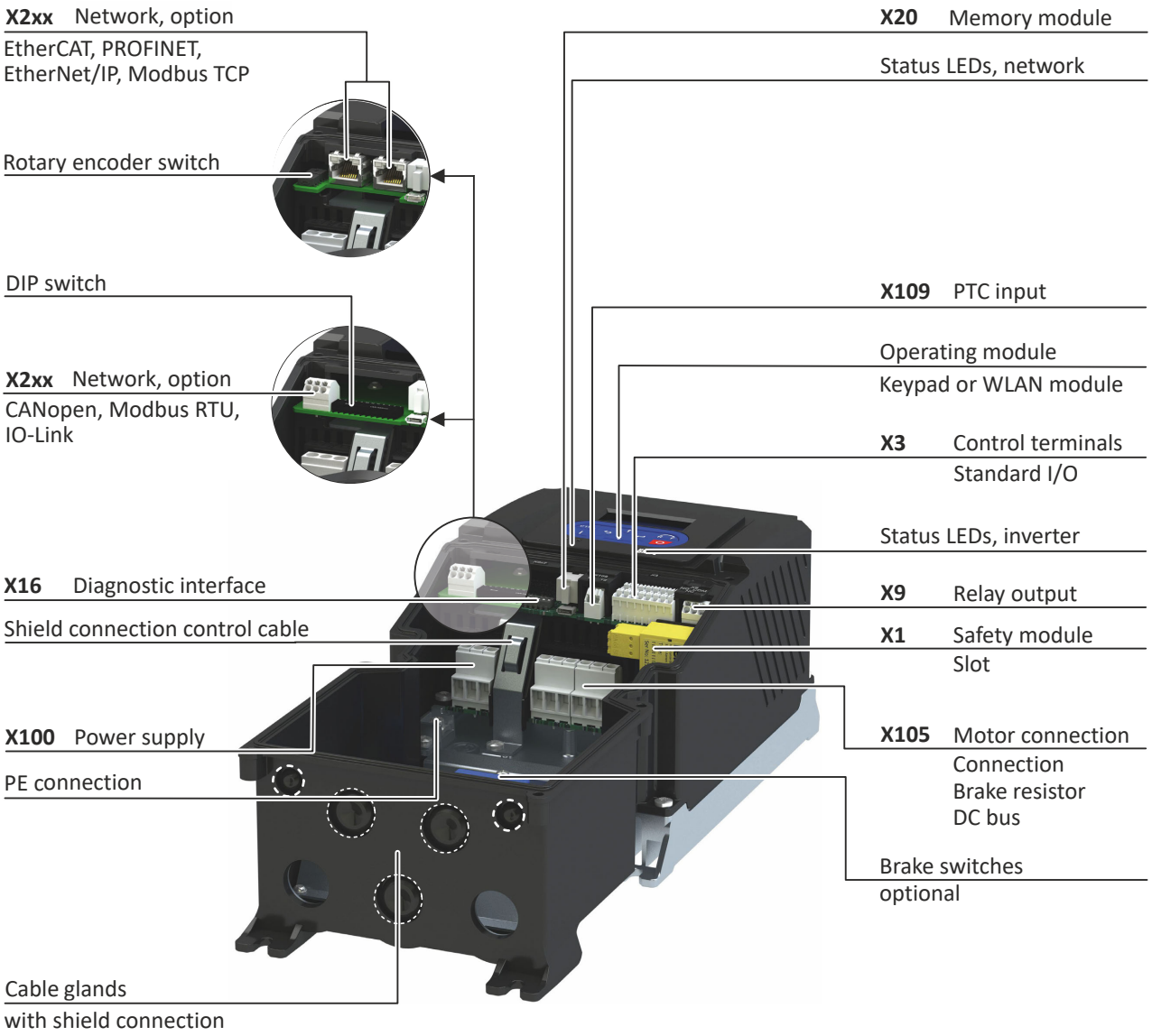



Fig. 2: Example for i550 protec with extension box

**Inverters with Extension box and disconnect switch**

The following figure gives an overview of the elements and connections on the devices. Position, size and appearance of elements and connections may vary depending on the power and size of the devices.

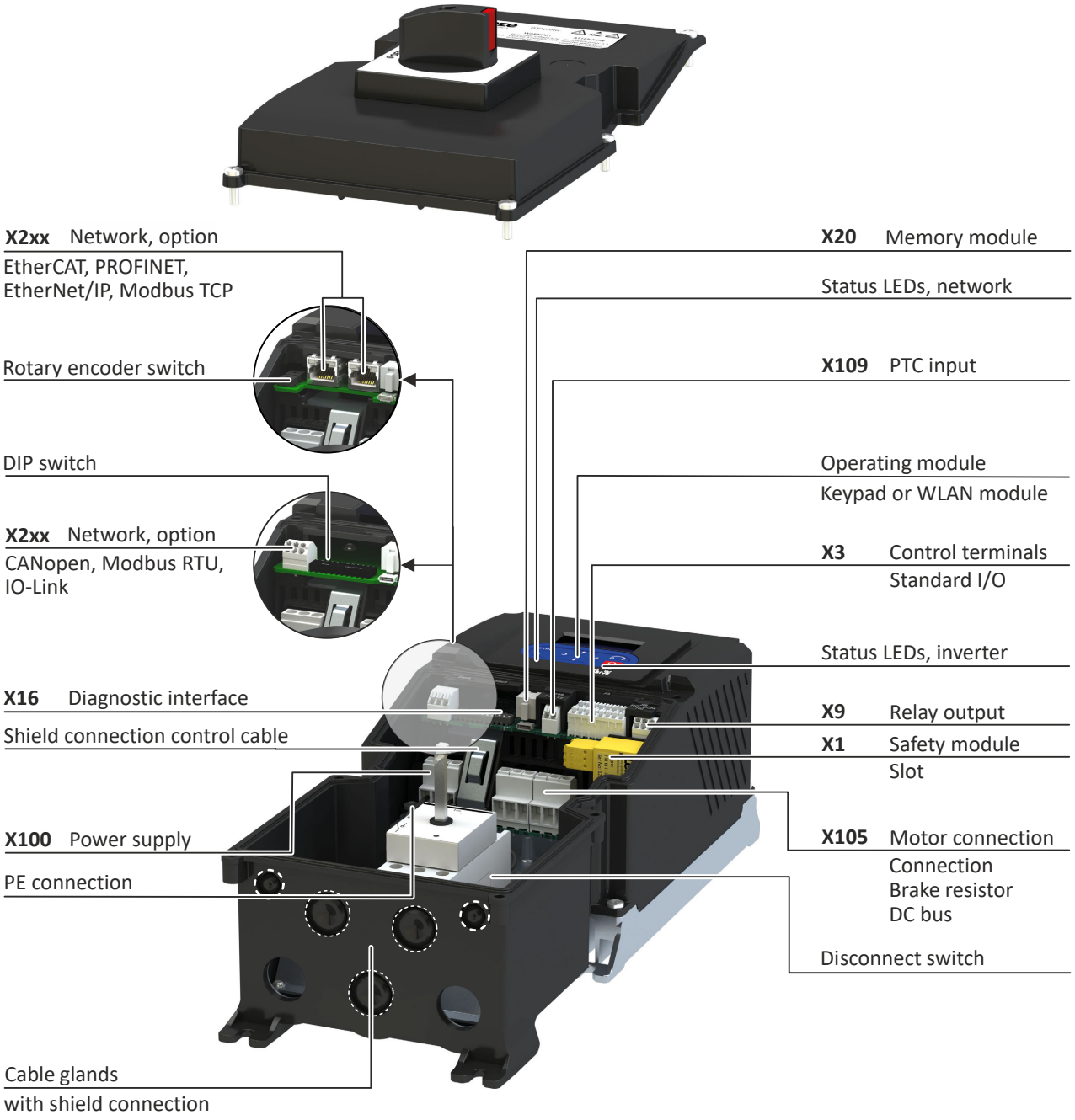



Fig. 3: Example for i550 protec with extension box and disconnect switch

### Accessories for installation in inverters with Extension box

Overview of accessories which can be integrated into the i550 protec frequency inverter with extension box:

| Accessories | i550 protec | |
|---|---|---|
| | With empty extension box | With extension box and disconnect switch |
| |  |  |
| ▸ Brake switches 🕮 233 | ● | - |
| ▸ Switch/Potentiometer set 🕮 228<br>• 1 x potentiometer<br>• 1 x rotary switch | ● | ● |
| ▸ Terminal block set 🕮 233<br>• 1 x 6-way terminal<br>• 1 x PE terminal<br>• 1 x DIN rail<br>• 2 x fixing screw | ● | - |
| ▸ DIN rail set 🕮 234<br>• 5 x DIN rail<br>• 10 x fixing screw | ● | - |
| ● Installation possible<br>- Installation impossible | | |



# Functions

## Overview

The functions of the frequency inverters i550 protec are tailored for an extensive range of applications.

| Functions | | |
|---|---|---|
| **Motor control** | | **Monitoring** |
| V/f characteristic control linear/square-law (VFC plus) | | Short circuit |
| V/f characteristic control (VFC closed loop) | | Earth fault |
| Energy saving function (VFC-Eco) | | Device overload (ixt) |
| Sensorless vector control (SLVC) | | Motor overload ($i^2xt$) |
| Sensorless control for synchronous motors (SL-PSM/SLSM-PSM) | | Mains phase failure |
| Servo control for asynchronous motors (SC-ASM) | | Stall protection |
| **Motor functions** | | Motor current limit |
| Flying restart circuit | | Maximum torque |
| Slip compensation | | Ultimate motor current |
| DC braking | | Motor speed |
| Oscillation damping | | Load loss detection |
| Skip frequencies | | Motor temperature |
| Automatic identification of the motor data | | **Diagnostics** |
| Braking energy management | | Error history buffer |
| Holding brake control | | Logbook |
| "Voltage add" function | | LED status displays |
| Rational Energy Ride Through (RERT) | | Keypad language selection German, English |
| Speed feedback (HTL encoder) | | **Network** |
| Brake resistor control (brake chopper integrated) | | CANopen |
| Frequency setpoint | | Modbus RTU |
| DC-bus connection (400V devices) | | IO-Link |
| **Application functions** | | EtherCAT |
| Process controller | | EtherNet/IP |
| Access protection | | Modbus TCP |
| Process controller sleep mode and rinse function | | PROFINET |
| Freely assignable favorite menu | | **Safety functions** |
| Parameter change-over | | Basic Safety - STO |
| S-shaped ramps for smooth acceleration | | |
| Motor potentiometer | | |
| Flexible I/O configuration | | |
| Automatic restart | | |
| OEM parameter set | | |
| Complete control with 8-key keypad | | |
| UPS operation | | |
| Frequency output via digital output DO1 | | |
| Cascade function for pumps and fans | | |
| The "Light Duty" load characteristic can be adjusted for selected inverters. | | |

### Motor control types

The following table contains the possible control types with Lenze motors.

| Motors | V/f characteristic control<br>VFCplus | Sensorless vector control<br>SLVC | ASM servo control<br>SC ASM |
|---|---|---|---|
| Three-phase AC motors | | | |
| MD | • | • | • |
| MF | • | • | • |
| mH | • | • | • |
| m500 | • | • | • |

Lenze synchronous servo motors are not suitable for use with inverters, e.g. the types MCS, MCM or m850.

### Motor functions

### Motor setting range

#### Rated point 120 Hz

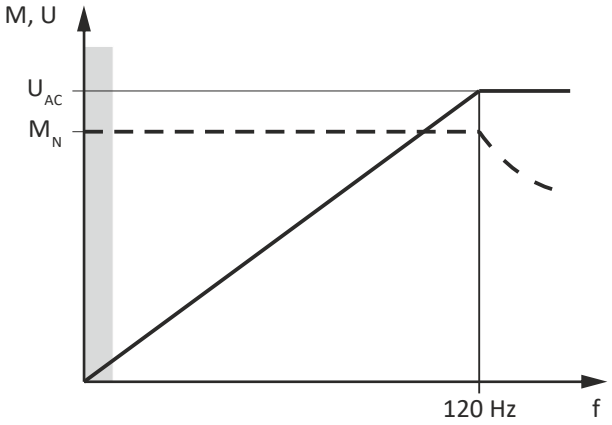
Only possible with Lenze MF motors.

The rated motor torque is available up to 120 Hz.

Compared to the 50-Hz operation, the setting range increases by 2.5 times.

Thus, a smaller motor can be selected at the same rated power.

#### V/f at 120 Hz




| | | | |
|---|---|---|---|
| V | Voltage | $V_{AC}$ | Mains voltage |
| M | Torque | $M_N$ | Rated torque |
| f | Frequency | | |

**Rated point 87 Hz**

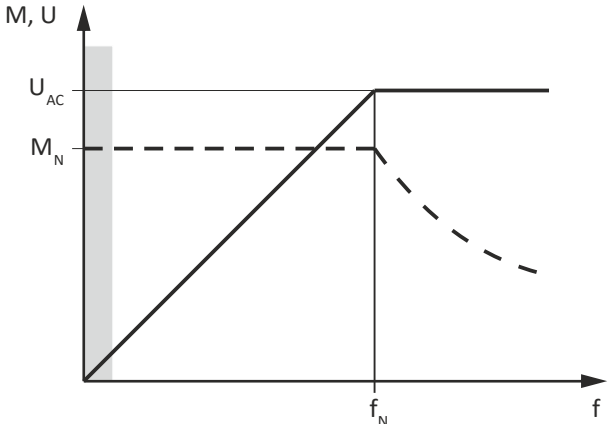
The rated motor torque is available up to 87 Hz.

Compared to the 50-Hz operation, the setting range increases by 1.74 times.

For this purpose, a motor with 230/400 V in a triangle is driven by a 400 V inverter.

The inverter must be dimensioned for a rated motor current of 230 V.

**V/f at 87 Hz**

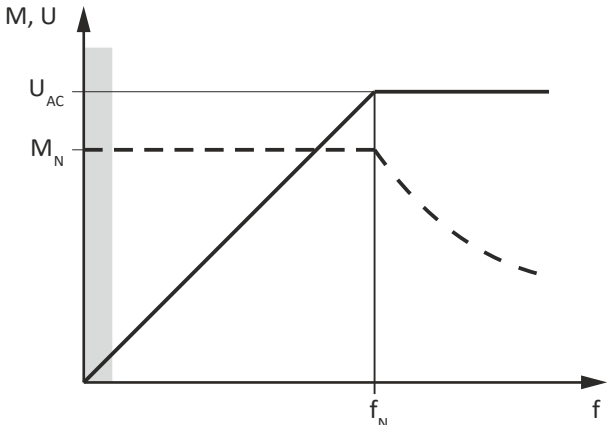



| | | | |
|---|---|---|---|
| V | Voltage | $U_{AC}$ | Mains voltage |
| M | Torque | $M_{rated}$ | Rated torque |
| f | Frequency | $f_{rated}$ | Rated frequency |

**Rated point 50 Hz**

The rated motor torque is available up to 50 Hz.

**V/f at 50 Hz**




| | | | |
|---|---|---|---|
| V | Voltage | $U_{AC}$ | Mains voltage |
| M | Torque | $M_{rated}$ | Rated torque |
| f | Frequency | $f_{rated}$ | Rated frequency |

## Identification of the products

### Product name

The product name is used when listing the technical data of the various product variants and for the assignment of accessories. You can find the assignment of product names to order codes in chapter ▸ Purchase order 239.

The product name contains:

- the designation of the product range – e.g. i5xx
- the type – "P" for "protec" = inverter for decentralized mounting locations
- its power rating – in kW for the load characteristic "Heavy Duty"
- the mains voltage class – e.g. 120 V, 230 V or 400 V
- the number of mains phases – the 1/3-phase inverters are labelled with "-2".

| Device series | Design | Rated power | | Rated mains voltage | No. of phases | Inverter | Degree of protection |
|---|---|---|---|---|---|---|---|
| | | Light Duty | Heavy Duty | | | | |
| | | kW | kW | V | | | |
| i550 | P | - | 0.37 | 120 | 1 | i550-P0.37/120-1 | IP31, NEMA 1 |
| | | | | | | | IP66, NEMA 4X |
| | | | 0.75 | | | i550-P0.75/120-1 | IP31, NEMA 1 |
| | | | | | | | IP66, NEMA 4X |
| | | | 1.1 | | | i550-P1.1/120-1 | IP31, NEMA 1 |
| | | | | | | | IP66, NEMA 4X |

| Device series | Design | Rated power | | Rated mains voltage | No. of phases | Inverter | Degree of protection |
|---|---|---|---|---|---|---|---|
| | | Light Duty | Heavy Duty | | | | |
| | | kW | kW | V | | | |
| i550 | P | - | 0.37 | 230 | 1 | i550-P0.37/230-1 | IP66, NEMA 4X |
| | | 0.55 | | | 1/3 | i550-P0.37/230-2 | IP31, NEMA 1 |
| | | - | 0.55 | | 1 | i550-P0.55/230-1 | IP66, NEMA 4X |
| | | 0.75 | | | 1/3 | i550-P0.55/230-2 | IP31, NEMA 1 |
| | | - | 0.75 | | 1 | i550-P0.75/230-1 | IP66, NEMA 4X |
| | | 1.1 | | | 1/3 | i550-P0.75/230-2 | IP31, NEMA 1 |
| | | - | 1.1 | | 1 | i550-P1.1/230-1 | IP66, NEMA 4X |
| | | 1.5 | | | 1/3 | i550-P1.1/230-2 | IP31, NEMA 1 |
| | | - | 1.5 | | 1 | i550-P1.5/230-1 | IP66, NEMA 4X |
| | | 2.2 | | | 1/3 | i550-P1.5/230-2 | IP31, NEMA 1 |
| | | - | 2.2 | | 1 | i550-P2.2/230-1 | IP66, NEMA 4X |
| | | 3 | | | 1/3 | i550-P2.2/230-2 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |



| Device series | Design | Rated power | | Rated mains voltage | No. of phases | Inverter | Degree of protection |
|---|---|---|---|---|---|---|---|
| | | Light Duty | Heavy Duty | | | | |
| | | kW | kW | V | | | |
| i550 | P | 0.55 | 0.37 | 240 | 1/3 | i550-P0.37/230-2 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 0.75 | 0.55 | | | i550-P0.55/230-2 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 1.1 | 0.75 | | | i550-P0.75/230-2 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 1.5 | 1.1 | | | i550-P1.1/230-2 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 2.2 | 1.5 | | | i550-P1.5/230-2 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 3 | 2.2 | | | i550-P2.2/230-2 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 4 | 3 | | 3 | i550-P3.0/230-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 5.5 | 4 | | | i550-P4.0/230-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 7.5 | 5.5 | | | i550-P5.5/230-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 11 | 7.5 | | | i550-P7.5/230-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | | 11 | | | i550-P11/230-3 | IP31, NEMA 1 |
| | | | | | | | IP66, NEMA 4X |
| | | 18.5 | 15 | | | i550-P15/230-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 22 | 18.5 | | | i550-P18/230-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | | 30 | | | i550-P30/230-3 | IP55, NEMA 12 |
| | | | 45 | | | i550-P45/230-3 | |

| Device series | Design | Rated power | | Rated mains voltage | No. of phases | Inverter | Degree of protection |
|---|---|---|---|---|---|---|---|
| | | Light Duty | Heavy Duty | | | | |
| | | kW | kW | V | | | |
| i550 | P | 0.55 | 0.37 | 400 | 3 | i550-P0.37/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 0.75 | 0.55 | | | i550-P0.55/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 1.1 | 0.75 | | | i550-P0.75/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 1.5 | 1.1 | | | i550-P1.1/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 2.2 | 1.5 | | | i550-P1.5/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 3 | 2.2 | | | i550-P2.2/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 4 | 3 | | | i550-P3.0/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 5.5 | 4 | | | i550-P4.0/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 7.5 | 5.5 | | | i550-P5.5/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 11 | 7.5 | | | i550-P7.5/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 15 | 11 | | | i550-P11/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 18.5 | 15 | | | i550-P15/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 22 | 18.5 | | | i550-P18/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 30 | 22 | | | i550-P22/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | | 30 | | | i550-P30/400-3 | IP55, NEMA 12 |
| | | | 37 | | | i550-P37/400-3 | |
| | | | 45 | | | i550-P45/400-3 | |
| | | | 55 | | | i550-P55/400-3 | |
| | | | 75 | | | i550-P75/400-3 | |



| Device series | Design | Rated power | | Rated mains voltage | No. of phases | Inverter | Degree of protection |
|---|---|---|---|---|---|---|---|
| | | Light Duty | Heavy Duty | | | | |
| | | kW | kW | V | | | |
| i550 | P | 0.55 | 0.37 | 480 | 3 | i550-P0.37/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 0.75 | 0.55 | | | i550-P0.55/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 1.1 | 0.75 | | | i550-P0.75/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 1.5 | 1.1 | | | i550-P1.1/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 2.2 | 1.5 | | | i550-P1.5/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 3 | 2.2 | | | i550-P2.2/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 4 | 3 | | | i550-P3.0/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 5.5 | 4 | | | i550-P4.0/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 7.5 | 5.5 | | | i550-P5.5/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 11 | 7.5 | | | i550-P7.5/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 15 | 11 | | | i550-P11/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 18.5 | 15 | | | i550-P15/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 22 | 18.5 | | | i550-P18/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 30 | 22 | | | i550-P22/400-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | | 30 | | | i550-P30/400-3 | IP55, NEMA 12 |
| | | | 37 | | | i550-P37/400-3 | |
| | | | 45 | | | i550-P45/400-3 | |
| | | | 55 | | | i550-P55/400-3 | |
| | | | 75 | | | i550-P75/400-3 | |

| Device series | Design | Rated power | | Rated mains voltage | No. of phases | Inverter | Degree of protection |
|---|---|---|---|---|---|---|---|
| | | Light Duty | Heavy Duty | | | | |
| | | kW | kW | V | | | |
| i550 | P | 1.1 | 0.75 | 600 | 3 | i550-P0.75/600-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 2.2 | 1.5 | | | i550-P1.5/600-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 3 | 2.2 | | | i550-P2.2/600-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 5.5 | 4 | | | i550-P4.0/600-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 7.5 | 5.5 | | | i550-P5.5/600-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 11 | 7.5 | | | i550-P7.5/600-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 15 | 11 | | | i550-P11/600-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 18.5 | 15 | | | i550-P15/600-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 22 | 18.5 | | | i550-P18/600-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |
| | | 30 | 22 | | | i550-P22/600-3 | IP31, NEMA 1 |
| | | - | | | | | IP66, NEMA 4X |

## Product code

| | | | I | 5 | 5 | A | P | □□□ | □ | □ | □ | □ | □ | □ | □□□ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Product type | Inverter | | I | | | | | | | | | | | | |
| Product family | i500 | | | 5 | | | | | | | | | | | |
| Product | i550 | | | | 5 | | | | | | | | | | |
| Product generation | Generation 1 | | | | | A | | | | | | | | | |
| Mounting type | Wall mounting | | | | | | P | | | | | | | | |
| Rated power (Examples) | 0.37 kW | 0.5 hp | | | | | | 137 | | | | | | | |
| | 1.5 kW | 2.0 hp | | | | | | 215 | | | | | | | |
| | 4.0 kW | 5.0 hp | | | | | | 240 | | | | | | | |
| | 11 kW | 15 hp | | | | | | 311 | | | | | | | |
| Mains voltage and connection type | 1/N/PE AC 120 V | | | | | | | | A | | | | | | |
| | 1/N/PE AC 230/240 V | | | | | | | | B | | | | | | |
| | 3/PE AC 230/240 V | | | | | | | | C | | | | | | |
| | 1/N/PE AC 230/240 V<br>3/PE AC 230/240 V | | | | | | | | D | | | | | | |
| | 3/PE AC 400 V<br>3/PE AC 480 V | | | | | | | | F | | | | | | |
| | 3/PE AC 480 V<br>3/PE AC 600 V | | | | | | | | G | | | | | | |
| Extension box | Without extension box | | | | | | | | | 0 | | | | | |
| | With empty extension box | | | | | | | | | 1 | | | | | |
| | With extension box and disconnect switch | | | | | | | | | 2 | | | | | |
| Integrated functional safety | Without safety function | | | | | | | | | | 0 | | | | |
| | Basic Safety - STO | | | | | | | | | | A | | | | |
| Degree of protection | IP31, uncoated | NEMA 1 | | | | | | | | | | 3 | | | |
| | IP55, uncoated | NEMA 12 | | | | | | | | | | 8 | | | |
| | IP66, uncoated | NEMA 4X | | | | | | | | | | 7 | | | |
| Interference suppression | Without | | | | | | | | | | | | 0 | | |
| | Integrated RFI filter | | | | | | | | | | | | 1 | | |
| Application | Default parameter setting: Region EU (50-Hz networks) | | | | | | | | | | | | | 0 | |
| | Default parameter setting: Region US (60-Hz networks) | | | | | | | | | | | | | 1 | |
| Product extension | Standard I/O: ... | | | | | | | | | | | | | | 0 |
| | Keypad with standard I/O ... | | | | | | | | | | | | | | K |
| | WLAN module with standard I/O ... | | | | | | | | | | | | | | W |
| | | ... without network | | | | | | | | | | | | | 00S |
| | | ... with CANopen | | | | | | | | | | | | | 02S |
| | | ... with Modbus RTU | | | | | | | | | | | | | 03S |
| | | ... with IO-Link | | | | | | | | | | | | | 06S |
| | | ... with EtherCAT | | | | | | | | | | | | | xKS |
| | | ... with EtherNet/IP | | | | | | | | | | | | | xMS |
| | | ... with Modbus TCP | | | | | | | | | | | | | xWS |
| | | ... with PROFINET | | | | | | | | | | | | | xLS |

## License information

### PROFINET

The PROFINET firmware is optional.

The PROFINET firmware uses the following open source software packages under a modified GPL license: eCos Operating System. These components are used at the operating system level of the firmware. The protocol stack does not use source code under a GPL license.

View license: http://ecos.sourceware.org/license-overview.html

## Ways of commissioning

There are three ways to commission the inverter quickly and easily.

Thanks to Lenze's engineering philosophy, the high functionality is still easy to grasp. Parameterization and commissioning are a breeze thanks to clear structure and simple dialogs, leading to the desired outcome quickly and reliably.

### Keypad

If it's only a matter of setting a few key parameters such as acceleration and deceleration time, this can be done quickly on the keypad.


### »EASY Starter«

If functions such as the holding brake control or sequencer need to be set, it's best to use the »EASY Starter« engineering tool.

Connect your Engineering PC on which the software is installed to the diagnostic interface. For this purpose, a cable with micro B plug is required.

### SMART Keypad App

The Lenze SMART Keypad App for Android or iOS allows you to diagnose and parameterize an inverter. A WLAN module on the inverter is required for communication.

- Ideal for the parameterization of simple applications such as a conveyor belt.
- Ideal for the diagnostics of the inverter.

The app can be found in the Google Play Store or in the Apple App Store.

Android

iOS



# Safety instructions

## Basic safety instructions

Disregarding the following basic safety instructions and safety information may lead to severe personal injury and damage to property!

- Only use the product as directed.
- Never commission the product in the event of visible damage.
- Never modify the product technically.
- Never commission the product before assembly has been completed.
- Never operate the product without the required covers.
- Connect/disconnect all pluggable connections only in deenergized condition!
- Only remove the product from the installation in the deenergized state.
- The product can – depending on their degree of protection – have live, movable or rotating parts during or after operation. Surfaces can be hot.
- Observe the specifications of the corresponding documentation. This is the condition for safe and trouble-free operation and the achievement of the specified product features.
- The procedural notes and circuit details given in the associated documentation are suggestions and their transferability to the respective application has to be checked. The manufacturer of the product does not take responsibility for the suitability of the process and circuit proposals.
- All work with and on the product may only be carried out by qualified personnel. IEC 60364 and CENELEC HD 384 define the qualifications of these persons:
  - They are familiar with installing, mounting, commissioning, and operating the product.
  - They have the corresponding qualifications for their work.
  - They know and can apply all regulations for the prevention of accidents, directives, and laws applicable at the place of use.

Please observe the specific safety information in the other sections!

## Application as directed

- The product is a professional equipment intended for use by trades, specific professions or industry and not for sale to the general public. IEC 60050 [IEV 161-05-05]
- To prevent personal injury and damage to property, higher-level safety and protection systems must be used!
- All transport locks must be removed.
- The product may only be operated under the specified operating conditions and in the specified mounting positions.
- The product is exclusively suitable for installation in control cabinets and, depending on the protection class and design, for wall and motor mounting.
- The product must only be actuated with motors that are suitable for the operation with inverters.
- The product must not be operated in private areas, in potentially explosive atmospheres and in areas with harmful gases, oils, acids and radiation.

**Additional information for the intended use in North America:**

The cables must be installed in accordance with US National Electrical Code NFPA 70 or Canadian Electrical Code C22.1.

**Use of explosion-protected motors**

Explosion-protected motors that are not designed for use with an inverter lose their approval if they are used for variable speed applications. Due to the many areas of liability that may arise when handling these applications, the following policy statement applies:

Lenze inverters are sold without warranty of suitability for use with explosion-protected motors. Lenze assumes no responsibility for direct, incidental or consequential damages, costs or losses that may result from the use of AC inverters with explosion-protected motors. Buyer expressly agrees to assume any risk of loss, expense or damage that may result from such application.

## Foreseeable misuse

Inverters are not to be operated with DC motors.



## Handling

**Transport, storage**

Observe the notes regarding transport, storage and correct handling. Ensure proper handling and avoid mechanical stress. Do not bend any components and do not change any insulation distances during transport or handling. Do not touch any electronic components and contacts. Inverters contain electrostatically sensitive components which can easily be damaged by inappropriate handling. Do not damage or destroy any electrical components since thereby your health could be endangered!

**Installation**

The technical data and supply conditions can be obtained from the nameplate and the documentation. They must be strictly observed.

The inverters must be installed and cooled according to the instructions given in the corresponding documentation. Observe the climatic conditions according to the technical data. The ambient air must not exceed the degree of pollution 2 according to EN 61800-5-1.

**Protection in the event of short circuit or earth fault**

To ensure protection according to EN 61800-5-1 in the event of an electrical short circuit or earth fault (protection against electric shock, thermal hazards and fire), the following must be taken into account in the installation:

- Use fuses according to the technical data.
- The installation must meet the requirements of the IEC 60364.
- The continuity of all associated protective conductors and equipotential bonding conductors including all connection points must be ensured.
- If the maximum permissible switch-off time according to IEC 60364 is exceeded with a high system impedance (especially with TT mains) or a high loop impedance with the prescribed fuses, a residual current device (RCD) can be used. Alternatively, other protective measures can be used, e. g. isolation from the environment by means of double or reinforced insulation, or isolation from the supply system by using a transformer.
- If a residual current device (RCD) is connected upstream of the inverter for protection in the event of an earth fault, only type B/B+ is permitted for three-phase devices.

**Operation**

If necessary, systems including inverters must be equipped with additional monitoring and protection devices. Also comply with the safety regulations and provisions valid at the installation site.

After the inverter has been disconnected from the supply voltage, all live components and power terminals must not be touched immediately because capacitors can still be charged. Please observe the corresponding stickers on the inverter.

All protection covers and doors must be shut during operation.

You may adapt the inverters to your application by parameter setting within the limits available. For this, observe the notes in the documentation.

**Safety functions**

Certain inverter versions support safety functions (e. g. ”safe torque off”, formerly ”safe standstill”) according to the requirements of the EC Machinery Directive 2006/42/EC [UKCA: S.I. 2008/1597] . The notes on the integrated safety provided in this documentation must be observed.

The user is not allowed to change inverters that come with integrated safety technology.

- The safety module must not be removed.
- The user must not carry out any repairs on the safety module.
- The safety module is not a spare part.
- If the safety module is defective, the inverter has to be replaced.

**Maintenance and servicing**

The inverters do not require any maintenance if the prescribed operating conditions are observed.

**Disposal**

In accordance with the current provisions, Lenze products and accessories have to be disposed of by means of professional recycling. Lenze products contain contain recyclable raw material such as metal, plastics and electronic components.



## Residual hazards

Even if notes given are taken into consideration and protective measures are implemented, the occurrence of residual risks cannot be fully prevented.

The user must take the residual hazards mentioned into consideration in the risk assessment for his/her machine/system.

If the above is disregarded, this can lead to severe injuries to persons and damage to property!

**Product**

Observe the warning labels on the product!

**Dangerous electrical voltage:**
Before working on the product, make sure there is no voltage applied to the power terminals! After mains disconnection, the power terminals will still carry the hazardous electrical voltage for the time given next to the symbol!

**Electrostatic sensitive devices:**
Before working on the product, the staff must ensure to be free of electrostatic charge!

**High leakage current:**
Carry out fixed installation and PE connection in compliance with:
EN 61800-5-1 / EN 60204-1

**Hot surface:**
Use personal protective equipment or wait until the device has cooled down!

**Degree of protection - protection of persons and device protection**

- Information applies to the mounted and ready-for-use state.

**Protection of persons**

Before working on the inverter, check if no voltage is applied to the power terminals.

- Depending on the device, the power terminals X105 remain live for up to 20 minutes.
- The power terminals X100 and X105 remain live even when the motor is stopped.

**Device protection**

- The maximum test voltage for insulation tests between a control potential of 24 V and PE must not exceed 110 V DC (EN 61800-5-1).

**Motor protection**

With some settings of the inverter, the connected motor can be overheated.

- E. g. by longer operation of self-ventilated motors at low speed.
- E. g. by longer operation of DC-injection braking.

**Protection of the machine/system**

Drives can reach dangerous overspeeds.

- E. g. by setting high output frequencies in connection with motors and machines not suitable for this purpose.
- The inverters do not provide protection against such operating conditions. For this purpose, use additional components.

Switch contactors in the motor cable only if the controller is inhibited.

- Switching while the inverter is enabled is only permissible if no monitoring functions are activated.

**Motor**

If there is a short circuit of two power transistors, a residual movement of up to 180°/number of pole pairs can occur at the motor! (e. g. 4-pole motor: residual movement max. 180°/2 = 90°).

# Information on project planning

## Project planning process

### Dimensioning

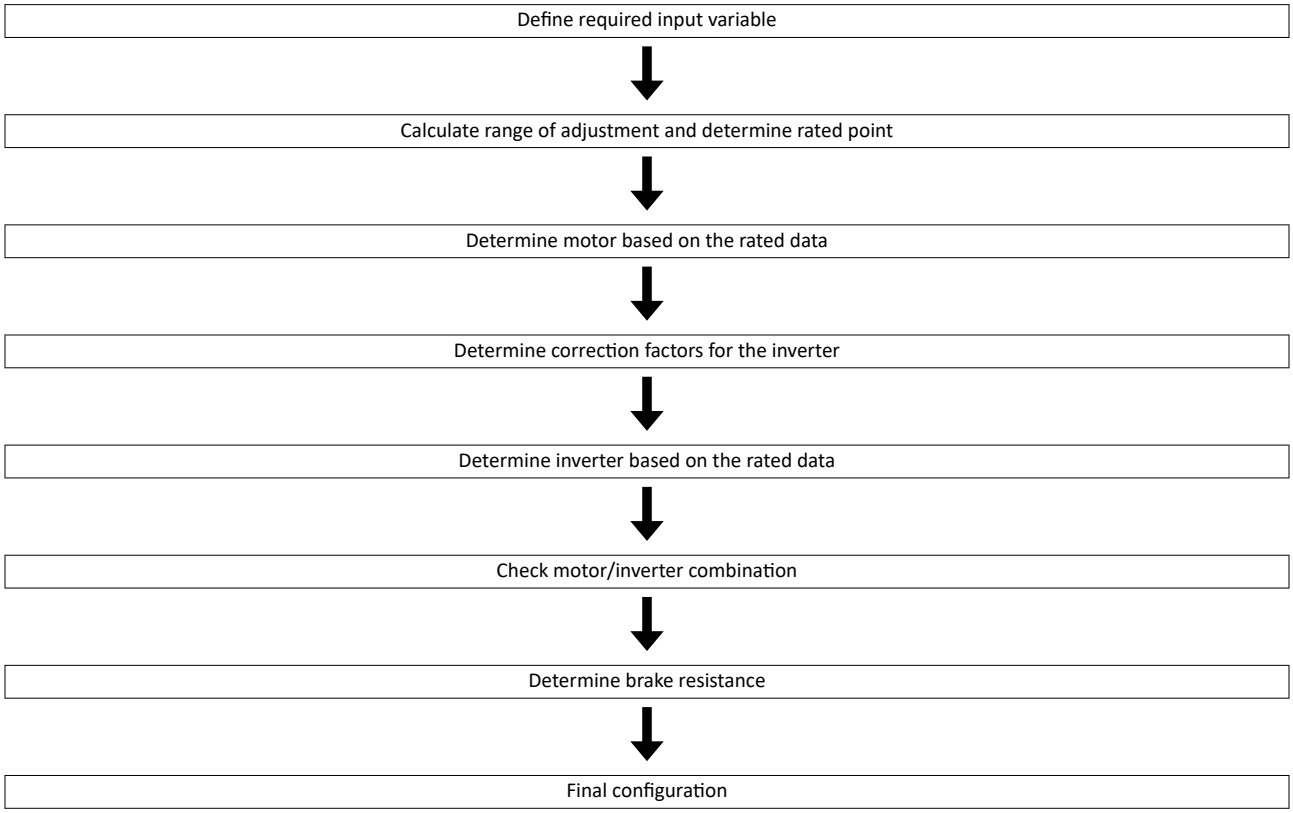
**3 methods for dimensioning**

**Fast:** Selection of the inverter based on the motor data of a 4-pole asynchronous motor.

**Detailed:** In order to optimize the selection of the inverter and all drive components, it is worthwhile to execute the detailed system dimensioning based on the physical requirements of the application. For this purpose, Lenze provides the Drive Solution Designer (DSD) design program.

**Manual:** The following chapter guides you step by step through the selection of a drive system.

**Workflow of a configuration process**




**Define required input variables**

| | | | |
|---|---|---|---|
| Operating mode | | | S1 or S6 |
| Max. load torque | $M_{L,max}$ | Nm | |
| Max. load speed | $n_{L,max}$ | rpm | |
| Min. load speed | $n_{L,min}$ | rpm | |
| Site altitude | H | m | |
| Ambient temperature (inverter) | $T_U$ | °C | |



## Calculate range of adjustment and determine rated point

| | Calculation |
|---|---|
| Setting range | $V = \frac{n_{L,max}}{n_{L,min}}$ |

| | Setting range | Rated point |
|---|---|---|
| Motor with integral fan | ≤ 2.50 (20 - 50 Hz)<br>≤ 4.35 (20 - 87Hz)<br>≤ 6 (20 - 120Hz) | 50 Hz<br>87 Hz<br>120 Hz |
| Motor with blower | ≤ 10.0 (5 - 50 Hz)<br>≤ 17.4 (5 - 87Hz)<br>≤ 24 (5 - 120Hz) | 50 Hz<br>87 Hz<br>120 Hz |
| Motor with integral fan (reduced torque) | | |

## Determine motor based on the rated data

| | | | Check |
|---|---|---|---|
| Rated torque | | | |
| Operating mode S1 | $M_{rated}$ | Nm | $M_N \geq \frac{M_{L,max}}{T_{H,Mot} \times T_{U,Mot}}$ |
| Operating mode S6 | $M_{rated}$ | Nm | $M_N \geq \frac{M_{L,max}}{2 \times T_{H,Mot} \times T_{U,Mot}}$ |
| Rated speed | $n_{rated}$ | rpm | $n_{rated} \geq n_{L,max}$<br>$\frac{n_n}{V} \leq n_{L,min}$ |

| | | | Note |
|---|---|---|---|
| Rated torque | $M_{rated}$ | Nm | → Rated motor data |
| Rated speed | $n_{rated}$ | rpm | |
| Rated point at | | Hz | → setting range |
| Power factor | cos φ | | → Rated motor data |
| Rated current | $I_{N,MOT}$ | A | |
| Rated power | $P_{rated}$ | kW | |
| Correction factor - site altitude | $T_{H,MOT}$ | | → Technical motor data |
| Correction factor - ambient temperature | $T_{U,MOT}$ | | |
| Select motor | | | |

## Correction factors for the inverter

| Site altitude Amsl | | H | | | |
|---|---|---|---|---|---|
| | [m] | ≤ 1000 | ≤ 2000 | ≤ 3000 | ≤ 4000 |
| $k_{H,INV}$ | | 1.00 | 0.95 | 0.90 | 0.85 |

| Temperature in the control cabinet | | $T_U$ | | | | |
|---|---|---|---|---|---|---|
| | | [°C] | ≤ 40 | ≤ 45 | ≤ 50 | ≤ 55 |
| Switching frequency | | | | | | |
| 2 or 4 kHz | $k_{TU,INV}$ | | 1.00 | 1.00 | 0.875 | 0.750 |
| 8 or 16 kHz | | | 1.00 | 0.875 | 0.750 | 0.625 |
| Switching frequency with the "Light Duty" load characteristic | | | | | | |
| 2 or 4 kHz | $k_{TU,INV}$ | | 1.00 | 0.875 | 0.750 | - |
| 8 or 16 kHz | | | - | - | - | - |

## Determine the inverter based on the rated data

| | | | Check |
|---|---|---|---|
| Output current | | | |
| Continuous operation | $I_{out}$ | A | $I_{out} \geq I_{N,Mot} / (k_{H,INV} \times k_{TU,INV})$ |
| Overcurrent operation cycle 15 s | $I_{out}$ | A | $I_{out} \geq I_{N,Mot} \times 2 / (k_{H,INV} \times k_{TU,INV})$ |
| Overcurrent operation cycle 180 s | $I_{out}$ | A | $I_{out} \geq I_{N,Mot} \times 1.5 / (k_{H,INV} \times k_{TU,INV})$ |

### Determine the inverter based on the rated data for the "Light Duty" load characteristic

| | | | Check |
|---|---|---|---|
| Output current | | | |
| Continuous operation | $I_{out}$ | A | $I_{out} \geq I_{N,Mot} / (k_{H,INV} \times k_{TU,INV})$ |
| Overcurrent operation cycle 15 s | $I_{out}$ | A | $I_{out} \geq I_{N,Mot} \times 1.65 / (k_{H,INV} \times k_{TU,INV})$ |
| Overcurrent operation cycle 180 s | $I_{out}$ | A | $I_{out} \geq I_{N,Mot} \times 1.25 / (k_{H,INV} \times k_{TU,INV})$ |

### Check motor/inverter combination

| | | | Calculation |
|---|---|---|---|
| Motor torque | M | Nm | $M = \sqrt{\left(\frac{I_{out,INV}}{I_{N,MOT}}\right)^2 - \left(1 - \cos\varphi^2\right)} \times \frac{M_N}{\cos\varphi}$ |

| | | Check |
|---|---|---|
| Inverter overload capacity | | $\frac{M_{L,max}}{M} \leq 1.5$ |

### Braking operation without additional measures

To decelerate small masses, the "DC injection brake DCB" function can be parameterised. DC-injection braking enables a quick deceleration of the drive to standstill without the need for an external brake resistor.

- A code can be used to select the braking current.
- The maximum braking torque to be realised by the DC braking current amounts to approx. 20 ... 30 % of the rated motor torque. It is lower compared to braking action in generator mode with external brake resistor.
- Automatic DC-injection braking (Auto-DCB) improves the starting performance of the motor when the operation mode without speed feedback is used.

### Braking operation with external brake resistor

To decelerate greater moments of inertia or with a longer operation in generator mode an external brake resistor is required. It converts braking energy into heat.

The brake resistor is connected if the DC-bus voltage exceeds the switching threshold. This prevents the controller from setting pulse inhibit through the "Overvoltage" fault and the drive from coasting down. The external brake resistor serves to control the braking process at any time.

The brake chopper integrated in the controller connects the external brake resistor.

### Determine brake resistance

| | | | Application | |
|---|---|---|---|---|
| | | | With active load | With passive load |
| Rated power | $P_{rated}$ | kW | $P_N \geq P_{max} \times \eta_e \times \eta_m \times \frac{t_1}{t_z}$ | $P_N \geq \frac{P_{max} \times \eta_e \times \eta_m}{2} \times \frac{t_1}{t_z}$ |
| Thermal capacity | $C_{th}$ | kWs | $C_{th} \geq P_{max} \times \eta_e \times \eta_m \times t_1$ | $C_{th} \geq \frac{P_{max} \times \eta_e \times \eta_m}{2} \times t_1$ |
| Rated resistance | $R_{rated}$ | Ω | $R_N \geq \frac{U_{DC}^2}{P_{max} \times \eta_e \times \eta_m}$ | |

| | |
|---|---|
| Active load | Can start to move independent of the drive (e.g. unwinder) |
| Passive load | Can stop independent of the drive (e.g. horizontal travelling drives, centrifuges, fans) |
| $U_{DC}$ [V] | Switching threshold - brake chopper |
| $P_{max}$ [W] | Maximum occurring braking power |
| $\eta_e$ | Electrical efficiency |
| $\eta_m$ | Mechanical efficiency |
| $t_1$ [s] | Braking time |
| $t_z$ [s] | Cycle time = time between two successive braking processes ($t_1$ + dead time) |



**Final configuration**

Product extensions and accessories can be found here:

▸ Product extensions 📖 201

▸ Accessories 📖 223

**Operation in motor and generator mode**

The energy analysis differs between operation in motor mode and generator mode.

During operation in motor mode, the energy flows from the supplying mains via the inverter to the motor which converts electrical energy into mechanical energy (e. g. for lifting a load).

During operation in generator mode, the energy flows back from the motor to the inverter. The motor converts the mechanical energy into electrical energy - it acts as a generator (e. g. when lowering a load).

The drive brakes the load in a controlled manner.

The energy recovery causes a rise in the DC-bus voltage. If this voltage exceeds an upper limit, the output stage of the inverter will be blocked to prevent the device from being destroyed.

The drive coasts until the DC-bus voltage reaches the permissible value range again.

In order that the excessive energy can be dissipated, a brake resistor or a regenerative module is required.

**Overcurrent operation**

The inverters can be driven at higher amperages beyond the rated current if the duration of this overcurrent operation is time limited.

Two utilisation cycles of 15 s and 180 s are defined. Within these utilisation cycles, an overcurrent is possible for a certain time if afterwards an accordingly long recovery phase takes place.

Cycle 15 s

During this operation, the inverter may be loaded for 3 s with up to 200 % of the rated current if afterwards a recovery time of 12 s with max. 75 % of the rated current is observed. A cycle corresponds to 15 s.

Cycle 180 s

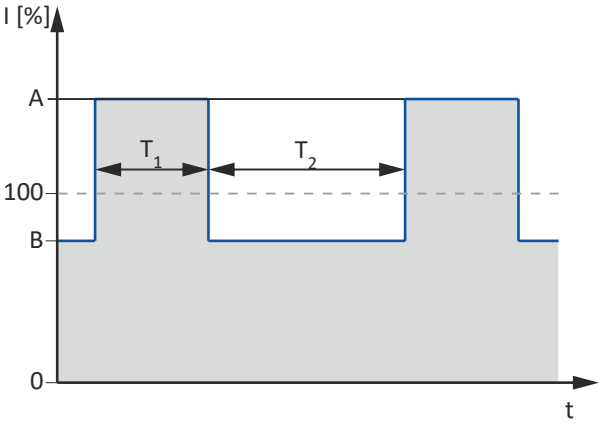
During this operation, the inverter may be loaded for 60 s with up to 150 % of the rated current if afterwards a recovery time of 120 s with max. 75 % of the rated current is observed. A cycle corresponds to 180 s.

The monitoring of the device utilization (Ixt) triggers an error if the utilization value exceeds a threshold of 100 %.

The maximum output currents correspond to the switching frequencies and the overload behaviour of the inverters are given in the rated data.

In case of rotating frequencies < 10 Hz, the time-related overload behaviour may be reduced.

The graphics shows a cycle. The basic conditions given in the table (graphics field highlighted in grey) have to be complied with in order that the inverter will not be overloaded. Both cycles can be combined with each other.




| Cycle | Max. output current | Max. overload time | Max. output current during the Recovery time | Min. recovery time |
|---|---|---|---|---|
| | A | $T_1$ | B | $T_2$ |
| s | % | s | % | s |
| 15 | 200 | 3 | 75 | 12 |
| 180 | 150 | 60 | 75 | 120 |

## Decentralized topologies

In particular, the frequency inverters i550 protec support decentralized concepts for machines and electrical installations.

**Advantages**

- Saves installation costs
  - Less expensive shielded motor cables, no EMC collective filters
  - Fewer circuit breakers, protection devices and mains cables
  - Fewer I/O gateways and cabling thanks to decentralized I/Os
  - Smaller control cabinet
- New solutions when less space is available
- Combination of functionally independent machine modules
- Less cooling units, higher efficiency

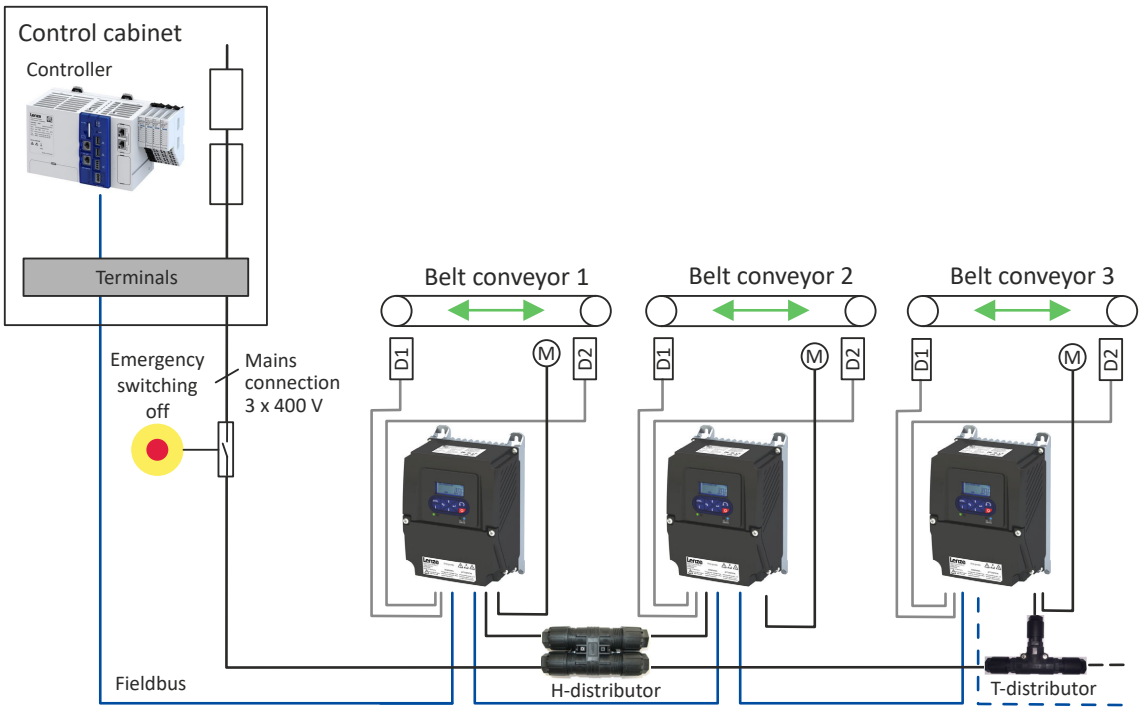



Fig. 4: Sample configuration

**Safety engineering extensions**

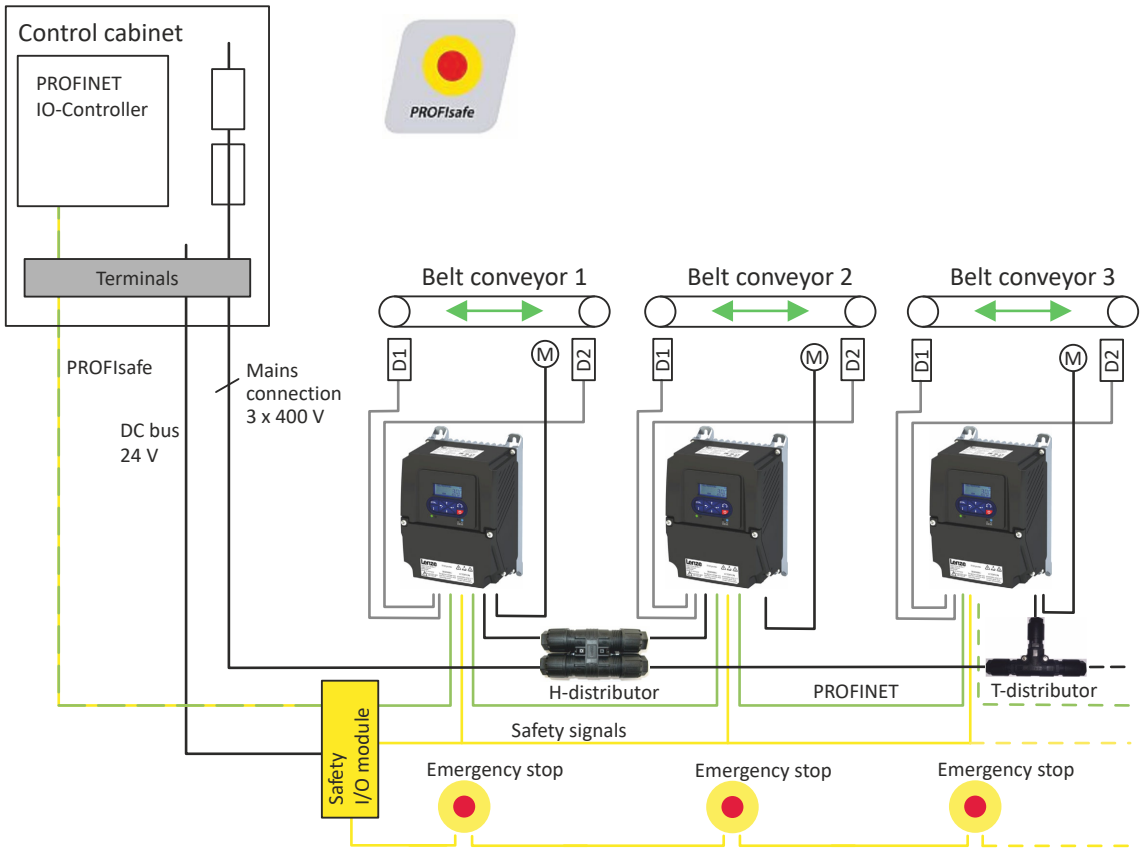



Fig. 5: Sample configuration with PROFIsafe solution

**Cables**

Requirements

- The cables used must correspond to the requirements at the location (e. g. EN 60204-1, UL).
- The cable cross-section must be dimensioned for the assigned fusing. Observe national and regional regulations.
- You must observe the regulations for minimum cross-sections of PE conductors. The cross-section of the PE conductor must be at least as large as the cross-section of the power connections.



# Mechanical installation

## Important notes

**Measures for cooling during operation**

- Ensure unimpeded ventilation of cooling air and outlet of exhaust air.

## Preparation

**Mounting position**

- Vertical alignment - do not interfere with free air flow from bottom to top of heatsink fins.

  Other mounting positions require a reduction of the rated output values by approx. 1/3.
  Your Lenze contact will help you with a precise assessment.

**Free spaces**

- Maintain the specified free spaces above and below to the other installations.
- A distance of 10 mm to the next device must be maintained at the sides.
- Several i5xx protec frequency inverters with IP55 or IP66 protection can be mounted directly next to each other, regardless of the device size. No installation clearance is required between the devices.

**Mechanical fastening**

- The mounting location and material must ensure a durable mechanical connection.
- Do not mount onto DIN rails!
- In case of continuous vibrations or shocks use vibration dampers.

How to mount the inverters at a mounting location.

Required:

- Tool for drilling and thread cutting
- Screwdriver
- Screw and washer assemblies or hexagon socket screws with washers.

1. Prepare mounting area with corresponding threaded holes.
2. Fit screws and washers (if applicable).
3. Do not yet tighten the screws.
4. Mount the inverter on the prepared mounting area via keyhole suspension.
5. Only tighten the screws hand-tight.
6. Pre-assemble other devices if necessary.
   a) Adjust the devices.
   b) Screw the devices onto the mounting area.

The inverters are mounted on the mounting area. You can begin with the wiring.

Screw and washer assemblies or hexagon socket screws with washers are recommended..

M5 x ≥ 10 mm for devices up to and including 2.2 kW

M5 x ≥ 12 mm for devices up to and including 11 kW

M6 x ≥ 16 mm for devices up to and including 22 kW

M8 x ≥ 16 mm for devices up to and including 110 kW

**Further data and information**

▸ Decentralized topologies 📖 39

▸ Dimensions 📖 165

# Electrical installation

## Important notes

**⚠ DANGER!**

Dangerous electrical voltage

During operation and up to 20 minutes after power-off, hazardous electrical voltages may be present at the connections of the product.

The leakage current against earth (PE) is > 3.5 mA AC or > 10 mA DC.

Possible consequences: Death or serious injury from electric shock

Protective measures

- Any work on the product must only be carried out in a deenergized state.
- Check that no voltage is present!
- After switching off the mains voltage, observe the signs on the product.
- After switching off, wait until the drive comes to a standstill.
- Implement the measures required by EN 61800-5-1 or EN 60204-1, i.e. fixed installation and standard-compliant PE connection.

**⚠ WARNING!**

Dangerous electrical voltage

Device error causes an overvoltage in the system.

- For a voltage supply with DC 24 V (± 20 %), use only a safely separated power supply unit according to the valid SELV/PELV requirements.

**NOTICE**

No protection against excessively high mains voltage

The mains input is not fused internally.

Possible consequences: Destruction of the product in the event of excessively high mains voltage.

- Take note of the maximum permissible mains voltage.
- On the mains supply side, use fuses to adequately protect the product against mains fluctuations and voltage peaks.

**NOTICE**

Overvoltage at devices with 230-V mains connection

An impermissible overvoltage may occur if the central supply of the N conductor is interrupted if the devices are connected to a TN three-phase system.

Possible consequences: Destruction of the device

- Provide for the use of isolating transformers.

**NOTICE**

Mounting not according to protection class

Possible consequences: Material damage due to penetrating humidity and foreign bodies.

- All cable glands and mounting parts must at least correspond to the protection class of the inverter.
- All openings in the housing must be closed according to the protection class.
- The cover must be screwed on with the specified tightening torque.

**NOTICE**

The product contains electrostatic sensitive devices.

Possible consequences: Destruction of the device

- Before working in the connection area, the personnel must be free of electrostatic charge.

Always use cable glands with long thread.

When implementing machines and systems for the use in the UL/CSA scope, you have to observe the relevant special notes.

These notes are marked with "UL marking".

## Preparation

### Open and close screw connection of the cover

For wiring purposes, loosen the 4 screws in the cover using a Phillips head screwdriver. After completing the wiring, close the cover again using the 4 screws to ensure that the degree of protection is maintained.


### Cable glands and wire range

Bore holes are provided for mounting the cable glands for the mains cable and motor cable.

Further positions with centering aid for cable glands for control cables are prepared. If necessary, these must be drilled out with a step drill.

The cable gland of the motor cable must be EMC-compatible. The housing wall for the cable gland is reinforced and well conductive to avoid EMC interference.

### Bore holes and positions for cable glands

| Power range | i550 protec without extension box | | i550 protec with extension box | |
|---|---|---|---|---|
| | Cable glands | Conduit hubs | Cable glands | Conduit hubs |
| 0.75 ... 2.2 kW | 2x M20 (bore hole)<br>1x M20 (position)<br>2x M12 (position) | 2x ½" conduit hub (bore hole)<br>1x ½" conduit hub (position)<br>2x M12 (position) | 2x M20 (bore hole)<br>3x M20 (position)<br>2x M12 (position) | 2x ½" conduit hub (bore hole)<br>3x ½" conduit hub (position)<br>2x M12 (position) |
| 3 ... 11 kW | 2x M32 (bore hole)<br>1x M20 (position)<br>2x M12 (position) | 2x 1" conduit hub (bore hole)<br>1x ½" conduit hub (position)<br>2x M12 (position) | 2x M32 (bore hole)<br>3x M20 (position)<br>2x M12 (position) | 2x 1" conduit hub (bore hole)<br>3x ½" conduit hub (position)<br>2x M12 (position) |
| 15 ... 22 kW | 2x M40 (bore hole)<br>1x M32 (position)<br>2x M12 (position) | 2x 1¼" conduit hub (bore hole)<br>1x 1" conduit hub (position)<br>2x M12 (position) | 2x M40 (bore hole)<br>1x M32 (position)<br>2x M20 (position)<br>2x M12 (position) | 2x 1¼" conduit hub (bore hole)<br>1 x 1" conduit hub (position)<br>2 x ½" conduit hub (position)<br>2 x M12 (position) |
| 30 ... 75 kW | 2x M63 (bore hole)<br>2x M32 (position)<br>2x M16 (position) | 2x 2" conduit hub (bore hole)<br>2x 1" conduit hub (position)<br>2x M16 (position) | - | - |

Sets with specially matched cable glands make it easier to lay the cables in the wire range.

▸ Cable glands 📖 235

### Further data and information

▸ EMC-compliant installation 📖 45

▸ Standards and operating conditions 📖 75



## EMC-compliant installation

The drive system (inverter and drive) only complies with the directive 2014/30/EU: EMC Directive [UKCA: S.I. 2016/1091 - The Electromagnetic Compatibility Regulations 2016] if it is installed according to the guidelines for CE-typical drive systems.

These guidelines should also be followed in installations requiring FCC Part 15 or ICES 001 compliance.

**NOTICE**

**Electromagnetic interferences**

Product and peripheral devices may be affected during operation.

- ▸ Use integrated conductive shield connections for control lines and motor lines.
- ▸ Use central earthing points.

The example below shows the effective wiring:


| | |
|---|---|
| A | Shield connection for control connections |
| B | Control cable |
| C | EMC cable gland/conduit hub |
| D | Low-capacitance motor cable |
| E | Mains cable |

### Mains connection

- Inverters, mains chokes, or mains filters may be connected to the mains via unshielded single cores or unshielded cables.
- Cable between line filter and inverter:

| | Cable length | |
|---|---|---|
| | ≤ 300 mm | > 300 mm |
| Type | unshielded twisted option | always shielded |

- In DC-bus operation or DC supply, use shielded cables.

**Motor cable**

EMC-compliant installation must be carried out with shielded low-capacitance motor cables.

**Capacitance per unit length**

- Cable cross-section ≤ 2.5 mm² (≥ AWG 14): C-core-core/C-core-shield <75/150 pF/m
- Cable cross-section ≤ 4 mm² (≥ AWG 12): C-core-core/C-core-shield <150/300 pF/m

**Conduits**

When using electrically conductive conduits:

- Single unshielded conductors or multi-core unshielded cables installed in a metallic conduit are equivalent to a shielded motor cable for EMC compliance purposes.
- Permissible is a rigid or flexible metallic conduit.
- The conduit must be properly connected at both ends with metal glands to the inverter and motor to connect all devices.
- Non-metallic branches or glands that interrupt the electrical conductivity of the metallic conduit are not permitted.

**Braid**

- Only use motor cables with braids made of tinned or nickel-plated copper.
- Shields made of steel braids are not suitable.
- The overlap rate of the braid must be at least 70 % with an overlap angle of 90 °.

**Measures on the motor**

- Connect the shield with PE over a large area at the terminal box of the motor, e.g. via a metallic EMC cable gland.
- For motors with plug connectors, the large-area shield connection is ensured via the plug connection.

**Further supporting measures**

- Route the motor cable separately from the mains cables and control cables.
- Lay the motor cable so that it only crosses mains cables and control cables at right angles.
- Do not disconnect the motor cable.
- If the motor cable must be disconnected (e.g. by chokes, contactors, or terminals):
  - Install the shield of the motor cable directly before and behind the point of separation to the mounting plate with a large surface.
  - The unshielded cable ends must not be longer than 100 mm.
  - Mount the separating component at least 100 mm away from other components.



**Fieldbus cables, networks**

Please observe the following recommendations for trouble-free operation, especially in the event of Ethernet-based networks.

- Cables and wiring must meet the specifications and requirements of the network being used to allow reliable operation of the network in typical installations. In this context, also observe the recommendations for action of the respective user organization.
- Lay network cables separately from power cables. Maintain as large a distance as possible to the motor cables which are subject to interference.
- To avoid compensating currents via the shielding of the network cable, install an independent, low-resistance equipotential bonding over the shortest possible distance parallel to the network cable. This applies in particular to long cables.
- Observe bending radii according to manufacturer information. Minimum bending radii of 10 x cable diameter or 20 x diameter for frequent manipulation of the cables are standard.
- Fix longer cables 30 cm after the connection point.

Patch cable/CAT5 cables:

- Cables must comply with CAT5 and be suitable for ≥ 10 Mbps.
- CAT5 cables according to specification establish the shield connection via the RJ45 plug connection. Additional shield connections are not required.
- Patch cables of 25 cm length are suitable for the network connection of inverters ≤ 4 kW installed side by side. When wiring from right to left, a sufficient bending radius can be maintained.
- Only certified, tested and fully assembled patch cables from well-known manufacturers are recommended.

RJ45 plug connections:

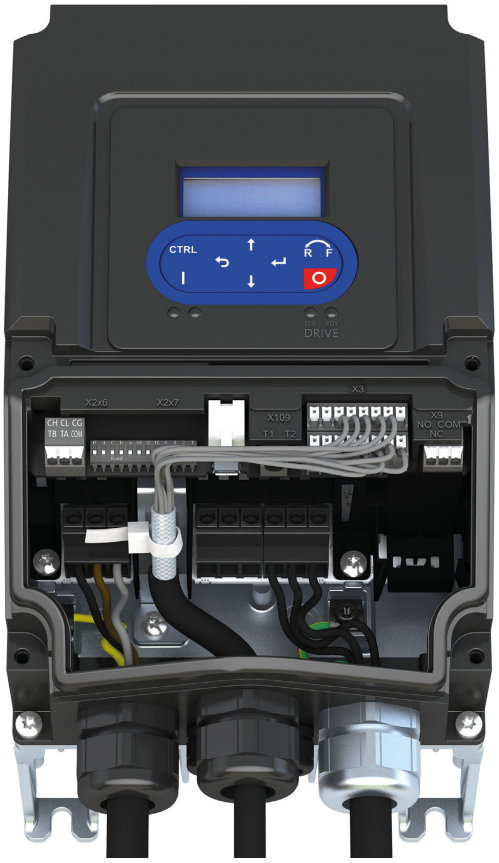
- RJ45 plug connections only function properly if they are not subjected to mechanical stress or lateral forces.
- For all communication modules of the i-series, the connection of the cable shielding at the RJ45 sockets is carried out as follows:
  - At the first RJ45 socket, the shielding is directly connected to functional earth (FE).
  - At the second RJ45 socket, the shielding is connected to functional earth (FE) via an RC element.

  This measure prevents potential equalization currents and the resulting interference effects (see also IEC 61158-2, section 11.8.7).

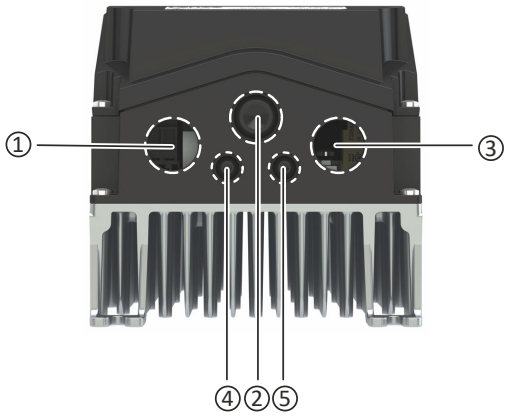
  **Note:** High-frequency interference is dissipated via the low-impedance capacitor to functional earth (FE), but for low-frequency signals this system has a high loop impedance. Measuring systems that use low impedance test signals therefore indicate too high impedance values for the shielding at the second RJ45 socket

## Examples

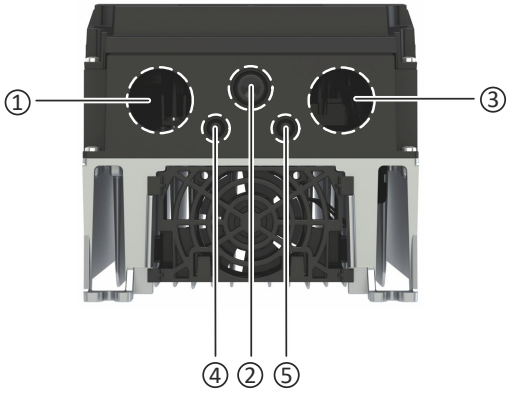
### Example 1: Application without network and without functional safety




≤ 2.2 kW



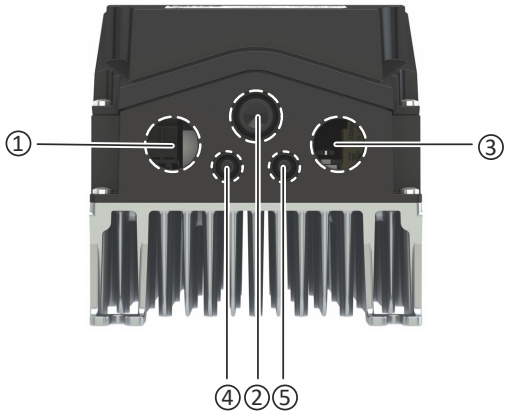

≥ 3 kW



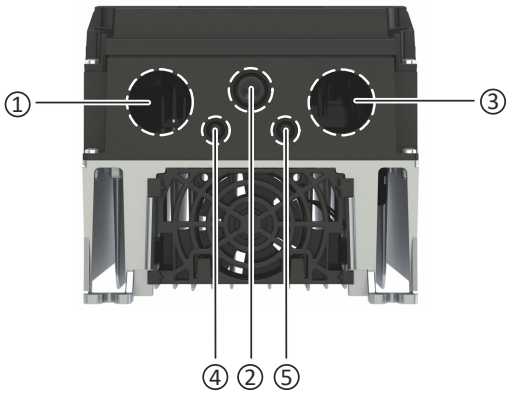

| ① **M20 (M32 ≥ 3 kW)** | ② **M20** | ③ **M20 (M32 ≥ 3 kW)** |
|---|---|---|
| Mains cable at X100 | Shielded control cable at X3 and X9 | EMC cable gland with shielded motor cable at X105 and motor PTC at X109<br>Alternative: unshielded motor cable in electrically conductive conduit. |
| ④**M12** | | ⑤**M12** |
| Not used | | Not used |

### Example 2: Application with three-wire network and functional safety (STO)


≤ 2.2 kW



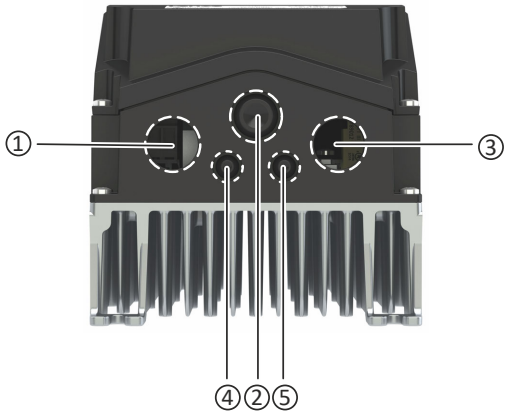

≥ 3 kW



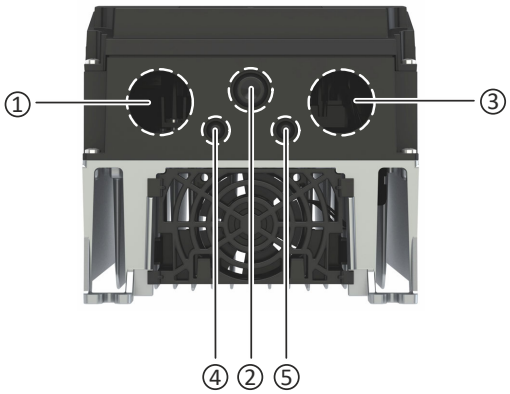

| | | |
|---|---|---|
| ① **M20 (M32 ≥ 3 kW)**<br>Mains cable at X100 | ② **M20**<br>Shielded control cable at X3 and X9 | ③ **M20 (M32 ≥ 3 kW)**<br>EMC cable gland with shielded motor cable at X105 and motor PTC at X109<br>Alternative: unshielded motor cable in electrically conductive conduit. |
| ④ **M12**<br>Fieldbus cable at X2xx | ⑤ **M12**<br>Shielded control cable of functional safety (STO) at X1 | |

### Example 3: Application with Ethernet-based network and functional safety (STO)


≤ 2.2 kW




≥ 3 kW




| ① **M20 (M32 ≥ 3 kW)** | ② **M20** | ③ **M20 (M32 ≥ 3 kW)** |
|---|---|---|
| Separable double cable gland with network cables on X2xx | Mains cable at X100 | EMC cable gland with shielded motor cable at X105 and motor PTC at X109<br>Alternative: unshielded motor cable in electrically conductive conduit. |

| ④ **M12** | ⑤ **M12** |
|---|---|
| Shielded control cable at X3 and X9 | Shielded control cable of functional safety (STO) at X1 |



## Connection according to UL

### Important notes

**⚠WARNING!**

- **UL marking**
- The integral solid state short circuit protection included in the inverter does not provide branch circuit protection. Branch circuit protection must be provided in accordance with the National Electrical Code / Canadian Electrical Code and any additional local codes.
- **Marquage UL**
- La protection statique intégrée contre les courts-circuits n'offre pas la même protection que le dispositif de protection du circuit de dérivation. Un tel dispositif doit être fourni, conformément au National Electrical Code / Canadian Electrical Code et aux autres dispositions applicables au niveau local.

**⚠WARNING!**

- **UL marking**
- Use 75 °C copper wire only, except for control circuits.
- **Marquage UL**
- Utiliser exclusivement des conducteurs en cuivre 75 °C, sauf pour la partie commande.

**⚠WARNING!**

- **UL marking**
- Suitable for motor group installation or use on a circuit capable of delivering not more than the RMS symmetrical amperes (SCCR) of the drive at its rated voltage.
- Approved fusing is specified in SCCR tables below.
- **Marquage UL**
- Convient pour l'utilisation sur une installation avec un groupe de moteurs ou sur un circuit capable de fournir au maximum une valeur de courant efficace symétrique en ampères à la tension assignée de l'appareil.
- Les dispositifs de protection adaptés sont spécifiés dans les SCCR tableaux suivants.

**⚠WARNING!**

- **UL marking**
- The opening of the Branch Circuit Protective Device may be an indication that a fault has been interrupted. To reduce the risk of fire or electric shock, current carrying parts and other components of the controller should be examined and replaced if damaged. If burnout of the current element of an overload relay occurs, the complete overload relay must be replaced.
- **Marquage UL**
- Le déclenchement du dispositif de protection du circuit de dérivation peut être dû à une coupure qui résulte d'un courant de défaut. Pour limiter le risque d'incendie ou de choc électrique, examiner les pièces porteuses de courant et les autres éléments du contrôleur et les remplacer s'ils sont endommagés. En cas de grillage de l'élément traversé par le courant dans un relais de surcharge, le relais tout entier doit être remplacé.

**NOTICE**

- **UL marking**
- Internal overload protection rated for 125 % of the rated FLA.
- **Marquage UL**
- Protection contre les surcharges conçue pour se déclencher à 125 % de l'intensité assignée à pleine charge.



## Fusing data

### Branch Circuit Protection (BCP) with standard fuses or circuit breakers

**Short Circuit Current Ratings (SCCR) with Standard Fuses or Circuit Breaker**

(Tested per UL61800-5-1, reference UL file E132659)

These devices are suitable for motor group installation when used with Standard Fuses or Circuit Breaker. For single motor installation, if the fuse value indicated is higher than 400 % of the motor current (FLA), the fuse value has to be calculated. If the value of the fuse is below two standard ratings, the nearest standard ratings less than the calculated value shall apply.

| Inverter | Standard Fuses (UL248) | | | Circuit Breaker (UL489) | |
|---|---|---|---|---|---|
| | Max. SCCR | Max. rated current | Class | Max. SCCR | Max. rated current |
| | kA | A | | kA | A |
| I55AP137Axxx | 5 | 15 | CC, CF, J, T | 5 | 30 |
| I55AP175Axxx | 5 | 30 | CC, CF, J, T | 5 | 30 |
| I55AP211Axxx | 5 | 30 | CC, CF, J, T | 5 | 30 |
| I55AP137Bxxx | 65 | 60 | CF, J, T | 5 | 30 |
| I55AP155Bxxx | 65 | 60 | CF, J, T | 5 | 30 |
| I55AP175Bxxx | 65 | 60 | CF, J, T | 5 | 30 |
| I55AP211Bxxx | 65 | 60 | CF, J, T | 5 | 30 |
| I55AP215Bxxx | 65 | 60 | CF, J, T | 5 | 30 |
| I55AP222Bxxx | 65 | 60 | CF, J, T | 5 | 30 |
| I55AP230Cxxx | 65 | 80 | CF, J, T | 5 | |
| I55AP240Cxxx | 65 | 80 | CF, J, T | 5 | |
| I55AP255Cxxx | 65 | 80 | CF, J, T | 5 | |
| I55AP275Cxx3 | 5 | 80 | CF, J, T | 5 | |
| I55AP275Cxx7 | 65 | 80 | CF, J, T | 5 | |
| I55AP311Cxx3 | 5 | 80 | CF, J, T | 5 | |
| I55AP311Cxx7 | 65 | 80 | CF, J, T | 5 | |
| I55AP315Cxx3 | 5 | 125 | CF, J, T | 5 | |
| I55AP315Cxx7 | 65 | 125 | CF, J, T | 5 | |
| I55AP318Cxx3 | 5 | 125 | CF, J, T | 5 | |
| I55AP318Cxx7 | 65 | 125 | CF, J, T | 5 | |
| I55AP330Cxxx | 10 | 125 | CF, J, T | | |
| I55AP345Cxxx | 10 | 200 | CF, J, T | | |
| I55AP137Dxxx | 65 | 60 | CF, J, T | 5 | 30 |
| I55AP155Dxxx | 65 | 60 | CF, J, T | 5 | 30 |
| I55AP175Dxxx | 65 | 60 | CF, J, T | 5 | 30 |
| I55AP211Dxxx | 65 | 60 | CF, J, T | 5 | 30 |
| I55AP215Dxxx | 65 | 60 | CF, J, T | 5 | 30 |
| I55AP222Dxxx | 65 | 60 | CF, J, T | 5 | 30 |
| I55AP137Fxx3 | 5 | 30 | CC, CF, J, T | 5 | 30 |
| I55AP137Fxx7 | 65 | 30 | CF, J, T | 5 | 30 |
| I55AP155Fxx3 | 5 | 30 | CC, CF, J, T | 5 | 30 |
| I55AP155Fxx7 | 65 | 30 | CF, J, T | 5 | 30 |
| I55AP175Fxx3 | 5 | 30 | CC, CF, J, T | 5 | 30 |
| I55AP175Fxx7 | 65 | 30 | CF, J, T | 5 | 30 |
| I55AP211Fxx3 | 5 | 30 | CC, CF, J, T | 5 | 30 |
| I55AP211Fxx7 | 65 | 30 | CF, J, T | 5 | 30 |
| I55AP215Fxx3 | 5 | 30 | CC, CF, J, T | 5 | 30 |
| I55AP215Fxx7 | 65 | 30 | CF, J, T | 5 | 30 |
| I55AP222Fxx3 | 5 | 30 | CC, CF, J, T | 5 | 30 |
| I55AP222Fxx7 | 65 | 30 | CF, J, T | 5 | 30 |
| I55AP230Fxxx | 65 | 50 | CF, J, T | 5 | |
| I55AP240Fxxx | 65 | 50 | CF, J, T | 5 | |
| I55AP255Fxx3 | 5 | 50 | CF, J, T | 5 | |
| I55AP255Fxx7 | 65 | 50 | CF, J, T | 5 | |
| I55AP275Fxx3 | 5 | 50 | CF, J, T | 5 | |
| I55AP275Fxx7 | 65 | 50 | CF, J, T | 5 | |
| I55AP311Fxx3 | 5 | 50 | CF, J, T | 5 | |
| I55AP311Fxx7 | 65 | 50 | CF, J, T | 5 | |
| I55AP315Fxx3 | 5 | 80 | CF, J, T | 5 | |
| I55AP315Fxx7 | 65 | 80 | CF, J, T | 5 | |
| I55AP318Fxx3 | 5 | 80 | CF, J, T | 5 | |
| I55AP318Fxx7 | 65 | 80 | CF, J, T | 5 | |
| I55AP322Fxx3 | 5 | 80 | CF, J, T | 5 | |



| Inverter | Standard Fuses (UL248) | | | Circuit Breaker (UL489) | |
|---|---|---|---|---|---|
| | Max. SCCR | Max. rated current | Class | Max. SCCR | Max. rated current |
| | kA | A | | kA | A |
| I55AP322Fxx7 | 65 | 80 | CF, J, T | 5 | |
| I55AP330Fxxx | 10 | 125 | CF, J, T | | |
| I55AP337Fxxx | 10 | 125 | CF, J, T | | |
| I55AP345Fxxx | 10 | 125 | CF, J, T | | |
| I55AP355Fxxx | 10 | 200 | CF, J, T | | |
| I55AP375Fxxx | 10 | 200 | CF, J, T | | |
| I55AP175Gxxx | 65 | 20 | CC, CF, J, T | 5 | |
| I55AP215Gxxx | 65 | 20 | CC, CF, J, T | 5 | |
| I55AP222Gxxx | 65 | 20 | CC, CF, J, T | 5 | |
| I55AP240Gxxx | 65 | 40 | CF, J, T | 5 | |
| I55AP255Gxxx | 65 | 40 | CF, J, T | 5 | |
| I55AP275Gxxx | 5 | 40 | CF, J, T | 5 | |
| I55AP311Gxxx | 5 | 40 | CF, J, T | 5 | |
| I55AP315Gxx3 | 5 | 60 | CF, J, T | 5 | |
| I55AP315Gxx7 | 65 | 60 | CF, J, T | 5 | |
| I55AP318Gxx3 | 5 | 60 | CF, J, T | 5 | |
| I55AP318Gxx7 | 65 | 60 | CF, J, T | 5 | |
| I55AP322Gxx3 | 5 | 60 | CF, J, T | 5 | |
| I55AP322Gxx7 | 65 | 60 | CF, J, T | 5 | |

## Mains connection

Single inverters are connected directly to the **AC system** or via upstream filters. RFI filters are already integrated in many inverters. Depending on the requirements, mains chokes or mains filters can be used.

In a **DC-system**, several inverters are operated in a network. This enables an energy exchange between motor and generator driven single drives.

▸ DC-bus connection 🕮 65

**1-phase mains connection 120 V**

The connection plan is valid for the inverters i550-Pxxx/**120-1**.

The inverters i550-Pxxx/**120-1** do not have an integrated RFI filter in the AC mains supply.

In order to meet the EMC requirements according to EN IEC 61800-3, an external EMC filter according to IEC EN 60939 must be used.

The user must verify that the conformity with EN IEC 61800-3 is fulfilled.

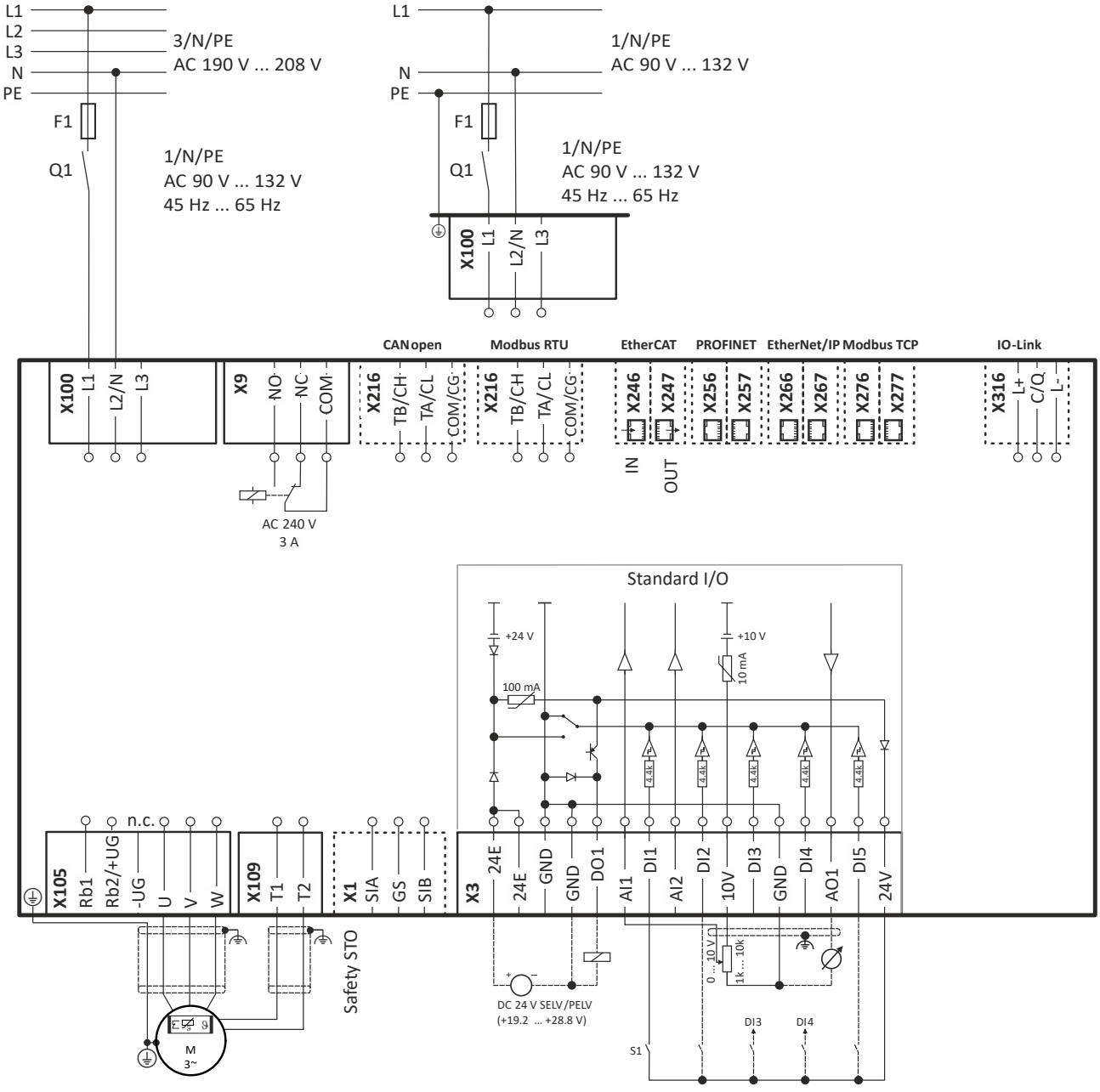



Fig. 6: Wiring example

| | | | |
|---|---|---|---|
| S1 | Start/Stop | Q1 | Mains contactor |
| Fx | Fuses | --- | Dashed line = options |

### 1-phase mains connection 230/240 V

The connection plan is valid for the inverters i550-Pxxx/**230-1** and i550-Pxxx/**230-2**.

The inverters i550-Pxxx/**230-2** do not have an integrated RFI filter in the AC mains supply.

In order to meet the EMC requirements according to EN IEC 61800-3, an external EMC filter according to IEC EN 60939 must be used.

The user must verify that the conformity with EN IEC 61800-3 is fulfilled.

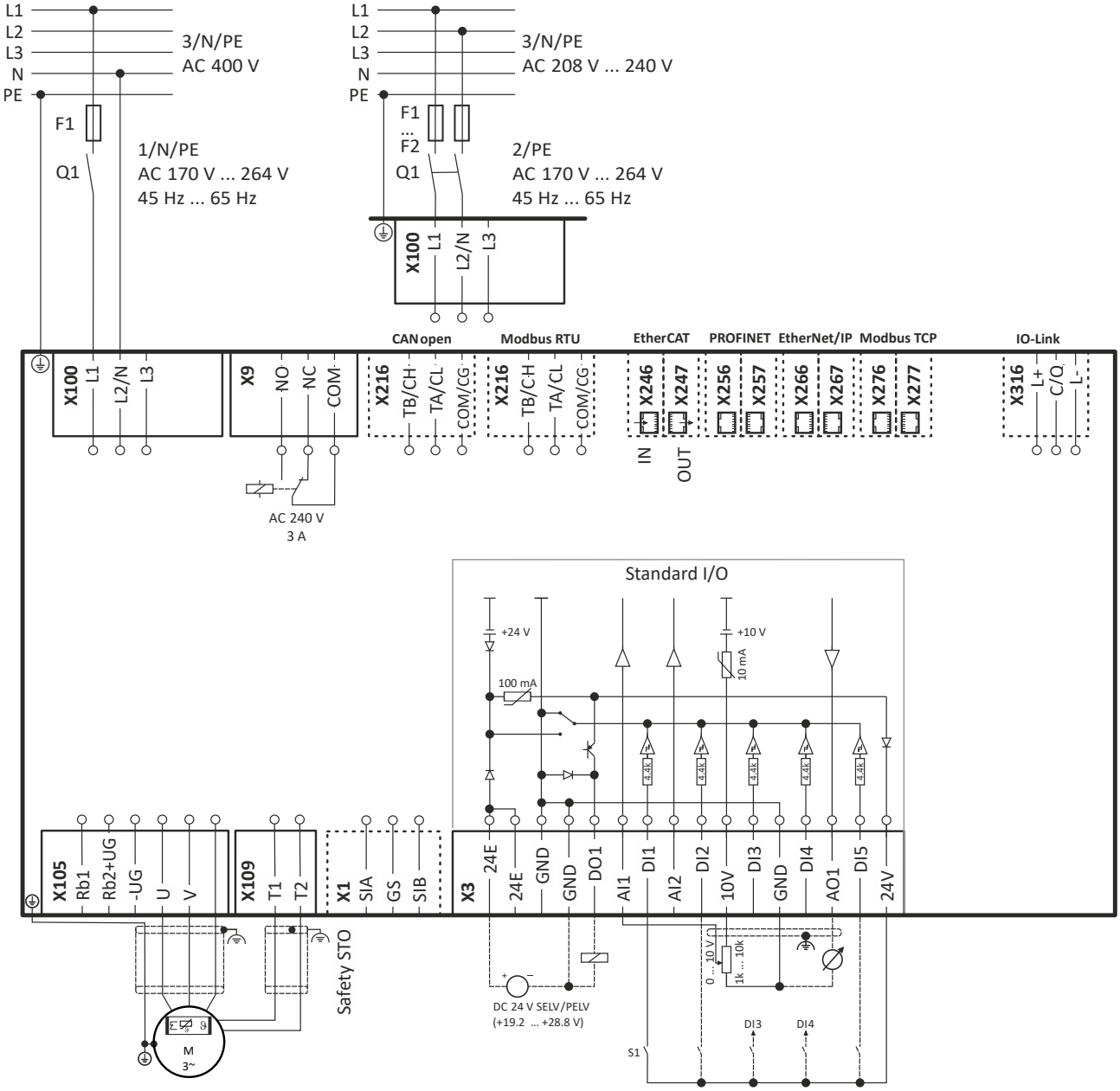



Fig. 7: Wiring example

| | | | |
|---|---|---|---|
| S1 | Start/Stop | Q1 | Mains contactor |
| Fx | Fuses | --- | Dashed line = options |

### 3-phase mains connection 230/240 V

The connection plan is valid for the inverters i550-Pxxx/**230-3** and i550-Pxxx/**230-2**.

The inverters i550-Pxxx/**230-3** and i550-Pxxx/**230-2** < 30 kW do not have an integrated RFI filter in the AC mains supply.

In order to meet the EMC requirements according to EN IEC 61800-3, an external EMC filter according to IEC EN 60939 must be used.

The user must verify that the conformity with EN IEC 61800-3 is fulfilled.

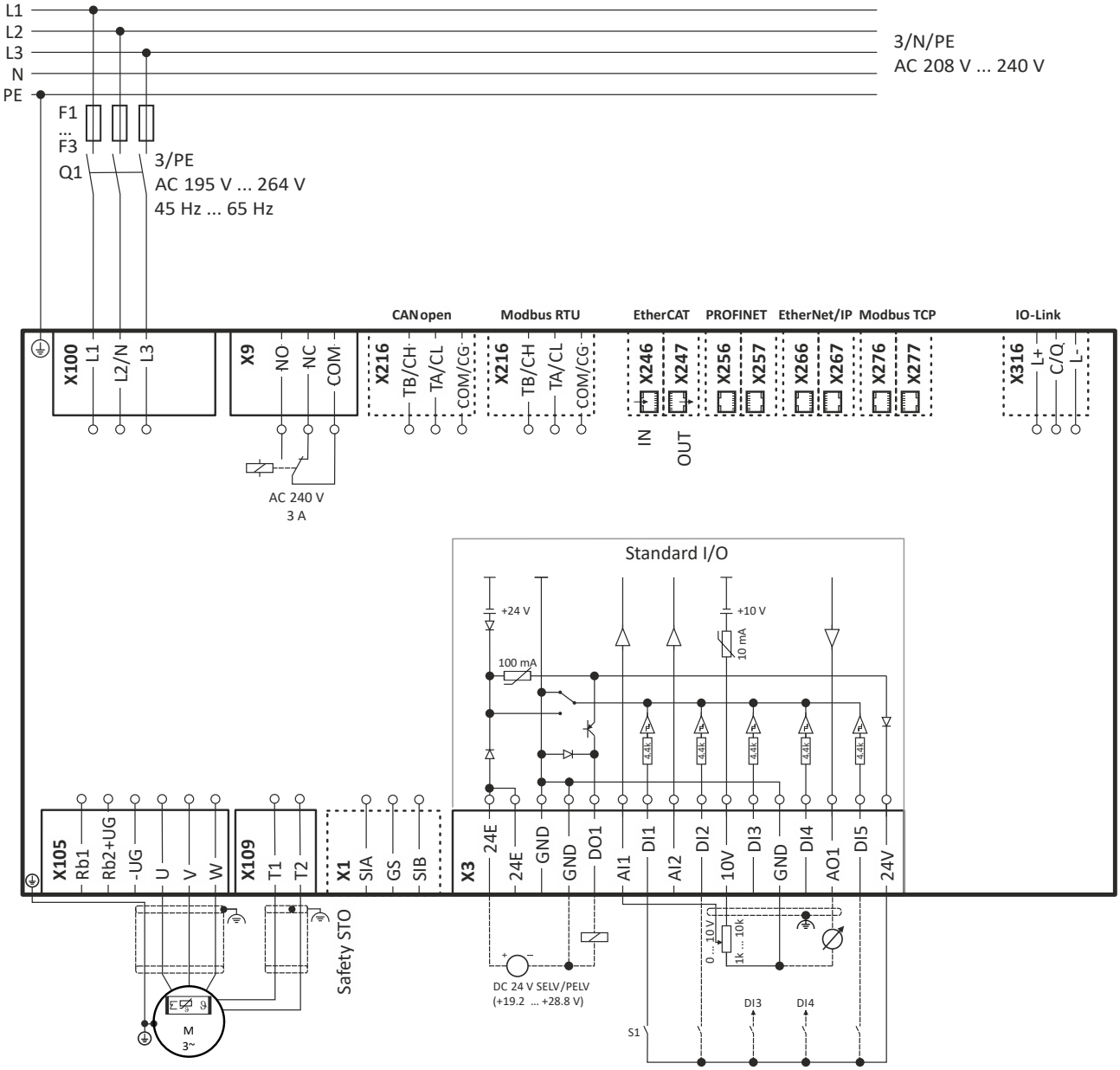



Fig. 8: Wiring example

| | | | |
|---|---|---|---|
| S1 | Start/Stop | Q1 | Mains contactor |
| Fx | Fuses | --- | Dashed line = options |

### 3-phase mains connection 400 V

The connection plan is valid for the inverters i550-Pxxx/**400-3**.

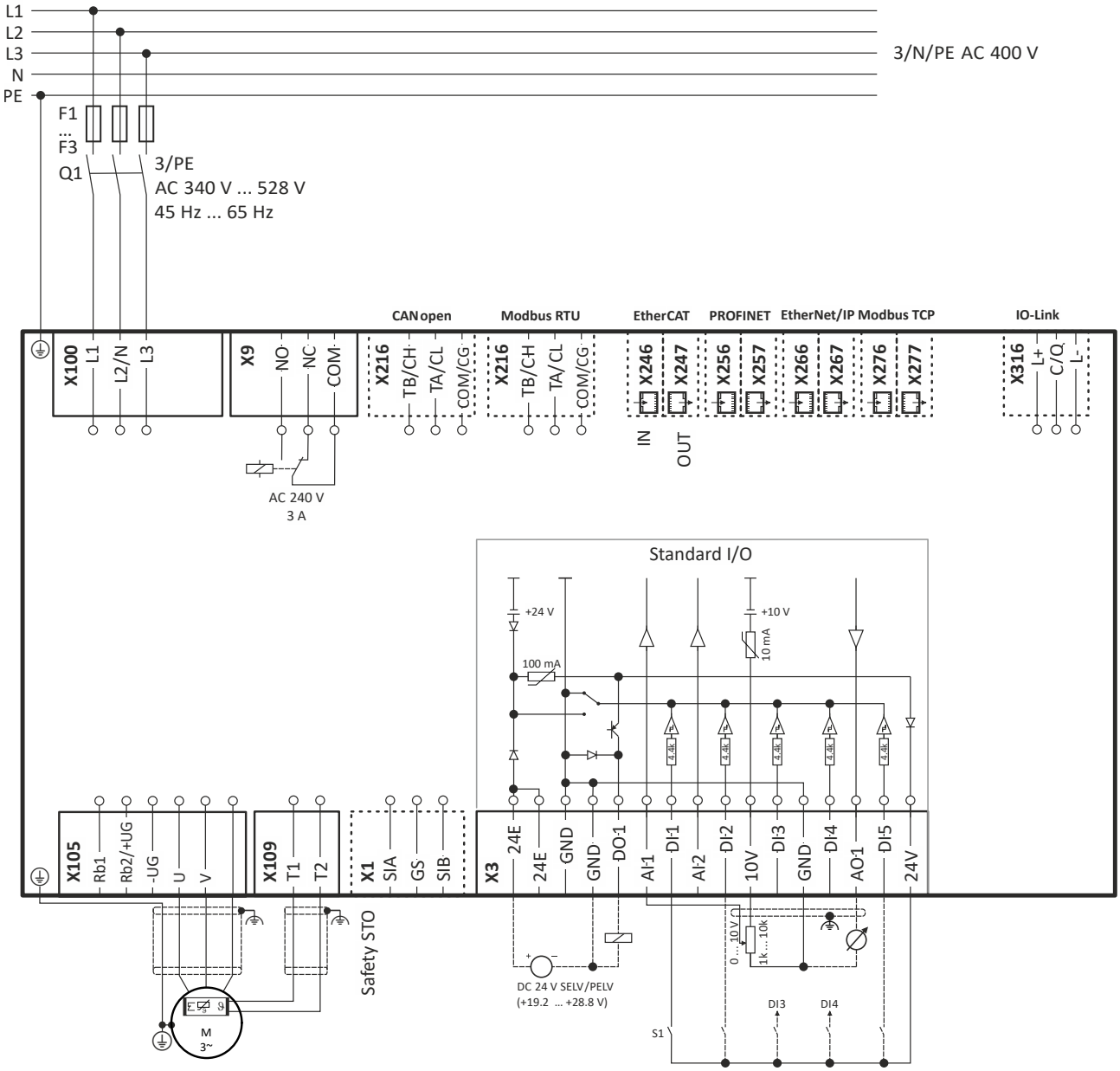



Fig. 9: Wiring example

| | | | |
|---|---|---|---|
| S1 | Start/Stop | Q1 | Mains contactor |
| Fx | Fuses | --- | Dashed line = options |

### 3-phase mains connection 480 V

The connection plan is valid for the inverters i550-Pxxx/**400-3** and i550-Pxxx/**600-3**.

The inverters i550-Pxxx/**600-3** do not have an integrated RFI filter in the AC mains supply.

In order to meet the EMC requirements according to EN IEC 61800-3, an external EMC filter according to IEC EN 60939 must be used.

The user must verify that the conformity with EN IEC 61800-3 is fulfilled.

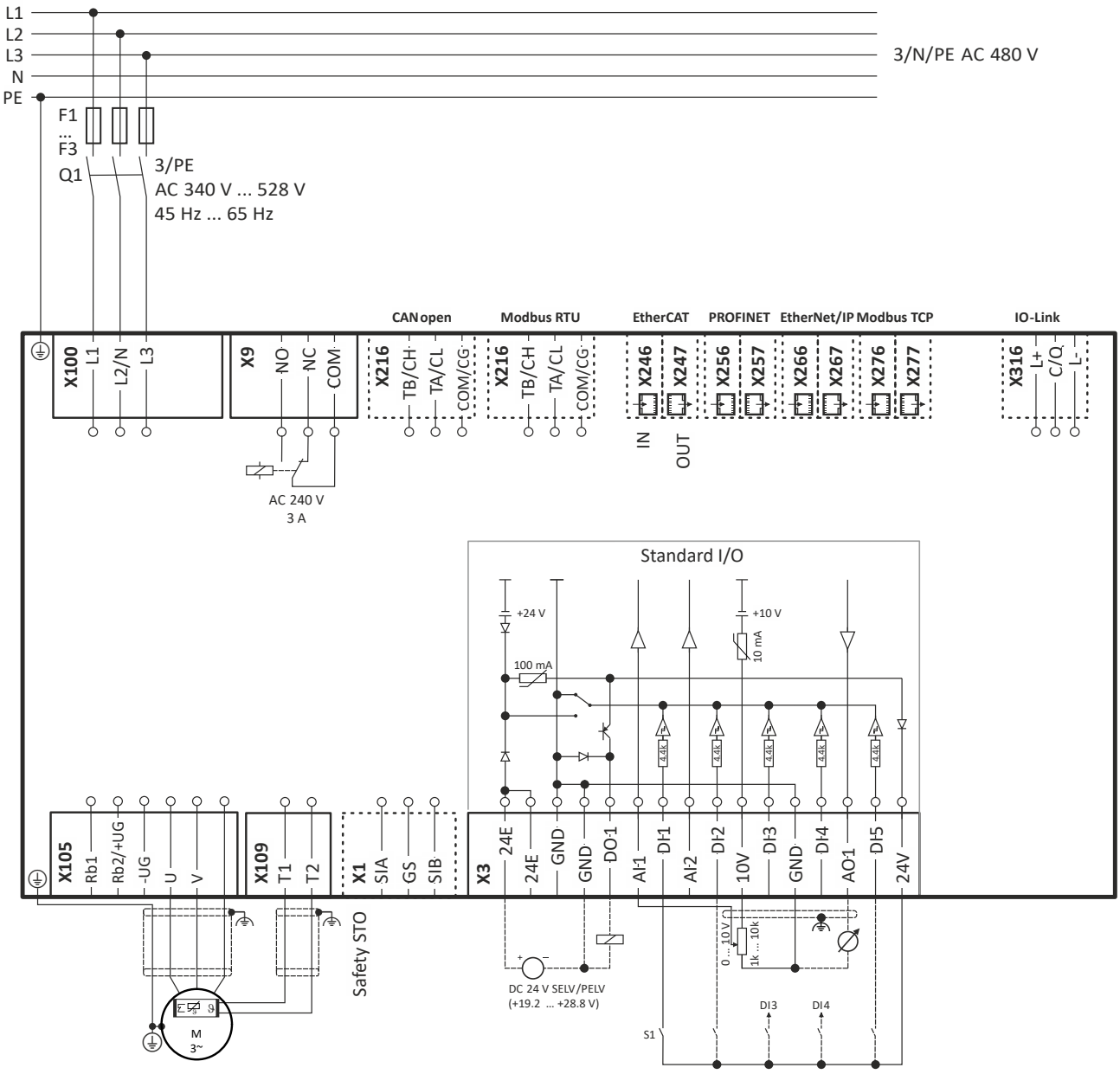



Fig. 10: Wiring example

| | | | |
|---|---|---|---|
| S1 | Start/Stop | Q1 | Mains contactor |
| Fx | Fuses | --- | Dashed line = options |

### 3-phase mains connection 600 V

The connection plan is valid for the inverters i550-Pxxx/**600-3**.

The inverters i550-Pxxx/**600-3** do not have an integrated RFI filter in the AC mains supply.

In order to meet the EMC requirements according to EN IEC 61800-3, an external EMC filter according to IEC EN 60939 must be used.

The user must verify that the conformity with EN IEC 61800-3 is fulfilled.

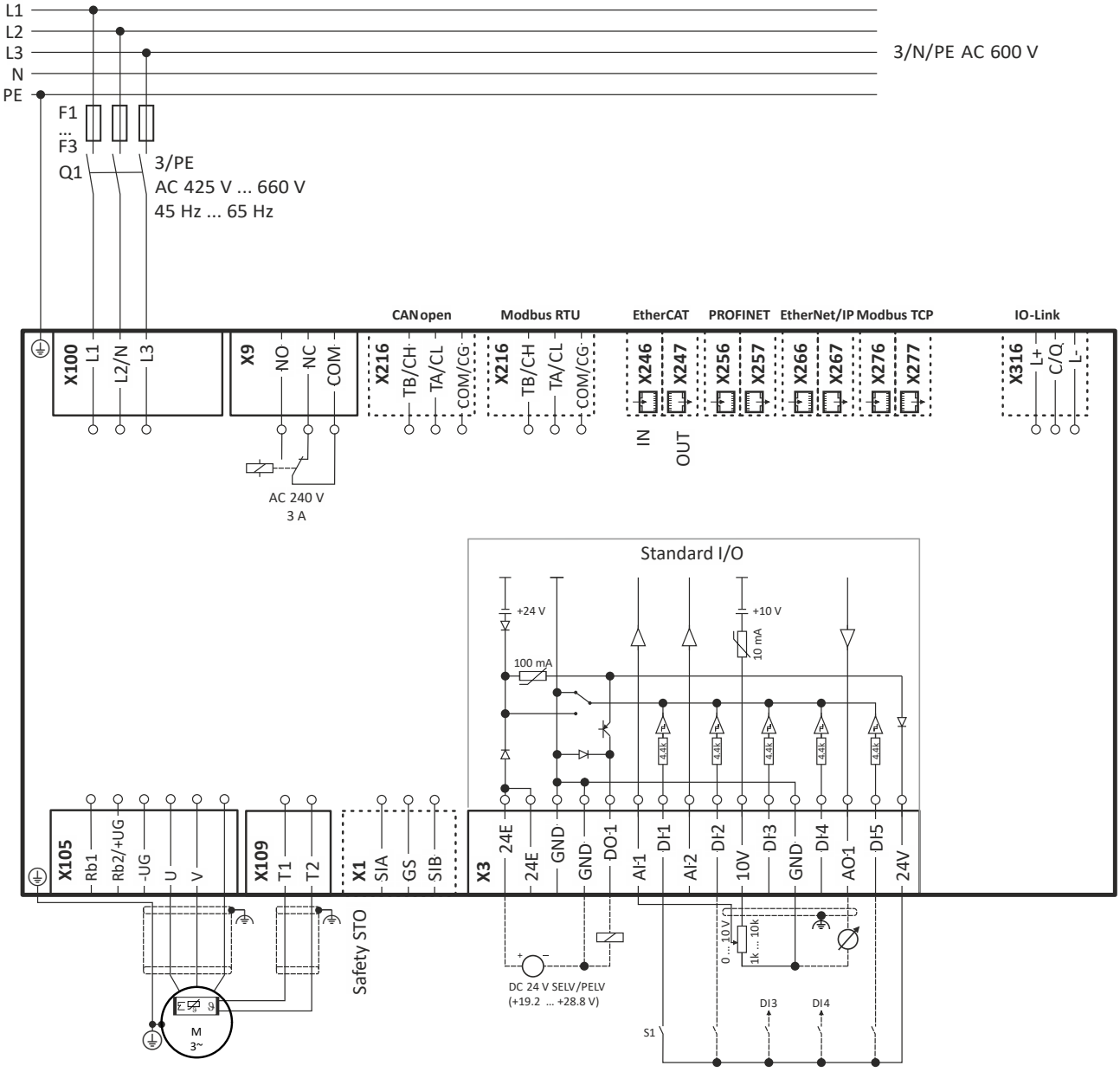



Fig. 11: Wiring example

| | | | |
|---|---|---|---|
| S1 | Start/Stop | Q1 | Mains contactor |
| Fx | Fuses | --- | Dashed line = options |

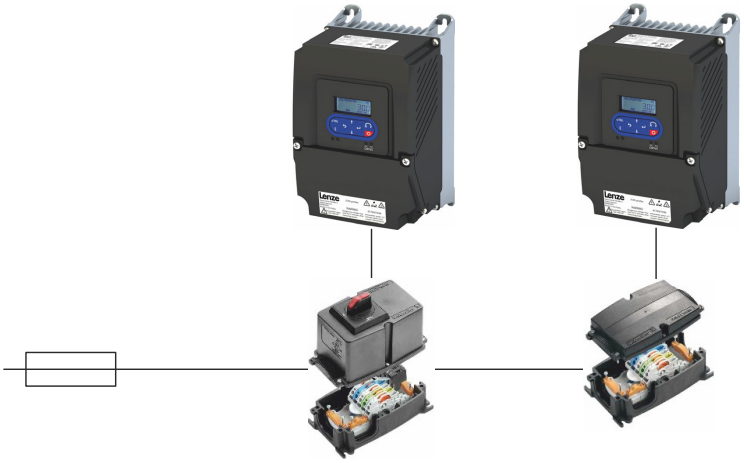


### Mains installation with several devices

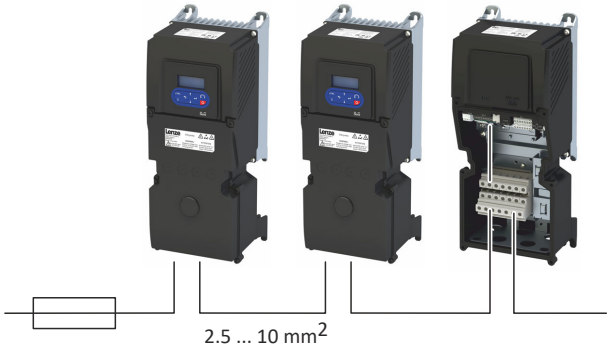
With affordable and compact QUICKON H-distributors and T-distributors, multiple inverters that are located physically close to each other can be connected to the power supply system. With a T-distributor, a stub can easily be installed for the inverters. In this case, the cable branches off from the continuous main cable at a right angle. With its four parallel interconnected connections, an H-distributor can be used as a star hub.

▸ QUICKON connector 📖 236


One easy to install alternative is e.g. the Weidmüller FieldPower® distributor.



### Looping-through connection

| i550 protec with empty extension box | i550 protec with extension box and disconnect switch |
|---|---|
| Connection at terminal block (Lenze accessories) in the extension box | Disconnect switch connection, ideal for looping-through connection |
|   |   |

## Motor connection

When using electrically conductive conduits, the conduit is considered a cable shield, so unshielded cables or single cores together with the conduit are also considered shielded cables.

### Switching in the motor cable

Switching on the motor side of the inverter is permissible:

For safety shutdown (emergency stop).

In case several motors are driven by one inverter (only in V/f operating mode).

Please note the following:

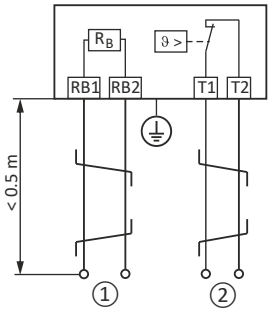
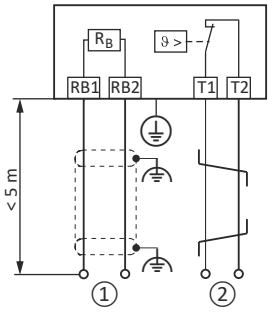
The switching elements on the motor side must be dimensioned for with the maximum occurring load.

## Connection of motor temperature monitoring

If the terminal X109 is used, e. g. to connect an external PTC thermistor (PTC) or a thermal contact, ensure at least one basic insulation to the potentials of motor, mains and control terminals to not restrict the safe separation of the control terminals.

## Brake resistor connection

Use intrinsically safe brake resistors to be able to dispense with a separate switch-off device (e.g. a contactor).

| Short connection cables up to 0.5 m | Long connection cables up to max. 5 m |
|---|---|
| Up to a cable length of 0.5 m, the cable for the brake resistor and that of the temperature monitoring can be twisted. Doing so reduces problems due to EMC interference.<br>  | The cable of the brake resistor must be shielded.<br>The maximum length is 5 m.<br>Twisting is sufficient for the temperature monitoring cable.<br>  |

① Wiring to the "brake resistor" connection on the component with brake chopper.

② Optional: Wiring to a control contact that is set to monitor the thermal contact.
If the thermal contact responds, the voltage supply to the component with brake chopper must be disconnected (e.g. switch off the control of the mains contactor).



## DC-bus connection

If multiple inverters are operated in a DC-bus connection, energy exchange between individual drives working as motors and generators is possible. Groups of inverters are connected to the DC bus.

Preconditions:

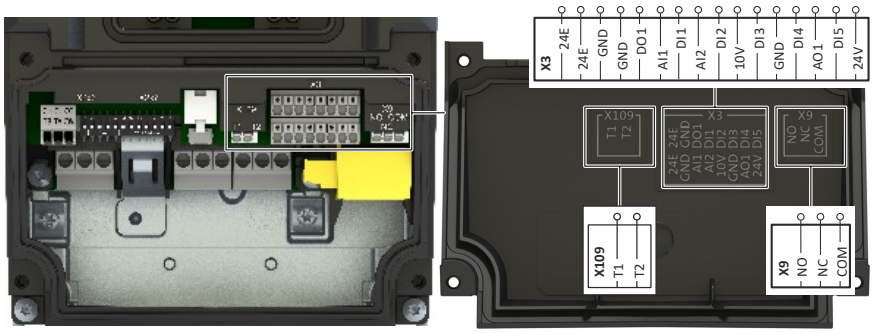
- The inverters must have an appropriate connection facility, e. g. terminal +UG/-UG.
- The inverters connected to the DC bus must be designed for the same DC-bus voltage and have the same number of phases on the mains side.

The DC system can be provided by power supply modules (AC/DC converters) or inverters with a power reserve. The technical data provide information on possible applications.

Error-free operation of the inverters in a DC-bus connection is only possible with meticulous design.

## Control connections

In case of long cables and/or high interference the effect of the shielding can be improved. To do this, connect the shield of cables for the analog inputs and outputs at one end of the cable via a capacitor with PE potential (e. g. 10 nF/ 250 V).




The designations for the X109, X3 and X9 terminals can be found on the inside of the cover.

| Connection description | | | Control terminals | Relay output | PTC input |
|---|---|---|---|---|---|
| **Connection** | | | **X3** | **X9** | **X109** |
| Connection type | | | Non-pluggable | Non-pluggable | Non-pluggable |
| Max. Cable cross-section | | mm² | 1.5 | 1.5 | 1.5 |
| Max. Cable cross-section | | AWG | 16 | 16 | 16 |
| Min. Cable cross-section | | mm² | 0.5 | 0.5 | 0.5 |
| Min. Cable cross-section | | AWG | 22 | 22 | 22 |
| Stripping length | | mm | 9 | 9 | 9 |
| Stripping length | | in | 0.35 | 0.35 | 0.35 |
| Required tool | | | Screwdriver 0.4 x 2.5 | | |

## Networks

When planning networks, consider the recommendations listed in the chapter "EMC-compliant installation" for low-interference operation, especially of Ethernet-based networks.

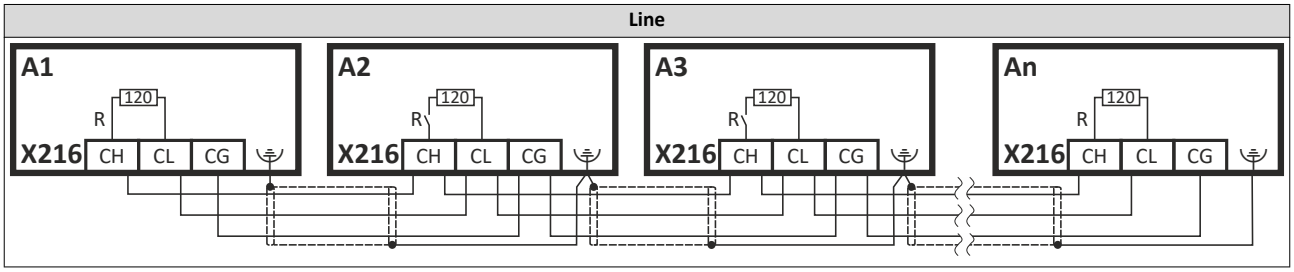
EMC-compliant installation → Fieldbus cables, networks 📖 47

### CANopen

The network must be terminated with a 120 Ω resistor at the first and last physical node.

Set the "R" DIP switch to ON at these network nodes.

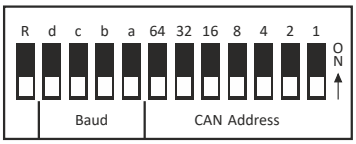
### Typical topologies




| Connection description | | | CANopen |
|---|---|---|---|
| **Connection** | | | **X216** |
| Connection type | | | Non-pluggable |
| Max. Cable cross-section | | mm² | 1.5 |
| Max. Cable cross-section | | AWG | 16 |
| Stripping length | | mm | 9 |
| Stripping length | | in | 0.35 |
| Required tool | | | Screwdriver 0.4 x 2.5 |

### Basic network settings

Use the DIP switch to set the node address and baud rate and to activate the integrated bus terminating resistor.




| Bus termination | Baud rate | | | | | CAN node address | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **R** | **d** | **c** | **b** | **a** | | **64** | **32** | **16** | **8** | **4** | **2** | **1** |
| **OFF** | OFF | ON | OFF | ON | 20 kbits/s | **OFF** | **OFF** | **OFF** | **OFF** | **OFF** | **OFF** | **OFF** |
| Inactive | OFF | OFF | ON | ON | 50 kbits/s | Value from parameter | | | | | | |
| ON | OFF | OFF | ON | OFF | 125 kbits/s | Node address - example: | | | | | | |
| Active | OFF | OFF | OFF | ON | 250 kbits/s | OFF | OFF | ON | OFF | ON | ON | ON |
| | **OFF** | **OFF** | **OFF** | **OFF** | Value from parameter (500 kbits/s) | Node address = 16 + 4 + 2 + 1 = 23 | | | | | | |
| | OFF | ON | OFF | OFF | 1 Mbit/s | | | | | | | |
| | All other combinations | | | | Value from parameter (500 kbits/s) | | | | | | | |

**Bold print** = default setting

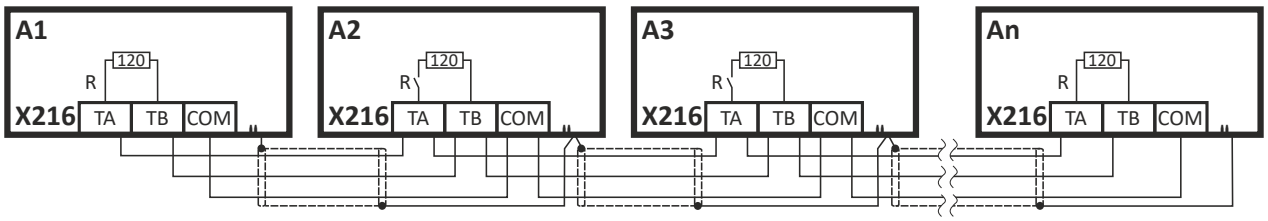
## Modbus RTU

The network must be terminated with a 120 Ω resistor at the first and last physical node.

Set the "R" DIP switch to ON at these network nodes.

### Typical topologies

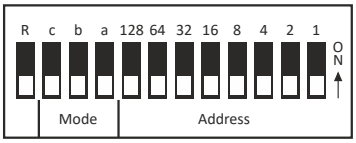
**Line**




| Connection description | | | Modbus RTU |
|---|---|---|---|
| **Connection** | | | **X216** |
| Connection type | | | Non-pluggable |
| Max. Cable cross-section | | mm² | 1.5 |
| Max. Cable cross-section | | AWG | 16 |
| Stripping length | | mm | 9 |
| Stripping length | | in | 0.35 |
| Required tool | | | Screwdriver 0.4 x 2.5 |

### Basic network settings

Use the DIP switch to set the node address and baud rate and to activate the integrated bus terminating resistor.

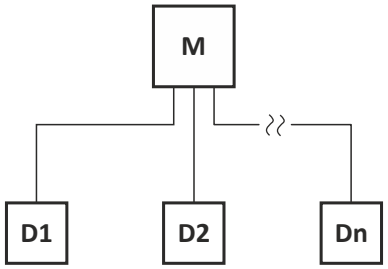



| Bus termination | | Baud rate | Parity | Modbus node address | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **R** | **c** | **b** | **a** | **128** | **64** | **32** | **16** | **8** | **4** | **2** | **1** |
| **OFF** | n. c. | **OFF** | **OFF** | **OFF** | **OFF** | **OFF** | **OFF** | **OFF** | **OFF** | **OFF** | **OFF** |
| Inactive | | Automatic detection | Automatic detection | Value from parameter | | | | | | | |
| ON | | ON | ON | Node address - example: | | | | | | | |
| Active | | Value from parameter | Value from parameter | OFF | OFF | OFF | ON | OFF | ON | ON | ON |
| | | | | Node address = 16 + 4 + 2 + 1 = 23<br>Node address > 247: Value from parameter | | | | | | | |

**Bold print** = default setting

## IO-Link

### Typical topologies

| Tree |
|---|
|  |

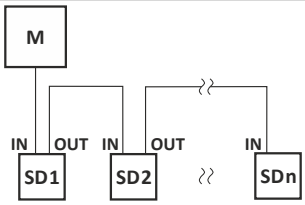


M Master D Device

| Connection description | | | IO-Link |
|---|---|---|---|
| **Connection** | | | **X316** |
| Connection type | | | Non-pluggable |
| Max. Cable cross-section | | mm² | 1.5 |
| Max. Cable cross-section | | AWG | 16 |
| Stripping length | | mm | 9 |
| Stripping length | | in | 0.35 |
| Required tool | | | Screwdriver 0.4 x 2.5 |

## EtherCAT

### Typical topologies

| Line |
|---|
|  |

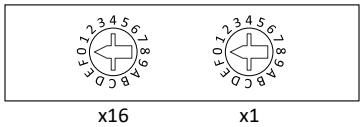


M Master
SD Slave Device

| Connection description | | | EtherCAT | |
|---|---|---|---|---|
| **Connection** | | | **X246** | **X247** |
| Connection type | | | RJ45 | |

### Basic network settings

The rotary encoder switch allows you to set an EtherCAT identifier.

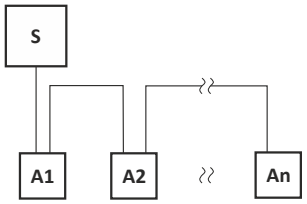
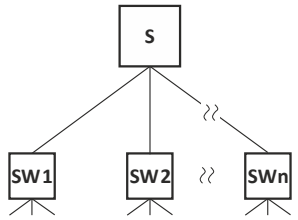
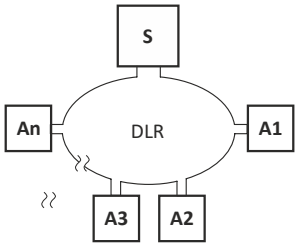




| Setting | Identifier |
|---|---|
| 0x00 | Value from parameter |
| 0x01 ... 0xFF | Switch position |

## EtherNet/IP

### Typical topologies

| Line | Tree | Ring |
|---|---|---|
|  |  |  |



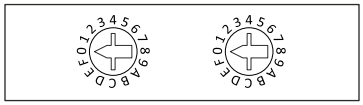
S Scanner SW Switch

A Adapter

| Connection description | | | EtherNet/IP | |
|---|---|---|---|---|
| **Connection** | | | **X266** | **X267** |
| Connection type | | | RJ45 | |

### Basic network settings

The rotary encoder switch allows you to set the last byte of the IP address.

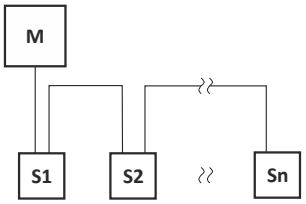
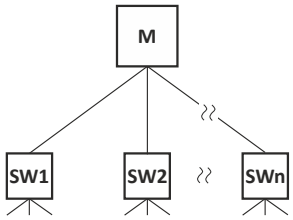


x16 x1

| Setting | Value of last byte | Resulting IP address |
|---|---|---|
| 0x00 | Value from parameter | Value from parameter |
| 0x01 ... 0xFE | Switch position | 192.168.124.<switch position> |
| 0xFF | Default setting | 192.168.124.16 |

## Modbus TCP

### Typical topologies

| Line | Tree |
|---|---|
|  |  |

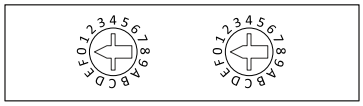


M Master
S Slave
SW Switch

| Connection description | | | Modbus TCP | |
|---|---|---|---|---|
| **Connection** | | | **X276** | **X277** |
| Connection type | | | RJ45 | |

### Basic network settings

The rotary encoder switch allows you to set the last byte of the IP address.

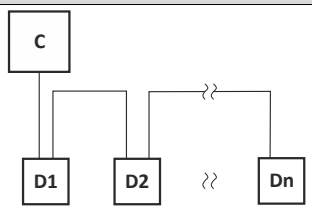
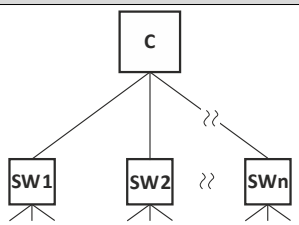
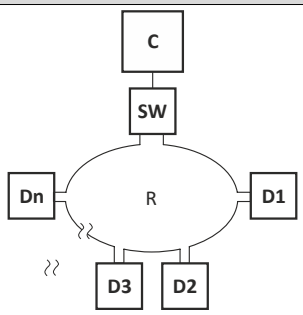




| Setting | Value of last byte | Resulting IP address |
|---|---|---|
| 0x00 | Value from parameter | Value from parameter |
| 0x01 ... 0xFE | Switch position | 192.168.124.<switch position> |
| 0xFF | Default setting | 192.168.124.16 |

## PROFINET

### Typical topologies

| Line | Tree | Ring |
|---|---|---|
|  |  |  |



C IO controller
D IO device
SW Switch SCALANCE (MRP capable)
R Redundant domain

| Connection description | | | PROFINET | |
|---|---|---|---|---|
| **Connection** | | | **X256** | **X257** |
| Connection type | | | RJ45 | |

The rotary encoder switch has no function.



## Functional safety

**⚠ DANGER!**

Improper installation of the safety engineering system can cause an uncontrolled starting action of the drives.

Possible consequence: Death or severe injuries

- Safety engineering systems may only be installed and commissioned by qualified personnel.
- The complete wiring must be designed in accordance with EMC requirements.
- All control components (switch, relay, PLC, ...) must comply with the requirements of EN ISO 13849-1 and the EN ISO 13849-2.
- Switches, relays with at least IP54 degree of protection.
- Always mount devices with a degree of protection lower than IP54 in control cabinets with a minimum degree of protection of IP54.
- The wiring must be shielded.
- It is essential to use insulated wire end ferrules for wiring.
- All safety-relevant cables outside the control cabinet must be protected, e.g. by means of a cable duct.
- Ensure that no short circuits can occur according to the specifications of the EN ISO 13849-2.
- All further requirements and measures can be obtained from the EN ISO 13849-1 and the EN ISO 13849-2.
- If an external force acts upon the drive axes, additional brakes are required. Please observe that hanging loads are subject to the force of gravity!
- For safety-related braking functions, use safety-rated brakes only.
- The user has to ensure that the inverter will only be used in its intended application within the specified environmental conditions. This is the only way to comply with the declared safety-related characteristics.

**⚠ DANGER!**

Automatic restart if the request of the safety function is deactivated.

Possible consequences: Death or severe injuries

- You must provide external measures according to EN ISO 13849-1 which ensure that the drive only restarts after a confirmation.

**NOTICE**

Overvoltage

Destruction of the safety component

- Make sure that the maximum voltage (maximum rated) at the safe inputs does not exceed 32 V DC.

**NOTICE**

Excessively high humidity or condensation

Malfunction or destruction of the safety component

- Only commission the safety component when it has acclimated.

**Basic Safety - STO**

**⚠ DANGER!**

With the "Safe torque off" (STO) function, no "emergency switching off" in terms with EN 60204-1 can be executed without additional measures. There is no electrical isolation between the motor and inverter and no service switch or maintenance switch!

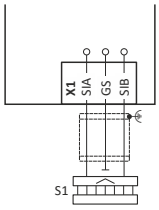
Possible consequence: Death or severe injuries

► "Emergency switching off" requires electrical isolation, e. g. by a central mains contactor.

## Connection diagram

The connection diagrams shown are only example circuits. The user is responsible for the correct safety-related design and selection of the components!

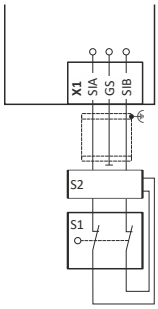
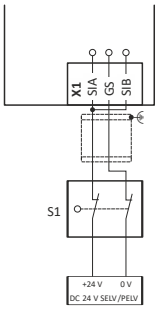
### Active sensors

| STO |
|---|
|  |



S1 Active sensor - example of light grid

### Passive sensors

| STO | |
|---|---|
|  |  |

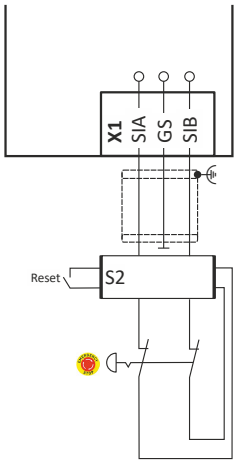
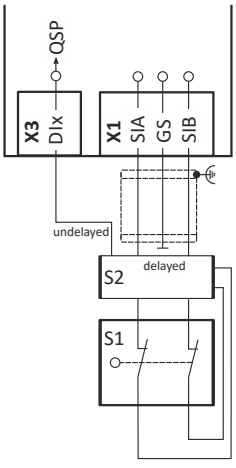
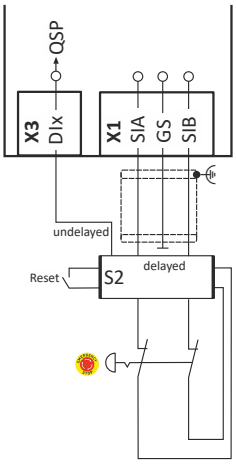


External power supply unit or 24 V output of X3

S1 Passive sensor
S2 Safety switching device

S1 Passive sensor

### Passive sensors - further examples

| Emergency stop (STO) | SS1c/SS1-t | Emergency stop (SS1c/SS1-t) |
|---|---|---|
|  |  |  |



S2 Safety switching device

S1 Passive sensor
S2 Safety switching device with delayed contacts

S2 Safety switching device with delayed contacts

## Connection data

| X1 | Specification | Unit | min. | typ. | max. |
|---|---|---|---|---|---|
| SIA, SIB | LOW signal | V | -3 | 0 | +5 |
| | HIGH signal | V | +15 | +24 | +30 |
| | Switch-on time | ms | | 3 | |
| | Clear time | ms | | 50 | 60 |
| | Input current SIA | mA | | 10 | 14 |
| | Input current SIB | mA | | 7 | 12 |
| | Input peak current | mA | | 100 | |
| | Test pulse duration | ms | | | 1 |
| | Test pulse interval | ms | 10 | | |
| GS | Reference potential for SIA and SIB | | | | |

| Connection description | | | Basic Safety - STO |
|---|---|---|---|
| **Connection** | | | **X1** |
| Connection type | | | Pluggable |
| Max. Cable cross-section | | $mm^2$ | 1.5 |
| Max. Cable cross-section | | AWG | 16 |
| Min. Cable cross-section | | $mm^2$ | 0.5 |
| Min. Cable cross-section | | AWG | 22 |
| Stripping length | | mm | 9 |
| Stripping length | | in | 0.35 |
| Required tool | | | Screwdriver 0.4 x 2.5 |



# Technical data

## Standards and operating conditions

### Conformities and approvals

| | | | |
|---|---|---|---|
| Conformities | | | |
| CE | 2009/125/EC | | Ecodesign Directive |
| | 2011/65/EU | | RoHS Directive |
| | 2014/30/EU | | EMC Directive (reference: CE-typical drive system) |
| | 2014/35/EU | | Low-Voltage Directive |
| EAC | TP TC 020/2011 | | Eurasian conformity: Electromagnetic compatibility of technical means |
| | TR TC 004/2011 | | Eurasian conformity: Safety of low voltage equipment |
| UKCA | S.I. 2008/1597 | | The Supply of Machinery (Safety) Regulations 2008 |
| | S.I. 2012/3032 | | The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 |
| | S.I. 2016/1091 | | The Electromagnetic Compatibility Regulations 2016 |
| | S.I. 2021/745 | | The Ecodesign for Energy-Related Products and Energy Information Regulations 2021 |
| Approvals | | | |
| UL | UL 61800-5-1 | | File No. E132659 |
| | | | For USA and Canada (requirements of the CSA 22.2 No. 274) |

### Protection of persons and device protection

| | | | |
|---|---|---|---|
| Degree of protection | | | Data applies to operationally ready mounted state and not in wire range of terminals |
| EN | EN IEC 60529 | IP31 | |
| | | IP66 | |
| NEMA | NEMA 250 | Type 1 | |
| | | Type 4X outdoor | |
| UL | UL 50E | Type 1 | |
| | | Type 4X outdoor | |
| Insulation resistance | | | |
| Overvoltage category | EN IEC 61800-5-1 | II | >2000 m amsl |
| | | III | 0 … 2000 m amsl |
| Isolation of control circuits | | | |
| | EN IEC 61800-5-1 | Safe mains isolation | Double/reinforced insulation |
| Leakage current | | | |
| AC | EN IEC 61800-5-1 | > 3.5 mA | Observe regulations and safety instructions! |
| DC | | > 10 mA | |
| Starting current | | | |
| | | ≤ 3 x rated mains current | |
| Protective measures | | | |
| Earth fault strength | | | Earth-fault protected depending on operating status |
| Motor stalling protection | | | |
| Short-circuit strength | | | |
| Overvoltage resistance | | | |
| Motor overtemperature | | | PTC or thermal contact, $I^2xt$ monitoring |

## EMC data

| | | | |
|---|---|---|---|
| Operation on public supply systems | | | The machine or system manufacturer is responsible for compliance with the requirements for the machine/system! |
| < 1 kW | EN IEC 61000-3-2 | With mains choke | For 1-phase devices, the use of an active filter is recommended to comply with the limit values! |
| > 1 kW, mains current ≤ 16 A | | No additional measures | |
| Mains current > 16 A ... ≤ 75 A | EN IEC 61000-3-12 | With mains choke or mains filter | For 1-phase devices, the use of an active filter is recommended to comply with the limit values! |
| Noise emission | | | |
| Category C1 | EN IEC 61800-3 | | see rated data |
| Category C2 | | | |
| Category C3 | | | |
| Noise immunity | | | |
| | EN IEC 61800-3 | Requirements fulfilled | |

## Motor connection

| | | | |
|---|---|---|---|
| Requirements for the shielded motor cable | | | |
| Capacitance per unit length | | < 150/300 pF/m | ≥ 4 mm² / AWG 12 |
| | | < 75/150 pF/m | ≤ 2.5 mm² / AWG 14 |
| Electric strength | | Uo/U = 0.6/1.0 kV | U = r.m.s. value from external conductor to external conductor |
| | | | Uo = r.m.s. value external conductor to PE |
| | UL | U ≥ 600 V | U = r.m.s. value from external conductor to external conductor |



## Environmental conditions

| | | | |
|---|---|---|---|
| Energy efficiency | | | |
| High Efficiency | EN IEC 61800-9-2 | Class IE2 | |
| Climate | | | |
| Storage | EN 60721-3-1:1997 | 1K3 (-25 ... +60 °C) | |
| | | 1K3 (-30 ... +60°C) | |
| Transport | EN 60721-3-2:1997 | 2K3 (-25 ... +70 °C) | |
| | | 2K3 (-30 ...+70 °C) | |
| Operation | EN 60721-3-3:1995 + A2:1997 | 3C3 (at IP66) | For chemically active substances |
| | | 3S3 (for IP66) | For mechanically active substances |
| | | 3K3 (-30 ... +60 °C) | Operation at a switching frequency of 2 or 4 kHz: Above +45°C: reduce rated output current by 2.5 %/°C |
| | | | Operation at a switching frequency of 8, 12 or 16 kHz: Above +40°C: reduce rated output current by 2.5 %/°C |
| | | | Devices with IP31: Relative air humidity <95%, condensation not permissible |
| | | 3C2 | For chemically active substances |
| | | 3S2 | For mechanically active substances |
| Site altitude | | | |
| 0 … 1000 m amsl | | | Without current derating |
| 1000 … 4000 m amsl | | | Reduce rated output current by 5 %/1000 m |
| Pollution | | | |
| | EN IEC 61800-5-1 | Degree of pollution 2 | |
| | UL 61800-5-1 | | |
| Vibration resistance | | | |
| Transport | EN 60721-3-2:1997 | 2M2 (sine, shock) | In original packaging up to 11 kW |
| Electrical safety | EN IEC 61800-5-1 | Amplitude 0.075 mm | 10 ... 57 Hz |
| | | Acceleration resistant up to 1 g | 57 ... 150 Hz |
| Operation | DNV-CG-0339 | Amplitude 1 mm | 5 ... 13.2 Hz up to 11 kW |
| | | Acceleration resistant up to 0.7 g | 13.2 ... 100 Hz up to 11 kW |
| | EN IEC 61800-5-1 | Amplitude 0.075 mm | 10 ... 57 Hz |
| | | | 10 ... 57 Hz (30-75kW in preparation) |
| | | Acceleration resistant up to 1 g | 57 ... 150 Hz |
| | | | 57 ... 150 Hz (30-75kW in preparation) |

### Electrical supply conditions

| Power systems | | | |
|---|---|---|---|
| TN<br>TT | | | Voltage against earth: max. 300 V |

The connection to different supply forms enables a worldwide application of the inverters.

The following is supported:

- 1-phase mains connection 120 V 📖 79
- 1-phase mains connection 230/240 V 📖 83
- 1-phase mains connection 230/240 V "Light Duty" 📖 90
- 3-phase mains connection 230/240 V 📖 94
- 3-phase mains connection 230/240 V "Light Duty" 📖 103
- 3-phase mains connection 400 V 📖 108
- 3-phase mains connection 400 V "Light Duty" 📖 121
- 3-phase mains connection 480 V 📖 127
- 3-phase mains connection 480 V "Light Duty" 📖 140
- 3-phase mains connection 600 V 📖 146
- 3-phase mains connection 600 V "Light Duty" 📖 154

### Certification of the integrated safety

The certification of the integrated safety is based on these test fundamentals:

- EN ISO 13849-1: Safety of machinery − Safety-related parts of control systems − Part 1
- EN 60204-1: Safety of machinery − Electrical equipment of machines − Part 1
- EN 61508, Part 1-7: Functional safety of electrical/electronic/programmable electronic safety-related systems
- EN 61800-5-1: Adjustable speed electrical power drive systems − Part 5-1: Safety requirements − Electrical, thermal and energy requirements
- EN 61800-5-2: Adjustable speed electrical power drive systems − Part 5-2: Safety requirements − Functional safety
- EN 62061: Safety of machinery − Functional safety of safety-related electrical/electronic/programmable electronic systems

Declarations of Conformity and certificates can be found on the Internet.

www.Lenze.com



## 1-phase mains connection 120 V

The inverters i550-Pxxx/**120-1** do not have an integrated RFI filter in the AC mains supply.

In order to meet the EMC requirements according to EN IEC 61800-3, an external EMC filter according to IEC EN 60939 must be used.

The user must verify that the conformity with EN IEC 61800-3 is fulfilled.

### Rated data

The output currents apply to these operating conditions:

- At switching frequency 2 kHz or 4 kHz: Ambient temperature max. 45 °C (113 °F).
- At switching frequency 8 kHz, 12 kHz or 16 kHz: Ambient temperature max. 40 °C (104 °F).

# Technical data

1-phase mains connection 120 V
Rated data

| **Inverter** | | | **i550-P0.37/120-1** | **i550-P0.75/120-1** | **i550-P1.1/120-1** |
|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **0.37** | **0.75** | **1.1** |
| **Rated power** | **$P_{rated}$** | **hp** | **0.5** | **1** | **1.5** |
| Mains voltage range | | | 1/PE AC 90 V ... 132 V, 45 Hz ... 65 Hz | | |
| Output voltage | | | 3 AC 0 - 230/240 V | | |
| Rated mains current | | | | | |
| without mains choke | | A | 9.6 | 16.8 | 22.9 |
| with mains choke | | A | - | | |
| Apparent output power | | kVA | 0.9 | 1.6 | 2.3 |
| Rated output current | | | | | |
| 2 kHz | | A | 2.4 | 4.2 | 6 |
| 4 kHz | | A | 2.4 | 4.2 | 6 |
| 8 kHz | | A | 2.4 | 4.2 | 6 |
| 12 kHz | | A | 2.2 | 3.8 | 5.4 |
| 16 kHz | | A | 1.6 | 2.8 | 4 |
| Power loss | | | | | |
| 2 kHz | | W | 19 | 30 | 38 |
| 4 kHz | | W | 20 | 32 | 40 |
| 8 kHz | | W | 24 | 40 | 51 |
| 12 kHz | | W | 23 | 38 | 54 |
| 16 kHz | | W | 22 | 35 | 49 |
| Overcurrent cycle 180 s | | | | | |
| Max. output current (≤ 8 kHz) | | A | 3.6 | 6.3 | 9 |
| Overload time | $T_1$ | s | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 1.8 | 3.2 | 4.5 |
| Overcurrent cycle 15 s | | | | | |
| Max. output current (≤ 8 kHz) | | A | 4.8 | 8.4 | 12 |
| Overload time | $T_1$ | s | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 1.8 | 3.2 | 4.5 |
| Cyclic mains switching | | | 3 times per minute | | |
| Brake chopper | | | | | |
| Max. output current | | A | 2.2 | 3.9 | |
| Min. Brake resistor | | Ω | 180 | 100 | |
| Max. shielded motor cable length | | | | | |
| without EMC category | | m | 50 | | |
| Category C1 (≤ 8 kHz) | | m | - | | |
| Category C2 (≤ 8 kHz) | | m | - | | |
| Category C3 (≤ 8 kHz) | | m | - | | |
| Max. Unshielded motor cable length | | | | | |
| without EMC category | | m | 60 | 80 | |



## Fusing data (EN 60204-1)

A residual current device (RCD) is optional.

Fusing data for UL/NEC compliant installations: ▸ Fusing data 53

| Inverter | Fuse | | | Circuit breaker | | | RCD | |
|---|---|---|---|---|---|---|---|---|
| | Max. SCCR | Characteristic | Max. rated current | Max. SCCR | Characteristic | Max. rated current | | Type |
| | kA | | A | kA | | A | mA | |
| i550-P0.37/120-1 | 5 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.75/120-1 | 5 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P1.1/120-1 | 5 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |

## Connection data

| **Rated power** | $P_{rated}$ | **kW** | **0.37** | **0.75 ... 1.1** |
|---|---|---|---|---|
| **Connection description** | | | **Mains connection** | |
| **Connection** | | | **X100** | |
| Connection type | | | Non-pluggable | |
| Max. Cable cross-section | | mm² | 4 | 4 |
| Max. Cable cross-section | | AWG | 10 | 10 |
| Stripping length | | mm | 10 | 10 |
| Stripping length | | in | 0.4 | 0.4 |
| Tightening torque | | Nm | 0.5 | 0.5 |
| Tightening torque | | lb-in | 4.4 | 4.4 |
| Required tool | | | Screwdriver 1.2 x 8.0 | Screwdriver 0.6 x 3.5 |

| **Rated power** | $P_{rated}$ | **kW** | **0.37 ... 1.1** |
|---|---|---|---|
| **Connection description** | | | **PE connection** |
| **Terminal type** | | | **Schraube** |
| Max. Cable cross-section | | mm² | 6 |
| Max. Cable cross-section | | AWG | 10 |
| Stripping length | | mm | 10 |
| Stripping length | | in | 0.4 |
| Tightening torque | | Nm | 2 |
| Tightening torque | | lb-in | 18 |
| Required tool | | | Torx key 20 |

| **Rated power** | $P_{rated}$ | **kW** | **0.37** | **0.75 ... 1.1** |
|---|---|---|---|---|
| **Connection description** | | | **Motor connection** | |
| **Connection** | | | **X105** | |
| Connection type | | | Non-pluggable | |
| Max. Cable cross-section | | mm² | 4 | 4 |
| Max. Cable cross-section | | AWG | 10 | 10 |
| Stripping length | | mm | 10 | 10 |
| Stripping length | | in | 0.4 | 0.4 |
| Tightening torque | | Nm | 0.5 | 0.5 |
| Tightening torque | | lb-in | 4.4 | 4.4 |
| Required tool | | | Screwdriver 1.2 x 8.0 | Screwdriver 0.6 x 3.5 |

## Brake resistors

### Assignment to inverters with protection class IP31

| Inverter | Brake resistor | | | | | | |
|---|---|---|---|---|---|---|---|
| | Order code | Rated resistance | Rated power | Thermal capacity | Dimensions (H x W x D) | Weight | Degree of protection |
| | | Ω | W | kWs | mm | kg | |
| i550-P0.37/120-1 | ERBM180R050W | 180 | 50 | 7.5 | 175 x 20.6 x 40 | 0.28 | IP54 |
| i550-P0.37/120-1 | ERBS180R350WNQN000 | 180 | 350 | 53 | 382 x 124 x 122 | 2.1 | IP66 |
| i550-P0.37/120-1 | ERBU390R015WAQN000 | 390 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.75/120-1 | ERBM100R100W | 100 | 100 | 15 | 235 x 20.6 x 40 | 0.37 | IP54 |
| i550-P0.75/120-1 | ERBS100R625WNQN000 | 100 | 625 | 94 | 566 x 124 x 122 | 3.1 | IP66 |
| i550-P0.75/120-1 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P1.1/120-1 | ERBM100R100W | 100 | 100 | 15 | 235 x 20.6 x 40 | 0.37 | IP54 |
| i550-P1.1/120-1 | ERBS100R625WNQN000 | 100 | 625 | 94 | 566 x 124 x 122 | 3.1 | IP66 |
| i550-P1.1/120-1 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |

### Assignment to inverters with protection class IP66

| Inverter | Brake resistor | | | | | | |
|---|---|---|---|---|---|---|---|
| | Order code | Rated resistance | Rated power | Thermal capacity | Dimensions (H x W x D) | Weight | Degree of protection |
| | | Ω | W | kWs | mm | kg | |
| i550-P0.37/120-1 | ERBS180R350WNQN000 | 180 | 350 | 53 | 382 x 124 x 122 | 2.1 | IP66 |
| i550-P0.37/120-1 | ERBU390R015WAQN000 | 390 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.75/120-1 | ERBS100R625WNQN000 | 100 | 625 | 94 | 566 x 124 x 122 | 3.1 | IP66 |
| i550-P0.75/120-1 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P1.1/120-1 | ERBS100R625WNQN000 | 100 | 625 | 94 | 566 x 124 x 122 | 3.1 | IP66 |
| i550-P1.1/120-1 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |



## 1-phase mains connection 230/240 V

Take into account when selecting the inverter:

The inverters i550-Pxxx/**230-1** have an integrated RFI filter in the AC mains supply.

The inverters i550-Pxxx/**230-2** do **not** have an integrated RFI filter in the AC mains supply.

In order to meet the EMC requirements according to EN IEC 61800-3, an external EMC filter according to IEC EN 60939 must be used.

The user must verify that the conformity with EN IEC 61800-3 is fulfilled.

### Rated data

The output currents apply to these operating conditions:

- At switching frequency 2 kHz or 4 kHz: Ambient temperature max. 45 °C (113 °F).
- At switching frequency 8 kHz, 12 kHz or 16 kHz: Ambient temperature max. 40 °C (104 °F).

# Technical data

1-phase mains connection 230/240 V
Rated data

| Inverter | | | i550-P0.37/230-1 | i550-P0.37/230-2 | i550-P0.55/230-1 | i550-P0.55/230-2 |
|---|---|---|---|---|---|---|
| **Rated power** | $P_{rated}$ | **kW** | **0.37** | | **0.55** | |
| **Rated power** | $P_{rated}$ | **hp** | **0.5** | | **0.75** | |
| Mains voltage range | | | 1/PE AC 170 V ... 264 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 230/240 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 5.7 | | 7.6 | |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 0.9 | | 1.2 | |
| Rated output current | | | | | | |
| 2 kHz | | A | - | | 3.2 | |
| 4 kHz | | A | 2.4 | | 3.2 | |
| 8 kHz | | A | 2.4 | | 3.2 | |
| 12 kHz | | A | 2.2 | | 2.9 | |
| 16 kHz | | A | 1.6 | | 2.1 | |
| Power loss | | | | | | |
| 2 kHz | | W | 19 | | 24 | |
| 4 kHz | | W | 20 | | 25 | |
| 8 kHz | | W | 24 | | 31 | |
| 12 kHz | | W | 23 | | 30 | |
| 16 kHz | | W | 22 | | 28 | |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 3.6 | 3.6 | 4.8 | 4.8 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 1.8 | 1.8 | 2.4 | 2.4 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 4.8 | 4.8 | 6.4 | 6.4 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 1.8 | 1.8 | 2.4 | 2.4 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 3.9 | | | |
| Min. Brake resistor | | Ω | 100 | | | |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | 10 | - | 10 | - |
| Category C3 (≤ 8 kHz) | | m | 35 | - | 35 | - |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 60 | | | |



| **Inverter** | | | **i550-P0.75/230-1** | **i550-P0.75/230-2** | **i550-P1.1/230-1** | **i550-P1.1/230-2** |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **0.75** | | **1.1** | |
| **Rated power** | **$P_{rated}$** | **hp** | **1** | | **1.5** | |
| Mains voltage range | | | 1/PE AC 170 V ... 264 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 230/240 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 10 | | 14.3 | |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 1.6 | | 2.3 | |
| Rated output current | | | | | | |
| 2 kHz | | A | 4.2 | | 6 | |
| 4 kHz | | A | 4.2 | | 6 | |
| 8 kHz | | A | 4.2 | | 6 | |
| 12 kHz | | A | 3.8 | | 5.4 | |
| 16 kHz | | A | 2.8 | | 4 | |
| Power loss | | | | | | |
| 2 kHz | | W | 30 | | 38 | |
| 4 kHz | | W | 32 | | 40 | |
| 8 kHz | | W | 40 | | 51 | |
| 12 kHz | | W | 38 | | 54 | |
| 16 kHz | | W | 35 | | 49 | |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 6.3 | 6.3 | 9 | 9 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 3.2 | 3.2 | 4.5 | 4.5 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 8.4 | 8.4 | 12 | 12 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 3.2 | 3.2 | 4.5 | 4.5 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 3.9 | | 12 | |
| Min. Brake resistor | | Ω | 100 | | 33 | |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | 10 | - | 10 | - |
| Category C3 (≤ 8 kHz) | | m | 35 | - | 35 | - |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 60 | | 80 | |

# Technical data

1-phase mains connection 230/240 V
Rated data

| Inverter | | | i550-P1.5/230-1 | i550-P1.5/230-2 | i550-P2.2/230-1 | i550-P2.2/230-2 |
|---|---|---|---|---|---|---|
| **Rated power** | $P_{rated}$ | **kW** | **1.5** | | **2.2** | |
| **Rated power** | $P_{rated}$ | **hp** | **2** | | **3** | |
| Mains voltage range | | | 1/PE AC 170 V ... 264 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 230/240 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 16.7 | | 22.5 | |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 2.6 | | 3.6 | |
| Rated output current | | | | | | |
| 2 kHz | | A | 7 | | 9.6 | |
| 4 kHz | | A | 7 | | 9.6 | |
| 8 kHz | | A | 7 | | 9.6 | |
| 12 kHz | | A | 6.3 | | 8.6 | |
| 16 kHz | | A | 4.7 | | 6.4 | |
| Power loss | | | | | | |
| 2 kHz | | W | 45 | | 62 | |
| 4 kHz | | W | 48 | | 66 | |
| 8 kHz | | W | 61 | | 85 | |
| 12 kHz | | W | 65 | | 91 | |
| 16 kHz | | W | 58 | | 81 | |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 10.5 | 10.5 | 14.4 | 14.4 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 5.3 | 5.3 | 7.2 | 7.2 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 14 | 14 | 19.2 | 19.2 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 5.3 | 5.3 | 7.2 | 7.2 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 12 | | | |
| Min. Brake resistor | | Ω | 33 | | | |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | 10 | - | 10 | - |
| Category C3 (≤ 8 kHz) | | m | 35 | - | 35 | - |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 80 | | | |



## Fusing data (EN 60204-1)

A residual current device (RCD) is optional.

Fusing data for UL/NEC compliant installations: ▸ Fusing data 53

The RCD type "F" is only permitted in 1-phase operation (L/N)!

| Inverter | Fuse | | | Circuit breaker | | | RCD | |
|---|---|---|---|---|---|---|---|---|
| | Max. SCCR | Characteristic | Max. rated current | Max. SCCR | Characteristic | Max. rated current | | Type |
| | kA | | A | kA | | A | mA | |
| i550-P0.37/230-1 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.37/230-1 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P0.37/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.37/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P0.55/230-1 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.55/230-1 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P0.55/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.55/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P0.75/230-1 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.75/230-1 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P0.75/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.75/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P1.1/230-1 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P1.1/230-1 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P1.1/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P1.1/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P1.5/230-1 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P1.5/230-1 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P1.5/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P1.5/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P2.2/230-1 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P2.2/230-1 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P2.2/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P2.2/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |

## Connection data

| **Rated power** | **$P_{rated}$** | **kW** | **0.37 ... 2.2** |
|---|---|---|---|
| **Connection description** | | | **Mains connection** |
| **Connection** | | | **X100** |
| Connection type | | | Non-pluggable |
| Max. Cable cross-section | | mm² | 4 |
| Max. Cable cross-section | | AWG | 10 |
| Stripping length | | mm | 10 |
| Stripping length | | in | 0.4 |
| Tightening torque | | Nm | 0.5 |
| Tightening torque | | lb-in | 4.4 |
| Required tool | | | Screwdriver 1.2 x 8.0 |

| **Rated power** | **$P_{rated}$** | **kW** | **0.37 ... 2.2** |
|---|---|---|---|
| **Connection description** | | | **PE connection** |
| **Terminal type** | | | **Schraube** |
| Max. Cable cross-section | | mm² | 6 |
| Max. Cable cross-section | | AWG | 10 |
| Stripping length | | mm | 10 |
| Stripping length | | in | 0.4 |
| Tightening torque | | Nm | 2 |
| Tightening torque | | lb-in | 18 |
| Required tool | | | Torx key 20 |

| **Rated power** | **$P_{rated}$** | **kW** | **0.37 ... 2.2** |
|---|---|---|---|
| **Connection description** | | | **Motor connection** |
| **Connection** | | | **X105** |
| Connection type | | | Non-pluggable |
| Max. Cable cross-section | | mm² | 4 |
| Max. Cable cross-section | | AWG | 10 |
| Stripping length | | mm | 10 |
| Stripping length | | in | 0.4 |
| Tightening torque | | Nm | 0.5 |
| Tightening torque | | lb-in | 4.4 |
| Required tool | | | Screwdriver 1.2 x 8.0 |



## Brake resistors

### Assignment to inverters with protection class IP31

| Inverter | Brake resistor | | | | | | |
|---|---|---|---|---|---|---|---|
| | Order code | Rated resistance | Rated power | Thermal capacity | Dimensions (H x W x D) | Weight | Degree of protection |
| | | Ω | W | kWs | mm | kg | |
| i550-P0.37/230-2 | ERBM100R100W | 100 | 100 | 15 | 235 x 20.6 x 40 | 0.37 | IP54 |
| i550-P0.37/230-2 | ERBS100R625WNQN000 | 100 | 625 | 94 | 566 x 124 x 122 | 3.1 | IP66 |
| i550-P0.37/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.55/230-2 | ERBM100R100W | 100 | 100 | 15 | 235 x 20.6 x 40 | 0.37 | IP54 |
| i550-P0.55/230-2 | ERBS100R625WNQN000 | 100 | 625 | 94 | 566 x 124 x 122 | 3.1 | IP66 |
| i550-P0.55/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.75/230-2 | ERBM100R100W | 100 | 100 | 15 | 235 x 20.6 x 40 | 0.37 | IP54 |
| i550-P0.75/230-2 | ERBS100R625WNQN000 | 100 | 625 | 94 | 566 x 124 x 122 | 3.1 | IP66 |
| i550-P0.75/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P1.1/230-2 | ERBM039R120W | 39 | 120 | 18 | 265 x 31 x 60 | 1.0 | IP54 |
| i550-P1.1/230-2 | ERBS039R01K6NQN000 | 39 | 1600 | 246 | 751 x 208 x 122 | 7.8 | IP66 |
| i550-P1.1/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P1.5/230-2 | ERBM039R120W | 39 | 120 | 18 | 265 x 31 x 60 | 1.0 | IP54 |
| i550-P1.5/230-2 | ERBS039R01K6NQN000 | 39 | 1600 | 246 | 751 x 208 x 122 | 7.8 | IP66 |
| i550-P1.5/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P2.2/230-2 | ERBM039R120W | 39 | 120 | 18 | 265 x 31 x 60 | 1.0 | IP54 |
| i550-P2.2/230-2 | ERBS039R01K6NQN000 | 39 | 1600 | 246 | 751 x 208 x 122 | 7.8 | IP66 |
| i550-P2.2/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |

### Assignment to inverters with protection class IP66

| Inverter | Brake resistor | | | | | | |
|---|---|---|---|---|---|---|---|
| | Order code | Rated resistance | Rated power | Thermal capacity | Dimensions (H x W x D) | Weight | Degree of protection |
| | | Ω | W | kWs | mm | kg | |
| i550-P0.37/230-1 | ERBS100R625WNQN000 | 100 | 625 | 94 | 566 x 124 x 122 | 3.1 | IP66 |
| i550-P0.37/230-1 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.37/230-2 | ERBS100R625WNQN000 | 100 | 625 | 94 | 566 x 124 x 122 | 3.1 | IP66 |
| i550-P0.37/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.55/230-1 | ERBS100R625WNQN000 | 100 | 625 | 94 | 566 x 124 x 122 | 3.1 | IP66 |
| i550-P0.55/230-1 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.55/230-2 | ERBS100R625WNQN000 | 100 | 625 | 94 | 566 x 124 x 122 | 3.1 | IP66 |
| i550-P0.55/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.75/230-1 | ERBS100R625WNQN000 | 100 | 625 | 94 | 566 x 124 x 122 | 3.1 | IP66 |
| i550-P0.75/230-1 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.75/230-2 | ERBS100R625WNQN000 | 100 | 625 | 94 | 566 x 124 x 122 | 3.1 | IP66 |
| i550-P0.75/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P1.1/230-1 | ERBS039R01K6NQN000 | 39 | 1600 | 246 | 751 x 208 x 122 | 7.8 | IP66 |
| i550-P1.1/230-1 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P1.1/230-2 | ERBS039R01K6NQN000 | 39 | 1600 | 246 | 751 x 208 x 122 | 7.8 | IP66 |
| i550-P1.1/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P1.5/230-1 | ERBS039R01K6NQN000 | 39 | 1600 | 246 | 751 x 208 x 122 | 7.8 | IP66 |
| i550-P1.5/230-1 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P1.5/230-2 | ERBS039R01K6NQN000 | 39 | 1600 | 246 | 751 x 208 x 122 | 7.8 | IP66 |
| i550-P1.5/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P2.2/230-1 | ERBS039R01K6NQN000 | 39 | 1600 | 246 | 751 x 208 x 122 | 7.8 | IP66 |
| i550-P2.2/230-1 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P2.2/230-2 | ERBS039R01K6NQN000 | 39 | 1600 | 246 | 751 x 208 x 122 | 7.8 | IP66 |
| i550-P2.2/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |

## 1-phase mains connection 230/240 V "Light Duty"

The inverters i550-Pxxx/**230-2** do not have an integrated RFI filter in the AC mains supply.

In order to meet the EMC requirements according to EN IEC 61800-3, an external EMC filter according to IEC EN 60939 must be used.

The user must verify that the conformity with EN IEC 61800-3 is fulfilled.

### Rated data

The output currents apply to these operating conditions:

- At switching frequency 2 kHz or 4 kHz: Ambient temperature max. 40 °C (104 °F).



| **Inverter** | | | **i550-P0.37/230-2** | **i550-P0.55/230-2** | **i550-P0.75/230-2** | **i550-P1.1/230-2** |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **0.55** | **0.75** | **1.1** | **1.5** |
| **Rated power** | **$P_{rated}$** | **hp** | **0.75** | **1** | **1.5** | **2** |
| Mains voltage range | | | 1/PE AC 170 V ... 264 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 230/240 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 6.9 | 9.1 | 12 | 17.1 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 1.2 | 1.6 | 2.2 | 2.6 |
| 4 kHz | | A | 2.9 | 3.8<br>3.8 | 5<br>5 | 7.2<br>7.2 |
| Power loss | | | | | | |
| 2 kHz | | W | 30 | | 38 | 45 |
| 4 kHz | | W | 32 | | 40 | 48 |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 3.6 | 4.8 | 6.3 | 9 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 1.8 | 2.4 | 3.2 | 4.5 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 4.8 | 6.4 | 8.4 | 12 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 1.8 | 2.4 | 3.2 | 4.5 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 3.9 | | | 12 |
| Min. Brake resistor | | Ω | 100 | | | 33 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | - | | | |
| Category C3 (≤ 8 kHz) | | m | - | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 60 | | | 80 |

# Technical data

1-phase mains connection 230/240 V "Light Duty"
Rated data

| **Inverter** | | | **i550-P1.5/230-2** | **i550-P2.2/230-2** |
|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **2.2** | **3** |
| **Rated power** | **$P_{rated}$** | **hp** | **3** | **4** |
| Mains voltage range | | | 1/PE AC 170 V ... 264 V, 45 Hz ... 65 Hz | |
| Output voltage | | | 3 AC 0 - 230/240 V | |
| Rated mains current | | | | |
| without mains choke | | A | 20 | 27.4 |
| with mains choke | | A | - | |
| Apparent output power | | kVA | 3.6 | 4.9 |
| Rated output current | | | | |
| 2 kHz | | A | 8.4 | 11.5 |
| 4 kHz | | A | 8.4 | 11.5 |
| Power loss | | | | |
| 2 kHz | | W | 62 | 79 |
| 4 kHz | | W | 66 | 84 |
| Overcurrent cycle 180 s | | | | |
| Max. output current (≤ 8 kHz) | | A | 10.5 | 14.4 |
| Overload time | $T_1$ | s | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 |
| Max. output current during the recovery time | | A | 5.3 | 7.2 |
| Overcurrent cycle 15 s | | | | |
| Max. output current (≤ 8 kHz) | | A | 14 | 19.2 |
| Overload time | $T_1$ | s | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 |
| Max. output current during the recovery time | | A | 5.3 | 7.2 |
| Cyclic mains switching | | | 3 times per minute | |
| Brake chopper | | | | |
| Max. output current | | A | 12 | |
| Min. Brake resistor | | Ω | 33 | |
| Max. shielded motor cable length | | | | |
| without EMC category | | m | 50 | |
| Category C1 (≤ 8 kHz) | | m | - | |
| Category C2 (≤ 8 kHz) | | m | - | |
| Category C3 (≤ 8 kHz) | | m | - | |
| Max. Unshielded motor cable length | | | | |
| without EMC category | | m | 80 | |



## Fusing data (EN 60204-1)

A residual current device (RCD) is optional.

Fusing data for UL/NEC compliant installations: ▸ Fusing data 53

The RCD type "F" is only permitted in 1-phase operation (L/N)!

| Inverter | Fuse | | | Circuit breaker | | | RCD | |
|---|---|---|---|---|---|---|---|---|
| | Max. SCCR | Characteristic | Max. rated current | Max. SCCR | Characteristic | Max. rated current | | Type |
| | kA | | A | kA | | A | mA | |
| i550-P0.37/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.37/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P0.55/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.55/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P0.75/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.75/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P1.1/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P1.1/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P1.5/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P1.5/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P2.2/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P2.2/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |

### Connection data

▸ Connection data 88

### Brake resistors

▸ Assignment to inverters with protection class IP31 89

▸ Assignment to inverters with protection class IP66 89

## 3-phase mains connection 230/240 V

The inverters i550-Pxxx/**230-3** and i550-Pxxx/**230-2** < 30 kW do not have an integrated RFI filter in the AC mains supply.

In order to meet the EMC requirements according to EN IEC 61800-3, an external EMC filter according to IEC EN 60939 must be used.

The user must verify that the conformity with EN IEC 61800-3 is fulfilled.

Inverters ≥ 30 kW have an integrated mains choke in addition to the RFI filter.

### Rated data

For inverters ≥ 30 kW, EMC category C2 is only valid for the switching frequencies 2 kHz and 4 kHz.

The output currents apply to these operating conditions:

- At switching frequency 2 kHz or 4 kHz: Ambient temperature max. 45 °C (113 °F).
- At switching frequency 8 kHz, 12 kHz or 16 kHz: Ambient temperature max. 40 °C (104 °F).



| Inverter | | | i550-P0.37/230-2 | i550-P0.55/230-2 | i550-P0.75/230-2 | i550-P1.1/230-2 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **0.37** | **0.55** | **0.75** | **1.1** |
| **Rated power** | **$P_{rated}$** | **hp** | **0.5** | **0.75** | **1** | **1.5** |
| Mains voltage range | | | 3/PE AC 170 V ... 264 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 230/240 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 3.9 | 4.8 | 6.4 | 7.8 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 0.9 | 1.2 | 1.6 | 2.3 |
| Rated output current | | | | | | |
| 2 kHz | | A | - | 3.2 | 4.2 | 6 |
| 4 kHz | | A | 2.4 | 3.2 | 4.2 | 6 |
| 8 kHz | | A | 2.4 | 3.2 | 4.2 | 6 |
| 12 kHz | | A | 2.2 | 2.9 | 3.8 | 5.4 |
| 16 kHz | | A | 1.6 | 2.1 | 2.8 | 4 |
| Power loss | | | | | | |
| 2 kHz | | W | 19 | 24 | 30 | 38 |
| 4 kHz | | W | 20 | 25 | 32 | 40 |
| 8 kHz | | W | 24 | 31 | 40 | 51 |
| 12 kHz | | W | 23 | 30 | 38 | 54 |
| 16 kHz | | W | 22 | 28 | 35 | 49 |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 3.6 | 4.8 | 6.3 | 9 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 1.8 | 2.4 | 3.2 | 4.5 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 4.8 | 6.4 | 8.4 | 12 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 1.8 | 2.4 | 3.2 | 4.5 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 3.9 | | | 12 |
| Min. Brake resistor | | Ω | 100 | | | 33 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | - | | | |
| Category C3 (≤ 8 kHz) | | m | - | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 60 | | | 80 |

# Technical data

3-phase mains connection 230/240 V
Rated data

| Inverter | | | i550-P1.5/230-2 | i550-P2.2/230-2 | i550-P3.0/230-3 | i550-P4.0/230-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **1.5** | **2.2** | **3** | **4** |
| **Rated power** | **$P_{rated}$** | **hp** | **2** | **3** | **4** | **5** |
| Mains voltage range | | | 3/PE AC 170 V ... 264 V, 45 Hz ... 65 Hz | | 3/PE AC 195 V ... 264 V, 45 Hz ... 65 Hz | |
| Output voltage | | | 3 AC 0 - 230/240 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 9.5 | 13.6 | 15 | 20.6 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 2.6 | 3.6 | 4.5 | 6.2 |
| Rated output current | | | | | | |
| 2 kHz | | A | 7 | 9.6 | 12 | 16.5 |
| 4 kHz | | A | 7 | 9.6 | 12 | 16.5 |
| 8 kHz | | A | 7 | 9.6 | 12 | 16.5 |
| 12 kHz | | A | 6.3 | 8.6 | 10.8 | 14.9 |
| 16 kHz | | A | 4.7 | 6.4 | 8 | 11 |
| Power loss | | | | | | |
| 2 kHz | | W | 45 | 62 | 79 | 102 |
| 4 kHz | | W | 48 | 66 | 84 | 108 |
| 8 kHz | | W | 61 | 85 | 109 | 140 |
| 12 kHz | | W | 65 | 91 | 104 | 133 |
| 16 kHz | | W | 58 | 81 | 104 | 133 |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 10.5 | 14.4 | 18 | 24.8 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 5.3 | 7.2 | 9 | 12.4 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 14 | 19.2 | 24 | 33 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 5.3 | 7.2 | 9 | 12.4 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 12 | | 26 | |
| Min. Brake resistor | | Ω | 33 | | 15 | |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | - | | | |
| Category C3 (≤ 8 kHz) | | m | - | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 80 | | 100 | |



| Inverter | | | i550-P5.5/230-3 | i550-P7.5/230-3 | i550-P11/230-3 | i550-P15/230-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **5.5** | **7.5** | **11** | **15** |
| **Rated power** | **$P_{rated}$** | **hp** | **7.5** | **10** | **15** | **20** |
| Mains voltage range | | | 3/PE AC 195 V ... 264 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 230/240 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 28.8 | 36.3 | 52.2 | 62 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 8.7 | 10.9 | 15.8 | 20.8 |
| Rated output current | | | | | | |
| 2 kHz | | A | 23 | 29 | 42 | 54 |
| 4 kHz | | A | 23 | 29 | 42 | 54 |
| 8 kHz | | A | 23 | 29 | 42 | 54 |
| 12 kHz | | A | 20.7 | 26.1 | 37.8 | 48.6 |
| 16 kHz | | A | 15.3 | 19.3 | 28 | 36 |
| Power loss | | | | | | |
| 2 kHz | | W | 137 | 172 | 242 | 340 |
| 4 kHz | | W | 145 | 183 | 258 | 361 |
| 8 kHz | | W | 189 | 238 | 337 | 469 |
| 12 kHz | | W | 180 | 255 | 361 | 447 |
| 16 kHz | | W | 180 | 227 | 321 | 447 |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 34.5 | 43.5 | 63 | 81 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 17.3 | 21.8 | 31.5 | 40.5 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 46 | 58 | 84 | 108 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 17.3 | 21.8 | 31.5 | 40.5 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 26 | 30 | | 48.8 |
| Min. Brake resistor | | Ω | 15 | 13 | | 8 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | - | | | |
| Category C3 (≤ 8 kHz) | | m | - | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 100 | 200 | | |

# Technical data

3-phase mains connection 230/240 V
Rated data

| Inverter | | | i550-P18/230-3 | i550-P30/230-3 | i550-P45/230-3 |
|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **18.5** | **30** | **45** |
| **Rated power** | **$P_{rated}$** | **hp** | **25** | **40** | **60** |
| Mains voltage range | | | 3/PE AC 195 V ... 264 V, 45 Hz ... 65 Hz | | |
| Output voltage | | | 3 AC 0 - 230/240 V | | |
| Rated mains current | | | | | |
| without mains choke | | A | 78 | 80 | 135 |
| with mains choke | | A | - | | |
| Apparent output power | | kVA | 26.2 | 34.4 | 57.9 |
| Rated output current | | | | | |
| 2 kHz | | A | 68 | 89 | 150 |
| 4 kHz | | A | 68 | 89 | 150 |
| 8 kHz | | A | 68 | 89 | 150 |
| 12 kHz | | A | 61.2 | 71.2 | 120 |
| 16 kHz | | A | 45.3 | 59.3 | 100.5 |
| Power loss | | | | | |
| 2 kHz | | W | 408 | 746 | 1319 |
| 4 kHz | | W | 435 | 780 | 1377 |
| 8 kHz | | W | 569 | 952 | 1666 |
| 12 kHz | | W | 543 | 877 | 1524 |
| 16 kHz | | W | 542 | 848 | 1474 |
| Overcurrent cycle 180 s | | | | | |
| Max. output current (≤ 8 kHz) | | A | 102 | 133.5 | 225 |
| Overload time | $T_1$ | s | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 51 | 66.75 | 112.5 |
| Overcurrent cycle 15 s | | | | | |
| Max. output current (≤ 8 kHz) | | A | 136 | 178 | 300 |
| Overload time | $T_1$ | s | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 51 | 66.75 | 112.5 |
| Cyclic mains switching | | | 3 times per minute | | Once per minute |
| Brake chopper | | | | | |
| Max. output current | | A | 48.8 | 52 | 83 |
| Min. Brake resistor | | Ω | 8 | 7.5 | 4.7 |
| Max. shielded motor cable length | | | | | |
| without EMC category | | m | 50 | 100 | 200 |
| Category C1 (≤ 8 kHz) | | m | - | | |
| Category C2 (≤ 8 kHz) | | m | - | 15 | |
| Category C3 (≤ 8 kHz) | | m | - | 15 | 100 |
| Max. Unshielded motor cable length | | | | | |
| without EMC category | | m | 200 | 100 | 200 |



## Fusing data (EN 60204-1)

A residual current device (RCD) is optional.

Fusing data for UL/NEC compliant installations: ▸ Fusing data 53

The RCD type "F" is only permitted in 1-phase operation (L/N)!

| Inverter | Fuse | | | Circuit breaker | | | RCD | |
|---|---|---|---|---|---|---|---|---|
| | Max. SCCR | Characteristic | Max. rated current | Max. SCCR | Characteristic | Max. rated current | | Type |
| | kA | | A | kA | | A | mA | |
| i550-P0.37/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.37/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P0.55/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.55/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P0.75/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.75/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P1.1/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P1.1/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P1.5/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P1.5/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P2.2/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P2.2/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P3.0/230-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 30 | Typ B |
| i550-P4.0/230-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 30 | Typ B |
| i550-P5.5/230-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 30 | Typ B |
| i550-P7.5/230-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 30 | Typ B |
| i550-P11/230-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 30 | Typ B |
| i550-P15/230-3 | 5 | gG/gL, gRL | 125 | 5 | B | 125 | ≥ 30 | Typ B |
| i550-P18/230-3 | 5 | gG/gL, gRL | 125 | 5 | B | 125 | ≥ 30 | Typ B |
| i550-P30/230-3 | 10 | gG/gL, gRL | 125 | 10 | B | 125 | ≥ 300 | Typ B |
| i550-P45/230-3 | 10 | gG/gL, gR | 200 | 10 | B | 200 | ≥ 300 | Typ B |

## Connection data

| Rated power | $P_{rated}$ | kW | 0.37 ... 0.75 | 1.1 ... 5.5 | 7.5 ... 11 | 15 ... 18.5 | 30 | 45 |
|---|---|---|---|---|---|---|---|---|
| **Connection description** | | | **Mains connection** | | | | | |
| **Connection** | | | **X100** | | | | | |
| Connection type | | | Non-pluggable | | | | | |
| Max. Cable cross-section | | mm² | 4 | 6 | 16 | 35 | 50 | 95 |
| Max. Cable cross-section | | AWG | 10 | 8 | 6 | 2 | 0 | 4/0 |
| Stripping length | | mm | 10 | 9 | 11 | 18 | 19 | 22 |
| Stripping length | | in | 0.4 | 0.35 | 0.43 | 0.7 | 0.75 | 0.87 |
| Tightening torque | | Nm | 0.5 | 0.5 | 1.2 | 3.8 | 4 | 10 |
| Tightening torque | | lb-in | 4.4 | 4.4 | 11 | 34 | 35 | 89 |
| Required tool | | | Screwdriver 1.2 x 8.0 | Screwdriver 0.6 x 3.5 | Screwdriver 0.8 x 4.0 | Screwdriver 0.8 x 4.5 | Hex key 4.0 | Hex key 6.0 |

| Rated power | $P_{rated}$ | kW | 0.37 ... 5.5 | 7.5 ... 11 | 15 ... 18.5 | 30 ... 45 |
|---|---|---|---|---|---|---|
| **Connection description** | | | **PE connection** | | | |
| **Terminal type** | | | **Schraube** | | | **Bolzen** |
| Max. Cable cross-section | | mm² | 6 | 16 | 25 | 95 |
| Max. Cable cross-section | | AWG | 10 | 6 | 4 | 4 |
| Stripping length | | mm | 10 | 11 | 16 | - |
| Stripping length | | in | 0.4 | 0.4 | 0.6 | - |
| Tightening torque | | Nm | 2 | 3.4 | 4 | 10 |
| Tightening torque | | lb-in | 18 | 30 | 35 | 89 |
| Required tool | | | Torx key 20 | Crosstip screwdriver PZ2 | | Wrench size 13 |

| Rated power | $P_{rated}$ | kW | 0.37 ... 0.75 | 1.1 ... 5.5 | 7.5 ... 11 | 15 ... 18.5 | 30 | 45 |
|---|---|---|---|---|---|---|---|---|
| **Connection description** | | | **Motor connection** | | | | | |
| **Connection** | | | **X105** | | | | | |
| Connection type | | | Non-pluggable | | | | | |
| Max. Cable cross-section | | mm² | 4 | 6 | 16 | 35 | 50 | 95 |
| Max. Cable cross-section | | AWG | 10 | 8 | 6 | 2 | 0 | 4/0 |
| Stripping length | | mm | 10 | 9 | 11 | 18 | 19 | 22 |
| Stripping length | | in | 0.4 | 0.35 | 0.43 | 0.7 | 0.75 | 0.87 |
| Tightening torque | | Nm | 0.5 | 0.5 | 1.2 | 3.8 | 4 | 10 |
| Tightening torque | | lb-in | 4.4 | 4.4 | 11 | 34 | 35 | 89 |
| Required tool | | | Screwdriver 1.2 x 8.0 | Screwdriver 0.6 x 3.5 | Screwdriver 0.8 x 4.0 | Screwdriver 0.8 x 4.5 | Hex key 4.0 | Hex key 6.0 |



## Brake resistors

### Assignment to inverters with protection class IP31

| Inverter | Brake resistor | | | | | | |
|---|---|---|---|---|---|---|---|
| | Order code | Rated resistance | Rated power | Thermal capacity | Dimensions (H x W x D) | Weight | Degree of protection |
| | | Ω | W | kWs | mm | kg | |
| i550-P0.37/230-2 | ERBM100R100W | 100 | 100 | 15 | 235 x 20.6 x 40 | 0.37 | IP54 |
| i550-P0.37/230-2 | ERBS100R625WNQN000 | 100 | 625 | 94 | 566 x 124 x 122 | 3.1 | IP66 |
| i550-P0.37/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.55/230-2 | ERBM100R100W | 100 | 100 | 15 | 235 x 20.6 x 40 | 0.37 | IP54 |
| i550-P0.55/230-2 | ERBS100R625WNQN000 | 100 | 625 | 94 | 566 x 124 x 122 | 3.1 | IP66 |
| i550-P0.55/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.75/230-2 | ERBM100R100W | 100 | 100 | 15 | 235 x 20.6 x 40 | 0.37 | IP54 |
| i550-P0.75/230-2 | ERBS100R625WNQN000 | 100 | 625 | 94 | 566 x 124 x 122 | 3.1 | IP66 |
| i550-P0.75/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P1.1/230-2 | ERBM039R120W | 39 | 120 | 18 | 265 x 31 x 60 | 1.0 | IP54 |
| i550-P1.1/230-2 | ERBS039R01K6NQN000 | 39 | 1600 | 246 | 751 x 208 x 122 | 7.8 | IP66 |
| i550-P1.1/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P1.5/230-2 | ERBM039R120W | 39 | 120 | 18 | 265 x 31 x 60 | 1.0 | IP54 |
| i550-P1.5/230-2 | ERBS039R01K6NQN000 | 39 | 1600 | 246 | 751 x 208 x 122 | 7.8 | IP66 |
| i550-P1.5/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P2.2/230-2 | ERBM039R120W | 39 | 120 | 18 | 265 x 31 x 60 | 1.0 | IP54 |
| i550-P2.2/230-2 | ERBS039R01K6NQN000 | 39 | 1600 | 246 | 751 x 208 x 122 | 7.8 | IP66 |
| i550-P2.2/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P3.0/230-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P3.0/230-3 | ERBS015R01K2 | 15 | 1200 | 180 | 1020 x 114 x 105 | 5.6 | IP66 |
| i550-P3.0/230-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P4.0/230-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P4.0/230-3 | ERBS015R01K2 | 15 | 1200 | 180 | 1020 x 114 x 105 | 5.6 | IP66 |
| i550-P4.0/230-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P5.5/230-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P5.5/230-3 | ERBS015R01K2 | 15 | 1200 | 180 | 1020 x 114 x 105 | 5.6 | IP66 |
| i550-P5.5/230-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P7.5/230-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P7.5/230-3 | ERBS015R02K4 | 15 | 2400 | 360 | 1020 x 204 x 105 | 10 | IP66 |
| i550-P11/230-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P11/230-3 | ERBS015R01K2 | 15 | 1200 | 180 | 1020 x 114 x 105 | 5.6 | IP66 |
| i550-P11/230-3 | ERBS015R02K4 | 15 | 2400 | 360 | 1020 x 204 x 105 | 10 | IP66 |
| i550-P15/230-3 | ERBS012R02K0WQN000 | 12 | 2000 | 300 | 865 x 204 x 105 | 9.8 | IP66 |
| i550-P15/230-3 | ERBS012R05K0WQN000 | 12 | 5000 | 750 | 995 x 301 x 280 | 35.5 | IP66 |
| i550-P18/230-3 | ERBS012R02K0WQN000 | 12 | 2000 | 300 | 865 x 204 x 105 | 9.8 | IP66 |
| i550-P18/230-3 | ERBS012R05K0WQN000 | 12 | 5000 | 750 | 995 x 301 x 280 | 35.5 | IP66 |

## Assignment to inverters with protection class IP66

| Inverter | Brake resistor | | | | | | |
|---|---|---|---|---|---|---|---|
| | Order code | Rated resistance | Rated power | Thermal capacity | Dimensions (H x W x D) | Weight | Degree of protection |
| | | Ω | W | kWs | mm | kg | |
| i550-P0.37/230-2 | ERBS100R625WNQN000 | 100 | 625 | 94 | 566 x 124 x 122 | 3.1 | IP66 |
| i550-P0.37/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.55/230-2 | ERBS100R625WNQN000 | 100 | 625 | 94 | 566 x 124 x 122 | 3.1 | IP66 |
| i550-P0.55/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.75/230-2 | ERBS100R625WNQN000 | 100 | 625 | 94 | 566 x 124 x 122 | 3.1 | IP66 |
| i550-P0.75/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P1.1/230-2 | ERBS039R01K6NQN000 | 39 | 1600 | 246 | 751 x 208 x 122 | 7.8 | IP66 |
| i550-P1.1/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P1.5/230-2 | ERBS039R01K6NQN000 | 39 | 1600 | 246 | 751 x 208 x 122 | 7.8 | IP66 |
| i550-P1.5/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P2.2/230-2 | ERBS039R01K6NQN000 | 39 | 1600 | 246 | 751 x 208 x 122 | 7.8 | IP66 |
| i550-P2.2/230-2 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P3.0/230-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P3.0/230-3 | ERBS015R01K2 | 15 | 1200 | 180 | 1020 x 114 x 105 | 5.6 | IP66 |
| i550-P3.0/230-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P4.0/230-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P4.0/230-3 | ERBS015R01K2 | 15 | 1200 | 180 | 1020 x 114 x 105 | 5.6 | IP66 |
| i550-P4.0/230-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P5.5/230-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P5.5/230-3 | ERBS015R01K2 | 15 | 1200 | 180 | 1020 x 114 x 105 | 5.6 | IP66 |
| i550-P5.5/230-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P7.5/230-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P7.5/230-3 | ERBS015R02K4 | 15 | 2400 | 360 | 1020 x 204 x 105 | 10 | IP66 |
| i550-P11/230-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P11/230-3 | ERBS015R01K2 | 15 | 1200 | 180 | 1020 x 114 x 105 | 5.6 | IP66 |
| i550-P11/230-3 | ERBS015R02K4 | 15 | 2400 | 360 | 1020 x 204 x 105 | 10 | IP66 |
| i550-P15/230-3 | ERBS012R02K0WQN000 | 12 | 2000 | 300 | 865 x 204 x 105 | 9.8 | IP66 |
| i550-P15/230-3 | ERBS012R05K0WQN000 | 12 | 5000 | 750 | 995 x 301 x 280 | 35.5 | IP66 |
| i550-P18/230-3 | ERBS012R02K0WQN000 | 12 | 2000 | 300 | 865 x 204 x 105 | 9.8 | IP66 |
| i550-P18/230-3 | ERBS012R05K0WQN000 | 12 | 5000 | 750 | 995 x 301 x 280 | 35.5 | IP66 |



## 3-phase mains connection 230/240 V "Light Duty"

The inverters i550-Pxxx/**230-3** and i550-Pxxx/**230-2** do not have an integrated RFI filter in the AC mains supply.

In order to meet the EMC requirements according to EN IEC 61800-3, an external EMC filter according to IEC EN 60939 must be used.

The user must verify that the conformity with EN IEC 61800-3 is fulfilled.

### Rated data

The output currents apply to these operating conditions:

- At switching frequency 2 kHz or 4 kHz: Ambient temperature max. 40 °C (104 °F).

# Technical data

3-phase mains connection 230/240 V "Light Duty"
Rated data

| **Inverter** | | | **i550-P0.37/230-2** | **i550-P0.55/230-2** | **i550-P0.75/230-2** | **i550-P1.1/230-2** |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **0.55** | **0.75** | **1.1** | **1.5** |
| **Rated power** | **$P_{rated}$** | **hp** | **0.75** | **1** | **1.5** | **2** |
| Mains voltage range | | | 3/PE AC 170 V ... 264 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 230/240 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 4.7 | 5.8 | 7.7 | 9.4 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 1.2 | 1.6 | 2.2 | 2.6 |
| Rated output current | | | | | | |
| 2 kHz | | A | - | 3.8 | 5 | 7.2 |
| 4 kHz | | A | 2.9 | 3.8 | 5 | 7.2 |
| 8 kHz | | A | - | | | |
| 12 kHz | | A | - | | | |
| 16 kHz | | A | - | | | |
| Power loss | | | | | | |
| 2 kHz | | W | 30 | | 38 | 45 |
| 4 kHz | | W | 32 | | 40 | 48 |
| 8 kHz | | W | - | | | |
| 12 kHz | | W | - | | | |
| 16 kHz | | W | - | | | |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 3.6 | 4.8 | 6.3 | 9 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 1.8 | 2.4 | 3.2 | 4.5 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 4.8 | 6.4 | 8.4 | 12 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 1.8 | 2.4 | 3.2 | 4.5 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 3.9 | | | 12 |
| Min. Brake resistor | | Ω | 100 | | | 33 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | - | | | |
| Category C3 (≤ 8 kHz) | | m | - | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 60 | | | 80 |



| Inverter | | | i550-P1.5/230-2 | i550-P2.2/230-2 | i550-P3.0/230-3 | i550-P4.0/230-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **2.2** | **3** | **4** | **5.5** |
| **Rated power** | **$P_{rated}$** | **hp** | **3** | **4** | **5** | **7.5** |
| Mains voltage range | | | 3/PE AC 170 V ... 264 V, 45 Hz ... 65 Hz | | 3/PE AC 195 V ... 264 V, 45 Hz ... 65 Hz | |
| Output voltage | | | 3 AC 0 - 230/240 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 11.4 | 16.4 | 17.3 | 23.8 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 3.6 | 4.9 | 6.2 | 8.7 |
| Rated output current | | | | | | |
| 2 kHz | | A | 8.4 | 11.5 | 14.4 | 19.8 |
| 4 kHz | | A | 8.4 | 11.5 | 14.4 | 19.8 |
| 8 kHz | | A | - | | | |
| 12 kHz | | A | - | | | |
| 16 kHz | | A | - | | | |
| Power loss | | | | | | |
| 2 kHz | | W | 62 | 79 | 102 | 137 |
| 4 kHz | | W | 66 | 84 | 108 | 145 |
| 8 kHz | | W | - | | | |
| 12 kHz | | W | - | | | |
| 16 kHz | | W | - | | | |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 10.5 | 14.4 | 18 | 24.8 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 5.3 | 7.2 | 9 | 12.4 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 14 | 19.2 | 24 | 33 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 5.3 | 7.2 | 9 | 12.4 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 12 | | 26 | |
| Min. Brake resistor | | Ω | 33 | | 15 | |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | - | | | |
| Category C3 (≤ 8 kHz) | | m | - | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 80 | | 100 | |

# Technical data

3-phase mains connection 230/240 V "Light Duty"
Rated data

| Inverter | | | i550-P5.5/230-3 | i550-P7.5/230-3 | i550-P15/230-3 | i550-P18/230-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **7.5** | **11** | **18.5** | **22** |
| **Rated power** | **$P_{rated}$** | **hp** | **10** | **15** | **25** | **30** |
| Mains voltage range | | | 3/PE AC 195 V ... 264 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 230/240 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 33.1 | 40 | 71 | 90 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 11 | 15.8 | 24.4 | 30.7 |
| Rated output current | | | | | | |
| 2 kHz | | A | 27.6 | 34.8 | 64.8 | 81.6 |
| 4 kHz | | A | 27.6 | 34.8 | 64.8 | 81.6 |
| 8 kHz | | A | - | | | |
| 12 kHz | | A | - | | | |
| 16 kHz | | A | - | | | |
| Power loss | | | | | | |
| 2 kHz | | W | 172 | 242 | 404 | 489 |
| 4 kHz | | W | 183 | 258 | 430 | 521 |
| 8 kHz | | W | - | | | |
| 12 kHz | | W | - | | | |
| 16 kHz | | W | - | | | |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 34.5 | 43.5 | 81 | 102 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 17.3 | 21.8 | 40.5 | 51 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 46 | 58 | 108 | 136 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 17.3 | 21.8 | 40.5 | 51 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 26 | 30 | 48.8 | |
| Min. Brake resistor | | Ω | 15 | 13 | 8 | |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | - | | | |
| Category C3 (≤ 8 kHz) | | m | - | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 100 | 200 | | |



## Fusing data (EN 60204-1)

A residual current device (RCD) is optional.

Fusing data for UL/NEC compliant installations: ▸ Fusing data 53

The RCD type "F" is only permitted in 1-phase operation (L/N)!

| Inverter | Fuse | | | Circuit breaker | | | RCD | |
|---|---|---|---|---|---|---|---|---|
| | Max. SCCR | Characteristic | Max. rated current | Max. SCCR | Characteristic | Max. rated current | | Type |
| | kA | | A | kA | | A | mA | |
| i550-P0.37/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.37/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P0.55/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.55/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P0.75/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.75/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P1.1/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P1.1/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P1.5/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P1.5/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P2.2/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P2.2/230-2 | 65 | gG/gL, gRL | 40 | 5 | B | 32 | ≥ 30 | Typ F |
| i550-P3.0/230-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 30 | Typ B |
| i550-P4.0/230-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 30 | Typ B |
| i550-P5.5/230-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 30 | Typ B |
| i550-P7.5/230-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 30 | Typ B |
| i550-P15/230-3 | 5 | gG/gL, gRL | 125 | 5 | B | 125 | ≥ 30 | Typ B |
| i550-P18/230-3 | 5 | gG/gL, gRL | 125 | 5 | B | 125 | ≥ 30 | Typ B |

## Connection data

▸ Connection data 100

## Brake resistors

▸ Assignment to inverters with protection class IP31 101

▸ Assignment to inverters with protection class IP66 102

## 3-phase mains connection 400 V

Inverters ≥ 30 kW have an integrated mains choke.

### Rated data

For inverters ≥ 15 kW, EMC category C2 is only valid for the switching frequencies 2 kHz and 4 kHz.

The output currents apply to these operating conditions:

- At switching frequency 2 kHz or 4 kHz: Ambient temperature max. 45 °C (113 °F).
- At switching frequency 8 kHz, 12 kHz or 16 kHz: Ambient temperature max. 40 °C (104 °F).



| Inverter | | | i550-P0.37/400-3 | i550-P0.55/400-3 | i550-P0.55/400-3 | i550-P0.75/400-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **0.37** | **0.55** | | **0.75** |
| **Rated power** | **$P_{rated}$** | **hp** | **0.5** | **0.75** | | **1** |
| Mains voltage range | | | 3/PE AC 340 V ... 440 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 400/480 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 1.8 | 2.5 | | 3.3 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 0.9 | 1.2 | | 1.6 |
| Rated output current | | | | | | |
| 2 kHz | | A | - | 1.8 | | 2.4 |
| 4 kHz | | A | 1.3 | 1.8 | | 2.4 |
| 8 kHz | | A | 1.3 | 1.8 | | 2.4 |
| 12 kHz | | A | 1 | 1.4 | | 1.9 |
| 16 kHz | | A | 0.9 | 1.2 | | 1.4 |
| Power loss | | | | | | |
| 2 kHz | | W | 19 | 24 | | 30 |
| 4 kHz | | W | 20 | 25 | | 32 |
| 8 kHz | | W | 24 | 31 | | 40 |
| 12 kHz | | W | 23 | 30 | | 38 |
| 16 kHz | | W | 22 | 28 | | 35 |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 2 | 2.7 | 2.7 | 3.6 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 1 | 1.4 | 1.4 | 1.8 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 2.6 | 3.6 | 3.6 | 4.8 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 1 | 1.4 | 1.4 | 1.8 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 2 | | 1.9 | 2 |
| Min. Brake resistor | | Ω | 390 | | | |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | 3 | | | |
| Category C2 (≤ 8 kHz) | | m | 20 | | | |
| Category C3 (≤ 8 kHz) | | m | 35 | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 60 | | | |

# Technical data

3-phase mains connection 400 V
Rated data

| Inverter | | | i550-P0.75/400-3 | i550-P1.1/400-3 | i550-P1.1/400-3 | i550-P1.5/400-3 |
|---|---|---|---|---|---|---|
| **Rated power** | $P_{rated}$ | **kW** | **0.75** | **1.1** | | **1.5** |
| **Rated power** | $P_{rated}$ | **hp** | **1** | **1.5** | | **2** |
| Mains voltage range | | | 3/PE AC 340 V ... 440 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 400/480 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 3.3 | 4.4 | | 5.4 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 1.6 | 2.1 | | 2.6 |
| Rated output current | | | | | | |
| 2 kHz | | A | 2.4 | 3.2 | | 3.9 |
| 4 kHz | | A | 2.4 | 3.2 | | 3.9 |
| 8 kHz | | A | 2.4 | 3.2 | | 3.9 |
| 12 kHz | | A | 1.9 | 2.9 | | 3.5 |
| 16 kHz | | A | 1.4 | 2.1 | | 2.6 |
| Power loss | | | | | | |
| 2 kHz | | W | 30 | 38 | | 45 |
| 4 kHz | | W | 32 | 40 | | 48 |
| 8 kHz | | W | 40 | 51 | | 61 |
| 12 kHz | | W | 38 | 54 | | 65 |
| 16 kHz | | W | 35 | 49 | | 58 |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 3.6 | 4.8 | 4.8 | 5.9 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 1.8 | 2.4 | 2.4 | 2.9 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 4.8 | 6.4 | 6.4 | 7.8 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 1.8 | 2.4 | 2.4 | 2.9 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 1.9 | 4.8 | 5.2 | |
| Min. Brake resistor | | Ω | 390 | 150 | | |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | 3 | | | |
| Category C2 (≤ 8 kHz) | | m | 20 | | | |
| Category C3 (≤ 8 kHz) | | m | 35 | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 60 | 80 | | |



| Inverter | | | i550-P1.5/400-3 | i550-P2.2/400-3 | i550-P2.2/400-3 | i550-P3.0/400-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **1.5** | **2.2** | | **3** |
| **Rated power** | **$P_{rated}$** | **hp** | **2** | **3** | | **4** |
| Mains voltage range | | | 3/PE AC 340 V ... 440 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 400/480 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 5.4 | 7.8 | | 9.6 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 2.6 | 3.8 | | 4.9 |
| Rated output current | | | | | | |
| 2 kHz | | A | 3.9 | 5.6 | | 7.3 |
| 4 kHz | | A | 3.9 | 5.6 | | 7.3 |
| 8 kHz | | A | 3.9 | 5.6 | | 7.3 |
| 12 kHz | | A | 3.5 | 5 | | 5.8 |
| 16 kHz | | A | 2.6 | 3.7 | | 4.9 |
| Power loss | | | | | | |
| 2 kHz | | W | 45 | 62 | | 79 |
| 4 kHz | | W | 48 | 66 | | 84 |
| 8 kHz | | W | 61 | 85 | | 109 |
| 12 kHz | | W | 65 | 91 | | 104 |
| 16 kHz | | W | 58 | 81 | | 104 |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 5.9 | 8.4 | 8.4 | 11 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 2.9 | 4.2 | 4.2 | 5.5 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 7.8 | 11.2 | 11.2 | 14.6 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 2.9 | 4.2 | 4.2 | 5.5 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 4.8 | | 5.2 | 8.8 |
| Min. Brake resistor | | Ω | 150 | | | 82 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | 3 | | | - |
| Category C2 (≤ 8 kHz) | | m | 20 | | | |
| Category C3 (≤ 8 kHz) | | m | 35 | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 80 | | | 100 |

# Technical data

3-phase mains connection 400 V
Rated data

| Inverter | | | i550-P4.0/400-3 | i550-P5.5/400-3 | i550-P5.5/400-3 | i550-P7.5/400-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **4** | **5.5** | | **7.5** |
| **Rated power** | **$P_{rated}$** | **hp** | **5** | **7.5** | | **10** |
| Mains voltage range | | | 3/PE AC 340 V ... 440 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 400/480 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 12.5 | 17.2 | | 20 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 6.4 | 8.7 | | 11 |
| Rated output current | | | | | | |
| 2 kHz | | A | 9.5 | 13 | | 16.5 |
| 4 kHz | | A | 9.5 | 13 | | 16.5 |
| 8 kHz | | A | 9.5 | 13 | | 16.5 |
| 12 kHz | | A | 7.6 | 10.4 | | 14.9 |
| 16 kHz | | A | 6.3 | 8.7 | | 11 |
| Power loss | | | | | | |
| 2 kHz | | W | 102 | 137 | | 172 |
| 4 kHz | | W | 108 | 145 | | 183 |
| 8 kHz | | W | 140 | 189 | | 238 |
| 12 kHz | | W | 133 | 180 | | 255 |
| 16 kHz | | W | 133 | 180 | | 227 |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 14.3 | 19.5 | 19.5 | 24.8 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 7.1 | 9.8 | 9.8 | 12.4 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 19 | 26 | 26 | 33 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 7.1 | 9.8 | 9.8 | 12.4 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 15.4 | | 16.6 | 29 |
| Min. Brake resistor | | Ω | 47 | | | 27 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | 20 | | | |
| Category C3 (≤ 8 kHz) | | m | 35 | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 100 | | | 200 |



| Inverter | | | i550-P7.5/400-3 | i550-P11/400-3 | i550-P11/400-3 | i550-P15/400-3 |
|---|---|---|---|---|---|---|
| **Rated power** | $P_{rated}$ | **kW** | **7.5** | **11** | | **15** |
| **Rated power** | $P_{rated}$ | **hp** | **10** | **15** | | **20** |
| Mains voltage range | | | 3/PE AC 340 V ... 440 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 400/480 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 20 | 28.4 | | 37 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 11 | 15.8 | | 21.5 |
| Rated output current | | | | | | |
| 2 kHz | | A | 16.5 | 23.5 | | 32 |
| 4 kHz | | A | 16.5 | 23.5 | | 32 |
| 8 kHz | | A | 16.5 | 23.5 | | 32 |
| 12 kHz | | A | 14.9 | 21.2 | | 25.6 |
| 16 kHz | | A | 11 | 15.7 | | 21.3 |
| Power loss | | | | | | |
| 2 kHz | | W | 172 | 242 | | 328 |
| 4 kHz | | W | 183 | 258 | | 349 |
| 8 kHz | | W | 238 | 337 | | 457 |
| 12 kHz | | W | 255 | 361 | | 435 |
| 16 kHz | | W | 227 | 321 | | 435 |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 24.8 | 35 | 35 | 48 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 12.4 | 17.6 | 17.6 | 24 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 33 | 47 | 47 | 64 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 12.4 | 17.6 | 17.6 | 24 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 27 | 29 | 27 | 40 |
| Min. Brake resistor | | Ω | 27 | | | 18 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | 20 | | | 15 |
| Category C3 (≤ 8 kHz) | | m | 35 | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 200 | | | |

# Technical data

3-phase mains connection 400 V
Rated data

| Inverter | | | i550-P18/400-3 | i550-P18/400-3 | i550-P22/400-3 | i550-P22/400-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **18.5** | | **22** | |
| **Rated power** | **$P_{rated}$** | **hp** | **25** | | **30** | |
| Mains voltage range | | | 3/PE AC 340 V ... 440 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 400/480 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 46 | | 53 | |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 26.8 | | 31.5 | |
| Rated output current | | | | | | |
| 2 kHz | | A | 40 | | 47 | |
| 4 kHz | | A | 40 | | 47 | |
| 8 kHz | | A | 40 | | 47 | |
| 12 kHz | | A | 32 | | 37.6 | |
| 16 kHz | | A | 26.6 | | 31.3 | |
| Power loss | | | | | | |
| 2 kHz | | W | 408 | | 479 | |
| 4 kHz | | W | 435 | | 510 | |
| 8 kHz | | W | 569 | | 668 | |
| 12 kHz | | W | 543 | | 636 | |
| 16 kHz | | W | 542 | | 636 | |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 60 | 60 | 70.5 | 70.5 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 30 | 30 | 35.3 | 35.3 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 80 | 80 | 94 | 94 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 30 | 30 | 35.3 | 35.3 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 48 | 52 | | 48 |
| Min. Brake resistor | | Ω | 15 | | | |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | 15 | | | |
| Category C3 (≤ 8 kHz) | | m | 35 | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 200 | | | |



| Inverter | | | i550-P30/400-3 | i550-P37/400-3 | i550-P45/400-3 | i550-P55/400-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **30** | **37** | **45** | **55** |
| **Rated power** | **$P_{rated}$** | **hp** | **40** | **50** | **60** | **75** |
| Mains voltage range | | | 3/PE AC 340 V ... 440 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 400/480 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 54.9 | 68 | 80 | 99 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 39.3 | 48.9 | 57.3 | 70.8 |
| Rated output current | | | | | | |
| 2 kHz | | A | 61 | 76 | 89 | 110 |
| 4 kHz | | A | 61 | 76 | 89 | 110 |
| 8 kHz | | A | 61 | 76 | 89 | 110 |
| 12 kHz | | A | 48.8 | 60.8 | 71.2 | 88 |
| 16 kHz | | A | 40.6 | 50.6 | 59.3 | 73.3 |
| Power loss | | | | | | |
| 2 kHz | | W | 755 | 933 | 1089 | 1400 |
| 4 kHz | | W | 794 | 982 | 1147 | 1471 |
| 8 kHz | | W | 990 | 1227 | 1433 | 1825 |
| 12 kHz | | W | 923 | 1143 | 1335 | 1692 |
| 16 kHz | | W | 903 | 1119 | 1306 | 1650 |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 91.5 | 114 | 133.5 | 165 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 45.75 | 57 | 66.75 | 82.5 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 122 | 152 | 178 | 220 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 45.75 | 57 | 66.75 | 82.5 |
| Cyclic mains switching | | | 3 times per minute | | | Once per minute |
| Brake chopper | | | | | | |
| Max. output current | | A | 97 | | | 154 |
| Min. Brake resistor | | Ω | 7.5 | | | 4.7 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 100 | | | 200 |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | 15 | | | |
| Category C3 (≤ 8 kHz) | | m | 15 | | | 100 |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 100 | | | 200 |

# Technical data

3-phase mains connection 400 V
Rated data

| Inverter | | | i550-P75/400-3 |
|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **75** |
| **Rated power** | **$P_{rated}$** | **hp** | **100** |
| Mains voltage range | | | 3/PE AC 340 V ... 440 V, 45 Hz ... 65 Hz |
| Output voltage | | | 3 AC 0 - 400/480 V |
| Rated mains current | | | |
| without mains choke | | A | 135 |
| with mains choke | | A | - |
| Apparent output power | | kVA | 96.6 |
| Rated output current | | | |
| 2 kHz | | A | 150 |
| 4 kHz | | A | 150 |
| 8 kHz | | A | 150 |
| 12 kHz | | A | 120 |
| 16 kHz | | A | 100.5 |
| Power loss | | | |
| 2 kHz | | W | 1898 |
| 4 kHz | | W | 1995 |
| 8 kHz | | W | 2478 |
| 12 kHz | | W | 2297 |
| 16 kHz | | W | 2239 |
| Overcurrent cycle 180 s | | | |
| Max. output current (≤ 8 kHz) | | A | 225 |
| Overload time | $T_1$ | s | 60 |
| Recovery time | $T_2$ | s | 120 |
| Max. output current during the recovery time | | A | 112.5 |
| Overcurrent cycle 15 s | | | |
| Max. output current (≤ 8 kHz) | | A | 300 |
| Overload time | $T_1$ | s | 3 |
| Recovery time | $T_2$ | s | 12 |
| Max. output current during the recovery time | | A | 112.5 |
| Cyclic mains switching | | | Once per minute |
| Brake chopper | | | |
| Max. output current | | A | 154 |
| Min. Brake resistor | | Ω | 4.7 |
| Max. shielded motor cable length | | | |
| without EMC category | | m | 200 |
| Category C1 (≤ 8 kHz) | | m | - |
| Category C2 (≤ 8 kHz) | | m | 15 |
| Category C3 (≤ 8 kHz) | | m | 100 |
| Max. Unshielded motor cable length | | | |
| without EMC category | | m | 200 |



## Fusing data (EN 60204-1)

A residual current device (RCD) is optional.

Fusing data for UL/NEC compliant installations: ▸ Fusing data 53

| Inverter | Fuse | | | Circuit breaker | | | RCD | |
|---|---|---|---|---|---|---|---|---|
| | Max. SCCR | Characteristic | Max. rated current | Max. SCCR | Characteristic | Max. rated current | | Type |
| | kA | | A | kA | | A | mA | |
| i550-P0.37/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.55/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.75/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P1.1/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P1.5/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P2.2/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P3.0/400-3 | 5 | gG/gL, gRL | 50 | 5 | B | 50 | ≥ 30 | Typ B |
| i550-P4.0/400-3 | 5 | gG/gL, gRL | 50 | 5 | B | 50 | ≥ 30 | Typ B |
| i550-P5.5/400-3 | 5 | gG/gL, gRL | 50 | 5 | B | 50 | ≥ 30 | Typ B |
| i550-P7.5/400-3 | 5 | gG/gL, gRL | 50 | 5 | B | 50 | ≥ 30 | Typ B |
| i550-P11/400-3 | 5 | gG/gL, gRL | 50 | 5 | B | 50 | ≥ 30 | Typ B |
| i550-P15/400-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 300 | Typ B |
| i550-P18/400-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 300 | Typ B |
| i550-P22/400-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 300 | Typ B |
| i550-P30/400-3 | 10 | gG/gL, gRL | 125 | 10 | B | 125 | ≥ 300 | Typ B |
| i550-P37/400-3 | 10 | gG/gL, gRL | 125 | 10 | B | 125 | ≥ 300 | Typ B |
| i550-P45/400-3 | 10 | gG/gL, gRL | 125 | 10 | B | 125 | ≥ 300 | Typ B |
| i550-P55/400-3 | 10 | gR | 200 | 10 | B | 200 | ≥ 300 | Typ B |
| i550-P75/400-3 | 10 | gR | 200 | 10 | B | 200 | ≥ 300 | Typ B |

## Coneection data

| Rated power | $P_{rated}$ | kW | 0.37 ... 5.5 | 7.5 ... 11 | 15 ... 22 | 30 ... 45 | 55 ... 75 |
|---|---|---|---|---|---|---|---|
| **Connection description** | | | **Mains connection** | | | | |
| **Connection** | | | **X100** | | | | |
| Connection type | | | Non-pluggable | | | | |
| Max. Cable cross-section | | mm² | 4 | 16 | 35 | 50 | 95 |
| Max. Cable cross-section | | AWG | 10 | 6 | 2 | 0 | 4/0 |
| Stripping length | | mm | 10 | 11 | 18 | 19 | 22 |
| Stripping length | | in | 0.4 | 0.43 | 0.7 | 0.75 | 0.87 |
| Tightening torque | | Nm | 0.5 | 1.2 | 3.8 | 4 | 10 |
| Tightening torque | | lb-in | 4.4 | 11 | 34 | 35 | 89 |
| Required tool | | | Screwdriver 1.2 x 8.0 | Screwdriver 0.8 x 4.0 | Screwdriver 0.8 x 4.5 | Hex key 4.0 | Hex key 6.0 |

| Rated power | $P_{rated}$ | kW | 0.37 ... 5.5 | 7.5 ... 11 | 15 ... 22 | 30 ... 75 |
|---|---|---|---|---|---|---|
| **Connection description** | | | **PE connection** | | | |
| **Terminal type** | | | **Schraube** | | | **Bolzen** |
| Max. Cable cross-section | | mm² | 6 | 16 | 25 | 95 |
| Max. Cable cross-section | | AWG | 10 | 6 | 4 | 4 |
| Stripping length | | mm | 10 | 11 | 16 | - |
| Stripping length | | in | 0.4 | 0.4 | 0.6 | - |
| Tightening torque | | Nm | 2 | 3.4 | 4 | 10 |
| Tightening torque | | lb-in | 18 | 30 | 35 | 89 |
| Required tool | | | Torx key 20 | Crosstip screwdriver PZ2 | | Wrench size 13 |

| Rated power | $P_{rated}$ | kW | 0.37 ... 5.5 | 7.5 ... 11 | 15 ... 22 | 30 ... 45 | 55 ... 75 |
|---|---|---|---|---|---|---|---|
| **Connection description** | | | **Motor connection** | | | | |
| **Connection** | | | **X105** | | | | |
| Connection type | | | Non-pluggable | | | | |
| Max. Cable cross-section | | mm² | 4 | 16 | 35 | 50 | 95 |
| Max. Cable cross-section | | AWG | 10 | 6 | 2 | 0 | 4/0 |
| Stripping length | | mm | 10 | 11 | 18 | 19 | 22 |
| Stripping length | | in | 0.4 | 0.43 | 0.7 | 0.75 | 0.87 |
| Tightening torque | | Nm | 0.5 | 1.2 | 3.8 | 4 | 10 |
| Tightening torque | | lb-in | 4.4 | 11 | 34 | 35 | 89 |
| Required tool | | | Screwdriver 1.2 x 8.0 | Screwdriver 0.8 x 4.0 | Screwdriver 0.8 x 4.5 | Hex key 4.0 | Hex key 6.0 |



## Brake resistors

### Assignment to inverters with protection class IP31

| Inverter | Brake resistor | | | | | | |
|---|---|---|---|---|---|---|---|
| | Order code | Rated resistance | Rated power | Thermal capacity | Dimensions (H x W x D) | Weight | Degree of protection |
| | | Ω | W | kWs | mm | kg | |
| i550-P0.37/400-3 | ERBM390R100W | 390 | 100 | 15 | 235 x 20.6 x 40 | 0.37 | IP54 |
| i550-P0.37/400-3 | ERBU390R015WAQN000 | 390 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.55/400-3 | ERBM390R100W | 390 | 100 | 15 | 235 x 20.6 x 40 | 0.37 | IP54 |
| i550-P0.55/400-3 | ERBS470R150WNQN000 | 470 | 150 | 22.5 | 222 x 124 x 122 | 1.3 | IP66 |
| i550-P0.55/400-3 | ERBU390R015WAQN000 | 390 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.75/400-3 | ERBM390R100W | 390 | 100 | 15 | 235 x 20.6 x 40 | 0.37 | IP54 |
| i550-P0.75/400-3 | ERBS470R150WNQN000 | 470 | 150 | 22.5 | 222 x 124 x 122 | 1.3 | IP66 |
| i550-P0.75/400-3 | ERBU390R015WAQN000 | 390 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P1.1/400-3 | ERBS180R350WNQN000 | 180 | 350 | 53 | 382 x 124 x 122 | 2.1 | IP66 |
| i550-P1.1/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P1.5/400-3 | ERBS180R350WNQN000 | 180 | 350 | 53 | 382 x 124 x 122 | 2.1 | IP66 |
| i550-P1.5/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P2.2/400-3 | ERBS180R350WNQN000 | 180 | 350 | 53 | 382 x 124 x 122 | 2.1 | IP66 |
| i550-P2.2/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P3.0/400-3 | ERBS082R780WNQN000 | 82 | 780 | 117 | 666 x 124 x 122 | 3.6 | IP66 |
| i550-P3.0/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P4.0/400-3 | ERBS047R400W | 47 | 400 | 60 | 400 x 114 x 105 | 2.3 | IP66 |
| i550-P4.0/400-3 | ERBS047R800W | 47 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P4.0/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P5.5/400-3 | ERBS047R400W | 47 | 400 | 60 | 400 x 114 x 105 | 2.3 | IP66 |
| i550-P5.5/400-3 | ERBS047R800W | 47 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P5.5/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P7.5/400-3 | ERBS027R600W | 27 | 600 | 90 | 550 x 114 x 105 | 3.1 | IP66 |
| i550-P7.5/400-3 | ERBS027R01K2 | 27 | 1200 | 180 | 1020 x 114 x 105 | 5.6 | IP66 |
| i550-P7.5/400-3 | ERBS027R01K4 | 27 | 1400 | 210 | 1110 x 114 x 105 | 6.3 | IP66 |
| i550-P11/400-3 | ERBS027R600W | 27 | 600 | 90 | 550 x 114 x 105 | 3.1 | IP66 |
| i550-P11/400-3 | ERBS027R01K2 | 27 | 1200 | 180 | 1020 x 114 x 105 | 5.6 | IP66 |
| i550-P11/400-3 | ERBS027R01K4 | 27 | 1400 | 210 | 1110 x 114 x 105 | 6.3 | IP66 |
| i550-P15/400-3 | ERBS018R800W | 18 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P15/400-3 | ERBS018R01K4 | 18 | 1400 | 210 | 1110 x 114 x 105 | 6.3 | IP66 |
| i550-P15/400-3 | ERBS018R04K5WQN000 | 18 | 4500 | 675 | 895 x 301 x 280 | 30.5 | IP66 |
| i550-P18/400-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P18/400-3 | ERBS015R02K4 | 15 | 2400 | 360 | 1020 x 204 x 105 | 10 | IP66 |
| i550-P18/400-3 | ERBS015R06K3WQN000 | 15 | 6300 | 945 | 1095 x 301 x 280 | 39 | IP66 |
| i550-P22/400-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P22/400-3 | ERBS015R02K4 | 15 | 2400 | 360 | 1020 x 204 x 105 | 10 | IP66 |
| i550-P22/400-3 | ERBS015R06K3WQN000 | 15 | 6300 | 945 | 1095 x 301 x 280 | 39 | IP66 |

## Assignment to inverters with protection class IP66

| Inverter | Brake resistor | | | | | | |
|---|---|---|---|---|---|---|---|
| | Order code | Rated resistance | Rated power | Thermal capacity | Dimensions (H x W x D) | Weight | Degree of protection |
| | | Ω | W | kWs | mm | kg | |
| i550-P0.37/400-3 | ERBS470R150WNQN000 | 470 | 150 | 22.5 | 222 x 124 x 122 | 1.3 | IP66 |
| i550-P0.37/400-3 | ERBU390R015WAQN000 | 390 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.55/400-3 | ERBS470R150WNQN000 | 470 | 150 | 22.5 | 222 x 124 x 122 | 1.3 | IP66 |
| i550-P0.55/400-3 | ERBU390R015WAQN000 | 390 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.75/400-3 | ERBS470R150WNQN000 | 470 | 150 | 22.5 | 222 x 124 x 122 | 1.3 | IP66 |
| i550-P0.75/400-3 | ERBU390R015WAQN000 | 390 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P1.1/400-3 | ERBS180R350WNQN000 | 180 | 350 | 53 | 382 x 124 x 122 | 2.1 | IP66 |
| i550-P1.1/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P1.5/400-3 | ERBS180R350WNQN000 | 180 | 350 | 53 | 382 x 124 x 122 | 2.1 | IP66 |
| i550-P1.5/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P2.2/400-3 | ERBS180R350WNQN000 | 180 | 350 | 53 | 382 x 124 x 122 | 2.1 | IP66 |
| i550-P2.2/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P3.0/400-3 | ERBS082R780WNQN000 | 82 | 780 | 117 | 666 x 124 x 122 | 3.6 | IP66 |
| i550-P3.0/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P4.0/400-3 | ERBS047R400W | 47 | 400 | 60 | 400 x 114 x 105 | 2.3 | IP66 |
| i550-P4.0/400-3 | ERBS047R800W | 47 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P4.0/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P5.5/400-3 | ERBS047R400W | 47 | 400 | 60 | 400 x 114 x 105 | 2.3 | IP66 |
| i550-P5.5/400-3 | ERBS047R800W | 47 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P5.5/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P7.5/400-3 | ERBS027R600W | 27 | 600 | 90 | 550 x 114 x 105 | 3.1 | IP66 |
| i550-P7.5/400-3 | ERBS027R01K2 | 27 | 1200 | 180 | 1020 x 114 x 105 | 5.6 | IP66 |
| i550-P7.5/400-3 | ERBS027R01K4 | 27 | 1400 | 210 | 1110 x 114 x 105 | 6.3 | IP66 |
| i550-P11/400-3 | ERBS027R600W | 27 | 600 | 90 | 550 x 114 x 105 | 3.1 | IP66 |
| i550-P11/400-3 | ERBS027R01K2 | 27 | 1200 | 180 | 1020 x 114 x 105 | 5.6 | IP66 |
| i550-P11/400-3 | ERBS027R01K4 | 27 | 1400 | 210 | 1110 x 114 x 105 | 6.3 | IP66 |
| i550-P15/400-3 | ERBS018R800W | 18 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P15/400-3 | ERBS018R01K4 | 18 | 1400 | 210 | 1110 x 114 x 105 | 6.3 | IP66 |
| i550-P15/400-3 | ERBS018R04K5WQN000 | 18 | 4500 | 675 | 895 x 301 x 280 | 30.5 | IP66 |
| i550-P18/400-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P18/400-3 | ERBS015R02K4 | 15 | 2400 | 360 | 1020 x 204 x 105 | 10 | IP66 |
| i550-P18/400-3 | ERBS015R06K3WQN000 | 15 | 6300 | 945 | 1095 x 301 x 280 | 39 | IP66 |
| i550-P22/400-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P22/400-3 | ERBS015R02K4 | 15 | 2400 | 360 | 1020 x 204 x 105 | 10 | IP66 |
| i550-P22/400-3 | ERBS015R06K3WQN000 | 15 | 6300 | 945 | 1095 x 301 x 280 | 39 | IP66 |



## 3-phase mains connection 400 V "Light Duty"

### Rated data

For inverters ≥ 15 kW, EMC category C2 is only valid for the switching frequencies 2 kHz and 4 kHz.

The output currents apply to these operating conditions:

- At switching frequency 2 kHz or 4 kHz: Ambient temperature max. 40 °C (104 °F).

# Technical data

3-phase mains connection 400 V "Light Duty"
Rated data

| Inverter | | | i550-P0.37/400-3 | i550-P0.55/400-3 | i550-P0.75/400-3 | i550-P1.1/400-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **0.55** | **0.75** | **1.1** | **1.5** |
| **Rated power** | **$P_{rated}$** | **hp** | **0.75** | **1** | **1.5** | **2** |
| Mains voltage range | | | 3/PE AC 340 V ... 440 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 400/480 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 1.8 | 2.5 | 4.5 | 5 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 0.9 | 1.6 | 2.1 | 2.6 |
| Rated output current | | | | | | |
| 2 kHz | | A | - | 2.2 | 2.9 | 3.8 |
| 4 kHz | | A | 1.6 | 2.2 | 2.9 | 3.8 |
| 8 kHz | | A | - | | | |
| 12 kHz | | A | - | | | |
| 16 kHz | | A | - | | | |
| Power loss | | | | | | |
| 2 kHz | | W | 24 | 30 | 38 | 45 |
| 4 kHz | | W | 25 | 32 | 40 | 48 |
| 8 kHz | | W | - | | | |
| 12 kHz | | W | - | | | |
| 16 kHz | | W | - | | | |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 2 | 2.7 | 3.6 | 4.8 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 1 | 1.4 | 1.8 | 2.4 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 2.6 | 3.6 | 4.8 | 6.4 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 1 | 1.4 | 1.8 | 2.4 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 2 | | | 4.8 |
| Min. Brake resistor | | Ω | 390 | | | 150 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | 3 | | | |
| Category C2 (≤ 8 kHz) | | m | 20 | | | |
| Category C3 (≤ 8 kHz) | | m | 35 | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 60 | | | 80 |



| Inverter | | | i550-P1.5/400-3 | i550-P2.2/400-3 | i550-P3.0/400-3 | i550-P4.0/400-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **2.2** | **3** | **4** | **5.5** |
| **Rated power** | **$P_{rated}$** | **hp** | **3** | **4** | **5** | **7.5** |
| Mains voltage range | | | 3/PE AC 340 V ... 440 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 400/480 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 6.1 | 8.7 | 10.3 | 14 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 3.6 | 4.9 | 6.4 | 8.7 |
| Rated output current | | | | | | |
| 2 kHz | | A | 4.7 | 6.7 | 8.8 | 11.9 |
| 4 kHz | | A | 4.7 | 6.7 | 8.8 | 11.9 |
| 8 kHz | | A | - | | | |
| 12 kHz | | A | - | | | |
| 16 kHz | | A | - | | | |
| Power loss | | | | | | |
| 2 kHz | | W | 62 | 79 | 102 | 137 |
| 4 kHz | | W | 66 | 84 | 108 | 145 |
| 8 kHz | | W | - | | | |
| 12 kHz | | W | - | | | |
| 16 kHz | | W | - | | | |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 5.9 | 8.4 | 11 | 14.3 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 2.9 | 4.2 | 5.5 | 7.1 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 7.8 | 11.2 | 14.6 | 19 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 2.9 | 4.2 | 5.5 | 7.1 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 5.2 | 4.8 | 8.8 | 15.4 |
| Min. Brake resistor | | Ω | 150 | | 82 | 47 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | 3 | | - | |
| Category C2 (≤ 8 kHz) | | m | 20 | | | |
| Category C3 (≤ 8 kHz) | | m | 35 | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 80 | | 100 | |

# Technical data

3-phase mains connection 400 V "Light Duty"
Rated data

| Inverter | | | i550-P5.5/400-3 | i550-P7.5/400-3 | i550-P11/400-3 | i550-P15/400-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **7.5** | **11** | **15** | **18.5** |
| **Rated power** | **$P_{rated}$** | **hp** | **10** | **15** | **20** | **25** |
| Mains voltage range | | | 3/PE AC 340 V ... 440 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 400/480 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 18.3 | 28 | 34.2 | 43.6 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 11 | 15.8 | 21.5 | 25.8 |
| Rated output current | | | | | | |
| 2 kHz | | A | 15.6 | 23 | 28.2 | 38.4 |
| 4 kHz | | A | 15.6 | 23 | 28.2 | 38.4 |
| 8 kHz | | A | - | | | |
| 12 kHz | | A | - | | | |
| 16 kHz | | A | - | | | |
| Power loss | | | | | | |
| 2 kHz | | W | 172 | 242 | 340 | 392 |
| 4 kHz | | W | 183 | 258 | 361 | 418 |
| 8 kHz | | W | - | | | |
| 12 kHz | | W | - | | | |
| 16 kHz | | W | - | | | |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 19.5 | 24.8 | 35 | 48 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 9.8 | 12.4 | 17.6 | 24 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 26 | 33 | 47 | 64 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 9.8 | 12.4 | 17.6 | 24 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 15.4 | 29 | | 40 |
| Min. Brake resistor | | Ω | 47 | 27 | | 18 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | 20 | | | 15 |
| Category C3 (≤ 8 kHz) | | m | 35 | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 100 | 200 | | |



| **Inverter** | | | **i550-P18/400-3** | **i550-P22/400-3** |
|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **22** | **30** |
| **Rated power** | **$P_{rated}$** | **hp** | **30** | **40** |
| Mains voltage range | | | 3/PE AC 340 V ... 440 V, 45 Hz ... 65 Hz | |
| Output voltage | | | 3 AC 0 - 400/480 V | |
| Rated mains current | | | | |
| without mains choke | | A | 54.5 | 64 |
| with mains choke | | A | - | |
| Apparent output power | | kVA | 32.2 | 37.8 |
| Rated output current | | | | |
| 2 kHz | | A | 48 | 56.4 |
| 4 kHz | | A | 48 | 56.4 |
| 8 kHz | | A | - | |
| 12 kHz | | A | - | |
| 16 kHz | | A | - | |
| Power loss | | | | |
| 2 kHz | | W | 489 | 573 |
| 4 kHz | | W | 521 | 611 |
| 8 kHz | | W | - | |
| 12 kHz | | W | - | |
| 16 kHz | | W | - | |
| Overcurrent cycle 180 s | | | | |
| Max. output current (≤ 8 kHz) | | A | 60 | 70.5 |
| Overload time | $T_1$ | s | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 |
| Max. output current during the recovery time | | A | 30 | 35.3 |
| Overcurrent cycle 15 s | | | | |
| Max. output current (≤ 8 kHz) | | A | 80 | 94 |
| Overload time | $T_1$ | s | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 |
| Max. output current during the recovery time | | A | 30 | 35.3 |
| Cyclic mains switching | | | 3 times per minute | |
| Brake chopper | | | | |
| Max. output current | | A | 48 | 52 |
| Min. Brake resistor | | Ω | 15 | |
| Max. shielded motor cable length | | | | |
| without EMC category | | m | 50 | |
| Category C1 (≤ 8 kHz) | | m | - | |
| Category C2 (≤ 8 kHz) | | m | 15 | |
| Category C3 (≤ 8 kHz) | | m | 35 | |
| Max. Unshielded motor cable length | | | | |
| without EMC category | | m | 200 | |

## Fusing data (EN 60204-1)

A residual current device (RCD) is optional.

Fusing data for UL/NEC compliant installations: ▸ Fusing data 53

| Inverter | Fuse | | | Circuit breaker | | | RCD | |
|---|---|---|---|---|---|---|---|---|
| | Max. SCCR | Characteristic | Max. rated current | Max. SCCR | Characteristic | Max. rated current | | Type |
| | kA | | A | kA | | A | mA | |
| i550-P0.37/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.55/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.75/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P1.1/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P1.5/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P2.2/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P3.0/400-3 | 5 | gG/gL, gRL | 50 | 5 | B | 50 | ≥ 30 | Typ B |
| i550-P4.0/400-3 | 5 | gG/gL, gRL | 50 | 5 | B | 50 | ≥ 30 | Typ B |
| i550-P5.5/400-3 | 5 | gG/gL, gRL | 50 | 5 | B | 50 | ≥ 30 | Typ B |
| i550-P7.5/400-3 | 5 | gG/gL, gRL | 50 | 5 | B | 50 | ≥ 30 | Typ B |
| i550-P11/400-3 | 5 | gG/gL, gRL | 50 | 5 | B | 50 | ≥ 30 | Typ B |
| i550-P15/400-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 300 | Typ B |
| i550-P18/400-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 300 | Typ B |
| i550-P22/400-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 300 | Typ B |

### Connection data

▸ Coneection data 118

### Brake resistors

▸ Assignment to inverters with protection class IP31 119

▸ Assignment to inverters with protection class IP66 120



## 3-phase mains connection 480 V

Inverters ≥ 30 kW have an integrated mains choke.

### Rated data

For inverters ≥ 15 kW, EMC category C2 is only valid for the switching frequencies 2 kHz and 4 kHz.

The output currents apply to these operating conditions:

- At switching frequency 2 kHz or 4 kHz: Ambient temperature max. 45 °C (113 °F).
- At switching frequency 8 kHz, 12 kHz or 16 kHz: Ambient temperature max. 40 °C (104 °F).

# Technical data

3-phase mains connection 480 V
Rated data

| Inverter | | | i550-P0.37/400-3 | i550-P0.55/400-3 | i550-P0.55/400-3 | i550-P0.75/400-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **0.37** | **0.55** | | **0.75** |
| **Rated power** | **$P_{rated}$** | **hp** | **0.5** | **0.75** | | **1** |
| Mains voltage range | | | 3/PE AC 432 V ... 528 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 400/480 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 1.5 | 2.1 | | 2.8 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 0.9 | 1.3 | | 1.7 |
| Rated output current | | | | | | |
| 2 kHz | | A | - | 1.6 | | 2.1 |
| 4 kHz | | A | 1.1 | 1.6 | | 2.1 |
| 8 kHz | | A | 1.1 | 1.6 | | 2.1 |
| 12 kHz | | A | 0.9 | 1.3 | | 1.7 |
| 16 kHz | | A | 0.7 | 1.1 | | 1.3 |
| Power loss | | | | | | |
| 2 kHz | | W | 19 | 24 | | 30 |
| 4 kHz | | W | 20 | 25 | | 32 |
| 8 kHz | | W | 24 | 31 | | 40 |
| 12 kHz | | W | 23 | 30 | | 38 |
| 16 kHz | | W | 22 | 28 | | 35 |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 1.7 | 2.4 | 2.4 | 3.2 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 0.8 | 1.2 | 1.2 | 1.6 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 2.2 | 3.2 | 3.2 | 4.2 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 0.8 | 1.2 | 1.2 | 1.6 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 2 | | 1.9 | 2 |
| Min. Brake resistor | | Ω | 390 | | | |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | 3 | | | |
| Category C2 (≤ 8 kHz) | | m | 20 | | | |
| Category C3 (≤ 8 kHz) | | m | 35 | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 60 | | | |



| Inverter | | | i550-P0.75/400-3 | i550-P1.1/400-3 | i550-P1.1/400-3 | i550-P1.5/400-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **0.75** | **1.1** | | **1.5** |
| **Rated power** | **$P_{rated}$** | **hp** | **1** | **1.5** | | **2** |
| Mains voltage range | | | 3/PE AC 432 V ... 528 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 400/480 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 2.8 | 3.7 | | 4.5 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 1.7 | 2.4 | | 2.8 |
| Rated output current | | | | | | |
| 2 kHz | | A | 2.1 | 3 | | 3.5 |
| 4 kHz | | A | 2.1 | 3 | | 3.5 |
| 8 kHz | | A | 2.1 | 3 | | 3.5 |
| 12 kHz | | A | 1.7 | 2.7 | | 3.2 |
| 16 kHz | | A | 1.3 | 2 | | 2.3 |
| Power loss | | | | | | |
| 2 kHz | | W | 30 | 38 | | 45 |
| 4 kHz | | W | 32 | 40 | | 48 |
| 8 kHz | | W | 40 | 51 | | 61 |
| 12 kHz | | W | 38 | 54 | | 65 |
| 16 kHz | | W | 35 | 49 | | 58 |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 3.2 | 4.5 | 4.5 | 5.3 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 1.6 | 2.3 | 2.3 | 2.6 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 4.2 | 6 | 6 | 7 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 1.6 | 2.3 | 2.3 | 2.6 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 1.9 | 4.8 | 5.2 | |
| Min. Brake resistor | | Ω | 390 | 150 | | |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | 3 | | | |
| Category C2 (≤ 8 kHz) | | m | 20 | | | |
| Category C3 (≤ 8 kHz) | | m | 35 | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 60 | 80 | | |

# Technical data

3-phase mains connection 480 V
Rated data

| Inverter | | | i550-P1.5/400-3 | i550-P2.2/400-3 | i550-P2.2/400-3 | i550-P3.0/400-3 |
|---|---|---|---|---|---|---|
| **Rated power** | $P_{rated}$ | **kW** | **1.5** | **2.2** | | **3** |
| **Rated power** | $P_{rated}$ | **hp** | **2** | **3** | | **4** |
| Mains voltage range | | | 3/PE AC 432 V ... 528 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 400/480 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 4.5 | 6.5 | | 8 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 2.8 | 3.9 | | 5.1 |
| Rated output current | | | | | | |
| 2 kHz | | A | 3.5 | 4.8 | | 6.3 |
| 4 kHz | | A | 3.5 | 4.8 | | 6.3 |
| 8 kHz | | A | 3.5 | 4.8 | | 6.3 |
| 12 kHz | | A | 3.2 | 4.3 | | 5 |
| 16 kHz | | A | 2.3 | 3.2 | | 4.2 |
| Power loss | | | | | | |
| 2 kHz | | W | 45 | 62 | | 79 |
| 4 kHz | | W | 48 | 66 | | 84 |
| 8 kHz | | W | 61 | 85 | | 109 |
| 12 kHz | | W | 65 | 91 | | 104 |
| 16 kHz | | W | 58 | 81 | | 104 |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 5.3 | 7.2 | 7.2 | 9.5 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 2.6 | 3.6 | 3.6 | 4.7 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 7 | 9.6 | 9.6 | 12.6 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 2.6 | 3.6 | 3.6 | 4.7 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 4.8 | | 5.2 | 8.8 |
| Min. Brake resistor | | Ω | 150 | | | 82 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | 3 | | | - |
| Category C2 (≤ 8 kHz) | | m | 20 | | | |
| Category C3 (≤ 8 kHz) | | m | 35 | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 80 | | | 100 |



| Inverter | | | i550-P4.0/400-3 | i550-P5.5/400-3 | i550-P5.5/400-3 | i550-P7.5/400-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **4** | **5.5** | | **7.5** |
| **Rated power** | **$P_{rated}$** | **hp** | **5** | **7.5** | | **10** |
| Mains voltage range | | | 3/PE AC 432 V ... 528 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 400/480 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 10.5 | 14.3 | | 16.6 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 6.6 | 8.9 | | 11.3 |
| Rated output current | | | | | | |
| 2 kHz | | A | 8.2 | 11 | | 14 |
| 4 kHz | | A | 8.2 | 11 | | 14 |
| 8 kHz | | A | 8.2 | 11 | | 14 |
| 12 kHz | | A | 6.6 | 8.8 | | 12.6 |
| 16 kHz | | A | 5.5 | 7.3 | | 9.3 |
| Power loss | | | | | | |
| 2 kHz | | W | 102 | 137 | | 172 |
| 4 kHz | | W | 108 | 145 | | 183 |
| 8 kHz | | W | 140 | 189 | | 238 |
| 12 kHz | | W | 133 | 180 | | 255 |
| 16 kHz | | W | 133 | 180 | | 227 |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 12.3 | 16.5 | 16.5 | 21 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 6.2 | 8.3 | 8.3 | 10.5 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 16.4 | 22 | 22 | 28 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 6.2 | 8.3 | 8.3 | 10.5 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 15.4 | | 16.6 | 29 |
| Min. Brake resistor | | Ω | 47 | | | 27 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | 20 | | | |
| Category C3 (≤ 8 kHz) | | m | 35 | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 100 | | | 200 |

# Technical data

3-phase mains connection 480 V
Rated data

| Inverter | | | i550-P7.5/400-3 | i550-P11/400-3 | i550-P11/400-3 | i550-P15/400-3 |
|---|---|---|---|---|---|---|
| **Rated power** | $P_{rated}$ | **kW** | **7.5** | **11** | | **15** |
| **Rated power** | $P_{rated}$ | **hp** | **10** | **15** | | **20** |
| Mains voltage range | | | 3/PE AC 432 V ... 528 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 400/480 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 16.6 | 23.7 | | 30.7 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 11.3 | 16.9 | | 21.7 |
| Rated output current | | | | | | |
| 2 kHz | | A | 14 | 21 | | 27 |
| 4 kHz | | A | 14 | 21 | | 27 |
| 8 kHz | | A | 14 | 21 | | 27 |
| 12 kHz | | A | 12.6 | 18.9 | | 21.6 |
| 16 kHz | | A | 9.3 | 14 | | 18 |
| Power loss | | | | | | |
| 2 kHz | | W | 172 | 242 | | 328 |
| 4 kHz | | W | 183 | 258 | | 349 |
| 8 kHz | | W | 238 | 337 | | 457 |
| 12 kHz | | W | 255 | 361 | | 435 |
| 16 kHz | | W | 227 | 321 | | 435 |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 21 | 31.5 | 31.5 | 40.5 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 10.5 | 15.8 | 15.8 | 20.3 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 28 | 42 | 42 | 54 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 10.5 | 15.8 | 15.8 | 20.3 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 27 | 29 | 27 | 40 |
| Min. Brake resistor | | Ω | 27 | | | 18 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | 20 | | | 15 |
| Category C3 (≤ 8 kHz) | | m | 35 | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 200 | | | |



| Inverter | | | i550-P18/400-3 | i550-P18/400-3 | i550-P22/400-3 | i550-P22/400-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **18.5** | | **22** | |
| **Rated power** | **$P_{rated}$** | **hp** | **25** | | **30** | |
| Mains voltage range | | | 3/PE AC 432 V ... 528 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 400/480 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 38 | | 44.2 | |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 27.4 | | 32.5 | |
| Rated output current | | | | | | |
| 2 kHz | | A | 34 | | 40.4 | |
| 4 kHz | | A | 34 | | 40.4 | |
| 8 kHz | | A | 34 | | 40.4 | |
| 12 kHz | | A | 27.2 | | 32.3 | |
| 16 kHz | | A | 22.6 | | 26.9 | |
| Power loss | | | | | | |
| 2 kHz | | W | 408 | | 479 | |
| 4 kHz | | W | 435 | | 510 | |
| 8 kHz | | W | 569 | | 668 | |
| 12 kHz | | W | 543 | | 636 | |
| 16 kHz | | W | 542 | | 636 | |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 51 | 51 | 60.6 | 60.6 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 25.5 | 25.5 | 30.3 | 30.3 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 68 | 68 | 80.8 | 80.8 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 25.5 | 25.5 | 30.3 | 30.3 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 48 | 52 | | 48 |
| Min. Brake resistor | | Ω | 15 | | | |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | 15 | | | |
| Category C3 (≤ 8 kHz) | | m | 35 | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 200 | | | |

# Technical data

3-phase mains connection 480 V
Rated data

| Inverter | | | i550-P30/400-3 | i550-P37/400-3 | i550-P45/400-3 | i550-P55/400-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **30** | **37** | **45** | **55** |
| **Rated power** | **$P_{rated}$** | **hp** | **40** | **50** | **60** | **75** |
| Mains voltage range | | | 3/PE AC 432 V ... 528 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 400/480 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 45.7 | 57 | 66.7 | 83 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 40.2 | 50.2 | 59.5 | 74.2 |
| Rated output current | | | | | | |
| 2 kHz | | A | 52 | 65 | 77 | 96 |
| 4 kHz | | A | 52 | 65 | 77 | 96 |
| 8 kHz | | A | 52 | 65 | 77 | 96 |
| 12 kHz | | A | 41.6 | 52 | 61.6 | 76.8 |
| 16 kHz | | A | 34.6 | 43.3 | 51.3 | 63.9 |
| Power loss | | | | | | |
| 2 kHz | | W | 755 | 933 | 1089 | 1400 |
| 4 kHz | | W | 794 | 982 | 1147 | 1471 |
| 8 kHz | | W | 990 | 1227 | 1433 | 1825 |
| 12 kHz | | W | 923 | 1143 | 1335 | 1692 |
| 16 kHz | | W | 903 | 1119 | 1306 | 1650 |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 78 | 97.5 | 115.5 | 144 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 39 | 48.75 | 57.75 | 72 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 104 | 130 | 154 | 192 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 39 | 48.75 | 57.75 | 72 |
| Cyclic mains switching | | | 3 times per minute | | | Once per minute |
| Brake chopper | | | | | | |
| Max. output current | | A | 97 | | | 154 |
| Min. Brake resistor | | Ω | 7.5 | | | 4.7 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 100 | | | 200 |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | 15 | | | |
| Category C3 (≤ 8 kHz) | | m | 15 | | | 100 |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 100 | | | 200 |



| **Inverter** | | | **i550-P75/400-3** |
|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **75** |
| **Rated power** | **$P_{rated}$** | **hp** | **100** |
| Mains voltage range | | | 3/PE AC 432 V ... 528 V, 45 Hz ... 65 Hz |
| Output voltage | | | 3 AC 0 - 400/480 V |
| Rated mains current | | | |
| without mains choke | | A | 113 |
| with mains choke | | A | - |
| Apparent output power | | kVA | 95.8 |
| Rated output current | | | |
| 2 kHz | | A | 124 |
| 4 kHz | | A | 124 |
| 8 kHz | | A | 124 |
| 12 kHz | | A | 99.2 |
| 16 kHz | | A | 83.1 |
| Power loss | | | |
| 2 kHz | | W | 1898 |
| 4 kHz | | W | 1995 |
| 8 kHz | | W | 2478 |
| 12 kHz | | W | 2297 |
| 16 kHz | | W | 2239 |
| Overcurrent cycle 180 s | | | |
| Max. output current (≤ 8 kHz) | | A | 186 |
| Overload time | $T_1$ | s | 60 |
| Recovery time | $T_2$ | s | 120 |
| Max. output current during the recovery time | | A | 93 |
| Overcurrent cycle 15 s | | | |
| Max. output current (≤ 8 kHz) | | A | 248 |
| Overload time | $T_1$ | s | 3 |
| Recovery time | $T_2$ | s | 12 |
| Max. output current during the recovery time | | A | 93 |
| Cyclic mains switching | | | Once per minute |
| Brake chopper | | | |
| Max. output current | | A | 154 |
| Min. Brake resistor | | Ω | 4.7 |
| Max. shielded motor cable length | | | |
| without EMC category | | m | 200 |
| Category C1 (≤ 8 kHz) | | m | - |
| Category C2 (≤ 8 kHz) | | m | 15 |
| Category C3 (≤ 8 kHz) | | m | 100 |
| Max. Unshielded motor cable length | | | |
| without EMC category | | m | 200 |

## Fusing data (EN 60204-1)

A residual current device (RCD) is optional.

Fusing data for UL/NEC compliant installations: ▸ Fusing data 53

| Inverter | Fuse | | | Circuit breaker | | | RCD | |
|---|---|---|---|---|---|---|---|---|
| | Max. SCCR | Characteristic | Max. rated current | Max. SCCR | Characteristic | Max. rated current | | Type |
| | kA | | A | kA | | A | mA | |
| i550-P0.37/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.55/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.75/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P1.1/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P1.5/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P2.2/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P3.0/400-3 | 5 | gG/gL, gRL | 50 | 5 | B | 50 | ≥ 30 | Typ B |
| i550-P4.0/400-3 | 5 | gG/gL, gRL | 50 | 5 | B | 50 | ≥ 30 | Typ B |
| i550-P5.5/400-3 | 5 | gG/gL, gRL | 50 | 5 | B | 50 | ≥ 30 | Typ B |
| i550-P7.5/400-3 | 5 | gG/gL, gRL | 50 | 5 | B | 50 | ≥ 30 | Typ B |
| i550-P11/400-3 | 5 | gG/gL, gRL | 50 | 5 | B | 50 | ≥ 30 | Typ B |
| i550-P15/400-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 300 | Typ B |
| i550-P18/400-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 300 | Typ B |
| i550-P22/400-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 300 | Typ B |
| i550-P30/400-3 | 10 | gG/gL, gRL | 125 | 10 | B | 125 | ≥ 300 | Typ B |
| i550-P37/400-3 | 10 | gG/gL, gRL | 125 | 10 | B | 125 | ≥ 300 | Typ B |
| i550-P45/400-3 | 10 | gG/gL, gRL | 125 | 10 | B | 125 | ≥ 300 | Typ B |
| i550-P55/400-3 | 10 | gR | 200 | 10 | B | 200 | ≥ 300 | Typ B |
| i550-P75/400-3 | 10 | gR | 200 | 10 | B | 200 | ≥ 300 | Typ B |
| i550-P0.75/600-3 | 65 | gG/gL, gRL | 20 | 5 | - | - | ≥ 30 | Typ B |
| i550-P1.5/600-3 | 65 | gG/gL, gRL | 20 | 5 | - | - | ≥ 30 | Typ B |
| i550-P2.2/600-3 | 65 | gG/gL, gRL | 20 | 5 | - | - | ≥ 30 | Typ B |
| i550-P4.0/600-3 | 5 | gG/gL, gRL | 40 | 5 | - | - | ≥ 30 | Typ B |
| i550-P5.5/600-3 | 5 | gG/gL, gRL | 40 | 5 | - | - | ≥ 30 | Typ B |
| i550-P7.5/600-3 | 5 | gG/gL, gRL | 40 | 5 | - | - | ≥ 30 | Typ B |
| i550-P11/600-3 | 5 | gG/gL, gRL | 40 | 5 | - | - | ≥ 30 | Typ B |
| i550-P15/600-3 | 5 | gG/gL, gRL | 60 | 5 | - | - | ≥ 300 | Typ B |
| i550-P18/600-3 | 5 | gG/gL, gRL | 60 | 5 | - | - | ≥ 300 | Typ B |
| i550-P22/600-3 | 5 | gG/gL, gRL | 60 | 5 | - | - | ≥ 300 | Typ B |



## Connection data

| **Rated power** | $P_{rated}$ | **kW** | **0.37 ... 5.5** | **7.5 ... 11** | **15 ... 22** | **30 ... 45** | **55 ... 75** |
|---|---|---|---|---|---|---|---|
| **Connection description** | | | **Mains connection** | | | | |
| **Connection** | | | **X100** | | | | |
| Connection type | | | Non-pluggable | | | | |
| Max. Cable cross-section | | mm² | 4 | 16 | 35 | 50 | 95 |
| Max. Cable cross-section | | AWG | 10 | 6 | 2 | 0 | 4/0 |
| Stripping length | | mm | 10 | 11 | 18 | 19 | 22 |
| Stripping length | | in | 0.4 | 0.43 | 0.7 | 0.75 | 0.87 |
| Tightening torque | | Nm | 0.5 | 1.2 | 3.8 | 4 | 10 |
| Tightening torque | | lb-in | 4.4 | 11 | 34 | 35 | 89 |
| Required tool | | | Screwdriver 1.2 x 8.0 | Screwdriver 0.8 x 4.0 | Screwdriver 0.8 x 4.5 | Hex key 4.0 | Hex key 6.0 |

| **Rated power** | $P_{rated}$ | **kW** | **0.37 ... 5.5** | **7.5 ... 11** | **15 ... 22** | **30 ... 75** |
|---|---|---|---|---|---|---|
| **Connection description** | | | **PE connection** | | | |
| **Terminal type** | | | **Schraube** | | | **Bolzen** |
| Max. Cable cross-section | | mm² | 6 | 16 | 25 | 95 |
| Max. Cable cross-section | | AWG | 10 | 6 | 4 | 4 |
| Stripping length | | mm | 10 | 11 | 16 | - |
| Stripping length | | in | 0.4 | 0.4 | 0.6 | - |
| Tightening torque | | Nm | 2 | 3.4 | 4 | 10 |
| Tightening torque | | lb-in | 18 | 30 | 35 | 89 |
| Required tool | | | Torx key 20 | Crosstip screwdriver PZ2 | | Wrench size 13 |

| **Rated power** | $P_{rated}$ | **kW** | **0.37 ... 5.5** | **7.5 ... 11** | **15 ... 22** | **30 ... 45** | **55 ... 75** |
|---|---|---|---|---|---|---|---|
| **Connection description** | | | **Motor connection** | | | | |
| **Connection** | | | **X105** | | | | |
| Connection type | | | Non-pluggable | | | | |
| Max. Cable cross-section | | mm² | 4 | 16 | 35 | 50 | 95 |
| Max. Cable cross-section | | AWG | 10 | 6 | 2 | 0 | 4/0 |
| Stripping length | | mm | 10 | 11 | 18 | 19 | 22 |
| Stripping length | | in | 0.4 | 0.43 | 0.7 | 0.75 | 0.87 |
| Tightening torque | | Nm | 0.5 | 1.2 | 3.8 | 4 | 10 |
| Tightening torque | | lb-in | 4.4 | 11 | 34 | 35 | 89 |
| Required tool | | | Screwdriver 1.2 x 8.0 | Screwdriver 0.8 x 4.0 | Screwdriver 0.8 x 4.5 | Hex key 4.0 | Hex key 6.0 |

## Brake resistors

### Assignment to inverters with protection class IP31

| Inverter | Brake resistor | | | | | | |
|---|---|---|---|---|---|---|---|
| | Order code | Rated resistance | Rated power | Thermal capacity | Dimensions (H x W x D) | Weight | Degree of protection |
| | | Ω | W | kWs | mm | kg | |
| i550-P0.37/400-3 | ERBM390R100W | 390 | 100 | 15 | 235 x 20.6 x 40 | 0.37 | IP54 |
| i550-P0.37/400-3 | ERBU390R015WAQN000 | 390 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.55/400-3 | ERBM390R100W | 390 | 100 | 15 | 235 x 20.6 x 40 | 0.37 | IP54 |
| i550-P0.55/400-3 | ERBS470R150WNQN000 | 470 | 150 | 22.5 | 222 x 124 x 122 | 1.3 | IP66 |
| i550-P0.55/400-3 | ERBU390R015WAQN000 | 390 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.75/400-3 | ERBM390R100W | 390 | 100 | 15 | 235 x 20.6 x 40 | 0.37 | IP54 |
| i550-P0.75/400-3 | ERBS470R150WNQN000 | 470 | 150 | 22.5 | 222 x 124 x 122 | 1.3 | IP66 |
| i550-P0.75/400-3 | ERBU390R015WAQN000 | 390 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P1.1/400-3 | ERBS180R350WNQN000 | 180 | 350 | 53 | 382 x 124 x 122 | 2.1 | IP66 |
| i550-P1.1/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P1.5/400-3 | ERBS180R350WNQN000 | 180 | 350 | 53 | 382 x 124 x 122 | 2.1 | IP66 |
| i550-P1.5/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P2.2/400-3 | ERBS180R350WNQN000 | 180 | 350 | 53 | 382 x 124 x 122 | 2.1 | IP66 |
| i550-P2.2/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P3.0/400-3 | ERBS082R780WNQN000 | 82 | 780 | 117 | 666 x 124 x 122 | 3.6 | IP66 |
| i550-P3.0/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P4.0/400-3 | ERBS047R400W | 47 | 400 | 60 | 400 x 114 x 105 | 2.3 | IP66 |
| i550-P4.0/400-3 | ERBS047R800W | 47 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P4.0/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P5.5/400-3 | ERBS047R400W | 47 | 400 | 60 | 400 x 114 x 105 | 2.3 | IP66 |
| i550-P5.5/400-3 | ERBS047R800W | 47 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P5.5/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P7.5/400-3 | ERBS027R600W | 27 | 600 | 90 | 550 x 114 x 105 | 3.1 | IP66 |
| i550-P7.5/400-3 | ERBS027R01K2 | 27 | 1200 | 180 | 1020 x 114 x 105 | 5.6 | IP66 |
| i550-P7.5/400-3 | ERBS027R01K4 | 27 | 1400 | 210 | 1110 x 114 x 105 | 6.3 | IP66 |
| i550-P11/400-3 | ERBS027R600W | 27 | 600 | 90 | 550 x 114 x 105 | 3.1 | IP66 |
| i550-P11/400-3 | ERBS027R01K2 | 27 | 1200 | 180 | 1020 x 114 x 105 | 5.6 | IP66 |
| i550-P11/400-3 | ERBS027R01K4 | 27 | 1400 | 210 | 1110 x 114 x 105 | 6.3 | IP66 |
| i550-P15/400-3 | ERBS018R800W | 18 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P15/400-3 | ERBS018R01K4 | 18 | 1400 | 210 | 1110 x 114 x 105 | 6.3 | IP66 |
| i550-P15/400-3 | ERBS018R04K5WQN000 | 18 | 4500 | 675 | 895 x 301 x 280 | 30.5 | IP66 |
| i550-P18/400-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P18/400-3 | ERBS015R02K4 | 15 | 2400 | 360 | 1020 x 204 x 105 | 10 | IP66 |
| i550-P18/400-3 | ERBS015R06K3WQN000 | 15 | 6300 | 945 | 1095 x 301 x 280 | 39 | IP66 |
| i550-P22/400-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P22/400-3 | ERBS015R02K4 | 15 | 2400 | 360 | 1020 x 204 x 105 | 10 | IP66 |
| i550-P22/400-3 | ERBS015R06K3WQN000 | 15 | 6300 | 945 | 1095 x 301 x 280 | 39 | IP66 |



## Assignment to inverters with protection class IP66

| Inverter | Brake resistor | | | | | | |
|---|---|---|---|---|---|---|---|
| | Order code | Rated resistance | Rated power | Thermal capacity | Dimensions (H x W x D) | Weight | Degree of protection |
| | | Ω | W | kWs | mm | kg | |
| i550-P0.37/400-3 | ERBS470R150WNQN000 | 470 | 150 | 22.5 | 222 x 124 x 122 | 1.3 | IP66 |
| i550-P0.37/400-3 | ERBU390R015WAQN000 | 390 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.55/400-3 | ERBS470R150WNQN000 | 470 | 150 | 22.5 | 222 x 124 x 122 | 1.3 | IP66 |
| i550-P0.55/400-3 | ERBU390R015WAQN000 | 390 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P0.75/400-3 | ERBS470R150WNQN000 | 470 | 150 | 22.5 | 222 x 124 x 122 | 1.3 | IP66 |
| i550-P0.75/400-3 | ERBU390R015WAQN000 | 390 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P1.1/400-3 | ERBS180R350WNQN000 | 180 | 350 | 53 | 382 x 124 x 122 | 2.1 | IP66 |
| i550-P1.1/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P1.5/400-3 | ERBS180R350WNQN000 | 180 | 350 | 53 | 382 x 124 x 122 | 2.1 | IP66 |
| i550-P1.5/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P2.2/400-3 | ERBS180R350WNQN000 | 180 | 350 | 53 | 382 x 124 x 122 | 2.1 | IP66 |
| i550-P2.2/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P3.0/400-3 | ERBS082R780WNQN000 | 82 | 780 | 117 | 666 x 124 x 122 | 3.6 | IP66 |
| i550-P3.0/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P4.0/400-3 | ERBS047R400W | 47 | 400 | 60 | 400 x 114 x 105 | 2.3 | IP66 |
| i550-P4.0/400-3 | ERBS047R800W | 47 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P4.0/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P5.5/400-3 | ERBS047R400W | 47 | 400 | 60 | 400 x 114 x 105 | 2.3 | IP66 |
| i550-P5.5/400-3 | ERBS047R800W | 47 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P5.5/400-3 | ERBU150R015WAQN000 | 150 | 15 | 300 | 83 x 24 x 24 | 0.2 | IP66 |
| i550-P7.5/400-3 | ERBS027R600W | 27 | 600 | 90 | 550 x 114 x 105 | 3.1 | IP66 |
| i550-P7.5/400-3 | ERBS027R01K2 | 27 | 1200 | 180 | 1020 x 114 x 105 | 5.6 | IP66 |
| i550-P7.5/400-3 | ERBS027R01K4 | 27 | 1400 | 210 | 1110 x 114 x 105 | 6.3 | IP66 |
| i550-P11/400-3 | ERBS027R600W | 27 | 600 | 90 | 550 x 114 x 105 | 3.1 | IP66 |
| i550-P11/400-3 | ERBS027R01K2 | 27 | 1200 | 180 | 1020 x 114 x 105 | 5.6 | IP66 |
| i550-P11/400-3 | ERBS027R01K4 | 27 | 1400 | 210 | 1110 x 114 x 105 | 6.3 | IP66 |
| i550-P15/400-3 | ERBS018R800W | 18 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P15/400-3 | ERBS018R01K4 | 18 | 1400 | 210 | 1110 x 114 x 105 | 6.3 | IP66 |
| i550-P15/400-3 | ERBS018R04K5WQN000 | 18 | 4500 | 675 | 895 x 301 x 280 | 30.5 | IP66 |
| i550-P18/400-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P18/400-3 | ERBS015R02K4 | 15 | 2400 | 360 | 1020 x 204 x 105 | 10 | IP66 |
| i550-P18/400-3 | ERBS015R06K3WQN000 | 15 | 6300 | 945 | 1095 x 301 x 280 | 39 | IP66 |
| i550-P22/400-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P22/400-3 | ERBS015R02K4 | 15 | 2400 | 360 | 1020 x 204 x 105 | 10 | IP66 |
| i550-P22/400-3 | ERBS015R06K3WQN000 | 15 | 6300 | 945 | 1095 x 301 x 280 | 39 | IP66 |

## 3-phase mains connection 480 V "Light Duty"

### Rated data

For inverters ≥ 15 kW, EMC category C2 is only valid for the switching frequencies 2 kHz and 4 kHz.

The output currents apply to these operating conditions:

- At switching frequency 2 kHz or 4 kHz: Ambient temperature max. 40 °C (104 °F).



| Inverter | | | i550-P0.37/400-3 | i550-P0.55/400-3 | i550-P0.75/400-3 | i550-P1.1/400-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **0.55** | **0.75** | **1.1** | **1.5** |
| **Rated power** | **$P_{rated}$** | **hp** | **0.75** | **1** | **1.5** | **2** |
| Mains voltage range | | | 3/PE AC 432 V ... 528 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 400/480 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 1.5 | 2.1 | 3.9 | 4.2 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 1.3 | 1.7 | 2.4 | 2.8 |
| Rated output current | | | | | | |
| 2 kHz | | A | - | 1.9 | 2.5 | 3.6 |
| 4 kHz | | A | 1.3 | 1.9 | 2.5 | 3.6 |
| 8 kHz | | A | - | | | |
| 12 kHz | | A | - | | | |
| 16 kHz | | A | - | | | |
| Power loss | | | | | | |
| 2 kHz | | W | 24 | 30 | 38 | 45 |
| 4 kHz | | W | 25 | 32 | 40 | 48 |
| 8 kHz | | W | - | | | |
| 12 kHz | | W | - | | | |
| 16 kHz | | W | - | | | |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 1.7 | 2.4 | 3.2 | 4.5 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 0.8 | 1.2 | 1.6 | 2.3 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 2.2 | 3.2 | 4.2 | 6 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 0.8 | 1.2 | 1.6 | 2.3 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 2 | | | 4.8 |
| Min. Brake resistor | | Ω | 390 | | | 150 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | 3 | | | |
| Category C2 (≤ 8 kHz) | | m | 20 | | | |
| Category C3 (≤ 8 kHz) | | m | 35 | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 60 | | | 80 |

# Technical data

3-phase mains connection 480 V "Light Duty"
Rated data

| Inverter | | | i550-P1.5/400-3 | i550-P2.2/400-3 | i550-P3.0/400-3 | i550-P4.0/400-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **2.2** | **3** | **4** | **5.5** |
| **Rated power** | **$P_{rated}$** | **hp** | **3** | **4** | **5** | **7.5** |
| Mains voltage range | | | 3/PE AC 432 V ... 528 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 400/480 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 5.1 | 7.3 | 8.6 | 11.2 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 3.9 | 5.1 | 6.6 | 8.9 |
| Rated output current | | | | | | |
| 2 kHz | | A | 4.2 | 5.8 | 7.6 | 9.8 |
| 4 kHz | | A | 4.2 | 5.8 | 7.6 | 9.8 |
| 8 kHz | | A | - | | | |
| 12 kHz | | A | - | | | |
| 16 kHz | | A | - | | | |
| Power loss | | | | | | |
| 2 kHz | | W | 62 | 79 | 102 | 137 |
| 4 kHz | | W | 66 | 84 | 108 | 145 |
| 8 kHz | | W | - | | | |
| 12 kHz | | W | - | | | |
| 16 kHz | | W | - | | | |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 5.3 | 7.2 | 9.5 | 12.3 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 2.6 | 3.6 | 4.7 | 6.2 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 7 | 9.6 | 12.6 | 16.4 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 2.6 | 3.6 | 4.7 | 6.2 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 5.2 | 4.8 | 8.8 | 15.4 |
| Min. Brake resistor | | Ω | 150 | | 82 | 47 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | 3 | | - | |
| Category C2 (≤ 8 kHz) | | m | 20 | | | |
| Category C3 (≤ 8 kHz) | | m | 35 | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 80 | | 100 | |



| **Inverter** | | | **i550-P5.5/400-3** | **i550-P7.5/400-3** | **i550-P11/400-3** | **i550-P15/400-3** |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **7.5** | **11** | **15** | **18.5** |
| **Rated power** | **$P_{rated}$** | **hp** | **10** | **15** | **20** | **25** |
| Mains voltage range | | | 3/PE AC 432 V ... 528 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 400/480 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 15.3 | 22 | 30.5 | 36.8 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 11.3 | 16.9 | 21.7 | 26.1 |
| Rated output current | | | | | | |
| 2 kHz | | A | 13.2 | 18.3 | 25.2 | 32.4 |
| 4 kHz | | A | 13.2 | 18.3 | 25.2 | 32.4 |
| 8 kHz | | A | - | | | |
| 12 kHz | | A | - | | | |
| 16 kHz | | A | - | | | |
| Power loss | | | | | | |
| 2 kHz | | W | 172 | 242 | 340 | 392 |
| 4 kHz | | W | 183 | 258 | 361 | 418 |
| 8 kHz | | W | - | | | |
| 12 kHz | | W | - | | | |
| 16 kHz | | W | - | | | |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 16.5 | 21 | 31.5 | 40.5 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 8.3 | 10.5 | 15.8 | 20.3 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 22 | 28 | 42 | 54 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 8.3 | 10.5 | 15.8 | 20.3 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 15.4 | 29 | | 40 |
| Min. Brake resistor | | Ω | 47 | 27 | | 18 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | 20 | | | 15 |
| Category C3 (≤ 8 kHz) | | m | 35 | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 100 | 200 | | |

# Technical data

3-phase mains connection 480 V "Light Duty"
Rated data

| **Inverter** | | | **i550-P18/400-3** | **i550-P22/400-3** |
|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **22** | **30** |
| **Rated power** | **$P_{rated}$** | **hp** | **30** | **40** |
| Mains voltage range | | | 3/PE AC 432 V ... 528 V, 45 Hz ... 65 Hz | |
| Output voltage | | | 3 AC 0 - 400/480 V | |
| Rated mains current | | | | |
| without mains choke | | A | 46.3 | 55 |
| with mains choke | | A | - | |
| Apparent output power | | kVA | 32.8 | 39.0 |
| Rated output current | | | | |
| 2 kHz | | A | 40.8 | 48.5 |
| 4 kHz | | A | 40.8 | 48.5 |
| 8 kHz | | A | - | |
| 12 kHz | | A | - | |
| 16 kHz | | A | - | |
| Power loss | | | | |
| 2 kHz | | W | 489 | 573 |
| 4 kHz | | W | 521 | 611 |
| 8 kHz | | W | - | |
| 12 kHz | | W | - | |
| 16 kHz | | W | - | |
| Overcurrent cycle 180 s | | | | |
| Max. output current (≤ 8 kHz) | | A | 51 | 60.6 |
| Overload time | $T_1$ | s | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 |
| Max. output current during the recovery time | | A | 25.5 | 30.3 |
| Overcurrent cycle 15 s | | | | |
| Max. output current (≤ 8 kHz) | | A | 68 | 80.8 |
| Overload time | $T_1$ | s | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 |
| Max. output current during the recovery time | | A | 25.5 | 30.3 |
| Cyclic mains switching | | | 3 times per minute | |
| Brake chopper | | | | |
| Max. output current | | A | 48 | 52 |
| Min. Brake resistor | | Ω | 15 | |
| Max. shielded motor cable length | | | | |
| without EMC category | | m | 50 | |
| Category C1 (≤ 8 kHz) | | m | - | |
| Category C2 (≤ 8 kHz) | | m | 15 | |
| Category C3 (≤ 8 kHz) | | m | 35 | |
| Max. Unshielded motor cable length | | | | |
| without EMC category | | m | 200 | |



## Fusing data (EN 60204-1)

A residual current device (RCD) is optional.

Fusing data for UL/NEC compliant installations: ▸ Fusing data 53

| Inverter | Fuse | | | Circuit breaker | | | RCD | |
|---|---|---|---|---|---|---|---|---|
| | Max. SCCR | Characteristic | Max. rated current | Max. SCCR | Characteristic | Max. rated current | | Type |
| | kA | | A | kA | | A | mA | |
| i550-P0.37/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.55/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P0.75/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P1.1/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P1.5/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P2.2/400-3 | 65 | gG/gL, gRL | 32 | 5 | B | 32 | ≥ 30 | Typ B |
| i550-P3.0/400-3 | 5 | gG/gL, gRL | 50 | 5 | B | 50 | ≥ 30 | Typ B |
| i550-P4.0/400-3 | 5 | gG/gL, gRL | 50 | 5 | B | 50 | ≥ 30 | Typ B |
| i550-P5.5/400-3 | 5 | gG/gL, gRL | 50 | 5 | B | 50 | ≥ 30 | Typ B |
| i550-P7.5/400-3 | 5 | gG/gL, gRL | 50 | 5 | B | 50 | ≥ 30 | Typ B |
| i550-P11/400-3 | 5 | gG/gL, gRL | 50 | 5 | B | 50 | ≥ 30 | Typ B |
| i550-P15/400-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 300 | Typ B |
| i550-P18/400-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 300 | Typ B |
| i550-P22/400-3 | 5 | gG/gL, gRL | 80 | 5 | B | 80 | ≥ 300 | Typ B |
| i550-P0.75/600-3 | 65 | gG/gL, gRL | 20 | 5 | - | - | ≥ 30 | Typ B |
| i550-P1.5/600-3 | 65 | gG/gL, gRL | 20 | 5 | - | - | ≥ 30 | Typ B |
| i550-P2.2/600-3 | 65 | gG/gL, gRL | 20 | 5 | - | - | ≥ 30 | Typ B |
| i550-P4.0/600-3 | 5 | gG/gL, gRL | 40 | 5 | - | - | ≥ 30 | Typ B |
| i550-P5.5/600-3 | 5 | gG/gL, gRL | 40 | 5 | - | - | ≥ 30 | Typ B |
| i550-P7.5/600-3 | 5 | gG/gL, gRL | 40 | 5 | - | - | ≥ 30 | Typ B |
| i550-P11/600-3 | 5 | gG/gL, gRL | 40 | 5 | - | - | ≥ 30 | Typ B |
| i550-P15/600-3 | 5 | gG/gL, gRL | 60 | 5 | - | - | ≥ 300 | Typ B |
| i550-P18/600-3 | 5 | gG/gL, gRL | 60 | 5 | - | - | ≥ 300 | Typ B |
| i550-P22/600-3 | 5 | gG/gL, gRL | 60 | 5 | - | - | ≥ 300 | Typ B |

## Connection data

▸ Connection data 137

## Brake resistors

▸ Assignment to inverters with protection class IP31 138

▸ Assignment to inverters with protection class IP66 139

## 3-phase mains connection 600 V

The inverters i550-Pxxx/**600-3** do not have an integrated RFI filter in the AC mains supply.

In order to meet the EMC requirements according to EN IEC 61800-3, an external EMC filter according to IEC EN 60939 must be used.

The user must verify that the conformity with EN IEC 61800-3 is fulfilled.

### Rated data

The output currents apply to these operating conditions:

- At switching frequency 2 kHz or 4 kHz: Ambient temperature max. 45 °C (113 °F).
- At switching frequency 8 kHz or 12 kHz: Ambient temperature max. 40 °C (104 °F).



| Inverter | | | i550-P0.75/600-3 | i550-P1.5/600-3 | i550-P1.5/600-3 | i550-P2.2/600-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **0.75** | **1.5** | | **2.2** |
| **Rated power** | **$P_{rated}$** | **hp** | **1** | **2** | | **3** |
| Mains voltage range | | | 3/PE AC 540 V ... 660 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 480/600 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 2.0 | 3.2 | | 4.4 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 1.7 | 2.7 | | 3.9 |
| Rated output current | | | | | | |
| 2 kHz | | A | 1.7 | 2.7 | | 3.9 |
| 4 kHz | | A | 1.7 | 2.7 | | 3.9 |
| 8 kHz | | A | 1.7 | 2.7 | | 3.9 |
| 12 kHz | | A | 1.3 | 2.1 | | 3.0 |
| Power loss | | | | | | |
| 2 kHz | | W | 32 | 47 | | 65 |
| 4 kHz | | W | 33 | 49 | | 69 |
| 8 kHz | | W | 42 | 63 | | 88 |
| 12 kHz | | W | 38 | 58 | | 81 |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 2.6 | 4.1 | 4.1 | 5.9 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 1.3 | 2 | 2 | 2.9 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 3.4 | 5.4 | 5.4 | 7.8 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 1.3 | 2 | 2 | 2.9 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 2.1 | 4.3 | 5.4 | |
| Min. Brake resistor | | Ω | 470 | 180 | | |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | - | | | |
| Category C3 (≤ 8 kHz) | | m | - | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 60 | 80 | | |

# Technical data

3-phase mains connection 600 V
Rated data

| Inverter | | | i550-P4.0/600-3 | i550-P4.0/600-3 | i550-P5.5/600-3 | i550-P7.5/600-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **4** | | **5.5** | **7.5** |
| **Rated power** | **$P_{rated}$** | **hp** | **5** | | **7.5** | **10** |
| Mains voltage range | | | 3/PE AC 540 V ... 660 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 480/600 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 6.8 | | 10.2 | 12.4 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 6.1 | | 9.1 | 11.1 |
| Rated output current | | | | | | |
| 2 kHz | | A | 6.1 | | 9 | 11 |
| 4 kHz | | A | 6.1 | | 9 | 11 |
| 8 kHz | | A | 6.1 | | 9 | 11 |
| 12 kHz | | A | 4.6 | | 6.8 | 8.4 |
| Power loss | | | | | | |
| 2 kHz | | W | 98 | | 142 | 172 |
| 4 kHz | | W | 104 | | 151 | 183 |
| 8 kHz | | W | 135 | | 196 | 238 |
| 12 kHz | | W | 123 | | 178 | 216 |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 9.15 | 9.15 | 13.5 | 16.5 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 4.575 | 4.575 | 6.75 | 8.25 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 12.2 | 12.2 | 18 | 22 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 4.575 | 4.575 | 6.75 | 8.25 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 9.5 | 11.9 | | 25 |
| Min. Brake resistor | | Ω | 82 | | | 39 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | - | | | |
| Category C3 (≤ 8 kHz) | | m | - | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 100 | | | |



| Inverter | | | i550-P7.5/600-3 | i550-P11/600-3 | i550-P15/600-3 | i550-P15/600-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **7.5** | **11** | **15** | |
| **Rated power** | **$P_{rated}$** | **hp** | **10** | **15** | **20** | |
| Mains voltage range | | | 3/PE AC 540 V ... 660 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 480/600 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 12.4 | 19.7 | 25 | |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 11.1 | 17.1 | 22.1 | |
| Rated output current | | | | | | |
| 2 kHz | | A | 11 | 17 | 22 | |
| 4 kHz | | A | 11 | 17 | 22 | |
| 8 kHz | | A | 11 | 17 | 22 | |
| 12 kHz | | A | 8.4 | 12.9 | 16.7 | |
| Power loss | | | | | | |
| 2 kHz | | W | 172 | 263 | 338 | |
| 4 kHz | | W | 183 | 280 | 360 | |
| 8 kHz | | W | 238 | 365 | 471 | |
| 12 kHz | | W | 216 | 331 | 426 | |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 16.5 | 25.5 | 33 | 33 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 8.25 | 12.75 | 16.5 | 16.5 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 22 | 34 | 44 | 44 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 8.25 | 12.75 | 16.5 | 16.5 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 20 | 25 | 28.9 | 36.1 |
| Min. Brake resistor | | Ω | 39 | | 27 | |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | - | | | |
| Category C3 (≤ 8 kHz) | | m | - | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 100 | | | |

# Technical data

3-phase mains connection 600 V
Rated data

| Inverter | | | i550-P18/600-3 | i550-P18/600-3 | i550-P22/600-3 | i550-P22/600-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **18.5** | | **22** | |
| **Rated power** | **$P_{rated}$** | **hp** | **25** | | **30** | |
| Mains voltage range | | | 3/PE AC 540 V ... 660 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 480/600 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 31 | | 36 | |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 27.2 | | 32.2 | |
| Rated output current | | | | | | |
| 2 kHz | | A | 27 | | 32 | |
| 4 kHz | | A | 27 | | 32 | |
| 8 kHz | | A | 27 | | 32 | |
| 12 kHz | | A | 20.5 | | 24.3 | |
| Power loss | | | | | | |
| 2 kHz | | W | 413 | | 489 | |
| 4 kHz | | W | 441 | | 521 | |
| 8 kHz | | W | 576 | | 682 | |
| 12 kHz | | W | 522 | | 618 | |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 40.5 | 40.5 | 48 | 48 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 20.25 | 20.25 | 24 | 24 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 54 | 54 | 64 | 64 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 20.25 | 20.25 | 24 | 24 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 43.3 | 54.2 | 43.3 | 54.2 |
| Min. Brake resistor | | Ω | 18 | | | |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | - | | | |
| Category C3 (≤ 8 kHz) | | m | - | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 100 | | | |



## Fusing data (EN 60204-1)

| Inverter | Fuse | | | Circuit breaker | | | RCD | |
|---|---|---|---|---|---|---|---|---|
| | Max. SCCR | Characteristic | Max. rated current | Max. SCCR | Characteristic | Max. rated current | | Type |
| | kA | | A | kA | | | mA | |
| i550-P0.75/600-3 | 65 | gG/gL, gRL | 20 | 5 | - | - | ≥ 30 | Typ B |
| i550-P1.5/600-3 | 65 | gG/gL, gRL | 20 | 5 | - | - | ≥ 30 | Typ B |
| i550-P2.2/600-3 | 65 | gG/gL, gRL | 20 | 5 | - | - | ≥ 30 | Typ B |
| i550-P4.0/600-3 | 5 | gG/gL, gRL | 40 | 5 | - | - | ≥ 30 | Typ B |
| i550-P5.5/600-3 | 5 | gG/gL, gRL | 40 | 5 | - | - | ≥ 30 | Typ B |
| i550-P7.5/600-3 | 5 | gG/gL, gRL | 40 | 5 | - | - | ≥ 30 | Typ B |
| i550-P11/600-3 | 5 | gG/gL, gRL | 40 | 5 | - | - | ≥ 30 | Typ B |
| i550-P15/600-3 | 5 | gG/gL, gRL | 60 | 5 | - | - | ≥ 30 | Typ B |
| i550-P18/600-3 | 5 | gG/gL, gRL | 60 | 5 | - | - | ≥ 30 | Typ B |
| i550-P22/600-3 | 5 | gG/gL, gRL | 60 | 5 | - | - | ≥ 30 | Typ B |

## Connection data

| **Rated power** | $P_{rated}$ | **kW** | **0.75 ... 5.5** | **7.5 ... 11** | **15 ... 22** |
|---|---|---|---|---|---|
| **Connection description** | | | **Mains connection** | | |
| **Connection** | | | **X100** | | |
| Connection type | | | Non-pluggable | | |
| Max. Cable cross-section | | mm² | 4 | 16 | 35 |
| Max. Cable cross-section | | AWG | 10 | 6 | 2 |
| Stripping length | | mm | 10 | 11 | 18 |
| Stripping length | | in | 0.4 | 0.43 | 0.7 |
| Tightening torque | | Nm | 0.5 | 1.2 | 3.8 |
| Tightening torque | | lb-in | 4.4 | 11 | 34 |
| Required tool | | | Screwdriver 1.2 x 8.0 | Screwdriver 0.8 x 4.0 | Screwdriver 0.8 x 4.5 |

| **Rated power** | $P_{rated}$ | **kW** | **0.75 ... 5.5** | **7.5 ... 11** | **15 ... 22** |
|---|---|---|---|---|---|
| **Connection description** | | | **PE connection** | | |
| **Terminal type** | | | **Schraube** | | |
| Max. Cable cross-section | | mm² | 6 | 16 | 25 |
| Max. Cable cross-section | | AWG | 10 | 6 | 4 |
| Stripping length | | mm | 10 | 11 | 16 |
| Stripping length | | in | 0.4 | 0.4 | 0.6 |
| Tightening torque | | Nm | 2 | 3.4 | 4 |
| Tightening torque | | lb-in | 18 | 30 | 35 |
| Required tool | | | Torx key 20 | Crosstip screwdriver PZ2 | |

| **Rated power** | $P_{rated}$ | **kW** | **0.75 ... 5.5** | **7.5 ... 11** | **15 ... 22** |
|---|---|---|---|---|---|
| **Connection description** | | | **Motor connection** | | |
| **Connection** | | | **X105** | | |
| Connection type | | | Non-pluggable | | |
| Max. Cable cross-section | | mm² | 4 | 16 | 35 |
| Max. Cable cross-section | | AWG | 10 | 6 | 2 |
| Stripping length | | mm | 10 | 11 | 18 |
| Stripping length | | in | 0.4 | 0.43 | 0.7 |
| Tightening torque | | Nm | 0.5 | 1.2 | 3.8 |
| Tightening torque | | lb-in | 4.4 | 11 | 34 |
| Required tool | | | Screwdriver 1.2 x 8.0 | Screwdriver 0.8 x 4.0 | Screwdriver 0.8 x 4.5 |



## Brake resistors

### Assignment to inverters with protection class IP31

| Inverter | Brake resistor | | | | | | |
|---|---|---|---|---|---|---|---|
| | Order code | Rated resistance | Rated power | Thermal capacity | Dimensions (H x W x D) | Weight | Degree of protection |
| | | Ω | W | kWs | mm | kg | |
| i550-P0.75/600-3 | ERBS470R150WNQN600 | 470 | 150 | 22.5 | 222 x 124 x 122 | 1.3 | IP66 |
| i550-P1.5/600-3 | ERBS180R350WNQN600 | 180 | 350 | 52.5 | 382 x 124 x 122 | 2.4 | IP66 |
| i550-P2.2/600-3 | ERBS180R350WNQN600 | 180 | 350 | 52.5 | 382 x 124 x 122 | 2.4 | IP66 |
| i550-P4.0/600-3 | ERBS047R400W | 47 | 400 | 60 | 400 x 114 x 105 | 2.3 | IP66 |
| i550-P4.0/600-3 | ERBS047R800W | 47 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P5.5/600-3 | ERBS047R400W | 47 | 400 | 60 | 400 x 114 x 105 | 2.3 | IP66 |
| i550-P5.5/600-3 | ERBS047R800W | 47 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P7.5/600-3 | ERBS027R600W | 27 | 600 | 90 | 550 x 114 x 105 | 3.1 | IP66 |
| i550-P7.5/600-3 | ERBS027R01K2 | 27 | 1200 | 180 | 1020 x 114 x 105 | 5.6 | IP66 |
| i550-P7.5/600-3 | ERBS027R01K4 | 27 | 1400 | 210 | 1110 x 114 x 105 | 6.3 | IP66 |
| i550-P11/600-3 | ERBS027R600W | 27 | 600 | 90 | 550 x 114 x 105 | 3.1 | IP66 |
| i550-P11/600-3 | ERBS027R01K2 | 27 | 1200 | 180 | 1020 x 114 x 105 | 5.6 | IP66 |
| i550-P11/600-3 | ERBS027R01K4 | 27 | 1400 | 210 | 1110 x 114 x 105 | 6.3 | IP66 |
| i550-P15/600-3 | ERBS018R800W | 18 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P15/600-3 | ERBS018R01K4 | 18 | 1400 | 210 | 1110 x 114 x 105 | 6.3 | IP66 |
| i550-P15/600-3 | ERBS018R04K5WQN000 | 18 | 4500 | 675 | 895 x 301 x 280 | 30.5 | IP66 |
| i550-P18/600-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P18/600-3 | ERBS015R02K4 | 15 | 2400 | 360 | 1020 x 204 x 105 | 10 | IP66 |
| i550-P18/600-3 | ERBS015R06K3WQN000 | 15 | 6300 | 945 | 1095 x 301 x 280 | 39 | IP66 |
| i550-P22/600-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P22/600-3 | ERBS015R02K4 | 15 | 2400 | 360 | 1020 x 204 x 105 | 10 | IP66 |
| i550-P22/600-3 | ERBS015R06K3WQN000 | 15 | 6300 | 945 | 1095 x 301 x 280 | 39 | IP66 |

### Assignment to inverters with protection class IP66

| Inverter | Brake resistor | | | | | | |
|---|---|---|---|---|---|---|---|
| | Order code | Rated resistance | Rated power | Thermal capacity | Dimensions (H x W x D) | Weight | Degree of protection |
| | | Ω | W | kWs | mm | kg | |
| i550-P0.75/600-3 | ERBS470R150WNQN600 | 470 | 150 | 22.5 | 222 x 124 x 122 | 1.3 | IP66 |
| i550-P1.5/600-3 | ERBS180R350WNQN600 | 180 | 350 | 52.5 | 382 x 124 x 122 | 2.4 | IP66 |
| i550-P2.2/600-3 | ERBS180R350WNQN600 | 180 | 350 | 52.5 | 382 x 124 x 122 | 2.4 | IP66 |
| i550-P4.0/600-3 | ERBS047R400W | 47 | 400 | 60 | 400 x 114 x 105 | 2.3 | IP66 |
| i550-P4.0/600-3 | ERBS047R800W | 47 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P5.5/600-3 | ERBS047R400W | 47 | 400 | 60 | 400 x 114 x 105 | 2.3 | IP66 |
| i550-P5.5/600-3 | ERBS047R800W | 47 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P7.5/600-3 | ERBS027R600W | 27 | 600 | 90 | 550 x 114 x 105 | 3.1 | IP66 |
| i550-P7.5/600-3 | ERBS027R01K2 | 27 | 1200 | 180 | 1020 x 114 x 105 | 5.6 | IP66 |
| i550-P7.5/600-3 | ERBS027R01K4 | 27 | 1400 | 210 | 1110 x 114 x 105 | 6.3 | IP66 |
| i550-P11/600-3 | ERBS027R600W | 27 | 600 | 90 | 550 x 114 x 105 | 3.1 | IP66 |
| i550-P11/600-3 | ERBS027R01K2 | 27 | 1200 | 180 | 1020 x 114 x 105 | 5.6 | IP66 |
| i550-P11/600-3 | ERBS027R01K4 | 27 | 1400 | 210 | 1110 x 114 x 105 | 6.3 | IP66 |
| i550-P15/600-3 | ERBS018R800W | 18 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P15/600-3 | ERBS018R01K4 | 18 | 1400 | 210 | 1110 x 114 x 105 | 6.3 | IP66 |
| i550-P15/600-3 | ERBS018R04K5WQN000 | 18 | 4500 | 675 | 895 x 301 x 280 | 30.5 | IP66 |
| i550-P18/600-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P18/600-3 | ERBS015R02K4 | 15 | 2400 | 360 | 1020 x 204 x 105 | 10 | IP66 |
| i550-P18/600-3 | ERBS015R06K3WQN000 | 15 | 6300 | 945 | 1095 x 301 x 280 | 39 | IP66 |
| i550-P22/600-3 | ERBS015R800W | 15 | 800 | 120 | 710 x 114 x 105 | 4.0 | IP66 |
| i550-P22/600-3 | ERBS015R02K4 | 15 | 2400 | 360 | 1020 x 204 x 105 | 10 | IP66 |
| i550-P22/600-3 | ERBS015R06K3WQN000 | 15 | 6300 | 945 | 1095 x 301 x 280 | 39 | IP66 |

## 3-phase mains connection 600 V "Light Duty"

The inverters i550-Pxxx/**600-3** do not have an integrated RFI filter in the AC mains supply.

In order to meet the EMC requirements according to EN IEC 61800-3, an external EMC filter according to IEC EN 60939 must be used.

The user must verify that the conformity with EN IEC 61800-3 is fulfilled.

### Rated data

The output currents apply to these operating conditions:

- At switching frequency 2 kHz or 4 kHz: Ambient temperature max. 40 °C (104 °F).



| **Inverter** | | | **i550-P0.75/600-3** | **i550-P1.5/600-3** | **i550-P2.2/600-3** | **i550-P4.0/600-3** |
|---|---|---|---|---|---|---|
| **Rated power** | $P_{rated}$ | **kW** | **1.1** | **2.2** | **3** | **5.5** |
| **Rated power** | $P_{rated}$ | **hp** | **1.5** | **3** | **4** | **7.5** |
| Mains voltage range | | | 3/PE AC 540 V ... 660 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 480/600 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 2.7 | 4.2 | 6.1 | 9.1 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 2.1 | 3.3 | 4.7 | 7.9 |
| Rated output current | | | | | | |
| 2 kHz | | A | 2 | 3.2 | 4.7 | 7.9 |
| 4 kHz | | A | 2 | 3.2 | 4.7 | 7.9 |
| 8 kHz | | A | - | | | |
| 12 kHz | | A | - | | | |
| Power loss | | | | | | |
| 2 kHz | | W | 37 | 55 | 77 | 126 |
| 4 kHz | | W | 39 | 58 | 81 | 134 |
| 8 kHz | | W | - | | | |
| 12 kHz | | W | - | | | |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 2.6 | 4.1 | 5.9 | 9.2 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 1.3 | 2 | 2.9 | 4.575 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 3.4 | 5.4 | 7.8 | 12.2 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 1.3 | 2 | 2.9 | 4.575 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 2.1 | 4.3 | 5.4 | 9.5 |
| Min. Brake resistor | | Ω | 470 | 180 | | 82 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | - | | | |
| Category C3 (≤ 8 kHz) | | m | - | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 60 | 80 | | 100 |

# Technical data

3-phase mains connection 600 V "Light Duty"
Rated data

| Inverter | | | i550-P5.5/600-3 | i550-P7.5/600-3 | i550-P11/600-3 | i550-P15/600-3 |
|---|---|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **7.5** | **11** | **15** | **18.5** |
| **Rated power** | **$P_{rated}$** | **hp** | **10** | **15** | **20** | **25** |
| Mains voltage range | | | 3/PE AC 540 V ... 660 V, 45 Hz ... 65 Hz | | | |
| Output voltage | | | 3 AC 0 - 480/600 V | | | |
| Rated mains current | | | | | | |
| without mains choke | | A | 12.4 | 15.2 | 25.3 | 31.1 |
| with mains choke | | A | - | | | |
| Apparent output power | | kVA | 10.9 | 15.2 | 20.5 | 26.6 |
| Rated output current | | | | | | |
| 2 kHz | | A | 10.8 | 13.2 | 22.0 | 27.0 |
| 4 kHz | | A | 10.8 | 13.2 | 22.0 | 27.0 |
| 8 kHz | | A | - | | | |
| 12 kHz | | A | - | | | |
| Power loss | | | | | | |
| 2 kHz | | W | 169 | 205 | 338 | 413 |
| 4 kHz | | W | 180 | 218 | 360 | 441 |
| 8 kHz | | W | - | | | |
| 12 kHz | | W | - | | | |
| Overcurrent cycle 180 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 13.5 | 16.5 | 25.5 | 33 |
| Overload time | $T_1$ | s | 60 | 60 | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 | 120 | 120 |
| Max. output current during the recovery time | | A | 6.75 | 8.25 | 12.75 | 16.5 |
| Overcurrent cycle 15 s | | | | | | |
| Max. output current (≤ 8 kHz) | | A | 18 | 22 | 34 | 44 |
| Overload time | $T_1$ | s | 3 | 3 | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 | 12 | 12 |
| Max. output current during the recovery time | | A | 6.75 | 8.25 | 12.75 | 16.5 |
| Cyclic mains switching | | | 3 times per minute | | | |
| Brake chopper | | | | | | |
| Max. output current | | A | 11.9 | 25 | | 28.9 |
| Min. Brake resistor | | Ω | 82 | 39 | | 27 |
| Max. shielded motor cable length | | | | | | |
| without EMC category | | m | 50 | | | |
| Category C1 (≤ 8 kHz) | | m | - | | | |
| Category C2 (≤ 8 kHz) | | m | - | | | |
| Category C3 (≤ 8 kHz) | | m | - | | | |
| Max. Unshielded motor cable length | | | | | | |
| without EMC category | | m | 100 | | | |



| **Inverter** | | | **i550-P18/600-3** | **i550-P22/600-3** |
|---|---|---|---|---|
| **Rated power** | **$P_{rated}$** | **kW** | **22** | **30** |
| **Rated power** | **$P_{rated}$** | **hp** | **30** | **40** |
| Mains voltage range | | | 3/PE AC 540 V ... 660 V, 45 Hz ... 65 Hz | |
| Output voltage | | | 3 AC 0 - 480/600 V | |
| Rated mains current | | | | |
| without mains choke | | A | 37.3 | 47.2 |
| with mains choke | | A | - | |
| Apparent output power | | kVA | 32.6 | 41.2 |
| Rated output current | | | | |
| 2 kHz | | A | 32.4 | 41.0 |
| 4 kHz | | A | 32.4 | 41.0 |
| 8 kHz | | A | - | |
| 12 kHz | | A | - | |
| Power loss | | | | |
| 2 kHz | | W | 495 | 625 |
| 4 kHz | | W | 527 | 666 |
| 8 kHz | | W | - | |
| 12 kHz | | W | - | |
| Overcurrent cycle 180 s | | | | |
| Max. output current (≤ 8 kHz) | | A | 40.5 | 48 |
| Overload time | $T_1$ | s | 60 | 60 |
| Recovery time | $T_2$ | s | 120 | 120 |
| Max. output current during the recovery time | | A | 20.25 | 24 |
| Overcurrent cycle 15 s | | | | |
| Max. output current (≤ 8 kHz) | | A | 54 | 64 |
| Overload time | $T_1$ | s | 3 | 3 |
| Recovery time | $T_2$ | s | 12 | 12 |
| Max. output current during the recovery time | | A | 20.25 | 24 |
| Cyclic mains switching | | | 3 times per minute | |
| Brake chopper | | | | |
| Max. output current | | A | 43.3 | |
| Min. Brake resistor | | Ω | 18 | |
| Max. shielded motor cable length | | | | |
| without EMC category | | m | 50 | |
| Category C1 (≤ 8 kHz) | | m | - | |
| Category C2 (≤ 8 kHz) | | m | - | |
| Category C3 (≤ 8 kHz) | | m | - | |
| Max. Unshielded motor cable length | | | | |
| without EMC category | | m | 100 | |

## Fusing data (EN 60204-1)

| Inverter | Fuse | | | Circuit breaker | | | RCD | |
|---|---|---|---|---|---|---|---|---|
| | Max. SCCR | Characteristic | Max. rated current | Max. SCCR | Characteristic | Max. rated current | | Type |
| | kA | | A | kA | | | mA | |
| i550-P0.75/600-3 | 65 | gG/gL, gRL | 20 | 5 | - | - | ≥ 30 | Typ B |
| i550-P1.5/600-3 | 65 | gG/gL, gRL | 20 | 5 | - | - | ≥ 30 | Typ B |
| i550-P2.2/600-3 | 65 | gG/gL, gRL | 20 | 5 | - | - | ≥ 30 | Typ B |
| i550-P4.0/600-3 | 5 | gG/gL, gRL | 40 | 5 | - | - | ≥ 30 | Typ B |
| i550-P5.5/600-3 | 5 | gG/gL, gRL | 40 | 5 | - | - | ≥ 30 | Typ B |
| i550-P7.5/600-3 | 5 | gG/gL, gRL | 40 | 5 | - | - | ≥ 30 | Typ B |
| i550-P11/600-3 | 5 | gG/gL, gRL | 40 | 5 | - | - | ≥ 30 | Typ B |
| i550-P15/600-3 | 5 | gG/gL, gRL | 60 | 5 | - | - | ≥ 30 | Typ B |
| i550-P18/600-3 | 5 | gG/gL, gRL | 60 | 5 | - | - | ≥ 30 | Typ B |
| i550-P22/600-3 | 5 | gG/gL, gRL | 60 | 5 | - | - | ≥ 30 | Typ B |

## Connection data

▸ Connection data 📖 152

## Brake resistors

▸ Assignment to inverters with protection class IP31 📖 153

▸ Assignment to inverters with protection class IP66 📖 153



## Ecodesign Directive

Product information acc. to REGULATION (EU) 2019/1781 (ANNEX I, Section 4)

**Legend**

| | |
|---|---|
| Operating point (f; I) | f = relative motor stator frequency; I = relative torque-producing current |
| Power losses | The power losses at the operating points (f; I) and in the standby state refer to the rated apparent output power. The power losses for options (e.g. for diagnostics) and for accessories can be found in the additional product documentation on the Internet. |

| Performance losses | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0; 25 | f; I | % | 1.9 | 1.0 | 0.9 | 1.9 | 2.1 | 1.8 | 1.8 | 1.1 |
| 0; 50 | f; I | % | 1.9 | 1.1 | 1.1 | 1.9 | 2.1 | 1.9 | 1.9 | 1.3 |
| 0; 100 | f; I | % | 2.1 | 1.5 | 1.4 | 2.1 | 2.3 | 2.1 | 2.1 | 1.6 |
| 50; 25 | f; I | % | 2.0 | 1.1 | 1.0 | 2.0 | 2.1 | 1.9 | 1.9 | 1.2 |
| 50; 50 | f; I | % | 2.0 | 1.3 | 1.2 | 2.0 | 2.2 | 2.0 | 2.0 | 1.4 |
| 50; 100 | f; I | % | 2.3 | 1.8 | 1.8 | 2.3 | 2.5 | 2.3 | 2.3 | 1.9 |
| 90; 50 | f; I | % | 2.1 | 1.4 | 1.4 | 2.1 | 2.3 | 2.2 | 2.1 | 1.5 |
| 90; 100 | f; I | % | 2.6 | 2.3 | 2.5 | 2.5 | 2.5 | 2.6 | 2.4 | 2.3 |
| In standby mode | | % | 0.6 | 0.4 | 0.3 | 0.6 | 0.6 | 0.5 | 0.5 | 0.4 |
| Efficiency level | | | IE2 | IE2 | IE2 | IE2 | IE2 | IE2 | IE2 | IE2 |
| Manufacturer | | | Lenze Americas · 630 Douglas Street · Uxbridge, MA 01569 · USA | | | | | | | |
| Commercial register number | | | - | | | | | | | |
| Model identifier of the product | | | I55AP137A | I55AP175A | I55AP211A | I55AP137B | I55AP137D | I55AP155B | I55AP155D | I55AP175B |
| Apparent output power | | kVA | 0.9 | 1.6 | 2.3 | 0.9 | 0.9 | 1.2 | 1.2 | 1.6 |
| Indicative rated output power of the motor | | kW | 0.37 | 0.75 | 1.1 | 0.37 | 0.37 | 0.55 | 0.55 | 0.75 |
| Rated output current | | A | 2.4 | 4.2 | 6 | 2.4 | 2.4 | 3.2 | 3.2 | 4.2 |
| Maximum operating temperature | | °C | 45 | | | | | | | |
| Rated input frequency | | Hz | 50 | | | | | | | |
| Rated input voltage | | V | 120 | | | 230 | | | | |
| Switching frequency | | kHz | 4 | | | | | | | |
| Rated apparent output power | | kVA | 0.977 | 1.71 | 2.29 | 0.977 | 0.977 | 1.19 | 1.19 | 1.71 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Performance losses | | | | | | | | | | |
| 0; 25 | f; I | % | 1.2 | 1.0 | 1.1 | 0.8 | 0.9 | 0.8 | 0.8 | 1.0 |
| 0; 50 | f; I | % | 1.3 | 1.2 | 1.2 | 1.0 | 1.0 | 0.9 | 1.0 | 1.1 |
| 0; 100 | f; I | % | 1.7 | 1.6 | 1.6 | 1.3 | 1.3 | 1.3 | 1.4 | 1.5 |
| 50; 25 | f; I | % | 1.2 | 1.1 | 1.1 | 0.9 | 0.9 | 0.8 | 0.9 | 1.0 |
| 50; 50 | f; I | % | 1.4 | 1.3 | 1.3 | 1.1 | 1.1 | 1.0 | 1.1 | 1.2 |
| 50; 100 | f; I | % | 1.9 | 1.8 | 1.8 | 1.6 | 1.6 | 1.6 | 1.6 | 1.7 |
| 90; 50 | f; I | % | 1.5 | 1.4 | 1.4 | 1.2 | 1.2 | 1.2 | 1.2 | 1.3 |
| 90; 100 | f; I | % | 2.0 | 2.3 | 2.0 | 2.1 | 1.8 | 2.2 | 1.9 | 1.8 |
| In standby mode | | % | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 |
| Efficiency level | | | IE2 | IE2 | IE2 | IE2 | IE2 | IE2 | IE2 | IE2 |
| Manufacturer | | | Lenze Americas · 630 Douglas Street · Uxbridge, MA 01569 · USA | | | | | | | |
| Commercial register number | | | - | | | | | | | |
| Model identifier of the product | | | I55AP175D | I55AP211B | I55AP211D | I55AP215B | I55AP215D | I55AP222B | I55AP222D | I55AP230C |
| Apparent output power | | kVA | 1.6 | 2.3 | 2.3 | 2.6 | 2.6 | 3.6 | 3.6 | 4.5 |
| Indicative rated output power of the motor | | kW | 0.75 | 1.1 | 1.1 | 1.5 | 1.5 | 2.2 | 2.2 | 3 |
| Rated output current | | A | 4.2 | 6 | 6 | 7 | 7 | 9.6 | 9.6 | 12 |
| Maximum operating temperature | | °C | 45 | | | | | | | |
| Rated input frequency | | Hz | 50 | | | | | | | |
| Rated input voltage | | V | 230 | | | | | | | |
| Switching frequency | | kHz | 4 | | | | | | | |
| Rated apparent output power | | kVA | 1.71 | 2.29 | 2.29 | 3.3 | 3.3 | 4.44 | 4.44 | 5.85 |



| Performance losses | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0; 25 | f; I | % | 0.9 | 0.7 | 0.6 | 0.5 | 1.3 | 1.3 | 1.0 | 0.9 |
| 0; 50 | f; I | % | 1.0 | 0.9 | 0.7 | 0.7 | 1.7 | 1.6 | 1.3 | 1.3 |
| 0; 100 | f; I | % | 1.4 | 1.4 | 1.2 | 1.2 | 2.8 | 2.7 | 2.3 | 2.4 |
| 50; 25 | f; I | % | 0.9 | 0.7 | 0.6 | 0.6 | 1.4 | 1.3 | 1.1 | 1.0 |
| 50; 50 | f; I | % | 1.2 | 1.0 | 0.8 | 0.8 | 1.8 | 1.8 | 1.5 | 1.4 |
| 50; 100 | f; I | % | 1.7 | 1.7 | 1.4 | 1.5 | 3.1 | 3.1 | 2.8 | 2.8 |
| 90; 50 | f; I | % | 1.3 | 1.1 | 0.9 | 0.9 | 2.0 | 1.9 | 1.7 | 1.7 |
| 90; 100 | f; I | % | 1.8 | 1.9 | 1.6 | 1.8 | 3.2 | 3.2 | 3.3 | 3.3 |
| In standby mode | | % | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 |
| Efficiency level | | | IE2 | IE2 | IE2 | IE2 | IE2 | IE2 | IE2 | IE2 |
| Manufacturer | | | Lenze Americas · 630 Douglas Street · Uxbridge, MA 01569 · USA | | | | | | Lenze SE · Hans-Lenze-Str. 1 · 31855 Aerzen · GERMANY | |
| Commercial register number | | | - | | | | | | Hannover HRB 204803 | |
| Model identifier of the product | | | I55AP240C | I55AP255C | I55AP275C | I55AP311C | I55AP315C | I55AP318C | I55AP330C | I55AP345C |
| Apparent output power | | kVA | 6.2 | 8.7 | 10.9 | 15.8 | 20.8 | 26.2 | 34.4 | 57.9 |
| Indicative rated output power of the motor | | kW | 4 | 5.5 | 7.5 | 11 | 15 | 18.5 | 30 | 45 |
| Rated output current | | A | 16.5 | 23 | 29 | 42 | 54 | 68 | 89 | 150 |
| Maximum operating temperature | | °C | 45 | | | | | | | |
| Rated input frequency | | Hz | 50 | | | | | | | |
| Rated input voltage | | V | 230 | | | | | | | |
| Switching frequency | | kHz | 4 | | | | | | | |
| Rated apparent output power | | kVA | 7.38 | 9.95 | 14.4 | 19.5 | 19.5 | 23.9 | 38.2 | 68.4 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Performance losses | | | | | | | | | | |
| 0; 25 | f; I | % | 4.1 | 3.2 | 2.1 | 1.9 | 1.3 | 1.2 | 1.3 | 1.2 |
| 0; 50 | f; I | % | 4.1 | 3.2 | 2.2 | 2.1 | 1.4 | 1.3 | 1.4 | 1.4 |
| 0; 100 | f; I | % | 4.3 | 3.5 | 2.5 | 2.4 | 1.7 | 1.6 | 1.7 | 1.7 |
| 50; 25 | f; I | % | 4.1 | 3.2 | 2.1 | 1.9 | 1.3 | 1.2 | 1.3 | 1.3 |
| 50; 50 | f; I | % | 4.1 | 3.3 | 2.3 | 2.1 | 1.5 | 1.3 | 1.5 | 1.4 |
| 50; 100 | f; I | % | 4.4 | 3.6 | 2.7 | 2.5 | 1.9 | 1.7 | 1.9 | 1.8 |
| 90; 50 | f; I | % | 4.2 | 3.4 | 2.3 | 2.2 | 1.5 | 1.4 | 1.5 | 1.5 |
| 90; 100 | f; I | % | 4.0 | 3.4 | 2.5 | 2.4 | 1.8 | 1.8 | 1.8 | 1.8 |
| In standby mode | | % | 0.6 | 0.5 | 0.4 | 0.3 | 0.2 | 0.1 | 0.1 | 0.1 |
| Efficiency level | | | IE2 | IE2 | IE2 | IE2 | IE2 | IE2 | IE2 | IE2 |
| Manufacturer | | | Lenze Americas · 630 Douglas Street · Uxbridge, MA 01569 · USA | | | | | | | |
| Commercial register number | | | - | | | | | | | |
| Model identifier of the product | | | I55AP137F | I55AP155F | I55AP175F | I55AP211F | I55AP215F | I55AP222F | I55AP230F | I55AP240F |
| Apparent output power | | kVA | 0.9 | 1.2 | 1.6 | 2.1 | 2.6 | 3.8 | 4.9 | 6.4 |
| Indicative rated output power of the motor | | kW | 0.37 | 0.55 | 0.75 | 1.1 | 1.5 | 2.2 | 3 | 4 |
| Rated output current | | A | 1.3 | 1.8 | 2.4 | 3.2 | 3.9 | 5.6 | 7.3 | 9.5 |
| Maximum operating temperature | | °C | 45 | | | | | | | |
| Rated input frequency | | Hz | 50 | | | | | | | |
| Rated input voltage | | V | 400 | | | | | | | |
| Switching frequency | | kHz | 4 | | | | | | | |
| Rated apparent output power | | kVA | 0.977 | 1.19 | 1.71 | 2.29 | 3.3 | 4.44 | 5.85 | 7.38 |



| Performance losses | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0; 25 | f; I | % | 1.0 | 0.8 | 0.7 | 0.8 | 0.8 | 0.6 | 0.6 | 0.5 |
| 0; 50 | f; I | % | 1.2 | 0.9 | 0.8 | 1.0 | 1.0 | 0.8 | 0.7 | 0.7 |
| 0; 100 | f; I | % | 1.6 | 1.3 | 1.2 | 1.5 | 1.5 | 1.2 | 1.3 | 1.3 |
| 50; 25 | f; I | % | 1.1 | 0.8 | 0.7 | 0.8 | 0.8 | 0.7 | 0.6 | 0.6 |
| 50; 50 | f; I | % | 1.2 | 1.0 | 0.9 | 1.0 | 1.0 | 0.8 | 0.8 | 0.8 |
| 50; 100 | f; I | % | 1.8 | 1.5 | 1.4 | 1.6 | 1.7 | 1.4 | 1.4 | 1.4 |
| 90; 50 | f; I | % | 1.3 | 1.1 | 1.0 | 1.1 | 1.1 | 0.9 | 0.9 | 0.9 |
| 90; 100 | f; I | % | 1.8 | 1.5 | 1.5 | 1.6 | 1.7 | 1.5 | 1.5 | 1.6 |
| In standby mode | | % | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 |
| Efficiency level | | | IE2 | IE2 | IE2 | IE2 | IE2 | IE2 | IE2 | IE2 |
| Manufacturer | | | Lenze Americas · 630 Douglas Street · Uxbridge, MA 01569 · USA | | | | | | Lenze SE · Hans-Lenze-Str. 1 · 31855 Aerzen · GERMANY | |
| Commercial register number | | | - | | | | | | Hannover HRB 204803 | |
| Model identifier of the product | | | I55AP255F | I55AP275F | I55AP311F | I55AP315F | I55AP318F | I55AP322F | I55AP330F | I55AP337F |
| Apparent output power | | kVA | 8.7 | 11 | 15.8 | 21.5 | 26.8 | 31.5 | 39.3 | 48.9 |
| Indicative rated output power of the motor | | kW | 5.5 | 7.5 | 11 | 15 | 18.5 | 22 | 30 | 37 |
| Rated output current | | A | 13 | 16.5 | 23.5 | 32 | 40 | 47 | 61 | 76 |
| Maximum operating temperature | | °C | 45 | | | | | | | |
| Rated input frequency | | Hz | 50 | | | | | | | |
| Rated input voltage | | V | 400 | | | | | | | |
| Switching frequency | | kHz | 4 | | | | | | | |
| Rated apparent output power | | kVA | 9.95 | 14.4 | 19.5 | 23.9 | 28.3 | 38.2 | 47 | 56.2 |

| Performance losses | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0; 25 | f; I | % | 0.5 | 0.5 | 0.6 | 3.1 | 1.3 | 1.0 | 0.8 | 0.7 |
| 0; 50 | f; I | % | 0.7 | 0.7 | 0.8 | 3.3 | 1.3 | 1.1 | 0.9 | 0.8 |
| 0; 100 | f; I | % | 1.2 | 1.2 | 1.4 | 3.5 | 1.5 | 1.3 | 1.1 | 1.1 |
| 50; 25 | f; I | % | 0.5 | 0.5 | 0.6 | 3.2 | 1.3 | 1.0 | 0.8 | 0.7 |
| 50; 50 | f; I | % | 0.8 | 0.7 | 0.9 | 3.3 | 1.4 | 1.1 | 0.9 | 0.8 |
| 50; 100 | f; I | % | 1.4 | 1.4 | 1.7 | 3.6 | 1.6 | 1.3 | 1.1 | 1.1 |
| 90; 50 | f; I | % | 0.8 | 0.9 | 1.0 | 3.3 | 1.4 | 1.1 | 1.0 | 0.9 |
| 90; 100 | f; I | % | 1.6 | 1.6 | 1.9 | 3.7 | 1.6 | 1.4 | 1.2 | 1.2 |
| In standby mode | | % | 0.0 | 0.0 | 0.0 | 0.9 | 0.3 | 0.2 | 0.1 | 0.1 |
| Efficiency level | | | IE2 | IE2 | IE2 | IE2 | IE2 | IE2 | IE2 | IE2 |
| Manufacturer | | | Lenze SE · Hans-Lenze-Str. 1 · 31855 Aerzen · GERMANY | | | Lenze Americas · 630 Douglas Street · Uxbridge, MA 01569 · USA | | | | |
| Commercial register number | | | Hannover HRB 204803 | | | - | | | | |
| Model identifier of the product | | | I55AP345F | I55AP355F | I55AP375F | I55AP175G | I55AP215G | I55AP222G | I55AP240G | I55AP255G |
| Apparent output power | | kVA | 57.3 | 70.8 | 96.6 | 1.7 | 2.7 | 3.9 | 6.1 | 9.1 |
| Indicative rated output power of the motor | | kW | 45 | 55 | 75 | 0.75 | 1.5 | 2.2 | 4 | 5.5 |
| Rated output current | | A | 89 | 110 | 150 | 1.7 | 2.7 | 3.9 | 6.1 | 9 |
| Maximum operating temperature | | °C | 45 | | | | | | | |
| Rated input frequency | | Hz | 50 | | | 60 | | | | |
| Rated input voltage | | V | 400 | | | 600 | | | | |
| Switching frequency | | kHz | 4 | | | | | | | |
| Rated apparent output power | | kVA | 68.4 | 92.8 | 111 | 1.19 | 3.3 | 4.44 | 7.38 | 9.95 |



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Performance losses | | | | | | | |
| 0; 25 | f; I | % | 0.8 | 0.6 | 0.9 | 0.7 | 0.6 |
| 0; 50 | f; I | % | 0.9 | 0.7 | 1.0 | 0.9 | 0.7 |
| 0; 100 | f; I | % | 1.1 | 1.0 | 1.4 | 1.3 | 1.0 |
| 50; 25 | f; I | % | 0.8 | 0.6 | 0.9 | 0.7 | 0.6 |
| 50; 50 | f; I | % | 0.9 | 0.7 | 1.0 | 0.9 | 0.7 |
| 50; 100 | f; I | % | 1.2 | 1.0 | 1.5 | 1.3 | 1.1 |
| 90; 50 | f; I | % | 0.9 | 0.8 | 1.1 | 0.9 | 0.7 |
| 90; 100 | f; I | % | 1.3 | 1.2 | 1.6 | 1.5 | 1.2 |
| In standby mode | | % | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 |
| Efficiency level | | | IE2 | IE2 | IE2 | IE2 | IE2 |
| Manufacturer | | | Lenze Americas · 630 Douglas Street · Uxbridge, MA 01569 · USA | | | | |
| Commercial register number | | | - | | | | |
| Model identifier of the product | | | I55AP275G | I55AP311G | I55AP315G | I55AP318G | I55AP322G |
| Apparent output power | | kVA | 11.1 | 17.1 | 22.1 | 27.2 | 32.2 |
| Indicative rated output power of the motor | | kW | 7.5 | 11 | 15 | 18.5 | 22 |
| Rated output current | | A | 11 | 17 | 22 | 27 | 32 |
| Maximum operating temperature | | °C | 45 | | | | |
| Rated input frequency | | Hz | 60 | | | | |
| Rated input voltage | | V | 600 | | | | |
| Switching frequency | | kHz | 4 | | | | |
| Rated apparent output power | | kVA | 14.4 | 19.5 | 23.9 | 28.3 | 38.2 |

## Dimensions

The specified installation clearances are minimum dimensions to ensure a sufficient air circulation for cooling purposes. They do not consider the bend radiuses of the connecting cables.

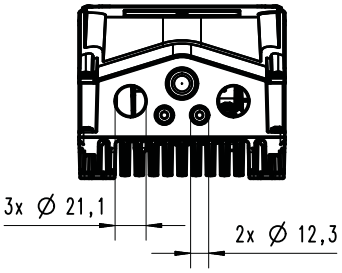
Several i5xx protec frequency inverters with IP55 (NEMA 12) or IP66 (NEMA 4X) protection can be mounted directly next to each other, regardless of the device size. No installation clearance is required between the devices.

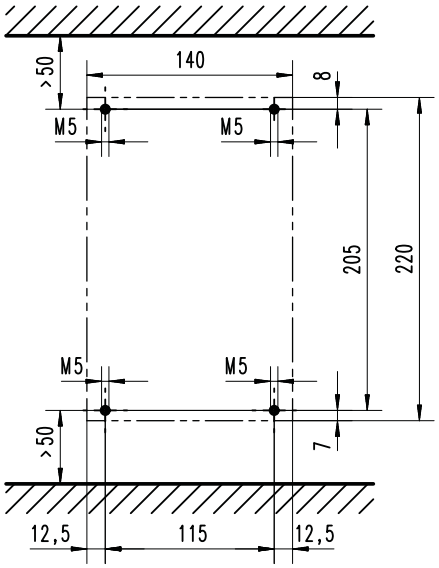
**Dimensions for inverter without extension box**

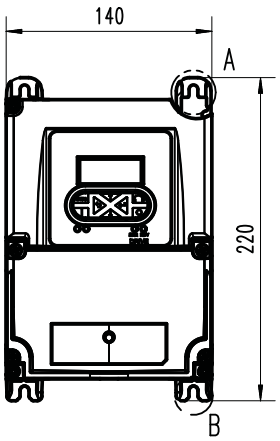
### 0.37 kW ... 0.75 kW

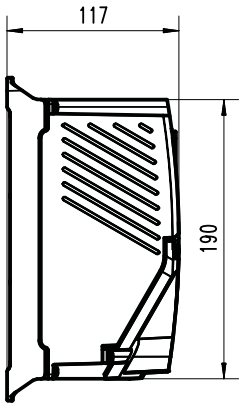
The dimensions in mm apply to:

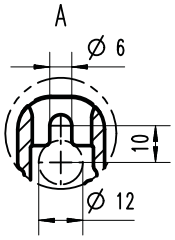
| | | | | | |
|---|---|---|---|---|---|
| 0.37 kW | i550-P0.37/120-1 | i550-P0.37/230-1 | i550-P0.37/230-2 | i550-P0.37/400-3 | |
| 0.55 kW | | i550-P0.55/230-1 | i550-P0.55/230-2 | i550-P0.55/400-3 | |
| 0.75 kW | | i550-P0.75/230-1 | i550-P0.75/230-2 | i550-P0.75/400-3 | i550-P0.75/600-3 |
| Weight | IP31: 1.7 kg<br>IP66: 1.8 kg | IP66: 1.8 kg | IP31: 1.6 kg<br>IP66: 1.7 kg | IP31: 1.7 kg<br>IP66: 1.8 kg | IP31: 1.7 kg<br>IP66: 1.8 kg |

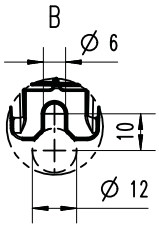


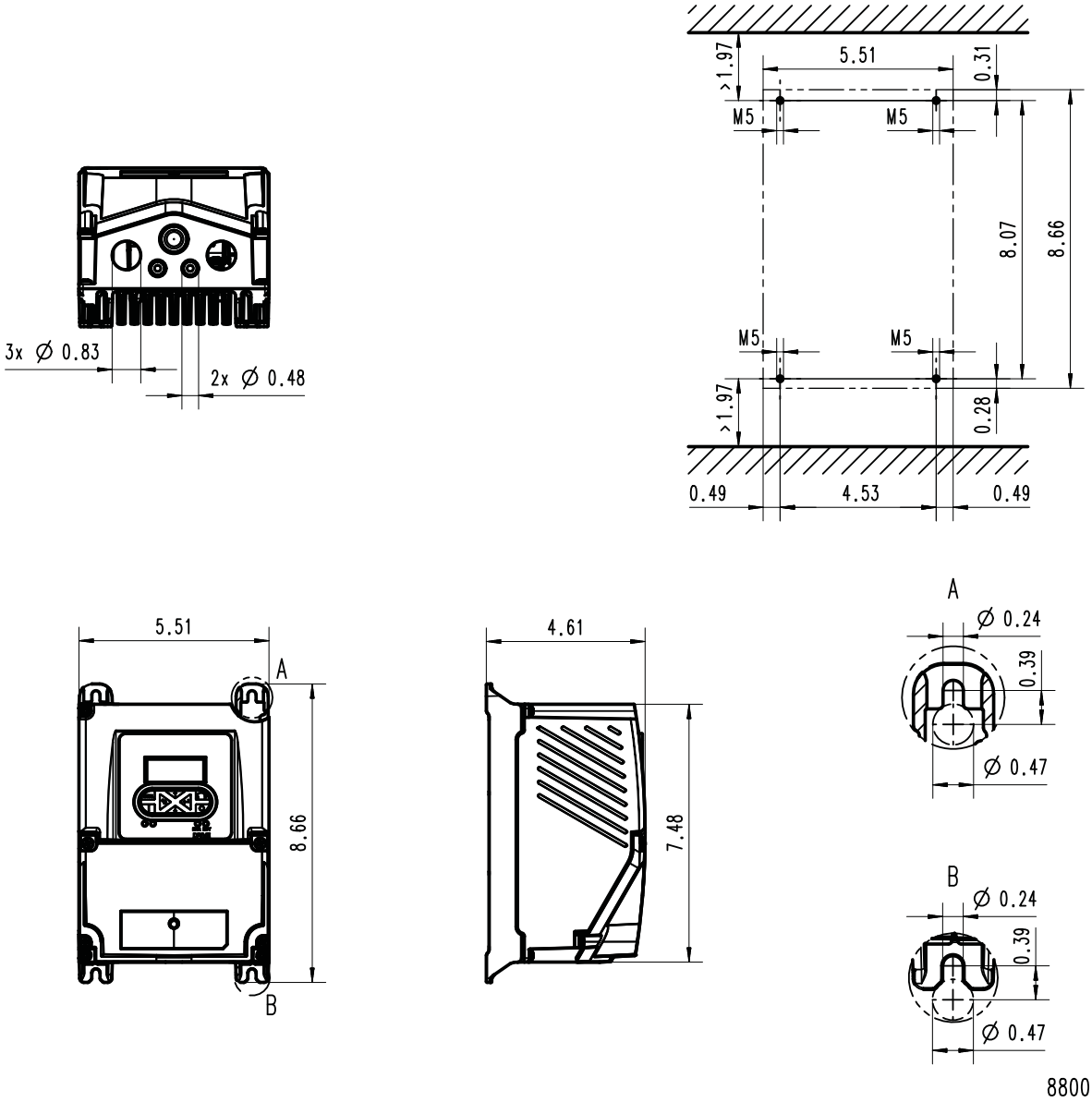




8800640

**0.5 hp ... 1 hp**

The dimensions in inch apply to:

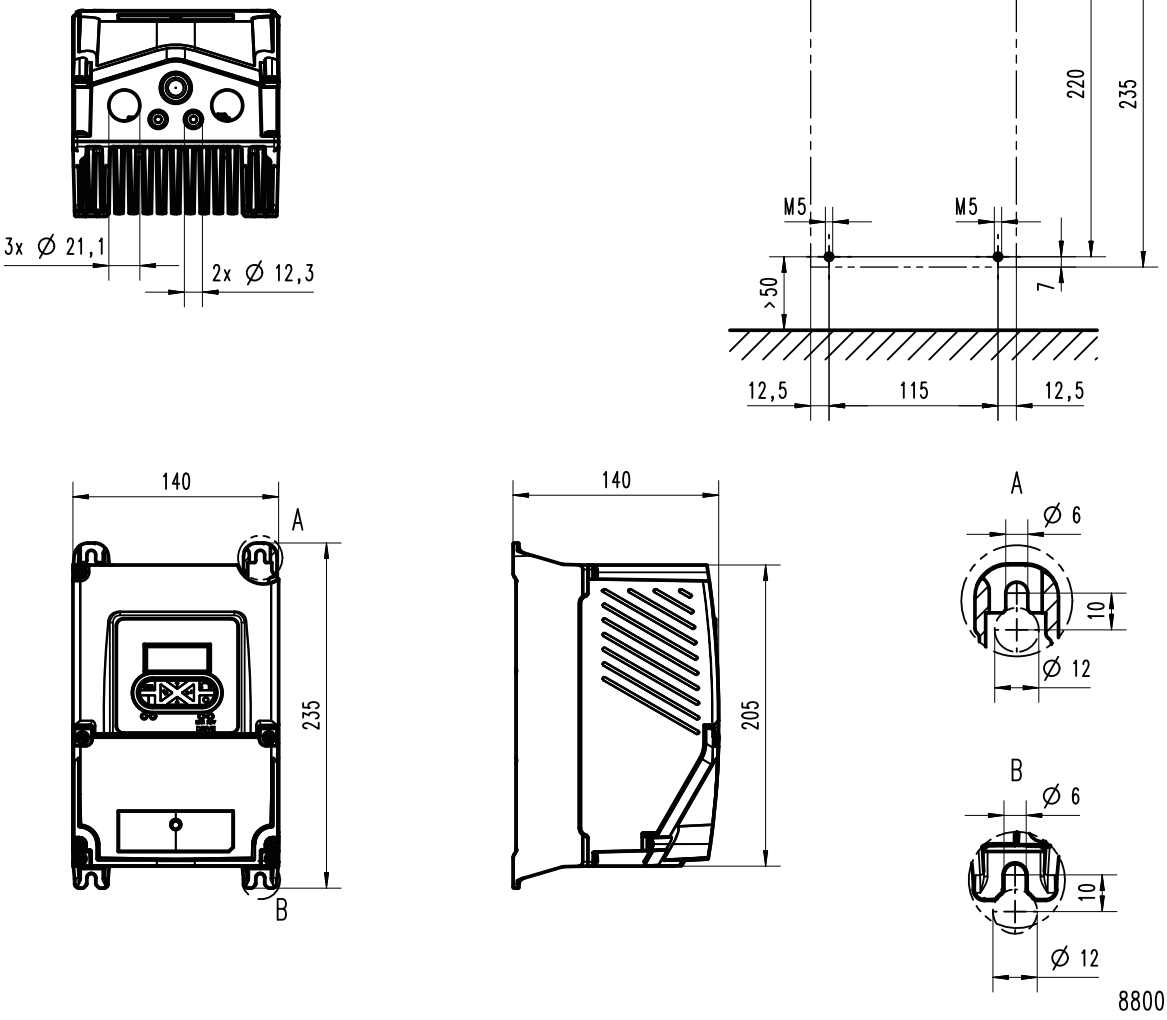
| | | | | | |
|---|---|---|---|---|---|
| 0.5 hp | i550-P0.37/120-1 | i550-P0.37/230-1 | i550-P0.37/230-2 | i550-P0.37/400-3 | |
| 0.75 hp | | i550-P0.55/230-1 | i550-P0.55/230-2 | i550-P0.55/400-3 | |
| 1 hp | | i550-P0.75/230-1 | i550-P0.75/230-2 | i550-P0.75/400-3 | i550-P0.75/600-3 |
| Weight | NEMA 1: 3.7 lb<br>NEMA 4X: 4 lb | NEMA 4X: 4 lb | NEMA 1: 3.5 lb<br>NEMA 4X: 3.7 lb | NEMA 1: 3.7 lb<br>NEMA 4X: 4 lb | NEMA 1: 3.7 lb<br>NEMA 4X: 4 lb |



### 0.75 kW ... 2.2 kW

The dimensions in mm apply to:

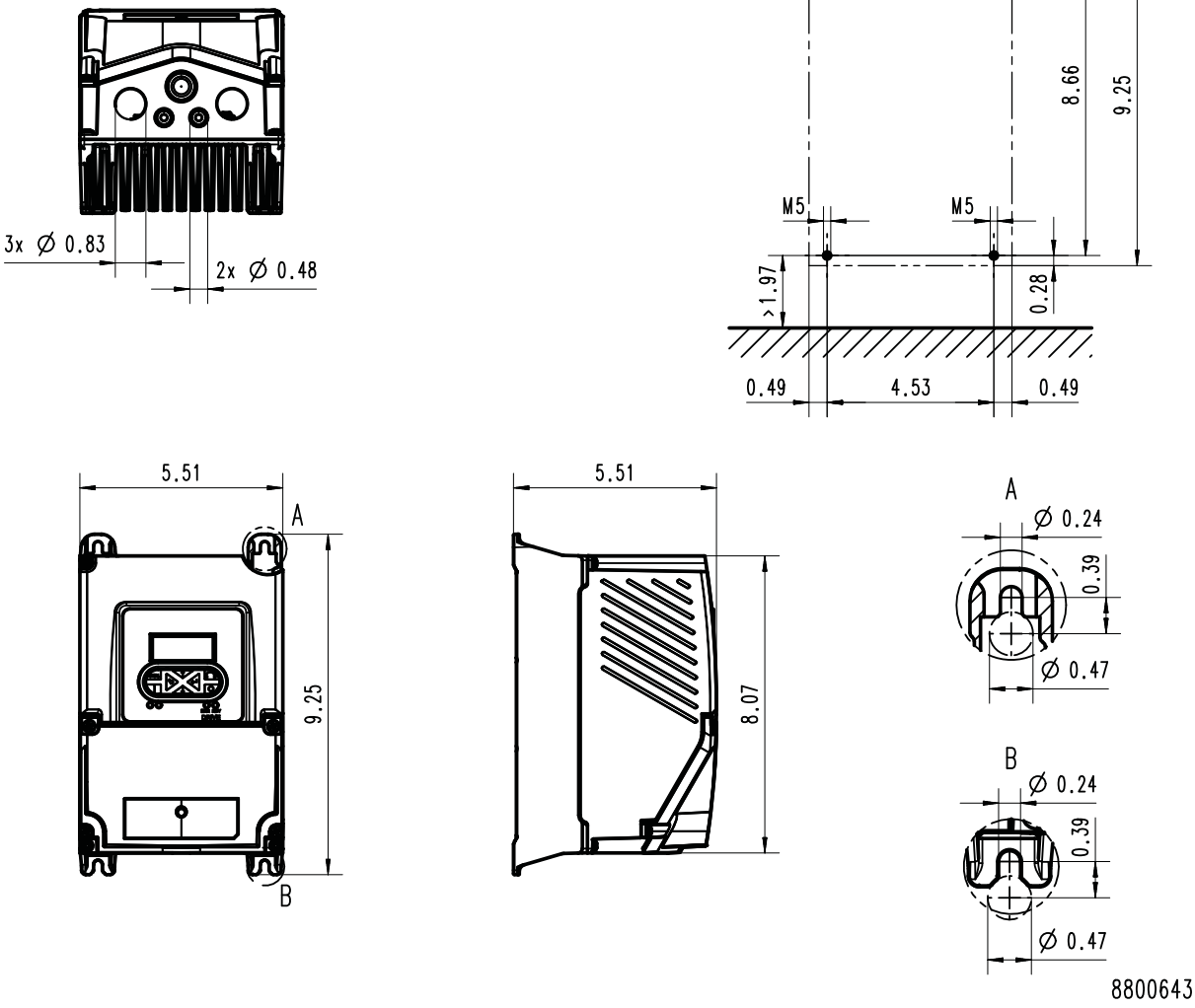
| | | | | | |
|---|---|---|---|---|---|
| 0.75 kW | i550-P0.75/120-1 | | | | |
| 1.1 kW | i550-P1.1/120-1 | i550-P1.1/230-1 | i550-P1.1/230-2 | i550-P1.1/400-3 | |
| 1.5 kW | | i550-P1.5/230-1 | i550-P1.5/230-2 | i550-P1.5/400-3 | i550-P1.5/600-3 |
| 2.2 kW | | i550-P2.2/230-1 | i550-P2.2/230-2 | i550-P2.2/400-3 | i550-P2.2/600-3 |
| Weight | IP31: 2.6 kg<br>IP66: 2.7 kg | IP66: 2.7 kg | IP31: 2.5 kg<br>IP66: 2.6 kg | IP31: 2.6 kg<br>IP66: 2.7 kg | IP31: 2.6 kg<br>IP66: 2.7 kg |



**1 hp ... 3 hp**

The dimensions in inch apply to:

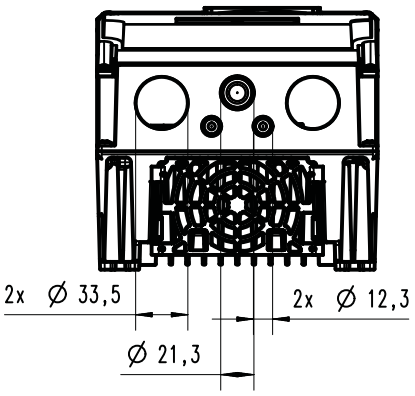
| | | | | | |
|---|---|---|---|---|---|
| 1 hp | i550-P0.75/120-1 | | | | |
| 1.5 hp | i550-P1.1/120-1 | i550-P1.1/230-1 | i550-P1.1/230-2 | i550-P1.1/400-3 | |
| 2 hp | | i550-P1.5/230-1 | i550-P1.5/230-2 | i550-P1.5/400-3 | i550-P1.5/600-3 |
| 3 hp | | i550-P2.2/230-1 | i550-P2.2/230-2 | i550-P2.2/400-3 | i550-P2.2/600-3 |
| Weight | NEMA 1: 5.7 lb<br>NEMA 4X: 6 lb | NEMA 4X: 6 lb | NEMA 1: 5.5 lb<br>NEMA 4X: 5.7 lb | NEMA 1: 5.7 lb<br>NEMA 4X: 6 lb | NEMA 1: 5.7 lb<br>NEMA 4X: 6 lb |

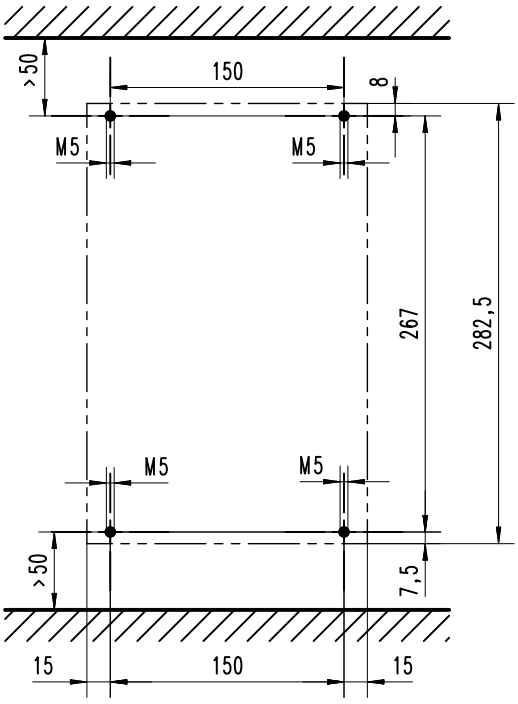


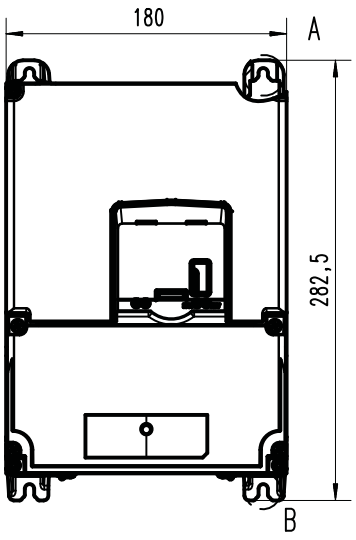
### 3 kW ... 5.5 kW

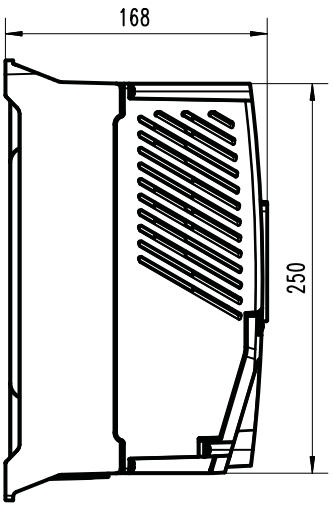
The dimensions in mm apply to:

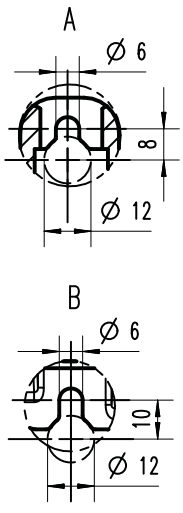
| | | | |
|---|---|---|---|
| 3 kW | i550-P3.0/230-3 | i550-P3.0/400-3 | |
| 4 kW | i550-P4.0/230-3 | i550-P4.0/400-3 | i550-P4.0/600-3 |
| 5.5 kW | i550-P5.5/230-3 | i550-P5.5/400-3 | i550-P5.5/600-3 |
| Weight | IP31: 4.7 kg<br>IP66: 4.8 kg | IP31: 4.8 kg<br>IP66: 4.9 kg | IP31: 4.8 kg<br>IP66: 4.9 kg |



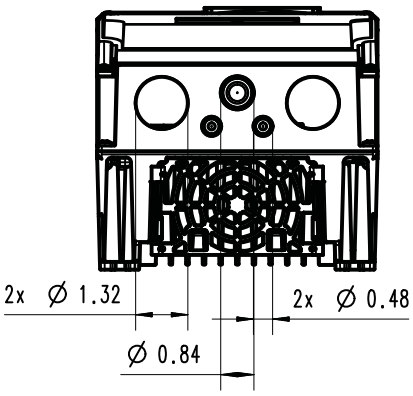



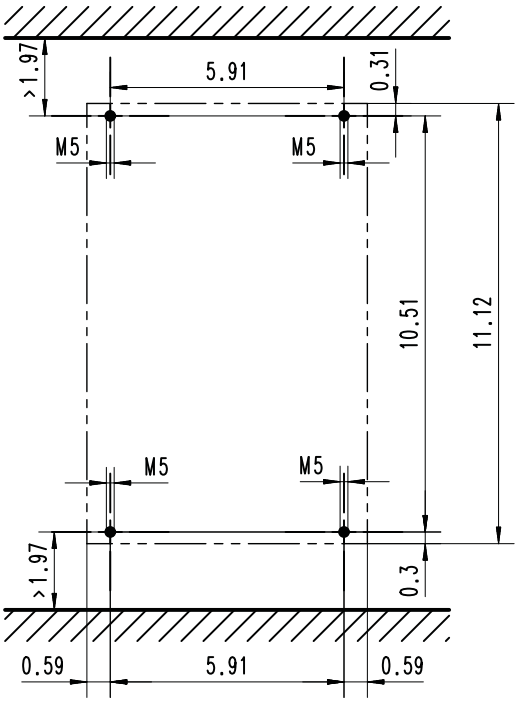

8800779

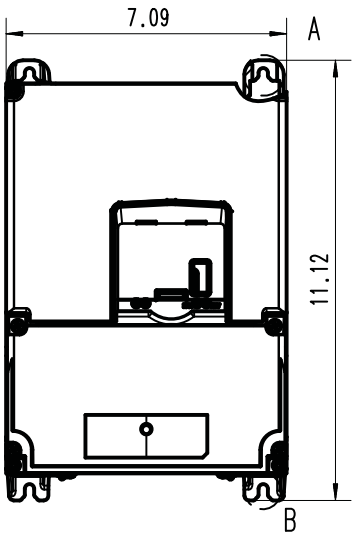
**4 hp ... 7.5 hp**

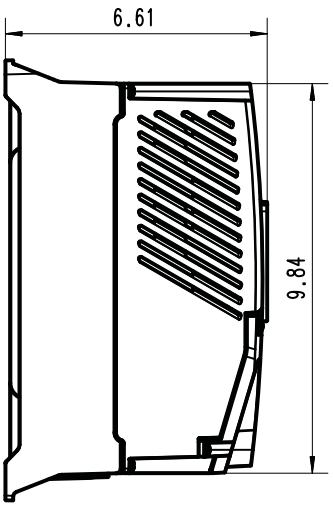
The dimensions in inch apply to:

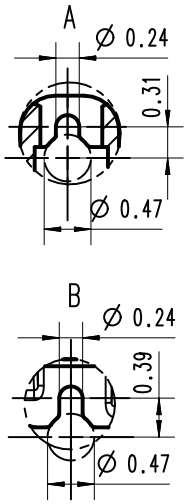
| | | | |
|---|---|---|---|
| 4 hp | i550-P3.0/230-3 | i550-P3.0/400-3 | |
| 5 hp | i550-P4.0/230-3 | i550-P4.0/400-3 | i550-P4.0/600-3 |
| 7.5 hp | i550-P5.5/230-3 | i550-P5.5/400-3 | i550-P5.5/600-3 |
| Weight | NEMA 1: 10.4 lb<br>NEMA 4X: 10.6 lb | NEMA 1: 10.6 lb<br>NEMA 4X: 10.8 lb | NEMA 1: 10.6 lb<br>NEMA 4X: 10.8 lb |



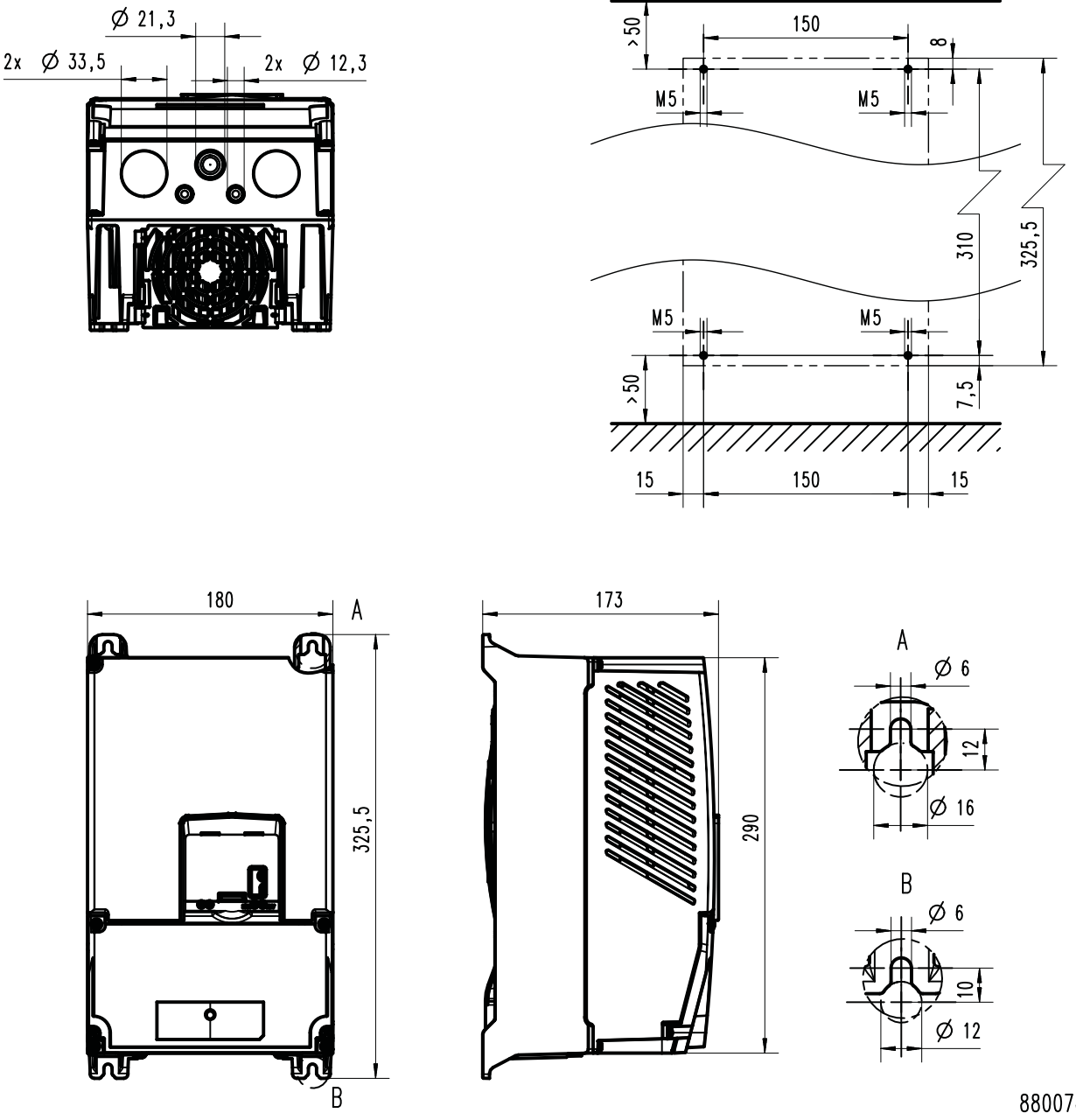




8800780

### 7.5 kW ... 11 kW

The dimensions in mm apply to:

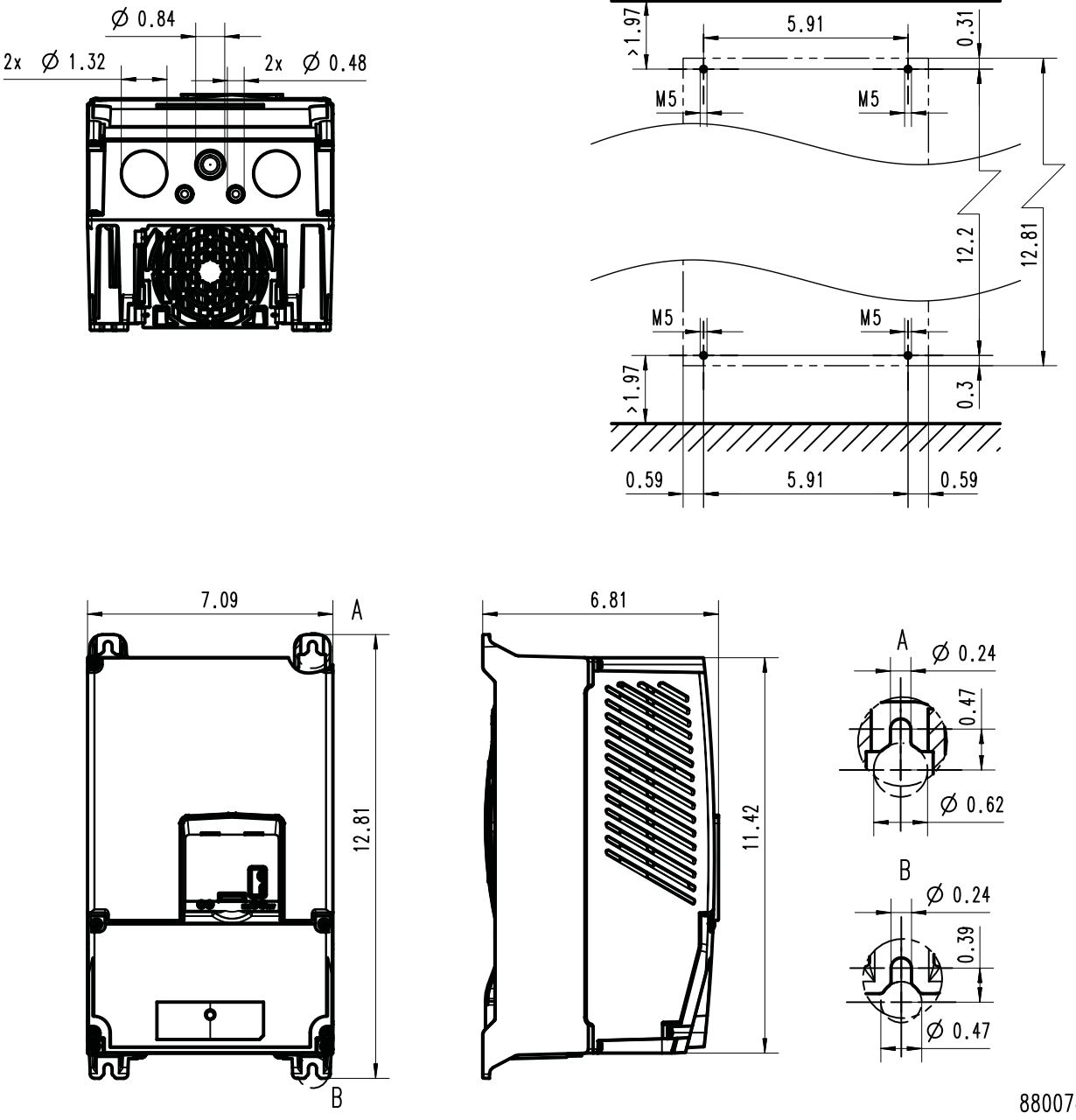
| | | | |
|---|---|---|---|
| 7.5 kW | i550-P7.5/230-3 | i550-P7.5/400-3 | i550-P7.5/600-3 |
| 11 kW | i550-P11/230-3 | i550-P11/400-3 | i550-P11/600-3 |
| Weight | IP31: 4.9 kg<br>IP66: 5 kg | IP31: 5 kg<br>IP66: 5.1 kg | IP31: 5 kg<br>IP66: 5.1 kg |



**10 hp ... 15 hp**

The dimensions in inch apply to:

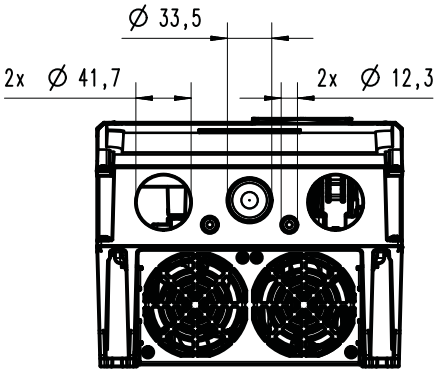
| | | | |
|---|---|---|---|
| 10 hp | i550-P7.5/230-3 | i550-P7.5/400-3 | i550-P7.5/600-3 |
| 15 hp | i550-P11/230-3 | i550-P11/400-3 | i550-P11/600-3 |
| Weight | NEMA 1: 10.8 lb<br>NEMA 4X: 11 lb | NEMA 1: 11 lb<br>NEMA 4X: 11.2 lb | NEMA 1: 11 lb<br>NEMA 4X: 11.2 lb |

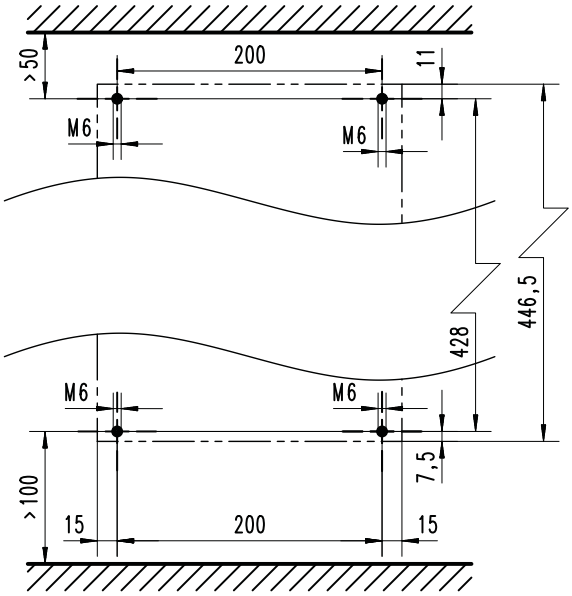


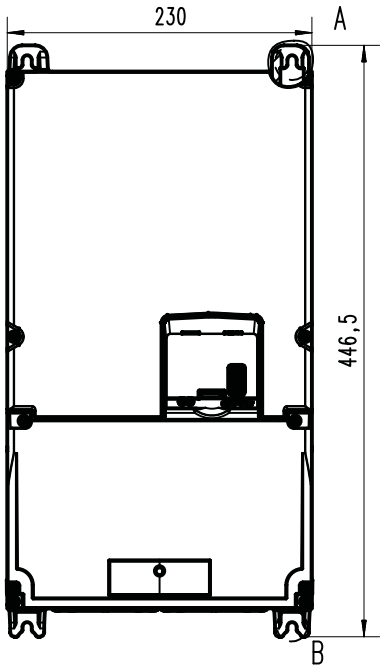
**15 kW ... 22 kW**

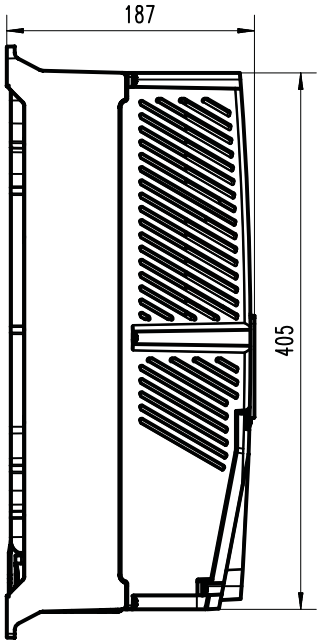
The dimensions in mm apply to:

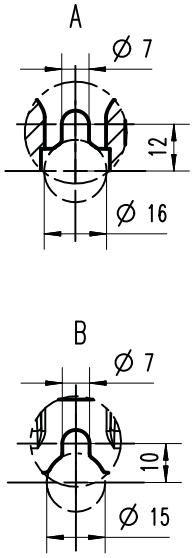
| | | | |
|---|---|---|---|
| 15 kW | i550-P15/230-3 | i550-P15/400-3 | i550-P15/600-3 |
| 18.5 kW | i550-P18/230-3 | i550-P18/400-3 | i550-P18/600-3 |
| 22 kW | | i550-P22/400-3 | i550-P22/600-3 |
| Weight | IP31: 9.3 kg<br>IP66: 9.4 kg | IP31: 10.1 kg<br>IP66: 10.2 kg | IP31: 10.1 kg<br>IP66: 10.2 kg |



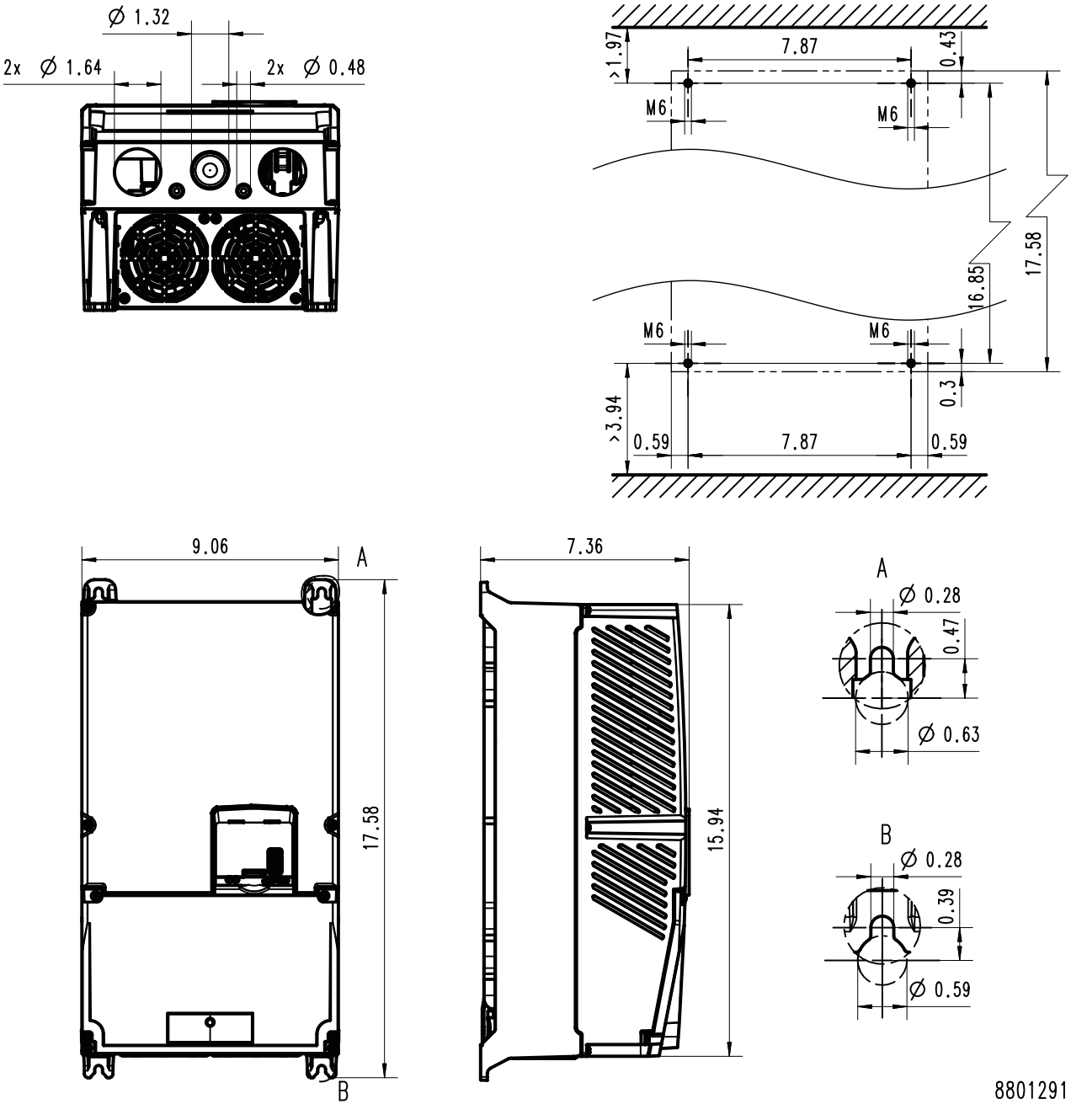




8801290

**20 hp ... 30 hp**

The dimensions in inch apply to:

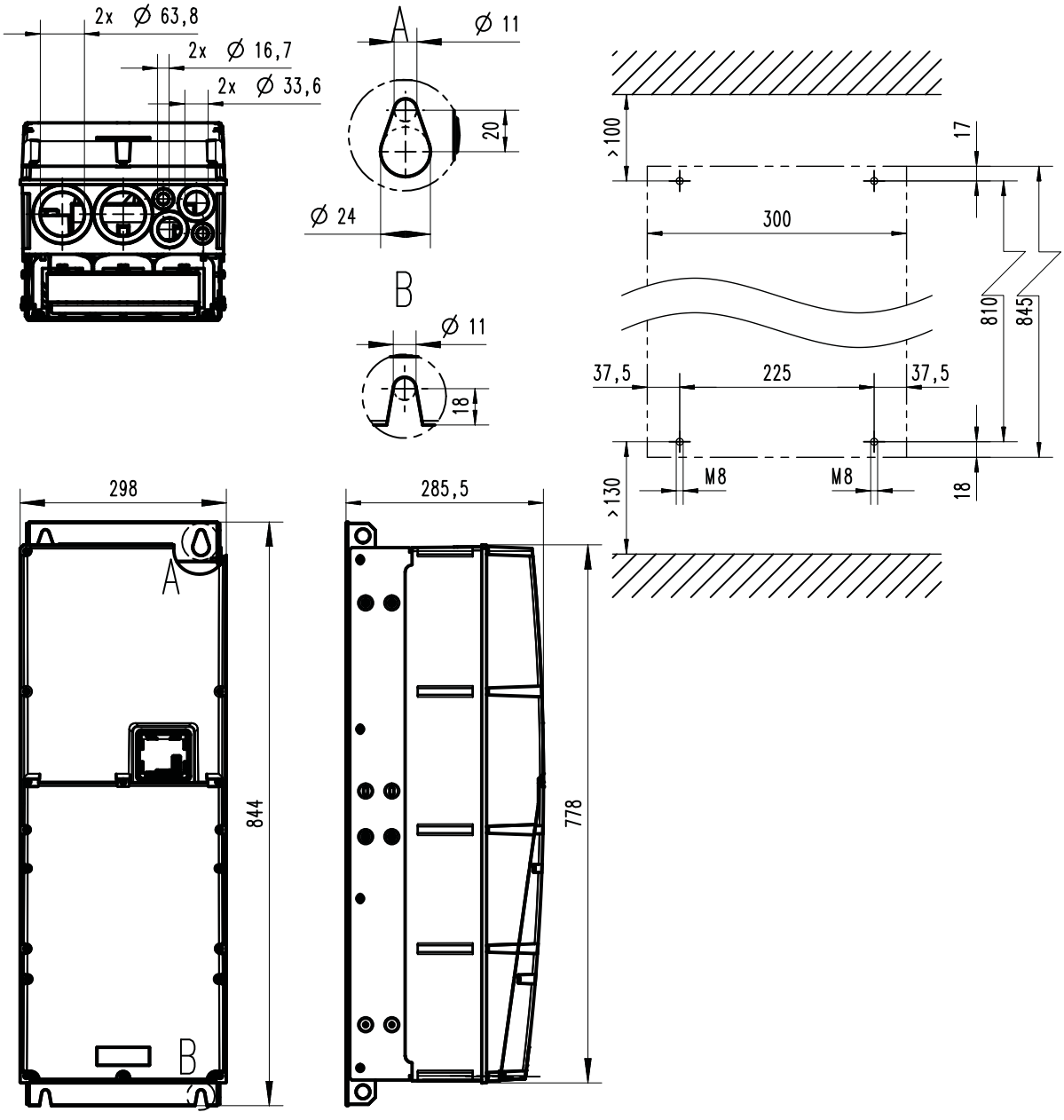
| | | | |
|---|---|---|---|
| 20 hp | i550-P15/230-3 | i550-P15/400-3 | i550-P15/600-3 |
| 25 hp | i550-P18/230-3 | i550-P18/400-3 | i550-P18/600-3 |
| 30 hp | | i550-P22/400-3 | i550-P22/600-3 |
| Weight | NEMA 1: 20.5 lb<br>NEMA 4X: 20.7 lb | NEMA 1: 22.3 lb<br>NEMA 4X: 22.5 lb | NEMA 1: 22.3 lb<br>NEMA 4X: 22.5 lb |



**30 kW ... 45 kW**

The dimensions in mm apply to:

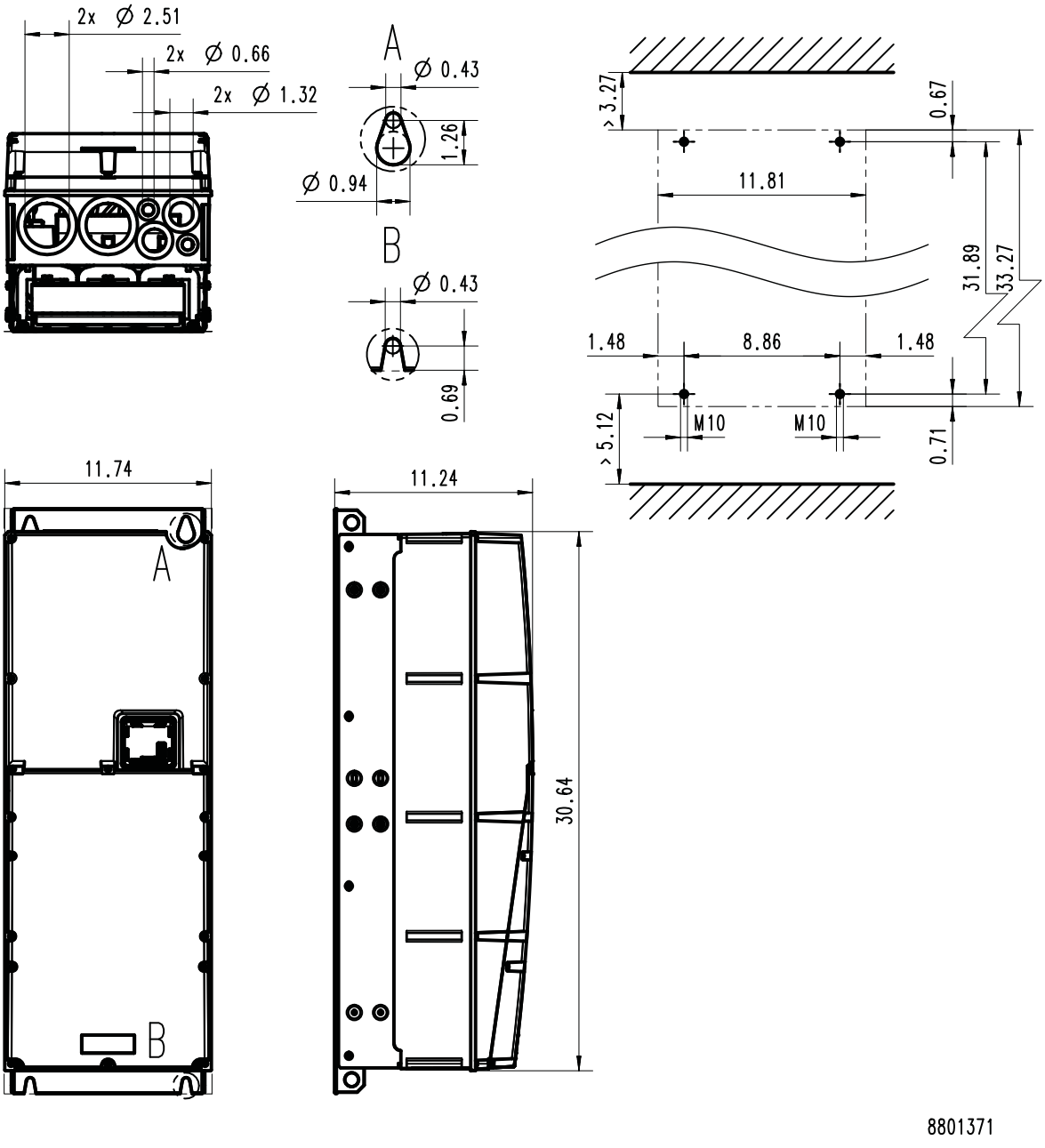
| | | |
|---|---|---|
| 30 kW | i550-P30/230-3 | i550-P30/400-3 |
| 37 kW | | i550-P37/400-3 |
| 45 kW | | i550-P45/400-3 |
| Weight | IP55: 46 kg | IP55: 46 kg |



**40 hp ... 60 hp**

The dimensions in inch apply to:

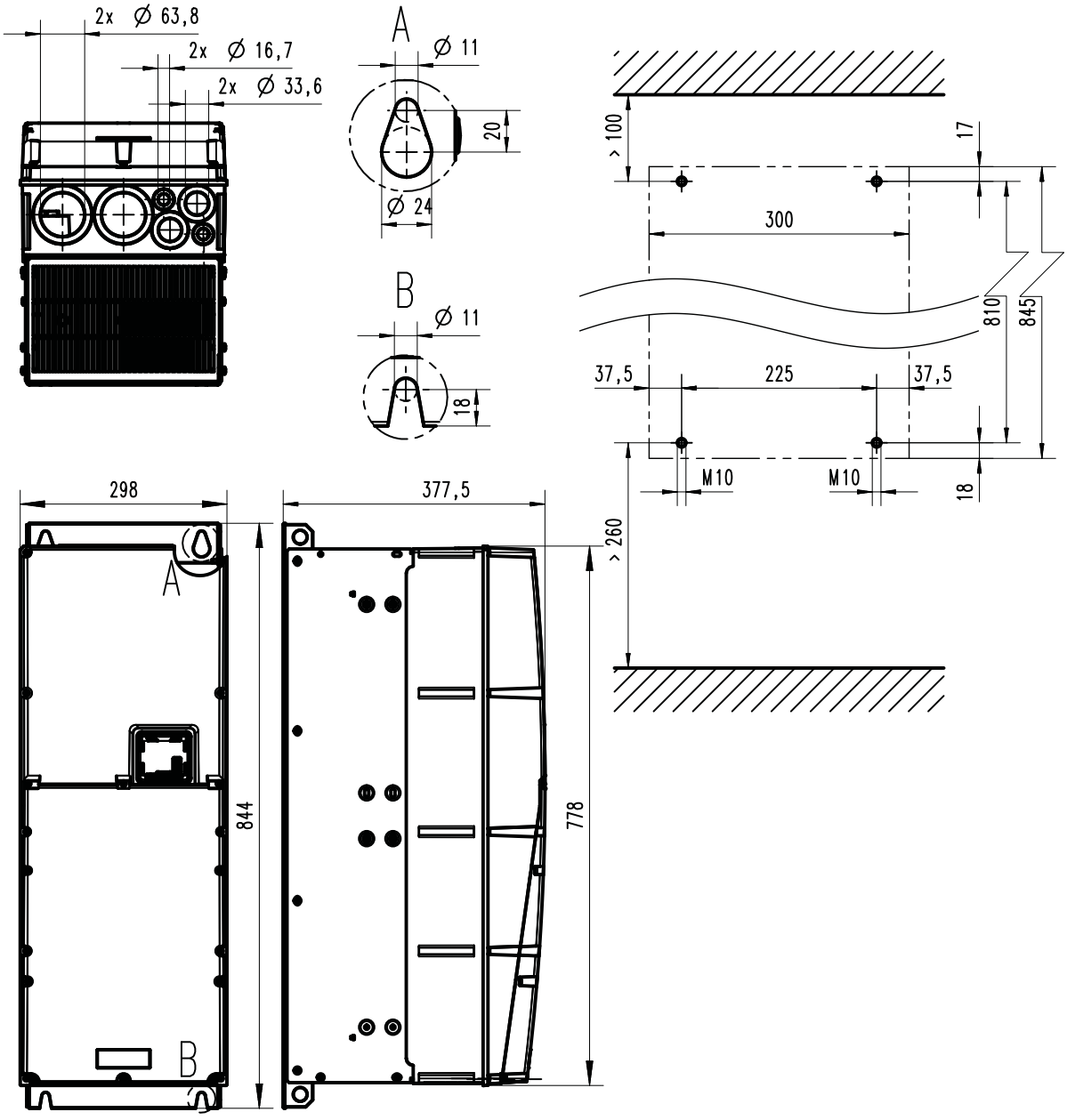
| | | |
|---|---|---|
| 40 hp | i550-P30/230-3 | i550-P30/400-3 |
| 50 hp | | i550-P37/400-3 |
| 60 hp | | i550-P45/400-3 |
| Weight | NEMA 12: 101.4 lb | NEMA 12: 101.4 lb |



**45 kW ... 75 kW**

The dimensions in mm apply to:

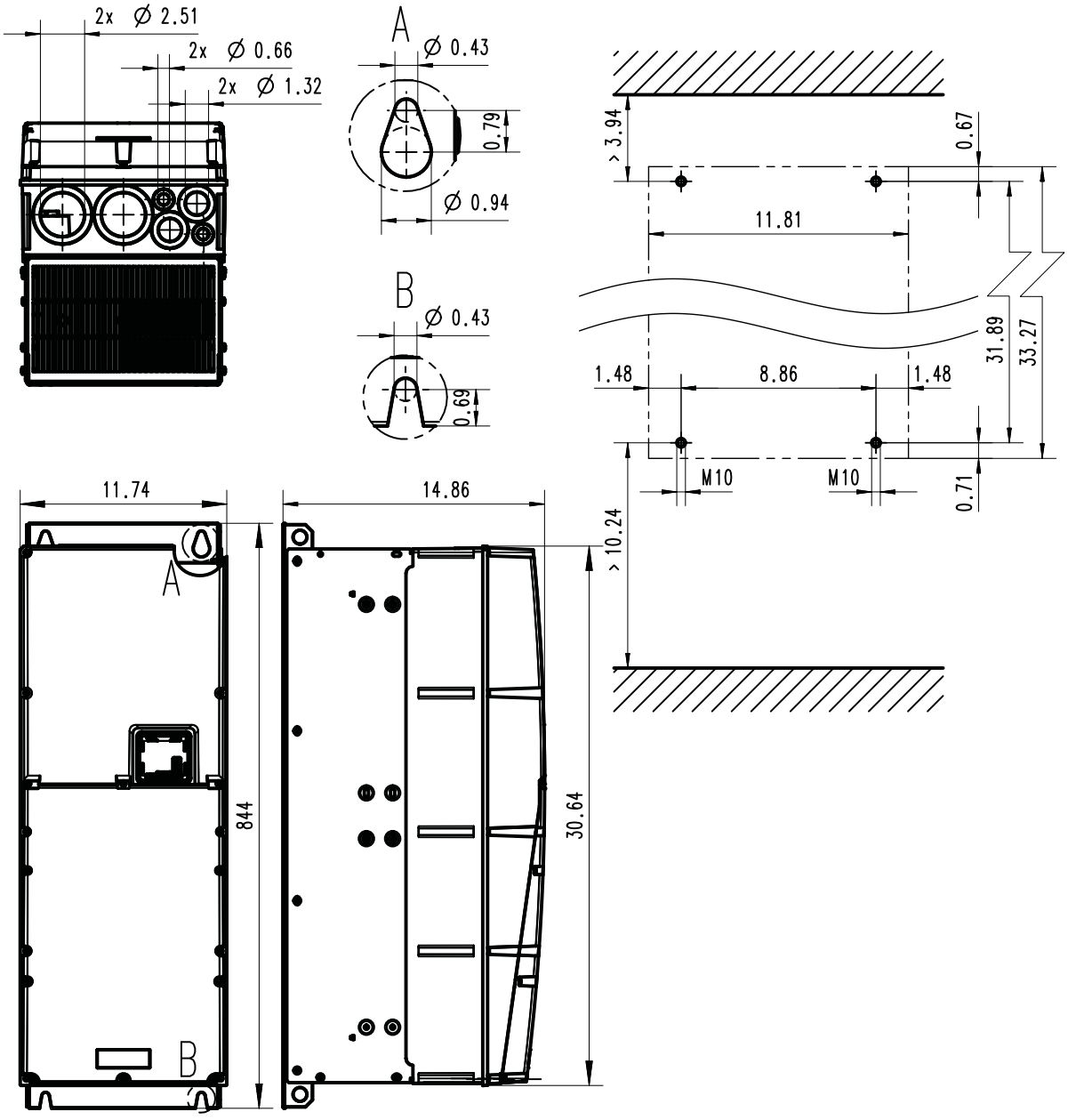
| | | |
|---|---|---|
| 45 kW | i550-P45/230-3 | |
| 55 kW | | i550-P55/400-3 |
| 75 kW | | i550-P75/400-3 |
| Weight | IP55: 53 kg | IP55: 53 kg |



**60 hp ... 100 hp**

The dimensions in inch apply to:

| | | |
|---|---|---|
| 60 hp | i550-P45/230-3 | |
| 75 hp | | i550-P55/400-3 |
| 100 hp | | i550-P75/400-3 |
| Weight | NEMA 12: 116.8 lb | NEMA 12: 116.8 lb |



### Dimensions for inverter with extension box

The lower weight applies for the i550 protec with empty extension box.

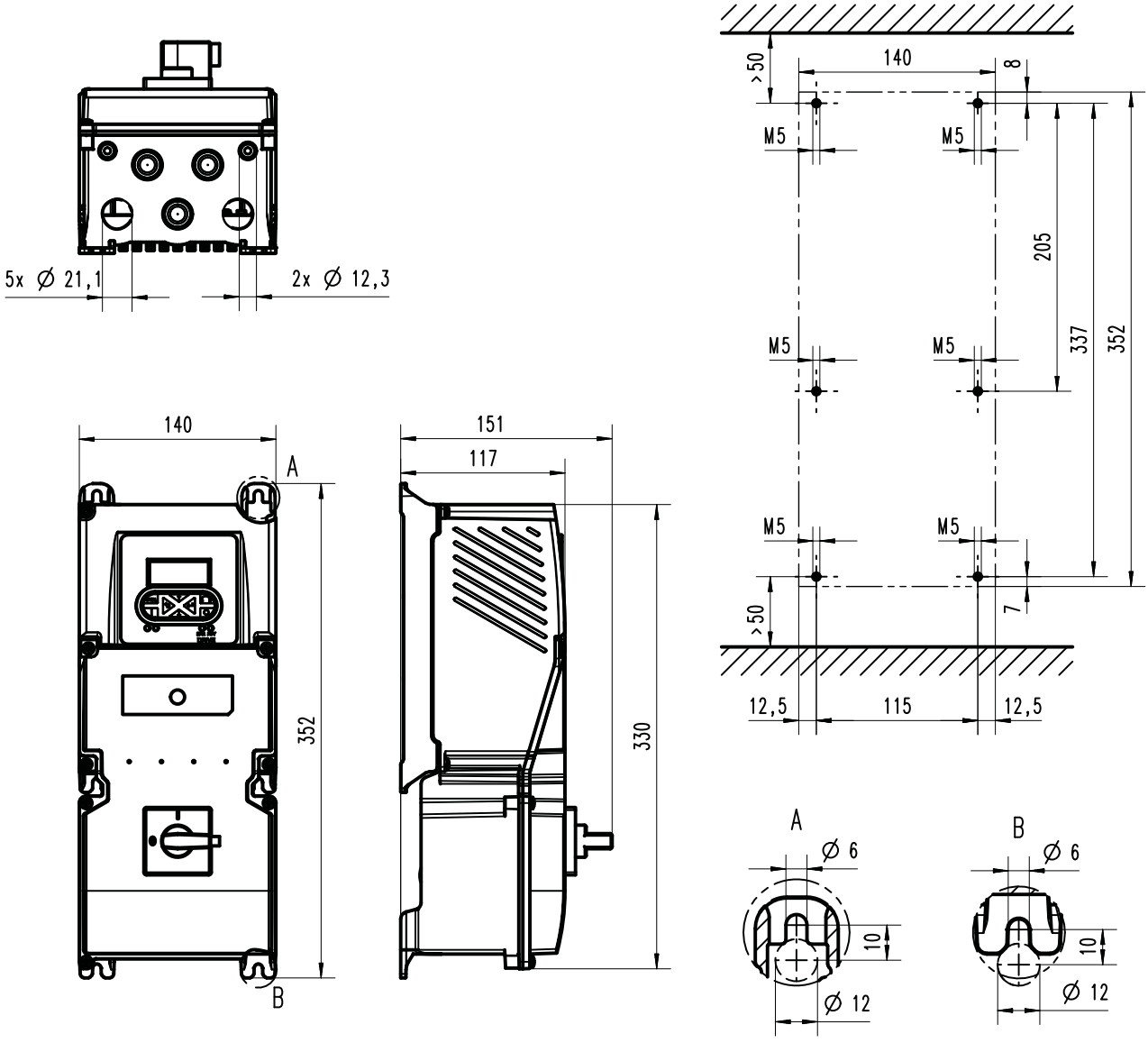
The higher weight applies for the i550 protec with extension box and disconnect switch.

For the i550 protec with empty extension box, the dimension with the disconnect switch is **not relevant**.

**0.37 kW ... 0.75 kW**

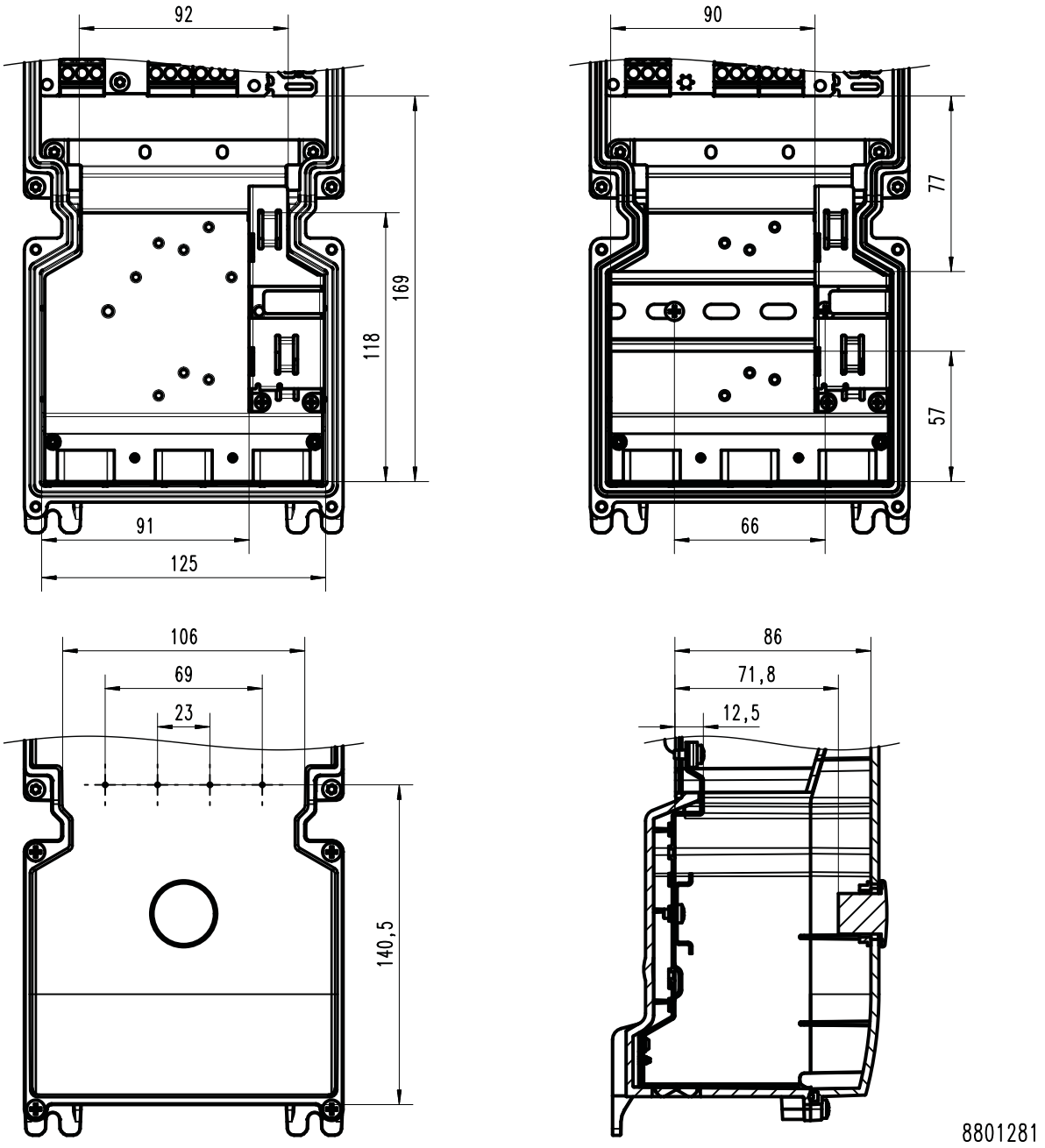
The dimensions in mm apply to:

| | | | | | |
|---|---|---|---|---|---|
| 0.37 kW | i550-P0.37/120-1 | i550-P0.37/230-1 | i550-P0.37/230-2 | i550-P0.37/400-3 | |
| 0.55 kW | | i550-P0.55/230-1 | i550-P0.55/230-2 | i550-P0.55/400-3 | |
| 0.75 kW | | i550-P0.75/230-1 | i550-P0.75/230-2 | i550-P0.75/400-3 | i550-P0.75/600-3 |
| Weight | IP66: 2.5 kg<br>IP66: 2.3 kg | IP66: 2.5 kg<br>IP66: 2.3 kg | IP66: 2.4 kg<br>IP66: 2.2 kg | IP66: 2.5 kg<br>IP66: 2.3 kg | IP66: 2.3 kg<br>IP66: 2.5 kg |




8800956

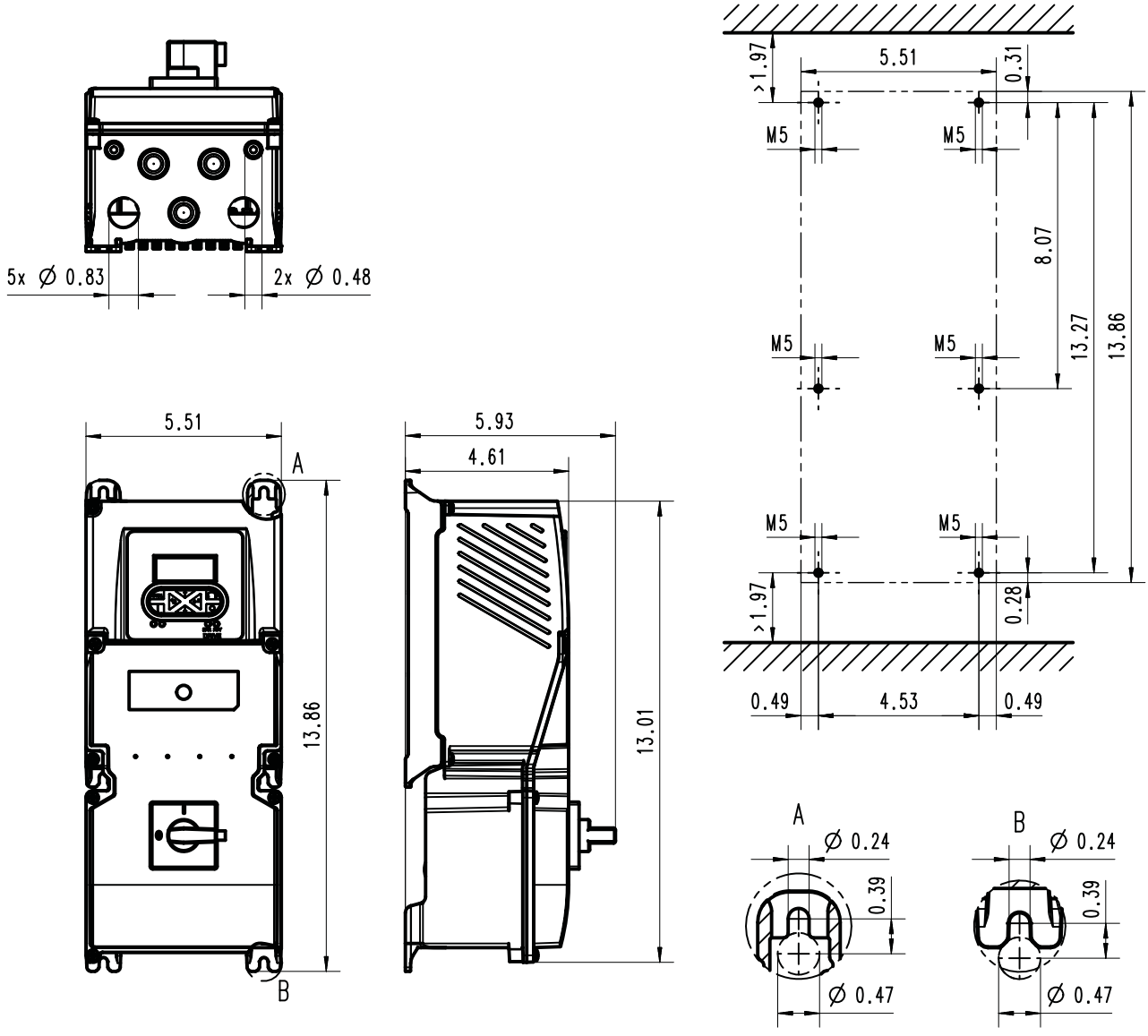
Free mounting space of product variant i550 protec with empty extension box



**0.5 hp ... 1 hp**

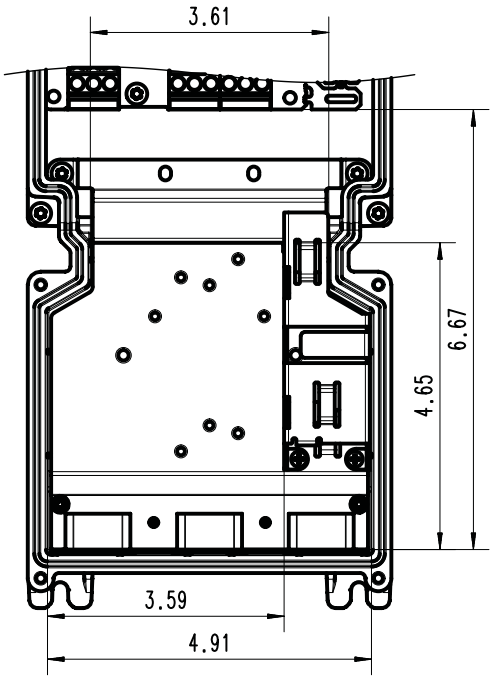
The dimensions in inch apply to:

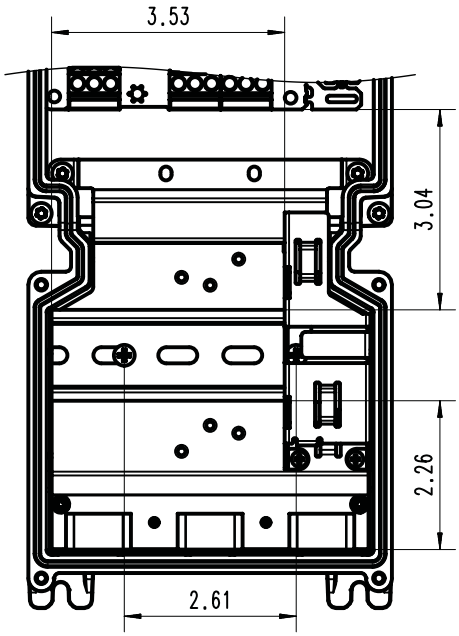
| | | | | | |
|---|---|---|---|---|---|
| 0.5 hp | i550-P0.37/120-1 | i550-P0.37/230-1 | i550-P0.37/230-2 | i550-P0.37/400-3 | |
| 0.75 hp | | i550-P0.55/230-1 | i550-P0.55/230-2 | i550-P0.55/400-3 | |
| 1 hp | | i550-P0.75/230-1 | i550-P0.75/230-2 | i550-P0.75/400-3 | i550-P0.75/600-3 |
| Weight | NEMA 4X: 5.5 lb<br>NEMA 4X: 5.1 lb | NEMA 4X: 5.5 lb<br>NEMA 4X: 5.1 lb | NEMA 4X: 5.3 lb<br>NEMA 4X: 4.8 lb | NEMA 4X: 5.5 lb<br>NEMA 4X: 5.1 lb | NEMA 4X: 5.1 lb<br>NEMA 4X: 5.5 lb |

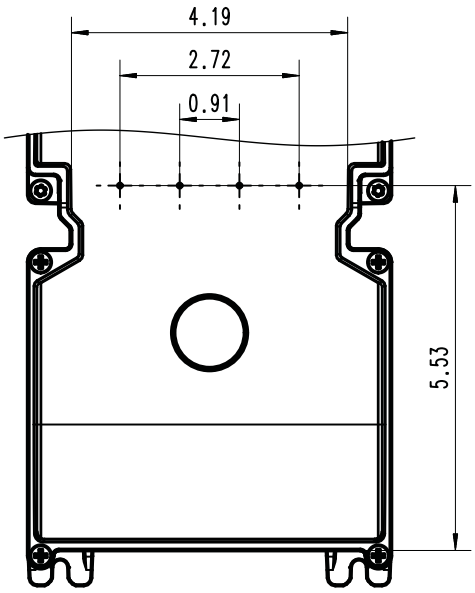


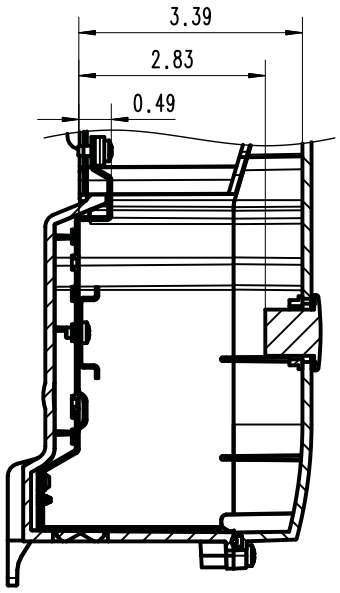

8800957

Free mounting space of product variant i550 protec with empty extension box



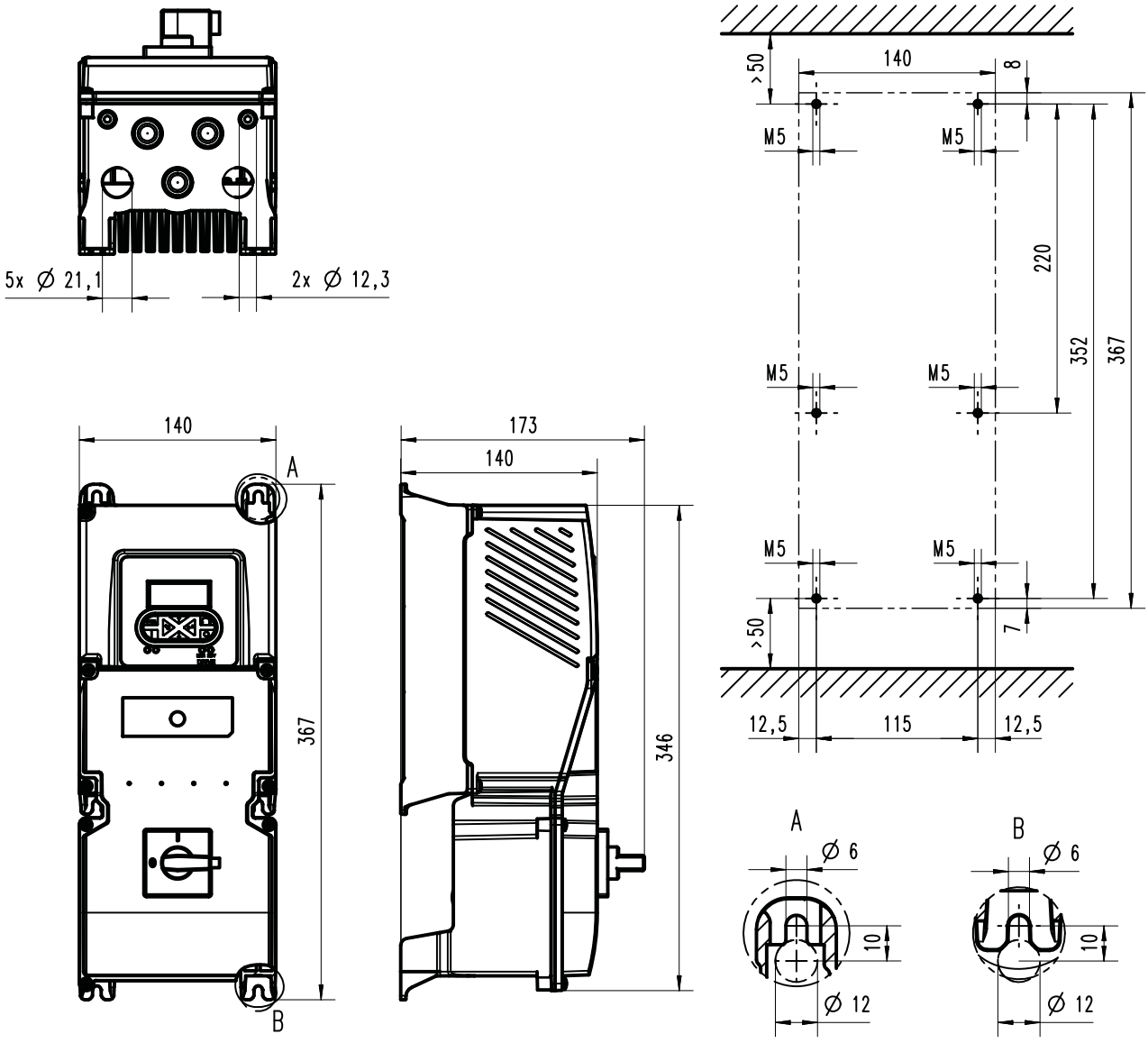




8801282

**0.75 kW ... 2.2 kW**

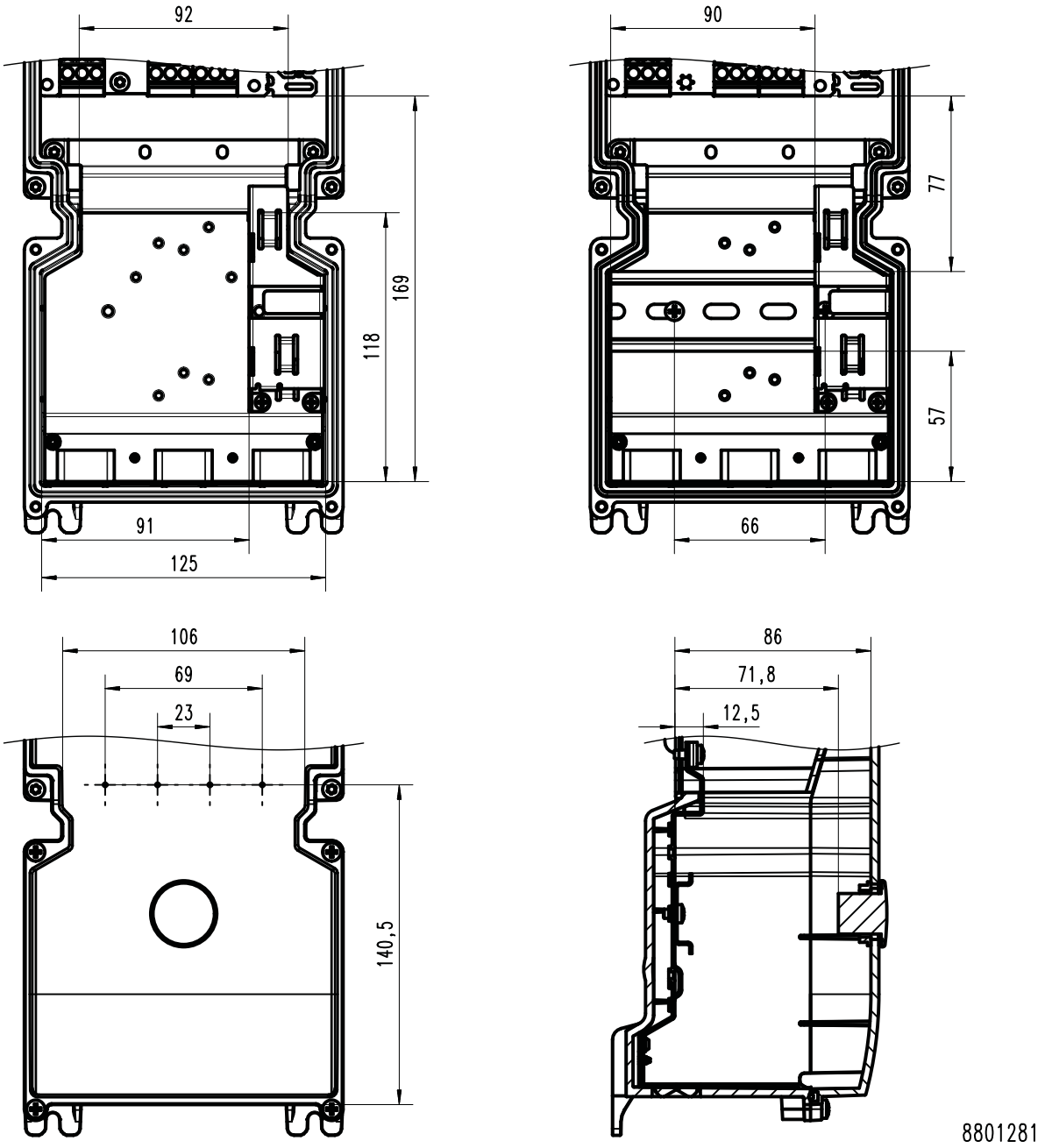
The dimensions in mm apply to:

| | | | | | |
|---|---|---|---|---|---|
| 0.75 kW | i550-P0.75/120-1 | | | | |
| 1.1 kW | i550-P1.1/120-1 | i550-P1.1/230-1 | i550-P1.1/230-2 | i550-P1.1/400-3 | |
| 1.5 kW | | i550-P1.5/230-1 | i550-P1.5/230-2 | i550-P1.5/400-3 | i550-P1.5/600-3 |
| 2.2 kW | | i550-P2.2/230-1 | i550-P2.2/230-2 | i550-P2.2/400-3 | i550-P2.2/600-3 |
| Weight | IP66: 3.5 kg<br>IP66: 3.3 kg | IP66: 3.5 kg<br>IP66: 3.3 kg | IP66: 3.4 kg<br>IP66: 3.2 kg | IP66: 3.5 kg<br>IP66: 3.3 kg | IP66: 3.3 kg<br>IP66: 3.5 kg |




8800958

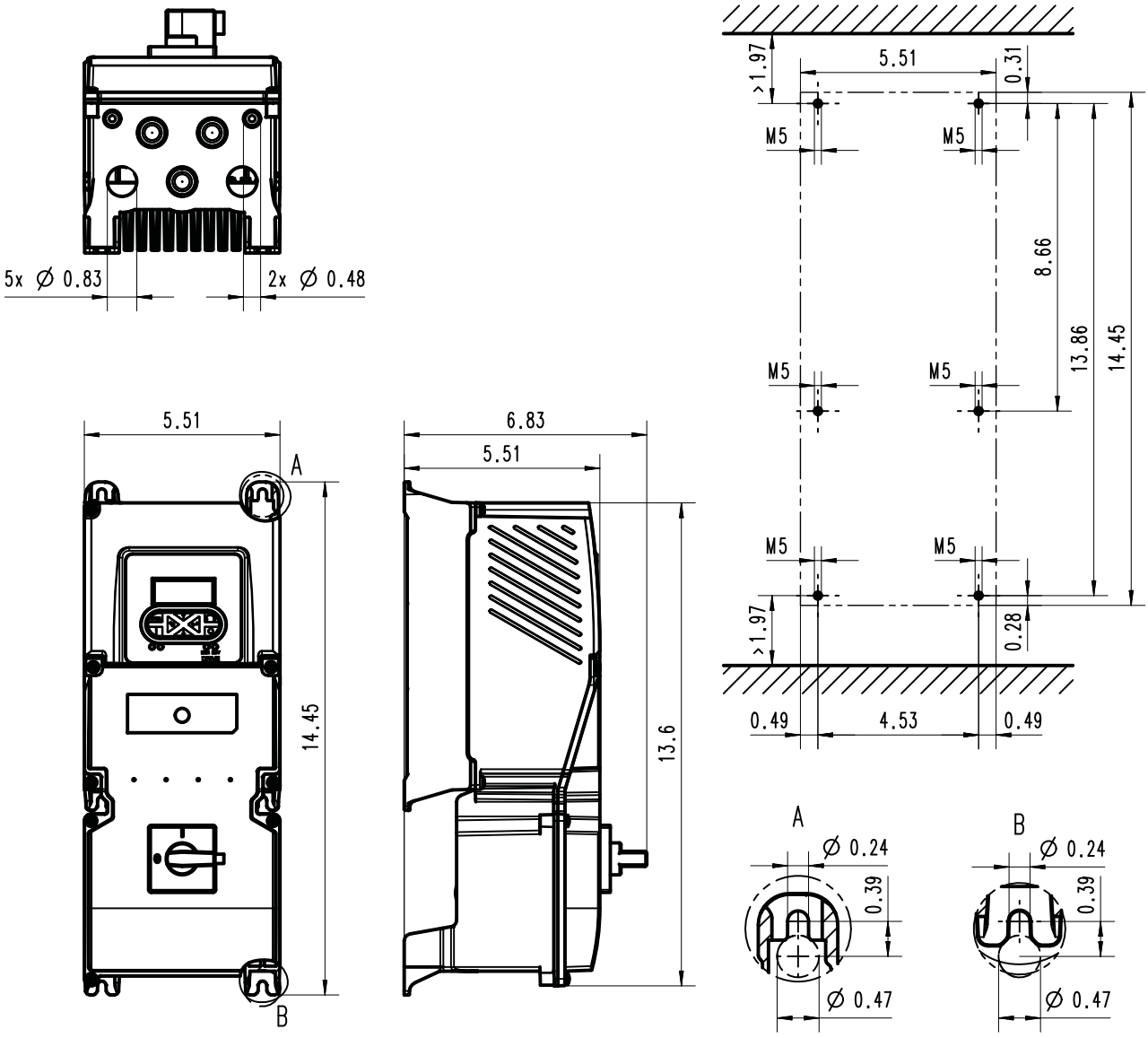
Free mounting space of product variant i550 protec with empty extension box



**1 hp ... 3 hp**

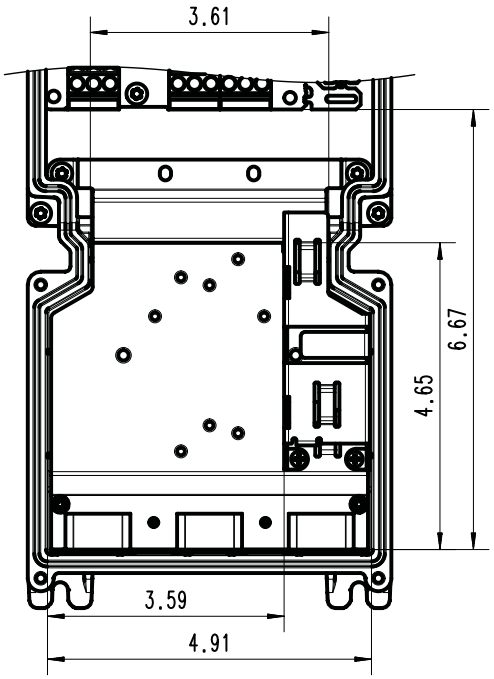
The dimensions in inch apply to:

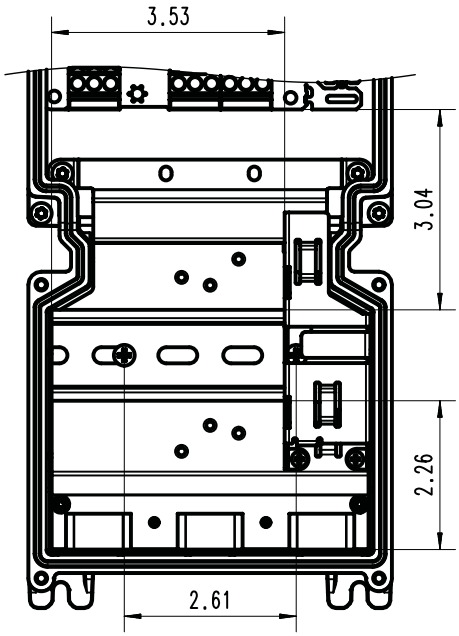
| | | | | | |
|---|---|---|---|---|---|
| 1 hp | i550-P0.75/120-1 | | | | |
| 1.5 hp | i550-P1.1/120-1 | i550-P1.1/230-1 | i550-P1.1/230-2 | i550-P1.1/400-3 | |
| 2 hp | | i550-P1.5/230-1 | i550-P1.5/230-2 | i550-P1.5/400-3 | i550-P1.5/600-3 |
| 3 hp | | i550-P2.2/230-1 | i550-P2.2/230-2 | i550-P2.2/400-3 | i550-P2.2/600-3 |
| Weight | NEMA 4X: 7.7 lb<br>NEMA 4X: 7.3 lb | NEMA 4X: 7.7 lb<br>NEMA 4X: 7.3 lb | NEMA 4X: 7.5 lb<br>NEMA 4X: 7 lb | NEMA 4X: 7.7 lb<br>NEMA 4X: 7.3 lb | NEMA 4X: 7.3 lb<br>NEMA 4X: 7.7 lb |

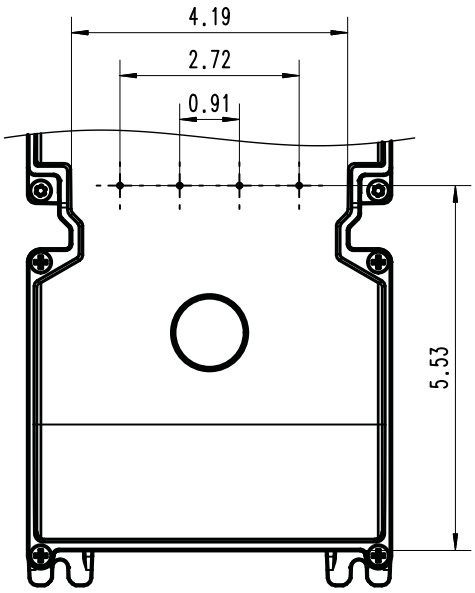


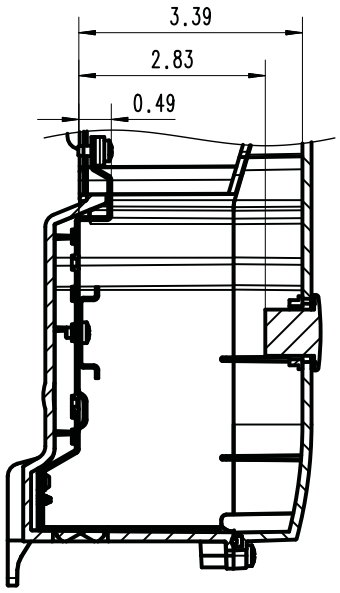

8800959

Free mounting space of product variant i550 protec with empty extension box



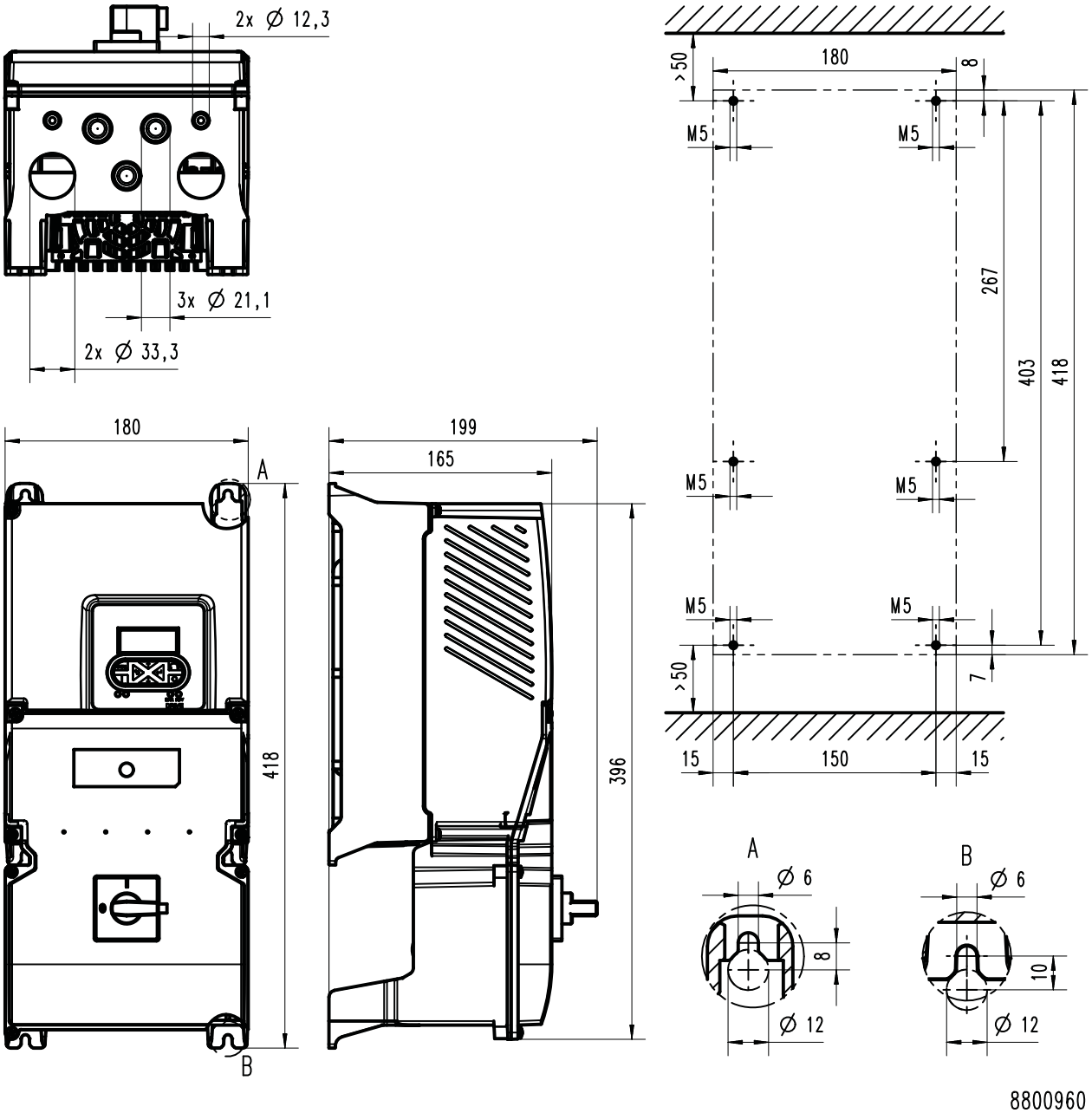




8801282

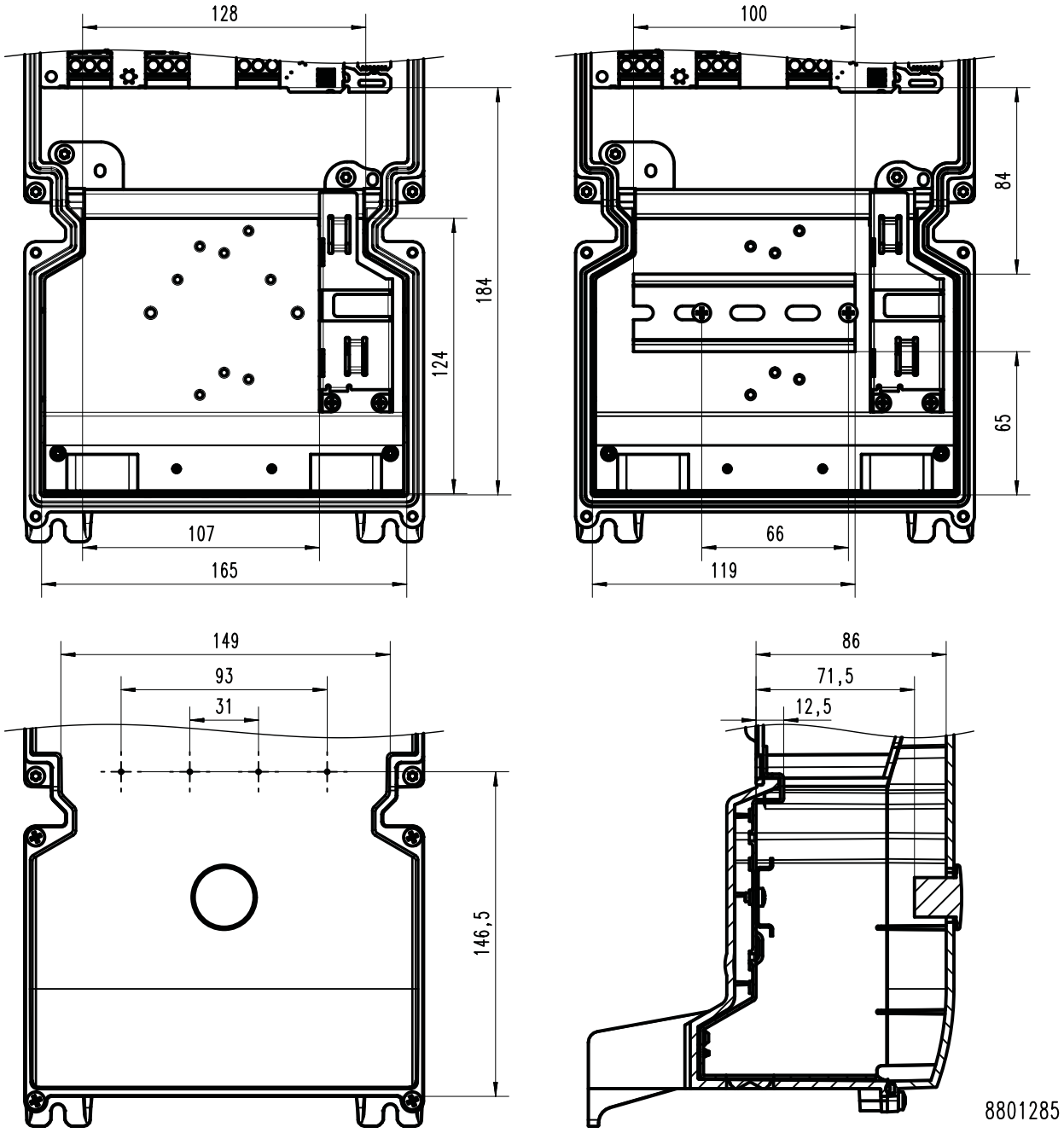
**3 kW ... 5.5 kW**

The dimensions in mm apply to:

| | | | |
|---|---|---|---|
| 3 kW | i550-P3.0/230-3 | i550-P3.0/400-3 | |
| 4 kW | i550-P4.0/230-3 | i550-P4.0/400-3 | i550-P4.0/600-3 |
| 5.5 kW | i550-P5.5/230-3 | i550-P5.5/400-3 | i550-P5.5/600-3 |
| Weight | IP66: 5.9 kg<br>IP66: 5.7 kg | IP66: 6 kg<br>IP66: 5.8 kg | IP66: 5.8 kg<br>IP66: 6 kg |



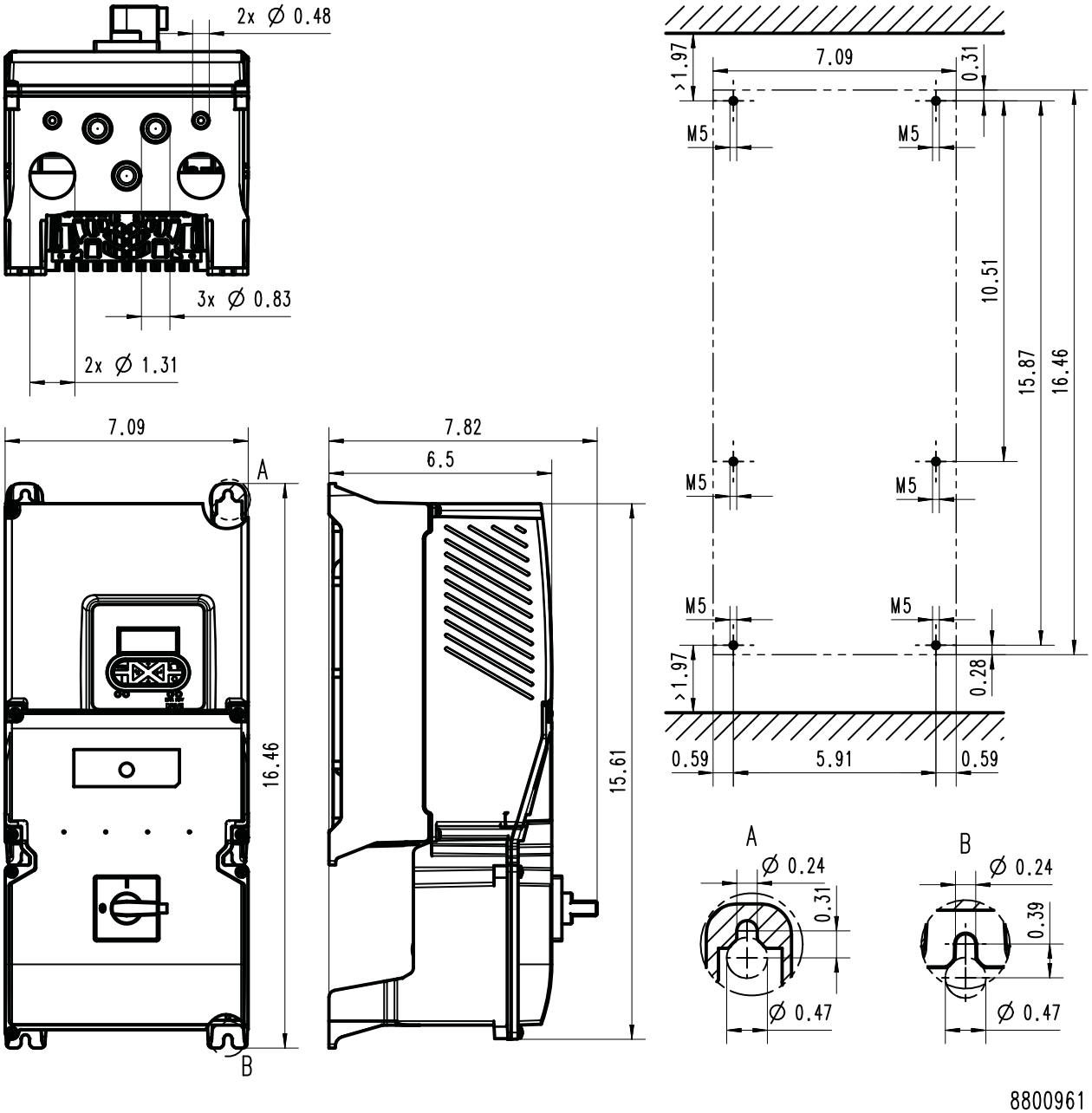
Free mounting space of product variant i550 protec with empty extension box



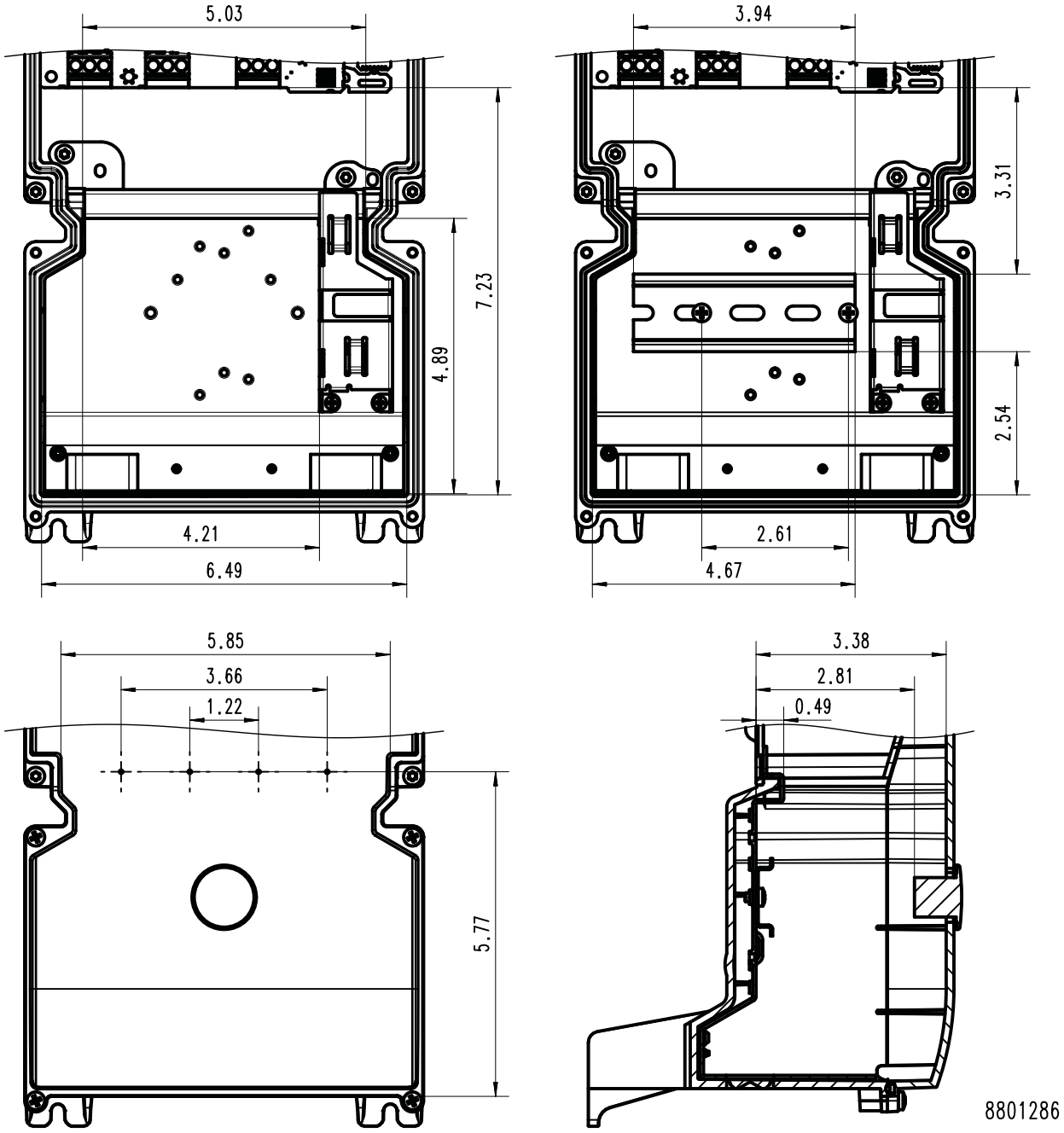
**4 hp ... 7.5 hp**

The dimensions in inch apply to:

| | | | |
|---|---|---|---|
| 4 hp | i550-P3.0/230-3 | i550-P3.0/400-3 | |
| 5 hp | i550-P4.0/230-3 | i550-P4.0/400-3 | i550-P4.0/600-3 |
| 7.5 hp | i550-P5.5/230-3 | i550-P5.5/400-3 | i550-P5.5/600-3 |
| Weight | NEMA 4X: 13 lb<br>NEMA 4X: 12.5 lb | NEMA 4X: 13.2 lb<br>NEMA 4X: 12.8 lb | NEMA 4X: 12.8 lb<br>NEMA 4X: 13.2 lb |



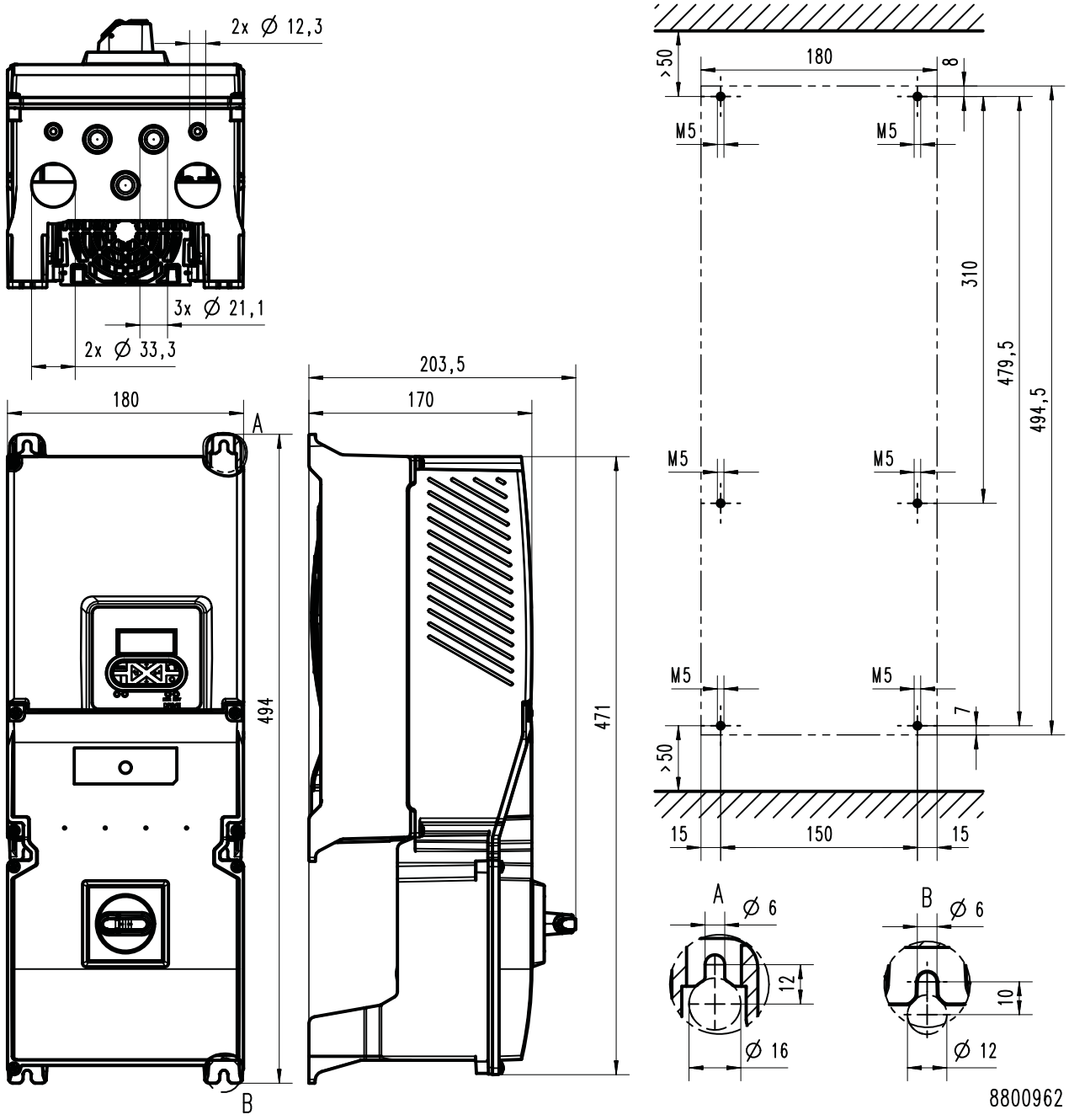
Free mounting space of product variant i550 protec with empty extension box



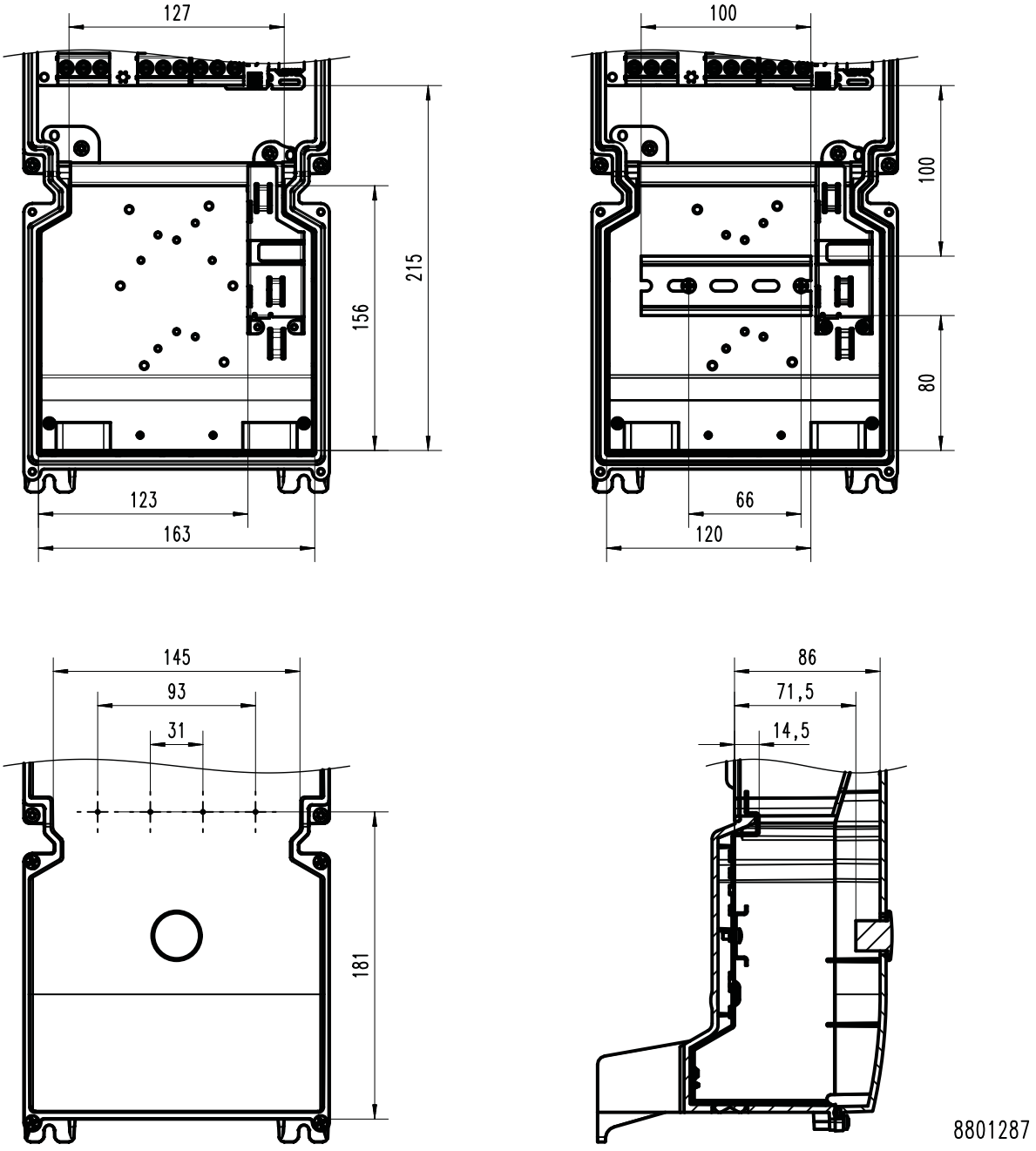
**7.5 kW ... 11 kW**

The dimensions in mm apply to:

| | | | |
|---|---|---|---|
| 7.5 kW | i550-P7.5/230-3 | i550-P7.5/400-3 | i550-P7.5/600-3 |
| 11 kW | i550-P11/230-3 | i550-P11/400-3 | i550-P11/600-3 |
| Weight | IP66: 6.2 kg<br>IP66: 6 kg | IP66: 6.3 kg<br>IP66: 6.1 kg | IP66: 6.1 kg<br>IP66: 6.3 kg |



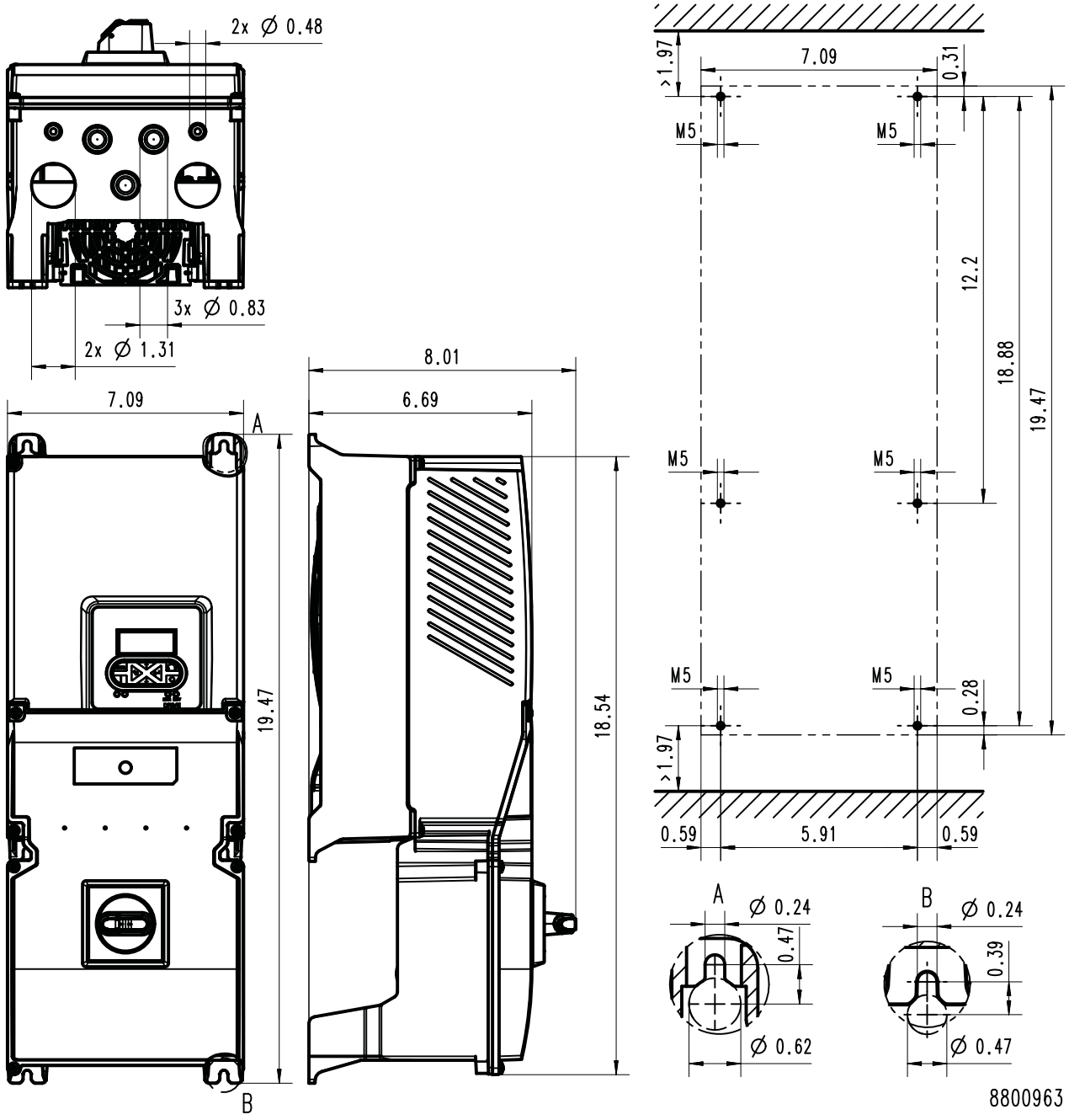
Free mounting space of product variant i550 protec with empty extension box



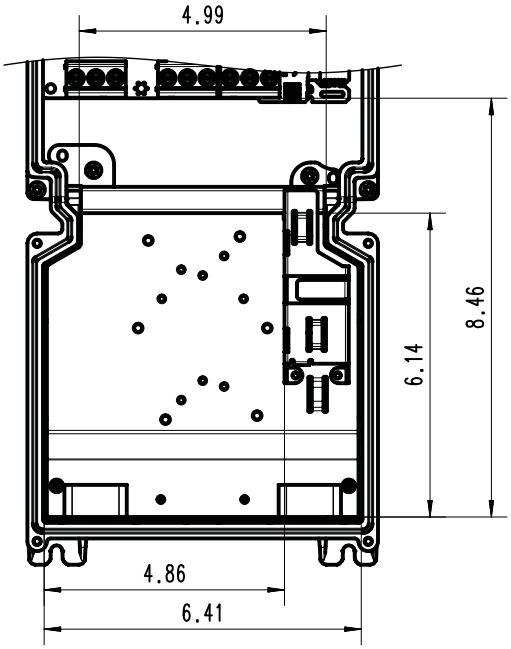
**10 hp ... 15 hp**

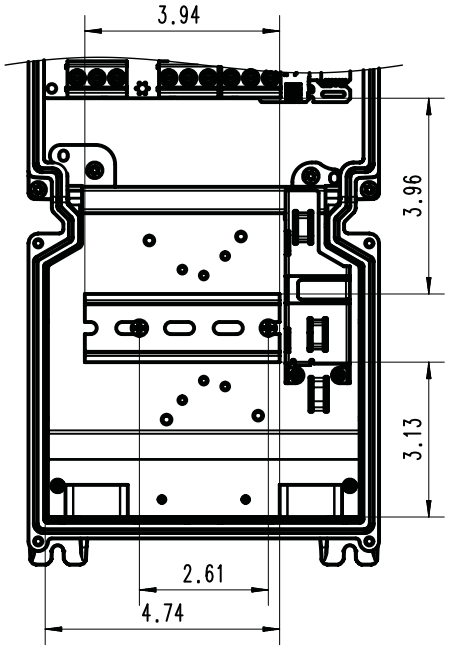
The dimensions in inch apply to:

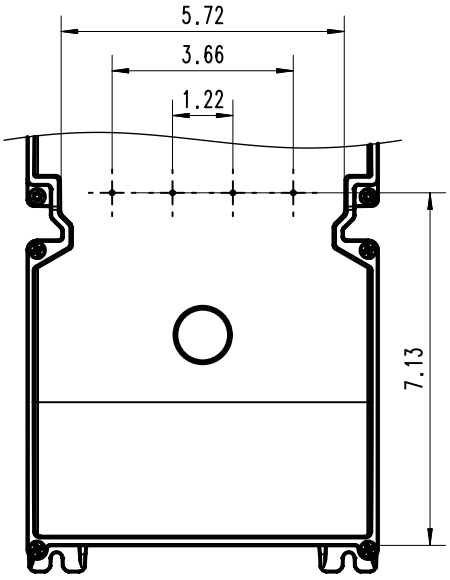
| | | | |
|---|---|---|---|
| 10 hp | i550-P7.5/230-3 | i550-P7.5/400-3 | i550-P7.5/600-3 |
| 15 hp | i550-P11/230-3 | i550-P11/400-3 | i550-P11/600-3 |
| Weight | NEMA 4X: 13.6 lb<br>NEMA 4X: 13.2 lb | NEMA 4X: 13.9 lb<br>NEMA 4X: 13.4 lb | NEMA 4X: 13.4 lb<br>NEMA 4X: 13.9 lb |

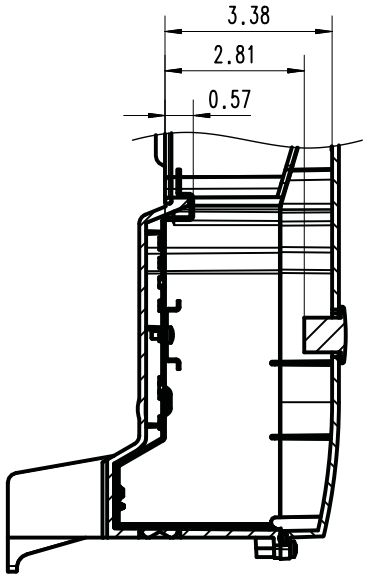


Free mounting space of product variant i550 protec with empty extension box

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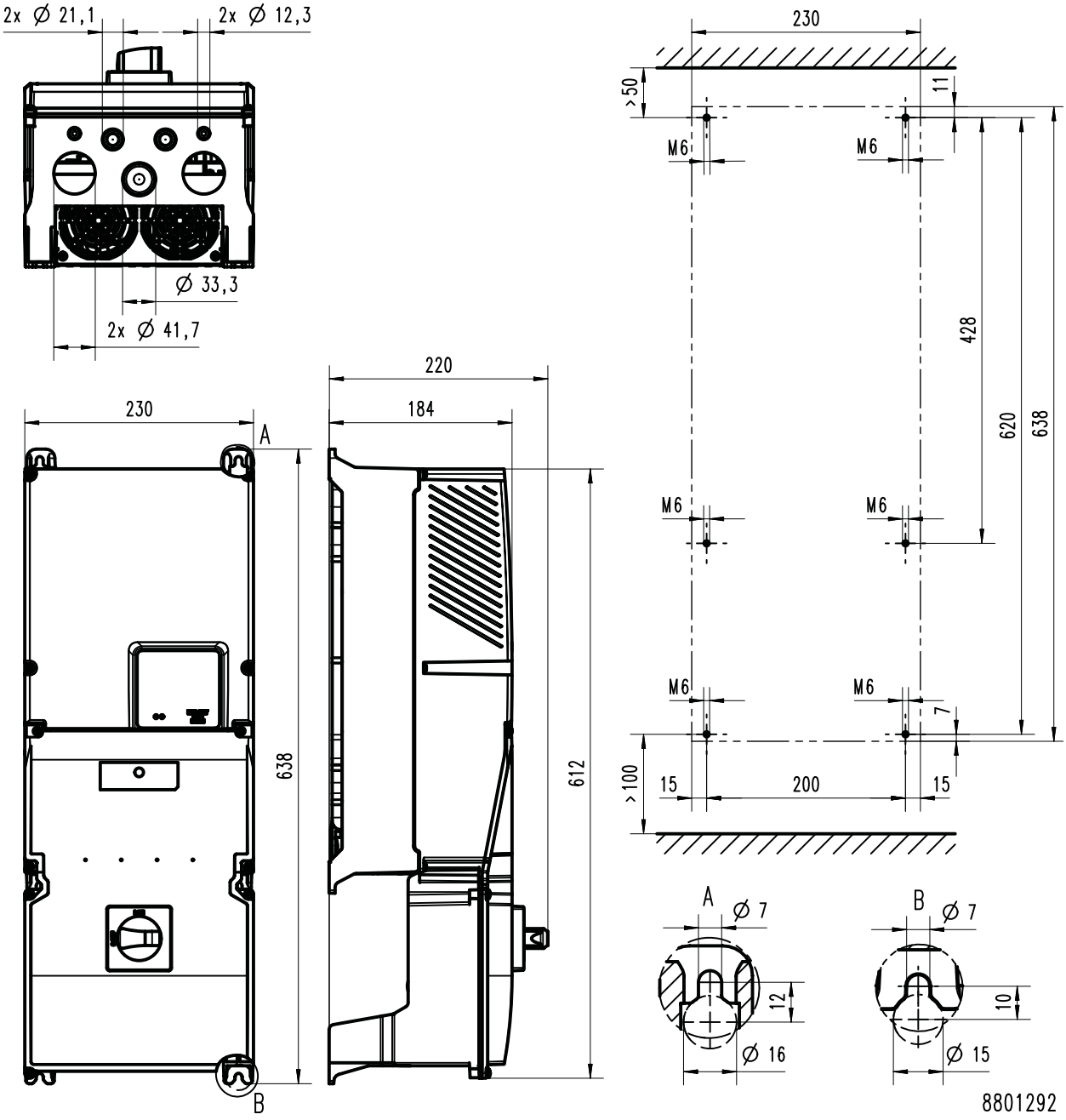
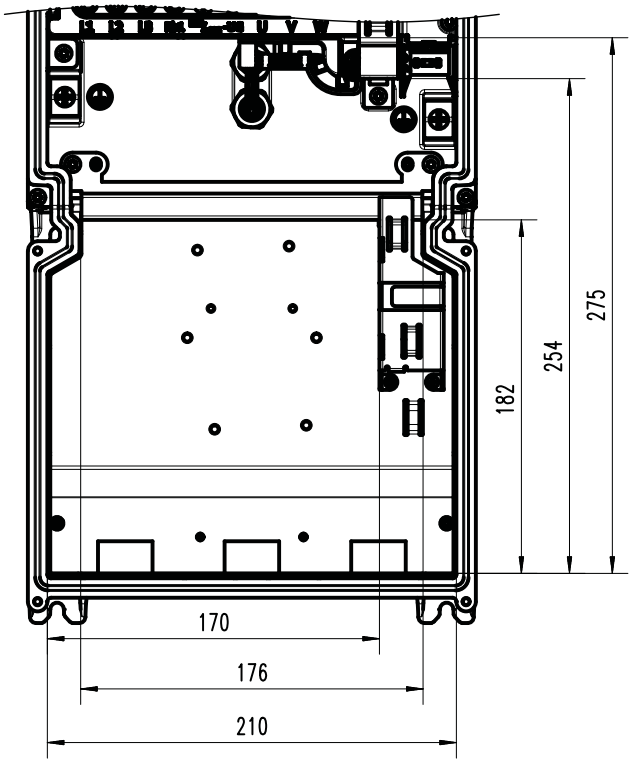
**15 kW ... 22 kW**

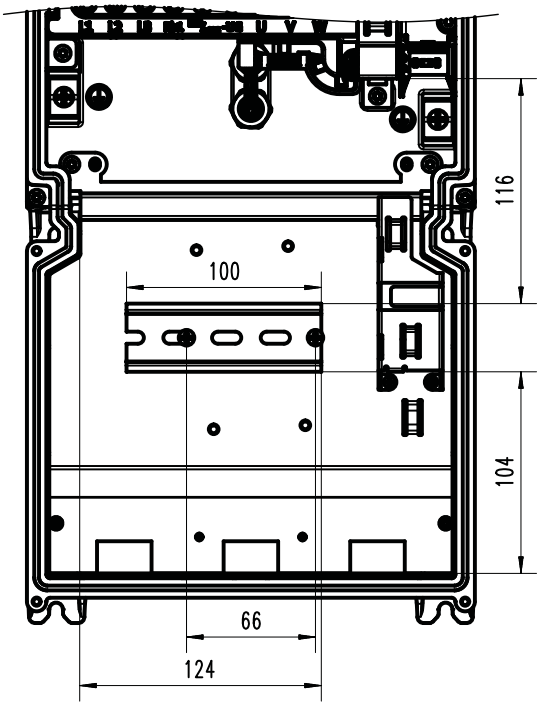
The dimensions in mm apply to:

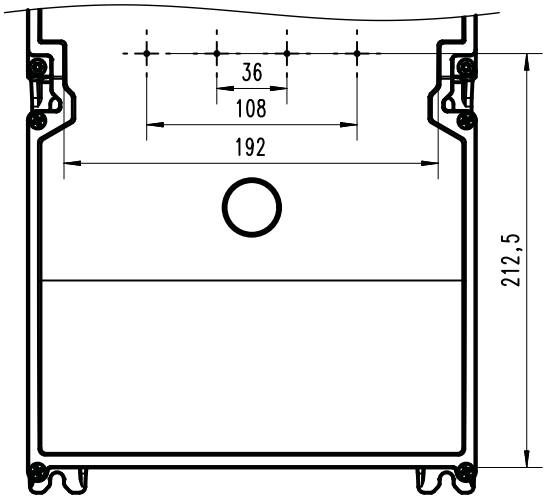
| | | | |
|---|---|---|---|
| 15 kW | i550-P15/230-3 | i550-P15/400-3 | i550-P15/600-3 |
| 18.5 kW | i550-P18/230-3 | i550-P18/400-3 | i550-P18/600-3 |
| 22 kW | | i550-P22/400-3 | i550-P22/600-3 |
| Weight | IP66: 11.9 kg<br>IP66: 11.4 kg | IP66: 12 kg<br>IP66: 11.5 kg | IP66: 11.5 kg<br>IP66: 12 kg |

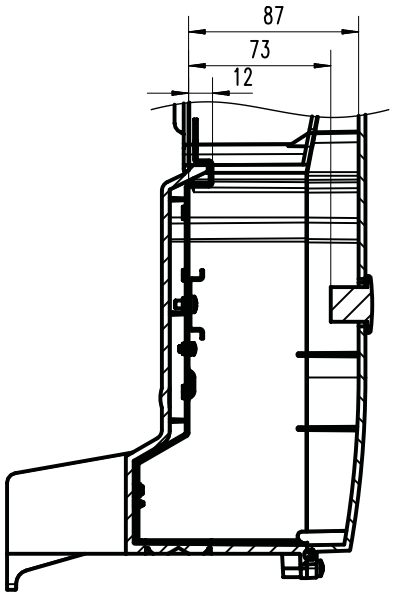


Free mounting space of product variant i550 protec with empty extension box



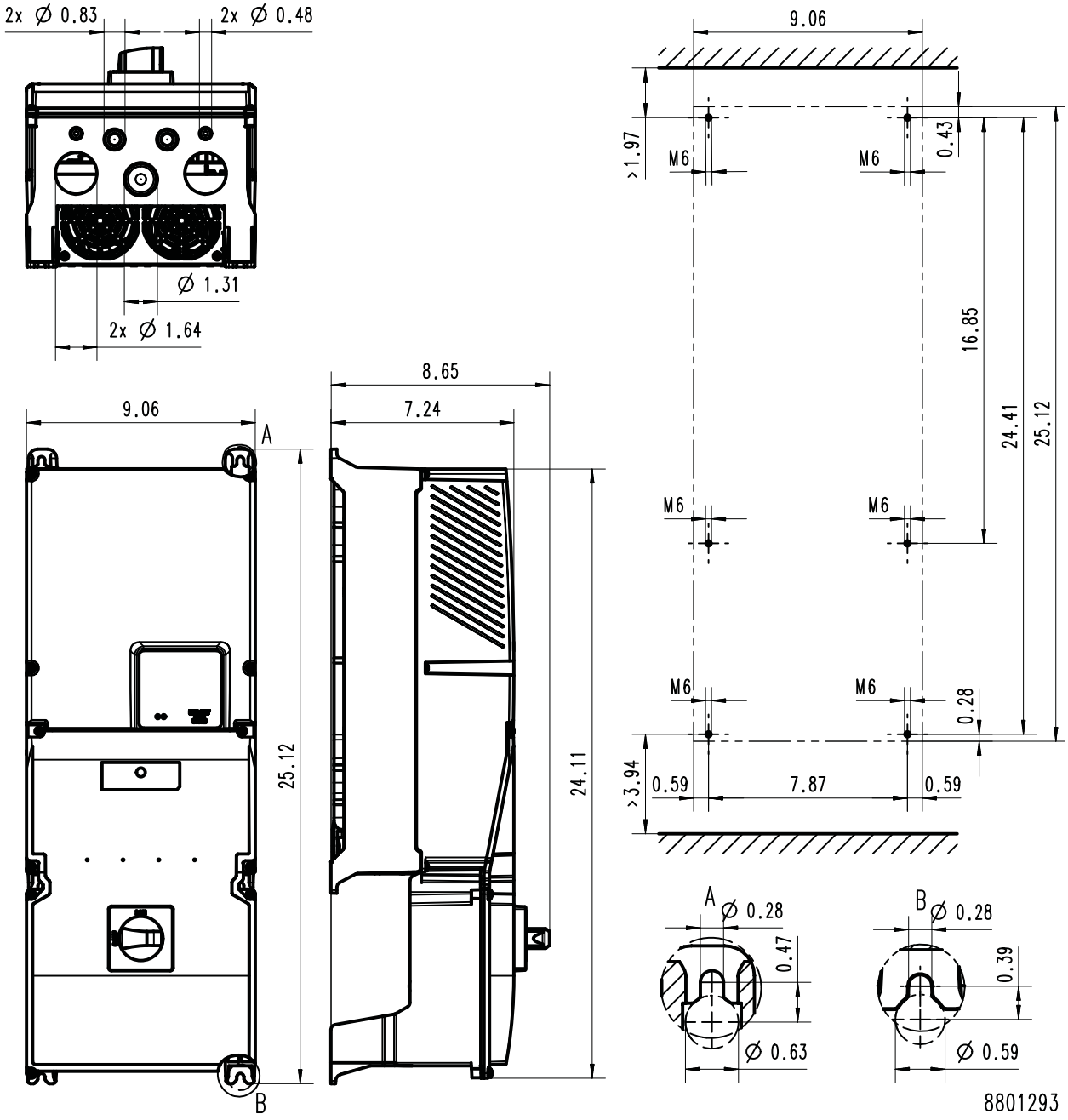




8801294

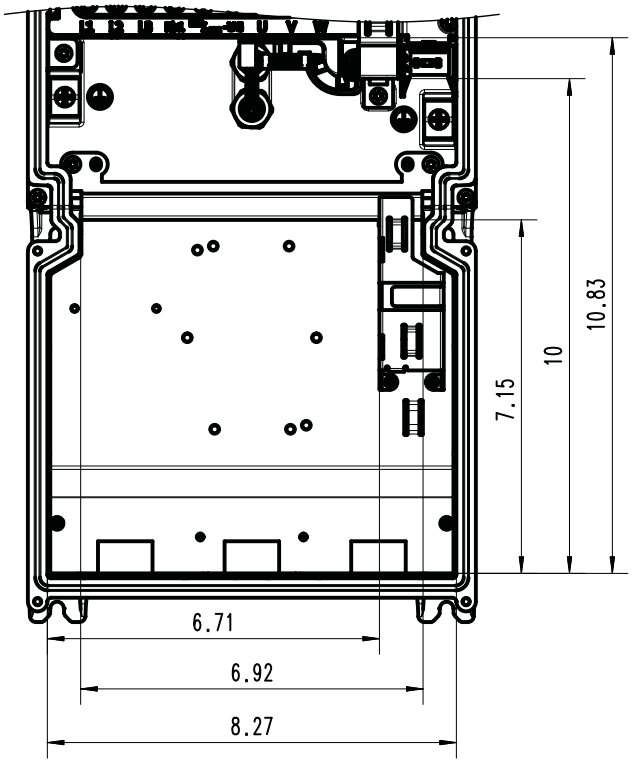
**20 hp ... 30 hp**

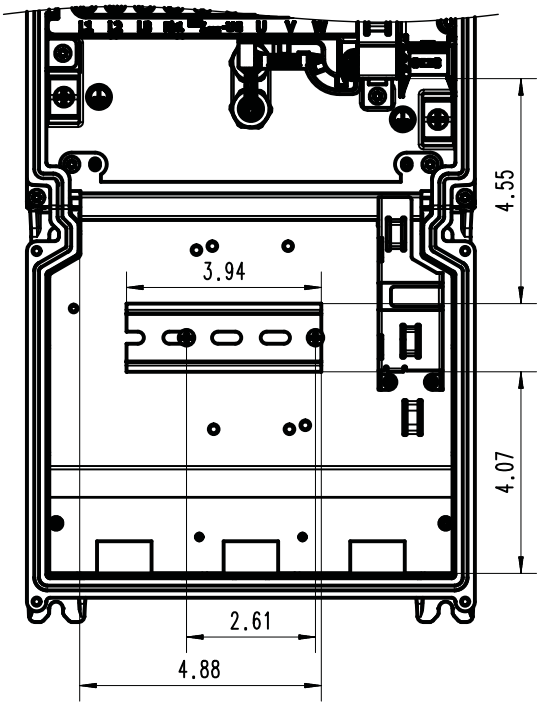
The dimensions in inch apply to:

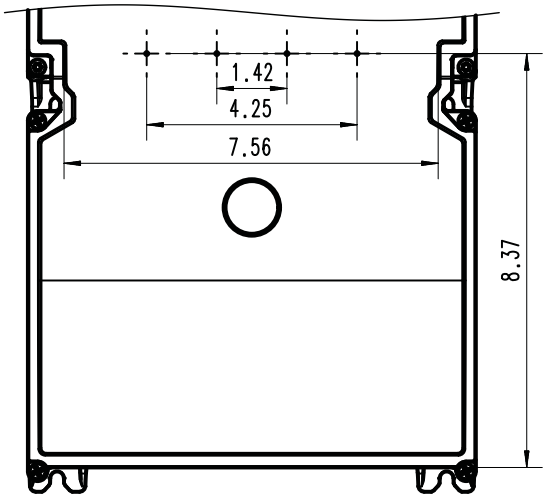
| | | | |
|---|---|---|---|
| 20 hp | i550-P15/230-3 | i550-P15/400-3 | i550-P15/600-3 |
| 25 hp | i550-P18/230-3 | i550-P18/400-3 | i550-P18/600-3 |
| 30 hp | | i550-P22/400-3 | i550-P22/600-3 |
| Weight | NEMA 4X: 26.2 lb<br>NEMA 4X: 25.1 lb | NEMA 4X: 26.5 lb<br>NEMA 4X: 25.4 lb | NEMA 4X: 25.4 lb<br>NEMA 4X: 26.5 lb |

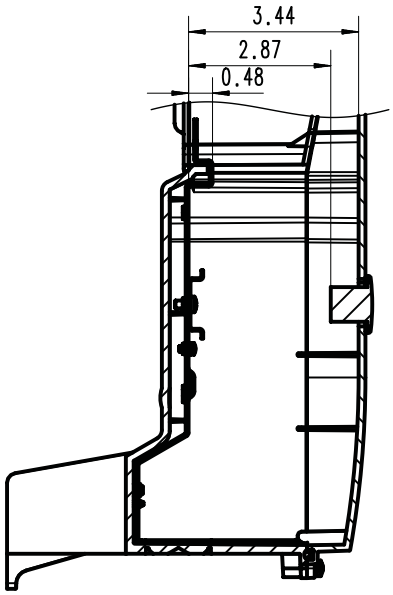


Free mounting space of product variant i550 protec with empty extension box




8801295

# Product extensions

## Overview

Integrated standard interfaces:

- Standard I/O (analog and digital inputs and outputs)
- Relay output
- PTC input

These **optional** product extensions provide additional interfaces for the required functions of your application:

- Networks:
  - CANopen
  - Modbus RTU
  - IO-Link
  - EtherCAT
  - EtherNet/IP
  - Modbus TCP
  - PROFINET
- Functional safety (STO)

Exceptions for 600 V devices:

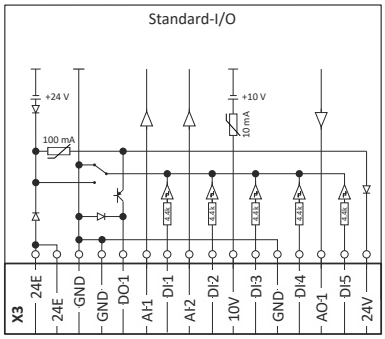
No PTC input X109.

No safety module.

## I/O extensions

### Standard I/O

The Standard I/O provides the inverter with analog and digital inputs and outputs and is designed for standard applications. The Standard I/O is available with different network options. ▸ Networks 🕮 207




| Control terminal X3 | | |
|---|---|---|
| **Inputs/outputs** | **Terminal** | **Description** |
| Digital inputs | DI1, DI2, DI3, DI4, DI5 | DI3/DI4 can be optionally used as frequency or encoder input.<br>HIGH active/LOW active switchable. |
| Digital outputs | DO1 | |
| Analog inputs | AI1, AI2 | Can be optionally used as voltage or current input. |
| Analog outputs | AO1 | Can be optionally used as voltage or current output. |
| 24-V input | 24E | Mains-independent DC supply of the control electronics (incl. communication) |
| 10-V output | 10 V | Reference voltage or setpoint potentiometer |
| 24-V output | 24V | Primarily for supplying digital inputs or Basic Safety - STO; SELV/PELV |
| Reference potential | GND | |
| Connection system | | Spring terminals, not pluggable |



## Data of control connections

### Digital inputs

| | | | |
|---|---|---|---|
| Switching type | | PNP, NPN | Parameterisable |
| PNP switching level | | | |
| LOW | V | < +5 | IEC 61131−2, type 1 |
| HIGH | V | > +15 | |
| NPN switching level | | | |
| LOW | V | > +15 | |
| HIGH | V | < +5 | |
| Input resistance | kΩ | 4.6 | |
| Cycle time | ms | 1 | |
| Electric strength of external voltage | V | ± 30 | |

| | | | |
|---|---|---|---|
| Frequency input | | | |
| Connection | | X3/DI3, X3/DI4 | |
| Frequency range | kHz | 0 … 100 | |

| | | | |
|---|---|---|---|
| Encoder input | | | |
| Type | | Incremental HTL encoder | |
| Two-track connection | | X3/DI3<br>X3/DI4 | Track A<br>Track B |
| Frequency range | kHz | 0 … 100 | |

### Digital outputs

| | | | |
|---|---|---|---|
| Switching level | | | |
| LOW | V | < +5 | IEC 61131−2, type 1 |
| HIGH | V | > +15 | |
| max. output current | mA | 100 | Total current for DO1 and 24V |
| Cycle time | ms | 1 | |
| Short-circuit strength | | Unlimited period | |
| Electric strength of external voltage | V | ± 30 | |
| Polarity reversal protection | | Integrated freewheeling diode for switching the inductive load | |
| Overload behaviour | | Reduced voltage or periodic switch-off/on | |
| Reset or switch-on behaviour | | Output is switched off | LOW |

## Analog inputs

| | | | |
|---|---|---|---|
| Cycle time | ms | 1 | |
| Resolution of A/D converter | Bit | 12 | |
| Operation as voltage input | | | |
| Connection designation | | X3/AI1, X3/AI2 | |
| Input voltage DC | V | -10 … 10 | |
| Input resistance | kΩ | 70 | |
| Accuracy | mV | ± 50 | Typical |
| Input voltage in case of open circuit | V | - 0.2 … 0.2 | Display "0" |
| Electric strength of external voltage | V | ± 24 | |
| Operation as current input | | | |
| Connection designation | | X3/AI1, X3/AI2 | |
| Input current | mA | 0 ... 20 | |
| | | 4 … 20 | open-circuit monitored |
| Accuracy | mA | ± 0.1 | Typical |
| Input current in case of open circuit | mA | < 0.1 | Display "0" |
| Input resistance | Ω | < 250 | |
| Electric strength of external voltage | V | ± 24 | |

## Analog outputs

| | | | |
|---|---|---|---|
| Short-circuit strength | | Unlimited period | |
| Electric strength of external voltage | V | + 24V | |
| Operation as voltage output | | | |
| Resolution of D/A converter | Bit | 12 | |
| Output voltage DC | V | 0 ... 10 | |
| max. output current | mA | 5 | |
| min. load resistance | kΩ | ≥ 2.2 | |
| max. capacitive load | µF | 1 | |
| Accuracy | mV | ± 100 | Typical |
| Operation as current output | | | |
| Output current | mA | 0 ... 20 | |
| | | 4 … 20 | open-circuit monitored |
| Accuracy | mA | ± 0.3 | Typical |

## 10-V output

| | | | |
|---|---|---|---|
| Use | | Primarily for the supply of a potentiometer (1 ... 10 kΩ) | |
| Output voltage DC | | | |
| Typical | V | 10 | |
| Accuracy | mV | ± 100 | |
| Max. output current | mA | 10 | |
| Max. capacitive load | µF | 1 | |
| Short-circuit strength | | Unlimited period | |
| Electric strength of external voltage | V | + 24 | |



### 24-V input

| | | | |
|---|---|---|---|
| Use | | Input for mains-independent DC supply of the control electronics (incl. communication) | |
| Input voltage DC | | | |
| Typical | V | 24 | IEC 61131-2 |
| Area | V | 19.2 … 28.8 | |
| Input power | | | |
| Typical | W | 3.6 | |
| Max. | W | 6 | Depending on the use and state of inputs and outputs. |
| Input current | | | |
| Typical | A | 0.150 | |
| Max. | A | 1.0 | When switching on for 50 ms |
| Capacity to be charged | µF | 440 | |
| Polarity reversal protection | | When polarity is reversed: No function and no destruction | |
| Suppression of voltage pulses | | Suppressor diode 30 V, bidirectional | |
| Power supply unit | | SELV/PELV | Externally to create a mains-independent DC supply |
| Max. current | A | 8.0 | While looping-through |

### 24-V output

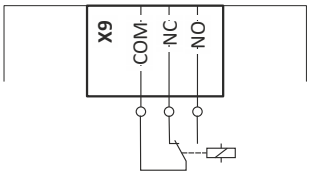
| | | | |
|---|---|---|---|
| Use | | Primarily for the supply of digital inputs | SELV/PELV |
| Output voltage DC | | | |
| Typical | V | 24 | |
| Area | V | 16 … 28 | |
| max. output current | mA | 100 | Total current for DO... and 24V |
| Short-circuit strength | | Unlimited period | |
| Electric strength of external voltage | V | + 30 | |
| Excess current release | | Automatically resettable | |

## Further control connections

### Relay output

Use a corresponding suppressor circuit in case of an inductive or capacitive load!

| | | | | |
|---|---|---|---|---|
| Connection | | | Terminal X9: COM | Common contact (Common) |
| | | | Terminal X9: NC | Normally closed contact |
| | | | Terminal X9: NO | Normally open contact |
| Minimum DC contact load | | | | |
| | Voltage | V | 10 | A correct switching of the relay contacts needs both values to be exceeded simultaneously. |
| | Current | mA | 10 | |
| Switching voltage/switching current | | | | |
| Maximum | AC 240 V | A | 3 | According to UL: General Purpose |
| | 24 V DC | A | 2 | According to UL: Resistive |
| | 240 V DC | A | 0.16 | |




### PTC input

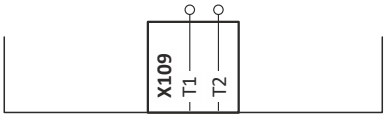
Devices for rated mains voltage of 600 V (i550-Pxxx/600-3) do not have a PTC input.

The external PTC sensor incl. cabling must possess the following **electrical insulation**:

At least one basic insulation to the power potential and at least one basic insulation to the control potential **or** a double insulation to the power section and at least one functional insulation to the control unit.

In the Lenze setting, motor temperature monitoring is activated! In the delivery status, there is a wire jumper between the terminals T1 and T2. Before connecting a thermal sensor, remove the wire jumper.

| | |
|---|---|
| Use | Connection of PTC or thermal contact |
| Connection | Terminal X109: T1<br>Terminal X109: T2 |
| Sensor types | PTC single sensor (DIN 44081)<br>PTC triple sensor (DIN 44082)<br>Thermal contact |





# Networks

## CANopen

CANopen is an internationally approved communication protocol which is designed for commercial and industrial automation applications. High data transfer rates in connection with efficient data formatting provide for the coordination of motion control devices in multi-axis applications.

| Bus-related information | | | |
|---|---|---|---|
| Name | | CANopen CiA 301 V4.2.0 | |
| Communication medium | | CAN cable in accordance with ISO 11898-2 | |
| Use | | Connection of inverter to a CANopen network | |
| Connection system | | Pluggable double spring terminal | |
| Status display | | 2 LEDs | |
| Connection designation | | X216: CH, CL, CG | |

| Technical data | | | |
|---|---|---|---|
| Bus terminating resistor | Ω | 120 | Terminated on both sides |
| integrated bus terminating resistor | | Yes | Activation via DIP switch |
| Network topology | | | |
| without repeater | | Line | |
| with repeater | | Line or tree | |
| Station | | | |
| Type | | Slave | |
| Max. number without repeater | | 127 | per bus segment, incl. host system |
| Address | | 1 ... 127 | Adjustable via code or DIP switch |
| Baud rate | kbps | 20, 50, 125, 250, 500, 800 or 1000 | Adjustable via code or DIP switch |
| Max. bus length | m | 2500, 1000, 500, 250, 100, 50 or 25 | Total cable length depends on the baud rate |
| Max. cable length between two nodes | | not limited, the max. bus length is decisive | |
| Process data | | | |
| Transmit PDOs | | 3 TPDOs with 1 … 8 bytes (adjustable) | |
| Receive PDOs | | 3 RPDOs with 1 … 8 bytes (adjustable) | |
| Transmission mode for TPDOs | | | |
| With change of data | | Yes | |
| Time-controlled, multiple of | ms | 10 | |
| After reception | | 1 … 240 sync telegrams | |
| Parameter data | | | |
| SDO channels | | Max. 2 servers | |

| Communication time | | | |
|---|---|---|---|
| Communication time depends on | | Processing time in the inverter | Time between start of a request and arrival of response |
| | | Telegram runtime (baud rate, telegram length) | |
| | | Nesting depth of network | |
| | | Bus load | |

| Processing time of process data | | | |
|---|---|---|---|
| Update cycle | ms | 10 | In inverter |
| Processing time | ms | 0 ... 1 | |
| Application task runtime of the technology application used (tolerance) | ms | 1 ... x | |

| Other data |
|---|
| Note: There are no interdependencies between parameter data and process data. |

## Modbus RTU

Modbus is an internationally approved, asynchronous, serial communication protocol, designed for commercial and industrial automation applications.

| Bus-related information | | | |
|---|---|---|---|
| Name | | Modbus RTU | |
| Communication medium | | RS485 (EIA) | |
| Use | | Connection of inverter to a Modbus network | |
| Connection system | | Pluggable double spring terminal | |
| Status display | | 2 LEDs | |
| Connection designation | | X216: TA, TB, COM | |

| Technical data | | | |
|---|---|---|---|
| Communication profile | | Modbus RTU | |
| Bus terminating resistor | Ω | 120 | Terminated on both sides |
| Integrated bus terminating resistor | | Yes | Activation via DIP switch |
| Network topology | | | |
| Without repeater | | Line | |
| Station | | | |
| Type | | Slave | |
| Max. number without repeater | | 32 | Per bus segment, incl. host system |
| Max. number with repeater | | 90 | |
| Address | | 1 ... 247 | Adjustable via code or DIP switch |
| Transfer rate | kbps | 4.8 … 115 | Adjustable via code or DIP switch, alternatively automatic detection via DIP switch can be activated |
| Max. cable length | m | 12 ... 600 | Per bus segment, depending on the transfer rate and the cable type used |
| Max. cable length between two nodes | | not limited, the max. bus length is decisive | |
| Data channel | | | |
| SDO channels | | Max. 2 servers, with 1 … 8 bytes | Supported functions:<br>Read Holding Registers<br>Preset Single Register<br>Preset Multiple Registers<br>Read/Write 4 x registers |

| Communication time | | | |
|---|---|---|---|
| Communication time depends on | | Processing time in the inverter | Time between start of a request and arrival of response |
| | | Telegram runtime (baud rate, telegram length) | |
| | | Nesting depth of network | |
| | | Bus load | |

| Processing time of process data | | | |
|---|---|---|---|
| Update cycle | ms | 1 | In the inverter |
| Processing time | ms | 0 ... 1 | |
| Application task runtime of the technology application used (tolerance) | ms | 1 ... x | |

| Other data |
|---|
| Note: There are no interdependencies between parameter data and process data. |



**IO-Link**

IO-Link is the standardized IO technology (IEC 61131-9) for communication with sensors and actuators. Point-to-point communication is based on the 3-wire sensor and actuator connection without additional requirements concerning the cable material.

| Bus-related information | | | |
|---|---|---|---|
| Name | | IO-Link V 1.1 | |
| Communication medium | | Unshielded 3-wire standard cable | |
| Use | | Connection of the inverter to an I/O-Link Master | |
| Connection system | | Pluggable double spring terminal | |
| Status display | | 1 LED | |
| Connection designation | | X316:<br>L+ (24 V)<br>C/Q (Switching and communication line)<br>L- (0 V) | |

| Technical data | | | |
|---|---|---|---|
| Topology | | | |
| Master - slave | | Tree (point to point) | |
| Station | | | |
| Type | | Slave | |
| Master - slave | | 1:1 | |
| Baud rate | kbps | 230.4 | COM3 |
| Max. input current | mA | 200 | Port Class A (type A) |
| Max. cable length between IO-Link master and IO-Link slave (i550) | m | 20 | |
| Process data | | | |
| Input | | 12 Byte / 6 Byte | Can be defined by selecting the IODD (12 bytes or 6 bytes). |
| Output | | 12 Byte / 6 Byte | |

| Processing time of process data | | | |
|---|---|---|---|
| Cycle time | ms | 2 | |

## EtherCAT

EtherCAT® (Ethernet for Controller and Automation Technology) is an Ethernet-based fieldbus system which fulfils the application profile for industrial plant systems.

| Bus-related information | | | |
|---|---|---|---|
| Name | | EtherCAT | |
| Communication medium | | Ethernet 100 Mbps, full duplex | |
| Use | | Connection as EtherCAT slave | |
| Status display | | 2 LEDs (RUN, ERR) | |
| Connection designation | | IN: X246<br>OUT: X247 | |

| Technical data | | | |
|---|---|---|---|
| Communication profile | | EtherCAT | |
| | | CANopen over EtherCAT | |
| Safety over EtherCAT (FSoE) | | No | |
| Vendor ID [hex] | | 0x3B | |
| Network topology | | Line, tree ring | |
| Device | | | |
| Type | | EtherCAT slave | |
| Max. number | | 65535 | In the entire network |
| Address | | Automatically assigned by the master | |
| Max. cable length | m | Not limited | The length between the devices is decisive. |
| Max. cable length between two devices | m | 100 | |
| Process data | | | |
| Transmit PDOs | | 0 ... 16 double words | Max. 64 bytes |
| Receive PDOs | | 0 ... 16 double words | |
| Cycle time | ms | Integer multiple of 1 ms | |

| Communication time | | | |
|---|---|---|---|
| Communication time depends on | | Processing time in the inverter | Time between start of a request and arrival of response |
| | | Telegram runtime (baud rate, telegram length) | |
| | | Nesting depth of network | |
| | | Bus load | |

| Processing time of process data | | | |
|---|---|---|---|
| Update cycle | ms | 1 | In the inverter |
| Processing time | ms | 0 ... 1 | |
| Application task runtime of the technology application used (tolerance) | ms | 1 ... x | |

| Other data |
|---|
| Note: There are no interdependencies between parameter data and process data. |



**EtherNet/IP**

EtherNet/IP is a common fieldbus for the connection of inverters to different control systems in plants.

| Bus-related information | | | |
|---|---|---|---|
| Name | | EtherNet/IP | |
| Communication medium | | Ethernet 10 Mbps, 100 Mbps, half duplex, full duplex | |
| Use | | Connection as EtherNet/IP adapter | |
| Status display | | 2 LEDs (CIP Module Status, CIP Network Status) | |
| Connection designation | | X266, X267 | |

| Technical data | | | |
|---|---|---|---|
| Communication profile | | EtherNet/IP | |
| | | AC Drive | |
| Bus terminating resistor | | Not required | |
| integrated bus terminating resistor | | No | |
| Network topology | | | |
| Without repeater | | Line, tree, ring | |
| With repeater | | - | |
| Device | | | |
| Type | | Adapter (slave) | |
| Max. Number | | 254 | Per subnetwork |
| Address | | Station name | |
| Max. Cable length | m | - | Not limited<br>The length between the TNs is decisive. |
| Max. cable length between two devices | m | 100 | |
| Process data | | | |
| Transmit PDOs | | 16 words | Max. 32 bits (4 bytes) as a coherent PDO object |
| Receive PDOs | | 16 words | |
| Cycle time | ms | > 4 | |
| Switching method | | Store-and-Forward<br>Cut-Through | |
| Switch latency | µs | ~ 125 | At maximum telegram length |
| Other data | | Additional TCP/IP channel | |

| Communication time | | | |
|---|---|---|---|
| Communication time depends on | | Processing time in the inverter | Time between start of a request and arrival of response |
| | | Telegram runtime (baud rate, telegram length) | |
| | | Nesting depth of network | |
| | | Bus load | |

| Processing time of process data | | | |
|---|---|---|---|
| Update cycle | ms | 1 | In the inverter |
| Processing time | ms | 0 ... 1 | |
| Application task runtime of the technology application used (tolerance) | ms | 1 ... x | |

| Other data |
|---|
| Note: There are no interdependencies between parameter data and process data. |

## Modbus TCP

Modbus is an internationally approved Ethernet-based communication protocol, designed for commercial and industrial automation applications.

| Bus-related information | | | |
|---|---|---|---|
| Name | | Modbus TCP | |
| Communication medium | | Ethernet 10 Mbps, 100 Mbps, half duplex, full duplex | |
| Use | | Connection as Modbus TCP slave | |
| Status display | | 2 LEDs | |
| Connection designation | | Port 1: X276<br>Port 2 X277 | |

| Technical data | | | |
|---|---|---|---|
| Communication profile | | Modbus/TCP | |
| | | | |
| Bus terminating resistor | | Not required | |
| integrated bus terminating resistor | | No | |
| Network topology | | | |
| Without repeater | | Line, tree, ring | |
| With repeater | | - | |
| Device | | | |
| Type | | Adapter (slave) | |
| Max. Number | | 254 | Per subnetwork |
| Address | | Station name | |
| Max. Cable length | m | - | Not limited.<br>The length between the devices is decisive. |
| Max. cable length between two devices | m | 100 | |
| Process data | | | |
| Transmit PDOs | | 256 bytes | |
| Receive PDOs | | 256 bytes | |
| Cycle time | ms | > 4 | |
| Switching method | | - | |
| Switch latency | µs | ~ 125 | At maximum telegram length |
| Other data | | Additional TCP/IP channel | |

| Communication time | | | |
|---|---|---|---|
| Communication time depends on | | Processing time in the inverter | Time between start of a request and arrival of response |
| | | Telegram runtime (baud rate, telegram length) | |
| | | Nesting depth of network | |
| | | Bus load | |

| Processing time of process data | | | |
|---|---|---|---|
| Update cycle | ms | 1 | In the inverter |
| Processing time | ms | 0 ... 1 | |
| Application task runtime of the technology application used (tolerance) | ms | 1 ... x | |

| Other data |
|---|
| Note: There are no interdependencies between parameter data and process data. |



**PROFINET**

PROFINET is a common fieldbus for the connection of inverters to different control systems in plants.

| Bus-related information | | | |
|---|---|---|---|
| Name | | PROFINET RT | |
| Communication medium | | Ethernet 100 Mbps, full duplex | |
| Use | | Integration as PROFINET IO-Device | |
| Status display | | 2 LEDs (Ready, Error) | |
| Connection designation | | X256, X257 | |

| Technical data | | | |
|---|---|---|---|
| Communication profile | | PROFINET | |
| Bus terminating resistor | | Not required | |
| Integrated bus terminating resistor | | Yes | |
| Network topology | | | |
| Without repeater | | Line, tree, ring | |
| With repeater | | - | |
| Device | | | |
| Type | | IO device with real time (RT) communication properties Conformance Class B | |
| Max. Number | | 255 | Per subnetwork |
| Address | | Station name | |
| Max. Cable length | m | Not limited | The length between the devices is decisive. |
| Max. cable length between two devices | m | 100 | |
| Process data | Byte | 4, 8, 12, 16, 20, 24, 28, 32, ..., 64 | |
| Cycle time | ms | 1, 2, 4, 8, 16 | |
| Switching method | | Cut-through | |
| Other data | | Additional TCP/IP channel | |

| Other data |
|---|
| Note: There are no interdependencies between parameter data and process data. |

## Functional safety

Functional safety is not possible with devices for a rated mains voltage of 600 V (i550-Pxxx/600-3).



## General information and basics

The functional safety describes the necessary measures that need to be taken by means of electrical or electronic equipment to prevent or eliminate dangers due to functional errors.

Protective devices prevent any human access to dangerous areas during normal operation. However, persons may have to be in the danger areas in certain operating modes. The machine operator is protected by internal drive and control measures in these operating modes.

**Integrated safety**

Integrated safety provides the conditions in the controls and drives to implement protective functions. Planning and installation expenditure is reduced. Using integrated safety increases machine functionality and availability. Integrated safety can be used for the protection of persons working on machines in accordance with the Machinery Directive.

Integrated safety provides safe inputs. If the STO safety function is requested, the safety system immediately brings about the torque-free state according to EN 61800-5-2.

**Standards**

Safety regulations are confirmed by laws and other governmental guidelines and measures and the prevailing opinion among experts, e.g. by technical regulations.

The regulations and rules to be applied must be observed in accordance with the application.

**Risk assessment**

This documentation can only accentuate the need for a risk assessment. The user of the integrated safety system must read up on standards and the legal situation.

Before a machine can be put into circulation, the manufacturer of the machine has to conduct a risk assessment according to the 2006/42/EC: Machinery Directive [UKCA: S.I. 2008/1597 - The Supply of Machinery (Safety) Regulations 2008] to determine the hazards associated with the use of the machine.

The Machinery Directive refers to three basic principles for the highest possible level of safety:

- Hazard elimination / minimisation by the construction itself.
- Taking the protective measures required against hazards that cannot be removed.
- Existing residual hazards must be documented and the user must be informed of them.

Detailed information on the risk assessment is provided in the DIN EN ISO 12100:2013-08: Safety of machinery − General principles for design − Risk assessment and risk reduction . The result of the risk assessment determines the category for safety-related control systems according to EN ISO 13849-1. Safety-oriented parts of the machine control must be compliant.

**Mission time**

The mission time of the used components must be complied with.

In case of a defect or when the mission time of a component has expired, the complete component must be replaced. Continued operation is not permitted!

The mission time for the safety functions cannot be reset by a special proof test.

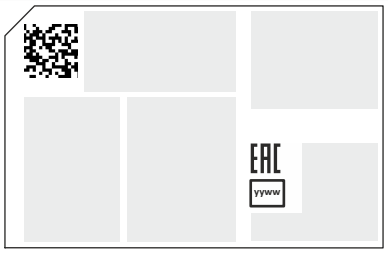
The specified mission time starts at the date of manufacture.

Mission time ▸ Technical data 222

**i550 protec**

You will need to observe the manufacturing date of the device.

The manufacturing date can be found on the nameplate:

| Manufacturing date of the device |
| --- |
|  |
| yyww = year of manufacture and week of manufacture (1841 = CW 41 2018) |

**Identification of the components**

Safety components and the respective terminals are yellow.

**Restart**

**⚠ DANGER!**

The drive can automatically restart if the request of the safety function is deactivated.

Possible consequence: Death or severe injuries

- You must provide external measures according to EN ISO 13849-1 which ensure that the drive only restarts after a confirmation.



## Safe inputs

The components used must comply with the risk reduction required for the application.

**Active sensors**
Active sensors are units with 2-channel semiconductor outputs (OSSD outputs).

Test pulses for monitoring the outputs and lines are permissible.

P/M-switching sensors switch the positive and negative cable or the signal and ground cable of a sensor signal.

Please note the following:

- The maximum permissible connection capacity of the outputs.
- Active sensors are connected directly to the terminal strip, see section "Active sensor connection".
- Monitoring for short circuits must be carried out by the active sensor.

The outputs have to switch simultaneously (equivalently). Safety functions will be activated if only one channel is switched. Active triggering of only one channel points to faulty sensors or impermissible wiring.

Examples of active sensors:

- Lightgrid
- Laser scanner
- Control systems

**Passive sensors**
Passive sensors are 2-channel switching elements with contacts.

Please note the following:

- The switches must be wired according to the closed-circuit principle.
- Passive sensors are connected to the terminal strip via a safety switching device, see section “Passive sensor connection”.
- An external safety component must monitor the connecting cables and the function of the sensors if complete exclusion of faults cannot be guaranteed.

The contacts must switch at the same time (equivalent). Safety functions will be activated if only one channel is switched. Switching of only one channel points to faulty sensors or impermissible wiring.

Examples of passive sensors:

- Door contact switch
- Emergency stop control units

## Safety functions

### Supported safety functions for "Basic Safety - STO"

- Safe torque off (STO) 📖 219



**Safe torque off (STO)**

This function corresponds to a "Stop 0" according to EN 60204.

The motor cannot generate torque and movements of the drive.

**⚠ DANGER!**

With the "Safe torque off" (STO) function, no "emergency switching off" in terms with EN 60204-1 can be executed without additional measures. There is no electrical isolation between the motor and inverter and no service switch or maintenance switch!

Possible consequence: Death or severe injuries

- ▸ "Emergency switching off" requires electrical isolation, e. g. by a central mains contactor.

**⚠ DANGER!**

The power supply is not safely disconnected.

Possible consequence: Death or serious injury due to electrical voltage

- ▸ Turn off the power supply.

**⚠ DANGER!**

Automatic restart if the request of the safety function is deactivated.

Possible consequence: Death or severe injuries

- ▸ You must provide external measures according to EN ISO 13849-1 which ensure that the drive only restarts after a confirmation.

**Functional description**

How to safely disconnect the drive:

1. A safety sensor requests the safety function.
2. The transmission of the pulse width modulation is safely switched off by the safety unit. The power drivers do not generate a rotating field anymore.
3. The inverter switches to the STO active device status (status word 0x6041, Bit15 = 0).

The motor is safely switched to torqueless operation (STO).

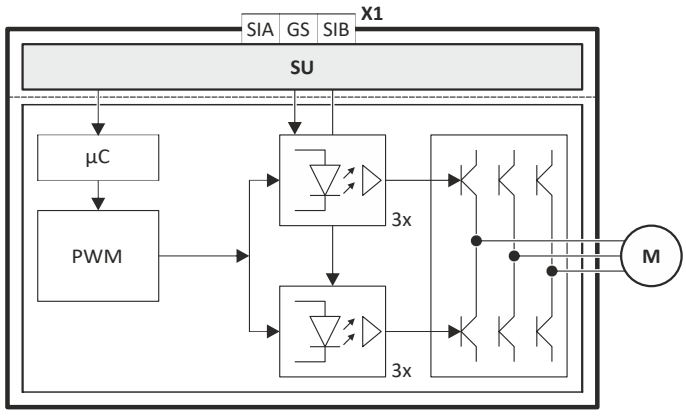



Fig. 12: Functional principle: Basic Safety - STO

| | | | |
|---|---|---|---|
| X1 | Control terminals of the safety unit | PWM | Pulse width modulation |
| SU | Hardware interface | M | Motor |
| µC | Microcontroller | | |

### Function chart

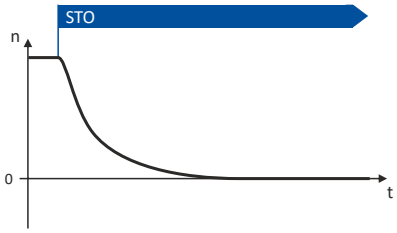



Fig. 13: Safety function STO

Functional sequence and error response have no adjustable parameters.

When assessing risk, also take into account overtravel distances.

### Truth table

| Safe input / channel | | Inverter | Inverter status word 0x282A:004 | | CiA status word |
|---|---|---|---|---|---|
| SIA | SIB | Device state | Bit 10 | Bit 11 | Object 0x6041, bit 15 |
| LOW | LOW | STO active | 1 | 1 | 0 |
| LOW | HIGH | Impermissible state, drive disabled | 1 | 0 | 0 |
| HIGH | LOW | | 1 | 0 | 0 |
| HIGH | HIGH | Drive enabled | 0 | 0 | 1 |

If the GS connection is interrupted, or in case of a short circuit/cross-circuit of GS to SIA/SIB, STO is active.

If SIA = LOW and SIB = LOW, the internal "Safe torque off (STO) active [55]" status signal in the inverter is set to TRUE. You can use this status signal to control a "non-safe output" (e.g. the relay).

## Acceptance

The machine manufacturer must check and prove the operability of the safety functions used.

- The machine manufacturer must authorise a person with expertise and knowledge of the safety functions to carry out the test.
- The test result of every safety function must be documented and signed by the inspector.

A complete test comprises the following:

- Documenting the plant including the safety functions:
  - Creating an overview screen of the plant.
  - Describing the plant.
  - Describing the safety equipment.
  - Documenting the safety functions used.
  - Checking the function of the safety functions used.
- Preparing the test report:
  - Documenting the functional test.
  - Checking the parameters.
  - Signing the test report.
- Preparing the appendix with test records:
  - Protocols for the plant
  - External recording

The tester must repeat the test after each change and record the results in the test report.

## Periodic inspections

After installation and after every modification, the user must check and validate the safety function.

The user must document these tests.

The correct sequence of the safety−oriented functions must be checked in periodic inspections. The risk analysis or applicable regulations determine the time distances between the tests.

The inspection interval should not exceed one year.

# Technical data

## Safety-related characteristics Basic Safety - STO

### Safety-related characteristics according to EN 61508, Part 1-7 and EN 62061

| Specification | Value | Comment |
|---|---|---|
| Safety Integrity Level | SIL 3 | |
| PFH [1/h] | 1.71 E−09 | 1.71 % of SIL 3 |
| $PFD_{avg}$ (T) | 1.49 E−04 | 14.9 % of SIL 3 after T = 20 years |
| Proof test interval | 20 years | Mission time |

### Safety-related characteristics according to EN ISO 13849-1

| Specification | Value | Comment |
|---|---|---|
| Performance Level | e | |
| Category | 4 | |
| $MTTF_d$ | High | 3200 years |
| Mean diagnostic coverage $DC_{av}$ | High | 99 % |

### Basics of the safety-related characteristics

| Basics | Value | Comment |
|---|---|---|
| Source of failure rates | SN 29500 | When no values from the component manufacturers were available. |
| Average max. ambient temperature | 40 °C | |

### Further data and information

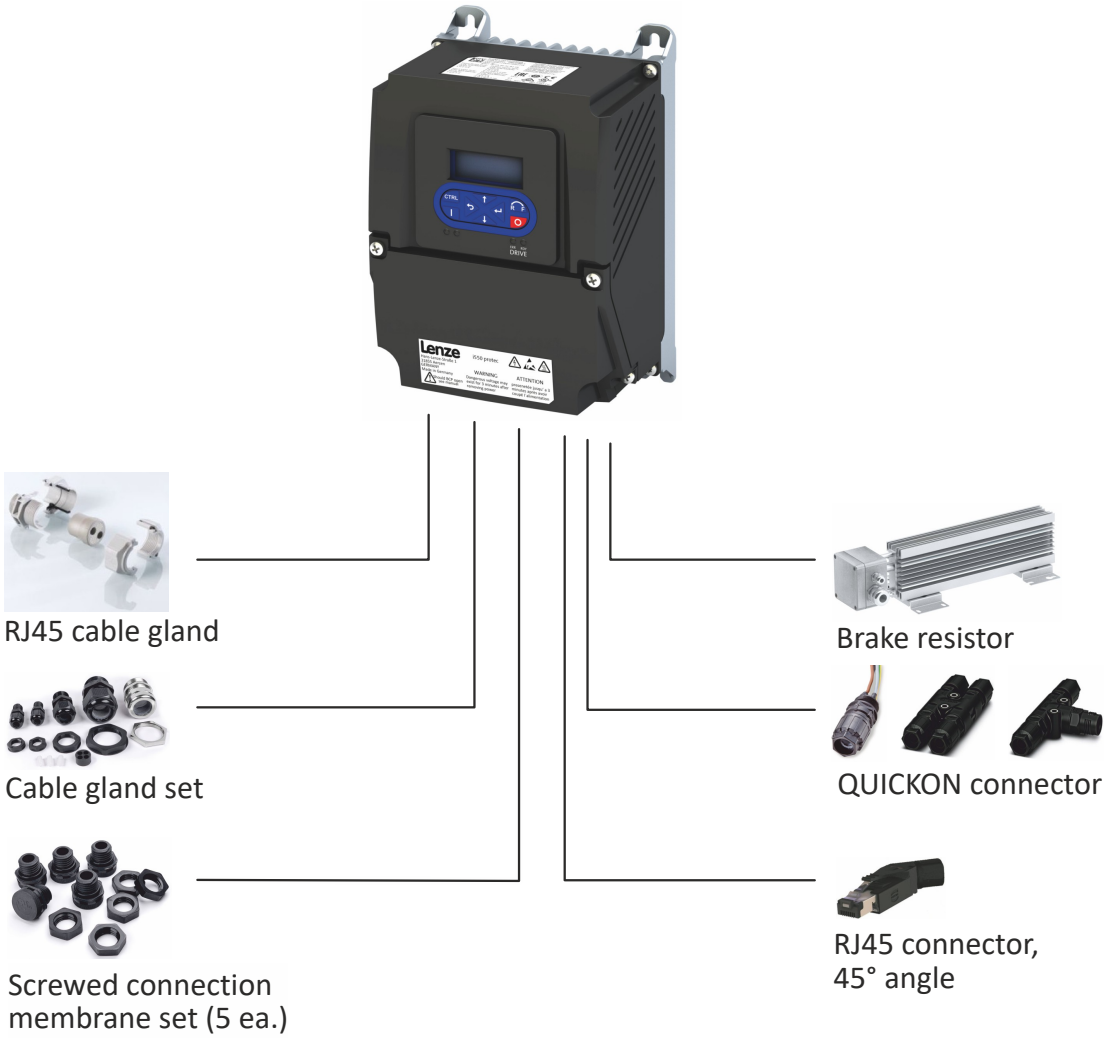
Electrical installation ▸ Functional safety 🕮 71

# Accessories

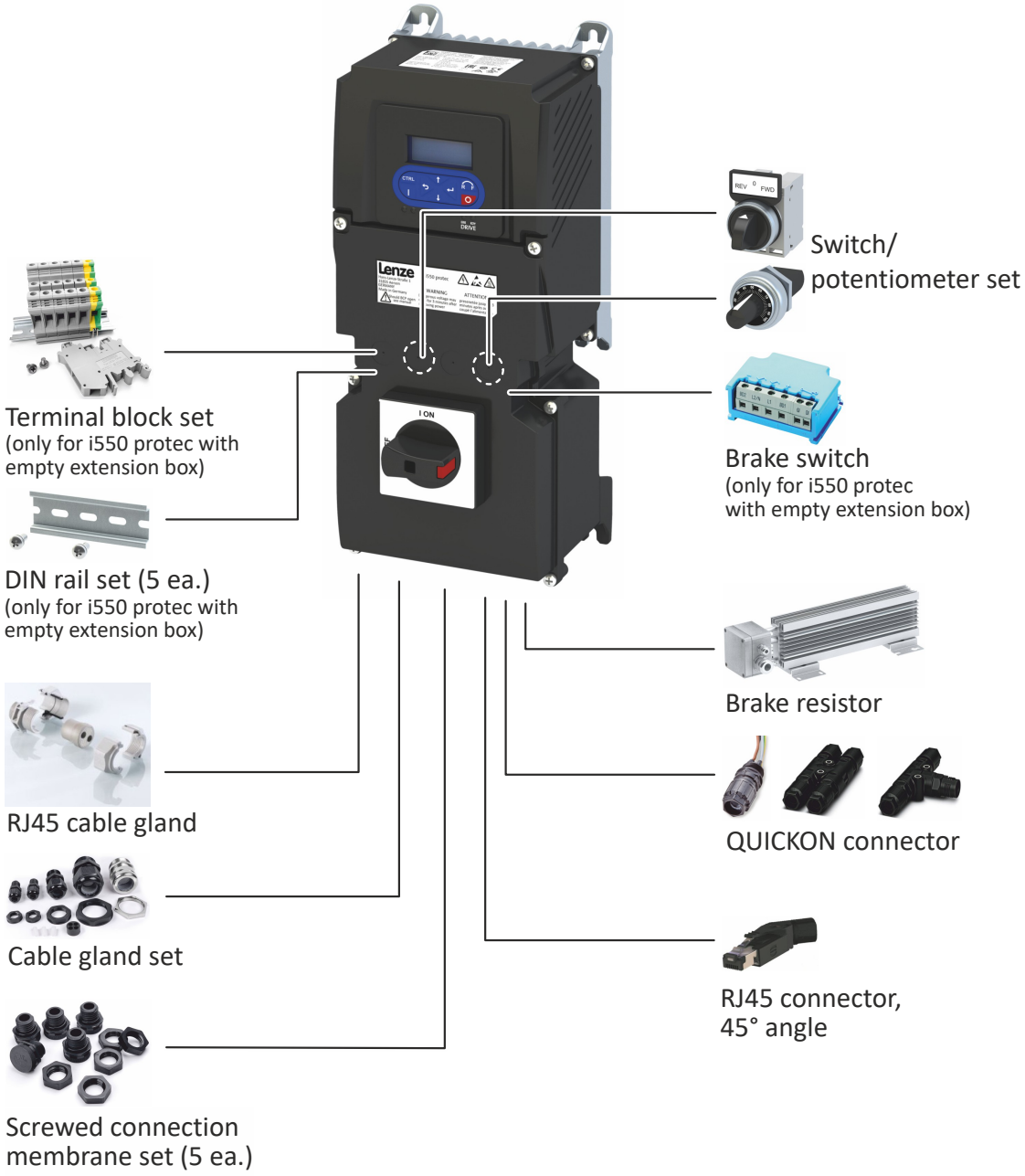
## Overview

A package of accessories optimally matched to the inverter is available for your applications.

**Accessories for i550 protec without extension box**



**Accessories for i550 protec with extension box**




**Further accessories**

- Power supply units
- Memory modules
- Memory module copiers



## Operation and diagnostics

The inverter can be configured and ordered with keypad module or WLAN module. The inverter is then delivered with the module mounted.

### Keypad

Parameter setting and diagnostics

Thanks to the intuitive operating structure, the navigation keys allow a quick and easy access to the most important parameters, either to configure functions or to query current values. Parameters and actual values are indicated on the easy-to-read display.

### WLAN module

Communicate wirelessly with the inverter, via a PC using the Lenze Engineering Tool "EASY Starter" or the Lenze "SMART Keypad App" for Android and iOS smartphones.


**⚠WARNING!**

- This product contains FCC ID: QOQWF121/IC: 5123A-BGTWF121
- To comply with FCC and Industry Canada RF radiation exposure limits for general population, the transmitter with its antenna must be installed such that a minimum separation distance of 20 cm is maintained between the radiator (antenna) and all persons at all times.
- This product must not be collocated or operated in conjunction with any other antenna or transmitter.
- ----------
- Le produit contient un module transmetteur certifié FCC ID: QOQWF121/IC: 5123A-BGTWF121
- Afin de se conformer aux réglementations de la FCC et d'Industry Canada relatives aux limites d'exposition aux rayonnements RF pour le grand public, le transmetteur et son antenne doivent être installés de sorte qu'une distance minimale de 20 cm soit constamment maintenue entre le radiateur (antenne) et toute personne.
- Le produit ne doit pas être utilisé en combinaison avec d'autres antennes ou transmetteurs.

The module can be used if the certification is recognized in a country according to one of these standards.

| **Conformity and approvals** | | |
|---|---|---|
| CE | RED | EN 301489-1 V2.1.1:2016 |
| | | EN 301489-17 V3.1.1:2016 |
| | | EN 300328 V2.1.1:2016 |
| FCC | Part 15.107/15.109<br>ICES-003 | |

Additional conformities and approvals:

- IC
- CMIIT

| **LED status displays** | | | |
|---|---|---|---|
| **LED 1** | **LED 2** | **LED 3** | **Meaning** |
| **Power (green)** | **TX/RX (yellow)** | **WLAN (green)** | |
| **Supply voltage status** | **Communication status** | **WLAN status** | |
| OFF | OFF | OFF | No voltage |
| ON | ON | ON | Self-test (approx. 1 s) |
| ON | OFF | OFF | Ready for operation<br>No active WLAN connection |
| ON | Flashing | ON | Communication active |
| ON | OFF | Blinking | Client Mode<br>Waiting for connection |
| Blinking | OFF | OFF | Trouble |



| Connection data (default setting) | |
|---|---|
| IP address | 192.168.178.1 |
| SSID | <Product type>_<10-digit identifier> |
| Password | password |

The WLAN module is configured and ordered together with the inverter.

The inverter will subsequently be delivered with the WLAN module mounted.
For inverters with protection class IP66, the WLAN module cannot be replaced.

## Control and display elements

The operating and display elements listed below can be installed in the following product variants:

- i550 protec with empty extension box
- i550 protec with extension box and disconnect switch

### General information

- A maximum of three elements with 22 mm drill diameter can be mounted in the extension box. For three elements, use the center drilling position and the two outer drilling positions.
- A dielectric strength of 600 V and a conductor cross-section of 0.5 $mm^2$ / AWG 24 are recommended for the wiring of the control cables.
- In order for the operating and display elements to perform the desired function, the device must be parameterized. See commissioning manual.

### Switch/Potentiometer set

The switch/potentiometer set can be used to generate and supply simple control signals via standard I/O.

- The switch is connected to the digital inputs.
- The potentiometer is connected to an analog input.
- In addition, parameterization is required.

**Figure with mounted switch and potentiometer**


**Potentiometer**

**Switch**


0: OFF
REV: Run reverse
FWD: Run forward

| Switch/potentiometer set | | |
|---|---|---|
| **Order code** | **Version** | |
| EZAMBHXX028 | 1 x potentiometer | 0 ... 10 kΩ |
| | 1 x selector switch 3 positions | 2 x NO contacts (normally open contact), positions 1 - 0 - 2 |
| | 1 x labeling field | "REV - 0 - FWD" |
| | Diameter of installation opening | 22 mm |

### Potentiometer

The potentiometer can be used to generate and supply analog setpoint signals (e.g. frequency setpoint) via standard I/O.

- The potentiometer is connected to an analog input.
- In addition, parameterization is required.

| Potentiometer set | | |
|---|---|---|
| **Order code** | **Version** | |
| EZAMBHXX038 | 5 x potentiometer | 0 ... 10 kΩ |
| | Diameter of installation opening | 22 mm |

### Selector switch

The selector switch can be used to generate and supply simple control signals via standard I/O.

- The switch is connected to the digital inputs.
- In addition, parameterization is required.


| Selector switch set | | |
|---|---|---|
| **Order code** | **Version** | |
| EZAMBHXX037 | 10 x selector switch 3 positions | 2 x NO contacts (normally open contact), positions 1 - 0 - 2 |
| | 10 x labeling field | "REV - 0 - FWD" |
| | Diameter of installation opening | 22 mm |

### Pushbuttons

The pushbutton can be used to generate and supply simple control signals via standard I/O.

- The pushbutton is connected to a digital input.
- In addition, parameterization is required.

| Pushbutton set | | |
|---|---|---|
| **Order code** | **Version** | |
| EZAMBHXX035 | 10 x pushbutton, black | 1 x contact NO (normally open contact) |
| | 10 x labeling field | |
| | Diameter of installation opening | 22 mm |
| EZAMBHXX036 | 10 x pushbutton, red | 1 x contact NC (normally close contact) |
| | 10 x labeling field | |
| | Diameter of installation opening | 22 mm |

### Signal lamps

The signal lamp can be used to display simple status signals (e.g. "Ready for operation" or "Error") via standard I/O.

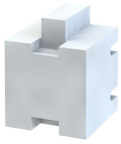
- The signal lamp is connected to the digital output.
- In addition, parameterization is required.

| Signal lamps set | | |
|---|---|---|
| **Order code** | **Version** | |
| EZAMBHXX039 | 10 x signal lamp, blue | |
| | Diameter of installation opening | 22 mm |
| EZAMBHXX040 | 10 x signal lamp, red | |
| | Diameter of installation opening | 22 mm |
| EZAMBHXX041 | 10 x signal lamp, green | |
| | Diameter of installation opening | 22 mm |

## Memory modules

For standard set-up, Lenze offers its customers multipacked, unwritten memory modules (EPM). In combination with the EPM copier, the EPMs can be duplicated at any location.

A memory module is included in the scope of supply of the inverter.



| Memory module | | |
|---|---|---|
| **Order code** | **Type** | **VPE** |
| | | **Piece** |
| I0MAPA0000000M | Easily pluggable<br>Duplicate data set with memory module copier | 12 |

## Memory module copier

For duplicating data on memory modules for a faster standard set-up.

The memory module copier is a copying system for all memory modules from Lenze. With the help of simple optical user guidance, the data of a module is copied quickly and reliably to another memory module.


| Memory module copiers | |
|---|---|
| **Order code** | **Type** |
| EZAEDE1001 | Data set copier for memory modules |



## Brake resistors

- To decelerate greater moments of inertia or with a longer operation in generator mode an external brake resistor is required.
- The brake resistor absorbs the produced brake energy and converts it into heat.

Compatible brake resistors are listed in the chapter "Technical data" under the mains connections. This is also where you will find the order codes for the brake resistors.

▸ Technical data 📖 75

## EMC filter for motor cable

EMC filters are used to ensure compliance with the EMC requirements of the EN IEC 61800-3 standard. This standard defines the EMC requirements for electrical drive systems in various categories.

For inverters ≥ 30 kW: If category C2 is to be complied with, an EMC filter is required for the motor cable and the motor cable length must not exceed 15 m. In addition, the parameter "Switching frequency" (0x2939) must be left at the default setting.

**Definition of the environments**
(EN IEC 61800-3)

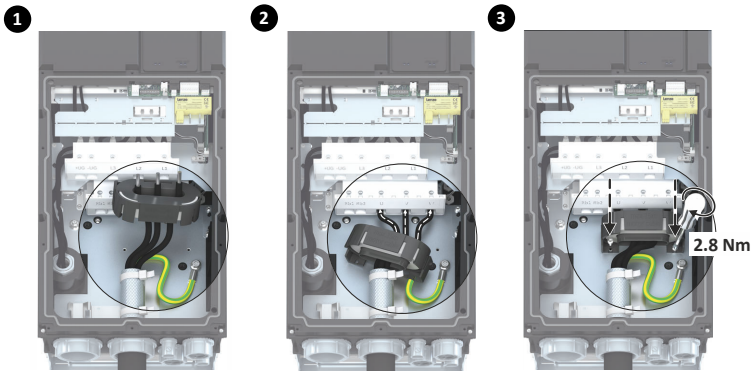
**First environment**
The first environment comprises residential buildings or locations that are directly connected to a low-voltage system for supplying residential areas.

**Second environment**
The second environment comprises facilities or locations that are not directly connected to a low-voltage system for supplying residential areas.

**Category C2**
Category C2 defines the requirements for permanently installed fixed drive systems that are intended for the use in the first environment at a rated voltage lower than 1000 V. Installation and commissioning may only be carried out by specialist personnel with EMC knowledge.

The limit values of the EN IEC 61800-3 comply with EN 55011 class A group 1.

**Mounting information**
The EMC filter for the motor cable (ferrite core) is mounted in the terminal box of the device:




| EMC filter | | |
|---|---|---|
| **Order code** | **Version** | |
| EZAMBHXX042 | 1 x EMC filter | |
| | 2 x fixing screw | Torx M5x16 |

## Brake switches

Serves for switching an electromechanical brake.

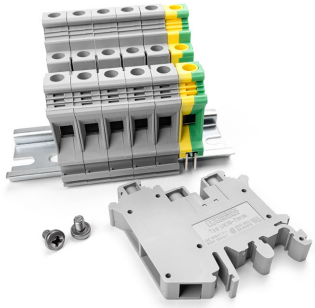
The brake switch consists of a rectifier and an electronic circuit breaker.

The brake switch can be installed in the product variant i550 protec with empty extension box.
It must be controlled by a digital output of the inverter.


| Brake switches | | Half-wave rectifiers | Bridge rectifiers |
|---|---|---|---|
| **Order code** | | **E82ZWBRE** | **E82ZWBRB** |
| Input voltage | V | AC 320 - 550 | AC 180 - 317 |
| Output voltage | V | DC 180 (with AC 400)<br>DC 225 (with AC 500) | DC 205 (with AC 230) |
| Max. brake current | A | 0.61 | 0.54 |

## Terminal block set

With the terminal block set, a connection and distribution point can be installed in the product variant i550 protec with empty extension box.



| Terminal block set | | |
|---|---|---|
| **Order code** | **Type** | |
| EZAMBHXX043 | 1 x 6-way terminal | max. 10 mm² [AWG 8]<br>Colour: grey |
| | **1 x PE terminal** | max. 10 mm² [AWG 8]<br>Colour: yellow-green |
| | **1 x DIN rail** | DIN rail TS35, 100 x 35 x 7.5 mm |
| | **2 x fixing screw** | Oval head screw, cross recessed, M4 x 6 |

## DIN rail set

A DIN rail can be installed in the product variant i550 protec with empty extension box.
Additional components such as terminal blocks or fuses can be installed on the DIN rail.

| DIN rail set | | |
|---|---|---|
| **Order code** | **Type** | |
| EZAMBHXX034 | 5 x DIN rail | DIN rail TS35, 100 x 35 x 7.5 mm |
| | 10 x fixing screw | Oval head screw, cross recessed, M4 x 6 |

## Cable glands

Sets with specially tailored cable glands make it easier to lay the cables in the connection area.

| Cable gland sets | | | |
|---|---|---|---|
| **Order code** | **Type** | | |
| EZAMBHXX022 | Set for inverters in power range 0.37 ... 2.2 kW | | |
| |  | 2 x M12 | For signal cables<br>Diameter: 3.5 ... 7 mm |
| | | 1 x M20 Universal | For signal cables<br>Diameter: 8 ... 13 mm |
| | | 1 x M20 Standard | For mains cables<br>Diameter: 8 ... 13 mm |
| | | 1 x M20 EMC | For shielded motor cables<br>Diameter: 9 ... 13 mm |
| | | 1 x sealing set | 1 x sealing ring for "M20 Universal" with openings, 4 x 5.3 mm<br>3 x sealing plugs |
| EZAMBHXX023 | Set for inverters in power range 3 ... 11 kW | | |
| |  | 2 x M12 | For signal cables<br>Diameter: 3.5 ... 7 mm |
| | | 1 x M20 Universal | For signal cables<br>Diameter: 8 ... 13 mm |
| | | 1 x M32 Standard | For mains cables<br>Diameter: 15 ... 22 mm |
| | | 1 x M32 EMC | For shielded motor cables<br>Diameter: 14 ... 20 mm |
| | | 1 x sealing set | 1 x sealing ring for "M20 Universal" with openings, 4 x 5.3 mm<br>3 x sealing plugs |
| EZAMBHXX024 | Set for inverters in power range 15 ... 22 kW | | |
| |  | 2 x M12 | For signal cables<br>Diameter: 3.5 ... 7 mm |
| | | 1 x M32 Universal | For signal cables<br>Diameter: 15 ... 21 mm |
| | | 1 x M40 Standard | For mains cables<br>Diameter: 19 ... 28 mm |
| | | 1 x M40 EMC | For shielded motor cables<br>Diameter: 19 ... 27 mm |
| | | 1 x sealing set | 1 x sealing ring for "M32 Universal" with openings, 4 x 7 mm<br>3 x sealing plugs |
| EZAMBHXX025 | RJ45 cable gland | | |
| |  | 1 x M20 | For network cables with RJ45 plug, separable<br>Diameter: up to 6 mm |

## QUICKON connector

With the QUICKONconnectors, the mains connection is available in a pluggable version with a commonly used standard.

| QUICKON V2 components for cable cross-section 1 ... 2.5 mm² | | |
|---|---|---|
| **Order code** | **Version** | |
| QUICKON V2 set for rated power ≤ 4 kW (16 A) | | |
| EZAMBHXX027 |  | 1 x M25 QUICKON V2 plug (wall bushing), 3 + PE, 1 ... 2.5 mm²<br>1 x QUICKON V2 nut<br>1 x connecting cable 0.5 m with connection cross-section 2.5 mm²<br>1 x adapter M20/M25<br>1 x adapter M25/M32 |
| QUICKON V2 nut | | |
| EWS0103/M |  | • Cable diameter: 6 ... 10 mm<br>• Connection frequency: max. 10<br>• 5 pieces |
| EWS0104/M | | • Cable diameter: 9 ... 14 mm<br>• Connection frequency: max. 10<br>• 5 pieces |
| QUICKON V2 connector with nut | | |
| EWS0105/M |  | • Cable diameter: 6 ... 10 mm<br>• Connection frequency: ≥ 50<br>• 5 pieces |
| EWS0106/M | | • Cable diameter: 9 ... 14 mm<br>• Connection frequency: ≥ 50<br>• 5 pieces |
| QUICKON V2 H-distributor | | |
| EWS0110 |  | • Number of poles: 4<br>• Connection cross-section: 2.5 mm²<br>• Cable diameter: 6 ... 14 mm<br>• Connection frequency: ≥ 50<br>• The scope of supply does not include QUICKON V2 nuts. These must be ordered additionally (EWS0103/M, EWS0104/M). |
| QUICKON V2 T distributor | | |
| EWS0111 |  | • Number of poles: 4<br>• Connection cross-section: 2.5 mm²<br>• Cable diameter: 9 ... 14 mm<br>• Connection frequency: ≥ 50<br>• Two QUICKON V2 nuts are included in the scope of supply. Others must be ordered additionally (EWS0103/M, EWS0104/M). |
| QUICKON V2 socket wrench | | |
| EWS0112 |  | • Suitable for QUICKON V2 nuts EWS0103/M ... EWS0106/M<br>• Wrench size: 22 mm |
| QUICKON V2 protection cover | | |
| EWS0113 |  | Suitable for QUICKON V2 distributor EWS0110, EWS0111<br>• Protection class: IP68<br>• Eyelet for fastening |



| QUICKON V2 components for cable cross-section 2.5 ... 6 mm² | | |
|---|---|---|
| **Order code** | **Type** | |
| QUICKON V2 H-distributor | | |
| EWS0114 |  | • Number of poles: 5<br>• Connection cross-section: 6 mm²<br>• Cable diameter: 9 ... 20 mm<br>• Connection frequency: ≥ 50<br>• No V2 nuts are included QUICKON in the scope of supply. These need to be ordered separately (EWS0116, EWS0117). |
| QUICKON V2 T-distributor | | |
| EWS0115 |  | • Number of poles: 5<br>• Connection cross-section: 6 mm²<br>• Cable diameter: 12 ... 20 mm<br>• Connection frequency: ≥ 50<br>• Two V2 nuts are included QUICKON in the scope of supply. Any additional nuts will need to be ordered separately (EWS0116, EWS0117). |
| QUICKON V2 nut | | |
| EWS0116 |  | • Cable diameter: 12 ... 20 mm<br>• Connection cross-section: 6 mm²<br>• Connection frequency: max. 10<br>• 5 pieces |
| EWS0117 | | • Cable diameter: 9 ... 14 mm<br>• Connection cross-section: 6 mm²<br>• Connection frequency: max. 10<br>• 5 pieces |
| QUICKON V2 protection cap | | |
| EWS0118 |  | Fits QUICKON V2 distributor EWS0114, EWS0115<br>• Degree of protection: IP68<br>• Fastening eyelet |

## RJ45 connectors

The RJ45 connector is suitable for creating data lines for Ethernet-based fieldbus networks; can be mounted without special tools. A 45° angled piece allows for variable cable laying in 4 directions.

| RJ45 connector | | |
|---|---|---|
| **Order code** | **Type** | |
| EZAMBHXX033 |  | For data lines, 4-pole, angled at 45°<br>• Connection type: IDC (insulation-displacement contact) connection<br>• Shielding: fully shielded, 360° shield contact<br>• Conductor diameter: 0.1 ... 0.32 mm (AWG 27 ... 22)<br>• External core diameter: 1.6 mm<br>• Cable diameter: 4.5 ... 8 mm<br>• Transfer characteristics: Cat. 5 class D up to 100 MHz, 10 Mbit/s or 100 Mbit/s Ethernet<br>• Degree of protection: IP20<br>• Temperature range: -40 ... +70 °C<br>• Connection frequency: ≥ 750 |

## Screw connection membrane set

A pressure compensation element with membrane technology prevents condensed water from forming in the device and ensures trouble-free operation. This ensures maintenance of the protection class.

Possible applications include scenarios with large differences in temperature and humidity between indoor and outdoor areas. The resulting negative pressure inside the device causes air flow from the outside to the inside and can lead to condensed water forming inside the unit.

| **Screwed connection, membrane set** | | |
|---|---|---|
| **Order code** | **Type** | |
| EZAMBHXX026 |  | 5 x M12 screw connection with integrated membrane |



# Purchase order

## Notes on ordering

The i550 protec frequency inverter can be ordered in the following product variants:
- i550 protec without extension box
- i550 protec with empty extension box
- i550 protec with extension box and disconnect switch

Additional feature options can be optionally configured during order placement.
- Rated power
- Mains voltage and connection type
- Safety engineering
- Protection class
- Application areas (default parameter setting)
- Product extension (Standard I/O, keypad, WLAN module, fieldbus network)

The inverters are supplied as complete devices in the desired configuration.

Later changes to the configured inverters are not possible. Only by doing so can the compact design and the protection class be achieved and guaranteed.

Accessory sets are not included in the scope of supply. They will need to be ordered and mounted separately. ▸ Accessories 223

The selection can be performed using the "EASY Product Finder" on the Lenze website.

**»EASY Product Finder«**

The »EASY Product Finder« helps you to configure your required product in next to no time. In addition, you can retrieve all important technical details such as data sheets, CAD data, and EPLAN data.

The link and the QR code lead directly to the "EASY Product Finder": EASY Product Finder

## Order code

The following is a list of the necessary information when ordering an i550 protec frequency inverter.

### Order example

| Description of the component | Order code |
|---|---|
| Complete inverter | i55A P 222 F 1 A 3 1 0 002S |
| Rated power 2.2 kW (i550-P2.2/400-3) | |
| Three-phase mains connection 400 V | |
| Product variant: With empty extension box | |
| Safety engineering: Safety function STO | |
| Degree of protection: IP31 / NEMA1 | |
| Interference suppression: Integrated RFI filter | |
| Default parameter setting: Region EU (50-Hz networks) | |
| Product extension: Standard I/O with CANopen | |

### Assignment of product name and order code

When listing the technical data of the various variants, the easily legible product name is used.

The product name contains the power in kW, mains voltage class and the number of phases.
This information results in the first 9 characters of the order code:

| Complete inverter | | | |
|---|---|---|---|
| Power | | Inverter | Order code |
| kW | hp | | |
| 1-phase mains connection 120 V, EMC filter not integrated | | | |
| 0.37 | 0.5 | i550-P0.37/120-1 | I55AP137A |
| 0.75 | 1 | i550-P0.75/120-1 | I55AP175A |
| 1.1 | 1.5 | i550-P1.1/120-1 | I55AP211A |
| 1-phase mains connection 230 V, C2 EMC filter integrated | | | |
| 0.37 | 0.5 | i550-P0.37/230-1 | I55AP137B |
| 0.55 | 0.75 | i550-P0.55/230-1 | I55AP155B |
| 0.75 | 1 | i550-P0.75/230-1 | I55AP175B |
| 1.1 | 1.5 | i550-P1.1/230-1 | I55AP211B |
| 1.5 | 2 | i550-P1.5/230-1 | I55AP215B |
| 2.2 | 3 | i550-P2.2/230-1 | I55AP222B |
| 1/3-phase mains connection 230/240 V, EMC filter not integrated | | | |
| 0.37 | 0.5 | i550-P0.37/230-2 | I55AP137D |
| 0.55 | 0.75 | i550-P0.55/230-2 | I55AP155D |
| 0.75 | 1 | i550-P0.75/230-2 | I55AP175D |
| 1.1 | 1.5 | i550-P1.1/230-2 | I55AP211D |
| 1.5 | 2 | i550-P1.5/230-2 | I55AP215D |
| 2.2 | 3 | i550-P2.2/230-2 | I55AP222D |
| 3-phase mains connection 230/240 V, EMC filter not integrated | | | |
| 3 | 4 | i550-P3.0/230-3 | I55AP230C |
| 4 | 5 | i550-P4.0/230-3 | I55AP240C |
| 5.5 | 7.5 | i550-P5.5/230-3 | I55AP255C |
| 7.5 | 10 | i550-P7.5/230-3 | I55AP275C |
| 11 | 15 | i550-P11/230-3 | I55AP311C |
| 15 | 20 | i550-P15/230-3 | I55AP315C |
| 18.5 | 25 | i550-P18/230-3 | I55AP318C |
| 3-phase mains connection 230/240 V, EMC filter integrated | | | |
| 30 | 40 | i550-P30/230-3 | I55AP330C |
| 45 | 60 | i550-P45/230-3 | I55AP345C |
| *Continuation ...* | | | |

| Complete inverter | | | |
|---|---|---|---|
| Power | | Inverter | Order code |
| kW | hp | | |
| *Continuation ...* | | | |
| 3-phase mains connection 400/480 V, C2 EMC filter integrated | | | |
| 0.37 | 0.5 | i550-P0.37/400-3 | I55AP137F |
| 0.55 | 0.75 | i550-P0.55/400-3 | I55AP155F |
| 0.75 | 1 | i550-P0.75/400-3 | I55AP175F |
| 1.1 | 1.5 | i550-P1.1/400-3 | I55AP211F |
| 1.5 | 2 | i550-P1.5/400-3 | I55AP215F |
| 2.2 | 3 | i550-P2.2/400-3 | I55AP222F |
| 3 | 4 | i550-P3.0/400-3 | I55AP230F |
| 4 | 5 | i550-P4.0/400-3 | I55AP240F |
| 5.5 | 7.5 | i550-P5.5/400-3 | I55AP255F |
| 7.5 | 10 | i550-P7.5/400-3 | I55AP275F |
| 11 | 15 | i550-P11/400-3 | I55AP311F |
| 15 | 20 | i550-P15/400-3 | I55AP315F |
| 18.5 | 25 | i550-P18/400-3 | I55AP318F |
| 22 | 30 | i550-P22/400-3 | I55AP322F |
| 30 | 40 | i550-P30/400-3 | I55AP330F |
| 37 | 50 | i550-P37/400-3 | I55AP337F |
| 45 | 60 | i550-P45/400-3 | I55AP345F |
| 55 | 75 | i550-P55/400-3 | I55AP355F |
| 75 | 100 | i550-P75/400-3 | I55AP375F |
| 3-phase mains connection 600 V, EMC filter not integrated | | | |
| 0.75 | 1 | i550-P0.75/600-3 | I55AP175G |
| 1.5 | 2 | i550-P1.5/600-3 | I55AP215G |
| 2.2 | 3 | i550-P2.2/600-3 | I55AP222G |
| 4 | 5 | i550-P4/600-3 | I55AP240G |
| 5.5 | 7.5 | i550-P5.5/600-3 | I55AP255G |
| 7.5 | 10 | i550-P7.5/600-3 | I55AP275G |
| 11 | 15 | i550-P11/600-3 | I55AP311G |
| 15 | 20 | i550-P15/600-3 | I55AP315G |
| 18.5 | 25 | i550-P18/600-3 | I55AP318G |
| 22 | 30 | i550-P22/600-3 | I55AP322G |

The other positions of the order code indicate options and design variants. The following table shows the structure of the complete order code.

# Purchase order
Order code

## Format of order codes

| | | I | 5 | 5 | A | P | □□□ | □ | □ | □ | □ | □ | □ | □ | □□□ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Product type | Inverter | | | | | | | | | | | | | | |
| Product family | i500 | | | | | | | | | | | | | | |
| Product | i550 | | | | | | | | | | | | | | |
| Product generation | Generation 1 | | | | | | | | | | | | | | |
| Mounting type | Wall mounting | | | | | | | | | | | | | | |
| Rated power (examples) | | | | | | | | | | | | | | | |
| 0.37 kW | 0.5 hp | | | | | | 137 | | | | | | | | |
| 1.5 kW | 2.0 hp | | | | | | 215 | | | | | | | | |
| 4.0 kW | 5.0 hp | | | | | | 240 | | | | | | | | |
| 11 kW | 15 hp | | | | | | 311 | | | | | | | | |
| Mains voltage and connection type | | | | | | | | | | | | | | | |
| 1/N/PE AC 120 V | | | | | | | | A | | | | | | | |
| 1/N/PE AC 230/240 V | | | | | | | | B | | | | | | | |
| 3/PE AC 230/240 V | | | | | | | | C | | | | | | | |
| 1/N/PE AC 230/240 V<br>3/PE AC 230/240 V | | | | | | | | D | | | | | | | |
| 3/PE AC 400 V<br>3/PE AC 480 V | | | | | | | | F | | | | | | | |
| 3/PE AC 480 V<br>3/PE AC 600 V | | | | | | | | G | | | | | | | |
| Extension box | | | | | | | | | | | | | | | |
| Without extension box | | | | | | | | | 0 | | | | | | |
| With empty extension box | | | | | | | | | 1 | | | | | | |
| With extension box and disconnect switch | | | | | | | | | 2 | | | | | | |
| Safety engineering | | | | | | | | | | | | | | | |
| Without safety engineering | | | | | | | | | | 0 | | | | | |
| Basic Safety - STO | | | | | | | | | | A | | | | | |
| Protection class | | | | | | | | | | | | | | | |
| IP31, uncoated | NEMA 1 | | | | | | | | | | 3 | | | | |
| IP55, uncoated | NEMA 12 | | | | | | | | | | 8 | | | | |
| IP66, uncoated | NEMA 4X | | | | | | | | | | 7 | | | | |
| Interference suppression | | | | | | | | | | | | | | | |
| Without | i550-Pxxx/120-1<br>i550-Pxxx/230-2<br>i550-Pxxx/230-3<br>i550-Pxxx/600-3 | | | | | | | | | | | 0 | | | |
| Integrated RFI filter | i550-Pxxx/230-1<br>i550-P30/230-3<br>i550-P45/230-3<br>i550-Pxxx/400-3 | | | | | | | | | | | 1 | | | |
| Application | | | | | | | | | | | | | | | |
| Default parameter setting: Region EU (50-Hz networks) | | | | | | | | | | | | | 0 | | |
| Default parameter setting: Region US (60-Hz networks) | | | | | | | | | | | | | 1 | | |
| Product extension | | | | | | | | | | | | | | | |
| Standard I/O: ... | | | | | | | | | | | | | | 0 | |
| Keypad with standard I/O ... | | | | | | | | | | | | | | K | |
| WLAN module with standard I/O ... | | | | | | | | | | | | | | W | |
| | ... without network | | | | | | | | | | | | | | 00S |
| | ... with CANopen | | | | | | | | | | | | | | 02S |
| | ... with Modbus RTU | | | | | | | | | | | | | | 03S |
| | ... with IO-Link | | | | | | | | | | | | | | 06S |
| | ... with EtherCAT | | | | | | | | | | | | | | 7KS |
| | ... with EtherNet/IP | | | | | | | | | | | | | | 7MS |
| | ... with Modbus TCP | | | | | | | | | | | | | | 7WS |
| | ... with PROFINET | | | | | | | | | | | | | | 7LS |

## Environmental notes and recycling

Lenze has been certified to the worldwide environmental management standard for many years (DIN EN ISO 14001). As part of our environmental policy and the associated climate responsibility, please note the following information on hazardous ingredients and the recycling of Lenze products and their packaging:

CE

Lenze products are partly subject to the EU Directive on the restriction of certain hazardous substances in electrical and electronic equipment 2011/65/EU: RoHS Directive [UKCA: S.I. 2012/3032 - The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012] . This is documented accordingly in the EU declaration of conformity and with the CE mark.

Lenze products are not subject to EU Directive 2012/19/EU: Directive on waste electrical and electronic equipment (WEEE) [UKCA: S.I. 2013/3113 - The Waste Electrical and Electronic Equipment Regulations 2013] , but some contain batteries/rechargeable batteries in accordance with EU Directive 2006/66/EC: Battery Directive [UKCA: S.I. 2009/890 - The Waste Batteries and Accumulators Regulations 2009] . The disposal route, which is separate from household waste, is indicated by corresponding labels with the "crossed-out trash can".
Any batteries/rechargeable batteries included are designed to last the life of the product and do not need to be replaced or otherwise removed by the end user.

21 PAP

Lenze products are usually sold with cardboard or plastic packaging. This packaging complies with EU Directive 94/62/EC: Directive on packaging and packaging waste [UKCA: S.I. 1997/648 - The Producer Responsibility Obligations (Packaging Waste) Regulations 1997] .
The required disposal route is indicated by material-specific labels with the "recycling triangle".
Example: "21 - other cardboard"

REACH

Lenze products are subject to REGULATION (EC) No 1907/2006: REACH Regulation [UKCA: S.I. 2008/2852 - The REACH Enforcement Regulations 2008] . When used as intended, exposure of substances to humans, animals and the environment is excluded.

Lenze products are industrial electrical and electronic products and are disposed of professionally. Both the mechanical and electrical components such as electric motors, gearboxes or inverters contain valuable raw materials that can be recycled and reused. Proper recycling and thus maintaining the highest possible level of recyclability is therefore important and sensible from an economic and ecological point of view.

- Coordinate professional disposal with your waste disposal company.
- Separate mechanical and electrical components, packaging, hazardous waste (e.g. gear oils) and batteries/rechargeable batteries wherever possible.
- Dispose of the separated waste in an environmentally sound and proper manner (no household waste or municipal bulky waste).

| What? | Material | Disposal instructions |
|---|---|---|
| Pallets | Wood | Return to manufacturers, freight forwarders or reusable materials collection system |
| Packaging material | Paper, cardboard, pasteboard, plastics | Collect and dispose of separately |
| Products | | |
| Electronic devices | Metal, plastics, circuit boards, heatsinks | As electronic waste give to professional disposer for recycling |
| Gearbox | Oil | Drain oil and dispose of separately |
| | Casting, steel, aluminium | Dispose as metal scrap |
| Motors | Casting, copper, rotors, magnets, potting compound | As engine scrap give to professional disposer for recycling |
| Dry-cell batteries/rechargeable batteries | | As used batteries give to professional disposer for recycling |

Further information on Lenze's environmental and climate responsibility and on the topic of energy efficiency can be found on the Internet:

www.Lenze.com → search word: "Sustainability"

# Appendix

## Declarations of Conformity

Lenze

2418555.02

## EU-Konformitätserklärung

## EU Declaration of Conformity

**LENZE SE, Hans-Lenze-Strasse 1, 31855 Aerzen GERMANY**

erklärt in alleiniger Verantwortung die Übereinstimmung der Produkte

declares under sole responsibility compliance of the products

**I55APxxxxxAxxxxxxx &**
**I5MASAxxxxxxxx (Safety Module) (x=0-9/A-Z)**

mit der

with the

| **Maschinenrichtlinie** 2006/42/EG Anhang VIII und IX | | | **Machinery Directive** 2006/42/EC Annex VIII and IX | | |
|---|---|---|---|---|---|
| **Angewandte harmonisierte Normen:** | | | **Applied harmonized standards:** | | |
| Sicherer Halt | Stopp Kategorie 0 | **EN 60204-1** | **:2018** | Stop category 0 | Safe torque off |
| | Kategorie 4<br>Performance Level (PL): PL e | **EN ISO 13849-1** | **:2015** | Category 4<br>Performance Level (PL): PL e | |
| Sicherheitsfunktionen siehe Betriebsanleitung. | SIL 3 | **EN 61508 1-7**<br>**EN 62061**<br>**+AC +A1 +A2**<br>**EN 61800-5-2** | **:2010**<br>**:2005**<br>**:2010 :2013 :2015**<br>**:2017** | SIL 3 | For safety functions see manual. |
| | | **EN 61800-5-1 +A1** | **:2007 :2017** | | |

| **Konformitätsbewertung** | | **Conformity assessment** | |
|---|---|---|---|
| CE 0035 | **Benannte Stelle** | **notified body** | TÜV Rheinland Industrie Service GmbH<br>Am Grauen Stein<br>51105 Köln / Germany |
| | Zertifikate | Certificates | 01/205/5745.01/21 |
| | Gültigkeit | Date of expiry | 2024-11 |

| **EMV- Richtlinie** 2014/30/EU | **EMC Directive** 2014/30/EU |
|---|---|
| **Angewandte harmonisierte Normen:** | **Applied harmonized standards:** |

**EN 61800-3:2004 + A1:2012**
**EN IEC 61800-3:2018**

| **RoHS- Richtline** 2011/65/EU | **RoHS Directive** 2011/65/EU |
|---|---|
| **Angewandte harmonisierte Normen:** | **Applied harmonized standards:** |

**EN IEC 63000:2018**

Die Sicherheitshinweise der Betriebanleitung sind zu beachten.

The safety instructions of the manual are to be considered.

Die Produkte sind bestimmt zum Einbau in Maschinen. Die Inbetriebnahme ist solange untersagt bis festgestellt wurde, dass die Maschine, in welche diese Produkte eingebaut werden sollen, den Bestimmungen der o.g. EU-Richtlinie entsprechen.

These products are intended for installation in machines. Operation is prohibited until it has been determined that the machines in which these products are to be installed, conforms to the above mentioned EU Directive.

**Ort / Datum**
Place / date

Aerzen 09.12.2021

**Geschäftsführer**
Managing Director

*Dipl.-Ing. Frank Maier*

**Dokumentationsverantwortlicher**
Responsible for documentation

i.V. T. Wedemeyer

*i.V. T. Wedemeyer*

2458985.00

# UK Declaration of Conformity

**Manufacturer**

**LENZE SE, Hans-Lenze-Strasse 1, 31855 Aerzen GERMANY**

**Authorised representative**

**LENZE Ltd., 6, Abbey Court Fraser Road Priory, Business Park, MK44 3WH Bedford**

declares under sole responsibility compliance of the products

**I55APxxxxxAxxxxxxx &**
**I5MASAxxxxxxxx (Safety Module) (x=0-9/A-Z)**

with the

| **The Supply of Machinery (Safety) Regulations 2008** | | | | **S.I. 2008 No. 1597** |
|---|---|---|---|---|
| **Applied designated standards:** | | | | |
| Safe torque off | **EN 60204-1** | **:2018** | | |
| For safety functions see manual. | **EN ISO 13849-1** | **:2015** | Category 4<br>Performance Level:<br>PL e | |
| | **EN 61508 1-7** | **:2010** | | SIL 3 |
| | **EN 62061**<br>**+AC +A1 +A2** | **:2005**<br>**:2010 :2013 :2015** | | SIL 3 |
| | **EN 61800-5-2** | **:2007 + 2017** | | SIL 3 |
| | **EN 61800-5-1 + A1** | **:2007 :2017** | | SIL 3 |

**Conformity assessment**

| | | |
|---|---|---|
| **Approved Body** | TUV Rheinland UK Ltd<br>1011 Stratford Road<br>Solihull, B90 4BN<br>Approved Body No. 2571 |
| Certificates | 01/205U/5745.00/21 |
| Date of expiry | 2024-11 |

**The Electromagnetic Compatibility Regulations 2016** **S.I. 2016 No. 1091**

**Applied designated standards:**

**EN 61800-3:2004 + A1:2012**
**EN IEC 61800-3:2018**

**The Ecodesign for Energy-Related Products and Energy Information Regulations 2021**

**Applied designated standards:**

**EN 61800-9-2:2017**

**The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012**
**S.I. 2012 No. 3032**

**Applied designated standards:**

**EN IEC 63000:2018**

The safety instructions of the manual are to be considered.

These products are intended for installation in machines. Operation is prohibited until it has been determined that the machines in which these products are to be installed, conforms to the above mentioned Regulations.

| Place / date | Chief Technology Officer | Responsible for documentation |
|---|---|---|
| Aerzen 08.12.2021 | | |
| | *Dipl.-Ing. Frank Maier* | *i.V. Torsten Wedemeyer* |

# Good to know

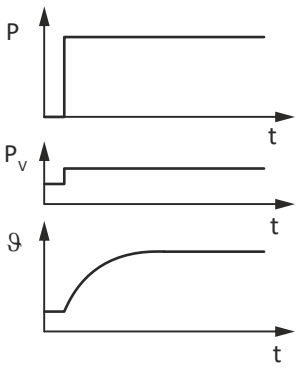
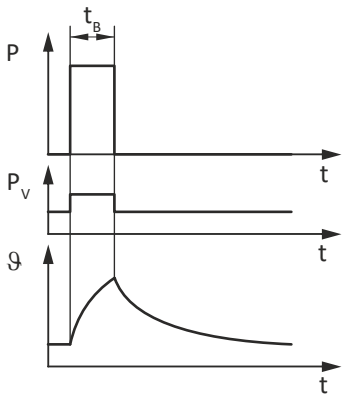
## Operating modes of the motor

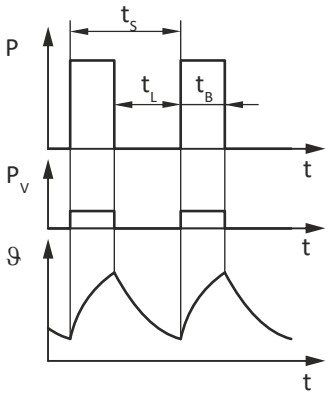
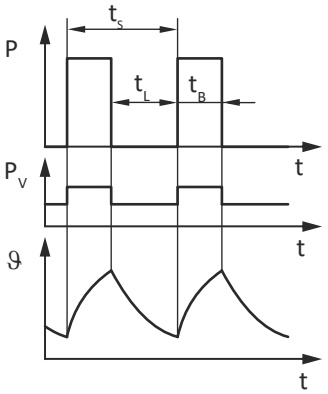
Operating modes S1 ... S10 as specified by EN 60034-1 describe the basic stress of an electrical machine.

In continuous operation a motor reaches its permissible temperature limit if it outputs the rated power dimensioned for continuous operation. However, if the motor is only subjected to load for a short time, the power output by the motor may be greater without the motor reaching its permissible temperature limit. This behaviour is referred to as overload capacity.

Depending on the duration of the load and the resulting temperature rise, the required motor can be selected reduced by the overload capacity.

### The most important operating modes

| Continuous operation S1 | Short-time operation S2 |
|---|---|
|  |  |
| Operation with a constant load until the motor reaches the thermal steady state. The motor may be actuated continuously with its rated power. | Operation with constant load; however, the motor does not reach the thermal steady state. During the following standstill, the motor winding cools down to the ambient temperature again. The increase in power depends on the load duration. |

| Intermittent operation S3 | Non-intermittent periodic operation S6 |
|---|---|
|  |  |
| Sequence of identical duty cycles comprising operation with a constant load and subsequent standstill. Start-up and braking processes do not have an impact on the winding temperature. The steady-state is not reached. The guide values apply to a cycle duration of 10 minutes. The power increase depends on the cycle duration and on the load period/downtime ratio. | Sequence of identical duty cycles comprising operation with a constant load and subsequent no-load operation. The motor cools down during the no-load phase. Start-up and braking processes do not have an impact on the winding temperature. The steady-state is not reached. The guide values apply to a cycle duration of 10 minutes. The power increase depends on the cycle duration and on the load period/idle time ratio. |

| | | | |
|---|---|---|---|
| P | Power | $P_V$ | Power loss |
| t | Time | $t_B$ | Load period |
| $t_L$ | Idle time | $t_S$ | Cycle duration |
| ϑ | Temperature | | |

**Motor control types**

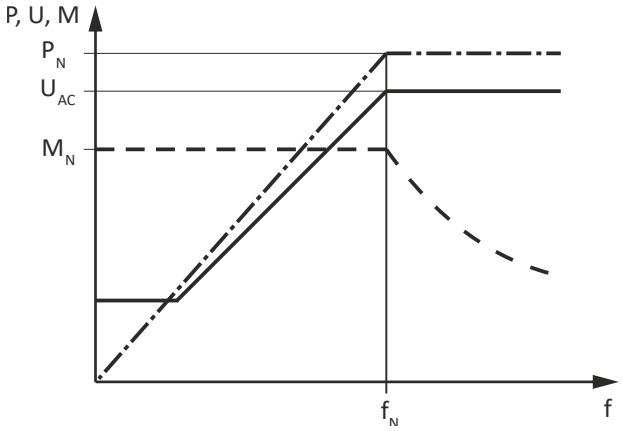
The inverter provides various motor control types.

**Linear V/f characteristic control**

The output voltage is increased proportionately to the output frequency.

In case of low output frequencies, the motor voltage can be increased to ensure a minimum current for the breakaway torque. In the field weakening range, the output voltage of the inverter is constant (mains voltage) and the frequency can be further increased depending on the load. The maximum torque of the motor is reduced proportionately to the square of the frequency increase, the maximum output power of the motor being constant.

Application areas are for instance: Single drives with constant load.




| | | | |
|---|---|---|---|
| P | Power | $P_N$ | Rated power |
| V | Voltage | $U_{AC}$ | Mains voltage |
| M | Torque | $M_N$ | Rated torque |
| f | Frequency | $f_N$ | Rated frequency |

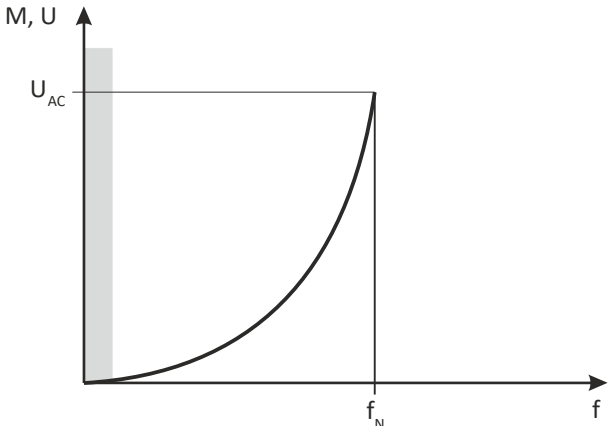
**Square-law V/f characteristic control**

The output voltage is increased squarely to the output frequency.

In case of low output frequencies, the motor voltage can be increased to ensure a minimum current for the breakaway torque. In the field weakening range, the output voltage of the inverter is constant (mains voltage) and the frequency can be further increased depending on the load. The maximum torque of the motor is reduced squarely to the frequency increase, the maximum output power of the motor being constant.

Application areas are for instance:

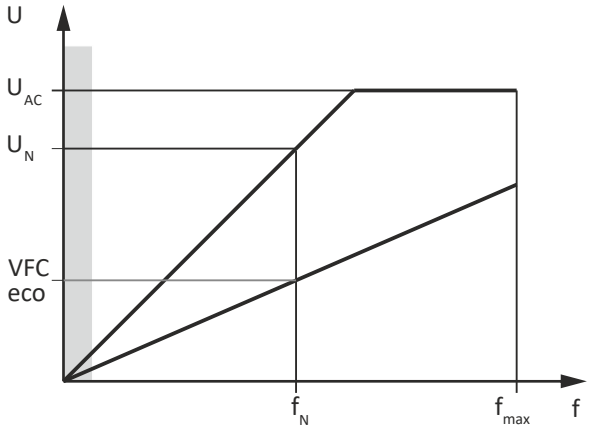
- Pumps
- Fans
- Ventilators




| | | | |
|---|---|---|---|
| V | Voltage | $U_{AC}$ | Mains voltage |
| f | Frequency | $f_N$ | Rated frequency |
| M | Torque | | |

**VFCeco**

The VFCeco mode has a special effect in the partial load operational range. Usually, three-phase AC motors are supplied there with a higher magnetising current than required by the operating conditions. The VFCeco mode reduces the losses in the partial load operational range so that savings up to 30 % are possible.



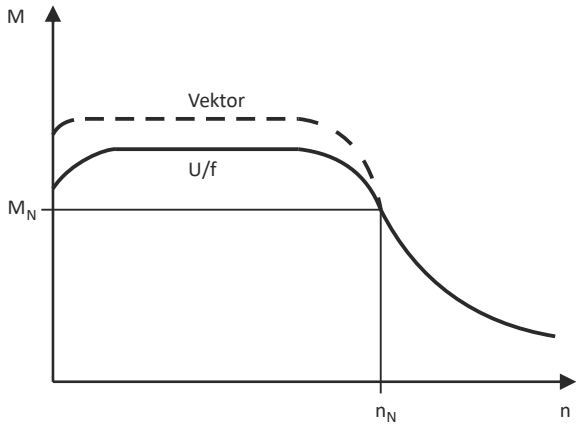

| | | | |
|---|---|---|---|
| V | Voltage | f | Frequency |
| $U_{AC}$ | Mains voltage | $f_N$ | Rated frequency |
| $U_N$ | Rated voltage | $f_{max}$ | Max. frequency |

**Sensorless vector control (SLVC)**

In vector control, an inverted voltage model is used for calculation. The parameters are detected via a parameter identification. The inverter determines the angle between current and voltage. This imposes a current on the motor”.

Compared to the V/f characteristic control, the vector control serves to achieve improved drive characteristics thanks to:

- higher torque throughout the entire speed range
- higher speed accuracy and higher concentricity factor
- higher efficiency




| | | | |
|---|---|---|---|
| M | Torque | $M_N$ | Rated torque |
| n | Speed | $n_N$ | Rated speed |

Application areas are for instance:

- Single drives with changing loads
- Single drives with high starting duty
- Sensorless speed control of three-phase AC motors

**Switching frequencies**

On an inverter, the term "switching frequency" is understood to mean the frequency with which the input and outputs of the output module (inverter) are switched. On an inverter, the switching frequency can generally be set to values between 2 and 16 kHz, whereby the selection is based on the respective power output.

As switching the modules cause heat losses, the inverter can provide higher output currents at low switching frequencies than at high frequencies. Additionally, it is distinguished between the operation at a permanently set switching frequency and a variably set switching frequency. Here, the switching frequency is automatically reduced as a function of the device utilization.

At a higher switching frequency, the noise generation is less.

Options for the switching frequency:

- 2 kHz
- 4 kHz
- 8 kHz
- 12 kHz
- 16 kHz
- variable (automatic adaptation)



**Enclosures**

The protection class indicates the suitability of a product for specific ambient conditions with regard to humidity as well as the protection against contact and the ingress of foreign particles. The protection classes are classified in the EN 60034-5/ EN IEC 60529.

The first code number after the code letters IP indicates the protection against the ingress of foreign particles and dust. The second code number refers to the protection against the ingress of humidity.

| Code number 1 | Degree of protection | Code number 2 | Degree of protection |
|---|---|---|---|
| 0 | No protection | 0 | No protection |
| 1 | Protection against the ingress of foreign particles d > 50 mm. No protection in case of deliberate access. | 1 | Protection against vertically dripping water (dripping water). |
| 2 | Protection against medium-sized foreign particles, d > 12 mm, keeping away fingers or the like. | 2 | Protection against diagonally falling water (dripping water), 15 ° compared to normal service position. |
| 3 | Protection against small foreign particles d > 2.5 mm. Keeping away tools, wires or the like. | 3 | Protection against spraying water, up to 60 ° from vertical. |
| 4 | Protection against granular foreign particles, d > 1 mm, keeping away tools, wire or the like. | 4 | Protection against spraying water from all directions. |
| 5 | Protection against dust deposits (dust-protected), complete protection against contact. | 5 | Protection against water jets from all directions. |
| 6 | Protection against the ingress of dust (dust-proof), complete protection against contact. | 6 | Protection against choppy seas or heavy water jets (flood protection). |

# Glossary

## Definitions in functional safety

| Abbreviation | Meaning |
|---|---|
| AIE | Acknowledge In Error, error acknowledgement |
| AIS | Acknowledge In Stop, restart acknowledgement |
| OFF state | Triggered signal status of the safety sensors |
| CCF | Common Cause Error (also β-value) |
| EC_FS | Error Class Fail Safe |
| EC_SS1 | Error Class Safe Stop 1 |
| EC_SS2 | Error Class Safe Stop 2 |
| EC_STO | Error Class Safe Torque Off Stop 0 |
| ON state | Signal status of the safety sensors in normal operation |
| FIT | Failure In Time, 1 FIT = 10-9 Error/h |
| FMEA | Failure Mode and Effect Analysis |
| FSoE | FailSafe over EtherCAT |
| GSDML | Device description file with PROFINET-specific data to integrate the configuring software of a PROFINET controller. |
| HFT | Hardware Failure Tolerance |
| Cat. | Category according to EN ISO 13849-1 |
| nBD | Speed value Base-Drive, internally determined actual speed from standard application |
| nSD | Safe-Drive speed value, internally determined actual speed from the safety application |
| n_safe | Actual speed determined from validation of nBD and nSD. Enters the further processing of the speed-dependent safety functions. |
| OSSD | Output Signal Switching Device, tested signal output |
| pBD | Base-Drive position value, internally determined actual position from standard application |
| pSD | Safe-Drive position value, internally determined actual position from the safety application |
| p_safe | Actual position determined from validation of pBD and pSD. Enters the further processing of the position-dependent safety functions. |
| PELV | Protective Extra Low Voltage |
| PL | Performance Level according to EN ISO 13849-1 |
| PM | Plus−Minus − switched signal paths |
| PP | Plus−Plus − switched signal paths |
| PS | PROFIsafe |
| PWM | Pulse Width Modulation |
| SCS | Safe Creeping Speed |
| SD−In | Safe Digital Input |
| SD−Out | Safe Digital Output |
| SELV | Safety Extra Low Voltage |
| SFF | Safe Failure Fraction |
| SIL | Safety Integrity Level according to EN IEC 61508 |

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