

# Frequency inverter i550 protec



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Standard inverter IP31 or IP66  
Universally applicable  
Power range: 0.5 to 15 hp (0.37 to 11 kW)

As easy as that.

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**Lenze**

# i550 protec

i550 protec uses the same tried-and-tested technology used in i550 cabinet and only differs in terms of a higher degree of housing protection with an adapted design. If your machine requires a lot of space, has a modular design or the space in the control cabinet is limited, the universally applicable i550 protec (IP31 and IP66 degree of protection) from 0.37 kW ... 11 kW (expansion up to 75 kW planned) is the ideal solution for a decentralized installation close to the motor.

## Highlights

- IP66 degree of 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
- USB Micro diagnostic interface on board
- Optionally available with extension box with or without service switches
- Optionally available with keypad or WLAN diagnostic module
- Optionally available with "Safe Torque Off (STO)" with SIL 3 (ISO 13849-1 (EN 954-1) ) and Performance Level e (EN 62061/EN 62061/EN 61800-5-2)



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## i550 protec

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### Power range

- 0.37 ... 11 kW

### Mounting

- Wall mounting
- Installation

### Degree of protection

- IP31
- NEMA 1
- IP66
- NEMA 4 x
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### Approvals

- CE, UL, CSA, EAC, RoHS

### Connections

- 1 AC 120 V
- 1 AC 230 V
- 1/3 AC 230 V
- 3 AC 230 V
- 3 AC 400/480 V
- 3 AC 480 V/600 V
- Standard I/O:
  - 5x digital input
  - 1x digital output
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- PNP/NPN logic
- Standard I/O:
  - 2x analog input
  - 1x analog output
  - 
  - 
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- Frequency input: 0 ... 100 kHz
- 1x NO/NC relay (24 DC max. 2 A; 240 AC max. 3 A)
- External 24 V supply and internal 24 V power supply unit
- Spring terminals
- Evaluation of motor PTC

### Overload behavior

- 200 % for 3 s; 150 % for 60 s

### Motor controls

- Servo control (SC-ASM) with feedback
- Sensorless vector control for synchronous motors (up to 22 kW)
- Sensorless vector control (SLVC)
- Energy saving function (VFC-Eco)
- V/f characteristic control linear/square-law (VFC plus)
- V/f characteristic control with feedback

### Functions

- DC-injection braking
- Brake management for brake control with low rate of wear
- Dynamic braking through brake resistor
- S-ramps for smooth acceleration and deceleration
- Flying restart circuit, PID controller
- DC connection

### Safety engineering

- Safe Torque Off (STO)

### Networks

- CANopen, Modbus RTU, Modbus TCP, IO-Link, EtherCAT, EtherNET/IP, PROFINET

### Ambient temperature during operation

- 3K3 (-10 ... +55 °C) EN 60721-3-3 (derating of 2.5 %/°C above 45 °C)

# i550 protec inverter

Connection to 120 V mains and 230 V mains with IP66 degree of protection

<b>Conformities</b>	CE	2014/35/EU, 2014/30/EU
	EAC	TP TC 004/2011, TP TC 020/2011
	RoHS 2	2011/65/EU
<b>Approvals</b>	UL	UL 61800-5-1, CSA 22.2 No. 274
<b>Energy efficiency</b>	Class IE2	EN 50598-2
<b>Degree of protection</b>	IP31	EN 60529 (not in the wire range of terminals)
	IP66	EN 60034-5
	NEMA 250	Type 1 (only protection against accidental contact)
	NEMA 250	Type 4X
	3M3 (for IP66)	EC 60721-3-3 (for mechanical, active substances)
	3C2 (for IP66)	EC 60721-3-3 (for chemical, active substances)
<b>Power systems</b>	TN	Voltage to earth: max. 300 V
<b>Mains switching</b>		3 x within one minute possible
<b>Operation with residual current circuit breaker</b>		Up to 11 kW 30 mA
<b>Max. cable length for EMC</b>	Category: C2 category C3	20 m ( $\leq$ 0.37 kW max. 15 m, 8 m for 1ph/230 V) 35 m ( $\leq$ 0.37 kW max. 15 m)
<b>Switching frequencies</b>		2, 4, 8, 12, 16 kHz. The rated output currents apply at 45 °C and switching frequencies of 2 and 4 kHz, and at 40 °C and switching frequencies of 8, 12 and 16 kHz
<b>Max. ambient temperature</b>		55 °C (derating of 2.5 %/°C above 45 °C)
<b>Max. output frequency</b>		0 Hz ... 599 Hz
<b>Overload capacity</b>		200 % for 3s; Heavy Duty: 150 % for 60s; Light Duty: 120 % for 60s (IP31 devices)

	Rated power	Mains voltage range	Rated output current	Degree of protection	Weight	Dimensions (h x w x d)
	[kW]	[V]	[A]		[kg]	[mm]
<b>1-phase mains connection 120 V without integrated RFI filter</b>						
i550-P0.37/120-1	0.37	1/N/PE AC	2.4	IP66	1.8	190 x 140 x 117
i550-P0.75/120-1	0.75	90 V ... 132 V	4.2	IP66	2.7	205 x 140 x 140
i550-P1.1/120-1	1.1	45 Hz ... 65 Hz	6	IP66	2.7	205 x 140 x 140
<b>1-phase mains connection 230/240 V - Heavy Duty with integrated RFI filter</b>						
i550-P0.37/230-2	0.37	1/N/PE AC 170 V ... 264 V 45 Hz ... 65 Hz	2.4	IP66	1.7	190 x 140 x 117
i550-P0.55/230-2	0.55		3.2	IP66	1.7	190 x 140 x 117
i550-P0.75/230-2	0.75		4.2	IP66	1.7	190 x 140 x 117
i550-P1.1/230-2	1.1		6	IP66	2.6	205 x 140 x 140
i550-P1.5/230-2	1.5		7	IP66	2.6	205 x 140 x 140
i550-P2.2/230-2	2.2		9.6	IP66	2.6	205 x 140 x 140
<b>1-phase mains connection 230/240 V - Heavy Duty without integrated RFI filter</b>						
i550-P0.37/230-2	0.37	1/N/PE AC 170 V ... 264 V 45 Hz ... 65 Hz	2.4	IP66	1.7	190 x 140 x 117
i550-P0.55/230-2	0.55		3.2	IP66	1.7	190 x 140 x 117
i550-P0.75/230-2	0.75		4.2	IP66	1.7	190 x 140 x 117
i550-P1.1/230-2	1.1		6	IP66	2.6	205 x 140 x 140
i550-P1.5/230-2	1.5		7	IP66	2.6	205 x 140 x 140
i550-P2.2/230-2	2.2		9.6	IP66	2.6	205 x 140 x 140
<b>3-phase mains connection 230/240 V - Heavy Duty without integrated RFI filter</b>						
i550-P0.37/230-2	0.37	3/PE AC 340 V ... 528 V 45 Hz ... 65 Hz	2.4	IP66	1.7	190 x 140 x 117
i550-P0.55/230-2	0.55		3.2	IP66	1.7	190 x 140 x 117
i550-P0.75/230-2	0.75		4.2	IP66	1.7	190 x 140 x 117
i550-P1.1/230-2	1.1		6	IP66	2.6	205 x 140 x 140
i550-P1.5/230-2	1.5		7	IP66	2.6	205 x 140 x 140
i550-P2.2/230-2	2.2		9.6	IP66	2.6	205 x 140 x 140
i550-P3.0/230-3	3		12	IP66	4.8	250 x 180 x 170
i550-P4.0/230-3	4		16.5	IP66	4.8	250 x 180 x 170
i550-P5.5/230-3	5.5		23	IP66	4.8	250 x 180 x 170
i550-P7.5/230-3	7.5		29	IP66	5	290 x 180 x 170
i550-P11/230-3	11		42	IP66	5	290 x 180 x 170

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# i550 protec inverter

Connection to 400 V mains with IP66 degree of protection

<b>Conformities</b>	CE	2014/35/EU, 2014/30/EU
	EAC	TP TC 004/2011, TP TC 020/2011
	RoHS 2	2011/65/EU
<b>Approvals</b>	UL	UL 61800-5-1, CSA 22.2 No. 274
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	3C2 (for IP66)	EC 60721-3-3 (for chemical, active substances)
<b>Power systems</b>	TN	Voltage to earth: max. 300 V
<b>Mains switching</b>		3 x within one minute possible
<b>Operation with residual current circuit breaker</b>		Up to 11 kW 30 mA
<b>Max. cable length for EMC</b>	Category: C2 category C3	20 m ( $\leq 0.37$ kW max. 15 m) 35 m ( $\leq 0.37$ kW max. 15 m)
<b>Switching frequencies</b>		2, 4, 8, 12, 16 kHz. The rated output currents apply at 45 °C and switching frequencies of 2 and 4 kHz, and at 40 °C and switching frequencies of 8, 12 and 16 kHz
<b>Max. ambient temperature</b>		55 °C (derating of 2.5 %/°C above 45 °C)
<b>Max. output frequency</b>		0 Hz ... 599 Hz
<b>Overload capacity</b>		200 % for 3s; Heavy Duty: 150 % for 60s; Light Duty: 120 % for 60s (IP31 devices)

	Rated power	Mains voltage range	Rated output current	Degree of protection	Weight	Dimensions (h x w x d)
	[kW]	[V]	[A]		[kg]	[mm]
<b>3-phase mains connection 400 V – Heavy Duty with integrated RFI filter</b>						
<b>i550-P0.37/400-3</b>	0.37	3/PE AC 340 V ... 528 V 45 Hz ... 65 Hz	1.3	IP66	1.8	190 x 140 x 117
<b>i550-P0.55/400-3</b>	0.55		1.8	IP66	1.8	190 x 140 x 117
<b>i550-P0.75/400-3</b>	0.75		2.4	IP66	1.8	190 x 140 x 117
<b>i550-P1.1/400-3</b>	1.1		3.2	IP66	2.7	205 x 140 x 140
<b>i550-P1.5/400-3</b>	1.5		3.9	IP66	2.7	205 x 140 x 140
<b>i550-P2.2/400-3</b>	2.2		5.6	IP66	2.7	205 x 140 x 140
<b>i550-P3.0/400-3</b>	3		7.3	IP66	4.9	250 x 180 x 170
<b>i550-P4.0/400-3</b>	4		9.5	IP66	4.9	250 x 180 x 170
<b>i550-P5.5/400-3</b>	5.5		13	IP66	4.9	250 x 180 x 170
<b>i550-P7.5/400-3</b>	7.5		16.5	IP66	5.1	290 x 180 x 170
<b>i550-P11/400-3</b>	11		23.5	IP66	5.1	290 x 180 x 170



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# Accessories

## Brake resistor for i550 protec

- 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 brake energy produced in generator mode and converts it into heat.

Rated power	Brake resistor	Rated power	Degree of protection	Dimensions (h x w x d)
kW		W		mm
<b>Operation at 1 x 230 V</b>				
0.37	ERBS180R350W	350	IP66	382 x 124 x 122
0.75	ERBS100R625W	625	IP66	566 x 124 x 122
1.10	ERBS100R625W	625	IP66	566 x 124 x 122
<b>Operation at 1 x 230 V or at 3 x 230 V</b>				
0.37	ERBS100R625W	625	IP66	566 x 124 x 122
0.55	ERBS100R625W	625	IP66	566 x 124 x 122
0.75	ERBS100R625W	625	IP66	566 x 124 x 122
1.10	ERBS039R01K6	1600	IP66	748 x 200 x 122
1.50	ERBS039R01K6	1600	IP66	748 x 200 x 122
2.20	ERBS039R01K6	1600	IP66	748 x 200 x 122
<b>Operation at 3 x 400 V</b>				
0.37	ERBS470R150W	150	IP66	222 x 124 x 122
0.55	ERBS470R150W	150	IP66	222 x 124 x 122
0.75	ERBS470R150W	150	IP66	222 x 124 x 122
1.10	ERBS180R350W	350	IP66	382 x 124 x 122
1.50	ERBS180R350W	350	IP66	382 x 124 x 122
2.20	ERBS180R350W	350	IP66	382 x 124 x 122

## Accessory sets for i5x0 protec

The bottom of the housing of the i510 protec and i550 protec inverters provides openings for connections to the mains, the motor and the control connections. To easily implement these connections in IP66, various connection sets are available.

	Connection set	Contents	Packaging unit
<b>EZAMBHXX022</b>	i550 protec screw connection set 0.37 ... 2.2 kW	3x M20 und 2x M12 cable glands	1
<b>EZAMBHXX023</b>	i550 protec screw connection set 3 ... 11 kW	1x M32, 2x M20 and 2x M12 cable glands	1
<b>EZAMBHXX025</b>	i550 protec screw connection set for Ethernet-based networks	Separable rubber bushing and screw connection for 2x RJ45 connector	1
<b>EZAMBHXX026</b>	Pressure compensation screw connection M12	M12 screw connection with integrated membrane	5
<b>EZAMBHXX027</b>	QUICKON connection set	QUICKON panel feed-through QDP with connection cable	1
<b>EZAMBHXX028</b>	Switch/potentiometer set	3-point switch 1x 10 kΩ potentiometer	1