

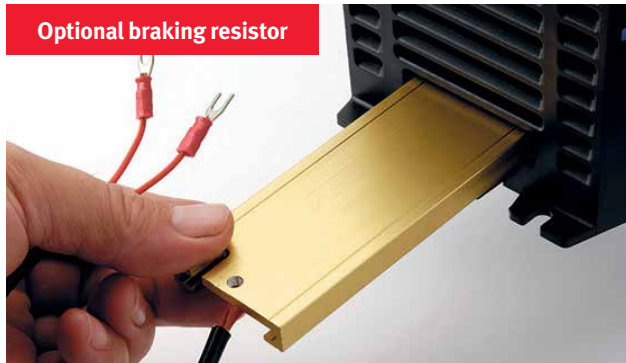
General Purpose Inverter E3

Cost-effective, user-friendly industrial inverters for rugged, reliable control



General Purpose Inverter E3

The E3 range is available with IP20 and IP66 enclosures to suit customer needs. Dust-tight and ready for washdown, the IP66-rated general purpose inverters can be mounted directly on your processing equipment. The IP20-rated inverters can be mounted in control cabinets or in machine parts providing the required protection. The E3 range also features the world's first fully digital drive for low power single phase motors. Designed for use with permanent split capacitor (PSC) or shaded pole, single phase induction motors.



The easy-to-use, cost competitive solution to motor control

The Beijer Electronics General Purpose Inverter E3 range is dedicated to low power applications, combining innovative technology, reliability, robustness and ease-of-use.

Intuitive keypad control

Precise digital control at the touch of a button.

Simple commissioning

14 parameter basic setup. Default settings suitable for most applications. Contactor style connection for simple wiring.

Integral RFI filter

- Built-in filter for full EMC compliance removable by a screw
- Vector control
- For applications requiring high starting torque and constant speed

Modbus RTU/TCP and CANopen

Easy integration with your control and monitoring systems.

IP20 has Modbus RTU and CANopen on board.

IP66 has also Modbus RTU and CANopen on board but is also available with Modbus TCP by adding -MTP in the Part number and Order number.

Brake chopper (sizes 2, 3 and 4)

Dynamic and compact options with heatsink mounted resistor.

High overload capability

- 150% overload for 60 sec
- 175% overload for 2.5 sec

Industrial ambient ratings

- IP20 enclosure: 50°C
- IP66 enclosure: 40°C for outdoor mounting

OEM

Smartstick with RJ-45 connection to inverter for easy parameter up or download. The Smartstick can also communicate with the PC software tool BFI Tools or a smartphone with the BFI Mobile app installed.

Fire mode

For building automation safety systems.





IP20

- **IP20**
The IP20-rated inverters can be mounted in control cabinets or in machine parts providing the required protection.
- **IP20 explained:**
Protection against fingers or other object not greater than 80 mm in length and 12 mm in diameter. No moisture protection.



IP66

- **Dust-tight design**
Install in-situ and be sure of protection from dust and contaminants.
- **Ready for washdown**
With a sealed ABS enclosure and corrosion resistant heatsink, the General Purpose Inverter E3 is ideal for high pressure washdown applications.
- **On-drive control**
Switched IP66 models feature convenient controls for speed control, REV/OFF/FWD and Power ON/OFF, complete with safety lock.
- **Indoor or outdoor mounting**

Non-switched IP66 models available.



Ideal for:

- Bottling
- Pumping
- Waste water
- HVAC
- Conveyor
- Baggage handling
- Exercise
- Packaging
- Woodworking
- Ceramics
- Building automation

Recommended for:

- Paper
- Petroleum
- Food processing
- Aggregate/cement
- Mining
- Textile
- Horticultural
- Chemical
- Agricultural

Options

- Dynamic braking resistor
- Mains supply input chokes
- Motor output filter, recommended for long cable runs
- 2 Relay output option
- Remote mounting keypad
- RJ-45 cables and splitters
- Isolated RS485 USB adaptor
- Commissioning and storage software for PC
- PC-program for settings
- Parameter Optistick with RJ-45 connection and Bluetooth communication

Order number	Description	Part number
BFI-E3 Input 1-phase 200-240 VAC, Output 3-phase, IP20, EMC-filter		
BFI-E3-12-0023-1F12	0,37kW, 2, 3A, Size 1, No Braketransistor	61500
BFI-E3-12-0043-1F12	0,75kW, 4, 3A, Size 1, No Braketransistor	61501
BFI-E3-12-0070-1F12	1,5kW, 7A, Size 1, No Braketransistor	61502
BFI-E3-22-0070-1F42	1,5kW, 7A, Size 2, Braketransistor	61503
BFI-E3-22-0105-1F42	2,2kW, 10,5A, Size 2, Braketransistor	61504
BFI-E3-32-0153-1042	4,0kW, 15,3A, Size 3, Braketransistor, No EMC-filter	61505
BFI-E3 Input 1-phase 200-240 VAC, Output 3-phase, IP66, EMC-filter		
BFI-E3-12-0023-1F1A	0,37kW, 2, 3A, Size 1, No Braketransistor	63510
BFI-E3-12-0043-1F1A	0,75kW, 4, 3A, Size 1, No Braketransistor	63511
BFI-E3-12-0070-1F1A	1,5kW, 7A, Size 1, No Braketransistor	63512
BFI-E3-22-0070-1F4A	1,5kW, 7A, Size 2, Braketransistor	63513
BFI-E3-22-0105-1F4A	2,2kW, 10,5A, Size 2, Braketransistor	63514
BFI-E3-32-0153-1F4A	4,0kW, 15,3A, Size 3, Braketransistor	63515
BFI-E3 Input 1-phase 200-240 VAC, Output 3-phase, IP66, EMC-filter, Mainswitch, Handcontrol		
BFI-E3-12-0023-1F1B	0,37kW, 2, 3A, Size 1, No Braketransistor	63520
BFI-E3-12-0043-1F1B	0,75kW, 4, 3A, Size 1, No Braketransistor	63521
BFI-E3-12-0070-1F1B	1,5kW, 7A, Size 1, No Braketransistor	63522
BFI-E3-22-0070-1F4B	1,5kW, 7A, Size 2, Braketransistor	63523
BFI-E3-22-0105-1F4B	2,2kW, 10,5A, Size 2, Braketransistor	63524
BFI-E3-32-0153-1F4B	4,0kW, 15,3A, Size 3, Braketransistor	63525
BFI-E3 Input/Output 3-phase 200-240 VAC, IP20, EMC-filter, Braketransistor		
1,5 to 11kW, Contact Beijer Electronics for more information.		
BFI-E3 Input/Output 3-phase 200-240 VAC, IP66, EMC-filter, Braketransistor		
1,5 to 11kW, Contact Beijer Electronics for more information.		
BFI-E3 Input/Output 3-phase 200-240 VAC, IP66, EMC-filter, Mainswitch, Handcontrol		
1,5 to 11kW, Contact Beijer Electronics for more information.		
BFI-E3, Input/Output 3-phase 380-480 VAC, IP20, EMC-filter		
BFI-E3-14-0012-3F12	0,37kW, 1,2A, Size 1, No Braketransistor	61559
BFI-E3-14-0022-3F12	0,75kW, 2,2A, Size 1, No Braketransistor	61560
BFI-E3-14-0041-3F12	1,5kW, 4,1A, Size 1, No Braketransistor	61561
BFI-E3-24-0041-3F42	1,5kW, 4,1A, Size 2, Braketransistor	61562
BFI-E3-24-0058-3F42	2,2kW, 5,8A, Size 2, Braketransistor	61563
BFI-E3-24-0095-3F42	4kW, 9,5A, Size 2, Braketransistor	61564
BFI-E3-34-0140-3F42	5,5kW, 14A, Size 3, Braketransistor	61565
BFI-E3-34-0180-3F42	7,5kW, 18A, Size 3, Braketransistor	61566
BFI-E3-34-0240-3F42	11kW, 24A, Size 3, Braketransistor	61567
BFI-E3-44-0300-3F42	15kW, 30A, Size 4, Braketransistor	61568
BFI-E3-44-0390-3F42	18kW, 39A, Size 4, Braketransistor	61569
BFI-E3-44-0460-3F42	22kW, 46A, Size 4, Braketransistor	61570
BFI-E3-54-0610-3F42	30kW, 61A, Size 5, Braketransistor	61571
BFI-E3-54-0720-3F42	37kW, 72A, Size 5, Braketransistor	61572
BFI-E3, Input/Output 3-phase 380-480 VAC, Output 3-phase, IP66, EMC-filter		
BFI-E3-14-0022-3F1A	0,75kW, 2,2A, Size 1, No Braketransistor	63580
BFI-E3-14-0041-3F1A	1,5kW, 4,1A, Size 1, No Braketransistor	63581
BFI-E3-24-0041-3F4A	1,5kW, 4,1A, Size 2, Braketransistor	63582
BFI-E3-24-0058-3F4A	2,2kW, 5,8A, Size 2, Braketransistor	63583
BFI-E3-24-0095-3F4A	4kW, 9,5A, Size 2, Braketransistor	63584
BFI-E3-34-0140-3F4A	5,5kW, 14A, Size 3, Braketransistor	63585
BFI-E3-34-0180-3F4A	7,5kW, 18A, Size 3, Braketransistor	63586
BFI-E3-34-0240-3F4A	11kW, 24A, Size 3, Braketransistor	63587
BFI-E3-44-0300-3F4A	15kW, 30A, Size 4, Braketransistor	63588
BFI-E3-44-0390-3F4A	18,5kW, 39A, Size 4, Braketransistor	63589
BFI-E3-44-0460-3F4A	22kW, 46A, Size 4, Braketransistor	63579
BFI-E3, Input/Output 3-phase 380-480 VAC, IP66, EMC-filter, Mainswitch, Handcontrol		
BFI-E3-14-0022-3F1B	0,75kW, 2,2A, Size 1, No Braketransistor	63590
BFI-E3-14-0041-3F1B	1,5kW, 4,1A, Size 1, No Braketransistor	63591
BFI-E3-24-0041-3F4B	1,5kW, 4,1A, Size 2, Braketransistor	63592
BFI-E3-24-0058-3F4B	2,2kW, 5,8A, Size 2, Braketransistor	63593
BFI-E3-24-0095-3F4B	4kW, 9,5A, Size 2, Braketransistor	63594
BFI-E3-34-0140-3F4B	5,5kW, 14A, Size 3, Braketransistor	63595
BFI-E3-34-0180-3F4B	7,5kW, 18A, Size 3, Braketransistor	63596
BFI-E3-34-0240-3F4B	11kW, 24A, Size 3, Braketransistor	63597
BFI-E3-44-0300-3F4B	15kW, 30A, Size 4, Braketransistor	63598
BFI-E3-44-0390-3F4B	18,5kW, 39A, Size 4, Braketransistor	63599
BFI-E3-44-0460-3F4B	22kW, 46A, Size 4, Braketransistor	63600
BFI-E3 Input 1-phase 110 VAC, Output 3-phase 200-240 VAC, IP20		
0,37 to 1,1 kW, Contact Beijer Electronics for more information.		
BFI-E3 Input 1-phase 110 VAC, Output 3-phase 200-240 VAC, IP66		
0,37 to 1,1 kW, Contact Beijer Electronics for more information.		
BFI-E3 Input 1-phase 110 VAC, Output 3-phase 200-240 VAC, IP66, Mainswitch, Handcontrol		
0,37 to 1,1 kW, Contact Beijer Electronics for more information.		
BFI-E3 Input/Output 1-phase 200-240 VAC, EMC-filter, IP20		
0,37 to 1,1 kW, Contact Beijer Electronics for more information.		
BFI-E3 Input/Output 1-phase 200-240 VAC, EMC-filter, IP66		
0,37 to 1,1 kW, Contact Beijer Electronics for more information.		
BFI-E3 Input/Output 1-phase 200-240 VAC, EMC-filter, IP66, Mainswitch, Handcontrol		
0,37 to 1,1 kW, Contact Beijer Electronics for more information.		
Internal Options		
ODP-2ROUT-BFI	Second relay output card	63112
OD-BR100-BFI	Internal brakeresistor for IP20, 100ohm, 200W	63101
External Options		
OPT-2-OPPAD-BFI	TFT Remote External Keypad	63201
OPT-3-STICK-BFI	BFI SmartStick Bluetooth, Copy/Paste Parameters, Supports Smartphones and BFI-Tools on Windows 10	63489
OPT-3-PCKIT-BFI	BFI SmartStick Bluetooth, Copy/Paste Parameters, Supports Smartphones and BFI-Tools on Windows 7, 8, 10 and supports NFC	63491
OPT-2-J45SP	RS-485 Serial communication Data Cable 2-port RJ45 Splitter for BFI-H3/P2/E3 for Modbus RTU and CANopen	63148
OPT-2-RJTRM-BFI	RJ-45 End termination plug for CANopen and Modbus RTU communication with BFI	63202
CAB113	3m cable with 9-pole D-sub and RJ-45 between X2-series and BFI-H3/P2/E3 for Modbus RTU	660000290
CAB114	3m cable for screwterminals and RJ-45 between PLC and BFI-H3/P2/E3 for Modbus RTU	660000291
CAB115	3m cable with USB and RJ45 (RS485) between PC and BFI-H3/P2/E3	660000292
CAB154	3m cable with 9-pole D-sub and RJ-45 between X2 control, BFI-P2/E3 for CANopen communication	100-1179
CAB155	3m cable for screwterminals and RJ-45 between PLC and BFI-P2/E3 for CANopen communication	100-1180

REMARK: BFI-E3 IP66 containg an ethernet port with Modbus TCP has the extension -MTP in Order number and Part number.
For instance: BFI-E3-14-0022-3F1A-MTP, 63580-MTP, is an IP66 400V/2,2A with built-in ModbusTCP



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Drive specifications

	Feature	Technical data
Input ratings	Supply voltage	110-115V ± 10% 200-240V ± 10% 380-480V ± 10%
	Supply frequency	48-62Hz
	Displacement power factor	> 0,98
	Phase imbalance	3% maximum allowed
	Inrush current	< rated current
	Power cycles	120 per hour maximum, evenly spaced
Output ratings	Output power	110V 1-ph input: 0.37-1.1kW (230V 3-phase output) 230V 1-ph input: 0.37-1,1kW (230V 1-phase output) 230V 1-ph input: 0.37-4,0kW (230V 3-phase output) 230V 3-ph input: 0.75-18kW (230V 3-phase output) 400V 3-ph input : 0.75-37kW
	Overload capacity	150% for 60 seconds, 175% for 2.5 seconds
	Output frequency	0-500Hz, 0.1Hz resolution
	Typical efficiency	> 98%
	Temperature	Storage: -40 to 60°C Operating: -10 to 50°C (IP20)
	Altitude	Up to 1000m ASL without/ Up to 2000m maximum UL approved derating/Up to 4000m maximum (non UL)
Humidity	95% max, non condensing	
Vibration	Conforms to IEC 61800-5-1	
Enclosure	Ingress protection	IP20, IP66
Programming	Keypad	Built-in keypad as standard Optional remote mountable keypad
	Display	7 segment LED
	PC-software	BFI Tools
	App for Adroid and IOS	BFI-Tools Mobile
	Control method	V/F voltage vector / Energy optimized V/F/ Sensorless vector speed control/ PM vector control/ BLDC control/ Synchronous reluctance
Control specification	PWM frequency	4-32kHz effective
	Stopping mode	Ramp to stop: User adjustable 0.1-600 seconds Coast to stop
	Braking	Motor flux braking, built in brake transistor (not frame size 1)
	Skip frequency	Single point, user adjustable 0 to 10 V, 10-0 0 to 20mA, 20 to 0mA, 4 to 20mA, 20 to 4 mA
Fieldbus	Built-in	CANopen: 125-1000 kbps Modbus RTU: 9.6-115.2 kbps selectable
	Option	IP66: Ethernet with Modbus TCP
I/O specification	Power supply	24 V DC, 100mA, short circuit protected 10 V DC, 5mA for potentiometer
	Programmable inputs	2 digital 2 analog/digital selectable
	Digital inputs	8-30 V DC, internal or external supply Response time < 4ms
	Analog inputs	Resolution: 12 bits Response time: < 4ms Accuracy: < 2% full scale Parameter adjustable scaling and offset
	Programmable outputs	1 analog/digital, 1 relay
	Relay outputs	Maximum voltage: 250 V AC, 30 VDC Switching current capacity: 6A AC, 5A DC
Analog outputs	0 to 10 V	
Control features	PI control	Internal PI controller Standby/sleep function
	Fire mode	Bidirectional Selectable speed setpoint (fixed, PI, analog, fieldbus)
Maintenance & diagnostics	Fault memory	Last 4 trips stored with time stamp
	Data logging	Logging of data prior to trip for diagnostic purposes: Output current, drive temperature, DC bus voltage
	Monitoring	Hours run meter
Standards compliance	Low voltage directive	2014/35/EU
	EMC directive	2014/30/EU Cat C1 according to EN61800-3:2004/A1 2012
	Environmental class	IP20 Drives: 3S2/3C2 IP55 & 66 Drives: 3S3/3C3
	Additional conformance	UL, cUL, CE

E3 IP66	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)	Fixings
Size 1	232	161	162	2.5	4 × M4
Size 2	257	188	182	3.5	4 × M4
Size 3	310	210.5	238	7	4 × M4
Size 4	360	240	275	9.5	4 × M4

E3 IP20	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)	Fixings
Size 1	173	83	123	1.0	4 × M5
Size 2	221	110	150	1.7	4 × M5
Size 3	261	131	175	3,2	4 × M5
Size 4	420	171	212	9,1	4 × M8
Size 5	486	222	226	18	4 × M8

Order nr: **BREN613G**
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