

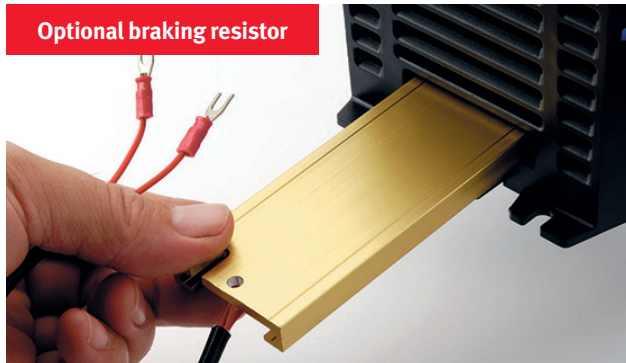
# General Purpose Inverter E3

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 Bejer 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
- Vector control
- For applications requiring high starting torque and constant speed

### Modbus RTU and CANopen

Easy integration with your control and monitoring systems.

### 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 sec

### Industrial ambient ratings

- IP20 enclosure: 50°C
- IP66 enclosure: 40°C

### OEM

Optistick with RJ-45 connection to inverter for easy parameter up or download. Communicates with PC via Bluetooth.

### 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.
- 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

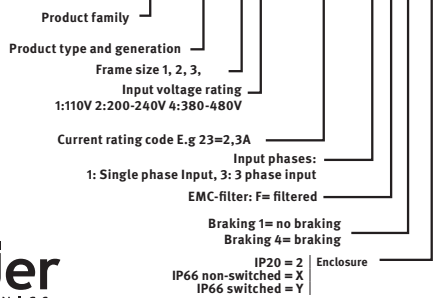
Order number	Description	Part number
<b>BFI-E3 Input 1-phase 200-240 VAC, Output 3-phase, IP20, EMC-filter</b>		
BFI-E3-12-0023-1F12	0,37kW, 2, 3A, Size 1, No Braketransistor	61500
BFI-E3-12-0043-1F12	0,75kW, 4, 3A, Size 1, No Braketransistor	61501
BFI-E3-12-0070-1F12	1,5kW, 7A, Size 1, No Braketransistor	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
<b>BFI-E3 Input 1-phase 200-240 VAC, Output 3-phase, IP66, EMC-filter</b>		
BFI-E3-12-0023-1F1X	0,37kW, 2, 3A, Size 1, No Braketransistor	61510
BFI-E3-12-0043-1F1X	0,75kW, 4, 3A, Size 1, No Braketransistor	61511
BFI-E3-12-0070-1F1X	1,5kW, 7A, Size 1, No Braketransistor	61512
BFI-E3-22-0070-1F4X	1,5kW, 7A, Size 2, Braketransistor	61513
BFI-E3-22-0105-1F4X	2,2kW, 10,5A, Size 2, Braketransistor	61514
<b>BFI-E3 Input 1-phase 200-240 VAC, Output 3-phase, IP66, EMC-filter, Mainswitch, Handcontrol</b>		
BFI-E3-12-0023-1F1Y	0,37kW, 2, 3A, Size 1, No Braketransistor	61520
BFI-E3-12-0043-1F1Y	0,75kW, 4, 3A, Size 1, No Braketransistor	61521
BFI-E3-12-0070-1F1Y	1,5kW, 7A, Size 1, No Braketransistor	61522
BFI-E3-22-0070-1F4Y	1,5kW, 7A, Size 2, Braketransistor	61523
BFI-E3-22-0105-1F4Y	2,2kW, 10,5A, Size 2, Braketransistor	61524
<b>BFI-E3 Input 3-phase 200-240 VAC, Output 3-phase, IP20, EMC-filter, Braketransistor</b>		
BFI-E3-22-0070-3F42	1,5kW, 7A, Size 2	61530
BFI-E3-22-0105-3F42	2,2kW, 10,5A, Size 2	61531
BFI-E3-32-0180-3F42	4,0kW, 18A, Size 3	61532
BFI-E3-32-0240-3F42	5,5kW, 24A, Size 3	61533
BFI-E3-42-0300-3F42	7,5kW, 30A, Size 4	61534
BFI-E3-42-0460-3F42	11kW, 46A, Size 4	61535
<b>BFI-E3 Input 3-phase 200-240 VAC, Output 3-phase, IP66, EMC-filter, Braketransistor</b>		
BFI-E3-22-0070-3F4X	1,5kW, 7A, Size 2	61540
BFI-E3-22-0105-3F4X	2,2kW, 10,5A, Size 2	61541
BFI-E3-32-0180-3F4X	4,0kW, 18A, Size 3	61642
<b>BFI-E3 Input 3-phase 200-240 VAC, Output 3-phase, IP66, EMC-filter, Mainswitch, Handcontrol</b>		
BFI-E3-22-0070-3F4Y	1,5kW, 7A, Size 2, Braketransistor	61550
BFI-E3-22-0105-3F4Y	2,2kW, 10,5A, Size 2, Braketransistor	61551
BFI-E3-32-0180-3F4Y	4,0kW, 18A, Size 3, Braketransistor	61552
<b>BFI-E3, Input 3-phase 380-480 VAC, Output 3-phase, IP20, EMC-filter</b>		
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
<b>BFI-E3, Input 3-phase 380-480 VAC, Output 3-phase, IP66, EMC-filter</b>		
BFI-E3-14-0022-3F1X	0,75kW, 2,2A, Size 1, No Braketransistor	61580
BFI-E3-14-0041-3F1X	1,5kW, 4,1A, Size 1, No Braketransistor	61581
BFI-E3-24-0041-3F4X	1,5kW, 4,1A, Size 2, Braketransistor	61582
BFI-E3-24-0058-3F4X	2,2kW, 5,8A, Size 2, Braketransistor	61583
BFI-E3-24-0095-3F4X	4kW, 9,5A, Size 2, Braketransistor	61584
BFI-E3-34-0140-3F4X	5,5kW, 14A, Size 3, Braketransistor	61585
BFI-E3-34-0180-3F4X	7,5kW, 18A, Size 3, Braketransistor	61586
<b>BFI-E3, Input 3-phase 380-480 VAC, Output 3-phase, IP66, EMC-filter, Mainswitch, Handcontrol</b>		
BFI-E3-14-0022-3F1Y	0,75kW, 2,2A, Size 1, No Braketransistor	61590
BFI-E3-14-0041-3F1Y	1,5kW, 4,1A, Size 1, No Braketransistor	61591
BFI-E3-24-0041-3F4Y	1,5kW, 4,1A, Size 2, Braketransistor	61592
BFI-E3-24-0058-3F4Y	2,2kW, 5,8A, Size 2, Braketransistor	61593
BFI-E3-24-0095-3F4Y	4kW, 9,5A, Size 2, Braketransistor	61594
BFI-E3-34-0140-3F4Y	5,5kW, 14A, Size 3, Braketransistor	61595
BFI-E3-34-0180-3F4Y	7,5kW, 18A, Size 3, Braketransistor	61596
<b>Internal Options</b>		
ODP-2ROUT-BFI	Second relay output card	63112
OD-BR100-BFI	Internal brakeresistor for IP20, 100ohm, 200W	63101
<b>External Options</b>		
OPT-2-OPPAD-BFI	OLED Remote External Keypad	63201
OPT-2-STICK-BFI	Optistick Bluetooth/OEM loader	63143
OPT-J4505-BFI	RS-485 Data Cable 0,5m	63144
OPT-J4510-BFI	RS-485 Data Cable 1,0m	63145
OPT-J4530-BFI	RS-485 Data Cable 3,0m	63146
OPT-2-J45SP	RS-485 2-port Data Cable Splitter	63148
OPT-2-RJTRM-BFI	RJ-45 Termination Plug	63202
CAB113	3m cable, 9-pole D-sub to RJ-45	660000290
CAB114	3m cable for screwterminals and RJ-45	660000291
CAB115	3m cable Programming cable, USB to RJ-45	660000292

## Drive specifications

	Feature	Technical data	
<b>Input ratings</b>	Supply voltage	110-115V ± 10% 200-240V ± 10% 380-480V ± 10% 500-600V ± 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	
	<b>Output ratings</b>	Output power	110V 1-ph inp: 0.37-1.1kW (230V 3-ph outp) 230V 1-ph inp: 0.37-2.2kW (0.5-3HP) 230V 3-ph inp: 0.75-11kW (0.5-15HP) 400V 3-ph inp : 0.75-22kW
		Overload capacity	150% for 60 seconds, 175% for 4 seconds
		Output frequency	0-500Hz, 0.1Hz resolution
		Typical efficiency	> 98%
<b>Ambient conditions</b>		Temperature	Storage: -40 to 60°C Operating: -10 to 50°C
	Altitude	Up to 1000m ASL without / Up to 2000m maximum UL approved derating / Up to 4000m maximum (non UL)	
<b>Enclosure</b>	Ingress protection	IP20, IP66	
	Humidity	95% max, non condensing	
<b>Programming</b>	Keypad	Built-in keypad as standard Optional remote mountable keypad	
	Display	7 segment LED BFI Tools	
<b>Control specification</b>	Control method	V/F voltage vector / Energy optimized V/F / Sensorless vector speed control / PM vector control / BLDC control / Synchronous reluctance	
	PWM frequency	4-32kHz effective	
	Stopping mode	Ramp to stop: User adjustable 0.1-600 seconds Coast to stop	
	Braking	Motor flux braking, (not frame size 1)	
	Skip frequency	Single point, user adjustable	
	Setpoint control	0 to 10V 0 to 20mA, 20 to 0mA, 4 to 20mA, 20 to 4 mA Motorised potentiometer (keypad) Modbus RTU CANopen	
	<b>Fieldbus</b>	Built-in	CANopen: 125-1000 kbps Modbus RTU: 9.6-115.2 kbps selectable
		<b>I/O specification</b>	Power supply
	Programmable inputs		2 digital 2 analog/digital selectable
	Digital inputs		8-30 V DC, internal or external supply Response time < 4ms Resolution: 12 bits
Analog inputs	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 10V		
<b>Control features</b>	PI control	Internal PI controller Standby/sleep function Standby/sleep function	
	<b>Maintenance &amp; diagnostics</b>	Fire mode	Bidirectional Selectable speed setpoint (fixed, PI, analog, fieldbus)
Fault memory		Last 4 trips stored with time stamp	
<b>Standards compliance</b>	Data logging	Logging of data prior to trip for diagnostic purposes: Output current, drive temperature, DC bus voltage	
	Monitoring	Hours run meter	
	Low voltage directive	Adjustable speed electrical power drive systems. EMC requirements EMC directive 2004/108/EC Cat C1 according to EN61800-3:2004 Machinery directive 2006/42/EC Conformance CE, UL, C-Tick	



### BFI-E3-12-0023-1F12



**Beijer**  
ELECTRONICS

Head office  
Beijer Electronics AB  
Box 426, Stora Varvsgatan 13a  
SE-201 24 Malmö, Sweden  
www.beijer.se | +46 40 358600

E3 IP66	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)	Fixings
Size 1	232	161	179	3.0	4 × M4
Size 2	257	188	187	4.2	4 × M4
Size 3	310	210.5	229	7.7	4 × M4

E3 IP20	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)	Fixings
Size 1	173	82	123	1.0	4 × M4
Size 2	221	109	150	1.7	4 × M4
Size 3	261	131	175	3,2	4 × M4
Size 4	420	171	212	9,1	4 × M8

Order nr: BREN613  
Copyright © 2015.08 Beijer Electronics. All rights reserved.

The information at hand is provided as available at the time of printing, and Beijer Electronics reserves the right to change any information without updating this publication. Beijer Electronics does not assume any responsibility for any errors or omissions in this publication.