



FI Variable frequency inverters, IP66

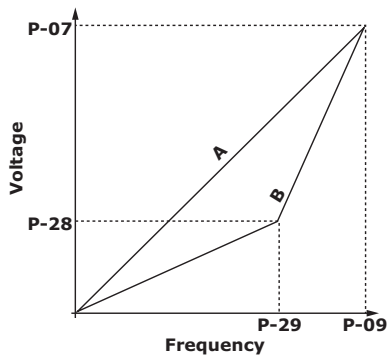
The FI frequency inverters provide reliable intelligent motor starting and control of low power single and three phase motors. They fulfil nearly any inverter requirement with only fourteen basic parameters to adjust. An extended parameter set gives the more advanced users access to additional powerful functionalities. The units are built with tough polycarbonate plastics specifically chosen to withstand degradation by ultra violet (UV), greases, oils and acids. Also robust enough not to be brittle at -20°C.

Key features

- Outdoor rated enclosed drives for direct machine mounting, dust tight and ready for washdown duty
- Unrivalled simplicity of installation, connection and commissioning
- Easy to wire thanks to the large, accessible chamber and removable gland plate
- Intuitive keypad control
- Easily accessible EMC disconnect
- Fan mode features pre-configured applications for: air handling units, ventilation fans, circulating fans, air curtains, kitchen extract fans
- Conformal coating as standard
- Switched or non-switched versions
- 7-segment LED display
- Integrated PI control
- Modbus RTU and CANopen on-board as standard
- 2 x RJ45 ports data connection for easy copying data from one inverter to another at a touch of a button; eliminate the need for a splitter
- Motor current and rpm indication
- Locally customisable – flat front to terminal cover with mounting points for switches and an internal PCB
- 150 % overload during 60 s
- Variable or constant torque
- Internal EMC filter category C1
- 4 frame sizes
- Integrated brake chopper (not in frame size 1)
- IP66 with anticorrosion coated heatsinks, tight dust seals, high pressure washdown duty for indoor use, suitable for rugged industrial operations at $T_a = 50\text{ }^\circ\text{C}$



Operational diagram



P-07	Motor rated voltage
P-09	Motor rated frequency
Line "A"	Normal operation
Line "B"	V/F characteristic, altered by the user through setting parameters P-29 and P-28
P-28	V/F characteristic adjustment voltage
P-29	V/F characteristic adjustment frequency

Standards

- Low Voltage Directive Adjustable speed electrical power drive systems.
- EMC requirements
- EMC Directive 2014/30/EU Cat C1 according to EN61800-3:2004
- WEEE Directive 2012/19/EC
- Machinery Directive 2006/42/EC
- Environmental Class 3C3/3S3 conformal coated PCBs
- Conformance CE, UL, RCM



Area of use

- General industrial applications
- HVAC fan control
- Pump control

Wiring and connections

1 phase supply	
\perp Pe	Earth connections
L1/L	Power supply, 230 VAC / 50–60 Hz, line
L2/N	Single phase power supply 230 VAC / 50–60 Hz, neutral
L3	not used
U	Motor connection
V	Motor connection
W	Motor connection (not used for single phase motors)
1–11	Control terminals *
3 phase supply	
\perp Pe	Earth connections
L1	Power supply
L2	
L3	
U	Motor connection
V	Motor connection
W	Motor connection (not used for single phase motors)
1–11	Control terminals *
Connections	Supply cable size: 1,5 / 2,5 mm ² *
	Motor cable size: 1,5 mm ²
	5 mm rising clamp terminals

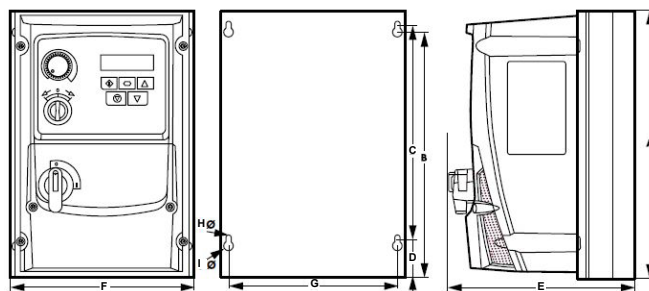
* Refer to the product Mounting and Operating Instructions, Section "Connection Diagram"



							Features	
Article code	Input rating	Output rating	Power rating [kW]	Inom [A]	Frame size	Integrated control switches	Reference code	
FI-E11043E6-19	1 phase 200—240 VAC	1 phase 230 VAC	0,37	4,3	1	No	ODE-3-120043-1F1A-01	
FI-E11070E6-19			0,75	7	1	No	ODE-3-120070-1F1A-01	
FI-E11105E6-19			1,1	10,5	2	No	ODE-3-220105-1F4A-01	
FISE11043E6-19			0,37	4,3	1	Yes	ODE-3-120043-1F1B-01	
FISE11070E6-19			0,75	7	1	Yes	ODE-3-120070-1F1B-01	
FISE11105E6-19			1,1	10,5	2	Yes	ODE-3-220105-1F4B-01	
FI-E13023E6-19		3 phase 230 VAC	3 phase 230 VAC	0,37	2,3	1	No	ODE-3-120023-1F1A
FI-E13043E6-19				0,75	4,3	1	No	ODE-3-120043-1F1A
FI-E13070E6-19				1,5	7	2	No	ODE-3-220070-1F4A
FI-E13105E6-19				2,2	10,5	2	No	ODE-3-220105-1F4A
FI-E13153E6-19				4	15,3	3	No	ODE-3-320153-1F4A
FISE13023E6-19				0,37	2,3	1	Yes	ODE-3-120023-1F1B
FISE13043E6-19				0,75	4,3	1	Yes	ODE-3-120043-1F1B
FISE13070E6-19				1,5	7	2	Yes	ODE-3-220070-1F4B
FISE13105E6-19				2,2	10,5	2	Yes	ODE-3-220105-1F4B
FISE13153E6-19	4			15,3	3	Yes	ODE-3-320153-1F4B	
FI-E33070E6-19	3 phase 200—240 VAC	3 phase 230 VAC	1,5	7	2	No	ODE-3-220070-3F4A	
FI-E33105E6-19			2,2	10,5	2	No	ODE-3-220105-3F4A	
FI-E33180E6-19			4	18	3	No	ODE-3-320180-3F4A	
FI-E33240E6-19			5,5	24	3	No	ODE-3-320240-3F4A	
FI-E33300E6-19			7,5	30	4	No	ODE-3-420300-3F4A	
FI-E33460E6-19			11	46	4	No	ODE-3-420460-3F4A	
FISE33070E6-19			1,5	7	2	Yes	ODE-3-220070-3F4B	
FISE33105E6-19			2,2	10,5	2	Yes	ODE-3-220105-3F4B	
FISE33180E6-19			4	18,0	3	Yes	ODE-3-320180-3F4B	
FISE33240E6-19			5,5	24	3	Yes	ODE-3-320240-3F4B	
FISE33300E6-19			7,5	30	4	Yes	ODE-3-420300-3F4B	
FISE33460E6-19			11	46	4	Yes	ODE-3-420460-3F4B	
FI-E44022E6-19	3 phase 380—480 VAC	3 phase 380—480 VAC	0,75	2,2	1	No	ODE-3-140022-3F1A	
FI-E44041E6-19			1,5	4,1	1	No	ODE-3-140041-3F1A	
FI-E44058E6-19			2,2	5,8	2	No	ODE-3-240058-3F4A	
FI-E44095E6-19			4	9,5	2	No	ODE-3-240095-3F4A	
FI-E44140E6-19			5,5	14	3	No	ODE-3-340140-3F4A	
FI-E44180E6-19			7,5	18	3	No	ODE-3-340180-3F4A	
FI-E44240E6-19			11	24	3	No	ODE-3-340240-3F4A	
FI-E44300E6-19			15	30	4	No	ODE-3-440300-3F4A	
FI-E44390E6-19			18,5	39	4	No	ODE-3-440390-3F4A	
FI-E44460E6-19			22	46	4	No	ODE-3-440460-3F4A	
FISE44022E6-19			0,75	2,2	1	Yes	ODE-3-140022-3F1B	
FISE44041E6-19			1,5	4,1	1	Yes	ODE-3-140041-3F1B	
FISE44058E6-19			2,2	5,8	2	Yes	ODE-3-240058-3F4B	
FISE44095E6-19			4	9,5	2	Yes	ODE-3-240095-3F4B	
FISE44140E6-19			5,5	14	3	Yes	ODE-3-340140-3F4B	
FISE44180E6-19			7,5	18	3	Yes	ODE-3-340180-3F4B	
FISE44240E6-19			11	24	3	Yes	ODE-3-340240-3F4B	
FISE44300E6-19			15	30	4	Yes	ODE-3-440300-3F4B	
FISE44390E6-19			18,5	39	4	Yes	ODE-3-440390-3F4B	
FISE44460E6-19			22	46	4	yes	ODE-3-440460-3F4B	



Technical specifications											
Input ratings	Supply Voltage	200–240V ±10% 380–480V ±10%	Control specification	Control Method	Sensorless Vector Speed Control PM Vector Control BLDC Control Synchronous Reluctance V/F voltage						
	Supply Frequency	48–62 Hz		Compatible motor types	IE2, IE3, IE4, IM, PM, BLDC and SynRM						
	Displacement Power Factor	> 0,98		PWM Frequency	4–32 kHz Effective						
	Phase imbalance	3% Maximum allowed		Stopping Mode	Ramp to stop: User Adjustable 0,1–600 secs Coast to stop						
	Inrush Current	< rated current		Braking	Motor Flux Braking Built-in braking transistor (not frame size 1)						
	Power Cycles	120 per hour maximum, evenly spaced		Skip Frequency	Single point, user adjustable						
Output ratings	Output Power	230 V 1 Ph Input: 0,37–4 kW 230 V 3 Ph Input: 0,37–11 kW 400 V 3 Ph Input: 0,75–22 kW	Fieldbus	Setpoint Control	Analogue control	0–10 Volts 10–0 Volts 0–20 mA 20–0 mA 4–20 mA 20–4 mA					
	Overload Capacity	150% for 60 seconds 175% for 4 seconds			Digital	Motorised Potentiometer (Keypad) Modbus RTU CANopen EtherNet/IP					
	Output Frequency	0–500 Hz, 0,1 Hz resolution		Built-in	CANopen	125–1000 kbps					
	Acceleration Time	0,01–600 seconds		Modbus RTU	9,6–115,2 kbps selectable						
	Deceleration Time	0,01–600 seconds		Power Supply	24 VDC, 100 mA, Short Circuit Protected 10 VDC, 5 mA for Potentiometer						
	Typical Efficiency	> 98%		Programmable Inputs	4 Total: 2 Digital 2 Analogue / Digital selectable						
Ambient conditions	Temperature	Storage: -40 to 60°C Operating: -10 to 50°C	I/O specification	Digital Inputs	8–30 VDC, internal or external supply Response time < 4 ms						
	Altitude	Up to 1000 m ASL without derating Up to 2000 m maximum UL approved Up to 4000 m maximum (non UL)		Analogue Inputs	Resolution: 12 bits Response time: < 4 ms Accuracy: ±2% full scale Parameter adjustable scaling and offset						
	Humidity	95 % Max, non-condensing		Programmable Outputs	2 Total: 1 Analogue / Digital 1 Relay						
	Vibration	Conforms to EN61800-5-1		Relay Outputs	Maximum Voltage: 250 VAC, 30 VDC Switching Current Capacity: 6A AC, 5A DC						
Enclosure	Ingress Protection	IP66	Application features	Analogue Outputs	0–10 Volt, max. 20 mA						
	Keypad	Built-in keypad as standard Optional remote mountable keypad		Digital Outputs	0–24 Volt, max. 20 mA						
Programming	Display	7-segment LED	Maintenance & diagnostics	PI Control	Internal PI Controller; Standby / Sleep Function						
	PC	OptiTools Studio		Fire Mode	Bidirectional Selectable Speed Setpoint (Fixed / PI / Analogue / Fieldbus)						
				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						

Dimensions


Frame size	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]	Weight [kg]
1	232,0	207,0	189,0	25,0	162,0	161,0	148,5	4,0	8,0	2,5
2	257,0	220,0	200,0	28,5	182,0	188,0	176,0	4,2	8,5	3,5
3	310,0	276,5	251,5	33,4	238,0	211,0	197,5	4,2	8,5	7
4	360,0	322,0	300,0	33,4	275,0	240,0	226,0	4,2	8,5	9,5