FI
Variable frequency inverter, IP20

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.

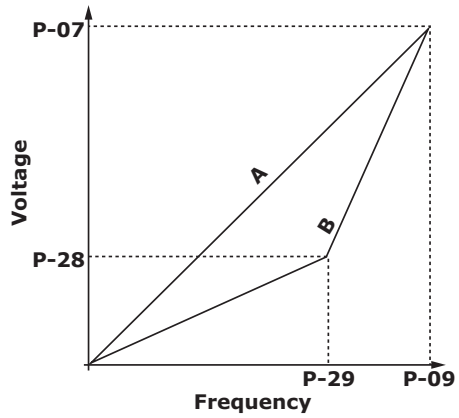
Key features

- Unrivalled simplicity of installation, connection and commissioning
- Intuitive keypad control
- Fan mode features pre-configured applications for: air handling units, ventilation fans, circulating fans, air curtains, kitchen extract fans
- DIN rail or surface mountable
- 7-segment LED display
- Integrated PI control
- Modbus RTU and CANopen on-board as standard
- RJ45 data connection for easy copying data from one inverter to another at a touch of a button
- Motor current and rpm indication
- 150 % overload during 60 s
- Variable or constant torque
- Internal EMC filter category C1
- Integrated brake chopper (not in frame size 1)

Area of use

- General industrial applications
- HVAC fan control
- Pump control

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 2014/35/EU
- EMC Directive 2004/108/EU:
  - EN 61800-3:2004
- WEEE Directive 2012/19/EC
- Machinery Directive 2006/42/EC

Wiring and connections

1 phase supply	
⏚ 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	
⏚ 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 mm²*
	Motor cable size: 1,5 mm²
	5 mm rising clamp terminals

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

SENTERA CONTROLS

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Features

Article code	Input rating	Output rating	Power rating [kW]	Inom [A]	Frame size	Integrated control switches	Reference code
FI-E11043E2	1 phase 200—240 VAC	1 phase 230 VAC	0,37	4,3	1	No	ODE-3-120043-1F12-01
FI-E11070E2			0,75	7,0	1	No	ODE-3-120070-1F12-01
FI-E11105E2			1,10	10,5	2	No	ODE-3-220105-1F42-01
FI-E13023E2		3 phase 230 VAC	0,37	2,3	1	No	ODE-3-120023-1F12
FI-E13043E2			0,75	4,3	1	No	ODE-3-120043-1F12
FI-E13070E2			1,50	7,0	1	No	ODE-3-120070-1F12
FI-E13105E2			2,20	10,5	2	No	ODE-3-220105-1F42
FI-E33070E2	3 phase 200—240 VAC	3 phase 230 VAC	1,50	7,0	2	No	ODE-3-220070-3F42
FI-E33105E2			2,20	10,5	2	No	ODE-3-220105-3F42
FI-E33180E2			4,00	18,0	3	No	ODE-3-320180-3F42
FI-E33240E2			5,50	24,0	3	No	ODE-3-320240-3F42
FI-E33300E2			7,50	30,0	4	No	ODE-3-420300-3F42
FI-E33460E2			11,00	46,0	4	No	ODE-3-420460-3F42
FI-E44012E2	3 phase 380—480 VAC	3 phase 400 VAC	0,37	1,2	1	No	ODE-3-140012-3F12
FI-E44022E2			0,75	2,2	1	No	ODE-3-140022-3F12
FI-E44041E2			1,50	4,1	1	No	ODE-3-140041-3F12
FI-E44058E2			2,20	5,8	2	No	ODE-3-240058-3F42
FI-E44095E2			4,00	9,5	2	No	ODE-3-240095-3F42
FI-E44140E2			5,50	14,0	3	No	ODE-3-340140-3F42
FI-E44180E2			7,50	18,0	3	No	ODE-3-340180-3F42
FI-E44240E2			11,00	24,0	3	No	ODE-3-340240-3F42
FI-E44300E2			15,00	30,0	4	No	ODE-3-440300-3F42
FI-E44390E2			18,50	39,0	4	No	ODE-3-440390-3F42
FI-E44460E2			22,00	46,0	4	No	ODE-3-440460-3F42

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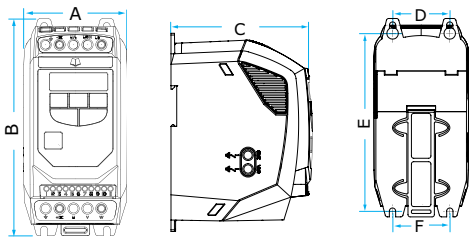
Input Ratings	Supply Voltage	200—240 V ±10% 380—480 V ±10%	**Control Specification**	Control Method	Sensorless Vector Speed Control PM Vector Control BLDC Control Synchronous Reluctance V/F voltage	
	Supply Frequency	48—62 Hz		PWM Frequency	4—32 kHz Effective	
	Displacement Power Factor	> 0,98		Stopping Mode	Ramp to stop: User Adjustable 0,1—600 secs Coast to stop	
	Phase imbalance	3% Maximum allowed		Braking	Motor Flux Braking Built-in braking transistor (not frame size 1)	
	Inrush Current	< rated current		Skip Frequency	Single point, user adjustable	
	Power Cycles	120 per hour maximum, evenly spaced		Setpoint Control	Analogue control	0—10 Volts 10—0 Volts 0—20 mA 20—0 mA 4—20 mA 20—4 mA
Output Ratings	Output Power	230 V 1 Ph Input: 0,37—4 kW 230 V 3 Ph Input: 1,5—11 kW 400 V 3 Ph Input: 0,37—22 kW			Digital	Motorised Potentiometer (Keypad) Modbus RTU CANopen EtherNet/IP
	Overload Capacity	150% for 60 seconds 175% for 4 seconds	**Fieldbus**	Built-in	CANopen	125—1.000 kbps
	Output Frequency	0—500 Hz, 0,1 Hz resolution			Modbus RTU	9,6—115,2 kbps selectable
	Acceleration Time	0,01—600 seconds	**I/O Specification**	Power Supply	24 VDC, 100 mA, Short Circuit Protected 10 VDC, 5 mA for Potentiometer	
	Deceleration Time	0,01—600 seconds		Programmable Inputs	4 Total: 2 Digital 2 Analogue / Digital selectable	
	Typical Efficiency	> 98%		Digital Inputs	8—30 VDC, internal or external supply Response time < 4 ms	
Ambient Conditions	Temperature	Storage: -40—60°C Operating: -10—50°C		Analogue Inputs	Resolution: 12 bits Response time: < 4 ms Accuracy: ±2% full scale Parameter adjustable scaling and offset	
	Altitude	Up to 1000 m ASL without derating Up to 2000 m maximum UL approved Up to 4000 m maximum (non UL)		Programmable Outputs	2 Total: 1 Analogue / Digital 1 Relay	
	Humidity	95 % Max, non-condensing		Relay Outputs	Maximum Voltage: 250 VAC, 30 VDC Switching Current Capacity: 6A AC, 5A DC	
	Vibration	Conforms to EN61800-5-1		Analogue Outputs	0—10 Volt, max. 20 mA	
				Digital Outputs	0—24 Volt, max. 20 mA	
Enclosure	Ingress Protection	IP20	**Application Features**	PI Control	Internal PI Controller; Standby / Sleep Function	
Programming	Keypad	Built-in keypad as standard Optional remote mountable keypad		Fire Mode	Bidirectional Selectable Speed Setpoint (Fixed / PI / Analogue / Fieldbus)	
	Display	7-segment LED	**Maintenance & Diagnostics**	Fault Memory	Last 4 Trips stored with time stamp	
	PC	OptiTools Studio		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]	Weight [kg]
1	83	173	123	50	162	50	1,00
2	110	221	150	63	209	63	1,70
3	131	261	175	80	247	80	3,20
4	171	420	212	125	400	125	9,1

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Global trade item numbers (GTIN)	
Article code	**Packaging (Unit)**
FI-E11043E2	05401003006290
FI-E11070E2	05401003006313
FI-E11105E2	05401003006337
FI-E13023E2	05401003006351
FI-E13043E2	05401003006375
FI-E13070E2	05401003006405
FI-E13105E2	05401003006429
FI-E33070E2	05401003006450
FI-E33105E2	05401003006474
FI-E33180E2	05401003006498
FI-E33240E2	05401003006511
FI-E33300E2	05401003006535
FI-E33460E2	05401003006559
FI-E44012E2	05401003018262
FI-E44022E2	05401003006573
FI-E44041E2	05401003006597
FI-E44058E2	05401003006610
FI-E44095E2	05401003006634
FI-E44140E2	05401003006658
FI-E44180E2	05401003006672
FI-E44240E2	05401003006696
FI-E44300E2	05401003006719
FI-E44390E2	05401003006733
FI-E44460E2	05401003006757