







● **Frequency converter with encordless control**
● **RS485 and CANopen**



Specification	
Processor	32 Bit NIOS Softcore CPU 100 MHz eSM
Memory	64 MByte SDRAM, 16 MByte Flash, 30 kLE, optional 50 kLE
Control technics	based on FPGA
Software	
OS	no
PLC programming	optional: IEC 61131-3, CODESYS V3.x
HMI programming	no
Interface	
CAN isolated RJ45	1x acc. ISO 11898 with galv. isolation, 1 x RJ45 socket
RS485 with galv. Isolation RJ45	1x with galv. isolation, in the same RJ45 socket above
RS485 picoMAX® eCOM stehend 3.5 3-polig	1x Socket and multipoint connector eCOM with straight solder pins; with handle plate; 3-pins; contact spacing 3,5 mm; conductor; cross sections 0,2... 1,5 mm ² ; 10 A WAGO: 2091-1403 und 2091-1103
	
	
Encoder	
Commutation, measurement system	1x VHDL implementation of the encordless control internally motor model
Order-Nr.:	
26234.0220	FU3-022 400VAC/22A; elrest type1 Frequency converter with aluminum mounting plate
26234.0221	FU3-022 400VAC/22A; elrest type2 Frequency converter with aluminum mounting plate + heat sink

Environment/ Mechanical values	
Housing	motion housing without heat sink
IP rating	IP20 acc. to EN 60529
Mounting	mounting on cold plate with cooling plate or heat sink
Outside dimension in mm (W x H x D)	206 mm x 280 mm x 83 mm (without heat sink) 206 mm x 280 mm x 168 mm (with heat sink)
Weight approx.	3,72 kg (without heat sink) 7,5 kg (with heat sink)
Operating temperature	-20 °C...50 °C
Temperature on heat sink	-20 °C...60 °C
Storage temperature	-20 °C...70 °C
Relative humidity (Operation/storage)	Operation: from 10 %...85% and Storage: from 5%...85%, both non condensing
Height (Operation/storage)	From 0 m...3000 m
Transport	Air freight possible
Fan	Fanless, the cooling has to be ensured
Heat sink	Cooling capacity of the work surface has to be ensured; notice dew point!
Overvoltage category	2 (2,5 kV)
Protection class I	I-protective insulation;all electrically conductive housing parts of maintenance resource have to be connected with the protective system of the fixed electrical installation.
	
Power supply	
Voltage supply AC 400	400 V _{nom} ...480 VAC (3-phased)
Mains frequency	47 Hz...66 Hz
Type of net	Public TT, TN-net with grounded star point
Mains filter 400/25A	Three-phase current from 400 VAC up to 25 A
DC intermediate circuit film-C 25A	60 µF 900 V
Max. intermediate circuit voltage	Chopper module (external auxiliary component) 740 V, 800 V overvoltage shut-off, 900 V survive
Power Factor	0,9
Screw terminals 4-pins for 16 mm ²	1x screwed contact upright; 4-pins; contact spacing 10.16 mm, isolation = 500 VAC, cross section 2,5 ... 16 [mm ²],
	
Motor operating range	
Inverter rated power	9,5 kVA Dauer, 12 kVA Peak (cos Phi=1)
Motor rated current	18 / 22 A at nominal frequency
PWM-frequency	4 kHz...8 kHz
Derating	automatical derating of speed by overload current
Current measurement (U-V) ±0...25A	Inductive current measurement 12-bit
Measurement of stress (DC+/-)	Voltage measurement from DC+ to DC- from 0...900 VDC
Runtime current controller	2,66 µs
Runtime speed controller	4 µs

Motors		
Designed inter alia for the following motors		Mitsubishi ANE42, Mitsubishi ANE33, Mitsubishi ANE52 and Toshiba DA422A3F, further available on request
EMF nominally		1,8 V/rps
Speed nominally		120 rps
Digital Input		
10-28 VDC with galvanic isolation		1x Similar STO-input for safty cut-out of the motor torques acc. IEC 61800-5-2, see Stop Category 0 acc.EN 60204-1.
picoMAX® eCOM upright 3.5 2-pins		1x Multipoint connector eCOM with straight solderpins; with handle plate; 2-pins; contact spacing 5 mm, cross section up to 0,2...1,5 mm ² , 10 A WAGO: 2091-1402 and 2091-1102
12 VDC output (opional)		1x Voltage supply, that the digital STO similar input can be carried out without external supply voltage.
picoMAX® eCOM upright 3.5 2-pins		1x Multipoint connector eCOM with straight solderpins; with handle plate; 2-pins; contact spacing 5 mm, cross section up to 0,2...1,5 mm ² , 10 A WAGO: 2091-1402 and 2091-1102
Diagnostic		
LED's		green acc. internal voltage available red acc. error or no release
Standards		
Product standard	EN61800-3	Adjustable speed electrical power drive systems - Part 3: EMC requirements and specific test methods (IEC 61800-3:2004 + A1:2011); German version EN 61800-3:2004 + A1:2012
	EN61800-5-1	Adjustable speed electrical power drive systems - Part 5-1: Safety requirements - Electrical, thermal and energy (IEC 61800-5-1:2007); German version EN 61800-5-1:2007 (VDE 0160-105-1):2008-04
Power supply	EN61000-3-12 Harmonic waves >16A bis <75A current	Electro-magnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic currents, caused by devices and equipment systems with input current > 16 A and <= 75A per phase, and are designed to connect with the public low voltage system (IEC 61000-3-12:2011)
	EN61000-3-11 Flicker >16A bis <75A current	Electro-magnetic compatibility (EMC) - Part 3-11: Limits; limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, devices and equipment with rated current <= 75 A, and subject to conditional connection (IEC 61000-3-11:2000)
Interference immunity, emitted interference	EN61000-6-2	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments (IEC 61000-6-2:2005); German version EN 61000-6-2:2005
	EN61000-6-3	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments (IEC 61000-6-3:2006 + A1:2010); German version EN 61000-6-3:2007 + A1:2011 with external filter
Environment audit	EN60068-2-6	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal) (IEC 60068-2-6:2007); German version EN 60068-2-6:2008
	EN60068-2-27	Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock (IEC 60068-2-27:2008); German version EN 60068-2-27:2009
Accessories		
On request		Heat sink optional convection without fan



On request		Heat sink with forced convection	with van
On request		external chopper resistor, intrinsically safe	
for Firmware Download	250020000	Download-adapter	
	commercial	connecting cable USB type A to USB type micro B	
for RS485	105098	USB-RS232-adapter	
	commercial	USB-RS485-adapter	
	240020903	Serial extension cable, grey	
for CAN	105097	CAN/MPC-5/CAN-USB-ADAPTER	
	240020100	Extension cable of Sub-D9 CAN, green	
	240020906	T-Adapter RJ45 St. -> 2 x RJ45, grey	
	240020501	CAN bus terminal resistor RJ45	
Applications			
Encoder speed control		Pump drives (heat-, delivery pumps),	
		fans and compressor	

Illustrations, descriptions, dimensions and specifications correspond to the circumstances or intentions at the time of printing this brochure. Changes of any kind, especially those resulting from technological progress, economic performance or a similar will be without notice. The external interconnection of equipment will be on your own responsibility

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