Matrix500-01-4K0G/5K5P-3B

High performance frequency drive

4K0GKW/5K5PHP 380V-480V

Product data sheet

Characteristics

General information:

Range of product	MATRIX500
Product or component type	High performance vector control drive
Product specific application	Complex, heavy duty

Component name	Matrix500-01-4K0G/5K5P
Motor power kW	4K0G at 380...480 V 3 phases
Motor power hp	5K5P hp at 380...480 V 3
phases Power supply voltage	380...480 V (- 15...10 %)
Network number of phases	3 phases
Line current	13.5 A for 380/400 V 3 phases 4K0GkW /5K5P hp At 45 degree 12.82 A for 380/400 V 3 phases 4K0GkW /5K5P hp At 50 degree
EMC filter	Integrated EMC C3 filter
Assembly style	With heat sink
Apparent power	kVA at 380 V 3 phases 4K0GkW /5K5P hp
Prospective line Isc	<= 35 kA, 3 phases
Nominal output current	37 A
Maximum transient current	20.25 A for 60 s 3 phases 4K0GkW /5K5P ~~27 A for 2 s 3 phases 4K0GkW /5K5P~~
Speed drive output frequency	0.1...600 Hz
Nominal switching frequency	2.5 kHz
Switching frequency	2.5...16 kHz adjustable 2.5...16 kHz with derating factor

Complementary

Product destination		Asynchronous motors/Synchronous (MATRIX 500)
Power supply voltage limits		360...480 V
Power supply frequency		50...60 Hz (- 5...5 %)
Power supply frequency limits		47.5...63 Hz
Speed range		1...100 for asynchronous motor in open-loop mode, without speed feedback 1...1000 for asynchronous motor in closed-loop mode with encoder feedback 1...50 for synchronous motor in open-loop mode, without speed feedback
Speed accuracy	mode	+/- 0.01 % of nominal speed for 0.2 Tn to Tn torque variation in closed-loop with encoder feedback
	feedback	+/- 10 % of nominal slip for 0.2 Tn to Tn torque variation without speed
Torque accuracy		+/- 10 % in open-loop mode, without speed feedback +/- 3 % in closed-loop mode with encoder feedback

Transient overload	150 % of nominal motor torque +/- 10 % for 60 s every 10 minutes 180 % of nominal motor torque +/- 10 % for 3s
Braking torque	< 150 % with braking or hoist resistor 30 % without braking resistor
Synchronous motor control profile	Vector control without speed feedback/SVC
Diagnostic	LED keypad
Output voltage	<= power supply voltage
Insulation	Electrical between power and control
Electrical connection	AI1-/AI1+, AI2 , AO1, R1A, R1B, R1C, X1...X6, PWR terminal 2.5mm² / AWG 14 L1/R, L2/S, L3/T, U/T1, V/T2, W/T3 terminal 4 x 185 mm² PC/-, PA/+ terminal 4 x 185 mm²
Tightening torque	AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, X1...X6, PWR 0.6 N.m L1/R, L2/S, L3/T, U/T1, V/T2, W/T3 41 N.m / 360 lb.in PC/-, PA/+ 41 N.m / 360 lb.in
Supply	Internal supply for reference potentiometer (1 to 10 kOhm), 10.5 V DC +/- 5 % , <= 10 mA for overload and short-circuit protection Internal supply, 24 V DC , voltage limits 21...27 V, <= 200 mA for overload and short-circuit protection
Analogue input number	3
Analogue input type	AI1-/Al1+ bipolar differential voltage +/- 10 V DC, input voltage 24 V max , resolution 11 bits + sign AI2 software-configurable current 0……20 mA , impedance 242 Ohm, resolution 11 bits AI2 software-configurable voltage 0……10 V DC, input voltage 24 V max, impedance 30000 Ohm, resolution 11 bits
Linearity error	AI1-/Al1+, AI2 +/- 0.15 % of maximum value AO1 +/- 0.2 %
Analogue output number	2
Analogue output type	AO1 software-configurable logic output 10 V <= 20 mA AO1 software-configurable current 0……20 mA, impedance 500 Ohm, resolution 10 bits AO1 software-configurable voltage 0 ……10 V DC, impedance 470 Ohm, resolution 10 bits
Discrete output number relay	2
Discrete output type	R1A, R1B, R1C configurable relay logic NO/NC, electrical durability 100000 cycles
Discrete input number	7
Discrete input type	X1...X5: programmable 24 V DC with level 1 PLC, impedance: 3500 Ohm X6: switch-configurable 24 V DC with level 1 PLC, impedance: 3500 Ohm

Acceleration and deceleration ramps	Automatic adaptation of ramp if braking capacity exceeded, by using resistor Linear adjustable separately from 0.01 to 9000 s S, U or customized
Braking to standstill	By DC injection
Protection type	Drive against exceeding limit speed Drive against input phase loss Drive break on the control circuit Drive input phase breaks Drive line supply overvoltage Drive line supply undervoltage Drive overcurrent between output phases and earth Drive overheating protection Drive overvoltages on the DC bus Drive short-circuit between motor phases Drive thermal protection Motor motor phase break Motor power removal Motor thermal protection
Insulation resistance	> 1 MOhm at 500 V DC for 1 minute to earth
Frequency resolution	Analog input 0.024/50 Hz Display unit 0.1 Hz
Communication port protocol	Modbus
Type of connector	1 RJ45 for Modbus on front face 1 RJ45 for Modbus on terminal
Physical interface	2-wire RS 485 for Modbus
Transmission frame	RTU for Modbus
Transmission rate	4800 bps, 9600 bps, 19200 bps, 38.4 Kbps for Modbus on terminal 9600 bps, 19200 bps for Modbus on front face

Data format	8 bits, 1 stop, even parity for Modbus on front face 8 bits, odd even or no configurable parity for Modbus on terminal
Number of addresses	1...247 for Modbus
Marking	CE
Operating position	Vertical +/- 10 degree
Depth	390mm
Height	790mm
Width	290mm
Product weight	90 kg
Option card	I/O extension card

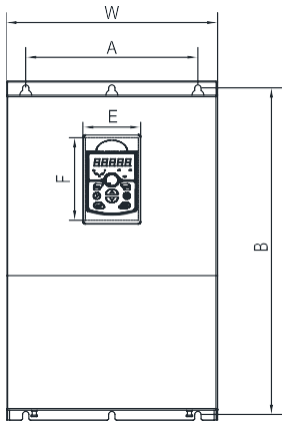
Environment

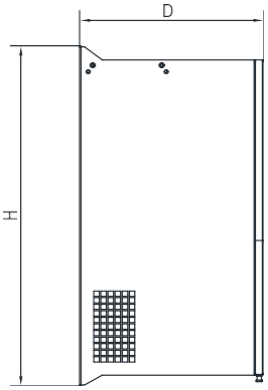
Noise level	35dB conforming to 86/188/EEC
Standards	EN 55011 class A group 2 EN 61800-3 environments 1 category C3 EN 61800-3 environments 2 category C3 EN/IEC 61800-3 EN/IEC 61800-5-1
Product certifications	CE ISO9001
IP degree of protection	IP20
Vibration resistance	0.6 gn (f = 10...200 Hz) conforming to EN/IEC 60068-2-6 1.5 mm peak to peak (f = 3...10 Hz) conforming to EN/IEC 60068-2-6
Shock resistance	4 gn for 11 ms conforming to EN/IEC 60068-2-27
Relative humidity	5...95 % without condensation conforming 5...95 % without dripping water conforming
Ambient air temperature for operation	-10...50 °C without derating
Ambient air temperature for storage	-25...70 °C
Operating altitude	<= 1000 m without derating 1000...3000 m with current derating 1 % per 100 m

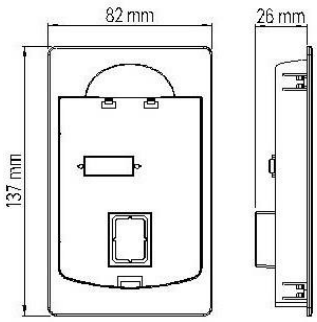
Installation

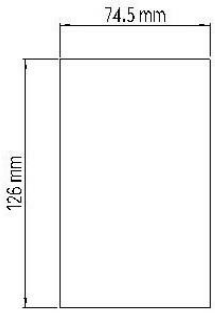
2.1 Product dimensions and installation dimensions

2.Bottom drag installation size of external operation box (optional accessory)









Model Type	Installation Dimensions		Inverter Dimensions			Installation aperture(mm)
	A(mm)	B(mm)	H(mm)	W(mm)	D(mm)	
4K0GKW/5K5PHP 380V-480V	/	/	790	390	290	/