

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	Matrix500-03-018/022P-3B
Motor power kW	18 kW at 380...480 V 3 phases
Motor power hp	22 hp at 380...480 V 3 phases
Power supply voltage	380...480 V (-15...10 %)
Network number of phases	3 phases
Line current	46 A for 380/400 V 3 phases 18kW /22 hp At 45 degree
	43.7 A for 380/400 V 3 phases 18kW /22 hp At 50 degree
EMC filter	Integrated EMC C3 filter
Assembly style	With heat sink
Apparent power	kVA at 380 V 3 phases 18kW /22 hp
Prospective line Isc	<= 35 kA, 3 phases
Nominal output current	48 A
Maximum transient current	69 A for 60 s 3 phases 18kW /22 hp
	92 A for 2 s 3 phases 18kW /22 hp
Speed drive output frequency	0.1...600 Hz
Nominal switching frequency	2.5 kHz
frequency	
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	+/- 0.01 % of nominal speed for 0.2 Tn to Tn torque variation in closed-loop
mode	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 2.5mm ² / AWG 14 L1/R, L2/S, L3/T, U/T1, V/T2, W/T3 terminal 4 x 185 mm ² PC/-, PA/+ terminal 4 x 185 mm ²
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-/AI1+ 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-/AI1+, 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 , Profinet , Profibus , Ethercat , Encoders

Environment

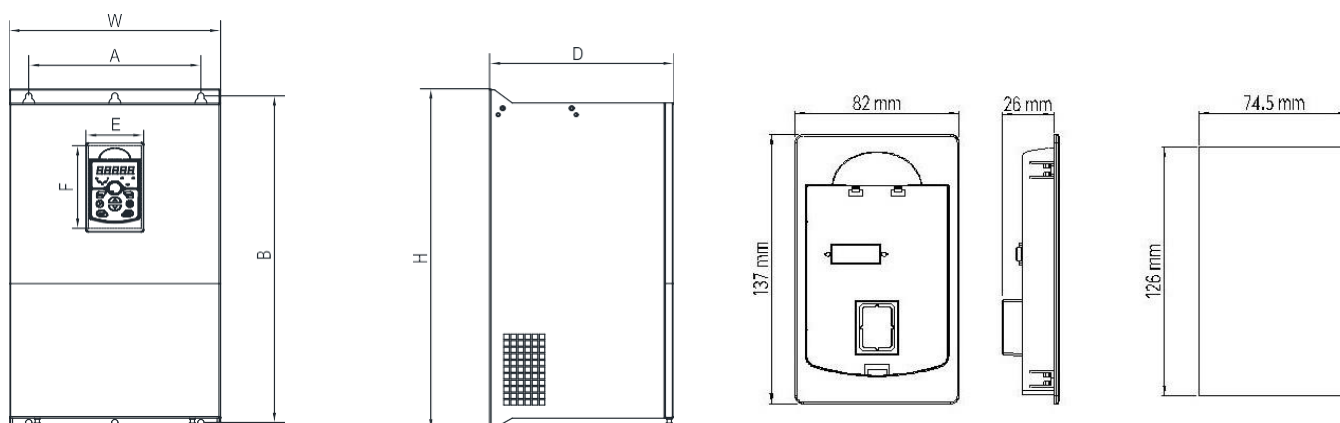
Noise level	35dB conforming to 86/188/EEC
Standards	EN 55011 class A group 2 EN 61800-3 environments 1 category C3 EN 61800-3 environments 2 category C3 EN/IEC 61800-3 EN/IEC 61800-5-1
Product certifications	CE ISO9001
IP degree of protection	IP20
Vibration resistance	0.6 gn (f = 10...200 Hz) conforming 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...45 °C without derating 5% upto 50 Degree
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)	
MATRIX-04-018G-022P-3/B	/	/	420	180	216	/