DATASHEET - RASP5-4402A31-4120110S1

Speed controllers, 4.3 A, 1.5 kW, Sensor input 4, 230/277 V AC, AS-Interface®, S-7.4 for 31 modules, HAN Q4/2, with braking resistance, STO (Safe Torque Off)

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Part no.	RASP5-4402A31-4120110S1
	198778

Product name		Eaton Moeller® series Rapid Link Speed controller
Part no.		RASP5-4402A31-4120110S1
EAN		4015081968367
Product Length/Depth		157 millimetre
Product height		270 millimetre
Product width		220 millimetre
Product weight		3.43 kilogram
Certifications		RoHS IEC/EN 61800-5-1 UL approval UL 61800-5-1 CE
Product Tradename		Rapid Link
Product Type		Speed controller
Product Sub Type		None
Catalog Notes		can be switched over from U/f to (vector) speed control Connection of supply voltage via adapter cable on round or flexible busbar junction Diagnostics and reset on device and via AS-Interface Four fixed speeds integrated PTC thermistor monitoring and Thermoclick with safe isolation optional: 4 sensor inputs with M12-Y adapter for switchover to creep speed optional: Faster stop if external 24 V fails Two sensor inputs through M12 sockets (max. 150 mA) for quick stop and interlocked manual operation with AUTO - OFF/RESET - HAND key switches with selector switch REV - OFF - FWD
Features		Parameterization: Fieldbus Parameterization: drivesConnect mobile (App) Diagnostics and reset on device and via AS-Interface Parameterization: drivesConnect Parameterization: Keypad
Fitted with:		IGBT inverter Key switch position AUTO Thermo-click with safe isolation Selector switch (Positions: REV - OFF - FWD) Four fixed speeds PTC thermistor monitoring Breaking resistance Two sensor inputs through M12 sockets (max. 150 mA) for quick stop and interlocked manual operation Braking resistance Control unit Internal DC link PC connection Key switch position OFF/RESET Key switch position HAND
Functions		For actuation of motors with mechanical brake Brake chopper with braking resistance for dynamic braking STO (Safe Torque Off) 4-quadrant operation possible
Degree of protection		NEMA 12 IP65
Electromagnetic compatibility		1st and 2nd environments (according to EN 61800-3)
Overvoltage category		III
Product category		Speed controller
Protocol		AS-Interface profile cable: S-7.4 for 31 modules ASI
Radio interference class		C2, C3: depending on the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary. C1: for conducted emissions only

Rated impulse withstand voltage (Uimp)		2000 V
System configuration type		AC voltage Center-point earthed star network (TN-S network) Phase-earthed AC supply systems are not permitted.
Mounting position		Vertical
Shock resistance		15 g, Mechanical, According to IEC/EN 60068-2-27, 11 ms, Half-sinusoidal shock 11 ms, 1000 shocks per shaft
Vibration		Resistance: 10 - 150 Hz, Oscillation frequency Resistance: 57 Hz, Amplitude transition frequency on acceleration Resistance: According to IEC/EN 60068-2-6 Resistance: 6 Hz, Amplitude 0.15 mm
Altitude		Max. 2000 m Above 1000 m with 1 % performance reduction per 100 m
Ambient operating temperature - min		-10 °C
Ambient operating temperature - max		40 °C
Ambient storage temperature - min		-40 °C
Ambient storage temperature - max		70 °C
Climatic proofing		In accordance with IEC/EN 50178 < 95 %, no condensation
Current limitation		0.4 - 4.3 A, motor, main circuit Adjustable, motor, main circuit
Delay time		< 10 ms, On-delay < 10 ms, Off-delay
Efficiency		98 % (η)
Heat dissipation at current/speed		32.3 W at 25% current and 0% speed 33.2 W at 25% current and 50% speed 35.2 W at 50% current and 90% speed 36.2 W at 50% current and 0% speed 37.6 W at 50% current and 50% speed 46.3 W at 100% current and 90% speed 48.7 W at 100% current and 0% speed 48.7 W at 100% current and 50% speed
Input current ILN at 150% overload		4.1 A
Leakage current at ground IPE - max		3.5 mA
Mains current distortion		120 %
Mains switch-on frequency		Maximum of one time every 60 seconds
Mains voltage - max		480 V
Mains voltage - min		380 V
Mains voltage tolerance		380 - 480 V (-10 %/+10 %, at 50/60 Hz)
Operating mode		U/f control BLDC motors Sensorless vector control (SLV) PM and LSPM motors Synchronous reluctance motors
Output frequency - max		500 Hz
Output frequency - min		0 Hz
Overload current		For 60 s every 600 s At 40 °C
Overload current IL at 150% overload		6.5 A
Rated frequency - max		66 Hz
Rated frequency - min		45 Hz
Rated operational current (Ie)		4.3 A at 150% overload (at an operating frequency of 8 kHz and an ambient air temperature of +40 °C)
Rated operational power at 380/400 V, 50 Hz, 3-phase		1.5 kW
Rated operational voltage		400 V AC, 3-phase 480 V AC, 3-phase
Resolution		0.1 Hz (Frequency resolution, setpoint value)
Starting current - max		200 %, IH, max. starting current (High Overload), For 2 seconds every 20 seconds, Power section
Supply frequency		50/60 Hz
Switching frequency		8 kHz, 4 - 32 kHz adjustable, fPWM, Power section, Main circuit
Assigned motor power at 460/480 V, 60 Hz, 3-phase		2 HP

Braking current		≤ 0.6 A (max. 6 A for 120 ms), Actuator for external motor brake
Braking torque		Adjustable to 100 % (I/Ie), DC - Main circuit ≤ 30 % (I/Ie)
Braking voltage		230/277 V AC -15 % / +10 %, Actuator for external motor brake
Switch-on threshold for the braking transistor		765 V DC
Rated conditional short-circuit current (Iq)	A	10 kA
Short-circuit protection (external output circuits)		Type 1 coordination via the power bus' feeder unit, Main circuit
Rated control voltage (Uc)		24 V DC (-15 %/+20 %, external via AS-Interface® plug) 230/277 V AC (external brake 50/60 Hz)
Communication interface		AS-Interface
Connection		Plug type: HAN Q4/2
Interfaces		Specification: S-7.4 (AS-Interface®) Max. total power consumption from AS-Interface® power supply unit (30 V): 190 mA Number of slave addresses: 31 (AS-Interface®)
Cable length		C2 ≤ 5 m, maximum motor cable length C1 ≤ 1 m, maximum motor cable length C3 ≤ 25 m, maximum motor cable length
10.2.2 Corrosion resistance		Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures		Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat		Meets the product standard's requirements.
10.2.3.3 Resist. of insul. mat. to abnormal heat/fire by internal elect. effects		Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation		Meets the product standard's requirements.
10.2.5 Lifting		Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact		Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions		Meets the product standard's requirements.
10.3 Degree of protection of assemblies		Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances		Meets the product standard's requirements.
10.5 Protection against electric shock		Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components		Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections		Is the panel builder's responsibility.
10.8 Connections for external conductors		Is the panel builder's responsibility.
10.9.2 Power-frequency electric strength		Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage		Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material		Is the panel builder's responsibility.
10.10 Temperature rise		The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating		Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility		Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function		The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

Technical data ETIM 8.0

Low-voltage industrial components (EG000017) / Frequency converter =< 1 kV (EC001857)		
Electric engineering, automation, process control engineering / Electrical drive / Static frequency converter / Static frequency converter = < 1 kV (ecl@ss10.0.1-27-02-31-01 [AKE177014])		
Mains voltage	V	380 - 480
Mains frequency		50/60 Hz
Number of phases input		3
Number of phases output		3
Max. output frequency	Hz	500
Max. output voltage	V	500
Nominal output current I2N	A	4.3

Max. output at quadratic load at rated output voltage	kW	1.5	
Max. output at linear load at rated output voltage	kW	1.5	
Relative symmetric net frequency tolerance	%	10	
Relative symmetric net voltage tolerance	%	10	
Number of analogue outputs		0	
Number of analogue inputs		0	
Number of digital outputs		0	
Number of digital inputs		4	
With control element		Yes	
Application in industrial area permitted		Yes	
Application in domestic- and commercial area permitted		Yes	
Supporting protocol for TCP/IP		No	
Supporting protocol for PROFIBUS		No	
Supporting protocol for CAN		No	
Supporting protocol for INTERBUS		No	
Supporting protocol for ASI		Yes	
Supporting protocol for KNX		No	
Supporting protocol for Modbus		No	
Supporting protocol for Data-Highway		No	
Supporting protocol for DeviceNet		No	
Supporting protocol for SUCONET		No	
Supporting protocol for LON		No	
Supporting protocol for PROFINET IO		No	
Supporting protocol for PROFINET CBA		No	
Supporting protocol for SERCOS		No	
Supporting protocol for Foundation Fieldbus		No	
Supporting protocol for EtherNet/IP		No	
Supporting protocol for AS-Interface Safety at Work		No	
Supporting protocol for DeviceNet Safety		No	
Supporting protocol for INTERBUS-Safety		No	
Supporting protocol for PROFIsafe		No	
Supporting protocol for SafetyBUS p		No	
Supporting protocol for BACnet		No	
Supporting protocol for other bus systems		No	
Number of HW-interfaces industrial Ethernet		0	
Number of interfaces PROFINET		0	
Number of HW-interfaces RS-232		0	
Number of HW-interfaces RS-422		0	
Number of HW-interfaces RS-485		1	
Number of HW-interfaces serial TTY		0	
Number of HW-interfaces USB		0	
Number of HW-interfaces parallel		0	
Number of HW-interfaces other		1	
With optical interface		No	
With PC connection		Yes	
Integrated breaking resistance		Yes	
4-quadrant operation possible		Yes	
Type of converter		U converter	
Degree of protection (IP)		IP65	
Degree of protection (NEMA)		12	
Height	mm	270	
Width	mm	220	
Depth	mm	157	