DATASHEET - RASP5-5400A31-412R110S1

Speed controllers, 5.6 A, 2.2 kW, Sensor input 4, AS-Interface®, S-7.4 for 31 modules, HAN Q4/2, with manual override switch, with braking resistance, STO (Safe Torque Off)

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| Part no. | RASP5-5400A31-412R110S1 |
| | 198828 |

Product name			Eaton Moeller® series Rapid Link Speed controller
Part no.			RASP5-5400A31-412R110S1
EAN			4015081968862
Product Length/Depth			157 millimetre
Product height			270 millimetre
Product width			220 millimetre
Product weight			3.6 kilogram
Certifications			IEC/EN 61800-5-1 CE UL 61800-5-1 RoHS UL approval
Product Tradename			Rapid Link
Product Type			Speed controller
Product Sub Type			None
Catalog Notes			3 fixed speeds and 1 potentiometer speed 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 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: drivesConnect mobile (App) Parameterization: Fieldbus Parameterization: Keypad Diagnostics and reset on device and via AS-Interface Parameterization: drivesConnect
Fitted with:			Manual override switch Key switch position OFF/RESET Selector switch (Positions: REV - OFF - FWD) Control unit Breaking resistance Key switch position HAND PC connection Two sensor inputs through M12 sockets (max. 150 mA) for quick stop and interlocked manual operation Braking resistance Thermo-click with safe isolation Internal DC link IGBT inverter PTC thermistor monitoring Key switch position AUTO
Functions			STO (Safe Torque Off) Brake chopper with braking resistance for dynamic braking 1 potentiometer speed 4-quadrant operation possible 3 fixed speeds
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			C1: for conducted emissions only

		C2, C3: depending on the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary.
Rated impulse withstand voltage (Uimp)		2000 V
System configuration type		AC voltage Phase-earthed AC supply systems are not permitted. Center-point earthed star network (TN-S network)
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: According to IEC/EN 60068-2-6 Resistance: 6 Hz, Amplitude 0.15 mm Resistance: 57 Hz, Amplitude transition frequency on acceleration
Altitude		Above 1000 m with 1 % performance reduction per 100 m Max. 2000 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		Adjustable, motor, main circuit 0.5 - 5.6 A, motor, main circuit
Delay time		< 10 ms, Off-delay < 10 ms, On-delay
Efficiency		98 % (η)
Heat dissipation at current/speed		36.6 W at 25% current and 0% speed 38.1 W at 25% current and 50% speed 42 W at 50% current and 0% speed 42.5 W at 50% current and 90% speed 44.2 W at 50% current and 50% speed 55.9 W at 100% current and 0% speed 58.3 W at 100% current and 90% speed 60.4 W at 100% current and 50% speed
Input current ILN at 150% overload		5.3 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		Synchronous reluctance motors BLDC motors U/f control Sensorless vector control (SLV) PM and LSPM 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		8.4 A
Rated frequency - max		66 Hz
Rated frequency - min		45 Hz
Rated operational current (Ie)		5.6 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		2.2 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		3 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
Switch-on threshold for the braking transistor		765 V DC
Rated conditional short-circuit current (Iq)		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)
Communication interface		AS-Interface
Connection		Plug type: HAN Q4/2
Interfaces		Number of slave addresses: 31 (AS-Interface®) Specification: S-7.4 (AS-Interface®) Max. total power consumption from AS-Interface® power supply unit (30 V): 190 mA
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	5.6

Max. output at quadratic load at rated output voltage		kW	2.2
Max. output at linear load at rated output voltage		kW	2.2
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