DATASHEET - RASP5-5404A31-4120010S1

Speed controllers, 5.6 A, 2.2 kW, Sensor input 4, 400/480 V AC, AS-Interface®, S-7.4 for 31 modules, HAN Q4/2, STO (Safe Torque Off)



Part no.

RASP5-5404A31-4120010S1 198811

Product name	Eaton Moeller® series Rapid Link Speed controller
Part no.	RASP5-5404A31-4120010S1
EAN	4015081968695
Product Length/Depth	157 millimetre
	270 millimetre
Product height	220 millimetre
Product width	
Product weight	3.42 kilogram
Certifications	RoHS IEC/EN 61800-5-1 UL 61800-5-1 UL approval 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: drivesConnect mobile (App) Parameterization: Keypad Diagnostics and reset on device and via AS-Interface Parameterization: drivesConnect Parameterization: Fieldbus
Fitted with:	IGBT inverter Key switch position OFF/RESET Key switch position HAND Four fixed speeds Internal DC link Two sensor inputs through M12 sockets (max. 150 mA) for quick stop and interlocked manual operation Selector switch (Positions: REV - OFF - FWD) PTC thermistor monitoring Thermo-Click with safe isolation Key switch position AUTO Control unit PC connection
Functions	For actuation of motors with mechanical brake STO (Safe Torque Off)
Degree of protection	NEMA 12 IP65
Electromagnetic compatibility	1st and 2nd environments (according to EN 61800-3)
Overvoltage category	
Product category	Speed controller
Protocol	ASI
	AS-Interface profile cable: S-7.4 for 31 modules
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	Center-point earthed star network (TN-S network) Phase-earthed AC supply systems are not permitted. AC voltage

Supply frequency Power section Switching 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 Image: Comparison of the section o		
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Anbier togen trage and a set of a set o	Vibration	Resistance: 10 - 150 Hz, Oscillation frequency Resistance: 6 Hz, Amplitude 0.15 mm
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Dimate proving Site and Sit	Ambient storage temperature - min	-40 °C
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Delay time 0 - 5 - 5 A, motor, mainto circuit Delay time 10 ms, On-daiay Efficiency 9 % hj Hast dissipation at surrentlyped So So W 25% current and 0% speed 42 % VES% current ontors 42 % VES% current ontor	Climatic proofing	
Delay time 0 - 5 - 5 A, motor, mainto circuit Delay time 10 ms, On-daiay Efficiency 9 % hj Hast dissipation at surrentlyped So So W 25% current and 0% speed 42 % VES% current ontors 42 % VES% current ontor	Current limitation	Adjustable motor main circuit
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Het dissipation at current/speed So S N at 25% current and 0% speed August at 25% current and 0% speed So S N at 25% current and 0% speed Input current II. Nat 150% overfoad So S N at 25% current and 0% speed Leakage current at ground IPE - max So S N at 25% current and 0% speed Mains current at dround IPE - max So S N at 10% current and 0% speed Mains current distorion So N At 20% current and 0% speed Mains worksge - max Mains worksge - max Mains worksge - min So - 400 V (-10 %)-19 %, at 5000 fr) Mains worksge - min So - 400 V (-10 %)-19 %, at 5000 fr) Operating mode So - 400 V (-10 %)-19 %, at 5000 fr) Operating mode So - 400 V (-10 %)-19 %, at 5000 fr) Output frequency - max So - 400 V (-10 %)-19 %, at 5000 fr) Operating mode So - 400 V (-10 %)-19 %, at 5000 fr) Output frequency - min So - 400 V (-10 %)-19 %, at 5000 fr) Output frequency - min So - 400 V (-10 %)-19 %, at 5000 fr) Output frequency - min So - 400 V (-10 %)-19 %, at 5000 fr) Output frequency - min First - max Bated frequency - min So - 400 V (-10 %)-19 % at 5000 fr Bated frequency - min So A A A Bated	Delay time	
Bit Wat 2% current and 2% speed 42 Wat 3% current and 2% speed 42 Wat 43% current and 2% speed 42 Wat 43% current and 2% speed 10 per current LN at 150% overload Leakage current at ground PE - max Mains current distorion Mains current distorion Mains outgo - max Mains voltage outrent at ground PE - max Mains voltage outrent at ground PE - max Mains voltage outrent distorion Mains voltage outrent at ground PE - max Mains voltage outrent distorion Mains voltage outrent distorion Mains voltage outrent distorion Operating mode Distorion Output frequency - max Atta distorion Rated operation prover at 380400 V, 50 Hz, 3 phase Rated operation prover at 380400 V, 50 Hz, 3 phase Rated operational power at 380400 V, 50 Hz, 3 phase Rated operational power at 380400 V, 50 Hz, 3 phase Rated operational power at 380400 V, 50 Hz, 3 phase Rated operational power at 380400 V, 50 Hz, 3	Efficiency	98 % (ŋ)
Leakage current at ground IPE - max 55 mA Mains current distortion 120 % Mains switch-on frequency 480 V Mains voltage - max 480 V Mains voltage - max 800 V Mains voltage tolerance 30 - 480 V (-10 %/-10 %, at 50%0 Hz) Operating mode 800 - 480 V (-10 %/-10 %, at 50%0 Hz) Operating mode 800 - 480 V (-10 %/-10 %, at 50%0 Hz) Output frequency - max 800 - 800 V (-10 %/-10 %, at 50%0 Hz) Output frequency - max 500 Hz Output frequency - max 0 Hz Rated frequency - max 2 HZ Rated frequency - max 6 Hz Rated frequency - max 5 A st 15% overload (at an operating frequency of 8 KHz and an ambient air temperature of 440 °C) Rated operational current (Hg) 5 A st 15% overload (at an operating frequency of 8 KHz and an ambient air temperature of 440 °C) Starting current - max 6 HZ 1 Hz (Frequenc	Heat dissipation at current/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
Mains current distrition 100 k Mains switch-on frequency Mains witch-on frequency Mains svitage - max 480 V Mains svitage - min 380 V Mains svitage - min 380 - 480 V (-10 %, +10 %, at 50 % Hz) Operating mode 380 - 480 V (-10 %, +10 %, at 50 % Hz) Dutput frequency - max 500 Hz Output frequency - min 0 Hz Overload current 0 Hz Overload current 141 50% sverload Rated frequency - max 64 FZ Overload current (le) 84 A Rated frequency - min 64 FZ Overload current (le) 84 A Rated frequency - max 64 FZ Rated operational current (le) 64 FZ Rated operational current (le) 64 FZ Rated operational power at 380,400 V, 50 Hz, 3-phase 64 FZ Rated operational voltage 64 FZ Supply frequency 50 KHz, 4-3 skHz adjustable, FWMA, Power section, Main circuit Supply frequency 50 KHz, 4-3 skHz adjustable, FWMA, Power section, Main circuit Sating current - max 50 KHz, 4-3 skHz adjustable, FWMA, Power section, Main circuit Supply frequency <	Input current ILN at 150% overload	5.3 A
Mains witch-on frequency Maximum of one time every 60 seconds Mains voltage - max 400 V Mains voltage tolerance 300 V Operating mode Seconds we tor control (SUV) UF control Output frequency - max BLOC motors Output frequency - min 0Hz Output frequency - min 0Hz Overload current IL at 150% overload 6Hz Rated frequency - max 6Hz Rated operational current (le) 6Hz Surphy frequency 6Hz Surphy frequency 6Hz Rated operational power at 380/400 V, 50 Hz, 3-phase 6Hz Rated operational current (le) 6Hz Surphy frequency 6Hz Surphy frequency 6Hz	Leakage current at ground IPE - max	3.5 mA
Mains voltage - max 480 V Mains voltage - min 380 V Mains voltage tolerance 380 - 480 V (-10 %/+10 %, at 50/60 Hz) Operating mode BLDC motors Samorless vector control (SLV) V/ control Uptort frequency - max 600 Hz Output frequency - min 10 Overload current 10 Hz Overload current 600 Hz Rated frequency - min 10 Overload current 600 Hz Rated frequency - min 600 Hz Overload current Lat 150% overload 61 Lz Rated frequency - min 61 Lz Rated frequency - min 61 Lz Rated frequency - min 61 Lz Rated operational current (le) 55 Å At 150% overload (st an operating frequency of 8 Hz and an ambient air temperature of +40 °C) Rated operational voltage 61 Lz Rated operational voltage 61 Lz Supply frequency 61 Lz Supply frequency 60 Hz Supply frequency 61 Hz Supply frequency 61 Hz Supply frequency 61 Hz Supply frequency 61 Hz <td>Mains current distortion</td> <td>120 %</td>	Mains current distortion	120 %
Mains voltage min 380 V Mains voltage tolerance 380 - 480 V (-10 %, at 50/60 Hz) Operating mode Sub Control % Sub	Mains switch-on frequency	Maximum of one time every 60 seconds
Mains voltage tolerance 30 - 440 V (-10 %/-11 %, at 50/60 Hz) Operating mode BLC motors Sensories sector control (SLV) V/ f control Synchronous reluctance motors PM and LSPM motors Output frequency - max 00 Hz Output frequency - min 0 Hz Overload current 6 Hz Rated frequency - max 6 Hz Rated operational current (le) 6 Hz Rated operational current (le) 0 V NA (-3 phase Rated operational power at 380/400 V, 50 Hz, 3-phase 0 V NA (-3 phase) Rated operational voltage 0 V NA (-3 phase) Starting current (lei) 0 V NA (-3 phase) Supply frequency 0 V NA (-3 phase) Supply frequency 0 V NA (-3 phase) Supply frequency 6 Hz Starting current (leigh Overload) 6 Hz Supply frequency 6 Hz Supply frequency 0 V NA (-3 phase) Supply frequency 0 V NA (-3 phase) Supply frequency 6 Hz	Mains voltage - max	480 V
Operating mode BLDC motors Service control (SLV) Service control (SLV) Yuchtronous reluctance motors South A Output frequency - max South A Output frequency - min OHz Overload current For 60 severy 600 s Rated frequency - max South A Rated frequency - min South A Rated operational current (Ie) South A Rated operational current (Ie) South A Rated operational voltage South A Starting current - max South A Supply frequency South A Supply frequency South A Assigned motor power at 460/400 V, 50 Hz, 3-phase South A Supply frequency South A Assigned motor power at 460/400 V, 50 Hz, 3-phase South A Supply frequency South A Assigned motor power at 460/400 V, 50 Hz, 3-phase South H Supply f	Mains voltage - min	
Output frequency - max 500 Hz Output frequency - min 0 Hz Overload current 6 K A Overload current Llat 150% overload 6 K A Rated frequency - max 6 K A Rated frequency - min 6 K A Rated frequency - max 6 K A Rated frequency - min 6 K A Rated frequency - max 6 K A Rated frequency - min 6 K A Rated operational current (le) 500 Hz Rated operational current (le) 6 K A Rated operational current (le) 6 K A Rated operational current (le) 6 K A Rated operational voltage 6 K A Rated operational voltage 0 V AC, 3-phase Rated operational voltage 0 K A Starting current - max 0 K A Supply frequency 6 K K A<	-	
Output frequency - min 0 Hz Overload current For 60 s every 600 s At 40 °C Overload current L at 150% overload 8.4 A Rated frequency - max 66 Hz Rated frequency - min 55 A at 150% overload (at an operating frequency of 8 kHz and an ambient air temperature of +40 °C) Rated operational current (le) 55 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 0.1 Hz (Frequency resolution, setpoint value) Starting current - max 0.060 Hz 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 5.6 A (max. 6 A for 120 ms), Actuator for external motor brake	Operating mode	Sensorless vector control (SLV) U/f control Synchronous reluctance motors
Overload current For 60 s every 600 s Overload current IL at 150% overload 84 A Rated frequency - max 66 Hz Rated frequency - min 55 A at 150% overload (at an operating frequency of 8 kHz and an ambient air temperature of +40 °C) Rated operational current (le) 56 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 22 kW Rated operational voltage 01 Hz (Frequency resolution, setpoint value) Starting current - max 01 Hz (Frequency resolution, setpoint value) Supply frequency 01 Hz (Frequency resolution, setp		500 Hz
Image: Provision of the state of the st		
Rated frequency - max 66 Hz Rated frequency - min 45 Hz Rated operational current (le) 56 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 0.1 Hz (Frequency resolution, setpoint value) Starting current - max 0.1 Hz (Frequency resolution, setpoint value) Supply frequency 0.0 %, IH, max. starting current (High Overload), For 2 seconds every 20 seco	Overload current	
Rated frequency - min 45 Hz Rated operational current (le) 56 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 22 kW Rated operational voltage 400 V AC, 3-phase Rated operational voltage 01 Hz (Frequency resolution, setpoint value) Starting current - max 01 Hz (Frequency resolution, setpoint value) Supply frequency 00 V AC, 3-phase Switching frequency 01 Hz (Frequency resolution, setpoint value) Supply frequency 01 Hz (Frequency resolution, setpoint value) Assigned motor power at 460/480 V, 60 Hz, 3-phase 01 Hz (Frequency resolution, setpoint value) Braking current 84Hz 130 Hz Braking current 84Hz 130 Hz	Overload current IL at 150% overload	
Rated operational current (le) 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 Resolution 0.1 Hz (Frequency resolution, setpoint value) Starting current - max 0.0 W, H, max. starting current (High Overload), For 2 seconds every 20 secon	Rated frequency - max	66 Hz
Rated operational power at 380/400 V, 50 Hz, 3-phase 2.2 kW Rated operational voltage 2.2 kW Rated operational voltage 400 V AC, 3-phase Resolution 0.1 Hz (Frequency resolution, setpoint value) Starting current - max 0.1 Hz (Frequency resolution, setpoint value) Supply frequency 0.1 Hz (Frequency resolution, setpoint value) Switching frequency 50/60 Hz Assigned motor power at 460/480 V, 60 Hz, 3-phase 8 kHz, 4 - 32 kHz adjustable, fPWM, Power section, Main circuit Braking current 6 km Ac for 120 ms), Actuator for external motor brake	Rated frequency - min	45 Hz
Rated operational voltage 400 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 50/60 Hz Assigned motor power at 460/480 V, 60 Hz, 3-phase 31 HP Braking current 31 HP Starting current 616 A (max. 6 A for 120 ms), Actuator for external motor brake	Rated operational current (le)	
Resolution 480 V AC, 3-phase Starting current - max 0.1 Hz (Frequency resolution, setpoint value) Supply frequency 200 %, IH, max. starting current (High Overload), For 2 seconds every 20 seconds Power section Switching frequency 5060 Hz Switching frequency 606 Hz Assigned motor power at 460/480 V, 60 Hz, 3-phase 606 Hz Braking current 606 Hz, 3-phase	Rated operational power at 380/400 V, 50 Hz, 3-phase	2.2 kW
Starting current - max Image: Constraint of the constrai	Rated operational voltage	480 V AC, 3-phase
Supply frequency Power section Switching 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 Image: Comparison of the section o	Resolution	
Switching frequency 8 kHz, 4 - 32 kHz adjustable, fPWM, Power section, Main circuit Assigned motor power at 460/480 V, 60 Hz, 3-phase 8 kHz, 4 - 32 kHz adjustable, fPWM, Power section, Main circuit Braking current 6 kHz, 4 - 32 kHz adjustable, fPWM, Power section, Main circuit		
Assigned motor power at 460/480 V, 60 Hz, 3-phase Assigned motor power at 460/480 V, 60 Hz, 3-ph		
Braking current ≤ 0.6 A (max. 6 A for 120 ms), Actuator for external motor brake	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

	≤ 30 % (I/Ie)
Braking voltage	400/480 V AC -15 % / +10 %, Actuator for external motor brake
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) 400/480 V AC (external brake 50/60 Hz)
Communication interface	AS-Interface
Connection	Plug type: HAN Q4/2
Interfaces	
Interfaces	Number of slave addresses: 31 (AS-Interface®) Max. total power consumption from AS-Interface® power supply unit (30 V): 190 mA Specification: S-7.4 (AS-Interface®)
Cable length	C2 ≤ 5 m, maximum motor cable length C3 ≤ 25 m, maximum motor cable length C1 ≤ 1 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])					
V	380 - 480				
	50/60 Hz				
	3				
	3				
Hz	500				
V	500				
А	5.6				
kW	2.2				
kW	2.2				
%	10				
	V Hz V A kW kW				

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		No
4-quadrant operation possible		No
Type of converter		U converter
Degree of protection (IP)		IP65
Degree of protection (NEMA)		12
Height	mm	270
Width	mm	220
Depth	mm	157