Speed controllers, 4.3 A, 1.5 kW, Sensor input 4, AS-Interface®, S-7.4 for 31 modules, HAN 04/2, with manual override switch, with braking resistance, STO (Safe Torque Off)



Part no. RASP5-4400A31-412R110S1 198792

Product name	Eaton Moeller® series Rapid Link Speed controller
Part no.	RASP5-4400A31-412R110S1
EAN	4015081968503
Product Length/Depth	157 millimetre
Product height	270 millimetre
Product width	220 millimetre
Product weight	3.6 kilogram
Certifications	UL 61800-5-1
	CE IEC/EN 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 junctio 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	Diagnostics and reset on device and via AS-Interface Parameterization: drivesConnect mobile (App) Parameterization: drivesConnect Parameterization: Fieldbus Parameterization: Keypad
Fitted with:	Manual override switch Key switch position AUTO Key switch position HAND Braking resistance Selector switch (Positions: REV - OFF - FWD) Thermo-click with safe isolation PTC thermistor monitoring Breaking resistance Internal DC link PC connection Key switch position OFF/RESET Control unit IGBT inverter Two sensor inputs through M12 sockets (max. 150 mA) for quick stop and interlocked manual operation
Functions	1 potentiometer speed Brake chopper with braking resistance for dynamic braking STO (Safe Torque Off) 3 fixed speeds 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	ASI AS-Interface profile cable: S-7.4 for 31 modules
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.

Rated impulse withstand voltage (Uimp)	2000 V
System configuration type	Phase-earthed AC supply systems are not permitted. AC voltage 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 ms, 1000 shocks per shaft
Vibration	Resistance: 10 - 150 Hz, Oscillation frequency Resistance: 6 Hz, Amplitude 0.15 mm Resistance: 57 Hz, Amplitude transition frequency on acceleration Resistance: According to IEC/EN 60068-2-6
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	< 95 %, no condensation In accordance with IEC/EN 50178
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	Sensorless vector control (SLV) Synchronous reluctance motors U/f control PM and LSPM motors BLDC 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 $^{\circ}\text{C})$
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 second 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
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	Specification: S-7.4 (AS-Interface®)  Number of slave addresses: 31 (AS-Interface®)  Max. total power consumption from AS-Interface® power supply unit (30 V): 190  mA
Cable length	C1 $\leq$ 1 m, maximum motor cable length C3 $\leq$ 25 m, maximum motor cable length C2 $\leq$ 5 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 observed.
10.12 Electromagnetic compatibility	Is the panel builder's responsibility. The specifications for the switchgear must 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	I	Hz	500		
Max. output voltage	\	V	500		
Nominal output current I2N	,	Α	4.3		
Max. output at quadratic load at rated output voltage	ŀ	kW	1.5		

Residue symmetric net requestry indexinates         No.         10           Residue or symmetric net voltages interaces         5.0         10           Number of analoging ripus         0         0           Number of analoging ripus         0         0           Number of adjustic injusted         2         0         0           Number of adjustic injusted         2         7         44           Will control all senser         2         7         44           Application in indimential are spentified         2         7         44           Application in indimential are spentified         2         7         42           Supporting protected of CMP         9         60         42           Supporting protected of CMP         9         60         42           Supporting protected for CM         9         42         40           Supporting protected for MAI         42         40         42           Supporting protected for MAI         42         40	Max. output at linear load at rated output voltage	ı	kW	1.5
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Application in industrial area permitted         Yes           Application in industrial area permitted         Yes           Supporting pratecol for TCFIPP         Hos           Supporting pratecol for PROPIBUS         No           Supporting pratecol for CAN         Hos           Supporting pratecol for KN1EBUS         Yes           Supporting pratecol for Mablus         Hos           Supporting pratecol for Mablus         Hos           Supporting pratecol for Data Highway         Hos           Supporting pratecol for Data Highway         Hos           Supporting pratecol for Data Highway         Hos           Supporting pratecol for PROPINET IG         Hos           Supporting pratecol for Proprietation         Hos           Supporting pratecol for PROPINET IG         Hos           Supporting pratecol for Proprietation         Hos           Supporting pratecol for PROPINET IG         Hos           Supporting pratecol for PROPINET IG         Hos				
Application in domestic and commercial area permitted         Yes           Supporting protocol for TCP/IP         No           Supporting protocol for CTCP/IP         No           Supporting protocol for CAN         No           Supporting protocol for INTERBUS         No           Supporting protocol for Meditus         No           Supporting protocol for Devicable         No           Supporting protocol for Devicable         No           Supporting protocol for Devicable         No           Supporting protocol for PROFINET EX         No           Supporting protocol for PROFINET EX         No           Supporting protocol for Profinetial Fieldbus         No           Supporting protocol for Profinetial Fieldbus <t< td=""><td></td><td></td><td></td><td></td></t<>				
Supporting protected for TCPINP         No           Supporting protected for PROFIBES         No           Supporting protect for CXA         No           Supporting protect for XSI         Yes           Supporting protect for XSI         No           Supporting protect for XSI         No           Supporting protect for Medibus         No           Supporting protect for Data Highway         No           Supporting protect for SECOLD         No           Supporting protect for Data Highway         No           Supporting protect for PROFINET CBA         No           Supporting protect for PROFINET CBA         No           Supporting protect for Familian Highway         No           Supporting protect for Familian Highway         No           Supporting protect for Familian Highway <td></td> <td></td> <td></td> <td></td>				
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Supporting protocol for PROFINET CBA         No           Supporting protocol for SERCOS         No           Supporting protocol for Education Fieldbus         No           Supporting protocol for Education Fieldbus         No           Supporting protocol for Education Fieldbus         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           Number of HW-interfaces industrial Ethernet         No           Number of HW-interfaces Safety at Work         No           Number of HW-interfaces RS-428         0           Number of HW-interfaces RS-428         0           Number of HW-interfaces safety TY         0           Number of HW-interfaces userial TY         0           Number of HW-interfaces with the safety at the safe				
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Supporting protocol for SR0Flsafe         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 HW-interfaces RS-232         0           Number of HW-interfaces RS-322         0           Number of HW-interfaces RS-425         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 other         1           With PC connection         P           Vift pC connection         Yes           Integrated breaking resistance         Yes           4-quadrant operation possible         Yes           Type of converter         Yes           Degree of protection (IP)         Integrated protection (IP)           Degree of protection (NEMA)         Integrated protection (NEMA)           With pC	11 11			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 HW-interfaces PROFINET         0           Number of HW-interfaces RS-232         0           Number of HW-interfaces RS-428         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 berallel         No           Number of HW-interfaces other         No           With optical interface         No           With optical interface         Yes           Vidantial interface         Yes           4-quadrant operation possible         Yes           Type of converter         U converter           Degree of protection (IP)         U converter           Degree of protection (NEMA)         Interface           Width         Image: No of the bus and the b				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         Uconverter           Degree of protection (IP)         IP65           Degree of protection (NEMA)         IT           Height         mm         270           Witth         20	•.			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           With optical interface         1           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)         Image: Protection (NEMA)         Image: Protection (NEMA)           Height         Image: Protection (NEMA)         Image: Protection (NEMA)         Image: Protection (NEMA)           Width         Image: Protection (NEMA)         Image: Protection (NEMA)         Image: Protection (NEMA)				
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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           Witth         mm         270				
Number of HW-interfaces RS-232  Number of HW-interfaces RS-422  Number of HW-interfaces RS-485  Number of HW-interfaces RS-485  Number of HW-interfaces serial TTY  Number of HW-interfaces uSB  Number of HW-interfaces uSB  Number of HW-interfaces parallel  Number of HW-interfaces other  Number of HW-interfaces other  No  Vith optical interface  Vith Optical interface on the	Number of HW-interfaces industrial Ethernet			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           Witth         mm         200	Number of interfaces PROFINET			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)         mm         270           Width         mm         220	Number of HW-interfaces RS-232			0
Number of HW-interfaces serial TTY0Number of HW-interfaces USB0Number of HW-interfaces parallel0Number of HW-interfaces other1With optical interfaceNoWith PC connectionYesIntegrated breaking resistanceYes4-quadrant operation possibleYesType of converterU converterDegree of protection (IP)IP65Degree of protection (NEMA)ImmWith PC connection (NEMA)I	Number of HW-interfaces RS-422			0
Number of HW-interfaces USB  Number of HW-interfaces parallel  Number of HW-interfaces other  Number of HW-interfaces other  No  With optical interface  With Optical interface  With PC connection  Integrated breaking resistance  4-quadrant operation possible  Type of converter  Degree of protection (IP)  Degree of protection (NEMA)  Height  Width  No  Ves  Yes  Yes  U converter  IP65  12  Height  mm 270  Width  Width	Number of HW-interfaces RS-485			1
Number of HW-interfaces parallel Number of HW-interfaces other  With optical interface With PC connection With PC connection Integrated breaking resistance 4-quadrant operation possible Type of converter Degree of protection (IP) Degree of protection (NEMA) Height Width  Mmm  U Converter  Type of Converter  Degree of protection (NEMA)  Midth Mmm  Width  Degree of protection (NEMA)  Midth  Degree of protection (NEMA)  Midth	Number of HW-interfaces serial TTY			0
Number of HW-interfaces other  With optical interface  With PC connection  With PC connection  Ves  Integrated breaking resistance  4-quadrant operation possible  Type of converter  Degree of protection (IP)  Degree of protection (NEMA)  Height  Width  I 1  No  Ves  Yes  Ves  U converter  U converter  IP65  12  Height  mm 270  Width	Number of HW-interfaces USB			0
With optical interface With PC connection With PC connection Integrated breaking resistance 4-quadrant operation possible Type of converter Degree of protection (IP) Degree of protection (NEMA) Height Width  No Yes Yes U converter U converter 12 Height mm 270 mm 220	Number of HW-interfaces parallel			0
With PC connection  Integrated breaking resistance  4-quadrant operation possible  Type of converter  Degree of protection (IP)  Degree of protection (NEMA)  Height  Midth  Yes  Yes  U converter  IP65  IP65  IP65  Width  IP65  Width  IP65  Width	Number of HW-interfaces other			1
Integrated breaking resistance 4-quadrant operation possible Type of converter U converter Degree of protection (IP) IP65 Degree of protection (NEMA) Height mm 270 Width	With optical interface			No
4-quadrant operation possible  Type of converter  Degree of protection (IP)  Degree of protection (NEMA)  Height  Mmm  270  Width  Width  Yes  U converter  IP65  IP66	With PC connection			Yes
Type of converter  Degree of protection (IP)  Degree of protection (NEMA)  Height  mm 270  Width  U converter  IP65  12  4  20  Width	Integrated breaking resistance			Yes
Degree of protection (IP)  Degree of protection (NEMA)  Height  Width  IP65  12  Mmm 270  Mmm 220	4-quadrant operation possible			Yes
Degree of protection (NEMA)         12           Height         mm         270           Width         mm         220	Type of converter			U converter
Height mm 270 Width mm 220	Degree of protection (IP)			IP65
Width mm 220	Degree of protection (NEMA)			12
	Height	ı	mm	270
Depth mm 157	Width	ı	mm	220
	Depth	ı	mm	157