## DATASHEET - RASP5-4402A31-412R010S1

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 manual override switch, STO (Safe Torque Off)



Part no.

RASP5-4402A31-412R010S1 198790

Diagnostics and reset on device and via AS-Interface integrated PTC thermistor monitoring and Thermoclick with safe isolation		
EAN 411201189880   Product Lingh/Dight 77 millimetro   Product Lingh/Dight 220 millimetro   Product Vieght 39 kilogram   Edefinitions 150 millimetro   Cardinations 150 millimetro   Product Vieght 150 millimetro   Product Tradename 150 millimetro   Product Vigo	Product name	Eaton Moeller® series Rapid Link Speed controller
Product Length/Depth   157 millinetre     Product width   200 millinetre     Product width   258 Mogram     Product width   258 Mogram     Certifications   100 millinetre     Product Sub Type   100 millinetre     Product Sub Type   Reped Link     Product Sub Type   Speed controller	Part no.	RASP5-4402A31-412R010S1
Product Night   20 millinere     Product Night   20 millinere     Product Night   20 millinere     Centifications   20 millinere     Product Night   20 millinere     Catalog Notes   20 millinere     Catalog Notes   20 millinere     Product Night   20 millinere     Product Night   20 millinere     Product Night   20 millinere     Product Night   20 millinere     Catalog Notes   20 millinere     Product Night   20 millinere     Product Night   20 millinere     Product Night   20 millin	EAN	4015081968480
Product weight   20 millingtre     Product weight   35 kilogram     Certifications   EEC 55 kilogram     Product Tadename   EEC 56 kilogram     Product Tadename   EEC 56 kilogram     Product Tadename   Seed controller     Catalog Notes   Sted specification of reactor heuber backs     Catalog Notes   Sted specification of reactor heuber backs     Fatter scip Textman Section of the Seed controll connection of specification of reactor heuber backs   Seed controller     Fatter scip Textman Section of the Seed control of connection of specification of reactor heuber backs   Seed controller     Fatter scip Textman Section of the Seed control of connection of specification of reactor heuber backs   Seed controller     Fatter scip Textman Section of the Seed control of connection of specification of reactor heuber backs   Seed controller     <	Product Length/Depth	157 millimetre
Product weight   359 klogram     Certifications   See CPK bit800-5-1 GE UL 8800-5-1 UL approvol     Product Tradename   Rapid Lik     Product Tradename   Rapid Lik     Product Sub Type   Seed controller     Product Sub Type   Rapid Lik     Catalog Notes   Seed controller     Orduct Type   None     Catalog Notes   Seed controller     Definition of the sub-sub Type   Seed controller     Catalog Notes   Seed controller     Catalog Notes   Seed controller     Catalog Notes   Seed controller     Catalog Notes   Seed controller Control 24 to see controll     Catalog Notes   Seed controller Control 24 to see controller     Controller Control 24 to see controller   Seed controller Control 24 to see controller     Controller Controller Control 24 to see controller   Seed controller     Features   Seed controller Controller Controller     France Controller Controller   Parameterization divide and VIAS-Interface     Parameterization divide and VIAS controller Controller   Parameterization divide and VIAS controller     France Controller Controller   Parameterization divide and VIAS controller     France Co	Product height	270 millimetre
Cartifications   IEDEN 61800-5-1     Cite   Cite     Product Trademame   Speed controller     Product Type   Speed controller     Product Type   None     Catalog Notes   Speed controller     Product Type   None     Catalog Notes   Speed controller or from UI to two layeed controll     Consortion of supp view in speed controll   Consortion of supp view in speed controller     Diagnostics and reset on device and via AS-Interface   Promoter Speed controller     Product Supp view in the Speed controller   Promoter Speed controller     Fitted with:   Diagnostics and reset on device and via AS-Interface     Product Supp view in the Speed controller   Promoter Speed controller (App)     Promoter Controller   Promoter Speed controller     Fitted with:   Diagnostics and reset on device and via AS-Interface     Promoter Controller   Promoter Controller <tr< td=""><td>Product width</td><td>220 millimetre</td></tr<>	Product width	220 millimetre
Product Tradename   Rapid Link     Product Tradename   Rapid Link     Product Type   Rapid Link     Product Type   None     Product Type   Speci controller     Product Type   Speci controller     Product Sub Type   Speci controller     Catalog Notes   Speci controller     Speci Speci Controller   Speci controller     Connection Suppl voltage via adgress and 1 potentiometer speed controll Connection Suppl voltage via adgress and rest on device and via AS-Interface integrated PTO Fieldback State Speci Fieldback	Product weight	3.59 kilogram
Product Type   Speed controller     Product Sub Type   None     Catalog Notes   Speed controller     Speed controller   Speed controller     Catalog Notes   Speed controller     Speed controller   Speed controller     Catalog Notes   Speed controller     Speed controller   Speed controller     Speed controller   Speed controller     Speed controller   Speed control     Speed controller   Speed controller     Speed controller   Speed controller     Speed controller   Speed controller     Speed controller   Speed controller     S	Certifications	CE UL 61800-5-1 UL approval
Product Sub Type   None     Catalog Notes   Sinded speed on the verticitie and a potentionizer speed control Connection of device and via AS-Interface integrade PTD termister monitoring and Thermocitiek with safe isolation integrade PTD termister monitoring and Thermocitiek with safe isolation on targerade PTD termister monitoring and Thermocitiek with safe isolation on targerade PTD termister monitoring and Thermocitiek with safe isolation on targerade PTD termister monitoring and Thermocitiek with safe isolation on targerade PTD termister monitoring and Thermocitiek with safe isolation on targerade PTD termister monitoring and Thermocitiek with safe isolation on targerade PTD termister monitoring and Thermocitiek with safe isolation on targerade PTD termister monitoring and Thermocitiek with safe isolation on targerade PTD termister monitoring and Thermocitiek with safe isolation on the observed monitoring and Thermocitiek with safe isolation on sensor input terminal operation with AUTO - OFFRESET - HAND key switches with selector switch REV - OFF - FWD     Features   Diagnostics and reset on device and via AS-Interface Parameterization: divosconnect mobile (App) Parameterization: divosconnect mobile (App) Parameterizatione divosconne	Product Tradename	Rapid Link
Catalog Notes   Sixed speeds and 1 potentiometar speed control Connection of supply voltage via adpater cable on round or flexible bushan Diagnostics and reset on device and via AS-Interface Integrated PTC thermission inputs with M12 v adapter for switchowsr to creep spee optional: Faster stop if external 24 V fails interface and interface and via AS-Interface     Features   Diagnostics and reset on device and via AS-Interface     Fitted with:   Diagnostics and reset on device and via AS-Interface     Fitted with:   Diagnostics and reset on device and via AS-Interface     Functions   Diagnostics and reset on device and via AS-Interface     Parameterization: Fieldbus   Parameterization: Fieldbus     Parameterization: Fieldbus   Diagnostics and reset on device and via AS-Interface     Parameterization: Fieldbus   Parameterization: Fieldbus	Product Type	Speed controller
A substrainA substrainA substrainA substrainA substrainI substrain<	Product Sub Type	None
Fited with:   Parameterization: Fieldbus     Fited with:   Parameterization: GrivesConnect mobile (App)     Fited with:   Parameterization: GrivesConnect     Fited with:   Internal DC link     PC connection   Manual override switch     Key switch position AUTO   Key switch position OUTO     Key switch position AUTO   Key switch position AUTO     Key switch position AUTO   Key switch position OUTO     Key switch position AUTO   Key switch position AUTO	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 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
Fitted with:   Parameterization: Fieldbus     Fitted with:   Internal DC link     Parameterization: Groups and the parameterization: Keypad   Internal DC link     Perameterization: Seypad   Internal DC link     Perameterization: Seypad   Manual override switch     Key switch position AUTO   Key switch position AUTO     Key switch position AUTO   Key switch position AUTO     Key switch position HAND   The manual override switch     New switch position HAND   The monitoring     The monitoring   The monitoring of the monitoring     The monitoring   The monitoring of the monitoring     The monitoring   The monitoring of the m		
PC connection Manual override switch Key switch position AUTO Key switch position AUTO Key switch position MAND PTC thermistor monitoring Thermo-click with safe isolation Selector switch (Positions: REV - OFF - FWD) IBBT inverter Two sensor inputs through M12 sockets (max. 150 mA) for quick stop and interlocked manual operation Control unitFunctionsFor actuation of motors with mechanical brake Stop (Safe Torque Off) Sited speedsDegree of protectionMEMA 12 IP65Electromagnetic compatibilityIst and 2nd environments (according to EN 61800-3)Overvoltage categoryIII	Features	Parameterization: Fieldbus Parameterization: drivesConnect mobile (App) Parameterization: drivesConnect
I potentiometer speed STO (Safe Torque Off) 3 fixed speeds   Degree of protection MEMA 12 IP65   Electromagnetic compatibility NEMA 12 IP65   Overvoltage category III	Fitted with:	PC connection Manual override switch Key switch position AUTO Key switch position OFF/RESET Key switch position HAND PTC thermistor monitoring Thermo-Click with safe isolation Selector switch (Positions: REV - OFF - FWD) IGBT inverter Two sensor inputs through M12 sockets (max. 150 mA) for quick stop and interlocked manual operation
Electromagnetic compatibility IP65   Overvoltage category Ist and 2nd environments (according to EN 61800-3)	Functions	1 potentiometer speed STO (Safe Torque Off)
Electromagnetic compatibility IP65   Overvoltage category Ist and 2nd environments (according to EN 61800-3)		
Overvoltage category III	Degree of protection	
	Electromagnetic compatibility	1st and 2nd environments (according to EN 61800-3)
Product category Speed controller	Overvoltage category	
	Product category	Speed controller
Protocol AS-Interface profile cable: S-7.4 for 31 modules ASI	Protocol	
	Radio interference class	
Rated impulse withstand voltage (Uimp) 2000 V	Rated impulse withstand voltage (Uimp)	2000 V

System configuration type	Center-point earthed star network (TN-S network) AC voltage
	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: 57 Hz, Amplitude transition frequency on acceleration Resistance: According to IEC/EN 60068-2-6 Resistance: 6 Hz, Amplitude 0.15 mm Resistance: 10 - 150 Hz, Oscillation frequency
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, Off-delay < 10 ms, On-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	PM and LSPM motors Sensorless vector control (SLV) BLDC motors Synchronous reluctance motors U/f control
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 (le)	4.3 A at 150% overload (at an operating frequency of 8 kHz and an ambient air temperature of +40 $^{\circ}\mathrm{C})$
Rated operational power at 380/400 V, 50 Hz, 3-phase	1.5 kW
Rated operational voltage	480 V AC, 3-phase 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	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
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) 230/277 V AC (external brake 50/60 Hz)
Communication interface	AS-Interface
Connection	Plug type: HAN Q4/2
Interfaces	Max. total power consumption from AS-Interface® power supply unit (30 V): 190 mA Specification: S-7.4 (AS-Interface®) Number of slave addresses: 31 (AS-Interface®)
Cable length	C3 ≤ 25 m, maximum motor cable length C1 ≤ 1 m, maximum motor cable length C2 ≤ 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 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	А	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		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