## DATASHEET - RASP5-4402A31-4120010S1

## 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, STO (Safe Torque Off)



Part no.

RASP5-4402A31-4120010S1 198774

Functions   Second operation of the second operation operatioperation operation op		
EM   Image: Control of	Product name	Eaton Moeller® series Rapid Link Speed controller
Predect Larght/Dapph   19 millimitine     Predect Linght/Dapph   20 millimitine     Gradeg Rens   20 millimitine     Fredet Linght/Dapph   20 millimitine	Part no.	RASP5-4402A31-4120010S1
Product height   20 millinese     Product width   342 Sormalinese     Certifications   22 millinese     Certifications   22 millinese     Certifications   22 millinese     Product wight   342 Sormalinese     Product fight   24 Millinese     Product fight   22 Millinese     Product fight   24 Millinese     Millinese   24 Millinese     Millinese   24 Millinese     Millinese   24 Millinese	EAN	4015081968329
Product wight   20 millingthe     Product wight   3.32 king am     Centifications   UI is 1800-5-1     UI is 1800-5-1   UI is 1800-5-1     UI is 1800-5-1   UI is 1800-5-1     Product Yupe   Regist Link     Product Yupe   Regist Link     Product Yupe   None     Casting Yotes   Can be switched out of yoe (or good a carbo)     Casting Yotes   Operation of a space yoing wing With yoe (or good a carbo)     Casting Yotes   Operation of a space yoing wing With yoe (or good a carbo)     Features   None     Casting Yotes   Operation of a space yoing With yoe (or good a carbo)     Features   Product Xing With Secklasson     Features   Product Xing With Secklasson     Features   Product Xing With Secklasson     Features   Parameterization of vise Consect mobile Apply and the solution optical at vise of and the AS-Interface     Features   Parameterization of vise Consect mobile Apply and the solution optical at vise of and the AS-Interface     Features   Parameterization of vise Consect mobile Apply and the solution optical at vise of and the AS-Interface     Features   Parameterization of vise Consect mobile Apply and the vise optican optical at vise of and vise AS-Interface <td>Product Length/Depth</td> <td>157 millimetre</td>	Product Length/Depth	157 millimetre
Product wight   Image: State	Product height	270 millimetre
Environes Envir	Product width	220 millimetre
Product Tradename   Product Tradename   Rep of Link     Product Tradename   Rep of Link   Rep of Link     Product Sun Type   Rep of Link   Rep of Link     Eatalog Notes   Rep of Link   Rep of Link     Catalog Notes   Rep of Link   Rep of Link     Factor Sun Type   None   Rep of Link     Catalog Notes   Rep of Link   Rep of Link     Factor Sun Type   None   Rep of Link     Catalog Notes   Rep of Link   Statistical Option of Statistical Statis Statisticon Statis Statistical Statistical Statistis Statistica	Product weight	3.42 kilogram
Product Type   Product Sub Type   Speed controller     Product Sub Type   None   Speed controller     Casting Notes   Speed controller   None     Casting Notes   Speed controller   None     Casting Notes   Speed controller   None     Finance State	Certifications	UL 61800-5-1 UL approval RoHS
Product Sub Type   Image: Control of Control	Product Tradename	Rapid Link
Catalog Noiss   Can be switched over from U/I to (vector) agoad control Connection of supply vidiage vide adopter add us a displace table on nonin of flexible bushar junct Part ford agoad adopter and us A Siminates inorgand of PC to bernister monitoring and Thermecicke with sale isolation optimule. Laters tap if setting and thermecicke with sale isolation inordice.demand alogeration interficie.demand alogeration interfici.demand alogeration interfici.demand alogeratio	Product Type	Speed controller
Fitch with:	Product Sub Type	None
Parameterization: divesConnact Parameterization: divesConnact Parameterization: Relidbus Diagnostics and reset on device and via AS-Interface Parameterization: KeypadFited with:Control unit Two sensition Kurph M12 sockets (max. 150 mA) for quick stop and interlocked manual operation Internal DC link Key switch position AUTO Key switch Positi	Catalog Notes	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
Parameterization: divesConnect Parameterization: Revealed Parameterization: Revealed 		
Internal OperationInternal OperationInternal OperationInternal OperationInternal OperationInternal OperationInternal OPInternal	Features	Parameterization: drivesConnect Parameterization: Fieldbus Diagnostics and reset on device and via AS-Interface
For actuation of motors with mechanical brake     For actuation of motors with mechanical brake     For actuation of motors with mechanical brake     Degree of protection   For actuation of motors with mechanical brake     Degree of protection   KEMA 12 P65     Electromagnetic compatibility   Ist and 2nd environments (according to EN 61800-3)     Overvoltage category   For actuation of motors with mechanical brake     Product category   For actuation of motors with mechanical brake     Protocol   Speed controller     Protocol   St. Interface profile cable: S-7.4 for 31 modules     Radio interference class   St. Sinderface profile cable: S-7.4 for 31 modules     Rated impulse withstand voltage (Uimp)   For actuation of metor cable length, the connected load, and ambient encorditions. External radio interference suppression filters (optional) may be recessary.     System configuration type   For actuation of metors (TN-S network) (TN-S network)	Fitted with:	Two sensor inputs through M12 sockets (max. 150 mA) for quick stop and interlocked manual operation     Internal DC link     Key switch position AUTO     Key switch position OFF/RESET     Key switch position HAND     PC connection     Selector switch (Positions: REV - OFF - FWD)     PTC thermistor monitoring     Thermo-click with safe isolation     IGBT inverter
Image: Pes   Pes     Electromagnetic compatibility   Ist and 2nd environments (according to EN 61800-3)     Overvoltage category   III     Product category   Speed controller     Protocol   Sole     Radio interference class   Image: State and Stat	Functions	
Image: Pes   Pes     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     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)		
Overvoltage category   III     Product category   Speed controller     Protocol   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) AC voltage	Degree of protection	
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Protocol   AS-Interface profile cable: S-7.4 for 31 modules     Radio interference class   C1: for conducted emissions only     Rated impulse withstand voltage (Uimp)   CM     System configuration type   CM		
ASIRadio interference classC1: 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)CMSystem configuration typeCMSystem configuration typeCMConter-point earthed star network (TN-S network) AC voltage		
Rated impulse withstand voltage (Uimp)Image: Construction of the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary.System configuration typeImage: Construction of the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary.System configuration typeImage: Construction of the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary.System configuration typeImage: Construction of the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary.System configuration typeImage: Construction of the motor cable length, the connected load, and ambient network (TN-S network) AC voltage		
System configuration type Center-point earthed star network (TN-S network) AC voltage	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
AC voltage	Rated impulse withstand voltage (Uimp)	2000 V
Phase-earthed AU supply systems are not permitted.	System configuration type	

Mounting position	Vertical	
Shock resistance	15 g, Mechanical, According to IEC/EN ms, 1000 shocks per shaft	60068-2-27, 11 ms, Half-sinusoidal shock 11
Vibration	Resistance: 57 Hz, Amplitude transition Resistance: 10 - 150 Hz, Oscillation freq Resistance: 6 Hz, Amplitude 0.15 mm Resistance: According to IEC/EN 60068	uency
۸ ایند. با م	May 2000 m	
Altitude	Max. 2000 m Above 1000 m with 1 % performance re	duction 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	< 95 %, no condensation In accordance with IEC/EN 50178	
Current limitation	Adjustable, motor, main circuit 0.4 - 4.3 A, 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	Synchronous reluctance motors PM and LSPM motors Sensorless vector control (SLV) BLDC 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 (Ie)	4.3 A at 150% overload (at an operating temperature of +40 °C)	frequency of 8 kHz and an ambient air
Rated operational power at 380/400 V, 50 Hz, 3-phase Rated operational voltage	1.5 kW       400 V AC, 3-phase       480 V AC, 3-phase	
Resolution	0.1 Hz (Frequency resolution, setpoint v	alue)
Starting current - max	200 %, IH, max. starting current (High O Power section	verload), For 2 seconds every 20 seconds,
Supply frequency	50/60 Hz	
Switching frequency	8 kHz, 4 - 32 kHz adjustable, fPWM, Pov	ver 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 f	or external motor brake
Braking torque	≤ 30 % (I/Ie)	

	Adjustable to 100 % (I/Ie), DC - Main circuit
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	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	$C2 \le 5$ 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)

lectric engineering, automation, process control engineering / Electrical drive / Static frequ	uencv converter	
		/ Static frequency converter = < 1 kv (eci@\$\$10.0.1-27-02-31-01 [AKE177014])
lains voltage	V	380 - 480
lains frequency		50/60 Hz
umber of phases input		3
umber of phases output		3
lax. output frequency	Hz	500
lax. output voltage	V	500
ominal output current I2N	А	4.3
lax. output at quadratic load at rated output voltage	kW	1.5
lax. output at linear load at rated output voltage	kW	1.5
elative 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