Speed controllers, 8.5 A, 4 kW, Sensor input 4, 180/207 V DC, AS-Interface®, S-7.4 for 31 modules, HAN Q4/2, with manual override switch, with braking resistance, with fan



Part no. RASP5-8401A31-412R101S1 198857

Product name	Eaton Moeller® series Rapid Link Speed controller
Part no.	RASP5-8401A31-412R101S1
EAN	4015081969159
Product Length/Depth	195 millimetre
Product height	270 millimetre
Product width	220 millimetre
Product weight	3.78 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 juncti 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	Internal and on heat sink, temperature-controlled Fan Parameterization: drivesConnect Parameterization: Keypad Diagnostics and reset on device and via AS-Interface Parameterization: Fieldbus Parameterization: drivesConnect mobile (App)
Fitted with:	Fan PTC thermistor monitoring Control unit Key switch position HAND Key switch position AUTO Two sensor inputs through M12 sockets (max. 150 mA) for quick stop and interlocked manual operation Selector switch (Positions: REV - OFF - FWD) Internal DC link Breaking resistance Key switch position OFF/RESET PC connection IGBT inverter Manual override switch Braking resistance Thermo-click with safe isolation
Functions	4-quadrant operation possible 1 potentiometer speed Brake chopper with braking resistance for dynamic braking For actuation of motors with mechanical brake 3 fixed speeds
Degree of protection	IP65 NEMA 12
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	C1: for conducted emissions only

	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: According to IEC/EN 60068-2-6 Resistance: 10 - 150 Hz, Oscillation frequency Resistance: 6 Hz, Amplitude 0.15 mm Resistance: 57 Hz, Amplitude transition frequency on acceleration
Altitude	Max. 2000 m Above 1000 m with 1 % performance reduction 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 0.8 - 8.5 A, motor, main circuit
Delay time	< 10 ms, On-delay < 10 ms, Off-delay
Efficiency	98 % (η)
Heat dissipation at current/speed	51.6 W at 25% current and 0% speed 53.8 W at 25% current and 50% speed 60.9 W at 50% current and 0% speed 64 W at 50% current and 90% speed 65.4 W at 50% current and 50% speed 85.1 W at 100% current and 50% speed 94 W at 100% current and 50% speed 95.3 W at 100% current and 90% speed
Input current ILN at 150% overload	7.8 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 Operating mode	380 - 480 V (-10 %/+10 %, at 50/60 Hz) U/f control BLDC motors Synchronous reluctance motors PM and LSPM motors Sensorless vector control (SLV)
Output frequency - max	500 Hz
Output frequency - min	0 Hz
Overload current	At 40 °C For 60 s every 600 s
Overload current IL at 150% overload	12.7 A
Rated frequency - max	66 Hz
Rated frequency - min	45 Hz
Rated operational current (Ie)	8.5 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	4 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	5 HP
Braking current	≤ 0.6 A (max. 6 A for 120 ms), Actuator for external motor brake
Braking torque	≤ 30 % (I/Ie)
	Adjustable to 100 % (I/Ie), DC - Main circuit
Braking voltage	280/207 V DC -15 % / +10 %, Actuator for external motor brake
Switch-on threshold for the braking transistor	765 V DC
D. 1. 19: 11	40.14
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)	180/207 V DC (external brake 50/60 Hz)
nateu control voltage (oc)	24 V DC (-15 %/+20 %, external via AS-Interface® plug)
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	C2 ≤ 5 m, maximum motor cable length
Cable length	C3 ≤ 25 m, maximum motor cable length
	C1 ≤ 1 m, maximum motor cable length
10.2.2 Corrosion resistance	Marke the anadust standard's various marks
	Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures 10.2.3.2 Verification of resistance of insulating materials to normal heat	Meets the product standard's requirements. 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				

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Number of HW-interfaces parallel	
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)	
Degree of protection (NEMA) 12	
Height mm 270	
Width mm 220	
Depth mm 195	