DATASHEET - RASP5-5402A31-412R010S1

Speed controllers, 5.6 A, 2.2 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.

RASP5-5402A31-412R010S1 198826

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Parameterization: dives Connect Parameterization: dives Connect Parameterization: Fieldbus Diagnostics and reset on device and via AS-InterfaceFitted with:Control unit Key switch position AUTO PCC connectionFuted with:Control unit 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
Parameterization: dives Connect Parameterization: dives Connect Parameterization: Fieldbus Diagnostics and reset on device and via AS-InterfaceFitted with:Control unit Key switch position AUTO PCC connectionFuted with:Control unit Key switch position AUTO PCC connectionFuted with:Control unit Key switch position OFF/RESET Annual override switch Nervine parties isolation Internal DC int Selector switch (Positions: REV - OFF - FWD) Informal DC int Selector switch (Positions: REV - OFF - FWD) Informal DC int Selector switch (Positions: REV - OFF - FWD) Informal DC int Nervine 2000FunctionsFunctionsPunctionsField Auto Selector switch (Positions: REV - OFF - FWD) Informal DC int Nervine 2000PunctionsField Auto Selector switch (Positions: REV - OFF - FWD) Informal DC int Nervine 2000PunctionsField Auto 		
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Image: Product category For actuation of motors with mechanical brake STO (Safe Torque Off) Totentiometer speed Image: Product category Image: Product category Image: Product category Image: Product category Image: Product category Speed controller Image: Product category S	Fitted with:	Key switch position AUTO PC connection Key switch position OFF/RESET Manual override switch PTC thermistor monitoring Key switch position HAND Thermo-click with safe isolation Internal DC link Selector switch (Positions: REV - OFF - FWD) IGBT inverter Two sensor inputs through M12 sockets (max. 150 mA) for quick stop and
Index Index Index Electromagnetic compatibility 1st and 2nd environments (according to EN 61800-3) Overvoltage category III Product category Speed controller Protocol Speed controller 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 an eccessary.	Functions	For actuation of motors with mechanical brake STO (Safe Torque Off)
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Rated impulse withstand voltage (Uimp) 2000 V	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
	Rated impulse withstand voltage (Uimp)	2000 V

System configuration type	AC voltage Phase-earthed AC supply systems are not permitted. Center-point earthed star network (TN-S network)
Mounting position	Vertical
Mounting position Shock resistance	15 g, Mechanical, According to IEC/EN 60068-2-27, 11 ms, Half-sinusoidal shock 11
Vibration	Resistance: 6 Hz, Amplitude transition frequency on acceleration
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	0.5 - 5.6 A, motor, main circuit Adjustable, motor, main circuit
Delay time	< 10 ms, Off-delay < 10 ms, On-delay
Efficiency	98 % (ŋ)
Heat dissipation at current/speed	36.6 W at 25% current and 0% speed 38.1 W at 25% current and 50% speed 42 W at 50% current and 00% 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 60.4 W at 100% current and 50% speed
Input current ILN at 150% overload	5.3 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) Synchronous reluctance motors PM and LSPM motors BLDC motors U/f control 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	8.4 A
Rated frequency - max	66 Hz
Rated frequency - min	45 Hz
Rated operational current (le)	5.6 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	2.2 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	3 HP
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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	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	$C2 \le 5$ m, maximum motor cable length $C3 \le 25$ m, maximum motor cable length $C1 \le 1$ 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 10.2.5 Lifting	Meets the product standard's requirements. 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	z 500		
Max. output voltage	V	500		
Nominal output current I2N	А	5.6		
Max. output at quadratic load at rated output voltage	kW	W 2.2		
Max. output at linear load at rated output voltage	kW	W 2.2		

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