

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 braking resistance



**Part no. RASP5-5402A31-4120100S1
198806**

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| Product name | Eaton Moeller® series Rapid Link Speed controller |
| Part no. | RASP5-5402A31-4120100S1 |
| EAN | 4015081968640 |
| Product Length/Depth | 157 millimetre |
| Product height | 270 millimetre |
| Product width | 220 millimetre |
| Product weight | 3.42 kilogram |
| Certifications | UL approval IEC/EN 61800-5-1 RoHS UL 61800-5-1 CE |
| Product Tradename | Rapid Link |
| Product Type | Speed controller |
| Product Sub Type | None |
| 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 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 with selector switch REV - OFF - FWD |
| Features | Diagnostics and reset on device and via AS-Interface Parameterization: Fieldbus Parameterization: Keypad Parameterization: drivesConnect mobile (App) Parameterization: drivesConnect |
| Fitted with: | Key switch position AUTO Four fixed speeds Control unit IGBT inverter Internal DC link PC connection Braking resistance Selector switch (Positions: REV - OFF - FWD) Braking resistance Key switch position OFF/RESET Key switch position HAND Two sensor inputs through M12 sockets (max. 150 mA) for quick stop and interlocked manual operation Thermo-click with safe isolation PTC thermistor monitoring |
| Functions | 4-quadrant operation possible For actuation of motors with mechanical brake Brake chopper with braking resistance for dynamic braking |
| 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 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 |

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| System configuration type | | AC voltage Center-point earthed star network (TN-S network) 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: 10 - 150 Hz, Oscillation frequency Resistance: 6 Hz, Amplitude 0.15 mm 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 | | 0.5 - 5.6 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 | | 36.6 W at 25% current and 0% speed 38.1 W at 25% current and 50% speed 42 W at 50% current and 0% 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 | | 380 - 480 V (-10 %/+10 %, at 50/60 Hz) |
| Operating mode | | Sensorless vector control (SLV) Synchronous reluctance motors U/f control BLDC motors PM and LSPM 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 | | 8.4 A |
| Rated frequency - max | | 66 Hz |
| Rated frequency - min | | 45 Hz |
| Rated operational current (I _e) | | 5.6 A at 150% overload (at an operating frequency of 8 kHz and an ambient air temperature of +40 °C) |
| Rated operational power at 380/400 V, 50 Hz, 3-phase | | 2.2 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 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 | | ≤ 30 % (I/I _e) Adjustable to 100 % (I/I _e), DC - Main circuit |
| Braking voltage | | 230/277 V AC -15 % / +10 %, Actuator for external motor brake |
| Switch-on threshold for the braking transistor | | 765 V DC |
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| Rated conditional short-circuit current (I _q) | | 10 kA |
| Short-circuit protection (external output circuits) | | Type 1 coordination via the power bus' feeder unit, Main circuit |
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| Rated control voltage (U _c) | | 24 V DC (-15 %/+20 %, external via AS-Interface® plug) 230/277 V AC (external brake 50/60 Hz) |
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| 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®) |
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| Cable length | | C1 ≤ 1 m, maximum motor cable length C2 ≤ 5 m, maximum motor cable length C3 ≤ 25 m, maximum motor cable length |
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| 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

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| 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 (ec1@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 I _{2N} | A | 5.6 |
| Max. output at quadratic load at rated output voltage | kW | 2.2 |

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| Max. output at linear load at rated output voltage | | kW | 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 | | | Yes |
| 4-quadrant operation possible | | | Yes |
| Type of converter | | | U converter |
| Degree of protection (IP) | | | IP65 |
| Degree of protection (NEMA) | | | 12 |
| Height | | mm | 270 |
| Width | | mm | 220 |
| Depth | | mm | 157 |