

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, STO (Safe Torque Off), with fan



Part no. **RASP5-8401A31-412R011S1**
198861

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| Product name | Eaton Moeller® series Rapid Link Speed controller |
| Part no. | RASP5-8401A31-412R011S1 |
| EAN | 4015081969197 |
| Product Length/Depth | 195 millimetre |
| Product height | 270 millimetre |
| Product width | 220 millimetre |
| Product weight | 3.78 kilogram |
| Certifications | RoHS UL approval CE IEC/EN 61800-5-1 UL 61800-5-1 |
| 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 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 with selector switch REV - OFF - FWD |
| Features | Parameterization: Fieldbus Parameterization: drivesConnect mobile (App) Parameterization: Keypad Internal and on heat sink, temperature-controlled Fan Diagnostics and reset on device and via AS-Interface Parameterization: drivesConnect |
| Fitted with: | PC connection Key switch position OFF/RESET Internal DC link Manual override switch Selector switch (Positions: REV - OFF - FWD) Control unit Fan IGBT inverter Key switch position AUTO Key switch position HAND Two sensor inputs through M12 sockets (max. 150 mA) for quick stop and interlocked manual operation PTC thermistor monitoring Thermo-click with safe isolation |
| Functions | STO (Safe Torque Off) 1 potentiometer speed 3 fixed speeds For actuation of motors with mechanical brake |
| Degree of protection | NEMA 12 IP65 |
| 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 ASI |
| 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. |

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| Rated impulse withstand voltage (Uimp) | | 2000 V |
| System configuration type | | Center-point earthed star network (TN-S network) Phase-earthed AC supply systems are not permitted. AC voltage |
| 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: According to IEC/EN 60068-2-6 Resistance: 6 Hz, Amplitude 0.15 mm Resistance: 10 - 150 Hz, Oscillation frequency 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 | | In accordance with IEC/EN 50178 < 95 %, no condensation |
| 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 0% 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 | | 380 - 480 V (-10 %/+10 %, at 50/60 Hz) |
| Operating mode | | U/f control Sensorless vector control (SLV) PM and LSPM motors Synchronous reluctance motors BLDC motors |
| 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 °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 |

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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 | | 280/207 V DC -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) | | 180/207 V DC (external brake 50/60 Hz) 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 | | C1 ≤ 1 m, maximum motor cable length C2 ≤ 5 m, maximum motor cable length C3 ≤ 25 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 (ec1@ss10.0.1-27-02-31-01 [AKE177014])

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| 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 | A | 8.5 |
| Max. output at quadratic load at rated output voltage | kW | 4 |

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| Max. output at linear load at rated output voltage | | kW | 4 |
| 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 | 195 |