# Eaton 198903

Eaton Moeller® series Rapid Link - Speed controllers, 5.6 A, 2.2 kW, Sensor input 4, Actuator output 2, 400/480 V AC, Ethernet IP, HAN Q4/2, with manual override switch

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| **PRODUCT NAME** | Eaton Rapid Link Speed controller |
| **CATALOG NUMBER** | 198903 |
| **PRODUCT LENGTH/DEPTH** | 157 mm |
| **PRODUCT HEIGHT** | 270 mm |
| **PRODUCT WIDTH** | 220 mm |
| **PRODUCT WEIGHT** | 3.59 kg |
| **CERTIFICATIONS** | CE<br>RoHS<br>UL approval<br>IEC/EN 61800-5-1<br>UL 61800-5-1 |
| **CATALOG NOTES** | • 3 fixed speeds and 1 potentiometer speed<br>• can be switched over from U/f to (vector) speed control<br>• Connection of supply voltage via adapter cable on round or flexible busbar junction<br>• Diagnostics and reset on the device and via Ethernet IP<br>• integrated PTC thermistor monitoring and Thermoclick with safe isolation<br>• optional: 4 sensor inputs with M12-Y adapter for switchover to creep speed<br>• optional: Faster |

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| | stop if external 24 V fails<br>• Two sensor inputs through M12 sockets (max. 150 mA) for quick stop and interlocked manual operation<br>• with AUTO - OFF/RESET - HAND key switches<br>• with selector switch REV - OFF - FWD |

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| **FEATURES** | Parameterization: Keypad<br>Parameterization: drivesConnect<br>Parameterization: drivesConnect mobile (App)<br>Parameterization: Fieldbus |
| **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. |
| **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. |

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| DECLARATIONS OF CONFORMITY | eaton-speed-controller-declaration-of-conformity-uk251321en.pdf |
| ECAD MODEL | ETN.RASP5-5424EIP-412R000S1.edz |
| MCAD MODEL | rasp5_v31.stp<br>ramo5_v31.dwg |
| □□□□□ | eaton-powerxl-speed-control-unit-ethernet-profinet-rasp5-il034093zu.pdf |
| □□□□ | eaton-rapid-link-5-brochure-br040014en-en-us.pdf |
| □□□□ | eaton-rapid-link-5-mn034004en-us.pdf |
| □□ | eaton-bus-adapter-rapidlink-speed-controller-dimensions-004.eps<br>eaton-bus-adapter-rapidlink-speed-controller-dimensions-003.eps<br>eaton-bus-adapter-rapidlink-speed-controller-dimensions-005.eps<br>eaton-bus-adapter-rapidlink-speed-controller-dimensions-002.eps |

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| **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. |
| **FITTED WITH:** | Two sensor inputs through M12 sockets (max. 150 mA) for quick stop and interlocked manual operation<br>Internal DC link<br>IGBT inverter<br>Key switch position OFF/RESET<br>Thermo-click with safe isolation<br>PC connection<br>Key switch position AUTO<br>PTC thermistor monitoring<br><br>Key switch position HAND<br>Control unit<br>Manual override switch<br>Selector switch (Positions: REV - OFF - FWD)<br>2 Actuator outputs |
| **CLIMATIC PROOFING** | In accordance with IEC/EN 50178<br>< 95 %, no condensation |
| **OPERATING MODE** | U/f control<br>Sensorless vector control (SLV)<br>BLDC motors<br>PM and LSPM motors<br>Synchronous reluctance motors |

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| **RATED IMPULSE WITHSTAND VOLTAGE (UIMP)** | 2000 V |
| **ALTITUDE** | Max. 2000 m<br>Above 1000 m with 1 % performance reduction per 100 m |
| **APPLICATION IN DOMESTIC AND COMMERCIAL AREA PERMITTED** | Yes |
| **MAINS SWITCH-ON FREQUENCY** | Maximum of one time every 60 seconds |
| **AMBIENT OPERATING TEMPERATURE - MAX** | 40 °C |
| **AMBIENT OPERATING TEMPERATURE - MIN** | -10 °C |
| **MAINS VOLTAGE - MAX** | 480 V |
| **OUTPUT VOLTAGE - MAX** | 500 V |
| **RELATIVE SYMMETRIC NET FREQUENCY TOLERANCE** | 10 % |
| **RELATIVE SYMMETRIC NET VOLTAGE TOLERANCE** | 10 % |
| **AMBIENT STORAGE TEMPERATURE - MAX** | 70 °C |
| **AMBIENT STORAGE TEMPERATURE - MIN** | -40 °C |
| **APPLICATION IN INDUSTRIAL AREA PERMITTED** | Yes |
| **MAINS VOLTAGE TOLERANCE** | 380 - 480 V (-10 %/+10 %, at 50/60 Hz) |
| **PRODUCT CATEGORY** | Speed controller |
| **PROTECTION** | Finger and back-of-hand proof, Protection against direct contact (BGV A3, VBG4) |
| **RESOLUTION** | 0.1 Hz (Frequency resolution, setpoint value) |
| **MOUNTING POSITION** | Vertical |
| **RATED CONDITIONAL SHORT-CIRCUIT CURRENT (IQ)** | 10 kA |
| **OVERVOLTAGE CATEGORY** | III |
| **COMMUNICATION INTERFACE** | Ethernet IP, built in |
| **CONNECTION** | Plug type: HAN Q4/2 |
| **CONVERTER TYPE** | U converter |

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| **DEGREE OF PROTECTION** | IP65<br>NEMA 12 |
| **ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE** | 3 HP |
| **HEAT DISSIPATION CAPACITY PDISS** | 0 W |
| **HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID** | 0 W |
| **INPUT CURRENT ILN AT 150% OVERLOAD** | 5.3 A |
| **MAINS CURRENT DISTORTION** | 120 % |
| **PROTOCOL** | EtherNet/IP |
| **OVERLOAD CURRENT** | For 60 s every 600 s<br>At 40 °C |
| **OVERLOAD CURRENT IL AT 150% OVERLOAD** | 8.4 A |
| **RATED FREQUENCY - MAX** | 66 Hz |
| **RATED FREQUENCY - MIN** | 45 Hz |
| **RATED OPERATIONAL POWER AT 380/400 V, 50 HZ, 3-PHASE** | 0.75 kW |
| **ASSIGNED MOTOR CURRENT IM AT 400 V, 50 HZ, 150% OVERLOAD** | 5.6 A |
| **ASSIGNED MOTOR CURRENT IM AT 440 - 480 V, 60 HZ, 150% OVERLOAD** | 5.6 A |
| **SYSTEM CONFIGURATION TYPE** | Phase-earthed AC supply systems are not permitted.<br>Center-point earthed star network (TN-S network)<br>AC voltage |
| **BRAKING CURRENT** | ≤ 0.6 A (max. 6 A for 120 ms), Actuator for external motor brake |
| **ELECTROMAGNETIC COMPATIBILITY** | 1st and 2nd environments (according to EN 61800-3) |
| **CURRENT LIMITATION** | Adjustable, motor, main circuit<br>0.5 - 5.6 A, motor, main circuit |
| **BRAKING TORQUE** | Adjustable to 100 % (I/Ie), DC - Main circuit<br>≤ 30 % (I/Ie) |
| **BRAKING VOLTAGE** | 400/480 V AC -15 % / +10 %, Actuator for external |

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| | motor brake |
| **CABLE LENGTH** | C3 ≤ 25 m, maximum motor cable length<br>C1 ≤ 1 m, maximum motor cable length<br>C2 ≤ 5 m, maximum motor cable length |
| **FUNCTIONS** | For actuation of motors with mechanical brake<br>1 potentiometer speed<br>3 fixed speeds |
| **DELAY TIME** | < 10 ms, Off-delay<br>< 10 ms, On-delay |
| **NUMBER OF INPUTS (ANALOG)** | 0 |
| **NUMBER OF INPUTS (DIGITAL)** | 4 |
| **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 necessary.<br>C1: for conducted emissions only |
| **NUMBER OF OUTPUTS (DIGITAL)** | 2 |
| **STARTING CURRENT - MAX** | 200 %, IH, max. starting current (High Overload), For 2 seconds every 20 seconds, Power section |
| **NUMBER OF PHASES (INPUT)** | 3 |
| **NUMBER OF PHASES (OUTPUT)** | 3 |
| **POWER CONSUMPTION** | 58 W |
| **INTERFACES** | Specification: S-7.4 (AS-Interface®)<br>Number of slave addresses: 31 (AS-Interface®)<br>Max. total power consumption from AS-Interface® power supply unit (30 V): 250 mA |
| **EFFICIENCY** | 98 % (η) |
| **RATED CONTROL VOLTAGE (UC)** | 24 V DC (-15 %/+20 %, external via AS-Interface® plug)<br>400/480 V AC (external brake 50/60 Hz) |
| **SUPPLY FREQUENCY** | 50/60 Hz |

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| **LEAKAGE CURRENT AT GROUND IPE - MAX** | 3.5 mA |
| **MAINS VOLTAGE - MIN** | 380 V |
| **NOMINAL OUTPUT CURRENT I2N** | 5.6 A |
| **NUMBER OF HW-INTERFACES (INDUSTRIAL ETHERNET)** | 2 |
| **NUMBER OF HW-INTERFACES (OTHER)** | 0 |
| **NUMBER OF HW-INTERFACES (PARALLEL)** | 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 INTERFACES (PROFINET)** | 0 |
| **NUMBER OF OUTPUTS (ANALOG)** | 0 |
| **OUTPUT AT LINEAR LOAD AT RATED OUTPUT VOLTAGE - MAX** | 2.2 kW |
| **OUTPUT AT QUADRATIC LOAD AT RATED OUTPUT VOLTAGE - MAX** | 2.2 kW |
| **OUTPUT FREQUENCY - MAX** | 500 Hz |
| **OUTPUT FREQUENCY - MIN** | 0 Hz |
| **SHORT-CIRCUIT PROTECTION (EXTERNAL OUTPUT CIRCUITS)** | Type 1 coordination via the power bus' feeder unit, Main circuit |
| **SHOCK RESISTANCE** | 15 g, Mechanical, According to IEC/EN 60068-2-27, 11 ms, Half-sinusoidal shock 11 ms, 1000 shocks per shaft |
| **SWITCHING FREQUENCY** | 8 kHz, 4 - 32 kHz adjustable, fPWM, Power section, Main circuit |
| **RATED OPERATIONAL CURRENT (IE)** | 5.6 A at 150% overload (at an operating frequency of 8 kHz and an ambient air temperature of +40 °C) |

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| **RATED OPERATIONAL VOLTAGE** | 480 V AC, 3-phase<br>400 V AC, 3-phase |
| **VIBRATION** | Resistance: 6 Hz, Amplitude 0.15 mm<br>Resistance: 57 Hz, Amplitude transition frequency on acceleration<br>Resistance: 10 - 150 Hz, Oscillation frequency<br>Resistance: According to IEC/EN 60068-2-6 |
| **HEAT DISSIPATION AT CURRENT/SPEED** | 36.6 W at 25% current and 0% speed<br>38.1 W at 25% current and 50% speed<br>42 W at 50% current and 0% speed<br>42.5 W at 50% current and 90% speed<br>44.2 W at 50% current and 50% speed<br>55.9 W at 100% current and 0% speed<br>58.3 W at 100% current and 90% speed<br>60.4 W at 100% current and 50% speed |

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| **PROJECT NAME:** |
| **PROJECT NUMBER:** |
| **PREPARED BY:** |
| **□□:** |

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