Specifications

Eaton 198977

Catalog Number: 198977

Eaton Moeller® series Rapid Link - Speed controllers, 4.3 A, 1.5 kW, Sensor input 4, Actuator output 2, 180/207 V DC, PROFINET, HAN Q4/2, with braking resistance, STO (Safe Torque Off)



General specifications

Product Name
Eaton Moeller® series Rapid Link Speed controller

Catalog Number
198977

EAN
4015081970353

Product Length/Depth
157 mm

Product Height
270 mm

Product Width
220 mm

Product Weight
3.46 kg

Certifications
UL 61800-5-1
RoHS
CE
IEC/EN 61800-5-1
UL approval

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 the device and via PROFINET

Powering Business Worldwide

Product specifications

Features

Parameterization: drivesConnect

Parameterization: Fieldbus

Parameterization: drivesConnect mobile (App)

Parameterization: Keypad

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.

Resources

Application notes

Generation Change RA-SP to RASP5

Connecting drives to generator supplies

Electromagnetic compatibility (EMC)

Generation change from RA-MO to RAMO 4.0

Generation change RAMO4 to RAMO5

Generation Change RASP4 to RASP5

Configuration to Rockwell PLC for Rapid Link

Generation change from RA-SP to RASP 4.0

Brochures

eaton-rapid-link-5-brochure-br040014en-en-us.pdf

eaton-powerxl-variable-frequency-drives-material-handling-brochure-br040017en-en-us.pdf

DA-SW-drivesConnect

Catalogs

Product Range Catalog Drives Engineering

eaton-rapid-link-5-drive-system-catalog-ca040002en-en-us

Declarations of conformity

DA-DC-00003964.pdf

DA-DC-00004991.pdf

DA-DC-00004184.pdf

DA-DC-00004984.pdf

Drawings

eaton-bus-adapter-rapidlink-speed-controller-dimensions-002.eps

eaton-bus-adapter-rapidlink-speed-controller-dimensions-004.eps

eaton-bus-adapter-rapidlink-speed-controller-dimensions.eps

eaton-bus-adapter-rapidlink-speed-controller-dimensions-003.eps

eCAD model

ETN.RASP5-4421PNT-4120110S1.edz

Installation instructions

IL034093ZU

Installation videos

Rapid Link 5

Manuals and user guides

MN034004EN

MN040003_EN

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:

Key switch position HAND
Braking resistance
Thermo-click with safe isolation
2 Actuator outputs
Internal DC link
PC connection
Breaking resistance
Key switch position AUTO
Selector switch (Positions: REV - OFF - FWD)
Control unit
Key switch position OFF/RESET
IGBT inverter
Two sensor inputs through M12 sockets (max. 150 mA) for quick stop and interlocked manual operation
PTC thermistor monitoring

Climatic proofing

< 95 %, no condensation
In accordance with IEC/EN 50178

Operating mode

mCAD model

rasp5_v39.stp

ramo5_v39.dwg

Product notifications

eaton-drives-ecodesign-directive-mz040046en-en.pdf

Sensorless vector control (SLV)

BLDC motors

PM and LSPM motors

Synchronous reluctance motors

U/f control

Rated impulse withstand voltage (Uimp)

2000 V

Altitude

Above 1000 m with 1 % performance reduction per 100 m

Max. 2000 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)

Switch-on threshold for the braking transistor

765 VDC

Mounting position

Vertical

Rated conditional short-circuit current (Iq)

10 kA

Overvoltage category

III

Communication interface

PROFINET, optional

Connection

Plug type: HAN Q4/2

Converter type

U converter

Degree of protection

IP65

NEMA 12

Assigned motor power at 115/120 V, 60 Hz, 1-phase

2 HP

Assigned motor power at 230/240 V, 60 Hz, 1-phase

2 HP

Assigned motor power at 460/480 V, 60 Hz

2 HP

Assigned motor power at 460/480 V, 60 Hz, 3-phase

2 HP

Heat dissipation capacity Pdiss

0 W

Heat dissipation per pole, current-dependent Pvid

0 W

Input current ILN at 150% overload

4.1 A

Mains current distortion

120 %

Protocol

PROFINET IO

Overload current

For 60 s every 600 s

At 40 °C

Overload current IL at 150% overload

6.5 A

Rated frequency - max

66 Hz

Rated frequency - min

45 Hz

Rated operational power at 380/400 V, 50 Hz, 3-phase

1.5 kW

System configuration type

AC voltage

Center-point earthed star network (TN-S network)

Phase-earthed AC supply systems are not permitted.

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

0.4 - 4.3 A, motor, main circuit

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

Cable length

C1 ≤ 1 m, maximum motor cable length

C2 ≤ 5 m, maximum motor cable length

C3 ≤ 25 m, maximum motor cable length

Functions

3 fixed speeds

STO (Safe Torque Off)

For actuation of motors with mechanical brake

1 potentiometer speed

4-quadrant operation possible

Brake chopper with braking resistance for dynamic braking

Delay time

< 10 ms, On-delay

< 10 ms, Off-delay

Number of inputs (analog)

0

Number of inputs (digital)

4

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.

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

46 W

Interfaces

Max. total power consumption from AS-Interface® power supply unit (30 V): 250 mA

Number of slave addresses: 31 (AS-Interface®)

Specification: S-7.4 (AS-Interface®)

Efficiency

98 % (η)

Rated control voltage (Uc)

24 V DC (-15 %/+20 %, external via AS-Interface® plug)

180/207 V DC (external brake 50/60 Hz)

Supply frequency

50/60 Hz

Leakage current at ground IPE - max

3.5 mA

Mains voltage - min

380 V

Nominal output current I2N

4.3 A

Number of HW-interfaces (industrial ethernet)

0

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)

2

Number of outputs (analog)

0

Output at linear load at rated output voltage - max

1.5 kW

Output at quadratic load at rated output voltage - max

1.5 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)

4.3 A at 150% overload (at an operating frequency of 8 kHz and an ambient air temperature of +40 °C)

Rated operational voltage

400 V AC, 3-phase

480 V AC, 3-phase

Vibration

Resistance: 6 Hz, Amplitude 0.15 mm

Resistance: According to IEC/EN 60068-2-6

Resistance: 10 - 150 Hz, Oscillation frequency

Resistance: 57 Hz, Amplitude transition frequency on acceleration

Heat dissipation at current/speed

32.3 W at 25% current and 0% speed

33.2 W at 25% current and 50% speed

35.2 W at 50% current and 90% speed

36.2 W at 50% current and 0% speed

37.6 W at 50% current and 50% speed

46.3 W at 100% current and 90% speed

48.7 W at 100% current and 0% speed

48.7 W at 100% current and 50% speed

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