Specifications

# Eaton 199021

## Catalog Number: 199021

Eaton Moeller® series Rapid Link - Speed controllers, 5.6 A, 2.2 kW, Sensor input 4, Actuator output 2, 180/207 V DC, PROFINET, HAN Q4/2, with manual override switch, STO (Safe Torque Off)



## General specifications

**Product Name**
Eaton Moeller® series Rapid Link Speed controller

**Catalog Number**
199021

**EAN**
4015081970797

**Product Length/Depth**
157 mm

**Product Height**
270 mm

**Product Width**
220 mm

**Product Weight**
3.62 kg

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

**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: Keypad

Parameterization: drivesConnect mobile (App)

Parameterization: drivesConnect

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.

## Resources

### Application notes

Connecting drives to generator supplies

Generation Change RA-SP to RASP5

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

Electromagnetic compatibility (EMC)

Generation change from RA-MO to RAMO 4.0

### Brochures

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

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

DA-SW-drivesConnect

### Catalogs

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

Product Range Catalog Drives Engineering

### Declarations of conformity

DA-DC-00003964.pdf

DA-DC-00004184.pdf

DA-DC-00004991.pdf

DA-DC-00004984.pdf

### Drawings

eaton-bus-adapter-rapidlink-speed-controller-dimensions-005.eps

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

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

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

### eCAD model

ETN.RASP5-5421PNT-412R010S1.edz

### Installation instructions

IL034093ZU

### Installation videos

Rapid Link 5

### Manuals and user guides

MN040003_EN

MN034004EN

### 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:

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

### Climatic proofing

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

### Operating mode

PM and LSPM motors

### mCAD model

rasp5_v33.stp

ramo5_v33.dwg

### Product notifications

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

Synchronous reluctance motors

BLDC motors

Sensorless vector control (SLV)

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)

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

3 HP

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

3 HP

Assigned motor power at 460/480 V, 60 Hz

3 HP

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

PROFINET IO

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

2.2 kW

### System configuration type

Phase-earthed AC supply systems are not permitted.

AC voltage

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

### 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

0.5 - 5.6 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

C3 ≤ 25 m, maximum motor cable length

C1 ≤ 1 m, maximum motor cable length

C2 ≤ 5 m, maximum motor cable length

### Functions

3 fixed speeds

1 potentiometer speed

STO (Safe Torque Off)

For actuation of motors with mechanical brake

### Delay time

< 10 ms, Off-delay

< 10 ms, On-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

58 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)

180/207 V DC (external brake 50/60 Hz)
24 V DC (-15 %/+20 %, external via AS-Interface® plug)

Supply frequency

50/60 Hz

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)

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

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)

Rated operational voltage

480 V AC, 3-phase

400 V AC, 3-phase

### Vibration

Resistance: 10 - 150 Hz, Oscillation frequency

Resistance: 57 Hz, Amplitude transition frequency on acceleration

Resistance: 6 Hz, Amplitude 0.15 mm

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

### 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

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