Specifications

Eaton 3-5042-003A

Catalog Number: 3-5042-003A

Eaton DM1 Variable frequency drive, 115 V AC, single-phase, 1.6 A, 0.18 kW, IP20/NEMA0, 7-digital display assembly, Setpoint potentiometer, Brake chopper, FS1



General specifications

Product Name
Eaton DM1 Variable frequency drive

Catalog Number
3-5042-003A

EAN
4015081980505

Product Length/Depth
180 mm

Product Height
152 mm

Product Width
72 mm

Product Weight
1.2 kg

Certifications
EAC
UL report applies to both US and Canada
C-Tick
IEC/EN 61800-3
UkrSEPRO
CSA-C22.2 No. 274-13
IEC/EN61800-5
IEC/EN61800-3
CE marking
Certified by UL for use in Canada
IEC/EN 61800-5-1
RoHS, ISO 9001
UL File No.: E134360
CSA-C22.2 No. 274-17
UL 508C
IEC/EN 61800-2
CUL
UL
CE
UL Category Control No.: NMMS,

Powering Business Worldwide

General

Air volume capacity

26 m³/h

Communication interface

Modbus RTU, built in
PROFIBUS, optional
CANopen®, optional
BACnet MS/TP, built in
BACnet TCP
Ethernet IP, built in
SmartWire-DT, optional
Modbus TCP, built in
DeviceNet, optional

Connection to SmartWire-DT

Yes
In conjunction with DXG-NET-SWD SmartWire DT module

Degree of protection

IP20
NEMA Other

Electromagnetic compatibility

1st and 2nd environments (according to EN 61800-3)

Environmental class

3C2, 3S2 (Air quality)

Features

Parameterization: Power Xpert inControl
Parameterization: Keypad
Parameterization: Fieldbus
Temperature-controlled fan

Fitted with:

Internal DC link
Brake chopper
7-digital display assembly
IGBT inverter
Setpoint potentiometer
Breaking resistance
Control unit
PC connection

Frame size

FS1

Mounting position

Vertical

Climatic environmental conditions

Altitude

Max. 3000 m
Above 1000 m with 1 % derating per 100 m
Max. 1000 m
Max. 2000 m for Corner Grounded TN Systems

Ambient operating temperature - min

-10 °C

Ambient operating temperature - max

50 °C

Ambient storage temperature - min

-40 °C

Ambient storage temperature - max

70 °C

Climatic proofing

< 95 average relative humidity (RH), no condensation, no corrosion

Main circuit

Current limitation

0.1 - 2 x IH (CT), motor, main circuit

Heat dissipation at current/speed

11 W at 25% current and 50% speed
13 W at 25% current and 0% speed
16 W at 100% current and 50% speed
17 W at 50% current and 50% speed
17 W at 50% current and 90% speed
23 W at 100% current and 0% speed
29 W at 50% current and 0% speed
33 W at 100% current and 90% speed

Input current ILN at 110% overload

9.6 A

Input current ILN at 150% overload

6.4 A

Mains current distortion

40 %

Mains switch-on frequency

Maximum of one time every 60 seconds

Number of slots

1 (expansion)

Overvoltage category

III

Pollution degree

2

Product Category

Variable frequency drives

Protection

Finger and back-of-hand proof, Protection against direct contact (BGV A3, VBG4)

Radio interference class

Optional external radio interference suppression filter for longer motor cable lengths and for use in different EMC environments
C2, C3: depending on the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary.
C1: with external filter, for conducted emissions only

Safety function/level

STO (Safe Torque Off, SIL2, PLc Cat 2)

Shock resistance

0.75 mm (peak) at 10 - 57 Hz, max. 1 g at 57 - 150 Hz, according to EN 61800-5-1, EN 60068-2-6: 10 - 150 Hz

Suitable for

Branch circuits, (UL/CSA)

Mains voltage - min

100 V

Mains voltage - max

120 V

Operating mode

PM motors
Torque regulation
Sensorless vector control (SLV)
U/f control
Speed control with slip compensation

Output frequency - min

0 Hz

Output frequency - max

400 Hz

Output voltage (U2)

230 V AC, 3-phase

Overload current IL at 110% overload

3.3 A

Overload current IL at 150% overload

2.4 A

Rated conditional short-circuit current (Iq)

100 kA

Rated control supply voltage

10 V DC (Us, max. 10 mA)

Rated frequency - min

45 Hz

Rated frequency - max

66 Hz

Rated operational current (Ie) at 110% overload

3 A

Rated operational current (Ie) at 150% overload

1.6 A

Rated operational power at 115 V, 50 Hz, 110% overload

0.37 kW

Rated operational power at 115 V, 50 Hz, 1-phase

0.18 kW

Rated operational voltage

115 V AC, 1-phase

Resolution

0.01 Hz (Frequency resolution, setpoint value)

Short-circuit protection rating

10 A, UL (Class CC or J), Safety device (fuse or miniature circuit-breaker), Power Wiring

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 (audible), fPWM, Power section, Main circuit

System configuration type

TN-S, TN-C, TN-C-S, TT, IT

Voltage rating - max

120 VAC

Motor rating

Assigned motor current IM at 500 V, 50 Hz, 150% overload

1.5 A

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

0.25 HP

Assigned motor power at 115/120 V, 60 Hz, 110% overload

0.5 HP

Braking function

Braking torque

Adjustable to 150 %, DC - Main circuit

Max. 100 % of rated operational current Ie with external braking resistor - Main circuit

Max. 30 % MN, Standard - Main circuit

Control circuit

Number of inputs (analog)

1

Number of inputs (digital)

4

Number of outputs (analog)

1

Number of relay outputs

2 (parameterizable, 1 changeover contact and 1 N/O, 3 A (240 V AC) / 3 A (24 V DC))

Rated control voltage (Uc)

24 V DC (external, max. 100 mA options incl.)

Design verification

Equipment heat dissipation, current-dependent Pvid

33 W

Rated operational current for specified heat dissipation (In)

3 A

10.2.2 Corrosion resistance

Meets the product standard's requirements.

Resources

Application notes

Dual Rating What exactly does that mean?

Connecting drives to generator supplies

Electromagnetic compatibility (EMC)

Brochures

eaton-powerxl-dm1-variable-frequency-drives-brochure-br040016en-en-us.pdf

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.

Catalogs

Product Range Catalog Drives Engineering

Declarations of conformity

DA-DC-00004643.pdf

DA-DC-00004864.pdf

Installation instructions

DM1 IL PUB 53-675 TBG Change Request 12-24-21 Final (300 DPI).pdf

Installation videos

PowerXL Variable Frequency Drive DM1

Manuals and user guides

MN040060EN

MN040049EN

mCAD model

fs1_89_1309.dwg

fs1-89-1309.stp

Multimedia

PowerXL DM1 Variable Frequency Drive - PowerXpert inControl with Bluetooth

PowerXL DM1 Variable Frequency Drive - Establishing a Modbus TCP connection with software Power Xper

PowerXL DM1 Variable Frequency Drive - Configuration with keypad

PowerXL DM1 Variable Frequency Drive - Setup via WebUI

PowerXL DM1 Variable Frequency Drive - Setup via Software

Product notifications

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

Sales notes

eaton-powerxl-dm1-variable-frequency-drives-flyer-fl040006en-en-us.pdf

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.

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