Specifications

# Eaton 3-5028-005A

## Catalog Number: 3-5028-005A

Eaton DM1 Variable frequency drive, 400 V AC, 3-phase, 12 A, 5.5 kW, IP20/NEMA0, Brake chopper, FS2




### General specifications

**Product Name**
Eaton DM1 Variable frequency drive

**Catalog Number**
3-5028-005A

**EAN**
4015081980352

**Product Length/Depth**
180 mm

**Product Height**
220 mm

**Product Width**
109 mm

**Product Weight**
2.6 kg

**Certifications**
UL 508C
CSA-C22.2 No. 274-13
IEC/EN61800-5
CUL
UL Category Control No.: NMMS, NMMS7
C-Tick
CE marking
Certified by UL for use in Canada
UL report applies to both US and Canada
UL
CE
EAC
RoHS, ISO 9001
IEC/EN61800-3
UL Listed
UkrSEPRO
IEC/EN 61800-2
IEC/EN 61800-5-1
UL File No.: E134360
IEC/EN 61800-3

Powering Business Worldwide

## General

### Air volume capacity

64 m³/h

### Communication interface

Modbus RTU, built in
PROFIBUS, optional
CANopen®, optional
DeviceNet, optional
SmartWire-DT, optional

### Connection to SmartWire-DT

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

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

### Fitted with:

Brake chopper
Internal DC link
IGBT inverter
Breaking resistance
PC connection

### Frame size

FS2

### Mounting position

Vertical

### Number of slots

1 (expansion)

### Overvoltage category

III

### Pollution degree

## Climatic environmental conditions

### Altitude

Max. 1000 m
Max. 3000 m
Above 1000 m with 1 % derating per 100 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

108 W at 50% current and 50% speed
120 W at 50% current and 90% speed
126 W at 100% current and 0% speed
169 W at 50% current and 0% speed
205 W at 100% current and 90% speed
71 W at 25% current and 0% speed
90 W at 100% current and 50% speed
94 W at 25% current and 50% speed

### Input current ILN at 110% overload

19.2 A

### Input current ILN at 150% overload

14.4 A

### Mains current distortion

40 %

### Mains switch-on frequency

Maximum of one time every 60 seconds

2

### Product Category

Variable frequency drives

### Protection

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

### Radio interference class

C1: with external filter, 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.
Optional external radio interference suppression filter for longer motor cable lengths and for use in different EMC environments

### 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

380 V

### Mains voltage - max

480 V

### Operating mode

U/f control

### Output frequency - min

0 Hz

### Output frequency - max

400 Hz

### Output voltage (U2)

500 V AC, 3-phase
480 V AC, 3-phase
400 V AC, 3-phase

### Overload current IL at 110% overload

17.6 A

### Overload current IL at 150% overload

18 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

16 A

### Rated operational current (Ie) at 150% overload

12 A

### Rated operational power at 380/400 V, 50 Hz, 110% overload

7.5 kW

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

5.5 kW

### Rated operational power at 500 V, 50 Hz, 3-phase

5.5 kW

### Rated operational power at 500 V, 50 Hz, 3-phase, 110% overload

7.5 kW

### Rated operational voltage

500 V AC, 3-phase

400 V AC, 3-phase

480 V AC, 3-phase

### Resolution

0.01 Hz (Frequency resolution, setpoint value)

### Short-circuit protection rating

20 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

4 kHz, 1 - 16 kHz adjustable, fPWM, Power section, Main circuit

### System configuration type

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

### Voltage rating - max

500 V

## Motor rating

### Assigned motor current IM at 400 V, 50 Hz, 110% overload

15.2 A

### Assigned motor current IM at 440/480 V, 60 Hz, 110% overload

14 A

### Assigned motor current IM at 500 V, 50 Hz, 110% overload

12.1 A

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

9 A

### Assigned motor power at 460/480 V, 60 Hz

7.5 HP

### Assigned motor power at 460/480 V, 60 Hz, 110% overload

10 HP

## Braking function

### Braking resistance

35 Ω

### Braking torque

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

Max. 30 % MN, Standard - Main circuit

Adjustable to 150 %, DC - Main circuit

### Switch-on threshold for the braking transistor

800 VDC

## 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)

## Design verification

### Equipment heat dissipation, current-dependent Pvid

203 W

### Rated operational current for specified heat dissipation (In)

16 A

### 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

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

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.

## Resources

### Application notes

Connecting drives to generator supplies

Dual Rating What exactly does that mean?

Electromagnetic compatibility (EMC)

### Brochures

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

### Catalogs

Product Range Catalog Drives Engineering

### Declarations of conformity

DA-DC-00004644.pdf

DA-DC-00004863.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

MN040049EN

MN040060EN

### mCAD model

fs2_89_1327.dwg

fs2-89-1327.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 - Setup via Software

PowerXL DM1 Variable Frequency Drive - Configuration with keypad

PowerXL DM1 Variable Frequency Drive - Setup via WebUI

### Product notifications

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

### Sales notes

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




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