

# Eaton EP-400067

Catalog Number: EP-400067

Eaton DA1 Variable frequency drive, 500 V AC, 3-phase, 17 A, 11 kW, IP66/NEMA 4X, OLED display, UV resistant



Photo is representative

## General specifications

<b>Product Name</b>	<b>Catalog Number</b>
Eaton DA1 Variable frequency drive	EP-400067

<b>Model Code</b>	<b>EAN</b>
DA1-35017NB-B66O	4015082950491

<b>Product Length/Depth</b>	<b>Product Height</b>
235 mm	310 mm

<b>Product Width</b>	<b>Product Weight</b>
210.5 mm	6.6 kg

### Certifications

CE  
Certified by UL for use in Canada  
CSA-C22.2 No. 14  
CUL  
EAC  
IEC/EN 61800-3  
IEC/EN61800-3  
IEC/EN61800-5  
RCM  
RoHS, ISO 9001  
Safety: EN 61800-5-1: 2003  
Specification for general requirements:  
IEC/EN 61800-2  
UkrSEPRO  
UL  
UL 508C  
UL Category Control No.: NMMS,  
NMMS7  
UL File No.: E172143  
UL report applies to both US and

### Catalog Notes

The brake resistors are assigned based on the maximum rated power of the variable frequency drive. Additional brake resistors and designs (e.g. different duty cycles) are available upon request.

## General

### Cable length

100 m, screened, maximum permissible, Motor feeder  
150 m, unscreened, maximum permissible, Motor feeder  
200 m, screened, with motor choke, maximum permissible,  
Motor feeder  
300 m, unscreened, with motor choke, maximum permissible,  
Motor feeder

### Communication interface

CANopen®, built in  
EtherCAT, optional  
Ethernet IP, optional  
Modbus RTU, built in  
Modbus-TCP, optional  
OP-Bus (RS485), built in  
PROFIBUS, optional  
PROFINET, optional  
BACnet/IP, optional

### Connection to SmartWire-DT

No

### Degree of protection

IP66  
NEMA 4X

### Fitted with:

PC connection  
Control unit  
Breaking resistance  
Additional PCB protection  
Brake chopper  
IGBT inverter  
Internal DC link  
OLED display

### Frame size

FS3

### Functions

4-quadrant operation possible

### Mounting position

Vertical

### Product Category

Variable frequency drives

### Protection

## Climatic environmental conditions

### Altitude

Max. 1000 m  
Above 1000 m with 1 % derating per 100 m  
Max. 4000 m

### Ambient operating temperature - min

-10 °C

### Ambient operating temperature - max

40 °C

### Ambient operating temperature at 150% overload - min

-10 °C

### Ambient operating temperature at 150% overload - max

40 °C

### Ambient storage temperature - min

-40 °C

### Ambient storage temperature - max

60 °C

### Climatic proofing

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

## Main circuit

### Efficiency

97 % ( $\eta$ )

### Heat dissipation at current/speed

129 W at 100% current and 0% speed  
136 W at 100% current and 50% speed  
163 W at 100% current and 90% speed  
86 W at 50% current and 0% speed  
88 W at 50% current and 50% speed  
96 W at 50% current and 90% speed  
88 W at 25% current and 50% speed  
86 W at 25% current and 0% speed

### Input current ILN at 150% overload

20.9 A

### Leakage current at ground IPE - max

17 mA

### Mains switch-on frequency

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

Maximum of one time every 30 seconds

#### Protocol

CAN

EtherNet/IP

MODBUS

Other bus systems

PROFIBUS

PROFINET IO

TCP/IP

BACnet/IP

#### Mains voltage - min

450 V

#### Mains voltage - max

660 V

#### Operating mode

Optional: Vector control with feedback (CLV)

Sensorless vector control (SLV)

Speed control with slip compensation

U/f control

#### Safety function/level

STO (Safe Torque Off, SIL3, PLe Cat 3)

#### Output frequency - min

0 Hz

#### Output frequency - max

500 Hz

#### Output voltage (U<sub>2</sub>)

500 V AC, 3-phase

600 V AC, 3-phase

#### Overload current I<sub>L</sub> at 150% overload

18 A

#### Rated control supply voltage

10 V DC (U<sub>s</sub>, max. 10 mA)

#### Rated frequency - min

48 Hz

#### Rated frequency - max

62 Hz

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

7.5 kW

#### Rated operational power at 525 V, 50 Hz, 3-phase

11 kW

#### Rated operational voltage

500 V AC, 3-phase

600 V AC, 3-phase

#### Resolution

0.1 Hz (Frequency resolution, setpoint value)

#### Short-circuit protection rating

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

#### Starting current - max

200 %, I<sub>H</sub>, max. starting current (High Overload), for 4 seconds

every 40 seconds, Power section

#### Supply frequency

50/60 Hz

#### Switching frequency

8 kHz, 4 - 24 kHz adjustable (audible), fPWM, Power section, Main circuit

#### System configuration type

AC supply systems with earthed center point

#### Voltage rating - max

600 VAC

### Apparent power

#### Apparent power at 600 V

17.65 kVA

### Control circuit

#### Number of inputs (analog)

2

#### Number of inputs (digital)

5

#### Number of outputs (analog)

2

#### Number of outputs (digital)

2

#### Number of relay outputs

2 (parameterizable, 1 N/O and 1 changeover contact, 6 A (250 V, AC-1) / 5 A (30 V, DC-1))

#### Rated control voltage (Uc)

24 V DC (external, max. 100 mA)

### Motor rating

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

17 A

Assigned motor current IM at 525 V, 50 Hz, 150% overload

16.6 A

Assigned motor current IM at 550 - 600 V, 60 Hz, 150% overload

17 A

Assigned motor power at 575/600 V, 60 Hz, 3-phase

15 HP

### Braking function

#### Braking resistance

50 Ω

#### Braking torque

Max. 30 % MN, Standard - Main circuit

Max. 100 % of rated operational current Ie, variable, DC - Main circuit

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

#### Switch-on threshold for the braking transistor

975 VDC

### Design verification

Equipment heat dissipation, current-dependent Pvid

330 W

Heat dissipation capacity Pdis

0 W

Heat dissipation per pole, current-dependent Pvid

0 W

Static heat dissipation, non-current-dependent Pvs

0 W

#### Heat dissipation details

Operation (with 150 % overload)

#### 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.

#### 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.

#### 10.6 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.

## Resources

### 3D models

[eaton-EP-400027-3d-model.stp](#)

[eaton-EP-400027-drawing.dwg](#)

### Application notes

[Connecting drives to generator supplies](#)

[Update DX-COM-STICK3](#)

[Master slave operation](#)

[Start, Stopp und Betrieb](#)

[Closed Loop Vector Control](#)

[Motor data Motor Protection V/f curves for induction motors](#)

[Setpoint Setting](#)

[Hoist applications](#)

[Equal load sharing with the droop function](#)

[Vector Control of Induction Motors](#)

[Electromagnetic compatibility \(EMC\)](#)

[How does the internal motor protection work?](#)

[Starting, Stopping and Operation](#)

[Dual Rating What exactly does that mean?](#)

[Operating Permanent Magnet and Brushless DC Motors](#)

[The OP System Bus - Parameterizing - Control](#)

[Conformal Coating](#)

[Dependency of the output current on switching frequency and ambient temperature](#)

[Use of multiple ramps](#)

[Access to Parameter Level 2 and 3 Parameter Lock RESET](#)

[PID controller](#)

[DX-COM-STICK3\\_Connection](#)

[I/O Configuration](#)

### Brochures

[eaton-powerxl-variable-frequency-drives-dc1-da1-brochure-br040001en-en-us.pdf](#)

### Catalogues

[Drives - Product range catalog](#)

[Product Range Catalog Drives Engineering](#)

### Declarations of conformity

[DA-DC-00005013.pdf](#)

[DA-DC-00005022.pdf](#)

### 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.

### Installation instructions

[eaton-da1-variable-frequency-drive-il040061zu.pdf](#)

### Installation videos

[Video PowerXL DA1](#)

[PowerXL Variable Frequency Drives DC1 and DA1 - EN](#)

### Manuals and user guides

[eaton-da1-variable-frequency-drive-mn040063-en-us.pdf](#)

### mCAD model

[eaton-cadenas-side\\_view-p2\\_ip66\\_size3\\_non\\_switched\\_side.pra](#)

[eaton-cadenas-front\\_view-p2\\_ip66\\_size3\\_non\\_switched\\_front.pra](#)

[eaton-cadenas-path-drives-p2\\_ip66\\_size3\\_non\\_switched.3db](#)

### Multimedia

[System solutions based on EtherCAT](#)

[Looking for variable frequency drives DC1 and DA1 which can be used in harsh environments?](#)

### Software, firmware, and applications

[eaton-powerxl-da1-ethercat-esi-v310.zip](#)

[eaton-powerxl-dx-comstick3-ble-drivers.zip](#)

[eaton-powerxl-da1-ethernetip-eds-v150.zip](#)

[eaton-powerxl-da1-profibus-gsd-v216.zip](#)

[eaton-powerxl-da1-profinet-tia-v12-library.zip](#)

[eaton-powerxl-dx-cbl-pc-1m5-usb-driver.zip](#)

[eaton-powerxl-pcsoftware-drivesconnect-v1501.zip](#)

[eaton-powerxl-da1-devicenet-eds-v100.zip](#)

[eaton-powerxl-da1-swd-codesys-v3-library.zip](#)

[eaton-powerxl-da1-canopen-eds-v250.zip](#)

[eaton-powerxl-da1-firmware-release-note-mz040041en-us.pdf](#)

[eaton-powerxl-dx-cbl-pc-3m0-usb-driver.zip](#)

[eaton-powerxl-da1-canopen-codesys-v3-library.zip](#)

[eaton-powerxl-da1-ethercat-esi-for-omron-v311.zip](#)

[eaton-powerxl-da1-profinet-gsdml-v226.zip](#)



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