

Eaton 186076

Catalog Number: 186076

Eaton DC1 Variable frequency drive, 115 V AC, single-phase, 10.5 A, 0.55 kW, IP20/NEMA 0, Brake chopper, FS2 DC1-S1011NB-A20CE1



General specifications

Product Name

Eaton DC1 Variable frequency drive

Catalog Number

186076

EAN

4015081815777

Product Length/Depth

152 mm

Product Height

231 mm

Product Width

107 mm

Product Weight

1.2 kg

Certifications

RCM

UL 508C

UL Category Control No.: NMMS,
NMMS7

UL File No.: E172143

CUL

IEC/EN61800-5

UL report applies to both US and
Canada

EAC

CE

Certified by UL for use in Canada

Safety requirements: IEC/EN 61800-5-1

IEC/EN 61800-3

UL

CSA-C22.2 No. 14

IEC/EN61800-3

UkrSEPRO

RoHS, ISO 9001

Specification for general requirements:

IEC/EN 61800-2

Features & Functions

Features

Parameterization: drivesConnect

Parameterization: drivesConnect mobile (App)

Parameterization: Fieldbus

Parameterization: Keypad

Fitted with:

PC connection

Breaking resistance

IGBT inverter

Internal DC link

Brake chopper

Control unit

7-digital display assembly

Additional PCB protection

Functions

4-quadrant operation possible

General

Cable length

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

100 m, screened, maximum permissible, Motor feeder

Communication interface

SmartWire-DT, optional

Modbus RTU, built in

OP-Bus (RS485), built in

CANopen®, built in

Connection to SmartWire-DT

In conjunction with DX-NET-SWD3 SmartWire DT module

Yes

Degree of protection

IP20

NEMA 0

Frame size

FS2

Mounting position

Vertical

Product category

Variable frequency drives

Protection

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

Protocol

MODBUS

EtherNet/IP

CAN

Other bus systems

Radio interference class

Optional external radio interference suppression filter for longer motor cable lengths and for use in different EMC environments

Suitable for

Branch circuits, (UL/CSA)

Climatic environmental conditions

Altitude

Max. 4000 m

Above 1000 m with 1 % derating per 100 m

Ambient operating temperature - min

-10 °C

Ambient operating temperature - max

50 °C

Ambient operating temperature at 150% overload - min

-10 °C

Ambient operating temperature at 150% overload - max

50 °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

96 % (η)

Heat dissipation capacity P_{diss}

0 W

Input current I_{LN} at 150% overload

19.2 A

Leakage current at ground I_{PE} - max

2.49 mA

Mains switch-on frequency

Maximum of one time every 30 seconds

Mains voltage - min

110 V

Mains voltage - max

115 V

Operating mode

U/f control

Speed control with slip compensation

BLDC motors

PM motors

Sensorless vector control (SLV)

Synchronous reluctance motors

Output frequency - min

0 Hz

Output frequency - max

500 Hz

Output voltage (U_2)

115 V AC, single-phase

Overload current I_L at 150% overload

15.75 A

Rated control supply voltage

10 V DC (U_s , max. 10 mA)

Rated frequency - min

48 Hz

Rated frequency - max

62 Hz

Rated operational current (I_e)

10.5 A at 150% overload (at an operating frequency of 16 kHz and an ambient air temperature of +50 °C)

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

0.55 kW

Rated operational voltage

115 V AC, 1-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

175 %, IH, max. starting current (High Overload), For 2.5 seconds every 600 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

AC supply systems with earthed center point

Voltage rating - max

120 V

Design verification

Equipment heat dissipation, current-dependent P_{vid}

22 W

Heat dissipation capacity P_{diss}

0 W

Heat dissipation per pole, current-dependent P_{vid}

Motor rating

Assigned motor current I_M at 110/120 V, 60 Hz, 150% overload

9.8 A

Assigned motor current I_M at 115 V, 50 Hz, 150% overload

10.5 A

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

0.75 HP

Braking function

Braking resistance

100 Ω

Braking torque

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

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

Control circuit

Number of inputs (analog)

2

Number of inputs (digital)

4

Number of outputs (analog)

1

Number of outputs (digital)

1

Number of relay outputs

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

Resources

Application notes

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

[DX-COM-STICK3_Connection](#)

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

0 W

Rated operational current for specified heat dissipation (In)

10.5 A

Static heat dissipation, non-current-dependent Pvs

0 W

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.

10.5 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

Motor data - Motor Protection - V/f curves Slip Compensation

Conformal Coating

Access to Parameter Levels 2 + 3 Parameter Lock - Load Default

How does the internal motor protection work?

Electromagnetic compatibility (EMC)

Operating Single Phase Motors

Starting, Stopping and Operation

Connecting drives to generator supplies

Fire Mode

Update DX-COM-STICK3

Set Point Setting

Low Temperature Applications

I/O Configuration

PI controller

Operating Permanent Magnet and Brushless DC Motors

Brochures

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

[DA-SW-drivesConnect](#)

Catalogs

[Product Range Catalog Drives Engineering](#)

Declarations of conformity

[DA-DC-00004184.pdf](#)

[DA-DC-00003964.pdf](#)

[DA-DC-00004555.pdf](#)

[DA-DC-00004552.pdf](#)

Drawings

[eaton-frequency-inverter-dimensions-016.eps](#)

[eaton-frequency-inverter-dimensions-026.eps](#)

[eaton-frequency-inverter-3d-drawing-006.eps](#)

eCAD model

[DA-CE-ETN.DC1-S1011NB-A20CE1](#)

Installation instructions

[eaton-powerxl-dc1-ip66-single-phase-motors-instruction-leaflet-il040058zu.pdf](#)

Installation videos

[Video PowerXL DA1](#)

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

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.

Manuals and user guides

[eaton-canopen-communication-manual-for-variable-frequency-drives-variable-speed-starters-da1-db1-dc1-de11-mn040019-en-us.pdf](#)

[MN040058_EN](#)

[MN040018_EN](#)

[MN040003_EN](#)

[MN040028_EN](#)

mCAD model

[DA-CS-dc1_fs2](#)

[DA-CD-dc1_fs2](#)

Multimedia

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

Product notifications

[eaton-drives-ecodesign-directive-mz040046en-en.pdf](#)



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