Specifications

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

Powering Business Worldwide

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 Pdiss

0 W

Input current ILN at 150% overload

19.2 A

Leakage current at ground IPE - 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 (U2)

115 V AC, single-phase

Overload current IL at 150% overload

15.75 A

Rated control supply voltage

10 V DC (Us, max. 10 mA)

Rated frequency - min

48 Hz

Rated frequency - max

62 Hz

Rated operational current (Ie)

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

Motor rating

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

9.8 A

Assigned motor current IM 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 Ie, variable, DC - Main circuit

Max. 100 % of rated operational current Ie 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))

Design verification

Equipment heat dissipation, current-dependent Pvid

22 W

Heat dissipation capacity Pdiss

0 W

Heat dissipation per pole, current-dependent Pvid

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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