

Eaton 186085

Catalog Number: 186085

Eaton DC1 Variable frequency drive, 230 V AC, 1-phase, 10.5 A, 1.1 kW, IP20/NEMA 0, Brake chopper, FS2 DC1-S2011NB-A20CE1



General specifications

Product Name

Eaton DC1 Variable frequency drive

Catalog Number

186085

EAN

4015081815869

Product Length/Depth

152 mm

Product Height

231 mm

Product Width

107 mm

Product Weight

1.2 kg

Certifications

IEC/EN61800-3

CUL

IEC/EN61800-5

EAC

Safety requirements: IEC/EN 61800-5-1

Specification for general requirements:

IEC/EN 61800-2

UL 508C

CSA-C22.2 No. 14

UL report applies to both US and Canada

CE

UL Category Control No.: NMMS, NMMS7

UL File No.: E172143

IEC/EN 61800-3

RoHS, ISO 9001

Certified by UL for use in Canada

RCM

UkrSEPRO

UL

Features & Functions

Features

Parameterization: drivesConnect

Parameterization: drivesConnect mobile (App)

Parameterization: Fieldbus

Parameterization: Keypad

Fitted with:

Brake chopper

Breaking resistance

7-digital display assembly

Internal DC link

IGBT inverter

PC connection

Control unit

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

100 m, screened, maximum permissible, Motor feeder

300 m, unscreened, with motor choke, maximum permissible, Motor feeder

Communication interface

Modbus RTU, built in

SmartWire-DT, optional

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

EtherNet/IP

MODBUS

Other bus systems

CAN

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 IPE - max

< 1 mA

Mains switch-on frequency

Maximum of one time every 30 seconds

Mains voltage - min

200 V

Mains voltage - max

240 V

Operating mode

Speed control with slip compensation

U/f control

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)

230 V AC, single-phase

240 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 voltage

230 V AC, 1-phase

240 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 %, I_H, 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

240 V

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

Motor rating

Assigned motor current I_M at 220 - 240 V, 60 Hz, 150% overload

9.6 A

Assigned motor current I_M at 230 V, 50 Hz, 150% overload

10.5 A

Assigned motor power at 230/240 V, 60 Hz, 1-phase

1.5 HP

Apparent power

Apparent power at 230 V

2.42 kVA

Apparent power at 240 V

2.52 kVA

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

Switch-on threshold for the braking transistor

390 VDC

Design verification

Equipment heat dissipation, current-dependent P_{vid}

44 W

Heat dissipation capacity P_{diss}

0 W

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

0 W

Rated operational current for specified heat dissipation (I_n)

10.5 A

Static heat dissipation, non-current-dependent P_{vs}

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

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

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](#)

[PI controller](#)

[I/O Configuration](#)

[Fire Mode](#)

[Connecting drives to generator supplies](#)

[Update DX-COM-STICK3](#)

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

[Conformal Coating](#)

[Motor data - Motor Protection - V/f curves Slip Compensation](#)

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

[Operating Single Phase Motors](#)

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

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

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

[Set Point Setting](#)

[Starting, Stopping and Operation](#)

[DX-COM-STICK3_Connection](#)

[Low Temperature Applications](#)

[Access to Parameter Levels 2 + 3 Parameter Lock - Load Default](#)

[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-00003964.pdf](#)

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

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

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

[Drawings](#)

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

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

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

[eCAD model](#)

[DA-CE-ETN.DC1-S2011NB-A20CE1](#)

Installation instructions

[IL04020014Z](#)

Installation videos

[Video PowerXL DA1](#)

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

Manuals and user guides

[MN040058_EN](#)

[MN040018_EN](#)

[MN040028_EN](#)

[MN040003_EN](#)

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

mCAD model

[DA-CD-dc1_fs2](#)

[DA-CS-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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