Specifications

Eaton 185833



Catalog Number: 185833

Eaton DC1 Variable frequency drive, 230 V AC, 3-phase, 18 A, 4 kW, IP20/NEMA 0, Brake chopper, FS3 DC1-32018NB-A20CE1

General specifications

Product Name
Eaton DC1 Variable frequency drive

Catalog Number
185833

EAN
4015081813322

Product Length/Depth
175 mm

Product Height
273 mm

Product Width
129 mm

Product Weight
6 kg

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

Powering Business Worldwide

Catalog Notes

Features & Functions

Features

Parameterization: drivesConnect

Parameterization: drivesConnect mobile (App)

Parameterization: Fieldbus

Parameterization: Keypad

Fitted with:

Internal DC link

Breaking resistance

Brake chopper

7-digital display assembly

PC connection

IGBT inverter

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

OP-Bus (RS485), built in

CANopen®, built in

SmartWire-DT, optional

Modbus RTU, built in

Connection to SmartWire-DT

In conjunction with DX-NET-SWD3 SmartWire DT module

Yes

Degree of protection

IP20

NEMA Other

Frame size

FS3

Mounting position

Vertical

Product category

Variable frequency drives

Protection

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

Protocol

Other bus systems

CAN

EtherNet/IP

MODBUS

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

20.9 A

Leakage current at ground IPE - max

6.8 mA

Mains switch-on frequency

Maximum of one time every 30 seconds

Mains voltage - min

200 V

Mains voltage - max

240 V

Operating mode

U/f control

Sensorless vector control (SLV)

Speed control with slip compensation

BLDC motors

PM motors

Synchronous reluctance motors

Output frequency - min

0 Hz

Output frequency - max

500 Hz

Output voltage (U2)

240 V AC, 3-phase

230 V AC, 3-phase

Overload current IL at 150% overload

27 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)

At a switching frequency of 8 kHz and an ambient air temperature of +50 °C

18 A at 150% overload

Rated operational voltage

240 V AC, 3-phase

230 V AC, 3-phase

Resolution

0.1 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

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

System configuration type

AC supply systems with earthed center point

Voltage rating - max

240 V

Motor rating

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

15.2 A

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

14.8 A

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

15.2 A

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

14.8 A

Assigned motor current IM at 400 V, 50 Hz, 150% overload

14.8 A

Assigned motor current IM at 440 - 480 V, 60 Hz, 150% overload

15.2 A

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

5 HP

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

5 HP

Assigned motor power at 460/480 V, 60 Hz

5 HP

Assigned motor power at 460/480 V, 60 Hz, 3-phase

5 HP

Apparent power

Apparent power at 230 V

7.17 kVA

Apparent power at 240 V

7.48 kVA

Braking function

Braking resistance

25 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

Control circuit

Number of inputs (analog)

2 (parameterizable, 0 - 10 V DC, 0/4 - 20 mA)

Number of inputs (digital)

4 (parameterizable, 10 - 30 V DC)

Number of outputs (analog)

1

resistor - Main circuit

Switch-on threshold for the braking transistor

390 VDC

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

160 W

Heat dissipation capacity Pdiss

0 W

Heat dissipation per pole, current-dependent Pvid

0 W

Rated operational current for specified heat dissipation (In)

18 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

Resources

Application notes

Operating Single Phase Motors

DX-COM-STICK3_Connection

Operating Permanent Magnet and Brushless DC Motors

I/O Configuration

PI controller

Low Temperature Applications

The OP System Bus - Parameterizing - Control

Set Point Setting

Fire Mode

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

Update DX-COM-STICK3

Connecting drives to generator supplies

Conformal Coating

Dependency of the output current on switching frequency and ambient temperature

How does the internal motor protection work?

Electromagnetic compatibility (EMC)

Starting, Stopping and Operation

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-00004184.pdf

DA-DC-00004552.pdf

DA-DC-00004555.pdf

DA-DC-00003964.pdf

Drawings

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.

eaton-frequency-inverter-dimensions-020.eps

eaton-frequency-inverter-3d-drawing-009.eps

eCAD model

DA-CE-ETN.DC1-32018NB-A20CE1

Installation instructions

IL04020009Z

Installation videos

PowerXL Variable Frequency Drives DC1 and DA1 - EN

Video PowerXL DA1

Manuals and user guides

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

MN040018_EN

MN040022_EN

MN040023_EN

MN040059_EN

MN040003_EN

mCAD model

DA-CD-dc1_fs3

DA-CS-dc1_fs3

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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