Specifications

Eaton 185821

Catalog Number: 185821

Eaton DC1 Variable frequency drive, 230 V AC, 3-phase, 4.3 A, 0.75 kW, IP20/NEMA 0, FS1 DC1-324D3NN-A20CE1



General specifications

Product Name
Eaton DC1 Variable frequency drive

Catalog Number
185821

EAN
4015081813209

Product Length/Depth
124 mm

Product Height
184 mm

Product Width
81 mm

Product Weight
1.2 kg

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

Powering Business Worldwide

Catalog Notes

Features & Functions

Features

Parameterization: drivesConnect

Parameterization: drivesConnect mobile (App)

Parameterization: Fieldbus

Parameterization: Keypad

Fitted with:

7-digital display assembly

Control unit

Internal DC link

PC connection

IGBT inverter

Additional PCB protection

General

Cable length

50 m, screened, maximum permissible, Motor feeder

75 m, unscreened, maximum permissible, Motor feeder

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

100 m, screened, 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 Other

Frame size

FS1

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

Above 1000 m with 1 % derating per 100 m

Max. 4000 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

94.7 % (η)

Heat dissipation capacity Pdiss

0 W

Input current ILN at 150% overload

5.6 A

Leakage current at ground IPE - max

7.5 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

Speed control with slip compensation

Sensorless vector control (SLV)

BLDC motors

PM motors

Synchronous reluctance motors

Output frequency - min

0 Hz

Output frequency - max

500 Hz

Output voltage (U2)

230 V AC, 3-phase

240 V AC, 3-phase

Overload current IL at 150% overload

6.45 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)

4.3 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, 3-phase
240 V AC, 3-phase

Resolution

0.1 Hz (Frequency resolution, setpoint value)

Short-circuit protection rating

6 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

240 V

Apparent power

Apparent power at 230 V

1.71 kVA

Apparent power at 240 V

1.79 kVA

Motor rating

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

4.2 A

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

3.2 A

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

4.2 A

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

3.2 A

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

3.2 A

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

4.2 A

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

1 HP

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

1 HP

Assigned motor power at 460/480 V, 60 Hz

1 HP

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

1 HP

Braking function

Braking torque

Max. 30 % MN, Standard - Main circuit
Max. 100 % of rated operational current Ie, variable, DC - Main circuit

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

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

39.75 W

Heat dissipation capacity Pdiss

0 W

Heat dissipation per pole, current-dependent Pvid

0 W

Rated operational current for specified heat dissipation (In)

4.3 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

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

DX-COM-STICK3_Connection

Fire Mode

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

Set Point Setting

Electromagnetic compatibility (EMC)

How does the internal motor protection work?

Connecting drives to generator supplies

Starting, Stopping and Operation

Dependency of the output current on switching frequency and ambient temperature

Conformal Coating

The OP System Bus - Parameterizing - Control

Update DX-COM-STICK3

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

PI controller

Low Temperature Applications

Operating Single Phase Motors

Operating Permanent Magnet and Brushless DC Motors

I/O Configuration

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-00004552.pdf

DA-DC-00004555.pdf

DA-DC-00004184.pdf

Drawings

eaton-frequency-inverter-dimensions-017.eps

eaton-frequency-inverter-dimensions-016.eps

eaton-frequency-inverter-3d-drawing-003.eps

eCAD model

DA-CE-ETN.DC1-324D3NN-A20CE1

Installation instructions

IL04020009Z

Installation videos

Video PowerXL DA1

PowerXL Variable Frequency Drives DC1 and DA1 - EN

Manuals and user guides

MN040059_EN

MN040018_EN

MN040022_EN

MN040023_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_fs1

DA-CS-dc1_fs1

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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Eaton House
30 Pembroke Road
Dublin 4, Ireland
Eaton.com

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