Specifications

Eaton 199415

Catalog Number: 199415

Eaton DC1 Variable frequency drive, 230 V AC, 3-phase, 7 A, 1.5 kW, IP66/NEMA 4X, Radio interference suppression filter, 7-digital display assembly, Additional PCB protection, UV resistant, FS1



General specifications

Product Name	**Catalog Number**
Eaton DC1 Variable frequency drive	199415
EAN	**Product Length/Depth**
4015081978045	162 mm
Product Height	**Product Width**
232 mm	161 mm
Product Weight	**Certifications**
2.5 kg	CSA-C22.2 No. 14 IEC/EN61800-5 CE RCM Certified by UL for use in Canada UL Category Control No.: NMMS, NMMS7 UL 508C UL report applies to both US and Canada IEC/EN 61800-2 RoHS, ISO 9001 UkrSEPRO UL File No.: E172143 IEC/EN 61800-5-1 EAC CUL CE marking UL Listed IEC/EN 61800-3 UL

Powering Business Worldwide

Features & Functions

Features

Parameterization: drivesConnect
Parameterization: Fieldbus
Parameterization: Keypad
Parameterization: drivesConnect mobile (App)

Fitted with:

PC connection
Control unit
IGBT inverter
Internal DC link
Radio interference suppression filter
7-digital display assembly
Additional PCB protection
UV resistance

General

Cable length

75 m, unscreened, maximum permissible, Motor feeder
100 m, screened, with motor choke, maximum permissible, Motor feeder
50 m, screened, maximum permissible, Motor feeder
150 m, unscreened, with motor choke, maximum permissible, Motor feeder

Communication interface

Modbus RTU, built in
CANopen®, built in
OP-Bus (RS485), built in
SmartWire-DT, optional

Connection to SmartWire-DT

No

Degree of protection

IP66
NEMA 4X

Electromagnetic compatibility

1st and 2nd environments (according to EN 61800-3)

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

CAN
EtherNet/IP
MODBUS
Other bus systems

Radio interference class

C2, C3: depending on the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary.
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

-20 °C

Ambient operating temperature - max

40 °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

97 % (η)

Heat dissipation capacity Pdiss

0 W

Input current ILN at 150% overload

9.5 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

BLDC motors

U/f control

Speed control with slip compensation

Sensorless vector control (SLV)

PM motors

Motor rating

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

6.8 A

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

6.3 A

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

6.8 A

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

6.3 A

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

6.3 A

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

6.8 A

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

2 HP

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

2 HP

Assigned motor power at 460/480 V, 60 Hz

2 HP

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

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

10.5 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)

7 A at 150% overload (at an operating frequency of 6 kHz and an ambient air temperature of +40 °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

10 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

2 HP

Apparent power

Apparent power at 230 V

2.79 kVA

Apparent power at 240 V

2.91 kVA

Braking function

Braking torque

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

Max. 30 % MN, Standard - 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

Heat dissipation capacity Pdiss

0 W

Heat dissipation per pole, current-dependent Pvid

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

Resources

Application notes

How does the internal motor protection work?

Electromagnetic compatibility (EMC)

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

Starting, Stopping and Operation

Dependency of the output current on switching frequency and ambient temperature

DX-COM-STICK3_Connection

The OP System Bus - Parameterizing - Control

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

Conformal Coating

Set Point Setting

Fire Mode

Update DX-COM-STICK3

Connecting drives to generator supplies

Operating Permanent Magnet and Brushless DC Motors

I/O Configuration

PI controller

Operating Single Phase Motors

Low Temperature Applications

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-00004555.pdf

DA-DC-00003964.pdf

DA-DC-00004552.pdf

DA-DC-00004184.pdf

Drawings

eaton-frequency-inverter-dc1-dimensions-002.eps

Installation instructions

eaton-powerxl-dc1-ip66-instruction-leaflet-il040059zu.pdf

Installation videos

PowerXL Variable Frequency Drives DC1 and DA1 - EN

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.

Video PowerXL DA1

Manuals and user guides

MN040022_EN

MN040059_EN

MN040003_EN

MN040018_EN

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

mCAD model

e3_s1_ip66_ohne_bedienelementen.stp

e3_s1_ip66_ohne_bedienelementen.dwg

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

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

© 2024 Eaton. All Rights Reserved.

Eaton is a registered trademark.

All other trademarks are property of their respective owners.

Eaton.com/socialmedia