Specifications

Eaton 199391

Catalog Number: 199391

Eaton DC1 Variable frequency drive, 230 V AC, 1-phase, 10.5 A, 1.1 kW, IP66/NEMA 4X, Radio interference suppression filter, Brake chopper, 7-digital display assembly, Additional PCB protection, UV resistant, FS2



General specifications

Product Name
Eaton DC1 Variable frequency drive

Catalog Number
199391

EAN
4015081977802

Product Length/Depth
182 mm

Product Height
257 mm

Product Width
188 mm

Product Weight
3.5 kg

Certifications
UL File No.: E172143
IEC/EN 61800-5-1
EAC
UL Listed
UL 508C
UL Category Control No.: NMMS, NMMS7
IEC/EN 61800-3
Certified by UL for use in Canada
UL report applies to both US and Canada
CE
RCM
CUL
IEC/EN61800-5
RoHS, ISO 9001
CE marking

Powering Business Worldwide

UL

UkrSEPRO

IE

CSA-C22.2 No. 14

Features & Functions

Features

Parameterization: drivesConnect

Parameterization: Fieldbus

Parameterization: drivesConnect mobile (App)

Parameterization: Keypad

Fitted with:

Brake chopper

Radio interference suppression filter

IGBT inverter

Internal DC link

UV resistance

Control unit

7-digital display assembly

Additional PCB protection

Breaking resistance

PC connection

Functions

4-quadrant operation possible

General

Cable length

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

C3 ≤ 25 m, maximum motor cable length

C2 ≤ 5 m, maximum motor cable length

100 m, screened, maximum permissible cable length

200 m, screened, with motor choke, maximum permissible cable length

150 m, unscreened, maximum permissible cable length

C1 ≤ 1 m, maximum motor cable length

Communication interface

CANopen®, built in

OP-Bus (RS485), built in

Modbus RTU, built in

SmartWire-DT, optional

Connection to SmartWire-DT

No

Degree of protection

IP66

NEMA 4X

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

Electromagnetic compatibility

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

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
CAN
MODBUS
Other bus systems

Radio interference class

C1: for conducted emissions only
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)

Efficiency

97 % (η)

Input current ILN at 150% overload

14 A

Leakage current at ground IPE - max

2.49 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
BLDC motors
U/f control
Synchronous reluctance motors
PM motors
Sensorless vector control (SLV)

Output frequency - min

0 Hz

Output frequency - max

500 Hz

Output voltage (U2)

230 V AC, single-phase
240 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 6 kHz and an ambient air temperature of +40 °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 % IH

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

Motor rating

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

9.6 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 Ie with external braking resistor - Main circuit
Max. 100 % of rated operational current Ie, variable, DC - Main circuit

Switch-on threshold for the braking transistor

390 VDC

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))

Resources

Application notes

Connecting drives to generator supplies

Update DX-COM-STICK3

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

PI controller

How does the internal motor protection work?

Electromagnetic compatibility (EMC)

Fire Mode

Starting, Stopping and Operation

DX-COM-STICK3_Connection

Operating Single Phase Motors

Conformal Coating

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

Dependency of the output current on switching frequency and ambient temperature

The OP System Bus - Parameterizing - Control

Low Temperature Applications

I/O Configuration

Set Point Setting

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-00004552.pdf

DA-DC-00004555.pdf

Drawings

eaton-frequency-inverter-dc1-dimensions-004.eps

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

Manuals and user guides

MN040018_EN

MN040022_EN

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

MN040003_EN

MN040058_EN

mCAD model

e3_s2_ip66_ohne_bedienelementen.stp

e3_s2_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

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