Specifications

Eaton 199739



Catalog Number: 199739

Eaton DB1 FU DB1 CP 1~/3~230 V 7A 1.5kW EMC PFC

General specifications

Product Name
Eaton DB1 Variable frequency drive

Catalog Number
199739

EAN
4015081988389

Product Length/Depth
90 mm

Product Height
185.98 mm

Product Width
127.98 mm

Product Weight
0.7 kg

Certifications
IEC/EN 61800-5-1
RoHS, ISO 9001
IEC/EN 61800-2
IEC/EN 61800-3
UL Category Control No.: NMMS, NMMS7
Certified by UL for use in Canada
UL Listed
UL File No.: E172143
UL report applies to both US and Canada
UL 508C
CSA-C22.2 No. 274
IEC 61000-3-2
CE marking

Powering Business Worldwide

Features & Functions

Fitted with:

PFC (Power Factor Compensation)

Radio interference suppression filter

Additional PCB protection

Internal DC link

IGBT inverter

PC connection

General

Cable length

C3 ≤ 10 m, maximum motor cable length

C1 ≤ 1 m, maximum motor cable length

C2 ≤ 3 m, maximum motor cable length

10 m, screened, maximum permissible cable length

Communication interface

Modbus RTU, built in

CANopen®, built in

OP-Bus (RS485), built in

Connection to SmartWire-DT

No

Degree of protection

IP20

NEMA Other

Frame size

FS1

Number of slots

1 (expansion)

Product Category

Variable frequency drives

Protection

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

Protocol

CAN

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.

C1: for conducted emissions only

Suitable for

Branch circuits, (UL/CSA)

Ambient conditions, mechanical

Mounting position

Climatic environmental conditions

Altitude

As required

Depending on the cooling

Shock resistance

15 g, Mechanical, According to IEC/EN 60068-2-27, 11 ms

Above 1000 m with 1 % derating per 100 m

Max. 1000 m

Max. 2000 m

Ambient operating temperature - min

-10 °C

Ambient operating temperature - 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

Heat dissipation at current/speed

105 W at 100% current and 90% speed

33 W at 25% current and 0% speed

39 W at 25% current and 50% speed

41 W at 50% current and 0% speed

52 W at 50% current and 50% speed

55 W at 100% current and 0% speed

63 W at 50% current and 90% speed

80 W at 100% current and 50% speed

Input current ILN at 150% overload

8.7 A

Leakage current at ground IPE - max

3.5 mA (at 230 V)

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

PM motors

Motor rating

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

7 A

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

2 HP

Apparent power

Apparent power at 230 V

1.61 kVA

Apparent power at 240 V

1.68 kVA

Control circuit

Number of inputs (analog)

2

Number of inputs (digital)

4

Number of outputs (analog)

1

Number of outputs (digital)

1

Synchronous reluctance motors

BLDC 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

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) at 150% overload

7 A

Rated operational power at 220/230 V, 50 Hz, 1-phase

1.5 kW

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

15 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 3.75 seconds every 600 seconds, Power section

Supply frequency

50/60 Hz

System configuration type

AC supply systems with earthed center point

Voltage rating - max

240 V

Number of relay outputs

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

Design verification

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

3D models

eaton-199739-3d-model.stp

eaton-199739-drawing.dwg

Application notes

Connecting drives to generator supplies

Electromagnetic compatibility (EMC)

Brochures

eaton-powerxl-variable-frequency-drives-hvac-brochure-br040012en-en-us.pdf

eaton-powerxl-variable-frequency-drives-db1-cold-plate-brochure-br040011en-en-us.pdf

DA-SW-drivesConnect

Catalogs

Product Range Catalog Drives Engineering

Declarations of conformity

DA-DC-00004467.pdf

DA-DC-00004483.pdf

Installation instructions

eaton-variable-frequency-drive-db1-instruction-leaflet-il040044zu.pdf

Installation videos

DX-COM-STICK3 parameter copy function

Manuals and user guides

MN040018_EN

MN040031_EN

MN040003_EN

Product notifications

eaton-drives-ecodesign-directive-mz040046en-en.pdf



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