Specifications

Eaton 197566

Catalog Number: 197566

Eaton DB1 Variable frequency drive, 400 V AC, 3-phase, 9.5 A, 4 kW, IP20/NEMA 0, Radio interference suppression filter, FS2



General specifications

Product Name
Eaton DB1 Variable frequency drive

Catalog Number
197566

EAN
4015081943357

Product Length/Depth
89 mm

Product Height
193 mm

Product Width
140 mm

Product Weight
1.15 kg

Certifications
UL File No.: E172143
IEC/EN 61800-2
IEC/EN61800-5
Safety: EN 61800-5-1: 2003
CSA-C22.2 No. 14
CUL
UL 508C
UL report applies to both US and Canada
RCM
IEC/EN61800-3
UL Category Control No.: NMMS, NMMS7
Certified by UL for use in Canada
IEC/EN 61800-3
RoHS, ISO 9001
CE
UL
CSA-C22.2 No. 274
IEC/EN 61800-5-1
CE marking

Powering Business Worldwide

Catalog Notes

Features & Functions

Features

Tool-less swapping of fan

Temperature-controlled fan

Parameterization: Fieldbus

Parameterization: Keypad

Parameterization: drivesConnect

Parameterization: drivesConnect mobile (App)

Fitted with:

Internal DC link

Radio interference suppression filter

IGBT inverter

Breaking resistance

PC connection

Additional PCB protection

General

Cable length

C1 ≤ 1 m, maximum motor cable length

C2 ≤ 3 m, maximum motor cable length

C3 ≤ 10 m, maximum motor cable length

10 m, screened, maximum permissible cable length

Communication interface

OP-Bus (RS485)

Modbus RTU

CANopen®

Connection to SmartWire-DT

No

Degree of protection

IP20

NEMA Other

Electromagnetic compatibility

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

Frame size

FS2

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

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.

Suitable for

Branch circuits, (UL/CSA)

Ambient conditions, mechanical

Mounting position

As required

Depending on the cooling

Shock resistance

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

Vibration

Resistance: According to EN 61800-5-1

Climatic environmental conditions

Altitude

Max. 2000 m

Max. 1000 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

60 °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 at current/speed

105 W at 50% current and 50% speed

116 W at 50% current and 90% speed

128 W at 100% current and 0% speed

149 W at 100% current and 50% speed

178 W at 100% current and 90% speed

82 W at 25% current and 0% speed

91 W at 25% current and 50% speed

93 W at 50% current and 0% speed

Input current ILN at 150% overload

10.7 A

Leakage current at ground IPE - max

3.5 mA (at 3 x 400 V)

Mains switch-on frequency

Motor rating

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

9.5 A

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

9.5 A

Assigned motor power at 460/480 V, 60 Hz

5 HP

Apparent power

Apparent power at 400 V

3.8 kVA

Apparent power at 480 V

4.56 kVA

Maximum of one time every 30 seconds

Mains voltage - min

380 V

Mains voltage - max

480 V

Operating mode

U/f control

Speed control with slip compensation

BLDC motors

PM motors

Sensorless vector control (SLV)

Synchronous reluctance motors

Output frequency - min

0 Hz

Output frequency - max

500 Hz

Output voltage (U2)

400 V AC, 3-phase

480 V AC, 3-phase

Overload current IL at 150% overload

14.25 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

9.5 A

Rated operational power at 380/400 V, 50 Hz

4 kW

Rated operational voltage

400 V AC, 3-phase

480 V AC, 3-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

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))

Rated control voltage (Uc)

24 V DC (external, max. 100 mA)

Design verification

Heat dissipation capacity Pdiss

0 W

Heat dissipation per pole, current-dependent Pvid

0 W

Rated operational current for specified heat dissipation (In)

9.5 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

Starting current - max

175 %, IH, max. starting current (High Overload), For 3.75 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

480 VAC

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

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-00004483.pdf

DA-DC-00004467.pdf

Drawings

eaton-freq-conv-dimensions-020.eps

8230DRW-648

eCAD model

DA-CE-ETN.DB1-349D5FB-N2CC

Installation instructions

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

Installation videos

DX-COM-STICK3 parameter copy function

Manuals and user guides

MN040031_EN

MN040018_EN

MN040003_EN

mCAD model

DA-CD-db1_fs2

DA-CS-db1_fs2

Product notifications

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



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