

Specifications



Photo is representative



Eaton 176967

Eaton DA1 Variable frequency drive, 600 V AC, 3-phase, 39.1 A, NEMA 12, IP55, FS4, Brake chopper

General specifications

PRODUCT NAME	Eaton DA1 Variable frequency drive
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CATALOG NUMBER	176967
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MODEL CODE	DA1-35034NB-B55C
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EAN	4015081714100
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PRODUCT LENGTH/DEPTH	240 mm
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PRODUCT HEIGHT	450 mm
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PRODUCT WIDTH	173 mm
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PRODUCT WEIGHT	11.5 kg
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CERTIFICATIONS	RoHS, ISO 9001 CUL CE EAC IEC/EN 61800-3 UL Category Control No.: NMMS, NMMS7 UL report applies to both US and Canada IEC/EN61800-5 UL 508C UL File No.: E172143 DNV Specification for general requirements: IEC/EN 61800-2 Certified by UL for use in Canada CSA-C22.2 No. 14 UL IEC/EN61800-3 Safety: EN 61800-5-1: 2003
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	RCM UkrSEPRO
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CATALOG NOTES

	The brake resistors are assigned based on the maximum rated power of the variable frequency drive. Additional brake
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Apparent power

APPARENT POWER AT 600 V	35.33 kVA
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Climatic environmental conditions

ALTITUDE	Above 1000 m with 1 % derating per 100 m Max. 1000 m Max. 4000 m
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AMBIENT OPERATING TEMPERATURE - MAX	40 °C
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AMBIENT STORAGE TEMPERATURE - MAX	60 °C
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AMBIENT OPERATING TEMPERATURE - MIN	-10 °C
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AMBIENT OPERATING TEMPERATURE AT 150% OVERLOAD - MAX	40 °C
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AMBIENT OPERATING TEMPERATURE AT 150% OVERLOAD - MIN	-10 °C
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AMBIENT STORAGE TEMPERATURE - MIN	-40 °C
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CLIMATIC PROOFING	< 95 average relative humidity (RH), no condensation, no corrosion
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resistors and designs (e.g. different duty cycles) are available upon request.

Braking function

BRAKING RESISTANCE	22 Ω
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BRAKING TORQUE	Max. 100 % of rated operational current I_e with external braking resistor - Main circuit Max. 30 % MN, Standard - Main circuit Max. 100 % of rated operational current I_e , variable, DC - Main circuit
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SWITCH-ON THRESHOLD FOR THE BRAKING TRANSISTOR	975 VDC
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Control circuit

NUMBER OF INPUTS (ANALOG)	2
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NUMBER OF INPUTS (DIGITAL)	5
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NUMBER OF OUTPUTS (ANALOG)	2
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NUMBER OF OUTPUTS (DIGITAL)	2
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NUMBER OF RELAY OUTPUTS	2 (parameterizable, 1 N/O and 1 changeover contact, 6 A (250 V, AC-1) / 5 A (30 V, DC-1))
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RATED CONTROL VOLTAGE (UC)	24 V DC (external, max. 100 mA)
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Design verification

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.

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

Does not apply, since the

General information

CABLE LENGTH

300 m, unscreened, with motor choke, maximum permissible, Motor feeder 150 m, unscreened, maximum permissible, Motor feeder 200 m, screened, with motor choke, maximum permissible, Motor feeder 100 m, screened, maximum permissible, Motor feeder

COMMUNICATION INTERFACE

DeviceNet, optional PROFINET, optional OP-Bus (RS485), built in Modbus RTU, built in Modbus-TCP, optional EtherCAT, optional Ethernet IP, optional CANopen®, built in PROFIBUS, optional SmartWire-DT, optional

CONNECTION TO SMARTWIRE-DT

In conjunction with DX-NET-SWD1 SmartWire DT module
Yes

DEGREE OF PROTECTION

IP55
NEMA 12

FITTED WITH:

Brake chopper
Additional PCB protection
PC connection
Breaking resistance
Control unit
Internal DC link
IGBT inverter
OLED display

FRAME SIZE

FS4

FUNCTIONS

4-quadrant operation possible

MOUNTING POSITION

Vertical

PRODUCT CATEGORY

Variable frequency drives

PROTECTION

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

PROTOCOL

MODBUS
Other bus systems
PROFIBUS
DeviceNet
CAN
EtherNet/IP
PROFINET IO
TCP/IP

AGAINST ELECTRIC SHOCK	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.
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	660 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION DETAILS	Operation (with 150 % overload)
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	34 A
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	0 W

SAFETY FUNCTION/LEVEL	STO (Safe Torque Off, SIL2, PLc Cat 2)
SUITABLE FOR	Branch circuits, (UL/CSA)

Main circuit

EFFICIENCY	97 % (η)
HEAT DISSIPATION AT CURRENT/SPEED	175 W at 25% current and 0% speed 193 W at 25% current and 50% speed 220 W at 50% current and 0% speed 252 W at 50% current and 50% speed 285 W at 50% current and 90% speed 361 W at 100% current and 0% speed 431 W at 100% current and 50% speed 500 W at 100% current and 90% speed
INPUT CURRENT ILN AT 150% OVERLOAD	39.1 A
LEAKAGE CURRENT AT GROUND IPE - MAX	34 mA
MAINS SWITCH-ON FREQUENCY	Maximum of one time every 30 seconds
MAINS VOLTAGE - MAX	600 V
MAINS VOLTAGE - MIN	500 V
OPERATING MODE	U/f control Optional: Vector control with feedback (CLV) Speed control with slip compensation Sensorless vector control (SLV)
OUTPUT FREQUENCY - MAX	500 Hz
OUTPUT FREQUENCY - MIN	0 Hz
OUTPUT VOLTAGE (U2)	500 V AC, 3-phase 600 V AC, 3-phase
OVERLOAD CURRENT IL AT 150% OVERLOAD	51 A
RATED CONTROL SUPPLY VOLTAGE	10 V DC (Us, max. 10 mA)
RATED FREQUENCY - MAX	62 Hz
RATED FREQUENCY - MIN	48 Hz
RATED OPERATIONAL CURRENT (IE) AT 150% OVERLOAD	34 A
RATED OPERATIONAL POWER AT 500 V, 50 HZ, 3-PHASE	22 kW

Motor rating

ASSIGNED MOTOR CURRENT IM AT 500 V, 50 HZ, 150% OVERLOAD	33 A
ASSIGNED MOTOR CURRENT IM AT 525 V, 50 HZ, 150% OVERLOAD	31.4 A
ASSIGNED MOTOR CURRENT IM AT 550 - 600 V, 60 HZ, 150% OVERLOAD	32 A
ASSIGNED MOTOR POWER AT 575/600 V, 60 HZ, 3-PHASE	30 HP

RATED OPERATIONAL POWER AT 525 V, 50 HZ, 3-PHASE	22 kW
RATED OPERATIONAL VOLTAGE	500 V AC, 3-phase 600 V AC, 3-phase
RESOLUTION	0.1 Hz (Frequency resolution, setpoint value)
SHORT-CIRCUIT PROTECTION	NH fuse used together with TB00-D fuse base, Power wiring, Assigned switching and protective elements LPJ fuse used together with J60060-3 fuse base, Power wiring, Assigned switching and protective elements
SHORT-CIRCUIT PROTECTION RATING	63 A, UL (Class CC or J), Safety device (fuse or miniature circuit-breaker), Power Wiring
STARTING CURRENT - MAX	200 %, IH, max. starting current (High Overload), for 4 seconds every 40 seconds, Power section
SUPPLY FREQUENCY	50/60 Hz
SWITCHING FREQUENCY	8 kHz, 4 - 24 kHz adjustable (audible), fPWM, Power section, Main circuit
SYSTEM CONFIGURATION TYPE	AC supply systems with earthed center point
VOLTAGE RATING - MAX	600 VAC

Resources

[eaton-powerxl-da1-dc1-de1-system-bus-ap040022-en-us.pdf](#)

[eaton-powerxl-vfd-dual-rating-ap040114-en-us.pdf](#)

[eaton-powerxl-da1-starting-stopping-operation-ap040030-en-us.pdf](#)

[Start, Stopp und Betrieb](#)

[eaton-powerxl-da1-droop-function-ap040023-en-us.pdf](#)

[eaton-powerxl-da1-dc1-de1-internal-motor-protection-ap040016-en-us.pdf](#)

[eaton-powerxl-da1-master-slave-operation-ap040026-en-us.pdf](#)

[eaton-powerxl-da1-hoist-applications-ap040032-en-us.pdf](#)

APPLICATION NOTES

[eaton-powerxl-da1-derating-ap040039-en-us.pdf](#)

[eaton-powerxl-da1-dc1-db1-de1-rapidlink5-firmware-update-ap040214-en-us.pdf](#)

[eaton-powerxl-da1-pid-controller-ap040025-en-us.pdf](#)

[eaton-powerxl-da1-pointer-to-parameter-ap040133-en-us.pdf](#)

[eaton-powerxl-dx-com-stick-3-ap040190-en-us.pdf](#)

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BROCHURES	eaton-powerxl-variable-frequency-drives-dc1-da1-brochure-br040001en-en-us.pdf
CATALOGUES	eaton-drives-soft-starter-catalog-ca04020001zen-us.pdf
DECLARATIONS OF CONFORMITY	eaton-variable-frequency-drive-declaration-of-conformity-eu250662en.pdf eaton-variable-frequency-drive-declaration-of-conformity-uk251145en.pdf
DRAWINGS	eaton-frequency-inverter-dimensions-023.eps eaton-frequency-inverter-3d-drawing-014.eps
ECAD MODEL	DA-CE-ETN.DA1-35034NB-B55C
INSTALLATION INSTRUCTIONS	eaton-da1-variable-frequency-drive-il04020011z.pdf
INSTALLATION VIDEOS	PowerXL Variable Frequency Drives DC1 and DA1 - EN Video PowerXL DA1
MANUALS AND USER GUIDES	MN040018_EN

	eaton-da1-variable-frequency-drive-mn040063-en-us.pdf eaton-powerxl-da1-installation-manual-mn04020005z-en-us.pdf eaton-powerxl-da1-application-manual-mn04020006z-en-us.pdf eaton-powerxl-vfd-profinet-manual-mn040062en-us.pdf eaton-canopen-communication-manual-for-variable-frequency-drives-variable-speed-starters-da1-db1-dc1-de11-mn040019-en-us.pdf
MCAD MODEL	eaton-general-purpose-drives-mcad-drawings-da1-fs4-ip55.dwg DA-CS-da1_fs4_ip55
MULTIMEDIA	System solutions based on EtherCAT Looking for variable frequency drives DC1 and DA1 which can be used in harsh environments?
PRODUCT NOTIFICATIONS	eaton-drives-ecodesign-directive-mz040046en-en.pdf
SOFTWARE, FIRMWARE, AND APPLICATIONS	eaton-powerxl-da1-ethercat-esi-v310.zip eaton-powerxl-da1-devicenet-eds-v100.zip eaton-powerxl-da1-profinet-gsdml-v226.zip eaton-powerxl-dx-cbl-pc-1m5-usb-driver.zip eaton-powerxl-pcsoftware-drivesconnect-v1501.zip eaton-powerxl-da1-ethercat-esi-for-omron-v311.zip eaton-powerxl-da1-swd-codesys-v3-library.zip

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3m0-usb-driver.zip](#)

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profinet-tia-v12-library.zip](#)

[eaton-powerxl-da1-
profibus-gsd-v216.zip](#)

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE:



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