

Specifications



Photo is representative



Eaton 169363

Eaton DA1 Variable frequency drive, 240 V AC, 3-phase, 50.1 A, NEMA 12, IP55, FS4, Radio interference, Brake chopper

General specifications

PRODUCT NAME	Eaton DA1 Variable frequency drive
CATALOG NUMBER	169363
MODEL CODE	DA1-32046FB-B55C
EAN	4015081658107
PRODUCT LENGTH/DEPTH	240 mm
PRODUCT HEIGHT	450 mm
PRODUCT WIDTH	173 mm
PRODUCT WEIGHT	11.5 kg

CE
Safety: EN 61800-5-1: 2003

UL report applies to both
US and Canada
CSA-C22.2 No. 14
DNV
IEC/EN61800-3
CUL
EAC
Specification for general
requirements: IEC/EN
61800-2
UkrSEPRO
UL
IEC/EN 61800-3
IEC/EN61800-5
RoHS, ISO 9001
UL 508C
UL Category Control No.:
NMMS, NMMS7
Certified by UL for use in
Canada
RCM
UL File No.: E172143

CERTIFICATIONS

CATALOG NOTES

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

Apparent power	
APPARENT POWER AT 230 V	18.33 kVA
APPARENT POWER AT 240 V	19.12 kVA

Climatic environmental conditions	
ALTITUDE	Max. 1000 m Max. 4000 m Above 1000 m with 1 % derating per 100 m
AMBIENT OPERATING TEMPERATURE - MAX	40 °C
AMBIENT STORAGE TEMPERATURE - MAX	60 °C
AMBIENT OPERATING TEMPERATURE - MIN	-10 °C
AMBIENT OPERATING TEMPERATURE AT 150% OVERLOAD - MAX	40 °C
AMBIENT OPERATING TEMPERATURE AT 150% OVERLOAD - MIN	-10 °C
AMBIENT STORAGE TEMPERATURE - MIN	-40 °C
CLIMATIC PROOFING	< 95 average relative humidity (RH), no condensation, no corrosion

resistors and designs (e.g. different duty cycles) are available upon request.
--

Braking function	
BRAKING RESISTANCE	22 Ω
BRAKING TORQUE	Max. 100 % of rated operational current I _e , variable, DC - Main circuit Max. 30 % MN, Standard - Main circuit Max. 100 % of rated operational current I _e with external braking resistor - Main circuit
SWITCH-ON THRESHOLD FOR THE BRAKING TRANSISTOR	390 VDC

Control circuit	
NUMBER OF INPUTS (ANALOG)	2
NUMBER OF INPUTS (DIGITAL)	5
NUMBER OF OUTPUTS (ANALOG)	2
NUMBER OF OUTPUTS (DIGITAL)	2
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))
RATED CONTROL VOLTAGE (UC)	24 V DC (external, max. 100 mA)

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	C3 ≤ 25 m, Radio interference level, maximum motor cable length 300 m, unscreened, with motor choke, maximum permissible, Motor feeder C2 ≤ 5 m, Radio interference level, maximum motor cable length 200 m, screened, with motor choke, maximum permissible, Motor feeder 150 m, unscreened, maximum permissible, Motor feeder 100 m, screened, maximum permissible, Motor feeder
COMMUNICATION INTERFACE	EtherCAT, optional Modbus-TCP, optional PROFINET, optional SmartWire-DT, optional DeviceNet, optional OP-Bus (RS485), built in Ethernet IP, optional Modbus RTU, built in CANopen®, built in PROFIBUS, optional
CONNECTION TO SMARTWIRE-DT	In conjunction with DX-NET-SWD1 SmartWire DT module Yes
DEGREE OF PROTECTION	NEMA 12 IP55
ELECTROMAGNETIC COMPATIBILITY	1st and 2nd environments (according to EN 61800-3)
FITTED WITH:	Internal DC link Breaking resistance Additional PCB protection IGBT inverter Control unit Brake chopper PC connection Radio interference suppression filter OLED display
FRAME SIZE	FS4
FUNCTIONS	4-quadrant operation possible
MOUNTING POSITION	Vertical
PRODUCT CATEGORY	Variable frequency drives

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	264 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	46 A
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	0 W

PROTECTION	Finger and back-of-hand proof, Protection against direct contact (BGV A3, VBG4)
PROTOCOL	PROFIBUS CAN EtherNet/IP MODBUS Other bus systems DeviceNet PROFINET IO TCP/IP
RADIO INTERFERENCE CLASS	Optional external radio interference suppression filter for longer motor cable lengths and for use in different EMC environments C2, C3: depending on the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary.
SAFETY FUNCTION/LEVEL	STO (Safe Torque Off, SIL2, PLc Cat 2)
SUITABLE FOR	Branch circuits, (UL/CSA)

Main circuit

EFFICIENCY	97.6 % (η)
HEAT DISSIPATION AT CURRENT/SPEED	170 W at 25% current and 0% speed 227 W at 25% current and 50% speed 246 W at 50% current and 0% speed 320 W at 100% current and 0% speed 320 W at 50% current and 50% speed 407 W at 50% current and 90% speed 429 W at 100% current and 50% speed 543 W at 100% current and 90% speed
INPUT CURRENT ILN AT 150% OVERLOAD	50.1 A
LEAKAGE CURRENT AT GROUND IPE - MAX	1.42 mA
MAINS SWITCH-ON FREQUENCY	Maximum of one time every 30 seconds
MAINS VOLTAGE - MAX	240 V
MAINS VOLTAGE - MIN	200 V
OPERATING MODE	Optional: Vector control with feedback (CLV) Sensorless vector control (SLV) U/f control Speed control with slip compensation
OUTPUT FREQUENCY - MAX	500 Hz
OUTPUT FREQUENCY - MIN	0 Hz
OUTPUT VOLTAGE (U2)	230 V AC, 3-phase 240 V AC, 3-phase
OVERLOAD CURRENT IL AT 150% OVERLOAD	69 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	46 A
RATED OPERATIONAL POWER AT 220/230 V, 50 HZ, 1-PHASE	11 kW

Motor rating

ASSIGNED MOTOR CURRENT IM AT 220 - 240 V, 60 HZ, 150% OVERLOAD	42 A
ASSIGNED MOTOR CURRENT IM AT 230 V, 50 HZ, 150% OVERLOAD	38 A
ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 1-PHASE	15 HP

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	70 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	240 VAC

Resources

[eaton-powerxl-da1-use-of-multiple-ramps-ap040031-en-us.pdf](#)

[Start, Stopp und Betrieb](#)

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

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

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

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

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

APPLICATION NOTES

[eaton-powerxl-da1-motor-vf-curves-induction-motors-ap040018-en-us.pdf](#)

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

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

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

[eaton-powerxl-da1-set-point-setting-ap040040-en-us.pdf](#)

[eaton-powerxl-da1-dc1-de1-conformal-coating-ap040182-en-us.pdf](#)

[eaton-powerxl-da1-i-o-configuration-ap040034-en-us.pdf](#)

[eaton-powerxl-da1-vector-control-induction-motors-ap040028-en-us.pdf](#)

	eaton-powerxl-da1-operating-pm-bldc-motors-ap040051-en-us.pdf eaton-powerxl-da1-master-slave-operation-ap040026-en-us.pdf eaton-powerxl-da1-derating-ap040039-en-us.pdf Electromagnetic compatibility (EMC) eaton-powerxl-dx-com-stick-3-ap040190-en-us.pdf eaton-powerxl-vfd-dual-rating-ap040114-en-us.pdf
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.DA1-32046FB-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	eaton-powerxl-da1-installation-manual-mn04020005z-en-us.pdf

	eaton-powerxl-da1-application-manual-mn04020006z-en-us.pdf MN040018_EN eaton-da1-variable-frequency-drive-mn040063-en-us.pdf eaton-canopen-communication-manual-for-variable-frequency-drives-variable-speed-starters-da1-db1-dc1-de11-mn040019-en-us.pdf eaton-powerxl-vfd-profinet-manual-mn040062en-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-for-omron-v311.zip eaton-powerxl-pcsoftware-drivesconnect-v1501.zip eaton-powerxl-da1-profinet-tia-v12-library.zip eaton-powerxl-dx-cbl-pc-3m0-usb-driver.zip eaton-powerxl-da1-profibus-gsd-v216.zip eaton-powerxl-dx-comstick3-ble-drivers.zip eaton-powerxl-da1-profinet-gsdml-v226.zip eaton-powerxl-dx-cbl-pc-1m5-usb-driver.zip

[eaton-powerxl-da1-
canopen-eds-v250.zip](#)

[eaton-powerxl-da1-swd-
codesys-v3-library.zip](#)

[eaton-powerxl-da1-
ethercat-esi-v310.zip](#)

[eaton-powerxl-da1-
ethernetip-eds-v150.zip](#)

[eaton-powerxl-da1-
canopen-codesys-v3-
library.zip](#)

[eaton-powerxl-da1-
firmware-release-note-
mz040041en-us.pdf](#)

[eaton-powerxl-da1-
devicenet-eds-v100.zip](#)

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE:



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

© 2026 Eaton. All Rights Reserved.

Follow us on social media to get the latest product and support information.

