Specifications

Photo is representative

Eaton EP-400069

Eaton DA1 Variable frequency drive, 500 V AC, 3-phase, 22 A, 15 kW, IP66/NEMA 4X, OLED display, UV resistant

General specifications	
PRODUCT NAME	Eaton DA1 Variable frequency drive
CATALOG NUMBER	EP-400069
MODEL CODE	DA1-35022NB-B66O
EAN	4015082950514
PRODUCT LENGTH/DEPTH	235 mm
PRODUCT HEIGHT	310 mm
PRODUCT WIDTH	210.5 mm
PRODUCT WEIGHT	6.6 kg
CERTIFICATIONS	CE Certified by UL for use in Canada CSA-C22.2 No. 14 CUL DNV EAC IEC/EN 61800-3 IEC/EN61800-3 IEC/EN61800-5 RCM RoHS, ISO 9001 Safety: EN 61800-5-1: 2003 Specification for general requirements: IEC/EN 61800-2 UkrSEPRO UL UL 508C UL Category Control No.: NMMS, NMMS7 UL File No.: E172143 UL report applies to both US and Canada
CATALOG NOTES	The brake resistors are assigned based on the maximum rated power of the variable frequency drive. Additional brake

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

General

CABLE LENGTH	100 m, screened, maximum permissible, Motor feeder 150 m, unscreened, maximum permissible, Motor feeder 200 m, screened, with motor choke, maximum permissible, Motor feeder 300 m, unscreened, with motor choke, maximum permissible, Motor feeder
COMMUNICATION INTERFACE	CANopen®, built in EtherCAT, optional Ethernet IP, optional Modbus RTU, built in Modbus-TCP, optional OP-Bus (RS485), built in PROFIBUS, optional PROFINET, optional BACnet/IP, optional
CONNECTION TO SMARTWIRE-DT	No
DEGREE OF PROTECTION	IP66 NEMA 4X
FITTED WITH:	Additional PCB protection Brake chopper Breaking resistance Control unit IGBT inverter Internal DC link OLED display PC connection
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	CAN EtherNet/IP MODBUS Other bus systems PROFIBUS PROFINET IO TCP/IP BACnet/IP
SAFETY FUNCTION/LEVEL	STO (Safe Torque Off, SIL3, PLe Cat 3)
SUITABLE FOR	Branch circuits, (UL/CSA)

Climatic environmental conditions

ALTITUDE	Max. 1000 m Above 1000 m with 1 % derating per 100 m Max. 4000 m
AMBIENT OPERATING TEMPERATURE - MIN	-10 °C
AMBIENT OPERATING TEMPERATURE - MAX	40 °C
AMBIENT OPERATING TEMPERATURE AT 150% OVERLOAD - MIN	-10 °C
AMBIENT OPERATING TEMPERATURE AT 150% OVERLOAD - 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

EFFICIENCY	97 % (η)
HEAT DISSIPATION AT CURRENT/SPEED	345 W at 100% current and 0% speed 345 W at 100% current and 50% speed 421 W at 100% current and 90% speed 212 W at 50% current and 0% speed 240 W at 50% current and 50% speed 260 W at 50% current and 90% speed 199 W at 25% current and 50% speed 180 W at 25% current and 0% speed
INPUT CURRENT ILN AT 150% OVERLOAD	26 A
LEAKAGE CURRENT AT GROUND IPE - MAX	22 mA
MAINS SWITCH-ON FREQUENCY	Maximum of one time every 30 seconds
MAINS VOLTAGE - MIN	450 V
MAINS VOLTAGE - MAX	660 V
OPERATING MODE	Optional: Vector control with feedback (CLV) Sensorless vector control (SLV) Speed control with slip compensation U/f control
OUTPUT FREQUENCY - MIN	0 Hz
OUTPUT FREQUENCY - MAX	500 Hz
OUTPUT VOLTAGE (U2)	600 V AC, 3-phase 500 V AC, 3-phase
OVERLOAD CURRENT IL AT 150% OVERLOAD	33 A
RATED CONTROL SUPPLY VOLTAGE	10 V DC (Us, max. 10 mA)
RATED FREQUENCY - MIN	48 Hz
RATED FREQUENCY - MAX	62 Hz
RATED OPERATIONAL POWER AT 500 V, 50 HZ, 3-PHASE	15 kW
RATED OPERATIONAL POWER AT 525 V, 50 HZ, 3-PHASE	15 kW

Motor rating

ASSIGNED MOTOR CURRENT IM AT 500 V, 50 HZ, 150% OVERLOAD	22 A
ASSIGNED MOTOR CURRENT IM AT 525 V, 50 HZ, 150% OVERLOAD	22 A
ASSIGNED MOTOR CURRENT IM AT 550 - 600 V, 60 HZ, 150% OVERLOAD	22 A
ASSIGNED MOTOR POWER AT 575/600 V, 60 HZ, 3-PHASE	20 HP

RATED OPERATIONAL VOLTAGE	600 V AC, 3-phase 500 V AC, 3-phase
RESOLUTION	0.1 Hz (Frequency resolution, setpoint value)
SHORT-CIRCUIT PROTECTION RATING	40 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 - 16 kHz adjustable (audible), fPWM, Power section, Main circuit
SYSTEM CONFIGURATION TYPE	AC supply systems with earthed center point
VOLTAGE RATING - MAX	600 VAC

Apparent power

APPARENT POWER AT 600 V	22.86 kVA

Braking function

BRAKING RESISTANCE	33 Ω
BRAKING TORQUE	Max. 30 % MN, Standard - Main circuit Max. 100 % of rated operational current Ie, variable, DC - Main circuit Max. 100 % of rated operational current Ie with external braking resistor - Main circuit
SWITCH-ON THRESHOLD FOR THE BRAKING TRANSISTOR	975 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

EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	450 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	0 W
HEAT DISSIPATION DETAILS	Operation (with 150 % overload)
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.
10.6 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	Is the panel builder's

EXTERNAL CONDUCTORS	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-EP-400027-drawing.dwg eaton-EP-400027-3d-model.stp
APPLICATION NOTES	eaton-powerxl-da1-pointer-to-parameter-ap040133-en-us.pdf eaton-powerxl-da1-pid-controller-ap040025-en-us.pdf eaton-powerxl-da1-dc1-de1-internal-motor-protection-ap040016-en-us.pdf Start, Stopp und Betrieb eaton-powerxl-da1-starting-stopping-operation-ap040030-en-us.pdf eaton-powerxl-da1-droop-function-ap040023-en-us.pdf eaton-powerxl-da1-dc1-db1-de1-rapidlink5-firmware-update-ap040214-en-us.pdf eaton-powerxl-da1-dc1-de1-system-bus-ap040022-en-us.pdf eaton-powerxl-dx-com-stick-3-ap040190-en-us.pdf eaton-powerxl-da1-operating-pm-bldc-motors-ap040051-en-us.pdf Electromagnetic compatibility (EMC) eaton-powerxl-da1-vector-control-induction-motors-ap040028-en-us.pdf eaton-powerxl-da1-derating-ap040039-en-us.pdf

	eaton-powerxl-da1-motor-vf-curves-induction-motors-ap040018-en-us.pdf eaton-powerxl-da1-use-of-multiple-ramps-ap040031-en-us.pdf eaton-powerxl-da1-set-point-setting-ap040040-en-us.pdf eaton-powerxl-da1-hoist-applications-ap040032-en-us.pdf eaton-powerxl-da1-i-o-configuration-ap040034-en-us.pdf eaton-powerxl-da1-master-slave-operation-ap040026-en-us.pdf eaton-powerxl-vfd-dual-rating-ap040114-en-us.pdf eaton-powerxl-da1-dc1-de1-conformal-coating-ap040182-en-us.pdf
BROCHURES	eaton-powerxl-variable-frequency-drives-dc1-da1-brochure-br040001en-en-us.pdf
CATALOGUES	Product Range Catalog Drives Engineering
DECLARATIONS OF CONFORMITY	eaton-variable-frequency-drive-declaration-of-conformity-eu250651en.pdf eaton-variable-frequency-drive-declaration-of-conformity-uk251134en.pdf
INSTALLATION INSTRUCTIONS	eaton-da1-variable-frequency-drive-il040061zu.pdf
INSTALLATION VIDEOS	Video PowerXL DA1 PowerXL Variable Frequency Drives DC1 and DA1 - EN
MANUALS AND USER GUIDES	eaton-da1-variable-frequency-drive-mn040063-en-us.pdf

MULTIMEDIA	Looking for variable frequency drives DC1 and DA1 which can be used in harsh environments? System solutions based on EtherCAT
SOFTWARE, FIRMWARE, AND APPLICATIONS	eaton-powerxl-da1-profinet-gsdml-v226.zip eaton-powerxl-dx-cbl-pc-1m5-usb-driver.zip eaton-powerxl-da1-profinet-tia-v12-library.zip eaton-powerxl-dx-comstick3-ble-drivers.zip eaton-powerxl-da1-swd-codesys-v3-library.zip eaton-powerxl-dx-cbl-pc-3m0-usb-driver.zip eaton-powerxl-da1-profibus-gsd-v216.zip eaton-powerxl-da1-devicenet-eds-v100.zip eaton-powerxl-da1-ethercat-esi-v310.zip eaton-powerxl-da1-canopen-codesys-v3-library.zip eaton-powerxl-da1-firmware-release-note-mz040041en-us.pdf eaton-powerxl-da1-ethernetip-eds-v150.zip eaton-powerxl-da1-canopen-eds-v250.zip eaton-powerxl-da1-ethercat-esi-for-omron-v311.zip eaton-powerxl-pcsoftware-drivesconnect-v1501.zip

PROJECT NAME:	
PROJECT NUMBER:	
PREPARED BY:	
DATE:	

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