Eaton 169367

Eaton DA1 Variable frequency drive, 230 V AC, 3-phase, 90 A, 22 kW, IP55/NEMA 12, Radio interference suppression filter, OLED display, DC link choke

PRODUCT NAME	Eaton DA1 Variable frequency drive
CATALOG NUMBER	169367
PRODUCT LENGTH/DEPTH	313.5 mm
PRODUCT HEIGHT	865 mm
PRODUCT WIDTH	330 mm
PRODUCT WEIGHT	50 kg
CERTIFICATIONS	Safety: EN 61800-5-1: 2003 UL 508C UL report applies to both US and Canada Certified by UL for use in Canada IEC/EN61800-3 CE IEC/EN61800-5 CUL UL File No.: E172143 UL Category Control No.: NMMS, NMMS7 DNV UL EAC RCM CSA-C22.2 No. 14 UkrSEPRO RoHS, ISO 9001 IEC/EN 61800-3 Specification for general requirements: IEC/EN 61800-2
CATALOG NOTES	The brake resistors are assigned based on the maximum rated power of the variable frequency

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

PRODUCT CATEGORY	Variable frequency drives
FEATURES	Parameterization: Fieldbus Parameterization: Keypad Parameterization: drivesConnect Parameterization: drivesConnect mobile (App)
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.

INSTALLATION VIDEOS	Video PowerXL DA1
	eaton-powerxl-variable-frequency-drives-dc1-da1-brochure-br040001en-en-us.pdf
	eaton-powerxl-da1-application-manual-mn04020006z-en-us.pdf eaton-powerxl-da1-installation-manual-mn04020005z-en-us.pdf
	eaton-frequency-inverter-dimensions-025.eps eaton-frequency-inverter-3d-drawing-016.eps

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.
FITTED WITH:	Radio interference suppression filter Additional PCB protection OLED display DC link choke IGBT inverter PC connection Control unit Brake chopper Internal DC link Breaking resistance
CLIMATIC PROOFING	< 95 average relative humidity (RH), no condensation, no corrosion
CONNECTION TO SMARTWIRE-DT	Yes In conjunction with DX-NET-SWD1 SmartWire DT module
OPERATING MODE	Sensorless vector control (SLV) Speed control with slip

	compensation U/f control Optional: Vector control with feedback (CLV)
FRAME SIZE	FS6
ALTITUDE	Above 1000 m with 1 % derating per 100 m Max. 4000 m Max. 1000 m
ENVIRONMENTAL CLASS	3C2, 3S2 (Air quality)
APPLICATION IN DOMESTIC AND COMMERCIAL AREA PERMITTED	Yes
MAINS SWITCH-ON FREQUENCY	Maximum of one time every 30 seconds
APPLICATION IN INDUSTRIAL AREA PERMITTED	Yes
AMBIENT OPERATING TEMPERATURE - MAX	40 °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 - MAX	60 °C
AMBIENT STORAGE TEMPERATURE - MIN	-40 °C
APPARENT POWER AT 230 V	35.85 kVA
APPARENT POWER AT 240 V	37.41 kVA
ASSIGNED MOTOR CURRENT IM AT 220 - 240 V, 60 HZ, 150% OVERLOAD	80 A
ASSIGNED MOTOR CURRENT IM AT 230 V, 50 HZ, 150% OVERLOAD	71 A
MOUNTING POSITION	Vertical
RELATIVE SYMMETRIC NET FREQUENCY TOLERANCE	10 %
RELATIVE SYMMETRIC	10 %

NET VOLTAGE TOLERANCE	
PROTECTION	Finger and back-of-hand proof, Protection against direct contact (BGV A3, VBG4)
RESOLUTION	0.1 Hz (Frequency resolution, setpoint value)
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	0 W
SWITCH-ON THRESHOLD FOR THE BRAKING TRANSISTOR	390 VDC
VOLTAGE RATING - MAX	240 VAC
COMMUNICATION INTERFACE	PROFIBUS, optional SmartWire-DT, optional PROFINET, optional CANopen®, built in Ethernet IP, optional Modbus RTU, built in EtherCAT, optional OP-Bus (RS485), built in DeviceNet, optional Modbus-TCP, optional
CONVERTER TYPE	U converter
DEGREE OF PROTECTION	IP55 NEMA 12
PROTOCOL	PROFIBUS CAN MODBUS EtherNet/IP DeviceNet PROFINET IO Other bus systems TCP/IP
ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 1-PHASE	30 HP
SYSTEM CONFIGURATION TYPE	AC supply systems with earthed center point
ELECTROMAGNETIC COMPATIBILITY	1st and 2nd environments (according to EN 61800-3)
BRAKING RESISTANCE	6 Ω
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	550 W
HEAT DISSIPATION CAPACITY PDISS	0 W

HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
INPUT CURRENT ILN AT 150% OVERLOAD	99.1 A
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
CABLE LENGTH	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 C2 ≤ 5 m, Radio interference level, maximum motor cable length 100 m, screened, maximum permissible, Motor feeder C3 ≤ 25 m, Radio interference level, maximum motor cable length
FUNCTIONS	4-quadrant operation possible
OUTPUT VOLTAGE (U2)	230 V AC, 3-phase 240 V AC, 3-phase
NUMBER OF INPUTS (ANALOG)	2
NUMBER OF INPUTS (DIGITAL)	5
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. Optional external radio interference suppression filter for longer motor

	cable lengths and for use in different EMC environments
NUMBER OF OUTPUTS (DIGITAL)	2
STARTING CURRENT - MAX	200 %, IH, max. starting current (High Overload), for 4 seconds every 40 seconds, Power section
NUMBER OF PHASES (INPUT)	3
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))
NUMBER OF PHASES (OUTPUT)	3
POWER CONSUMPTION	550 W
RATED CONTROL SUPPLY VOLTAGE	10 V DC (Us, max. 10 mA)
EFFICIENCY	97.5 % (η)
RATED CONTROL VOLTAGE (UC)	24 V DC (external, max. 100 mA)
SUPPLY FREQUENCY	50/60 Hz
LEAKAGE CURRENT AT GROUND IPE - MAX	1.54 mA
MAINS VOLTAGE - MAX	240 V
MAINS VOLTAGE - MIN	200 V
NOMINAL OUTPUT CURRENT I2N	90 A
NUMBER OF HW-INTERFACES (INDUSTRIAL ETHERNET)	0
NUMBER OF HW-INTERFACES (OTHER)	0
NUMBER OF HW-INTERFACES (PARALLEL)	0
NUMBER OF HW-INTERFACES (RS-232)	0
NUMBER OF HW-INTERFACES (RS-422)	0
NUMBER OF HW-INTERFACES (RS-485)	1
NUMBER OF HW-INTERFACES (SERIAL TTY)	0
NUMBER OF HW-INTERFACES (USB)	0

NUMBER OF INTERFACES (PROFINET)	0
NUMBER OF OUTPUTS (ANALOG)	2
OUTPUT AT LINEAR LOAD AT RATED OUTPUT VOLTAGE - MAX	22 kW
OUTPUT AT QUADRATIC LOAD AT RATED OUTPUT VOLTAGE - MAX	22 kW
OUTPUT FREQUENCY - MAX	500 Hz
OUTPUT FREQUENCY - MIN	0 Hz
OUTPUT VOLTAGE - MAX	250 V
OVERLOAD CURRENT IL AT 150% OVERLOAD	135 A
SUITABLE FOR	Branch circuits, (UL/CSA)
SWITCHING FREQUENCY	4 kHz, 4 - 16 kHz adjustable (audible), fPWM, Power section, Main circuit
RATED OPERATIONAL VOLTAGE	230 V AC, 3-phase 240 V AC, 3-phase
SHORT-CIRCUIT PROTECTION RATING	150 A, UL (Class CC or J), Safety device (fuse or miniature circuit-breaker), Power Wiring
RATED FREQUENCY - MAX	62 Hz
RATED FREQUENCY - MIN	48 Hz
RATED OPERATIONAL CURRENT (IE) AT 150% OVERLOAD	90 A
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	90 A
RATED OPERATIONAL POWER AT 220/230 V, 50 HZ, 1-PHASE	22 kW
SAFETY FUNCTION/LEVEL	STO (Safe Torque Off, SIL2, PLc Cat 2)
HEAT DISSIPATION AT CURRENT/SPEED	240 W at 25% current and 50% speed 260 W at 25% current and 0% speed 300 W at 50% current and 0% speed 350 W at 50% current and

	50% speed 440 W at 50% current and 90% speed 490 W at 100% current and 0% speed 600 W at 100% current and 50% speed 810 W at 100% current and 90% speed

PROJECT NAME:	
PROJECT NUMBER:	
PREPARED BY:	
:	

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