

Eaton 169375

Eaton DA1 Variable frequency drive, 230 V AC, 3-phase, 202 A, 55 kW, IP55/NEMA 12, Radio interference suppression filter, OLED display, DC link choke

PRODUCT NAME	Eaton DA1 Variable frequency drive
CATALOG NUMBER	169375
PRODUCT LENGTH/DEPTH	341 mm
PRODUCT HEIGHT	1280 mm
PRODUCT WIDTH	330 mm
PRODUCT WEIGHT	80 kg
CERTIFICATIONS	UL report applies to both US and Canada DNV IEC/EN 61800-3 RCM CSA-C22.2 No. 14 UL 508C RoHS, ISO 9001 Safety: EN 61800-5-1: 2003
	Certified by UL for use in Canada IEC/EN61800-3 Specification for general requirements: IEC/EN 61800-2 UkrSEPRO CE IEC/EN61800-5 CUL EAC UL UL File No.: E172143 UL Category Control No.: NMMS, NMMS7
CATALOG NOTES	The brake resistors are assigned based on the maximum rated power of the variable frequency

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-installation-manual-mn04020005z-en-us.pdf
	eaton-powerxl-da1-application-manual-mn04020006z-en-us.pdf
	eaton-frequency-inverter-da1-dimensions-004.eps
	eaton-frequency-inverter-da1-3d-drawing-004.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:	OLED display Additional PCB protection IGBT inverter Breaking resistance Internal DC link DC link choke Radio interference suppression filter Control unit Brake chopper PC connection
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	Optional: Vector control with feedback (CLV) U/f control

	Sensorless vector control (SLV) Speed control with slip compensation
FRAME SIZE	FS7
ALTITUDE	Max. 4000 m Max. 1000 m Above 1000 m with 1 % derating per 100 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	80.47 kVA
APPARENT POWER AT 240 V	83.97 kVA
ASSIGNED MOTOR CURRENT IM AT 220 - 240 V, 60 HZ, 150% OVERLOAD	192 A
ASSIGNED MOTOR CURRENT IM AT 230 V, 50 HZ, 150% OVERLOAD	173 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	DeviceNet, optional EtherCAT, optional Modbus-TCP, optional SmartWire-DT, optional PROFINET, optional OP-Bus (RS485), built in Ethernet IP, optional CANopen®, built in PROFIBUS, optional Modbus RTU, built in
CONVERTER TYPE	U converter
DEGREE OF PROTECTION	NEMA 12 IP55
PROTOCOL	Other bus systems EtherNet/IP DeviceNet CAN MODBUS PROFIBUS PROFINET IO TCP/IP
ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 1-PHASE	75 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	1100 W
HEAT DISSIPATION CAPACITY PDISS	0 W

HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
INPUT CURRENT ILN AT 150% OVERLOAD	206.5 A
BRAKING TORQUE	<p>Max. 30 % MN, Standard - Main circuit</p> <p>Max. 100 % of rated operational current I_e with external braking resistor - Main circuit</p> <p>Max. 100 % of rated operational current I_e, variable, DC - Main circuit</p>
CABLE LENGTH	<p>C2 \leq 5 m, Radio interference level, maximum motor cable length</p> <p>C3 \leq 25 m, Radio interference level, maximum motor cable length</p> <p>150 m, unscreened, maximum permissible, Motor feeder</p> <p>200 m, screened, with motor choke, maximum permissible, Motor feeder</p> <p>100 m, screened, maximum permissible, Motor feeder</p> <p>300 m, unscreened, with motor choke, maximum permissible, Motor feeder</p>
FUNCTIONS	4-quadrant operation possible
OUTPUT VOLTAGE (U2)	<p>230 V AC, 3-phase</p> <p>240 V AC, 3-phase</p>
NUMBER OF INPUTS (ANALOG)	2
NUMBER OF INPUTS (DIGITAL)	5
RADIO INTERFERENCE CLASS	<p>Optional external radio interference suppression filter for longer motor cable lengths and for use in different EMC environments</p> <p>C2, C3: depending on the motor cable length, the connected load, and ambient conditions.</p> <p>External radio interference</p>

	suppression filters (optional) may be necessary.
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	1100W
RATED CONTROL SUPPLY VOLTAGE	10 V DC (Us, max. 10 mA)
EFFICIENCY	98 % (η)
RATED CONTROL VOLTAGE (UC)	24 V DC (external, max. 100 mA)
SUPPLY FREQUENCY	50/60 Hz
LEAKAGE CURRENT AT GROUND IPE - MAX	2.74 mA
MAINS VOLTAGE - MAX	240 V
MAINS VOLTAGE - MIN	200 V
NOMINAL OUTPUT CURRENT I2N	202 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	55 kW
OUTPUT AT QUADRATIC LOAD AT RATED OUTPUT VOLTAGE - MAX	55 kW
OUTPUT FREQUENCY - MAX	500 Hz
OUTPUT FREQUENCY - MIN	0 Hz
OUTPUT VOLTAGE - MAX	250 V
OVERLOAD CURRENT IL AT 150% OVERLOAD	303 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	300 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	202 A
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	202 A
RATED OPERATIONAL POWER AT 220/230 V, 50 HZ, 1-PHASE	55 kW
SAFETY FUNCTION/LEVEL	STO (Safe Torque Off, SIL2, PLc Cat 2)
HEAT DISSIPATION AT CURRENT/SPEED	1210 W at 100% current and 0% speed 1460 W at 100% current and 50% speed 1900 W at 100% current and 90% speed 2440 W at 50% current

and 90% speed
450 W at 25% current and
0% speed
570 W at 25% current and
50% speed
620 W at 50% current and
0% speed
880 W at 50% current and
50% speed

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

:



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