Eaton 9702-4111-00P

Eaton DG1 Variable frequency drive, 400 V AC, 3-phase, 87 A, 45 kW, IP54/NEMA12, DC link choke

PRODUCT NAME	Eaton DG1 variable frequency drive
CATALOG NUMBER	9702-4111-00P
PRODUCT LENGTH/DEPTH	294 mm
PRODUCT HEIGHT	630 mm
PRODUCT WIDTH	237.7 mm
PRODUCT WEIGHT	35.2 kg
CERTIFICATIONS	RoHS, ISO 9001 EAC CUL Safety requirements: IEC/EN 61800-5 C-Tick UL IEC/EN61800-5 CSA-C22.2 No. 274-13 UL Category Control No.: NMMS, NMMS7 UL report applies to both US and Canada Specification for general requirements: IEC/EN 61800-2 UL File No.: E134360 CE UL508 Certified by UL for use in Canada UkrSEPRO IEC/EN 61800-3 IEC/EN61800-3

Powering Business Worldwide

PRODUCT CATEGORY	Variable frequency drives
FEATURES	Externally accessible fan Temperature-controlled fan Parameterization: Fieldbus Parameterization: Keypad Parameterization: Power Xpert inControl
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.

	eaton-profinet-de1-dc1-da1-dg1-dm1-dx1-mn040062-en-en.pdf
	eaton-frequency-inverter-dg1-dimensions-004.eps eaton-frequency-inverter-dg1-3d-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:	Additional PCB protection Radio interference suppression filter Internal DC link PC connection Control unit DC link choke Multi-line graphic display IGBT inverter
POLLUTION DEGREE	2
CLIMATIC PROOFING	< 95 average relative humidity (RH), no condensation, no corrosion
CONNECTION TO SMARTWIRE-DT	In conjunction with DXG-NET-SWD SmartWire DT module Yes
OPERATING MODE	U/f control Speed control with slip compensation

	Sensorless vector control (SLV) Torque regulation
FRAME SIZE	FS4
AIR VOLUME CAPACITY	260 m^3/h
ALTITUDE	Max. 3000 m Max. 2000 m for Corner Grounded TN Systems 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 60 seconds
APPLICATION IN INDUSTRIAL AREA PERMITTED	Yes
AMBIENT OPERATING TEMPERATURE - MAX	50 °C
AMBIENT OPERATING TEMPERATURE - MIN	-10 °C
AMBIENT OPERATING TEMPERATURE AT 150% OVERLOAD - MAX	50 °C
AMBIENT OPERATING TEMPERATURE AT 150% OVERLOAD - MIN	-30 °C
AMBIENT STORAGE TEMPERATURE - MAX	70 °C
AMBIENT STORAGE TEMPERATURE - MIN	-40 °C
APPARENT POWER AT 400 V	72.7 kVA
APPARENT POWER AT 480 V	90.9 kVA
ASSIGNED MOTOR CURRENT IM AT 400 V, 50 HZ, 110% OVERLOAD	99 A
ASSIGNED MOTOR CURRENT IM AT 400 V, 50 HZ, 150% OVERLOAD	82.1 A
MOUNTING POSITION	Vertical
RATED CONDITIONAL SHORT-CIRCUIT CURRENT (IQ)	100 kA

RELATIVE SYMMETRIC NET FREQUENCY TOLERANCE	10 %
RELATIVE SYMMETRIC NET VOLTAGE TOLERANCE	10 %
PROTECTION	Finger and back-of-hand proof, Protection against direct contact (BGV A3, VBG4)
HEAT DISSIPATION DETAILS	Operation (with 150 % overload), allow for derating
RATED OPERATIONAL POWER AT 500 V, 50 HZ, 3-PHASE, 110% OVERLOAD	55 kW
RESOLUTION	0.01 Hz (Frequency resolution, setpoint value)
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	24.42 W
SWITCH-ON THRESHOLD FOR THE BRAKING TRANSISTOR	850 VDC
VOLTAGE RATING - MAX	500 VAC
OVERVOLTAGE CATEGORY	III
COMMUNICATION INTERFACE	SmartWire-DT, optional PROFIBUS, optional Modbus TCP, built in Ethernet IP, built in CANopen®, optional DeviceNet, optional Modbus RTU, built in BACnet MS/TP, built in
CONVERTER TYPE	U converter
DEGREE OF PROTECTION	NEMA 12 IP54
PROTOCOL	TCP/IP MODBUS CAN PROFINET IO BACnet Other bus systems PROFIBUS DeviceNet EtherNet/IP
ASSIGNED MOTOR CURRENT IM AT 440 - 480	77 A

V, 60 HZ, 150% OVERLOAD	
ASSIGNED MOTOR CURRENT IM AT 440/480 V, 60 HZ, 110% OVERLOAD	96 A
ASSIGNED MOTOR CURRENT IM AT 500 V, 50 HZ, 110% OVERLOAD	79 A
ASSIGNED MOTOR CURRENT IM AT 500 V, 50 HZ, 150% OVERLOAD	79 A
SYSTEM CONFIGURATION TYPE	TN-S, TN-C, TN-C-S, TT, IT
ELECTROMAGNETIC COMPATIBILITY	1st and 2nd environments (according to EN 61800-3)
ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE	60 HP
ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE, 110 % OVERLOAD	75 HP
BRAKING RESISTANCE	6.5 Ω
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	1217 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
INPUT CURRENT ILN AT 110% OVERLOAD	97 A
INPUT CURRENT ILN AT 150% OVERLOAD	79.4 A
MAINS CURRENT DISTORTION	31.5 %
CURRENT LIMITATION	0.1 - 2 x IH (CT), motor, main circuit
NUMBER OF SLOTS	2 (expansion)
BRAKING TORQUE	Max. 100 % of rated operational current Ie with external braking resistor - Main circuit Adjustable to 150 %, DC - Main circuit Max. 30 % MN, Standard - Main circuit Adjustable to 150 % (I/Ie),

	DC - Main circuit
CABLE LENGTH	C3 ≤ 50 m, Radio interference level, maximum motor cable length C2 ≤ 10 m, Radio interference level, maximum motor cable length 200 m, screened, maximum permissible, Motor feeder
OUTPUT VOLTAGE (U2)	480 V AC, 3-phase 400 V AC, 3-phase 500 V AC, 3-phase
NUMBER OF INPUTS (ANALOG)	2
NUMBER OF INPUTS (DIGITAL)	8
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 C1: with external filter, for conducted emissions only
NUMBER OF OUTPUTS (DIGITAL)	1
STARTING CURRENT - MAX	200 %, IH, max. starting current (High Overload), For 2 seconds every 20 seconds, Power section
NUMBER OF PHASES (INPUT)	3
NUMBER OF RELAY OUTPUTS	3 (parameterizable, 2 changeover contacts and 1 N/O, 6 A (240 V AC) / 6 A (24 V DC))
NUMBER OF PHASES (OUTPUT)	3
POWER CONSUMPTION	1217 W
RATED CONTROL SUPPLY VOLTAGE	10 V DC (Us, max. 10 mA)

EFFICIENCY	98.3 % (η)
RATED CONTROL VOLTAGE (UC)	24 V DC (external, max. 250 mA options incl.)
SUPPLY FREQUENCY	50/60 Hz
LEAKAGE CURRENT AT GROUND IPE - MAX	8.5 mA
MAINS VOLTAGE - MAX	500 V
MAINS VOLTAGE - MIN	380 V
NOMINAL OUTPUT CURRENT I2N	87 A
NUMBER OF HW-INTERFACES (INDUSTRIAL ETHERNET)	1
NUMBER OF HW-INTERFACES (OTHER)	1
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	45 kW
OUTPUT AT QUADRATIC LOAD AT RATED OUTPUT VOLTAGE - MAX	55 kW
OUTPUT FREQUENCY - MAX	400 Hz
OUTPUT FREQUENCY - MIN	0 Hz
OUTPUT VOLTAGE - MAX	500 V
OVERLOAD CURRENT IL AT 110% OVERLOAD	115.5 A
OVERLOAD CURRENT IL AT 150% OVERLOAD	130.5 A
SHOCK RESISTANCE	UPS drop test (for weights

	inside the UPS frame) Storage and transportation: maximum 15 g, 11 ms (inside the packaging) Mechanical, According to EN 61800-5-1, IEC/EN 60068-2-27
SUITABLE FOR	Branch circuits, (UL/CSA)
SWITCHING FREQUENCY	3.6 kHz, 1 - 10 kHz adjustable, fPWM, Power section, Main circuit
RATED OPERATIONAL VOLTAGE	480 V AC, 3-phase 400 V AC, 3-phase 500 V AC, 3-phase
SHORT-CIRCUIT PROTECTION RATING	125 A, UL (Class CC or J), Safety device (fuse or miniature circuit-breaker), Power Wiring
VIBRATION	Resistance: 5 - 150 Hz, According to EN 61800-5-1, IEC/EN 60068-2-6 Resistance: 15.8 – 150 Hz, 1 g, Maximum acceleration amplitude Resistance: 5 - 15.8 Hz, Amplitude 1 mm (peak)
RATED FREQUENCY - MAX	66 Hz
RATED FREQUENCY - MIN	45 Hz
RATED OPERATIONAL CURRENT (IE) AT 110% OVERLOAD	105 A
RATED OPERATIONAL CURRENT (IE) AT 150% OVERLOAD	87 A
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	87 A
RATED OPERATIONAL POWER AT 380/400 V, 50 HZ, 3-PHASE	45 kW
RATED OPERATIONAL POWER AT 380/400 V, 50 HZ, 3-PHASE, 110% OVERLOAD	55 kW
RATED OPERATIONAL POWER AT 500 V, 50 HZ, 3-PHASE	55 kW
SAFETY FUNCTION/LEVEL	STO (Safe Torque Off, SIL1, PLc Cat 1)

HEAT DISSIPATION AT CURRENT/SPEED	1115 W at 50% current and 0% speed 1261 W at 100% current and 90% speed 362 W at 25% current and 0% speed 439 W at 25% current and 50% speed 495 W at 100% current and 50% speed 602 W at 50% current and 50% speed 656 W at 50% current and 90% speed 735 W at 100% current and 0% speed

PROJECT NAME:	
PROJECT NUMBER:	
PREPARED BY:	
:	

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