

Eaton 9703-2002-00P

Eaton DG1 Variable frequency drive, 500 V
AC, 3-phase, 10 A, 5.5 kW, IP21/NEMA1,
Brake chopper, DC link choke

PRODUCT NAME	Eaton DG1 variable frequency drive
CATALOG NUMBER	9703-2002-00P
PRODUCT LENGTH/DEPTH	244.7 mm
PRODUCT HEIGHT	419 mm
PRODUCT WIDTH	167.8 mm
PRODUCT WEIGHT	11.2 kg
CERTIFICATIONS	CSA-C22.2 No. 274-13 UL File No.: E134360 IEC/EN 61800-3 RoHS, ISO 9001 UL UL report applies to both US and Canada IEC/EN61800-5 UkrSEPRO Certified by UL for use in Canada CUL IEC/EN61800-3 Safety requirements: IEC/EN 61800-5 UL Category Control No.: NMMS, NMMS7 C-Tick CE Specification for general requirements: IEC/EN 61800-2 EAC UL508
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

PRODUCT CATEGORY	Variable frequency drives
FEATURES	<p>Tool-less swapping of fan Parameterization: Fieldbus</p> <p>Parameterization: Keypad Parameterization: Power Xpert inControl</p>
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

eaton-profinet-de1-dc1-da1-dg1-dm1-dx1-mn040062-en-en.pdf
eaton-frequency-inverter-dg1-dimensions-002.eps eaton-frequency-inverter-dg1-3d-drawing-002.eps

	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:	Brake chopper Additional PCB protection Breaking resistance Radio interference suppression filter Multi-line graphic display DC link choke Internal DC link Control unit PC connection 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	Torque regulation U/f control Speed control with slip

	compensation Sensorless vector control (SLV)
FRAME SIZE	FS2
AIR VOLUME CAPACITY	94 m³/h
ALTITUDE	Max. 2000 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 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 600 V	14 kVA
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 525 V, 50 HZ, 3-PHASE	5.5 kW
RATED OPERATIONAL POWER AT 525 V, 50 HZ, 3-PHASE, 110% OVERLOAD	7.5 kW
RATED OPERATIONAL POWER AT 600 V, 50 HZ, 3-PHASE	5.5 kW
RATED OPERATIONAL POWER AT 600 V, 50 HZ, 3-PHASE, 110% OVERLOAD	7.5 kW
RESOLUTION	0.01 Hz (Frequency resolution, setpoint value)
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	20.96 W
SWITCH-ON THRESHOLD FOR THE BRAKING TRANSISTOR	1050 VDC
VOLTAGE RATING - MAX	600 VAC
OVERVOLTAGE CATEGORY	III
COMMUNICATION INTERFACE	CANopen®, optional Ethernet IP, built in SmartWire-DT, optional Modbus TCP, built in DeviceNet, optional PROFIBUS, optional Modbus RTU, built in BACnet MS/TP, built in
CONVERTER TYPE	U converter
DEGREE OF PROTECTION	IP21 NEMA 1
PROTOCOL	MODBUS TCP/IP CAN Other bus systems DeviceNet PROFIBUS PROFINET IO BACnet EtherNet/IP
ASSIGNED MOTOR CURRENT IM AT 525 V, 50	12.1 A

HZ, 110% OVERLOAD	
ASSIGNED MOTOR	
CURRENT IM AT 525 V, 50 HZ, 150% OVERLOAD	9 A
ASSIGNED MOTOR	
CURRENT IM AT 550 - 600 V, 60 HZ, 150% OVERLOAD	9 A
ASSIGNED MOTOR	
CURRENT IM AT 600 V, 50 HZ, 110% OVERLOAD	10.6 A
ASSIGNED MOTOR	
CURRENT IM AT 600 V, 50 HZ, 150% OVERLOAD	8 A
ASSIGNED MOTOR	
CURRENT IM AT 600 V, 60 HZ, 110% OVERLOAD	11 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 575/600 V, 60 HZ, 3-PHASE	7.5 HP
ASSIGNED MOTOR	
POWER AT 575/600 V, 60 HZ, 3-PHASE, 110 % OVERLOAD	10 HP
BRAKING RESISTANCE	30 Ω
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	221 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
INPUT CURRENT ILN AT 110% OVERLOAD	12.5 A
INPUT CURRENT ILN AT 150% OVERLOAD	9.3 A
MAINS CURRENT DISTORTION	36.7 %
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/le), DC - Main circuit
CABLE LENGTH	150 m, screened, maximum permissible, Motor feeder $C3 \leq 10$ m, Radio interference level, maximum motor cable length
FUNCTIONS	4-quadrant operation possible
OUTPUT VOLTAGE (U2)	600 V AC, 3-phase
NUMBER OF INPUTS (ANALOG)	2
NUMBER OF INPUTS (DIGITAL)	8
RADIO INTERFERENCE CLASS	C1: with external filter, for conducted emissions only 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)	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	221 W

RATED CONTROL SUPPLY VOLTAGE	10 V DC (Us, max. 10 mA)
EFFICIENCY	98.2 % (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	9.8 mA
MAINS VOLTAGE - MAX	600 V
MAINS VOLTAGE - MIN	525 V
NOMINAL OUTPUT CURRENT I2N	10 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	5.5 kW
OUTPUT AT QUADRATIC LOAD AT RATED OUTPUT VOLTAGE - MAX	7.5 kW
OUTPUT FREQUENCY - MAX	400 Hz
OUTPUT FREQUENCY - MIN	0 Hz
OUTPUT VOLTAGE - MAX	600 V
OVERLOAD CURRENT IL AT 110% OVERLOAD	14.85 A
OVERLOAD CURRENT IL	15 A

AT 150% OVERLOAD	
SHOCK RESISTANCE	Mechanical, According to EN 61800-5-1, IEC/EN 60068-2-27 UPS drop test (for weights inside the UPS frame) Storage and transportation: maximum 15 g, 11 ms (inside the packaging)
SUITABLE FOR	Branch circuits, (UL/CSA)
SWITCHING FREQUENCY	1.5 kHz, 1 - 6 kHz adjustable, fPWM, Power section, Main circuit
RATED OPERATIONAL VOLTAGE	600 V AC, 3-phase
SHORT-CIRCUIT PROTECTION RATING	20 A, UL (Class CC or J), Safety device (fuse or miniature circuit-breaker), Power Wiring
VIBRATION	Resistance: 5 - 15.8 Hz, Amplitude 1 mm (peak) 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
RATED FREQUENCY - MAX	66 Hz
RATED FREQUENCY - MIN	45 Hz
RATED OPERATIONAL CURRENT (IE) AT 110% OVERLOAD	13.5 A
RATED OPERATIONAL CURRENT (IE) AT 150% OVERLOAD	10 A
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	10 A
SAFETY FUNCTION/LEVEL	STO (Safe Torque Off, SIL1, PLc Cat 1)
HEAT DISSIPATION AT CURRENT/SPEED	100 W at 25% current and 0% speed 108 W at 100% current and 50% speed 111 W at 100% current and 0% speed 153 W at 25% current and 50% speed 166 W at 50% current and

50% speed
180 W at 50% current and
90% speed
195 W at 50% current and
0% speed
217 W at 100% current
and 90% speed

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

:



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