

Eaton 9703-4002-00P

Eaton DG1 Variable frequency drive, 500 V
AC, 3-phase, 41 A, 22 kW, IP21/NEMA1,
Brake chopper, DC link choke

PRODUCT NAME	Eaton DG1 variable frequency drive
CATALOG NUMBER	9703-4002-00P
PRODUCT LENGTH/DEPTH	294 mm
PRODUCT HEIGHT	630 mm
PRODUCT WIDTH	237.7 mm
PRODUCT WEIGHT	34.5 kg
CERTIFICATIONS	IEC/EN61800-5 Specification for general requirements: IEC/EN 61800-2 UL Category Control No.: NMMS, NMMS7 UkrSEPRO CUL IEC/EN 61800-3 Safety requirements: IEC/EN 61800-5 CSA-C22.2 No. 274-13 EAC IEC/EN61800-3 Certified by UL for use in Canada UL File No.: E134360 UL report applies to both US and Canada UL508 C-Tick CE RoHS, ISO 9001 UL
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	Externally accessible 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.
10.2.6 MECHANICAL IMPACT	Does not apply, since the entire switchgear needs to

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	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:	Control unit IGBT inverter Radio interference suppression filter PC connection Breaking resistance Brake chopper DC link choke Internal DC link Additional PCB protection Multi-line graphic display
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 Sensorless vector control (SLV)

	U/f control Speed control with slip compensation
FRAME SIZE	FS4
AIR VOLUME CAPACITY	260 m³/h
ALTITUDE	Above 1000 m with 1 % derating per 100 m Max. 2000 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 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	54 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	22 kW
RATED OPERATIONAL POWER AT 525 V, 50 HZ, 3-PHASE, 110% OVERLOAD	30 kW
RATED OPERATIONAL POWER AT 600 V, 50 HZ, 3-PHASE	30 kW
RATED OPERATIONAL POWER AT 600 V, 50 HZ, 3-PHASE, 110% OVERLOAD	37 kW
RESOLUTION	0.01 Hz (Frequency resolution, setpoint value)
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	24.65 W
SWITCH-ON THRESHOLD FOR THE BRAKING TRANSISTOR	1050 VDC
VOLTAGE RATING - MAX	600 VAC
OVERVOLTAGE CATEGORY	III
COMMUNICATION INTERFACE	DeviceNet, optional BACnet MS/TP, built in Modbus RTU, built in PROFIBUS, optional SmartWire-DT, optional Modbus TCP, built in Ethernet IP, built in CANopen®, optional
CONVERTER TYPE	U converter
DEGREE OF PROTECTION	NEMA 1 IP21
PROTOCOL	CAN Other bus systems PROFIBUS TCP/IP MODBUS DeviceNet PROFINET IO BACnet EtherNet/IP
ASSIGNED MOTOR CURRENT IM AT 525 V, 50	44 A

HZ, 110% OVERLOAD	
ASSIGNED MOTOR CURRENT IM AT 525 V, 50 HZ, 150% OVERLOAD	33 A
ASSIGNED MOTOR CURRENT IM AT 550 - 600 V, 60 HZ, 150% OVERLOAD	32 A
ASSIGNED MOTOR CURRENT IM AT 600 V, 50 HZ, 110% OVERLOAD	47.3 A
ASSIGNED MOTOR CURRENT IM AT 600 V, 50 HZ, 150% OVERLOAD	38.4 A
ASSIGNED MOTOR CURRENT IM AT 600 V, 60 HZ, 110% OVERLOAD	41 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	40 HP
ASSIGNED MOTOR POWER AT 575/600 V, 60 HZ, 3-PHASE, 110 % OVERLOAD	50 HP
BRAKING RESISTANCE	9 Ω
EQUIPMENT HEAT DISSIPATION, CURRENT- DEPENDENT PVID	738 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT- DEPENDENT PVID	0 W
INPUT CURRENT ILN AT 110% OVERLOAD	48.1 A
INPUT CURRENT ILN AT 150% OVERLOAD	38.1 A
MAINS CURRENT DISTORTION	31.2 %
CURRENT LIMITATION	0.1 - 2 x I _H (CT), motor, main circuit
NUMBER OF SLOTS	2 (expansion)
BRAKING TORQUE	Max. 100 % of rated operational current I _e with external braking resistor -

	Main circuit Adjustable to 150 %, DC - Main circuit Adjustable to 150 % (I/le), DC - Main circuit Max. 30 % MN, Standard - Main circuit
CABLE LENGTH	C3 ≤ 10 m, Radio interference level, maximum motor cable length 200 m, screened, maximum permissible, Motor feeder
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	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 C2, C3: depending on the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary.
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	738 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	6 mA
MAINS VOLTAGE - MAX	600 V
MAINS VOLTAGE - MIN	525 V
NOMINAL OUTPUT CURRENT I2N	41 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	30 kW
OUTPUT AT QUADRATIC LOAD AT RATED OUTPUT VOLTAGE - MAX	37 kW
OUTPUT FREQUENCY - MAX	400 Hz
OUTPUT FREQUENCY - MIN	0 Hz
OUTPUT VOLTAGE - MAX	600 V
OVERLOAD CURRENT IL AT 110% OVERLOAD	57.2 A
OVERLOAD CURRENT IL	61.5 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	70 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: 5 - 15.8 Hz, Amplitude 1 mm (peak) 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	52 A
RATED OPERATIONAL CURRENT (IE) AT 150% OVERLOAD	41 A
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	41 A
SAFETY FUNCTION/LEVEL	STO (Safe Torque Off, SIL1, PLc Cat 1)
HEAT DISSIPATION AT CURRENT/SPEED	234 W at 25% current and 0% speed 271 W at 25% current and 50% speed 290 W at 100% current and 50% speed 345 W at 50% current and 50% speed 380 W at 50% current and

90% speed
462 W at 100% current
and 0% speed
544 W at 50% current and
0% speed
614 W at 100% current
and 90% speed

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

:



Eaton House
30 Pembroke Road
Dublin 4,
Eaton.com

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