Eaton 9703-5104-00P

Eaton DG1 Variable frequency drive, 500 V AC, 3-phase, 80 A, 55 kW, IP54/NEMA12, DC link choke

PRODUCT NAME	Eaton DG1 variable frequency drive
CATALOG NUMBER	9703-5104-00P
PRODUCT LENGTH/DEPTH	340.7 mm
PRODUCT HEIGHT	888.5 mm
PRODUCT WIDTH	288 mm
PRODUCT WEIGHT	70.9 kg
CERTIFICATIONS	UkrSEPRO CUL Safety requirements: IEC/EN 61800-5 Certified by UL for use in Canada UL508 IEC/EN61800-3 CSA-C22.2 No. 274-13 IEC/EN 61800-3 UL Specification for general requirements: IEC/EN 61800-2 CE UL File No.: E134360 EAC UL report applies to both US and Canada IEC/EN61800-5 RoHS, ISO 9001 C-Tick UL Category Control No.: NMMS, NMMS7

Powering Business Worldwide

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

	eaton-profinet-de1-dc1-da1-dg1-dm1-dx1-mn040062-en-en.pdf
	eaton-frequency-inverter-dg1-dimensions-005.eps eaton-frequency-inverter-dg1-3d-drawing-005.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:	Control unit DC link choke IGBT inverter Radio interference suppression filter Additional PCB protection Multi-line graphic display PC connection Internal DC link
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	FS5
AIR VOLUME CAPACITY	395 m^3/h
ALTITUDE	Max. 2000 m Above 1000 m with 1 % derating per 100 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	103.9 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	Operation (with 150 %

DETAILS	overload), allow for derating
RATED OPERATIONAL POWER AT 525 V, 50 HZ, 3-PHASE	55 kW
RATED OPERATIONAL POWER AT 525 V, 50 HZ, 3-PHASE, 110% OVERLOAD	55 kW
RATED OPERATIONAL POWER AT 600 V, 50 HZ, 3-PHASE	55 kW
RATED OPERATIONAL POWER AT 600 V, 50 HZ, 3-PHASE, 110% OVERLOAD	75 kW
RESOLUTION	0.01 Hz (Frequency resolution, setpoint value)
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	27.23 W
SWITCH-ON THRESHOLD FOR THE BRAKING TRANSISTOR	1050 VDC
VOLTAGE RATING - MAX	600 VAC
OVERVOLTAGE CATEGORY	III
COMMUNICATION INTERFACE	SmartWire-DT, optional DeviceNet, optional Modbus TCP, built in Modbus RTU, built in Ethernet IP, built in PROFIBUS, optional BACnet MS/TP, built in CANopen®, optional
CONVERTER TYPE	U converter
DEGREE OF PROTECTION	NEMA 12 IP54
PROTOCOL	TCP/IP DeviceNet PROFIBUS CAN PROFINET IO Other bus systems MODBUS BACnet EtherNet/IP
ASSIGNED MOTOR CURRENT IM AT 525 V, 50 HZ, 110% OVERLOAD	79 A

ASSIGNED MOTOR CURRENT IM AT 525 V, 50 HZ, 150% OVERLOAD	79 A
ASSIGNED MOTOR CURRENT IM AT 550 - 600 V, 60 HZ, 150% OVERLOAD	77 A
ASSIGNED MOTOR CURRENT IM AT 600 V, 50 HZ, 110% OVERLOAD	93.2 A
ASSIGNED MOTOR CURRENT IM AT 600 V, 50 HZ, 150% OVERLOAD	68.9 A
ASSIGNED MOTOR CURRENT IM AT 600 V, 60 HZ, 110% OVERLOAD	99 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	75 HP
ASSIGNED MOTOR POWER AT 575/600 V, 60 HZ, 3-PHASE, 110 % OVERLOAD	100 HP
BRAKING RESISTANCE	7 Ω
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	1149 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
INPUT CURRENT ILN AT 110% OVERLOAD	91.3 A
INPUT CURRENT ILN AT 150% OVERLOAD	74.4 A
MAINS CURRENT DISTORTION	28.4 %
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

	Max. 30 % MN, Standard - Main circuit Adjustable to 150 %, DC - Main circuit Adjustable to 150 % (I/Ie), DC - Main circuit
CABLE LENGTH	200 m, screened, maximum permissible, Motor feeder C3 ≤ 10 m, Radio interference level, maximum motor cable length
OUTPUT VOLTAGE (U2)	600 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	1149 W
RATED CONTROL SUPPLY VOLTAGE	10 V DC (Us, max. 10 mA)

EFFICIENCY	98.6 % (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	11.2 mA
MAINS VOLTAGE - MAX	600 V
MAINS VOLTAGE - MIN	525 V
NOMINAL OUTPUT CURRENT I2N	80 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	55 kW
OUTPUT AT QUADRATIC LOAD AT RATED OUTPUT VOLTAGE - MAX	75 kW
OUTPUT FREQUENCY - MAX	400 Hz
OUTPUT FREQUENCY - MIN	0 Hz
OUTPUT VOLTAGE - MAX	600 V
OVERLOAD CURRENT IL AT 110% OVERLOAD	110 A
OVERLOAD CURRENT IL AT 150% OVERLOAD	120 A
SHOCK RESISTANCE	Storage and

	transportation: maximum 15 g, 11 ms (inside the packaging) Mechanical, According to EN 61800-5-1, IEC/EN 60068-2-27 UPS drop test (for weights inside the UPS frame)
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	150 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	100 A
RATED OPERATIONAL CURRENT (IE) AT 150% OVERLOAD	80 A
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	80 A
SAFETY FUNCTION/LEVEL	STO (Safe Torque Off, SIL1, PLc Cat 1)
HEAT DISSIPATION AT CURRENT/SPEED	1072 W at 100% current and 90% speed 377 W at 25% current and 0% speed 451 W at 25% current and 50% speed 488 W at 100% current and 50% speed 587 W at 50% current and 50% speed 640 W at 50% current and 90% speed

	809 W at 100% current and 0% speed 972 W at 50% current and 0% speed

PROJECT NAME:	
PROJECT NUMBER:	
PREPARED BY:	
:	

Eaton House
30 Pembroke Road
Dublin 4,
Eaton.com

Follow us on social media to get the latest product and support information.