

**Variable frequency drive, 500 V AC, 3-phase, 34 A, 22 kW, IP54/NEMA12,  
Brake chopper, DC link choke**



**Part no. DG1-35034FB-C54C  
9703-3106-00P**

Product name	Eaton DG1 variable frequency drive
Part no.	DG1-35034FB-C54C
EAN	4015081772339
Product Length/Depth	265.1 millimetre
Product height	558 millimetre
Product width	204.6 millimetre
Product weight	22.2 kilogram
Certifications	Specification for general requirements: IEC/EN 61800-2 EAC IEC/EN61800-3 CE UkrSEPRO UL File No.: E134360 UL Category Control No.: NMMS, NMMS7 IEC/EN 61800-3 CSA-C22.2 No. 274-13 Certified by UL for use in Canada UL report applies to both US and Canada RoHS, ISO 9001 C-Tick IEC/EN61800-5 Safety requirements: IEC/EN 61800-5 CUL UL508 UL
Product Tradename	DG1
Product Type	Variable frequency drive
Product Sub Type	None
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.
Features	Tool-less swapping of fan Parameterization: Fieldbus Parameterization: Keypad Parameterization: Power Xpert inControl
Functions	4-quadrant operation possible
Air volume capacity	144 m <sup>3</sup> /h
Cable length	150 m, screened, maximum permissible, Motor feeder C3 ≤ 10 m, Radio interference level, maximum motor cable length
Degree of protection	IP54 NEMA 12
Electromagnetic compatibility	1st and 2nd environments (according to EN 61800-3)
Environmental class	3C2, 3S2 (Air quality)
Fitted with:	Internal DC link Control unit Additional PCB protection Radio interference suppression filter Multi-line graphic display Brake chopper PC connection IGBT inverter DC link choke Breaking resistance
Frame size	FS3
Mounting position	Vertical
Number of slots	2 (expansion)
Overvoltage category	III
Pollution degree	2
Product Category	Variable frequency drives

Protection		Finger and back-of-hand proof, Protection against direct contact (BGV A3, VBG4)
Radio interference class		Optional external radio interference suppression filter for longer motor cable lengths and for use in different EMC environments C2, C3: depending on the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary. C1: with external filter, for conducted emissions only
Safety function/level		STO (Safe Torque Off, SIL1, PLc Cat 1)
Shock resistance		UPS drop test (for weights inside the UPS frame) Mechanical, According to EN 61800-5-1, IEC/EN 60068-2-27 Storage and transportation: maximum 15 g, 11 ms (inside the packaging)
Suitable for		Branch circuits, (UL/CSA)
Vibration		Resistance: 5 - 15.8 Hz, Amplitude 1 mm (peak) Resistance: 15.8 – 150 Hz, 1 g, Maximum acceleration amplitude Resistance: 5 - 150 Hz, According to EN 61800-5-1, IEC/EN 60068-2-6
Altitude		Max. 1000 m Max. 2000 m Above 1000 m with 1 % derating per 100 m
Ambient operating temperature - min		-10 °C
Ambient operating temperature - max		50 °C
Ambient operating temperature at 150% overload - min		-30 °C
Ambient operating temperature at 150% overload - max		50 °C
Ambient storage temperature - min		-40 °C
Ambient storage temperature - max		70 °C
Climatic proofing		< 95 average relative humidity (RH), no condensation, no corrosion
Current limitation		0.1 - 2 x I <sub>H</sub> (CT), motor, main circuit
Efficiency		97.7 % (η)
Heat dissipation at current/speed		186 W at 25% current and 0% speed 210 W at 25% current and 50% speed 234 W at 100% current and 50% speed 282 W at 50% current and 90% speed 315 W at 50% current and 90% speed 340 W at 100% current and 0% speed 470 W at 50% current and 0% speed 549 W at 100% current and 90% speed
Input current I <sub>LN</sub> at 110% overload		38.2 A
Input current I <sub>LN</sub> at 150% overload		31.6 A
Leakage current at ground I <sub>PE</sub> - max		6.9 mA
Mains current distortion		36.3 %
Mains switch-on frequency		Maximum of one time every 60 seconds
Mains voltage - min		525 V
Mains voltage - max		600 V
Operating mode		U/f control Torque regulation Sensorless vector control (SLV) Speed control with slip compensation
Output frequency - min		0 Hz
Output frequency - max		400 Hz
Output voltage (U <sub>2</sub> )		600 V AC, 3-phase
Overload current I <sub>L</sub> at 110% overload		45.1 A
Overload current I <sub>L</sub> at 150% overload		51 A
Rated conditional short-circuit current (I <sub>q</sub> )		100 kA
Rated control supply voltage		10 V DC (U <sub>s</sub> , max. 10 mA)
Rated frequency - min		45 Hz
Rated frequency - max		66 Hz
Rated operational current (I <sub>e</sub> ) at 110% overload		41 A
Rated operational current (I <sub>e</sub> ) at 150% overload		34 A
Rated operational voltage		600 V AC, 3-phase
Resolution		0.01 Hz (Frequency resolution, setpoint value)
Short-circuit protection rating		50 A, UL (Class CC or J), Safety device (fuse or miniature circuit-breaker), Power Wiring
Starting current - max		200 %, I <sub>H</sub> , max. starting current (High Overload), For 2 seconds every 20 seconds, Power section

Supply frequency		50/60 Hz
Switching frequency		1.5 kHz, 1 - 6 kHz adjustable, fPWM, Power section, Main circuit
System configuration type		TN-S, TN-C, TN-C-S, TT, IT
Voltage rating - max		600
Assigned motor current IM at 525 V, 50 Hz, 110% overload		33 A
Assigned motor current IM at 525 V, 50 Hz, 150% overload		33 A
Assigned motor current IM at 600 V, 50 Hz, 110% overload		38.4 A
Assigned motor current IM at 600 V, 50 Hz, 150% overload		28.5 A
Apparent power at 600 V		42.6 kV-A
Braking resistance		18 Ω
Braking torque		Max. 100 % of rated operational current I <sub>e</sub> with external braking resistor - Main circuit Adjustable to 150 % (I/I <sub>e</sub> ), DC - Main circuit Max. 30 % MN, Standard - Main circuit Adjustable to 150 %, DC - Main circuit
Switch-on threshold for the braking transistor		1050
Number of inputs (analog)		2
Number of inputs (digital)		8
Number of outputs (analog)		2
Number of outputs (digital)		1
Number of relay outputs		3 (parameterizable, 2 changeover contacts and 1 N/O, 6 A (240 V AC) / 6 A (24 V DC))
Rated control voltage (U <sub>c</sub> )		24 V DC (external, max. 250 mA options incl.)
Communication interface		CANopen®, optional PROFIBUS, optional BACnet MS/TP, built in DeviceNet, optional SmartWire-DT, optional Ethernet IP, built in Modbus TCP, built in Modbus RTU, built in
Connection to SmartWire-DT		In conjunction with DXG-NET-SWD SmartWire DT module Yes
Protocol		TCP/IP DeviceNet CAN MODBUS Other bus systems PROFINET IO PROFIBUS BACnet EtherNet/IP
Equipment heat dissipation, current-dependent P <sub>vid</sub>		633 W
Heat dissipation capacity P <sub>diss</sub>		0 W
Heat dissipation per pole, current-dependent P <sub>vid</sub>		0 W
Rated operational current for specified heat dissipation (I <sub>n</sub> )		34 A
Static heat dissipation, non-current-dependent P <sub>vs</sub>		26.41 W
Heat dissipation details		Operation (with 150 % overload), allow for derating
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 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.

10.6 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.
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.

## Technical data ETIM 8.0

Low-voltage industrial components (EG000017) / Frequency converter =< 1 kV (EC001857)			
Electric engineering, automation, process control engineering / Electrical drive / Static frequency converter / Static frequency converter = < 1 kV (ec@ss10.0.1-27-02-31-01 [AKE177014])			
Mains voltage	V		525 - 600
Mains frequency			50/60 Hz
Number of phases input			3
Number of phases output			3
Max. output frequency	Hz		400
Max. output voltage	V		600
Nominal output current I2N	A		34
Max. output at quadratic load at rated output voltage	kW		30
Max. output at linear load at rated output voltage	kW		22
Relative symmetric net frequency tolerance	%		10
Relative symmetric net voltage tolerance	%		10
Number of analogue outputs			2
Number of analogue inputs			2
Number of digital outputs			1
Number of digital inputs			8
With control element			Yes
Application in industrial area permitted			Yes
Application in domestic- and commercial area permitted			Yes
Supporting protocol for TCP/IP			Yes
Supporting protocol for PROFIBUS			Yes
Supporting protocol for CAN			Yes
Supporting protocol for INTERBUS			No
Supporting protocol for ASI			No
Supporting protocol for KNX			No
Supporting protocol for Modbus			Yes
Supporting protocol for Data-Highway			No
Supporting protocol for DeviceNet			Yes
Supporting protocol for SUCONET			No
Supporting protocol for LON			No
Supporting protocol for PROFINET IO			Yes
Supporting protocol for PROFINET CBA			No
Supporting protocol for SERCOS			No
Supporting protocol for Foundation Fieldbus			No
Supporting protocol for EtherNet/IP			Yes
Supporting protocol for AS-Interface Safety at Work			No
Supporting protocol for DeviceNet Safety			No
Supporting protocol for INTERBUS-Safety			No
Supporting protocol for PROFIsafe			No
Supporting protocol for SafetyBUS p			No

Supporting protocol for BACnet			Yes
Supporting protocol for other bus systems			Yes
Number of HW-interfaces industrial Ethernet			1
Number of interfaces PROFINET			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 HW-interfaces parallel			0
Number of HW-interfaces other			1
With optical interface			No
With PC connection			Yes
Integrated breaking resistance			Yes
4-quadrant operation possible			Yes
Type of converter			U converter
Degree of protection (IP)			IP54
Degree of protection (NEMA)			12
Height		mm	558
Width		mm	204.6
Depth		mm	265.1