



**Variable frequency drives, 3-phase 500 V, 205 A, EMC Filters, Internal braking transistor, Degree of protection IP21**

**Part no. DG1-34205FB-C21C**  
**Article no. 9702-6001-00P**  
**Catalog No. DG1-34205FB-C21C**

## Delivery program

Product range			Variable frequency drives
Part group reference (e.g. DIL)			DG1
Rated operational voltage	$U_e$		400 V AC, 3-phase 480 V AC, 3-phase 500 V AC, 3-phase
Output voltage with $V_e$	$U_2$		400 V AC, 3-phase 480 V AC, 3-phase 500 V AC, 3-phase
Mains voltage (50/60Hz)	$U_{LN}$	V	380 (-15%) - 500 (+10%)
<b>Rated operational current</b>			
At 150% overload	$I_e$	A	205
Note			Rated operational current for a switching frequency of 1 - 10 kHz and an ambient temperature of +50 °C for a 150% overload and +40 °C for a 110% overload
At 110% overload	$I_e$	A	261
Note			Overload cycle for 60 s every 600 s
<b>Assigned motor rating</b>			
Note			for normal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 rpm <sup>-1</sup> at 50 Hz or 1800 min <sup>-1</sup> at 60 Hz
Note			Overload cycle for 60 s every 600 s
Note			at 400 V, 50 Hz
150 % Overload	P	kW	110
110 % Overload	P	kW	132
150 % Overload	$I_M$	A	196
110 % Overload	$I_M$	A	234
Note			at 500 V, 50 Hz
150 % Overload	P	kW	132
110 % Overload	P	kW	160
150 % Overload	$I_M$	A	184
110 % Overload	$I_M$	A	224
Note			at 480 V, 60 Hz
150 % Overload	P	HP	150
110 % Overload	P	HP	200
150 % Overload	$I_M$	A	180
110 % Overload	$I_M$	A	240
Degree of Protection			IP21/NEMA1
Interface/field bus (built-in)			Modbus RTU, Modbus TCP, BACnet MS/TP, Ethernet IP
Fieldbus connection (optional)			PROFIBUS, i.V.: ProfiNet, CAN, SmartWire-DT, DeviceNet
Fitted with			Radio interference suppression filter Additional PCB protection Multi-line graphic display Brake chopper DC link choke
Frame size			FS6
Connection to SmartWire-DT			with SmartWire-DT module DXG-NET-SWD

## Technical data

<b>General</b>			
Standards			Specification for general requirements: IEC/EN 61800-2

			EMC requirements: IEC/EN 61800-3 Safety requirements: IEC/EN 61800-5
Certifications			CE, UL, cUL, c-Tick, UkrSepro, EAC
Production quality			RoHS, ISO 9001
Climatic proofing	$\rho_w$	%	< 95%, average relative humidity (RH), non-condensing, non-corrosive
Air quality			3C2, 3S2
Ambient temperature			
operation (150 % overload)	$\theta$	°C	-30 - +50 (max. +60 with 1 % derating per Kelvin temperature rise)
operation (110 % overload)	$\theta$	°C	-30 - +40 (max. +55 mit 1 % Derating pro Kelvin Temperaturerhöhung)
Storage	$\theta$	°C	-40 - +70
Overvoltage category			III
Pollution degree			2
Radio interference level			
Radio interference class (EMC)			C1, C2, C3, depending on the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary.
Environment (EMC)			1st and 2nd environments
maximum motor cable length	l	m	C2 ≤ 10 m C3 ≤ 50 m
Mechanical shock resistance		g	EN 61800-5-1, EN 60068-2-27 UPS drop test (for weights inside the UPS frame) Storage and transportation: maximum 15 g, 11 ms (inside the packaging)
Vibration			EN 61800-5-1, EN 60068-2-6: 5 - 150 Hz Amplitude: 1 mm (peak) at 5 - 15.8 Hz Maximum acceleration amplitude: 1 g at 15.8 – 150 Hz
Mounting position			Vertical
Altitude		m	0 - 1000 m above sea level Above 1000 m: 1% derating for every 100 m max. 3000 m (2000 m for Corner Grounded TN Systems)
Degree of Protection			IP21/NEMA1
Protection against direct contact			BGV A3 (VBG4, finger- and back-of-hand proof)

## Main circuit

Supply			
Rated operational voltage	$U_e$		400 V AC, 3-phase 480 V AC, 3-phase 500 V AC, 3-phase
Mains voltage (50/60Hz)	$U_{LN}$	V	380 (-15%) - 500 (+10%)
System configuration			TN-S, TN-C, TN-C-S, TT, IT
Supply frequency	$f_{LN}$	Hz	50/60
Frequency range	$f_{LN}$	Hz	45 - 66
Mains switch-on frequency			Maximum of one time every 60 seconds
Mains current distortion	THD	%	28
Rated conditional short-circuit current	$I_q$	kA	< 100
Power section			
Function			Variable frequency drive with internal DC link, DC link choke and IGBT inverter
Overload current (150% overload)	$I_L$	A	307.5
Overload current (110% overload)	$I_L$	A	287.1
max. starting current (High Overload)	$I_H$	%	200
Note about max. starting current			for 2 seconds every 20 seconds
Output voltage with $V_e$	$U_2$		400 V AC, 3-phase 480 V AC, 3-phase 500 V AC, 3-phase
Output Frequency	$f_2$	Hz	0 - 50/60 (max. 400)
Switching frequency	$f_{PWM}$	kHz	2 adjustable 1 - 10
Operation Mode			U/f control Speed control with slip compensation sensorless vector control (SLV) Torque regulation
Frequency resolution (setpoint value)	$\Delta f$	Hz	0.01
Rated operational current			
At 150% overload	$I_e$	A	205

At 110% overload	$I_e$	A	261
Note			Rated operational current for a switching frequency of 1 - 10 kHz and an ambient temperature of +50 °C for a 150% overload and +40 °C for a 110% overload
Motor current limit	I	A	0.1 - 2 x $I_H$ (CT)
Fitted with			Radio interference suppression filter Additional PCB protection Multi-line graphic display Brake chopper DC link choke
Safety function			STO (Safe Torque Off, SIL1, PLc Cat 1)
Frame size			FS6
Motor feeder			
Note			for normal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 rpm <sup>-1</sup> at 50 Hz or 1800 min <sup>-1</sup> at 60 Hz
Note			Overload cycle for 60 s every 600 s
Note			at 400 V, 50 Hz
150 % Overload	P	kW	110
Note			at 500 V, 50 Hz
150 % Overload	P	kW	132
110 % Overload	P	kW	132
Note			at 480 V, 60 Hz
150 % Overload	P	HP	150
110 % Overload	P	HP	200
Braking function			
Standard braking torque			max. 30 % $M_N$
DC braking torque			adjustable to 150 %
Braking torque with external braking resistance			Max. 100% of rated operational current $I_e$ with external braking resistor
Switch-on threshold for the braking transistor	$U_{DC}$	V	850 V DC
DC braking	%	$I/I_e$	≦ 150, adjustable

### Control section

External control voltage	$U_c$	V	24 V DC (max. 250 mA options incl.)
Reference voltage	$U_s$	V	10 V DC (max. 10 mA)
Analog inputs			2, parameterizable, 0 - 10 V DC, 2 - 10 V DC, -10 - +10 V DC, 0/4 - 20 mA
Analog outputs			2, parameterizable, 0 - 10 V, 0/4 - 20 mA
Digital inputs			8, parameterizable, max. 30 V DC
Digital outputs			1, parameterizable, 24 V DC
Relay outputs			3, parameterizable, 2 changeover contacts and 1 N/O, 6 A (240 VAC) / 6 A (24 VDC)
Interface/field bus (built-in)			Modbus RTU, Modbus TCP, BACnet MS/TP, Ethernet IP
Expansion slots			2

### Assigned switching and protective elements

Power Wiring			
IEC (Type B, gG), 150 %			NZMC2-A250
150 % overload (CT/ $I_H$ , at 50 °C)			Integrated DC link choke, $u_k$ = 5%
110 % overload (VT/ $I_L$ , at 40 °C)			Integrated DC link choke, $u_k$ = 5%
Motor feeder			
150 % overload (CT/ $I_H$ , at 50 °C)			DX-LM3-220
110 % overload (VT/ $I_L$ , at 40 °C)			DX-LM3-303
150 % overload (CT/ $I_H$ , at 50 °C)			DX-SIN3-250
110 % overload (VT/ $I_L$ , at 40 °C)			DX-SIN3-440

### Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	$I_n$	A	205
Operating ambient temperature min.		°C	-30
Operating ambient temperature max.		°C	60
IEC/EN 61439 design verification			

10.2 Strength of materials and parts			
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 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric 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.
10.5 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 Insulation properties			
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.

## Approvals

Product Standards			UL508C, CSA-C22.2 No. 274-13; IEC/EN61800-3; IEC/EN61800-5; CE marking
UL File No.			E134360
UL Category Control No.			NMMS, NMMS7
CSA File No.			UL report applies to both US and Canada
North America Certification			UL listed, certified by UL for use in Canada
Suitable for			Branch circuits
Max. Voltage Rating			3- 500 V AC IEC: TN-S UL/CSA: 'Y' (Solidly Grounded Wey)
Degree of Protection			IP21/NEMA1

## Additional product information (links)

Documentation		<a href="http://www.eaton.eu/Europe/Electrical/ProductsServices/AutomationControl/SwitchingProtectingDrivingMotors/PowerXLfrequencydrives/DG1GeneralPurposeDrives/index.htm?wtredirect=www.eaton.eu/dg1#tabs-7">http://www.eaton.eu/Europe/Electrical/ProductsServices/AutomationControl/SwitchingProtectingDrivingMotors/PowerXLfrequencydrives/DG1GeneralPurposeDrives/index.htm?wtredirect=www.eaton.eu/dg1#tabs-7</a>
Manuals		<a href="http://www.eaton.eu/Europe/Electrical/ProductsServices/AutomationControl/SwitchingProtectingDrivingMotors/PowerXLfrequencydrives/DG1GeneralPurposeDrives/index.htm?wtredirect=www.eaton.eu/dg1#tabs-8">http://www.eaton.eu/Europe/Electrical/ProductsServices/AutomationControl/SwitchingProtectingDrivingMotors/PowerXLfrequencydrives/DG1GeneralPurposeDrives/index.htm?wtredirect=www.eaton.eu/dg1#tabs-8</a>