DATASHEET - DG1-32025FB-C21C



Variable frequency drive, 230 V AC, 3-phase, 25 A, 5.5 kW, IP21/NEMA1, Brake chopper, DC link choke





Part no. DG1-32025FB-C21C Catalog No. 9701-2001-00P Alternate Catalog DG1-32025FB-C21C

No.

EL-Nummer 4138028

(Norway)

(Norway)			
Delivery program			
Photo			
Product range			Variable frequency drives
Part group reference (e.g. DIL)			DG1
Rated operational voltage	U _e		230 V AC, 3-phase 240 V AC, 3-phase
Output voltage with $V_{\rm e}$	U ₂		230 V AC, 3-phase 240 V AC, 3-phase
Mains voltage (50/60Hz)	U_{LN}	V	208 (-15%) - 240 (+10%)
Rated operational current			
At 150% overload	I _e	Α	25
At 110% overload	I _e	Α	31
Note			Rated operational current for a switching frequency of 1 - 12 kHz and an ambient temperature of +50 °C for a 150% overload and +40 °C for a 110% overload
Assigned motor rating			
Note			for normal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 rpm ⁻¹ at 50 Hz or 1800 min ⁻¹ at 60 Hz
Note			Overload cycle for 60 s every 600 s
Note			at 230 V, 50 Hz
150 % Overload	P	kW	5.5
110 % Overload	P	kW	7.5
150 % Overload	I _M	Α	19.6
110 % Overload	I _M	Α	26.4
Note			at 230 V, 60 Hz
150 % Overload	P	HP	7.5
110 % Overload	P	HP	10
150 % Overload	I _M	Α	22
110 % Overload	I _M	Α	28
Degree of Protection			IP21/NEMA1
Interface/field bus (built-in)			Modbus RTU Modbus TCP BACnet MS/TP Ethernet IP
Fieldbus connection (optional)			PROFIBUS CANopen® DeviceNet SmartWire-DT
Fitted with			Radio interference suppression filter Additional PCB protection Multi-line graphic display Brake chopper DC link choke
Parameterization			Keypad Fieldbus Power Xpert inControl
Frame size			FS2
Connection to SmartWire-DT			yes

Technical data General

General			
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	ρ_{W}	%	< 95%, average relative humidity (RH), non-condensing, non-corrosive
Air quality			3C2, 3S2
Ambient temperature			
Operating ambient temperature min.		°C	-10
Operating ambient temperature max.		°C	+ 50
operation (110 % overload)	9	°C	-10 - +40
			Operation with 110 % overload (1 min./10 min.): -10 to +40 (max. +55 with 1% derating per Kelvin above limit) Operation with 150% overload (1 min./10 min.): -10 to +50 (max. +60 with 1% deratin per Kelvin above limit) -20 with cold-weather mode
Storage	θ	°C	-40 - +70
Overvoltage category			III
Pollution degree			2
Radio interference level			
Radio interference class (EMC)			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.
Environment (EMC)			1st and 2nd environments as per EN 61800-3
maximum motor cable length	I	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		230 V AC, 3-phase 240 V AC, 3-phase
Mains voltage (50/60Hz)	U _{LN}	V	208 (-15%) - 240 (+10%)
Input current (150% overload)	I _{LN}	Α	23.1
Input current (110% overload)	I _{LN}	Α	29
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 (± 0%)
Mains switch-on frequency	LIN		Maximum of one time every 60 seconds
Mains current distortion	THD	%	33.3
Rated conditional short-circuit current		kA	<100
	Iq	KA	\ 100
Power section			Variable frequency drive with internal DC link, DC link about and ICOT in
Function Overland ourset (150% overland)	,	Δ	Variable frequency drive with internal DC link, DC link choke and IGBT inverter
Overload current (150% overload)	I _L	A	37.5
Overload current (110% overload)	IL	Α	34.1
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		230 V AC, 3-phase

			240 V AC, 3-phase
Output Frequency	f ₂	Hz	0 - 50/60 (max. 400)
Switching frequency	f _{PWM}	kHz	4 adjustable 1 - 12
Operation Mode			U/f control Speed control with slip compensation sensorless vector control (SLV) Torque regulation
Frequency resolution (setpoint value)	Δf	Hz	0.01
Rated operational current			
At 150% overload	le	Α	25
At 110% overload	l _e	Α	31
Note			Rated operational current for a switching frequency of 1 - 12 kHz and an ambient temperature of +50 $^{\circ}$ C for a 150% overload and +40 $^{\circ}$ C for a 110% overload
Motor current limit	I	Α	0.1 - 2 x I _H (CT)
Power loss			
Heat dissipation at rated operational current I $_{\rm e}$ =150 $\%$	P_V	W	214
Heat dissipation at rated operational current I_{e} =110%	P_V	W	315
Efficiency	η	%	97.4
Maximum leakage current to ground (PE) without motor	I _{PE}	mA	6
Fan			temperature controlled Tool-less swapping
Internal fan delivery rate		m ³ /h	94
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			FS2
Motor feeder			
Note			for normal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 rpm ⁻¹ at 50 Hz or 1800 min ⁻¹ at 60 Hz
Note			Overload cycle for 60 s every 600 s
Note			at 230 V, 50 Hz
150 % Overload	Р	kW	5.5
110 % Overload	Р	kW	7.5
Note		ш	at 230 V, 60 Hz
150 % Overload	P	HP	7.5
110 % Overload maximum permissible cable length	P	HP m	10 screened: 150
Apparent power	•	""	Screeneu. 130
Apparent power Apparent power at rated operation 230 V	S	kVA	12.3
Apparent power at rated operation 240 V	S	kVA	12.9
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
minimum external braking resistance	R _{min}	Ω	20
Switch-on threshold for the braking transistor	U _{DC}	V	425 V DC
DC braking	%	I/I _e	≤ 150, adjustable
Control section		. 6	
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)

Expansion stels Assigned switching and protective elements Power Wirring Selfety device (fuse or ministrure circuit-breaker) ECT (Type B, 601, 159 % PKZMD-25 UL (Class CC or J) A 35 UL (Class CC or J) A 35 Mains contactor 150 % everload (VT/L ₀ at 40 °C) Main choke 150 % everload (VT/L ₀ at 40 °C) 110 % everload (VT/L ₀ at 40 °C) Redio interference suppression filter (external, 150 %) Redio interference suppression filter (ow leakage currents (external, 150 %) Redio interference suppression filter, low leakage currents (external, 150 %) Redio interference suppression filter, low leakage currents (external, 150 %) Redio interference suppression filter, low leakage currents (external, 150 %) Redio interference suppression filter, low leakage currents (external, 150 %) Redio interference suppression filter, low leakage currents (external, 150 %) Redio interference suppression filter, low leakage currents (external, 150 %) Redio interference suppression filter, low leakage currents (external, 150 %) Redio interference suppression filter, low leakage currents (external, 150 %) Redio interference suppression filter, low leakage currents (external, 150 %) Redio interference suppression filter, low leakage currents (external, 150 %) Redio interference suppression filter, low leakage currents (external, 150 %) Redio interference suppression filter, low leakage currents (external, 150 %) Redio interference suppression filter, low leakage currents (external, 150 %) DX-EMC3-4300 DX-EM	interrace/nera dus (bunt-in)		Modbus TCP BACnet MS/TP Ethernet IP
Settey device (fluse or ministure circuit-breaker) Settey device (fluse or ministure circuit-breaker) IEC (Type B, gB, 150 % PKZMO 25 IEC (Type B, gB, 110 % PKZMO 25 UL (Diass CC or.u) A 3 55 Mains contactor DILM17 110 % overload (VT/I ₁ , at 50 °C) 110 % overload (VT/I ₁ , at 50 °C) 110 % overload (VT/I ₁ , at 50 °C) 110 % overload (VT/I ₂ , at 40 °C) Redio interference suppression filter (external, 110 %) DX-EMC34-409 DX-EMC34-409 DX-EMC34-409 DX-EMC34-409 DX-EMC34-309-L DX-EMC34-409-L DX-EMC34-409-L DX-EMC34-409-L DX-EMC34-309-L DX-EMC34-409-L DX-EMC34-409-L DX-EMC34-409-L DX-EMC34-309-L DX-EMC34-409-L DX-EMC34-	Expansion slots		2
Safety device (fuse or ministure circuit-breaker) IEC (fype B, gB, 150 % PKZM0-25 IEC (fype B, gB, 150 % PKZM0-32 UL (Class CC or u) A 35 Meins contactor 150 % overload (CT/II _{II} , at 50 °C) 110 % overload (CT/II _{II} , at 50 °C) 110 % overload (CT/II _{II} , at 50 °C) 110 % overload (CT/II _{II} , at 50 °C) 110 % overload (VT/II _I , at 40 °C) Radio interference suppression filter (external, 150 %) Radio interference suppression filter (external, 110 %) Radio interference suppression filter (external, 110 %) Radio interference suppression filter, low leakage currents (external, 150 %) Radio interference suppression filter, low leakage currents (external, 150 %) Radio interference suppression filter, low leakage currents (external, 150 %) Robert segarding radio interference suppression filter (overload, 110 %) Note regarding radio interference suppression filter (overload, 110 %) Note regarding radio interference suppression filter 10 % duty factor (DF) 20 % duty factor (DF) A) % duty factor (DF) Notes concerning braking resistances: The brake resistors are assigned based on the maximum rated power of the variable fraging registance 10 % duty factor (DF) Note sconcerning braking resistances: The brake resistors are assigned based on the maximum rated power of the variable fraging decompany dive. Audificinal brake resistors and designs (e.g., different duty cycles) are available upon request. Mator feeder 15 % overload (CT/II _{II} , at 50 °C) 10 % overload (CT/II _{II} , at 50 °C) 20 X. IM3-035 Sine filter 150 % overload (CT/II _{II} , at 50 °C) DX. SIN3-048-A	Assigned switching and protective elements		
IEC (Type B, gG), 150 % IEC (Type B, gG), 150 % IEC (Type B, gG), 110 % Ut (Class Cc or J) A 35 Ut (Class Cc or J) A 35 DILMI7 DILMI7 110 % overload (VT/L _L at 50 °C) DILMI7 DILMI7 DILMI7 DILMI7 Main choke 130 % overload (VT/L _L at 40 °C) Main choke 130 % overload (VT/L _L at 40 °C) Radio interference suppression filter (extornal, 150 %) Radio interference suppression filter (extornal, 110 %) Radio interference suppression filter, low leakage currents (extornal, 150 %) Radio interference suppression filter, low leakage currents (extornal, 110 %) Note regarding radio interference suppression filter, low leakage currents (extornal, 110 %) Note regarding radio interference suppression filter (extornal, 150 %) Radio interference suppression filter, low leakage currents (extornal, 110 %) Note regarding radio interference suppression filter (extornal, 150 %) DI imic connection Braking resistance 10 % duty factor (DF) 20 % duty factor (DF) 20 % duty factor (DF) 20 % duty factor (DF) 30 % BR022 - IK4 30 % BR022 -	Power Wiring		
IEC (Type B, GB), 110 % UL (Class CC or J) A 35 Meins contactor 150 % overload (CTI _{Hs} at 50 °C) 110 % overload (CTI _{Hs} at 50 °C) 20 X SIN3-802 A 35 DILMIT7 Integrated DC link choke, uk = 5% Integrated DC link chok	Safety device (fuse or miniature circuit-breaker)		
UL (Class CC or J) Mains contactor 199 % overload (CT/h _t , at 50 °C) 110 % overload (CT/h _t , at 50 °C) 110 % overload (CT/h _t , at 50 °C) 110 % overload (CT/h _t , at 50 °C) 110 % overload (CT/h _t , at 50 °C) Radio interference suppression filter (external, 150 %) Radio interference suppression filter (external, 110 %) Radio interference suppression filter (external, 110 %) Radio interference suppression filter (external, 110 %) Radio interference suppression filter, low leakage currents (external, 150 %) Radio interference suppression filter, low leakage currents (external, 110 %) DX EMC34-030 DX EMC34-030- DX E	IEC (Type B, gG), 150 %		PKZM0-25
Mains contactor 150 % overload (CT/h _t , at 50 °C) 110 % overload (CT/h _t , at 50 °C) Main choke 150 % overload (CT/h _t , at 50 °C) Radio interference suppression filter (external, 150 %) Radio interference suppression filter (external, 110 %) Radio interference suppression filter (external, 110 %) Radio interference suppression filter (external, 110 %) Radio interference suppression filter (low leakage currents (external, 110 %) Note regarding radio interference suppression filter DC link connection Braking resistance 10 % duty factor (DF) 20 % duty factor (DF) 40 % duty factor (DF) Notes concerning braking resistances: Motor feeder motor choke 150 % overload (CT/h _t , at 50 °C) 110 % overload (CT/h _t , at 50 °C) 110 % overload (CT/h _t , at 50 °C) 110 % overload (CT/h _t , at 40 °C) Sine filter 150 % overload (CT/h _t , at 50 °C) 110 % overload (CT/h _t , at 50 °C) 110 % overload (CT/h _t , at 50 °C) 20 X-SIN3-032 All-pole sine filter 150 % overload (CT/h _t , at 50 °C) DX-SIN3-032 DX-SIN3-032 DX-SIN3-046-A	IEC (Type B, gG), 110 %		PKZM0-32
150 % overload (CT/l _{tt} , at 50 °C) 110 % overload (VT/l _{tt} , at 40 °C) Main choke 150 % overload (CT/l _{tt} , at 50 °C) 110 % overload (VT/l _{tt} , at 40 °C) Radio interference suppression filter (external, 150 %) Radio interference suppression filter (external, 110 %) Radio interference suppression filter (external, 110 %) Radio interference suppression filter, low leakage currents (external, 110 %) Note regarding radio interference suppression filter, low leakage currents (external, 110 %) Note regarding radio interference suppression filter for longer motor cable lengths and for use in different EMC environments DC link connection Braking resistance 10 % duty factor (DF) 20 % duty factor (DF) 30 % BR022-1K4 30 % duty factor (DF) 40 % duty factor (DF) Notes concerning braking resistances: 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. Motor feeder motor choke 150 % overload (CT/l _{tt} , at 50 °C) 110 % overload (CT/l _{tt} , at 50 °C) DX-LM3-305 Sine filter 150 % overload (CT/l _{tt} , at 50 °C) DX-SIN3-302 All-pole sine filter 150 % overload (CT/l _{tt} , at 50 °C) DX-SIN3-304-A	UL (Class CC or J)	Α	35
110 % averload (VT/I _{II} , at 40 °C) Main choke 150 % overload (CT/I _{II} , at 50 °C) 110 % overload (CT/I _{II} , at 60 °C) Radioi interference suppression filter (external, 150 %) Radio interference suppression filter (external, 110 %) Radio interference suppression filter, low leakage currents (external, 150 %) Radio interference suppression filter, low leakage currents (external, 110 %) Note regarding radio interference suppression filter Note regarding radio interference suppression filter 10 % duty factor (DF) 20 % duty factor (DF) 20 % duty factor (DF) 30 X-BR022-1K4 30 X-BR022-1K4 40 % duty factor (DF) 40 % duty factor (DF) 40 % duty factor (DF) 50 X-BR022-3K1 Note sconcerning braking resistances: 150 % overload (CT/I _{II} , at 50 °C) 110 % overload (CT/I _{II} , at 40 °C) 210 % overload (CT/I _{II} , at 40 °C) 2110 % overload (CT/I _{II} , at 40 °C) 210 % overload (CT/I _{II} , at 50 °C) 2110 % overload (CT/I _{II} , at 50 °C) 2150 % o	Mains contactor		
Main choke 150 % overload (CT/I _{II} , at 50 °C) 110 % overload (CT/I _{II} , at 40 °C) Radio interference suppression filter (external, 150 %) Radio interference suppression filter (external, 150 %) Radio interference suppression filter, low leakage currents (external, 150 %) Radio interference suppression filter, low leakage currents (external, 150 %) Radio interference suppression filter, low leakage currents (external, 110 %) Note regarding radio interference suppression filter Note regarding radio interference suppression filter DC link connection Braking resistance 10 % duty factor (DF) 20 % duty factor (DF) AV 58022-1K4 DX 58022-1K4 DX 58022-2K1 Notes concerning braking resistances: 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. Motor feeder motor choke 150 % overload (CT/I _{II} , at 50 °C) DX-LM3-035 Sine filter 150 % overload (CT/I _{II} , at 50 °C) DX-SIN3-032 All-pole sine filter 150 % overload (CT/I _{II} , at 50 °C) DX-SIN3-046-A	150 % overload (CT/I _H , at 50 °C)		DILM17
Integrated DC link choke, uk = 5% DX-EMC34-030 DX-EMC34-030 DX-EMC34-030 DX-EMC34-030 DX-EMC34-030 DX-EMC34-030- DX-EMC34-030- DX-EMC34-030- DX-EMC34-030-L Optional externed and interference suppression filter for longer motor cable lengths and for use in different EMC environments DC link connection Braking resistance DX-BR022-1K4 DX-BR022-1K4 DX-BR022-3K1 DX-BR02	110 % overload (VT/I $_{\rm L}$, at 40 °C)		DILM17
Integrated DC link choke, uk = 5% Radio interference suppression filter (external, 150 %) Radio interference suppression filter (external, 110 %) Radio interference suppression filter, low leakage currents (external, 150 %) Radio interference suppression filter, low leakage currents (external, 110 %) Note regarding radio interference suppression filter DC link connection Braking resistance 10 % duty factor (DF) 20 % duty factor (DF) 40 % duty factor (DF) Notes concerning braking resistances: Motor feeder motor choke 150 % overload (CT/h _{it} , at 50 °C) Sine filter 150 % overload (VT/h _{it} , at 40 °C) All-pole sine filter 150 % overload (CT/h _{it} , at 50 °C) All-pole sine filter 150 % overload (CT/h _{it} , at 50 °C) DX-SINS-046-A	Main choke		
Radio interference suppression filter (external, 150 %) Radio interference suppression filter (external, 110 %) Radio interference suppression filter, low leakage currents (external, 150 %) Note regarding radio interference suppression filter Note regarding radio interference suppression filter DC link connection Braking resistance 10 % duty factor (DF) 20 % duty factor (DF) Notes concerning braking resistances: 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. Motor feeder motor choke 150 % overload (CT/I _H , at 50 °C) 110 % overload (CT/I _H , at 50 °C) All-pole sine filter 150 % overload (CT/I _H , at 50 °C) All-pole sine filter 550 % overload (CT/I _H , at 50 °C) All-pole sine filter 550 % overload (CT/I _H , at 50 °C) All-pole sine filter 550 % overload (CT/I _H , at 50 °C) DX-SIN3-046-A DX-SIN3-046-A	150 % overload (CT/I _H , at 50 °C)		Integrated DC link choke, uk = 5%
Radio interference suppression filter (external, 110 %) Radio interference suppression filter, low leakage currents (external, 150 %) Note regarding radio interference suppression filter Note regarding radio interference suppression filter Braking resistance 10 % duty factor (DF) 20 % duty factor (DF) 40 % duty factor (DF) Notes concerning braking resistances: 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. Motor feeder motor choke 150 % overload (CT/I _H , at 50 °C) Sine filter 150 % overload (CT/I _H , at 50 °C) All-pole sine filter 150 % overload (CT/I _H , at 50 °C) All-pole sine filter 150 % overload (CT/I _H , at 50 °C) All-pole sine filter 150 % overload (CT/I _H , at 50 °C) DX-SIN3-046-A	110 % overload (VT/I $_{\rm L}$, at 40 °C)		Integrated DC link choke, uk = 5%
Radio interference suppression filter, low leakage currents (external, 150 %) Radio interference suppression filter, low leakage currents (external, 110 %) Note regarding radio interference suppression filter DC link connection Braking resistance 10 % duty factor (DF) 20 % duty factor (DF) 40 % duty factor (DF) Notes concerning braking resistances: 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. Motor feeder motor choke 150 % overload (CT/I _H , at 50 °C) 2N-LM3-035 Sine filter 150 % overload (CT/I _H , at 50 °C) 2N-SIN3-032 All-pole sine filter DX-SIN3-046-A DX-SIN3-046-A	Radio interference suppression filter (external, 150 %)		DX-EMC34-030
Radio interference suppression filter, low leakage currents (external, 110 %) Note regarding radio interference suppression filter DC link connection Braking resistance 10 % duty factor (DF) 20 % duty factor (DF) A0 % duty factor (DF) Notes concerning braking resistances: The variable frequency drive. Additional brake resistors and designs (e.g. different duty cycles) are available upon request. Motor feeder motor choke 150 % overload (CT/l _H , at 50 °C) 110 % overload (CT/l _H , at 50 °C) 110 % overload (VT/l _L at 40 °C) All-pole sine filter 150 % overload (CT/l _H , at 50 °C) All-pole sine filter DX-SINS-046-A	Radio interference suppression filter (external, 110 %)		DX-EMC34-030
Note regarding radio interference suppression filter Optional external radio interference suppression filter for longer motor cable lengths and for use in different EMC environments DC link connection	Radio interference suppression filter, low leakage currents (external, 150 %)		DX-EMC34-030-L
lengths and for use in different EMC environments DC link connection Braking resistance 10 % duty factor (DF) 20 % duty factor (DF) AV-BR022-1K4 DX-BR022-3K1 DX-BR022-3K1 DX-BR022-5K1 Notes concerning braking resistances: 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. Motor feeder motor choke 150 % overload (CT/I _H , at 50 °C) DX-LM3-035 Sine filter 150 % overload (CT/I _H , at 50 °C) DX-SIN3-032 All-pole sine filter 150 % overload (CT/I _H , at 50 °C) DX-SIN3-046-A	Radio interference suppression filter, low leakage currents (external, 110 $\%)$		DX-EMC34-030-L
Braking resistance 10 % duty factor (DF) 20 % duty factor (DF) 40 % duty factor (DF) Notes concerning braking resistances: 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. Motor feeder motor choke 150 % overload (CT/I _{II} , at 50 °C) 110 % overload (VT/I _{IL} at 40 °C) Sine filter 150 % overload (CT/I _{II} , at 50 °C) DX-SIN3-032 All-pole sine filter 150 % overload (CT/I _{II} , at 50 °C) DX-SIN3-046-A	Note regarding radio interference suppression filter		
DX-BR022-1K4 20 % duty factor (DF) DX-BR022-3K1 DX-BR022-3K1 DX-BR022-5K1 DX-BR022-5K1 Notes concerning braking resistances: 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. Motor feeder motor choke 150 % overload (CT/I _H , at 50 °C) DX-LM3-035 Sine filter 150 % overload (CT/I _H , at 50 °C) DX-SIN3-032 All-pole sine filter DX-SIN3-046-A	DC link connection		
20 % duty factor (DF) A0 % duty factor (DF) Notes concerning braking resistances: 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. Motor feeder motor choke 150 % overload (CT/I _H , at 50 °C) 110 % overload (VT/I _L , at 40 °C) Sine filter 150 % overload (VT/I _L , at 40 °C) DX-SIN3-032 All-pole sine filter DX-SIN3-046-A	Braking resistance		
A0 % duty factor (DF) Notes concerning braking resistances: DX-BR022-5K1 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. Motor feeder motor choke 150 % overload (CT/I _H , at 50 °C) DX-LM3-035 DX-LM3-035 DX-LM3-035 Sine filter 150 % overload (CT/I _H , at 50 °C) DX-SIN3-032 All-pole sine filter 150 % overload (VT/I _L , at 40 °C) DX-SIN3-032 All-pole sine filter DX-SIN3-046-A	10 % duty factor (DF)		DX-BR022-1K4
Notes concerning braking resistances: 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. Motor feeder motor choke 150 % overload (CT/I _H , at 50 °C) DX-LM3-035 DX-LM3-035 DX-LM3-035 Sine filter 150 % overload (CT/I _H , at 50 °C) DX-SIN3-032 All-pole sine filter 150 % overload (CT/I _H , at 50 °C) DX-SIN3-032 All-pole sine filter DX-SIN3-046-A	20 % duty factor (DF)		DX-BR022-3K1
variable frequency drive. Additional brake resistors and designs (e.g. different duty cycles) are available upon request. Motor feeder motor choke 150 % overload (CT/I _H , at 50 °C) DX-LM3-035 110 % overload (VT/I _L , at 40 °C) DX-LM3-035 Sine filter 150 % overload (CT/I _H , at 50 °C) DX-SIN3-032 110 % overload (VT/I _L , at 40 °C) DX-SIN3-032 All-pole sine filter 150 % overload (CT/I _H , at 50 °C) DX-SIN3-046-A	40 % duty factor (DF)		DX-BR022-5K1
motor choke DX-LM3-035 150 % overload (CT/I _H , at 50 °C) DX-LM3-035 Sine filter DX-LM3-035 150 % overload (CT/I _H , at 50 °C) DX-SIN3-032 110 % overload (VT/I _L , at 40 °C) DX-SIN3-032 All-pole sine filter DX-SIN3-046-A	Notes concerning braking resistances:		variable frequency drive. Additional brake resistors and designs (e.g. different duty
150 % overload (CT/I _H , at 50 °C) 110 % overload (VT/I _L , at 40 °C) Sine filter 150 % overload (CT/I _H , at 50 °C) DX-LM3-035 DX-LM3-035 DX-LM3-035 DX-SIN3-032 DX-SIN3-032 All-pole sine filter 150 % overload (CT/I _H , at 50 °C) DX-SIN3-046-A	Motor feeder		
110 % overload (VT/I _L , at 40 °C) Sine filter 150 % overload (CT/I _H , at 50 °C) DX-SIN3-032 110 % overload (VT/I _L , at 40 °C) DX-SIN3-032 All-pole sine filter 150 % overload (CT/I _H , at 50 °C) DX-SIN3-046-A	motor choke		
Sine filter 150 % overload (CT/I _H , at 50 °C) DX-SIN3-032 110 % overload (VT/I _L , at 40 °C) All-pole sine filter 150 % overload (CT/I _H , at 50 °C) DX-SIN3-046-A	150 % overload (CT/I _H , at 50 °C)		DX-LM3-035
150 % overload (CT/I _H , at 50 °C) DX-SIN3-032 110 % overload (VT/I _L , at 40 °C) DX-SIN3-032 All-pole sine filter 150 % overload (CT/I _H , at 50 °C) DX-SIN3-046-A	110 % overload (VT/I $_{\rm L}$, at 40 °C)		DX-LM3-035
110 % overload (VT/I _L , at 40 °C) All-pole sine filter 150 % overload (CT/I _H , at 50 °C) DX-SIN3-032 DX-SIN3-046-A	Sine filter		
All-pole sine filter 150 % overload (CT/I _H , at 50 °C) DX-SIN3-046-A	150 % overload (CT/I _H , at 50 °C)		DX-SIN3-032
150 % overload (CT/I _H , at 50 °C) DX-SIN3-046-A	110 % overload (VT/I _L , at 40 °C)		DX-SIN3-032
"	All-pole sine filter		
110 % overload (VT/I _L , at 40 °C) DX-SIN3-046-A	150 % overload (CT/I _H , at 50 °C)		DX-SIN3-046-A
	110 % overload (VT/I _L , at 40 °C)		DX-SIN3-046-A

Modbus RTU

Design verification as per IEC/EN 61439

Interface/field bus (built-in)

Rated operational current for specified heat dissipation Heat dissipation per pole, current-dependent Pvid W 0 Equipment heat dissipation, current-dependent Pvid W 315 Static heat dissipation, non-current-dependent Pvs W 16.62 Heat dissipation capacity Pdiss W 0 Operating ambient temperature min. Operating ambient temperature max. C C 50 Operation (with 150 % overload), allow for derating IEC/EN 61439 design verification 10.2 Strength of materials and parts 10.2.2 Corrosion resistance 10.2.3.1 Verification of thermal stability of enclosures Meets the product standard's requirements. Meets the product standard's requirements.	Technical data for design verification			
Equipment heat dissipation, current-dependent P _{vid} W 315 Static heat dissipation, non-current-dependent P _{vs} W 16.62 Heat dissipation capacity P _{diss} W 0 Operating ambient temperature min. °C -10 Operating ambient temperature max. °C 50 IEC/EN 61439 design verification 10.2 Strength of materials and parts 10.2.2 Corrosion resistance Meets the product standard's requirements. Meets the product standard's requirements. Meets the product standard's requirements.	Rated operational current for specified heat dissipation	In	Α	25
Static heat dissipation, non-current-dependent Poss W 16.62 Heat dissipation capacity Poliss W 0 Operating ambient temperature min. Operating ambient temperature max. °C -10 Operating ambient temperature max. °C 50 Operation (with 150 % overload), allow for derating IEC/EN 61439 design verification 10.2 Strength of materials and parts 10.2.2 Corrosion resistance Meets the product standard's requirements. Meets the product standard's requirements. Meets the product standard's requirements.	Heat dissipation per pole, current-dependent	P _{vid}	W	0
Heat dissipation capacity Pdiss W 0 Operating ambient temperature min. Operating ambient temperature max. C 50 Operating ambient temperature max. C 50 Operation (with 150 % overload), allow for derating IEC/EN 61439 design verification 10.2 Strength of materials and parts 10.2.2 Corrosion resistance Meets the product standard's requirements. Meets the product standard's requirements.	Equipment heat dissipation, current-dependent	P _{vid}	W	315
Operating ambient temperature min. Operating ambient temperature max. °C -10 Operating ambient temperature max. °C 50 Operation (with 150 % overload), allow for derating IEC/EN 61439 design verification 10.2 Strength of materials and parts 10.2.2 Corrosion resistance Meets the product standard's requirements. Meets the product standard's requirements.	Static heat dissipation, non-current-dependent	P_{vs}	W	16.62
Operating ambient temperature max. °C 50 Operation (with 150 % overload), allow for derating IEC/EN 61439 design verification 10.2 Strength of materials and parts 10.2.2 Corrosion resistance Meets the product standard's requirements. Meets the product standard's requirements.	Heat dissipation capacity	P _{diss}	W	0
Operation (with 150 % overload), allow for derating IEC/EN 61439 design verification 10.2 Strength of materials and parts 10.2.2 Corrosion resistance Meets the product standard's requirements. Meets the product standard's requirements.	Operating ambient temperature min.		°C	-10
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.	Operating ambient temperature max.		°C	50
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.				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.	IEC/EN 61439 design verification			
10.2.3.1 Verification of thermal stability of enclosures Meets the product standard's requirements.	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.	10.2.3.2 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 w provide heat dissipation data for the devices.
10.11 Short-circuit rating	Is the panel builder's responsibility. The specifications for the switchgear mu- observed.
10.12 Electromagnetic compatibility	Is the panel builder's responsibility. The specifications for the switchgear mu- observed.
10.13 Mechanical function	The device meets the requirements, provided the information in the instructio leaflet (IL) is observed.

Technical data ETIM 7.0

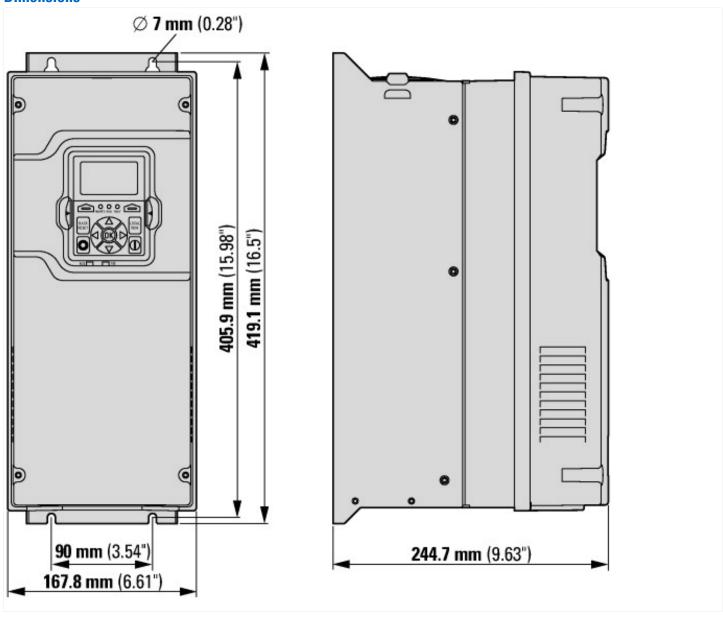
100mmour data ETTW 7.0		
Low-voltage industrial components (EG000017) / Frequency converter =< 1 kV (EC001857)	
Electric engineering, automation, process control engineering / Electrical drive	/ Static frequency conve	erter / Static frequency converter = < 1 kV (ecl@ss10.0.1-27-02-31-01 [AKE177014])
Mains voltage	V	177 - 264
Mains frequency		50/60 Hz
Number of phases input		3
Number of phases output		3
Max. output frequency	Hz	400
Max. output voltage	V	240
Nominal output current I2N	А	31
Max. output at quadratic load at rated output voltage	kW	7.5
Max. output at linear load at rated output voltage	kW	11
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 unit		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 Supporting protocol for PROFINET CBA Supporting protocol for SERCOS Supporting protocol for SERCOS Supporting protocol for Foundation Fieldbus Supporting protocol for Foundation Fieldbus Supporting protocol for Foundation Fieldbus Supporting protocol for Fuel-Net/IP Supporting protocol for SelectNet Safety at Work Supporting protocol for DeviceNet Safety at Work Supporting protocol for DeviceNet Safety No Supporting protocol for INTERBUS-Safety No Supporting protocol for PROFINSER Supporting protocol for SafetyBUS p No Supporting protocol for SafetyBUS p No Supporting protocol for BACnet Supporting protocol for Other bus systems Yes Number of HW-interfaces industrial Ethernet Inumber of HW-interfaces RS-232 Number of HW-interfaces RS-232 Number of HW-interfaces RS-425 Number of HW-interfaces RS-485 Number of HW-interfaces Serial TTY Number of HW-interfaces use ITTY Number of
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Supporting protocol for EtherNet/IP Supporting protocol for AS-Interface Safety at Work Supporting protocol for DeviceNet Safety Supporting protocol for INTERBUS-Safety No Supporting protocol for INTERBUS-Safety No Supporting protocol for SafetyBUS-Safety No Supporting protocol for SafetyBUS p No Supporting protocol for SafetyBUS p Supporting protocol for BACnet Supporting protocol for other bus systems Ves Supporting protocol for other bus systems Number of HW-interfaces industrial Ethernet 1 Number of HW-interfaces PROFINET 0 Number of HW-interfaces RS-232 0 Number of HW-interfaces RS-232 0 Number of HW-interfaces RS-422 0 Number of HW-interfaces RS-425 1 Number of HW-interfaces Safety ABS 1 Number of HW-interfaces Safety ABS 0 Number of HW-interfaces Other 1 With optical interface No
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Number of HW-interfaces USB 0 Number of HW-interfaces parallel 0 Number of HW-interfaces other 1 With optical interface No
Number of HW-interfaces parallel 0 Number of HW-interfaces other 1 With optical interface No
Number of HW-interfaces other 1 With optical interface No
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)
Degree of protection (NEMA)
Height mm 419
Width mm 169
Depth mm 244

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	3~240 V AC IEC: TN-S UL/CSA: 'Y' (Solidly Grounded Wey)
Degree of Protection	IP21/NEMA1

Dimensions



Additional product information (links)

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