#### DATASHEET - DE11-342D1FN-N20N



Speed starters, three-phase power supply connection, three-phase motor connection at 400 V, 2, 1 A and 0, 75 kW / 1 HP, with integrated EMC filter

Powering Business Worldwide

DE11-342D1FN-N20N Part no.

Catalog No. 180663

Eaton Catalog No. DE11-342D1FN-N20N

### **Technical data**

		Specification for general requirements: IEC/EN 61800-2 EMC requirements: IEC/EN 61800-3 Safety requirements: IEC/EN 61800-5-1
		CE, UL, cUL, RCM
		RoHS, ISO 9001
$\rho_{\text{W}}$	%	< 95%, average relative humidity (RH), non-condensing, non-corrosive
8	°C	-10 - +50
		Derating between 50 °C and 60 °C: None if $f_{PWM} \le 16$ kHz None if $f_{PWM} \le 20$ kHz up to a max. of 57 °C None if $I_e \le 1.6$ A
θ	°C	-40 - +70
		C2, C3, depending on the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary.
		1st and 2nd environments as per EN 61800-3
I	m	C2 ≤ 10 m C3 ≤ 25 m
	g	15 (11 m/s, EN 60068-2-27)
		EN 61800-5-1
	m	0 - 1000 m above sea level Above 1000 m: 1% derating for every 100 m max. 2000 m
		IP20/NEMA 0
		BGV A3 (VBG4, finger- and back-of-hand proof)
	8	9 °C

Mai	in (	cii	CI	rit

Main circuit			
Supply			
Rated operational voltage	U <sub>e</sub>		400 V AC, 3-phase 480 V AC, 3-phase
Mains voltage (50/60Hz)	$U_LN$	V	380 (-10%) - 480 (+10%)
Input current (150% overload)	I <sub>LN</sub>	Α	3.1
Supply frequency	$f_{LN}$	Hz	50/60
Frequency range	$f_{LN}$	Hz	45 - 66
Mains switch-on frequency			Maximum of one time every 30 seconds
Power section			
Overload current (150% overload)	IL	Α	3.15
max. starting current (High Overload)	I <sub>H</sub>	%	200
Note about max. starting current			for 1.875 seconds every 600 seconds
Output voltage with V <sub>e</sub>	U <sub>2</sub>		400 V AC, 3-phase 480 V AC, 3-phase
Output Frequency	f <sub>2</sub>	Hz	0 - 50/60 (max. 300)
Switching frequency	$f_{PWM}$	kHz	16 adjustable 4 - 32 (audible)
Operation Mode			U/f control

Reference voltage  Us V 10 V DC (max. 0.2 mA)  1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA  1, parameterizable, 10 - 30 V DC  4, parameterizable, 10 - 30 V DC  Relay outputs  Interface/field bus (built-in)  V 10 V DC (max. 0.2 mA)  1, parameterizable, 10 - 30 V DC  1, parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1)  OP-Bus (RS485)/Modbus RTU, CANopen®				
Retailed operational current         At 15% everload         Learn At 15% everload         A 2.1         Retail operational current at an operating frequency of 16 M/z and an ambient oir temperature of 100 °C.           Movimum leakage current to ground (PE) without motor         I.p. mA 3.25.AC, c 10 DC         Retail operational current at an operating frequency of 16 M/z and an ambient oir temperature of 100 °C.           Fitted with         Fitted with         Fitted with         Retail or interference suppression filter           Fitted with         Fitted with         Fitted with         Fitted with           Motor feeder         Fitted with         For normal internally and externally ventilated 4 pole, three phase asynchronous motors with 1500 pm 1 at 50 Hz or 1800 min 1 at 50 Hz           Note         Overload cycle for 60 a every 600 s         at 400 V.50 Hz           Note         150 % Overload         P         KW         0.75           Note         40 V.5         150 % Overload         P         KW         0.75           Note         40 V.5         150 % Overload         P         KW         1.55           Apparent power         40 V.5         1.55         1.55         1.55         1.55         1.55         1.55         1.55         1.55         1.55         1.55         1.55         1.55         1.55         1.55         1.55				
At 150% overfoad   In   In   In   In   In   Interimental personnel frequency of 18 kHz and an ambient air temperature of -50° °C   Interimental personnel frequency of 18 kHz and an ambient air temperature of -50° °C   Interimental personnel frequency of 18 kHz and an ambient air temperature of -50° °C   Interimental personnel frequency of 18 kHz and an ambient air temperature of -50° °C   Interimental personnel frequency of 18 kHz and an ambient air temperature of -50° °C   Interimental personnel frequency of 18 kHz and an ambient air temperature of -50° °C   Interimental personnel frequency of 18 kHz and an ambient air temperature of -50° °C   Interimental personnel frequency of 18 kHz and an ambient air temperature of -50° °C °C   Interimental personnel frequency of 18 kHz and an ambient air temperature of -50° °C	Frequency resolution (setpoint value)	Δf	Hz	0.03
Note         Bated operational current at an apperating frequency of 18 kHz and an ambient sir temperature of 4.90 °C           Maximum leakage current to ground (PE) without motor         Ipe         MA         3.3 AC, < 100 °C	Rated operational current			
Maximum leakage current to ground IPEI without motors   Ire   Maximum leakage current to ground IPEI without motors   Ire   Maximum leakage current to ground IPEI without motors   Ire   Maximum leakage current to ground IPEI without motor   Ire   Maximum leakage current to ground IPEI without motor   Ire   Maximum leakage current to ground IPEI without   Ire	At 150% overload	I <sub>e</sub>	Α	2.1
Fitted with   Frame size   Factor   F	Note			
Frame size	Maximum leakage current to ground (PE) without motor	I <sub>PE</sub>	mA	< 3.5 AC, < 10 DC
Motor feeder         Note         for normal internally and autamality ventilated 4 pole, three-phase asynchronous motors with 1500 rpm <sup>2</sup> at 50 Hz or 1800 min <sup>2</sup> at 60 Hz           Note         certado cycle for 60 s every 500 s every 500 s           Note         at 400 V, 50 Hz           150 % Overload         P         kW         0.75           Note         at 440 - 480 V, 60 Hz         150 % Overload         P         kW         1.46           Apparent power         B         kW         1.55 <td>Fitted with</td> <td></td> <td></td> <td>Radio interference suppression filter</td>	Fitted with			Radio interference suppression filter
Note	Frame size			FS1
Note         woodpool of cycle for 60 s every 600 s           Note         Overload cycle for 60 s every 600 s           Note         at 400 V.50 Hz           150 % Overload         P         kW         0.75           Note         at 440 - 480 V, 60 Hz         T           150 % Overload         P         HP         at 440 - 480 V, 60 Hz           Apparent power         at 440 - 480 V, 60 Hz         T           Apparent power at rated operation 400 V         S         kVA         1.55           Apparent power at rated operation 480 V         S         kVA         1.75           Braking function         Braking function         max. 30 % MN         Max. 20 % MN           Control section         max. 20 % MN         Max. 20 Ms         Max. 20 Ms           Control section         word of the cycle of the c	Motor feeder			
Note         440 V, 50 Hz           150 % Overload         P         kW         0.75           Note         at 440 - 480 V, 60 Hz         at 440 - 480 V, 60 Hz           150 % Overload         P         HP         1           Apparent power         Apparent power at rated operation 400 V         S         kVA         1.45           Apparent power at rated operation 480 V         S         kVA         1.75           Braking function         Standard braking torque         max. 30 % My         adjustable to 100 %           Control section         max. 30 % My         adjustable to 100 %         Apparent power Wind         1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA         Apparent power Wind         1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA         Apparent power Wind         1, parameterizable, N/Q, 6 A (250 V, AC-1) / 5 A (30 V, DC-1)         Apparent power Wind         1, parameterizable, N/Q, 6 A (250 V, AC-1) / 5 A (30 V, DC-1)         Apparent power Wind         Power Wind         FAZ-B6/3         Apparent power Wind         FAZ-B6/3         Apparent power Wind         FAZ-B6/3         Apparent power Wind         Power Wind         FAZ-B6/3         Apparent power Wind         Power Wind         FAZ-B6/3         Apparent power Wind         Power Wind         Power Wind         FAZ-B6/3         Apparent power Wind         Power Wind         Power Wind         Po	Note			
150 % Overload	Note			Overload cycle for 60 s every 600 s
Note         at 440 - 480 V, 60 Hz           150 % Overload         P         HP         HP           Apparent power	Note			at 400 V, 50 Hz
150 % Overload	150 % Overload	P	kW	0.75
Apparent power  Apparent power at rated operation 400 V Apparent power at rated operation 480 V S Rathing function Standard braking torque DC braking torque DC braking torque DC braking torque  Us V 10 V DC (max. 0.2 mA) Analog inputs Analog inputs Analog inputs Analog inputs Apparent power African Survey Apparent power African Survey Apparent power African Survey Apparent power African Survey Analog inputs Assigned Switching and protective elements Power Wiring Safety device (fuse or miniature circuit-breaker) IEC (Type B, gG), 150 % UL (Class CC or J) Assigned SC or J) Anains contactor 150 % overload (CT/I <sub>H</sub> , at 50 °C) Alie Mains contactor 110 % overload (VT/I <sub>L</sub> , at 40 °C) Main cloke 150 % overload (CT/I <sub>H</sub> , at 50 °C) Apparent power Avirage Apparent power Avirage Apparent power Avirage Apparent power at rated operation 480 V Avirage Apparent power at rated operation 480 V Avirage Apparent power Avivage Apparent power Avirage Apparent power Avirage Apparent pow	Note			at 440 - 480 V, 60 Hz
Apparent power at rated operation 400 V S KVA 1.45  Apparent power at rated operation 480 V S KVA 1.75  Braking function  Standard braking torque  DC braking torque  DC braking torque  TReference voltage  Us V 10 V DC (max. 0.2 mA)  Analog inputs  Analog inputs  Digital inputs  Relay outputs  Interface/field bus (built-in)  Assigned switching and protective elements  Power Wiring  Safety device (fuse or miniature circuit-breaker)  IEC (Type B, gG), 150 %  UL (Class CC or J)  Anains contactor  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke	150 % Overload	P	HP	1
Apparent power at rated operation 480 V  Braking function Standard braking torque  DC braking torque  DC braking torque  Control section  Reference voltage  Analog inputs  Digital inputs  Relay outputs  Interface/field bus (built-in)  Assigned switching and protective elements  Power Wiring  Safety device (fuse or miniature circuit-breaker)  IEC (Type B, gG), 150 %  UL (Class CC or J)  Anains contactor  Mains contactor  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke 150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke 150 % overload (CT/I <sub>H</sub> , at 50 °C)  DC braking furque  max. 30 % M <sub>M</sub> max	Apparent power			
Braking function  Standard braking torque  DC braking torque  Control section  Reference voltage  Analog inputs  Digital inputs  Digital inputs  Digital inputs  Netrace/field bus (built-in)  Assigned switching and protective elements  Power Wiring  Safety device (fuse or miniature circuit-breaker)  IEC (Type B, gG), 150 %  UL (class CC or J)  Mains contactor  150 % overload (CT/l <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/l <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/l <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/l <sub>H</sub> , at 50 °C)  DC y adjustable to 100 %  max. 30 % M <sub>N</sub> adjustable to 100 %  10 V DC (max. 0.2 mA)  11 ov DV DC (max. 0.2 mA)  12 ov DV DC (max. 0.2 mA)  12 ov DV DC (max. 0.2 mA)  13 ov DV DC (max. 0.2 mA)  14 ov parmeterizable, 0 - 10 V DC, 0/4 - 20 mA  14 ov parmeterizable, 0 - 10 V DC, 0/4 - 20 mA  14 ov parmeterizable, 0 - 10 V DC, 0/4 - 20 mA  14 ov parmeterizable, 0 - 10 V DC, 0/4 - 20 mA  15 ov Nove (max. 0.2 mA)  15 ov Nove (max. 0.2 mA)  15 ov Nove (max. 02 mA)  16 ov Nove (max. 02 mA)  17 ov Nove (max. 02 mA)  18 ov Nove (max. 02 mA)  19 ov Nove (max. 02 mA)  10 ov Nove (max. 02 mA)	Apparent power at rated operation 400 V	S	kVA	1.45
Standard braking torque  DC braking torque  Control section  Reference voltage  Analog inputs  Digital inputs  Relay outputs  Interface/field bus (built-in)  Assigned switching and protective elements  Power Wring  Safety device (fuse or miniature circuit-breaker)  IEC (Type B, gG), 150 %  UL (Class CC or J)  Mains contactor  150 % overload (CT/l <sub>H</sub> , at 50 °C)  Main choke  Main choke  max. 30 % M <sub>N</sub> adjustable to 100 %  10 V DC (max. 0.2 mA)  10 V DC (max. 0.2 mA)  10, parameterizable, 0 - 10 V DC, 0/4 - 20 mA  11, parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1)  11, parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1)  11, parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1)  11, parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1)  12, parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1)  12, parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1)  130 No verload (CT/l <sub>H</sub> , at 50 °C)  DP-Bus (RS485)/Modbus RTU, CANopen®  FAZ-B8/3  FAZ-B8/3  DILEM	Apparent power at rated operation 480 V	S	kVA	1.75
DC braking torque  Control section  Reference voltage Analog inputs Analog inputs Digital inputs Analog inputs Digital inputs Relay outputs Interface/field bus (built-in) Assigned switching and protective elements  Power Wring Safety device (fuse or miniature circuit-breaker) IEC (Type B, gS), 150 % UL (Class CC or J) Mains contactor 150 % overload (CT/l <sub>H</sub> , at 50 °C)  Main choke  Main choke  150 % overload (CT/l <sub>H</sub> , at 50 °C)  Assigned switching and protective elements  Dysamble to 100 %  10 V DC (max. 0.2 mA) 10 V DC (ma	Braking function			
Control section  Reference voltage  Analog inputs  Digital inputs  Relay outputs  Interface/field bus (built-in)  Assigned switching and protective elements  Power Wiring  Safety device (fuse or miniature circuit-breaker)  IEC (Type B, gG), 150 %  Mains contactor  150 % overload (CT//I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT//I <sub>H</sub> , at 50 °C)  Vanish (Vanish	Standard braking torque			max. 30 % M <sub>N</sub>
Reference voltage  Analog inputs  Digital inputs  Relay outputs  Relay outputs  Northeriace/field bus (built-in)  Assigned switching and protective elements  Safety device (fuse or miniature circuit-breaker)  IEC (Type B, gG), 150 %  UL (Class CC or J)  Mains contactor  150 % overload (CT/l <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/l <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/l <sub>H</sub> , at 50 °C)  Name reizzable, 0 - 10 V DC, 0/4 - 20 mA  1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA  1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA  4, parameterizable, N/0, 6 A (250 V, AC-1) / 5 A (30 V, DC-1)  0P-Bus (RS485)/Modbus RTU, CANopen®  1, parameterizable, N/0, 6 A (250 V, AC-1) / 5 A (30 V, DC-1)  1, parameterizable, N/0	DC braking torque			adjustable to 100 %
Analog inputs  Digital inputs  Relay outputs  Relay outputs  Interface/field bus (built-in)  Assigned switching and protective elements  Power Wiring  Safety device (fuse or miniature circuit-breaker)  IEC (Type B, gG), 150 %  UL (Class CC or J)  Mains contactor  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  DX-LN3-004	Control section			
Digital inputs 4, parameterizable, 10 - 30 V DC Relay outputs 1, parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1) Interface/field bus (built-in) 0P-Bus (RS485)/Modbus RTU, CANopen®  Assigned switching and protective elements  Power Wiring Safety device (fuse or miniature circuit-breaker) FAZ-B6/3  UL (Class CC or J) A 6  Mains contactor FAZ-B6/3  UL (Class CC or J) A 6  Mains contactor DILEM  110% overload (CT/I <sub>H</sub> , at 50 °C) DILEM  Main choke DX-LN3-004	Reference voltage	U <sub>s</sub>	V	10 V DC (max. 0.2 mA)
Relay outputs Interface/field bus (built-in)  Assigned switching and protective elements  Power Wiring Safety device (fuse or miniature circuit-breaker) IEC (Type B, gG), 150 %  UL (Class CC or J) Mains contactor 150 % overload (CT/ H, at 50 °C) Main choke 150 % overload (CT/ H, at 50 °C)  Main choke 150 % overload (CT/ H, at 50 °C)  A parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1) OP-Bus (RS485)/Modbus RTU, CANopen®  Power Wiring FAZ-86/3  FAZ-86/3  DILEM  DILEM  DILEM  DILEM  DILM7  DILM7	Analog inputs			1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA
Interface/field bus (built-in)  Assigned switching and protective elements  Power Wiring  Safety device (fuse or miniature circuit-breaker)  IEC (Type B, gG), 150 %  UL (Class CC or J)  Mains contactor  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke	Digital inputs			4, parameterizable, 10 - 30 V DC
Assigned switching and protective elements  Power Wiring Safety device (fuse or miniature circuit-breaker)  IEC (Type B, gG), 150 %  UL (Class CC or J)  A 6  Mains contactor  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  DILEM  DILM7  DILM7  DILM7  DILM7	Relay outputs			1, parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1)
Power Wiring         FAZ-B6/3           IEC (Type B, gG), 150 %         A         6           Mains contactor         J150 % overload (CT/I <sub>H</sub> , at 50 °C)         DILEM           Main choke         DILM7           Main choke         DX-LN3-004	Interface/field bus (built-in)			OP-Bus (RS485)/Modbus RTU, CANopen®
Safety device (fuse or miniature circuit-breaker)  IEC (Type B, gG), 150 %  UL (Class CC or J)  A 6  Mains contactor  150 % overload (CT/I <sub>H</sub> , at 50 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  DILEM  DILM7  DILM7  DILM7  DILM7	Assigned switching and protective elements			
IEC (Type B, gG), 150 %       FAZ-B6/3         UL (Class CC or J)       A       6         Mains contactor       DILEM         150 % overload (CT/I <sub>H</sub> , at 50 °C)       DILEM         Main choke       DILM7         150 % overload (CT/I <sub>H</sub> , at 50 °C)       DX-LN3-004	Power Wiring			
UL (Class CC or J)       A       6         Mains contactor       ISO % overload (CT/I <sub>H</sub> , at 50 °C)       DILEM         110 % overload (VT/I <sub>L</sub> , at 40 °C)       DILM7         Main choke       DILM7         150 % overload (CT/I <sub>H</sub> , at 50 °C)       DX-LN3-004	Safety device (fuse or miniature circuit-breaker)			
Mains contactor  150 % overload (CT/I <sub>H</sub> , at 50 °C)  110 % overload (VT/I <sub>L</sub> , at 40 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  DILEM  DILM7  DILM7  DILM7	IEC (Type B, gG), 150 %			FAZ-B6/3
150 % overload (CT/I <sub>H</sub> , at 50 °C)  110 % overload (VT/I <sub>L</sub> , at 40 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  DILEM  DILM7  DILM7  DX-LN3-004	UL (Class CC or J)		Α	6
110 % overload (VT/I <sub>L</sub> , at 40 °C)  Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  DILM7  DILM7  DX-LN3-004	Mains contactor			
Main choke  150 % overload (CT/I <sub>H</sub> , at 50 °C)  DX-LN3-004	150 % overload (CT/I <sub>H</sub> , at 50 °C)			DILEM
150 % overload (CT/I <sub>H</sub> , at 50 °C) DX-LN3-004	110 % overload (VT/I <sub>L</sub> , at 40 °C)			DILM7
	Main choke			
Motor feeder Motor feeder	150 % overload (CT/I <sub>H</sub> , at 50 °C)			DX-LN3-004
	Motor feeder			

# Design verification as per IEC/EN 61439

150 % overload (CT/I<sub>H</sub>, at 50 °C)

motor choke

Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	2.1
Heat dissipation per pole, current-dependent	$P_{\text{vid}}$	W	0
Equipment heat dissipation, current-dependent	$P_{vid}$	W	28
Static heat dissipation, non-current-dependent	$P_{vs}$	W	0
Heat dissipation capacity	P <sub>diss</sub>	W	0
Operating ambient temperature min.		°C	-10
Operating ambient temperature max.		°C	60
			Operation (with 150 % overload)
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			

DX-LM3-005

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.

#### **Technical data ETIM 6.0**

Toomitour data ETIIII 0.0		
Low-voltage industrial components (EG000017) / Frequency converter =< 1 kV (EC001857)		
Electric engineering, automation, process control engineering / Electrical drive / Static from	equency converte	r / Static frequency converter = < 1 kv (ecl@ss8.1-27-02-31-01 [AKE177011])
Mains voltage	V	380 - 480
Mains frequency		50/60 Hz
Number of phases input		3
Number of phases output		3
Max. output frequency	Hz	300
Max. output voltage	V	500
Rated output current I2N	А	2.1
Max. output at quadratic load at rated output voltage	kW	0.5
Max. output at linear load at rated output voltage	kW	0.5
With control unit		No
Application in industrial area permitted		Yes
Application in domestic- and commercial area permitted		Yes
Supporting protocol for TCP/IP		No
Supporting protocol for PROFIBUS		No
Supporting protocol for CAN		No
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		No
Supporting protocol for SUCONET		No
Supporting protocol for LON		No
Supporting protocol for PROFINET IO		No
Supporting protocol for PROFINET CBA		No
Supporting protocol for SERCOS		No

Supporting protocol for As-Interface Safety at Work         No           Supporting protocol for DeviceNet Safety         No           Supporting protocol for INTERBUS-Safety         No           Supporting protocol for Policiafe         No           Supporting protocol for SafetyBUS p         No           Number of HW-interfaces sindustrial Ethernet         0           Number of HW-interfaces RS-232         0           Number of HW-interfaces RS-422         0           Number of HW-interfaces RS-425         0           Number of HW-interfaces RS-426         0           Number of HW-interfaces BS-455         0           Number of HW-interfaces USB         0           Number of HW-interfaces USB         0           Number of HW-interfaces used         0           With optical interface         0           With piccal interface         No           With piccal interface         No           Vita prical interface         No           Vita prical interface         No           Segree of protection (IP)         No           Height	Supporting protocol for Foundation Fieldbus		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 SafetyBUS p         No           Supporting protocol for bus systems         Ves           Number of HW-interfaces industrial Ethernet         0           Number of HW-interfaces PROFINET         0           Number of HW-interfaces RS-232         0           Number of HW-interfaces RS-422         1           Number of HW-interfaces RS-485         0           Number of HW-interfaces Siral TTY         0           Number of HW-interfaces USB         0           Number of HW-interfaces USB         0           Number of HW-interfaces Suffer         0           With optical interface         0           With Optical interface         0           With Optical interface         0           With Optical interface         0           Vita Optical interface         0           With Optical interface         0           Vita Optical interface         0           Vita Optical interface         0           Vita Optical interface         0 </td <td>Supporting protocol for EtherNet/IP</td> <td></td> <td>Yes</td>	Supporting protocol for EtherNet/IP		Yes
Supporting protocol for INTERBUS-Safety         No           Supporting protocol for PROFIsafe         No           Supporting protocol for SafetyBUS p         No           Supporting protocol for other bus systems         Yes           Number of HW-interfaces industrial Ethernet         0           Number of HW-interfaces PROFINET         0           Number of HW-interfaces RS-232         0           Number of HW-interfaces RS-242         0           Number of HW-interfaces RS-485         1           Number of HW-interfaces RS-485         0           Number of HW-interfaces searll TTY         0           Number of HW-interfaces searll TY         0           Number of HW-interfaces searlle         0           Number of HW-interfaces use         0           Number of HW-interfaces searlle         0           Number of HW-interfaces use         0           Number of HW-interfaces user         0           Number of H	Supporting protocol for AS-Interface Safety at Work		No
Supporting protocol for PROFIsafe         No           Supporting protocol for SafetyBUS p         No           Supporting protocol for other bus systems         Yes           Number of HW-interfaces industrial Ethernet         0           Number of HW-interfaces RS-232         0           Number of HW-interfaces RS-425         0           Number of HW-interfaces RS-485         1           Number of HW-interfaces RS-485         0           Number of HW-interfaces RS-486         0           Number of HW-interfaces Brail ITY         0           Number of HW-interfaces Brail ITY         0           Number of HW-interfaces other         0           Number of HW-interfaces Other         0           Number of HW-interfaces Other         0           With optical interface         0           With optical interface         No           With optical interface         No           With optical interface         No           Vith pct converter         Image: No           Degree of protection (IP)         Image: No	Supporting protocol for DeviceNet Safety		No
Supporting protocol for SafetyBUS p         No           Supporting protocol for other bus systems         Yes           Number of HW-interfaces industrial Ethernet         O           Number of HW-interfaces RS-232         O           Number of HW-interfaces RS-422         O           Number of HW-interfaces RS-435         O           Number of HW-interfaces RS-445         O           Number of HW-interfaces Strait TTY         O           Number of HW-interfaces USB         O           Number of HW-interfaces parallel         O           Number of HW-interfaces brail         O           Number of HW-interfaces USB         O           Number of HW-interfaces brail         O           Vith potical interface         O           With PC connection         O           Vith PC connection         O           Integrated breaking resistance         O           4-quadratio peration possible         O           Specific converter         D         O           Degree of protection (IP)         P         P           Height         M         20           Height         M         20           Height         M         20           Height         M	Supporting protocol for INTERBUS-Safety		No
Supporting protocol for other bus systems         Yes           Number of HW-interfaces industrial Ethernet         6           Number of HW-interfaces PROFINET         6           Number of HW-interfaces RS-232         6           Number of HW-interfaces RS-422         6           Number of HW-interfaces RS-428         6           Number of HW-interfaces RS-485         6           Number of HW-interfaces userial TTY         6           Number of HW-interfaces userial TTY         6           Number of HW-interfaces userial TTY         6           Number of HW-interfaces other         6           With optical interface         7           With pC connection         7           With pC connection         7           Integrated breaking resistance         7           4-quadrant operation possible         7           Type of converter         1           Degree of protection (IP)         1           Height         7           Middle         7           Mumber of MW-interfaces userial TTY         1           No         1           Occonverter         No           Publication (IP)         1           Height         1         2	Supporting protocol for PROFIsafe		No
Number of HW-interfaces industrial Ethernet         0           Number of HW-interfaces PR0FINET         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         0           With optical interface         0           With optical interface         No           Vita potical interface         No           4-quadrant operation possible         No           4-quadrant operation possible         No           Type of converter         Potical interface           Degree of protection (IP)         Potical interface           Height         Mm           Width         Mm           August         No <td>Supporting protocol for SafetyBUS p</td> <td></td> <td>No</td>	Supporting protocol for SafetyBUS p		No
Number of HW-interfaces PRS-132         0           Number of HW-interfaces RS-232         0           Number of HW-interfaces RS-422         1           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         0           With optical interface         0           With Connection         No           Vith Expressione         No           4-quadrant operation possible         No           1-quadrant operation possible         Voonverter           1-quadrant operation (IP)         Voonverter           1-quadrant operation (IP) <td>Supporting protocol for other bus systems</td> <td></td> <td>Yes</td>	Supporting protocol for other bus systems		Yes
Number of HW-interfaces RS-232         0           Number of HW-interfaces RS-425         1           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         0           With optical interface         No           With PC connection         No           Integrated breaking resistance         No           4-quadrant operation possible         No           Type of converter         U converter           Degree of protection (IP)         P20           Height         30           Width         30           Width         30           Width         45           Depth         mm         45           Beth         mm         45           Beth         mm         46           Beth         mm         46           Beth         mm         45           Beth         mm         46           Beth         mm         46           Beth         mm         46           Beth         mm <td>Number of HW-interfaces industrial Ethernet</td> <td></td> <td>0</td>	Number of HW-interfaces industrial Ethernet		0
Number of HW-interfaces RS-422  Number of HW-interfaces RS-485  Number of HW-interfaces serial TTY  Number of HW-interfaces SUB  Number of HW-interfaces USB  Number of HW-interfaces parallel  Number of HW-interfaces other  Number of HW-interfaces other  Number of HW-interfaces other  Number of HW-interfaces other  No  Nother of HW-interface  No  Nother of HW-interface  No  Integrated breaking resistance  4-quadrant operation possible  Type of converter  Degree of protection (IP)  Height  Height  Mm  Substance	Number of HW-interfaces PROFINET		0
Number of HW-interfaces RS-485  Number of HW-interfaces serial TTY  Number of HW-interfaces Serial TTY  Number of HW-interfaces USB  Number of HW-interfaces USB  Number of HW-interfaces parallel  Number of HW-interfaces other  Number of HW-interfaces other  No  With optical interface  With PC connection  Integrated breaking resistance  4-quadrant operation possible  Type of converter  Degree of protection (IP)  Height  Mm  Mm  Mm  Middle  Depth  Relative symmetric net frequency tolerance  No  1	Number of HW-interfaces RS-232		0
Number of HW-interfaces serial TTY  Number of HW-interfaces USB  Number of HW-interfaces parallel  Number of HW-interfaces other  Number of HW-interfaces other  Number of HW-interfaces other  No  With optical interface  With PC connection  Integrated breaking resistance  4-quadrant operation possible  Type of converter  Degree of protection (IP)  Height  Middle  M	Number of HW-interfaces RS-422		0
Number of HW-interfaces USB  Number of HW-interfaces parallel  Number of HW-interfaces other  Number of HW-interfaces other  Number of HW-interfaces other  No  With optical interface  With PC connection  Integrated breaking resistance  A-quadrant operation possible  Type of converter  Degree of protection (IP)  Height  Height  No  Mm  30  Width  Depth  Relative symmetric net frequency tolerance  No  Oconverter  P20  Horowerter  Mm  45  Horowerter  Mm  188  Selective symmetric net frequency tolerance  No  No  No  No  No  No  No  No  No  N	Number of HW-interfaces RS-485		1
Number of HW-interfaces parallel Number of HW-interfaces other With optical interface With PC connection Integrated breaking resistance 4-quadrant operation possible Type of converter Degree of protection (IP) Height Height Width Depth Relative symmetric net frequency tolerance    Wood   Wood   Wood     Wood   Wood     Wood   Wood   Wood     Wood   Wood   Wood     Wood   Wood   Wood     Wood   Wood   Wood     Wood   Wood   Wood     Wood   Wood   Wood     Wood   Wood   Wood     Wood   Wood   Wood     Wood   Wood   Wood     Wood   Wood   Wood     Wood   Wood     Wood   Wood     Wood   Wood     Wood   Wood     Wood   Wood     Wood   Wood     Wood   Wood     Wood   Wood     Wood   Wood     Wood   Wood     Wood   Wood     Wood   Wood     Wood   Wood     Wood     Wood     Wood   Wood     Wood	Number of HW-interfaces serial TTY		0
Number of HW-interfaces other  With optical interface With PC connection Integrated breaking resistance 4-quadrant operation possible Type of converter Degree of protection (IP) Height With HEIGHT Degree of protection (IP) With PC connection	Number of HW-interfaces USB		0
With optical interface With pc connection Integrated breaking resistance 4-quadrant operation possible Type of converter Degree of protection (IP) Height With Pc Connection With PC con	Number of HW-interfaces parallel		0
With PC connection Integrated breaking resistance 4-quadrant operation possible Type of converter Degree of protection (IP) Height Width Depth Relative symmetric net frequency tolerance  Mo No No No Octowerter No No Voonverter Voorverter No	Number of HW-interfaces other		0
Integrated breaking resistance 4-quadrant operation possible No Type of converter Degree of protection (IP) Height Width Depth Relative symmetric net frequency tolerance No	With optical interface		No
4-quadrant operation possible Type of converter Degree of protection (IP) Height Width Depth Relative symmetric net frequency tolerance  No Octonverter U converter P20 P20 P20 V converter P20	With PC connection		No
Type of converter  Degree of protection (IP)  Height  Width  Depth  Relative symmetric net frequency tolerance  Degree of protection (IP)  Much protection	Integrated breaking resistance		No
Degree of protection (IP) Height Width Depth Relative symmetric net frequency tolerance    P20     P20	4-quadrant operation possible		No
Height mm 230 Width mm 45 Depth mm 168 Relative symmetric net frequency tolerance mm 57  March M	Type of converter		U converter
Width mm 45 Depth mm 168 Relative symmetric net frequency tolerance % 5	Degree of protection (IP)		IP20
Depth mm 168 Relative symmetric net frequency tolerance % 5	Height	mm	230
Relative symmetric net frequency tolerance	Width	mm	45
	Depth	mm	168
Relative symmetric net current tolerance	Relative symmetric net frequency tolerance	%	5
	Relative symmetric net current tolerance	%	10

## Approvals

UL 508C; CSA-C22.2 No. 14; IEC/EN61800-3; IEC/EN61800-5; CE marking
E172143
NMMS, NMMS7
UL report applies to both US and Canada
UL listed, certified by UL for use in Canada
No
Branch circuits
3~ 480 V AC IEC: TN-S UL/CSA: "Y" (Solidly Grounded Wey)
IEC: IP20

### **Dimensions**

