DATASHEET - DE11-124D3FN-N20N



Speed starters, single-phase power supply connec., three-phase motor connec. at 230 V, 4, 3 A and 0, 75 kW / 0, 75 HP, with integrated EMC filter



Part no. DE11-124D3FN-N20N

Catalog No. 180653

Eaton Catalog No. DE11-124D3FN-N20N

Technical data General

General			
Standards			Specification for general requirements: IEC/EN 61800-2 EMC requirements: IEC/EN 61800-3 Safety requirements: IEC/EN 61800-5-1
Certifications			CE, UL, cUL, RCM
Production quality			RoHS, ISO 9001
Climatic proofing	ρ_{W}	%	< 95%, average relative humidity (RH), non-condensing, non-corrosive
Ambient temperature			
operation (150 % overload)	9	°C	-10 - +60
Storage	8	°C	-40 - +70
Radio interference level			
Radio interference class (EMC)			C1 (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	ı	m	C1 ≤ 5 m C2 ≤ 10 m C3 ≤ 25 m
Mechanical shock resistance		g	15 (11 m/s, EN 60068-2-27)
Vibration			EN 61800-5-1
Altitude		m	0 - 1000 m above sea level Above 1000 m: 1% derating for every 100 m max. 2000 m
Degree of Protection			IP20/NEMA 0
Protection against direct contact			BGV A3 (VBG4, finger- and back-of-hand proof)
Main circuit			
Supply			
Rated operational voltage	U _e		230 V AC, 1-phase 240 V AC, single-phase
Mains voltage (50/60Hz)	U_LN	V	200 (-10%) - 240 (+10%)
Input current (150% overload)	I _{LN}	Α	11.3
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	6.45
max. starting current (High Overload)	I _H	%	200
Note about max. starting current			for 1.875 seconds every 600 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. 300)
Switching frequency	f _{PWM}	kHz	16 adjustable 4 - 32 (audible)
Operation Mode			U/f control Speed control with slip compensation
Frequency resolution (setpoint value)	Δf	Hz	0.03

temperature of +50 °C Maximum leakage current to ground (PE) without motor Fitted with Frame size Motor feeder temperature of +50 °C < 3.5 AC, < 10 DC Radio interference suppression filter FS1 FS1	Rated operational current			
Maximum leakage current to ground (PE) without motor light maximum leakage current to ground (PE) without motor light maximum leakage current to ground (PE) without motor light maximum leakage current to ground (PE) without motor light maximum leakage current to ground (PE) without motor maximum leakage current to ground (PE) without maximum leakage current to ground (PE) without motor maximum leakage current to ground (PE) without maximum leakage current look maximum leakage current look maximum leakage asynchronous motors with 1500 rpm" at 50 Hz or 1800 min" at 60 Hz maximum leakage asynchronous motors with 1500 rpm" at 50 Hz or 1800 violate maximum leakage asynchronous motors with 1500 rpm" at 50 Hz or 1800 violate maximum leakage asynchronous motors with 1500 rpm" at 50 Hz or 1800 violate motors with 1500 rpm" at 50 Hz or 1800 violate motors with 1500 rpm" at 50 Hz or 1800 violate motors with 1500 rpm" at 50 Hz or 1800 violate motors with 1500 rpm" at 50 Hz or 1800 violate motors with 1500 rpm" at 50 Hz or 1800 violate motors with 1500 rpm" at 50 Hz or 1800 violate motors with 1500 rpm" at 50 Hz or 1800 violate motors with 1500 rpm" at 50 Hz or 1800 violate motors with 1500 rpm" at 50 Hz or 1800 violate motors with 1500 rpm" at 50 Hz or 1800 violate motors with 1500 rpm" at 50 Hz or 1800 violat	At 150% overload	I _e	Α	4.3
Fitted with Frame size Note Note Note Note Note Note Note No	Note			Rated operational current at an operating frequency of 16 kHz and an ambient a temperature of +50 $^{\circ}\text{C}$
Frame size Note Foundation	Maximum leakage current to ground (PE) without motor	I_{PE}	mA	< 3.5 AC, < 10 DC
Note	Fitted with			Radio interference suppression filter
Note Note Note Note Note Note 150 % Overload yelle for 60 s every 600 s	Frame size			FS1
Note motors with 1500 rpm " at 50 Hz or 1800 min " at 60 Hz Note corriod cycle for 60 s every 600 s Note at 220 V, 50 Hz Note at 220 V, 50 Hz Note at 220 V, 40 Hz Apparent power at 220 V, 40 Hz Apparent power at rated operation 230 V S kVA 1.71 Apparent power at rated operation 240 V S kVA 1.79 Braking function max 30 M My adjustable to 100 % OC braking torque was 30 My adjustable to 100 % Ontrol Section was 30 My apparent power at rated operation 240 V parameterizable, 0 - 10 V DC, 0/4 - 20 mA ontrol Section parameterizable to 100 % parameterizable, 0 - 10 V DC, 0/4 - 20 mA object to 10 year power at rated operation 240 V Ab 20 MA	otor feeder			
Note at 230 y, 50 Hz 150 % Overload P kW 0.75 Note at 220 - 240 y, 60 Hz 150 % Overload P HP 1 Apparent power F HP 1 Apparent power at rated operation 230 V S kVA 1.71 Apparent power at rated operation 240 V S kVA 1.79 Braking function Braking torque max. 30 % M _N 0 b taking torque max. 30 % M _N max. 30 % M _N atlog inputs 1 1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA atlog inputs 1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA atlog inputs 4, parameterizable, 0 - 10 V DC, 0/4 - 20 mA atlog inputs 4, parameterizable, 0 - 10 V DC, 0/4 - 20 mA atlog inputs 9, parameterizable, 0 - 10 V DC, 0/4 - 20 mA atlog inputs 1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA atlog inputs 6, parameterizable, 0 - 10 V DC, 0/4 - 20 mA atlog inputs 7, parameterizable, 0 - 10 V DC, 0/4 - 20 mA atlog inputs 8, parameterizable, 0 - 10 V DC, 0/4 - 20 mA atlog inp	Note			for normal internally and externally ventilated 4 pole, three-phase asynchronou motors with 1500 rpm ⁻¹ at 50 Hz or 1800 min ⁻¹ at 60 Hz
150 % Overload	Note			Overload cycle for 60 s every 600 s
Note	Note			at 230 V, 50 Hz
150 % Overload	150 % Overload	P	kW	0.75
Apparent power Apparent power at rated operation 230 V Apparent power at rated operation 240 V S	Note			at 220 - 240 V, 60 Hz
Apparent power at rated operation 230 V Apparent power at rated operation 240 V S kVA Apparent power at rated operation 240 V S kVA Apparent power at rated operation 240 V S kVA 1.79 Braking function Standard braking torque DC braking torque Ontrol section Reference voltage Us V 10 V DC (max. 0.2 mA) I, parameterizable, 0 - 10 V DC, 0/4 - 20 mA A, parameterizable, 10 - 30 V DC It, parameterizable, N/0, 6 A (250 V, AC-1) / 5 A (30 V, DC-1) Interface/field bus (built-in) Sasigned switching and protective elements Ower Wirring Safety device (fuse or miniature circuit-breaker) IEC (Type B, gG), 150 % UL (class CC or J) Mains contactor 150 % overload (CT/H _H , at 50 °C) Illow + PIDILEM DILEM + PIDILEM DILEM + PIDILEM DILM7 + DILM12-XP1	150 % Overload	P	HP	1
Apparent power at rated operation 240 V Braking function Standard braking torque DC braking torque Interface/field bus (built-in) Safety device (fuse or miniature circuit-breaker) IEC (Type B, gG), 150 % UL (Class CC or J) Mains contactor 150 % overload (CT/I _H , at 50 °C) Main choke May DC braking torque max. 30 % M _N adjustable to 100 % max. 30 % M _N adjustable to 100 % max. 30 % M _N adjustable to 100 % To V DC (max. 0.2 ma) 10 V DC, 0/4 - 20 mA 4, parameterizable, 0 - 30 V DC 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® FAZ-B16/IN A 15 DILEM + PIDILEM DILLM7 + DILLM12-XP1 DILLM7 + DILLM12-XP1	Apparent power			
Braking function Standard braking torque DC (max. 0.2 mA) 1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA 4, parameterizable, 10 - 30 V DC DC braking torque DC braking torque DC (max. 0.2 mA) 1, parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1) DP-Bus (RS485)/Modbus RTU, CANopen® FAZ-B16/1N FAZ-B16/1N DL (Class CC or J) A 15 Mains contactor 150 % overload (CT/I _H , at 50 °C) DILEM + PIDILEM DILEM + PIDILEM DILEM7 + DILM12-XP1	Apparent power at rated operation 230 V	S	kVA	1.71
Standard braking torque DC braking torque adjustable to 100 % 10 V DC (max. 0.2 mA) 1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA 4, parameterizable, 10 - 30 V DC aleay outputs atterface/field bus (built-in) ssigned switching and protective elements ower Wirring Safety device (fuse or miniature circuit-breaker) IEC (Type B, gG), 150 % UL (Class CC or J) A 15 Mains contactor 150 % overload (CT/l _H , at 50 °C) 110 % overload (VT/l _L at 40 °C) Main choke max. 30 % M _N adjustable to 100 % 10 V DC (max. 0.2 mA) 1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA 4, parameterizable, 10 - 30 V DC 1, parameterizable, N/0, 6 A (250 V, AC-1) / 5 A (30 V, DC-1) 1, p	Apparent power at rated operation 240 V	S	kVA	1.79
DC braking torque adjustable to 100 % teference voltage Us V 10 V DC (max. 0.2 mA) In parameterizable, 0 - 10 V DC, 0/4 - 20 mA In parameterizable, 10 - 30 V DC telay outputs telegy outputs telegy outputs telegy outputs over Wirring Safety device (fuse or miniature circuit-breaker) IEC (Type B, gG), 150 % UL (Class CC or J) A 15 Mains contactor 150 % overload (CT/I _H , at 50 °C) Main choke adjustable to 100 % 10 V DC (max. 0.2 mA) 1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA 4, parameterizable, 10 - 30 V DC 1, parameterizable, N/0, 6 A (250 V, AC-1) / 5 A (30 V, DC-1) OP-Bus (RS485)/Modbus RTU, CANopen® FAZ-B16/1N FAZ-B16/1N A 15 DILEM + PIDILEM DILEM + PIDILEM DILEM7 + DILM12-XP1	Braking function			
In the ference voltage	Standard braking torque			max. 30 % M _N
teference voltage Us V 10 V DC (max. 0.2 mA) 1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA 4, parameterizable, 10 - 30 V DC 1, parameterizable, 10 - 30 V DC 1, parameterizable, 10 - 30 V DC 1, parameterizable, N/0, 6 A (250 V, AC-1)/5 A (30 V, DC-1) OP-Bus (RS485)/Modbus RTU, CANopen® Safety device (fuse or miniature circuit-breaker) IEC (Type B, gG), 150 % IEC (Type B, gG), 150 % UL (Class CC or J) Mains contactor 150 % overload (CT/I _H , at 50 °C) 110 % overload (VT/I _L , at 40 °C) Main choke V 10 V DC (max. 0.2 mA) 1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA 4, parameterizable, 10 - 30 V DC 1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA 4, parameterizable, 10 - 30 V DC 1, parameterizable, 10 - 30 V DC 1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA 4, parameterizable, 10 - 30 V DC 1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA 4, parameterizable, 10 - 30 V DC 1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA 4, parameterizable, 0 - 10 V DC, 0/4 - 20 mA 4, parameterizable, 0 - 10 V DC, 0/4 - 20 mA 4, parameterizable, 10 - 30 V DC 1, parameterizable, 0 - 10 V DC, 0/4 - 20 mA 4, parameterizable, 10 - 30 V DC 10 PBus (RS485)/Modbus RTU, CANopen® FAZ-B16/IN FAZ-B16/IN FAZ-B16/IN DILEM + PIDILEM DILEM + PIDILEM DILM7 + DILM12-XP1				adjustable to 100 %
In parameterizable, 0 - 10 V DC, 0/4 - 20 mA 4, parameterizable, 10 - 30 V DC 1, parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1) 1, parameteri				
A, parameterizable, 10 - 30 V DC Iclay outputs In parameterizable, 10 - 30 V DC In parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1) OP-Bus (RS485)/Modbus RTU, CANopen® Safety device (fuse or miniature circuit-breaker) IEC (Type B, gG), 150 % UL (Class CC or J) Mains contactor 150 % overload (CT/I _H , at 50 °C) Main choke A, parameterizable, 10 - 30 V DC I, parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1) OP-Bus (RS485)/Modbus RTU, CANopen® FAZ-B16/1N FAZ-B16/1N DILEM + P1DILEM DILEM + P1DILEM DILM7 + DILM12-XP1	eference voltage	U_s	V	10 V DC (max. 0.2 mA)
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OP-Bus (RS485)/Modbus RTU, CANopen® Safety device (fuse or miniature circuit-breaker) IEC (Type B, gG), 150 % UL (Class CC or J) Mains contactor 150 % overload (CT/I _H , at 50 °C) Main choke OP-Bus (RS485)/Modbus RTU, CANopen® OP-Bus (RS485)/Modbus RTU, CANopen® FAZ-B16/IN FAZ-B16/IN DILEM+PIDILEM DILEM+PIDILEM DILM7+DILM12-XP1	gital inputs			
Safety device (fuse or miniature circuit-breaker) IEC (Type B, gG), 150 % UL (Class CC or J) Mains contactor 150 % overload (CT/I _H , at 50 °C) Main choke	elay outputs			1, parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1)
Safety device (fuse or miniature circuit-breaker) IEC (Type B, gG), 150 % UL (Class CC or J) Mains contactor 150 % overload (CT/I _H , at 50 °C) Main choke Main choke				OP-Bus (RS485)/Modbus RTU, CANopen®
Safety device (fuse or miniature circuit-breaker) IEC (Type B, gG), 150 % FAZ-B16/1N UL (Class CC or J) A 15 Mains contactor 150 % overload (CT/I _H , at 50 °C) DILEM + P1DILEM 110 % overload (VT/I _L , at 40 °C) Main choke				
IEC (Type B, gG), 150 % FAZ-B16/1N UL (Class CC or J) A 15 Mains contactor DILEM + P1DILEM 110 % overload (VT/I _L , at 40 °C) DILM7 + DILM12-XP1 Main choke TOTAL				
UL (Class CC or J) A 15 Mains contactor DILEM + P1DILEM 150 % overload (CT/I _H , at 50 °C) DILM7 + DILM12-XP1 Main choke DILM7 + DILM12-XP1				
Mains contactor 150 % overload (CT/I _H , at 50 °C) DILEM + P1DILEM 110 % overload (VT/I _L , at 40 °C) DILM7 + DILM12-XP1 Main choke				"
150 % overload (CT/I _H , at 50 °C) 110 % overload (VT/I _L , at 40 °C) Main choke DILM7 + DILM12-XP1			Α	15
110 % overload (VT/I _L , at 40 °C) Main choke DILM7 + DILM12-XP1				
Main choke	150 % overload (CT/I _H , at 50 °C)			DILEM + P1DILEM
	110 % overload (VT/I $_{\rm L}$, at 40 °C)			DILM7 + DILM12-XP1
150 % overload (CT/I _H , at 50 °C) DX-LN1-013	Main choke			
	150 % overload (CT/I _H , at 50 °C)			DX-LN1-013

Design verification as per IEC/EN 61439

150 % overload (CT/I_H, at 50 °C)

motor choke

Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	4.3
Heat dissipation per pole, current-dependent	P _{vid}	W	0
Equipment heat dissipation, current-dependent	P _{vid}	W	32
Static heat dissipation, non-current-dependent	P_{vs}	W	0
Heat dissipation capacity	P _{diss}	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			
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.

DX-LM3-005

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 observed.
10.12 Electromagnetic compatibility	Is the panel builder's responsibility. The specifications for the switchgear must 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 ETTIVI 0.0		
$Low-voltage\ industrial\ components\ (EG000017)\ /\ Frequency\ converter = < 1\ kV\ (EC001857)$		
Electric engineering, automation, process control engineering / Electrical drive / Static fre	equency converter	r / Static frequency converter = < 1 kv (ecl@ss8.1-27-02-31-01 [AKE177011])
Mains voltage	V	200 - 240
Mains frequency		50/60 Hz
Number of phases input		1
Number of phases output		3
Max. output frequency	Hz	300
Max. output voltage	V	250
Rated output current I2N	Α	4.3
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 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 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-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		No
With PC connection		No
Integrated breaking resistance		No
4-quadrant operation possible		No
Type of converter		U converter
Degree of protection (IP)		IP20
Height	mn	nm 230
Width	mn	nm 45
Depth	mn	nm 168
Relative symmetric net frequency tolerance	%	6 5
Relative symmetric net current tolerance	%	6 10

Approvals

Product Standards	UL 508C; CSA-C22.2 No. 14; IEC/EN61800-3; IEC/EN61800-5; CE marking
UL File No.	E172143
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
Specially designed for North America	No
Suitable for	Branch circuits
Max. Voltage Rating	1~ 240 V AC IEC: TN-S UL/CSA: "Y" (Solidly Grounded Wey)
Degree of Protection	IEC: IP20

Dimensions

