Variable speed starter, Rated operational voltage 230 V AC, 1-phase, le 7 A, 1.5 kW, 2 HP, Radio interference suppression filter



DE1-127D0FN-N20N Part no.

174331

FI Number

4110095

	(Norway)	
al specifications		

General specifications	
Product name	Eaton DE1 Variable speed starter
Part no.	DE1-127D0FN-N20N
EAN	4015081707935
Product Length/Depth	169 millimetre
Product height	230 millimetre
Product width	45 millimetre
Product weight	1.06 kilogram
Compliances	CE Marked
Certifications	Certified by UL for use in Canada IEC/EN 61800-3 CSA-C22.2 No. 14 Specification for general requirements: IEC/EN 61800-2 UL Category Control No.: NMMS, NMMS7 RCM UL File No.: E172143 Safety requirements: IEC/EN 61800-5-1 UL 508C CUL UL IEC/EN61800-5 IEC/EN61800-3 RoHS, ISO 9001 UL report applies to both US and Canada
Product Tradename	DE1
Product Type	Variable speed starter
Product Sub Type	None
Catalog Notes	Overload cycle for 60 s every 600 s
Features & Functions	
Features	Parameterization: drivesConnect Parameterization: drivesConnect mobile (App) Parameterization: Fieldbus Parameterization: Keypad
Fitted with:	Radio interference suppression filter PC connection
General information	
Cable length	C3 ≤ 25 m, Radio interference level, maximum motor cable length C2 ≤ 10 m, Radio interference level, maximum motor cable length C1 ≤ 5 m, Radio interference level, maximum motor cable length
Communication interface	OP-Bus (RS485), built in Modbus RTU, built in
Connection to SmartWire-DT	In conjunction with DX-NET-SWD3 SmartWire DT module Yes
Degree of protection	IP20 NEMA Other
Electromagnetic compatibility	1st and 2nd environments (according to EN 61800-3)
Frame size	FS1
Product category	Variable speed starter
Protection	Finger and back-of-hand proof, Protection against direct contact (BGV A3, VBG4)
Protocol	MODBUS EtherNet/IP Other bus systems
Radio interference class	C2, C3: depending on the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary. C1: for conducted emissions only Optional external radio interference suppression filter for longer motor cable lengths and for use in different EMC environments
Shock resistance	15 g, Mechanical, According to IEC/EN 60068-2-27, 11 ms

Suitable for	Branch circuits, (UL/CSA)
Vibration	Resistance: According to EN 61800-5-1
Climatic environmental conditions	
Altitude	Max. 2000 m Above 1000 m with 1 % derating per 100 m
Ambient operating temperature - min	-10 °C
Ambient operating temperature - max	00 °C
Ambient operating temperature at 150% overload - min	-10 °C
Ambient operating temperature at 150% overload - max	0° 00
Ambient storage temperature - min	-40 °C
Ambient storage temperature - max	70 °C
Climatic proofing	< 95 average relative humidity (RH), no condensation, no corrosion
Main circuit	
Heat dissipation at current/speed	37 W at 25% current and 0% speed 37 W at 25% current and 50% speed 44.6 W at 50% current and 0% speed 44.9 W at 50% current and 50% speed 51.6 W at 50% current and 90% speed 62.4 W at 100% current and 0% speed 68.9 W at 100% current and 50% speed 78.4 W at 100% current and 90% speed
Input current ILN at 150% overload	17.4 A
Leakage current at ground IPE - max	< 3.5 mA (AC-operated) < 10 mA (DC-operated)
Mains switch-on frequency	Maximum of one time every 30 seconds
Mains voltage - min	200 V
Mains voltage - max	240 V
Operating mode	Speed control with slip compensation U/f control
Output frequency - min	0 Hz
Output frequency - max	300 Hz
Output voltage (U2)	230 V AC, 3-phase 240 V AC, 3-phase
Overload current IL at 150% overload	10.5 A
Rated control supply voltage	10 V DC (Us, max. 0.2 mA)
Rated frequency - min	45 Hz
Rated frequency - max	66 Hz
Rated operational current (le)	7 A at 150% overload (at an operating frequency of 16 kHz and an ambient air temperature of +50 $^{\circ}\text{C})$
Rated operational power at 220/230 V, 50 Hz, 1-phase	1.5 kW
Rated operational voltage	230 V AC, 1-phase 240 V AC, 1-phase
Resolution	0.025 Hz (Frequency resolution, setpoint value)
Short-circuit protection rating	20 A, UL (Class CC or J), Safety device (fuse or miniature circuit-breaker), Powe Wiring
Starting current - max Supply frequency	200 %, IH, max. starting current (High Overload), For 1.875 seconds every 600 seconds, Power section 50/60 Hz
Switching frequency	16 kHz, 4 - 32 kHz adjustable (audible), fPWM, Power section, Main circuit
	240 V
Voltage rating - max	240 V
Motor rating	
Assigned motor current IM at 220 - 240 V, 60 Hz, 150% overload	6.8 A
Assigned motor current IM at 230 V, 50 Hz, 150% overload	6.3 A
Assigned motor current IM at 400 V, 50 Hz, 150% overload	6.3 A
Assigned motor current IM at 440 - 480 V, 60 Hz, 150% overload	6.8 A
Assigned motor power at 230/240 V, 60 Hz, 1-phase	2 HP
Assigned motor power at 460/480 V, 60 Hz, 3-phase	2 HP
Apparent power	
Apparent power at 230 V	2.79 kV·A
Apparent power at 240 V	2.91 kV·A
Braking function	

Braking torque	Adjustable to 100 %, DC - Main circuit Max. 30 % MN, Standard - Main circuit
Control circuit	
Number of inputs (analog)	1 (parameterizable, 0 - 10 V DC, 0/4 - 20 mA)
Number of inputs (digital)	4 (parameterizable, 10 - 30 V DC)
Number of outputs (analog)	0
Number of outputs (digital)	0
Number of relay outputs	1 (parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1))
Design verification	
Equipment heat dissipation, current-dependent Pvid	59 W
Heat dissipation capacity Pdiss	0 W
Heat dissipation per pole, current-dependent Pvid	0 W
Rated operational current for specified heat dissipation (In)	7 A
Static heat dissipation, non-current-dependent Pvs	0 W
10.2.2 Corrosion resistance	Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures	Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat	Meets the product standard's requirements.
10.2.3.3 Resist. of insul. mat. to abnormal heat/fire by internal elect. effects	Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation	Meets the product standard's requirements.
10.2.5 Lifting	Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact	Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions	Meets the product standard's requirements.
10.3 Degree of protection of assemblies	Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances	Meets the product standard's requirements.
10.5 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.
10.9.2 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 9.0

Low-voltage industrial components (EG000017) / Frequency converter =< 1 kV (EC001857)

Electric engineering, automation, process control engineering / Electrical drive / Sta	atic frequency converter	/ Static frequency / Servo converter = < 1 kV (ecl@ss13-27-02-31-01 [AKE177019])
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
Nominal output current I2N	Α	7
Max. output at quadratic load at rated output voltage	kW	1.5
Max. output at linear load at rated output voltage	kW	1.5
Power consumption	W	59
Relative symmetric net frequency tolerance	%	10
Relative symmetric net voltage tolerance	%	10
Number of analogue outputs		0
Number of analogue inputs		1

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Supporting protocol for SafetyBUS p No Supporting protocol for BACnet 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-422 0 Number of HW-interfaces RS-485 1 Number of HW-interfaces RS-486 0 Number of HW-interfaces serial TTY 0 Number of HW-interfaces aprallel 0 Number of HW-interfaces other 0 With optical interface No With pCc connection Yes Integrated breaking resistance No 4-quadrant operation possible No Type of converter U converter Degree of protection (IP) IP20 Degree of protection (NEMA) mm 230 Witth mm 230	Supporting protocol for INTERBUS-Safety		No
Supporting protocol for BACnet No Supporting protocol for other bus systems Yes Number of HW-interfaces industrial Ethernet 0 Number of interfaces PROFINET 0 Number of HW-interfaces RS-232 0 Number of HW-interfaces RS-422 0 Number of HW-interfaces RS-485 1 Number of HW-interfaces serial TTY 0 Number of HW-interfaces USB 0 Number of HW-interfaces other 0 With optical interface No With optical interface No With PC connection Yes Integrated breaking resistance No 4-quadrant operation possible No Type of converter U converter Degree of protection (IP) IP20 Degree of protection (NEMA) other Height mm 230 With mm 45	Supporting protocol for PROFIsafe		No
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Degree of protection (IP) Degree of protection (NEMA) Height Mm 230 Width Mm 45	4-quadrant operation possible		No
Degree of protection (NEMA) Height mm 230 Width mm 45	Type of converter		U converter
Height mm 230 Width mm 45	Degree of protection (IP)		IP20
Width mm 45	Degree of protection (NEMA)		Other
	Height	mm	n 230
Depth mm 169	Width	mm	n 45
	Depth	mm	n 169