DATASHEET - DE1-127D0FN-N20N

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

FATON
Powering Business Worldwide™

Part no.	DE1-127D0FN-N20N
	174331
EL Number (Norway)	4110095

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
		CE
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		60 °C
Ambient operating temperature at 150% overload - min		-10 °C
Ambient operating temperature at 150% overload - max		60 °C
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 (Ie)		7 A at 150% overload (at an operating frequency of 16 kHz and an ambient air temperature of +50 °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), Power Wiring
Starting current - max		200 %, IH, max. starting current (High Overload), For 1.875 seconds every 600 seconds, Power section
Supply frequency		50/60 Hz
Switching frequency		16 kHz, 4 - 32 kHz adjustable (audible), fPWM, Power section, Main circuit
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 / Static 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	A	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

Number of digital outputs		0
Number of digital inputs		4
With control element		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 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 parallel		0
Number of HW-interfaces other		0
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
Width	mm	45
Depth	mm	169