

Variable frequency drives; single-phase 115 V; 4.3 A; 0.75 kW

Powering Business Worldwide*

Part no. DC1-1D4D3NN-A6SCE1
Article no. 185770
Catalog No. DC1-1D4D3NN-A6SNE1

Technical data

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, c-Tick, Ukr Sepro, EAC
Production quality			RoHS, ISO 9001
Climatic proofing	ρ_{W}	%	< 95%, average relative humidity (RH), non-condensing, non-corrosive
Ambient temperature			
operation (150 % overload)	8	°C	-10 - +40
Storage	8	°C	-40 - +60
Mounting position			Vertical
Altitude		m	0 - 1000 m above sea level Above 1000 m: 1% derating for every 100 m max. 4000 m
Degree of Protection			IP66/NEMA 4X
Protection against direct contact			BGV A3 (VBG4, finger- and back-of-hand proof)
Main circuit			
Supply			
Rated operational voltage	U _e		115 V AC, single-phase
Mains voltage (50/60Hz)	U_{LN}	V	110 (-10%) - 115 (+10%)
Input current (150% overload)	I _{LN}	Α	15.8
System configuration			AC supply systems with earthed center point
Supply frequency	f_{LN}	Hz	50/60
Frequency range	f _{LN}	Hz	48 - 62
Mains switch-on frequency			Maximum of one time every 30 seconds
Power section			
Function			Frequency inverter with internal DC link and IGBT inverter
Overload current (150% overload)	IL	Α	6.45
max. starting current (High Overload)	I _H	%	175
Note about max. starting current			for 3.75 seconds every 600 seconds
Output voltage with $V_{\rm e}$	U ₂		230 V AC, 3-phase
Output Frequency	f ₂	Hz	0 - 50/60 (max. 500)
Switching frequency	f _{PWM}	kHz	16 adjustable 4 - 32 (audible)
Operation Mode			U/f control Speed control with slip compensation sensorless vector control (SLV)
Frequency resolution (setpoint value)	Δf	Hz	0.1
Rated operational current			
At 150% overload	I _e	Α	4.3
Note			Rated operational current at a switching frequency of 16 kHz and an ambient air temperature of +40 $^{\circ}\text{C}$
Power loss			
Heat dissipation at rated operational current l_{e} =150 $\%$	P_{V}	W	37.5
Efficiency	η	%	95
Maximum leakage current to ground (PE) without motor	I _{PE}	mA	4.8
Fan			0
Fitted with			7-digital display assembly Local controls
Frame size			FS1

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	P	kW	0.75
Note			at 220 - 240 V, 60 Hz
150 % Overload	P	HP	1
maximum permissible cable length	ı	m	screened: 50 screened, with motor choke: 100 unscreened: 75 unscreened, with motor choke: 150
Braking function			
Standard braking torque			max. 30 % MN
DC braking torque			adjustable to 100 %
Control section			
Reference voltage	U _s	V	10 V DC (max. 10 mA)
Analog inputs			2, parameterizable, 0 - 10 V DC, 0/4 - 20 mA
Analog outputs			1, parameterizable, 0 - 10 V
Digital inputs			4, parameterizable, max. 30 V DC
Digital outputs			1, parameterizable, 24 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)			OP bus (RS485)/Modbus RTU, CANopen®
Assigned switching and protective elements			
Power Wiring			
IEC (Type B, gG), 150 %			FAZ-B25/1N
UL (Class CC or J)		Α	25
150 % overload (CT/I _H , at 50 °C)			DX-LN1-018
Motor feeder			
150 % overload (CT/I _H , at 50 °C)			DX-LM3-005
150 % overload (CT/I _H , at 50 °C)			DX-SIN3-010

Design verification as per IEC/EN 61439

resign vernication as per 120/214 01433			
Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	5.8
Heat dissipation per pole, current-dependent	P_{vid}	W	0
Equipment heat dissipation, current-dependent	P_{vid}	W	44
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	40
C/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.
10.2.3.2 Verification of resistance of insulating materials to normal heat			Meets the product standard's requirements.
$10.2.3.3\mbox{Verification}$ 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

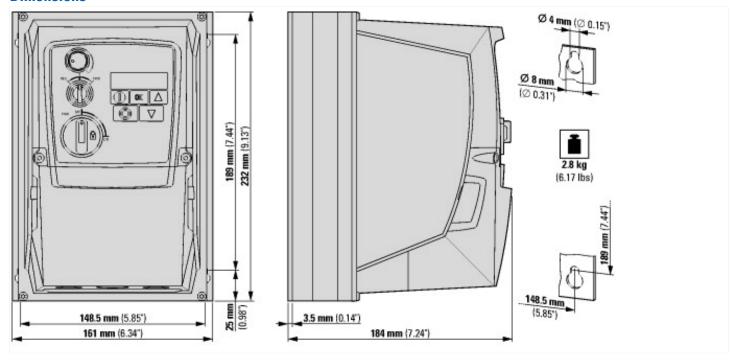
Maints fraquency 5080 Hz Number of phases output 1 Max. output fraquency Hz 500 Max. output fraquency Y 230 Max. output and quadratic load at rated output voltage W 0.75 Max. output at linear load at rated output voltage W 0.75 Max. output at linear load at rated output voltage W 0.75 With control lunit Yes 48 Application in indemestria area permitted Yes Supporting protecol for TCPAP No Supporting protecol for MDEBUS No Supporting protecol for PDEBUS No Supporting protecol for FDEBUS No Supporting protecol for FDEBUS <t< th=""><th>Low-voltage industrial components (EG000017) / Frequency converter =< 1 kV (EC001857)</th><th></th><th></th></t<>	Low-voltage industrial components (EG000017) / Frequency converter =< 1 kV (EC001857)		
Mainter frequency Number of phases injust Number of phases injust Number of phases injust Number of phases injust Number of phases output Max. output requency Hz 500 Max. output value Rated output current IZN A	Electric engineering, automation, process control engineering / Electrical drive / Static frequency	uency convert	er / Static frequency converter = < 1 kv (ecl@ss8.1-27-02-31-01 [AKE177011])
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Max. output voiltage V 30 Ristdio dutpt current IZN A 4 Max. output at quadratic load at rated output voiltage kW 0.75 Mix. output at finant load at rated output voiltage kW 0.75 With control unit Yes 4 Application in industrial area permitted Yes Yes Supporting protocol for FCP/IP No No Supporting protocol for FDRIBUS No Yes Supporting protocol for FDRIBUS No No Supporting protocol for DeviceNet No No Supporting protocol for DeviceNet No No Supporting protocol for PROFINET IO <t< td=""><td>Number of phases output</td><td></td><td>3</td></t<>	Number of phases output		3
Rated output curant IZN	Max. output frequency	Hz	500
Max. output at iquan'ratic load at rated output voltage Max. output at iquan'ratic load at rated output voltage With control unit Application in industrial area permitted **Yes Application in industrial area permitted **Yes Application in industrial area permitted **Yes Application in industrial area permitted **Supporting protocol for TCP/IP **Supporting protocol for TREBUS **Supporting protocol for NTERBUS **Supporting protocol for NDEBUS **Supporting protocol for Data-Highway **Supporting protocol for Dust-Highway **Supporting protocol for Dust-Highway **Supporting protocol for Dust-Highway **Supporting protocol for Dust-Highway **Supporting protocol for PROFINET CBA **Supporting protocol for PROFINET CBA **Supporting protocol for PROFINET CBA **Supporting protocol for SERCOS **Supporting protocol for FROFINET CBA **Supporting protocol for EvenAvetty **Supporting protocol for FROFINET CBA **Supporting protocol for EvenAvetty **Supporting protocol for DeviceNet Safety **No **Supporting protocol for FROFINET CBA **Supporting protocol for FROFINET CBA **Supporting protocol for DeviceNet Safety **No **Supporting protocol for FROFINET CBA **Supporting protocol for FROFINET CBA **Supporting protocol for FROFINET CBA **No **Supporting protocol for FROFINET CBA **No **Supporting protocol for FROFINET CBA **No **No **Supporting protocol for Supporting p	Max. output voltage	V	230
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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	Supporting protocol for other bus systems		No
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 industrial Ethernet		0
Number of HW-interfaces RS-422 0 Number of HW-interfaces RS-485 1	Number of HW-interfaces PROFINET		0
Number of HW-interfaces RS-485	Number of HW-interfaces RS-232		0
	Number of HW-interfaces RS-422		0
Number of HW-interfaces serial TTY 0	Number of HW-interfaces RS-485		1
	Number of HW-interfaces serial TTY		0

	1
	0
	0
	No
	Yes
	No
	No
	U converter
	IP66
mm	232
mm	161
mm	184
%	10
%	10
	mm mm %

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~ 120 V AC IEC: TN-S UL/CSA: "Y" (Solidly Grounded Wey)
Degree of Protection	IEC: IP66

Dimensions



Additional product information (links)

Madicional product informat	reductional product information (mixe)		
IL04020013Z DC1 variable frequency drive (FS1	- FS3, IP66)		
IL04020013Z DC1 variable frequency drive (FS1 - FS3, IP66)	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL04020013Z2016_07.pdf		
MN040023 DC1E1 Installation manual			
MN040023 DC1E1 Installation manual - Deutsch	ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN040023_DE.pdf		
MN040023 DC1E1 Installation manual - English	ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN040023_EN.pdf		
MN040022 DC1E1, Parameters manual			

MN040022 DC1E1, Parameters manual - Deutsch	ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN040022_DE.pdf
MN040022 DC1E1, Parameters manual - English	ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN040022_EN.pdf
CA04020001Z-DE Sortimentskatalog: Antriebstechnik effizient gestalten, Motoren starten und steuern	http://www.eaton.eu/DE/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_1095238_de.pdf