



Variable frequency drive, 230 V AC, 1-phase, 4.3 A, 0.75 kW, IP20/NEMA 0, Radio interference suppression filter, FS1



Part no. DC1-124D3FN-A20CE1

185806

EL Number
(Norway)

4137007

General specifications	
Product name	Eaton DC1 Variable frequency drive
Part no.	DC1-124D3FN-A20CE1
EAN	4015081813056
Product Length/Depth	124 millimetre
Product height	184 millimetre
Product width	81 millimetre
Product weight	1.2 kilogram
Certifications	UkrSEPRO Safety requirements: IEC/EN 61800-5-1 Specification for general requirements: IEC/EN 61800-2 CE IEC/EN 61800-3 RCM UL report applies to both US and Canada CSA-C22.2 No. 14 UL 508C EAC UL CUL Certified by UL for use in Canada RoHS, ISO 9001 UL Category Control No.: NMMS, NMMS7 IEC/EN61800-5 UL File No.: E172143 IEC/EN61800-3
Product Tradename	DC1
Product Type	Variable frequency drive
Product Sub Type	None
Catalog Notes	Environmental class: 3C2, 3S2 Overload cycle for 60 s every 600 s
Features & Functions	
Features	Parameterization: drivesConnect Parameterization: drivesConnect mobile (App) Parameterization: Fieldbus Parameterization: Keypad
Fitted with:	Control unit Internal DC link IGBT inverter Radio interference suppression filter 7-digital display assembly PC connection Additional PCB protection
General information	
Cable length	50 m, screened, maximum permissible, Motor feeder 150 m, unscreened, with motor choke, maximum permissible, Motor feeder 100 m, screened, with motor choke, maximum permissible, Motor feeder C3 ≤ 25 m, Radio interference level, maximum motor cable length C1 ≤ 1 m, Radio interference level, maximum motor cable length C2 ≤ 5 m, Radio interference level, maximum motor cable length 75 m, unscreened, maximum permissible, Motor feeder
Communication interface	CANopen®, built in Modbus RTU, built in SmartWire-DT, optional OP-Bus (RS485), 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
Mounting position	Vertical

Product category		Variable frequency drives
Protection		Finger and back-of-hand proof, Protection against direct contact (BGV A3, VBG4)
Protocol		MODBUS Other bus systems CAN EtherNet/IP
Radio interference class		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. Optional external radio interference suppression filter for longer motor cable lengths and for use in different EMC environments
Suitable for		Branch circuits, (UL/CSA)
Climatic environmental conditions		
Altitude		Above 1000 m with 1 % derating per 100 m Max. 4000 m
Ambient operating temperature - min		-10 °C
Ambient operating temperature - max		50 °C
Ambient operating temperature at 150% overload - min		-10 °C
Ambient operating temperature at 150% overload - max		50 °C
Ambient storage temperature - min		-40 °C
Ambient storage temperature - max		60 °C
Climatic proofing		< 95 average relative humidity (RH), no condensation, no corrosion
Main circuit		
Efficiency		93.9 % (η)
Heat dissipation at current/speed		25 W at 25% current and 0% speed 26 W at 25% current and 50% speed 26 W at 50% current and 0% speed 29 W at 50% current and 50% speed 32 W at 50% current and 90% speed 33 W at 100% current and 0% speed 38 W at 100% current and 50% speed 43 W at 100% current and 90% speed
Input current ILN at 150% overload		7.5 A
Leakage current at ground IPE - max		4.8 mA
Mains switch-on frequency		Maximum of one time every 30 seconds
Mains voltage - min		200 V
Mains voltage - max		240 V
Operating mode		Sensorless vector control (SLV) U/f control Speed control with slip compensation BLDC motors PM motors Synchronous reluctance motors
Output frequency - min		0 Hz
Output frequency - max		500 Hz
Output voltage (U2)		240 V AC, 3-phase 230 V AC, 3-phase
Overload current IL at 150% overload		6.45 A
Rated control supply voltage		10 V DC (Us, max. 10 mA)
Rated frequency - min		48 Hz
Rated frequency - max		62 Hz
Rated operational current (Ie)		4.3 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		0.75 kW
Rated operational voltage		230 V AC, 1-phase 240 V AC, 1-phase
Resolution		0.1 Hz (Frequency resolution, setpoint value)
Short-circuit protection rating		10 A, UL (Class CC or J), Safety device (fuse or miniature circuit-breaker), Power Wiring
Starting current - max		175 %, IH, max. starting current (High Overload), For 2.5 seconds every 600 seconds, Power section
Supply frequency		50/60 Hz
Switching frequency		8 kHz, 4 - 32 kHz adjustable (audible), fPWM, Power section, Main circuit
System configuration type		AC supply systems with earthed center point
Voltage rating - max		240 V

Motor rating		
Assigned motor current IM at 110/120 V, 60 Hz, 150% overload		4.2 A
Assigned motor current IM at 115 V, 50 Hz, 150% overload		3.2 A
Assigned motor current IM at 220 - 240 V, 60 Hz, 150% overload		4.2 A
Assigned motor current IM at 230 V, 50 Hz, 150% overload		3.2 A
Assigned motor current IM at 400 V, 50 Hz, 150% overload		3.2 A
Assigned motor current IM at 440 - 480 V, 60 Hz, 150% overload		4.2 A
Assigned motor power at 115/120 V, 60 Hz, 1-phase		1 HP
Assigned motor power at 230/240 V, 60 Hz, 1-phase		1 HP
Assigned motor power at 460/480 V, 60 Hz		1 HP
Assigned motor power at 460/480 V, 60 Hz, 3-phase		1 HP
Apparent power		
Apparent power at 230 V		1.71 kV-A
Apparent power at 240 V		1.79 kV-A
Braking function		
Braking torque		Max. 100 % of rated operational current I _e , variable, DC - Main circuit Max. 30 % MN, Standard - Main circuit
Control circuit		
Number of inputs (analog)		2 (parameterizable, 0 - 10 V DC, 0/4 - 20 mA)
Number of inputs (digital)		4 (parameterizable, 10 - 30 V DC)
Number of outputs (analog)		1
Number of outputs (digital)		1
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 P _{vid}		45.75 W
Heat dissipation capacity P _{diss}		0 W
Heat dissipation per pole, current-dependent P _{vid}		0 W
Rated operational current for specified heat dissipation (I _n)		4.3 A
Static heat dissipation, non-current-dependent P _{vs}		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.

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 (ecI@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	500
Max. output voltage	V	250
Nominal output current I _{2N}	A	4.3
Max. output at quadratic load at rated output voltage	kW	0.75
Max. output at linear load at rated output voltage	kW	0.75
Power consumption	W	45.75
Relative symmetric net frequency tolerance	%	10
Relative symmetric net voltage tolerance	%	10
Number of analogue outputs		1
Number of analogue inputs		2
Number of digital outputs		1
Number of digital inputs		4
With control element		Yes
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		Yes
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	184
Width		mm	81
Depth		mm	124