DATASHEET - DC1-327D0FB-A6SOE1

Variable frequency drive, 230 V AC, 3-phase, 7 A, 1.5 kW, IP66/NEMA 4X, Radio interference suppression filter, Brake chopper, 7-digital display assembly, Local controls, Additional PCB protection, UV resistant, FS2

Powering Business Worldwide™

Part no. **DC1-327D0FB-A6SOE1**
199418

Product name	Eaton DC1 Variable frequency drive
Part no.	DC1-327D0FB-A6SOE1
EAN	4015081978076
Product Length/Depth	182 millimetre
Product height	257 millimetre
Product width	188 millimetre
Product weight	3.5 kilogram
Certifications	UL report applies to both US and Canada IEC/EN 61800-3 RoHS, ISO 9001 CUL IEC/EN 61800-5-1 CE marking IEC/EN61800-5 UkrSEPRO UL Category Control No.: NMMS, NMMS7 UL IEC/EN 61800-2 RCM EAC CSA-C22.2 No. 14 Certified by UL for use in Canada UL 508C UL File No.: E172143 UL Listed CE
Product Tradename	DC1
Product Type	Variable frequency drive
Product Sub Type	None
Catalog Notes	Environmental class: 3C3, 3S3 Overload cycle for 60 s every 600 s For normal internally and externally ventilated four-pole three-phase asynchronous motors with 1500 rpm at 50 Hz and 1800 rpm at 60 Hz
Features	Parameterization: Fieldbus Parameterization: Keypad Parameterization: drivesConnect Parameterization: drivesConnect mobile (App)
Fitted with:	Radio interference suppression filter Additional PCB protection Local controls Breaking resistance IGBT inverter Brake chopper Control unit Internal DC link 7-digital display assembly UV resistance PC connection
Functions	4-quadrant operation possible
Cable length	100 m, screened, maximum permissible cable length C2 ≤ 5 m, maximum motor cable length 300 m, unscreened, with motor choke, maximum permissible, Motor feeder C3 ≤ 25 m, maximum motor cable length 200 m, screened, with motor choke, maximum permissible cable length 150 m, unscreened, maximum permissible cable length
Communication interface	CANopen®, built in SmartWire-DT, optional Modbus RTU, built in OP-Bus (RS485), built in
Connection to SmartWire-DT	No
Degree of protection	NEMA 4X IP66

Electromagnetic compatibility	1st and 2nd environments (according to EN 61800-3)
Frame size	FS2
Mounting position	Vertical
Product category	Variable frequency drives
Protection	Finger and back-of-hand proof, Protection against direct contact (BGV A3, VBG4)
Protocol	CAN Other bus systems EtherNet/IP MODBUS
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. Optional external radio interference suppression filter for longer motor cable lengths and for use in different EMC environments
Suitable for	Branch circuits, (UL/CSA)
Altitude	Max. 4000 m Above 1000 m with 1 % derating per 100 m
Ambient operating temperature - min	-20 °C
Ambient operating temperature - max	40 °C
Ambient storage temperature - min	-40 °C
Ambient storage temperature - max	60 °C
Climatic proofing	< 95 average relative humidity (RH), no condensation, no corrosion
Efficiency	97 % (η)
Heat dissipation at current/speed	30.4 W at 25% current and 0% speed 33.14 W at 50% current and 0% speed 33.41 W at 50% current and 50% speed 33.97 W at 25% current and 50% speed 36.4 W at 50% current and 90% speed 46.07 W at 100% current and 0% speed 55.2 W at 100% current and 50% speed 58.77 W at 100% current and 90% speed
Input current ILN at 150% overload	8.9 A
Leakage current at ground IPE - max	7.2 mA
Mains switch-on frequency	Maximum of one time every 30 seconds
Mains voltage - min	200 V
Mains voltage - max	240 V
Operating mode	PM motors U/f control BLDC motors Speed control with slip compensation Synchronous reluctance motors Sensorless vector control (SLV)
Output frequency - min	0 Hz
Output frequency - max	500 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. 10 mA)
Rated frequency - min	48 Hz
Rated frequency - max	62 Hz
Rated operational current (Ie)	7 A at 150% overload (at an operating frequency of 6 kHz and an ambient air temperature of +40 °C)
Rated operational power at 220/230 V, 50 Hz, 1-phase	1.5 kW
Rated operational voltage	240 V AC, 3-phase 230 V AC, 3-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
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

Assigned motor current IM at 110/120 V, 60 Hz, 150% overload	6.8 A
Assigned motor current IM at 115 V, 50 Hz, 150% overload	6.3 A
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 115/120 V, 60 Hz, 1-phase	2 HP
Assigned motor power at 230/240 V, 60 Hz, 1-phase	2 HP
Assigned motor power at 460/480 V, 60 Hz	2 HP
Assigned motor power at 460/480 V, 60 Hz, 3-phase	2 HP
Apparent power at 230 V	2.79 kV·A
Apparent power at 240 V	2.91 kV·A
Braking resistance	100 Ω
Braking torque	Max. 30 % MN, Standard - Main circuit Max. 100 % of rated operational current Ie with external braking resistor - Main circuit Max. 100 % of rated operational current Ie, variable, DC - Main circuit
Switch-on threshold for the braking transistor	390
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))
Heat dissipation capacity Pdiss	0 W
Heat dissipation per pole, current-dependent Pvid	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 8.0

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

Electric engineering, automation, process control engineering / Electrical drive / Static frequency converter / Static frequency converter = < 1 kV (ecl@ss10.0.1-27-02-31-01 [AKE177014])		
Mains voltage	V	200 - 240
Mains frequency		50/60 Hz
Number of phases input		3
Number of phases output		3
Max. output frequency	Hz	500
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
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		Yes
4-quadrant operation possible		Yes

Type of converter			U converter
Degree of protection (IP)			IP66
Degree of protection (NEMA)			4X
Height		mm	257
Width		mm	188
Depth		mm	182