

Variable frequency drive, 230 V AC, 3-phase, 46 A, 11 kW, IP66/NEMA 4X, Radio interference suppression filter, Brake chopper, 7-digital display assembly, Additional PCB protection, UV resistant, FS4



**Part no. DC1-32046FB-A660E1
199427**

Product name	Eaton DC1 Variable frequency drive
Part no.	DC1-32046FB-A660E1
EAN	4015081978168
Product Length/Depth	275 millimetre
Product height	360 millimetre
Product width	240 millimetre
Product weight	9.5 kilogram
Certifications	CUL UL Listed IEC/EN61800-5 CSA-C22.2 No. 14 CE marking UkrSEPRO IEC/EN 61800-5-1 UL report applies to both US and Canada IEC/EN 61800-2 CE EAC UL IEC/EN 61800-3 UL 508C UL Category Control No.: NMMS, NMMS7 RCM UL File No.: E172143 RoHS, ISO 9001 Certified by UL for use in Canada
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: drivesConnect Parameterization: Keypad Parameterization: drivesConnect mobile (App) Parameterization: Fieldbus
Fitted with:	IGBT inverter Breaking resistance Internal DC link PC connection 7-digital display assembly Brake chopper Additional PCB protection UV resistance Control unit Radio interference suppression filter
Functions	4-quadrant operation possible
Cable length	100 m, screened, maximum permissible cable length C3 ≤ 25 m, maximum motor cable length 200 m, screened, with motor choke, maximum permissible cable length 150 m, unscreened, maximum permissible cable length 300 m, unscreened, with motor choke, maximum permissible, Motor feeder C2 ≤ 5 m, maximum motor cable length
Communication interface	Modbus RTU, built in SmartWire-DT, optional OP-Bus (RS485), built in CANopen®, built in
Connection to SmartWire-DT	No
Degree of protection	IP66 NEMA 4X
Electromagnetic compatibility	1st and 2nd environments (according to EN 61800-3)

Frame size		FS4
Mounting position		Vertical
Product category		Variable frequency drives
Protection		Finger and back-of-hand proof, Protection against direct contact (BGV A3, VBG4)
Protocol		MODBUS CAN EtherNet/IP Other bus systems
Radio interference class		Optional external radio interference suppression filter for longer motor cable lengths and for use in different EMC environments C2, C3: depending on the motor cable length, the connected load, and ambient conditions. External radio interference suppression filters (optional) may be necessary.
Suitable for		Branch circuits, (UL/CSA)
Altitude		Above 1000 m with 1 % derating per 100 m Max. 4000 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		135 W at 25% current and 0% speed 157 W at 25% current and 50% speed 173 W at 50% current and 0% speed 204 W at 50% current and 50% speed 206 W at 50% current and 90% speed 351 W at 100% current and 0% speed 366 W at 100% current and 50% speed 381 W at 100% current and 90% speed
Input current ILN at 150% overload		50.1 A
Leakage current at ground IPE - max		6.9 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) Synchronous reluctance motors PM motors U/f control Speed control with slip compensation BLDC motors
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		69 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)		46 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		11 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		70 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 - 24 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		46 A
Assigned motor current IM at 115 V, 50 Hz, 150% overload		46 A
Assigned motor current IM at 220 - 240 V, 60 Hz, 150% overload		46 A
Assigned motor current IM at 230 V, 50 Hz, 150% overload		46 A
Assigned motor current IM at 400 V, 50 Hz, 150% overload		46 A
Assigned motor current IM at 440 - 480 V, 60 Hz, 150% overload		46 A
Assigned motor power at 115/120 V, 60 Hz, 1-phase		15 HP
Assigned motor power at 230/240 V, 60 Hz, 1-phase		15 HP
Assigned motor power at 460/480 V, 60 Hz		15 HP
Assigned motor power at 460/480 V, 60 Hz, 3-phase		15 HP
Apparent power at 230 V		10.58 kV-A
Apparent power at 240 V		11.04 kV-A
Braking resistance		10 Ω
Braking torque		Max. 100 % of rated operational current I _e , 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 P _{diss}		0 W
Heat dissipation per pole, current-dependent P _{vid}		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 (ec@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	46
Max. output at quadratic load at rated output voltage	kW	11
Max. output at linear load at rated output voltage	kW	11
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	360
Width	mm	240
Depth	mm	275