

**Variable frequency drive, 230 V AC, 3-phase, 24 A, 5.5 kW, IP66/NEMA 4X,
Radio interference suppression filter, Brake chopper, 7-digital display
assembly, Additional PCB protection, UV resistant, FS3**



**Part no. DC1-32024FB-A660E1
199423**

Product name			Eaton DC1 Variable frequency drive
Part no.			DC1-32024FB-A660E1
EAN			4015081978120
Product Length/Depth			238 millimetre
Product height			310 millimetre
Product width			210.5 millimetre
Product weight			7 kilogram
Certifications			CSA-C22.2 No. 14 UL report applies to both US and Canada IEC/EN 61800-5-1 RoHS, ISO 9001 UL File No.: E172143 IEC/EN 61800-3 UkrSEPRO CUL EAC UL Listed IEC/EN 61800-2 IEC/EN61800-5 RCM UL 508C Certified by UL for use in Canada CE marking UL UL Category Control No.: NMMS, NMMS7 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: drivesConnect mobile (App) Parameterization: Fieldbus Parameterization: Keypad Parameterization: drivesConnect
Fitted with:			Control unit Breaking resistance Additional PCB protection 7-digital display assembly Radio interference suppression filter IGBT inverter Brake chopper Internal DC link PC connection UV resistance
Functions			4-quadrant operation possible
Cable length			C3 ≤ 25 m, maximum motor 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 100 m, screened, maximum permissible cable length 200 m, screened, with motor choke, maximum permissible cable length
Communication interface			OP-Bus (RS485), built in SmartWire-DT, optional Modbus RTU, built in CANopen®, 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			FS3
Mounting position			Vertical
Product category			Variable frequency drives
Protection			Finger and back-of-hand proof, Protection against direct contact (BGV A3, VBG4)
Protocol			CAN EtherNet/IP Other bus systems MODBUS
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			103 W at 25% current and 0% speed 117.2 W at 25% current and 50% speed 127 W at 50% current and 0% speed 153 W at 50% current and 50% speed 172.1 W at 50% current and 90% speed 204.8 W at 100% current and 0% speed 245.5 W at 100% current and 50% speed 276.6 W at 100% current and 90% speed
Input current ILN at 150% overload			26.4 A
Leakage current at ground IPE - max			6.8 mA
Mains switch-on frequency			Maximum of one time every 30 seconds
Mains voltage - min			200 V
Mains voltage - max			240 V
Operating mode			Speed control with slip compensation BLDC motors U/f control Synchronous reluctance motors PM motors Sensorless vector control (SLV)
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			36 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)			24 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			5.5 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			32 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 - 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		24 A
Assigned motor current IM at 115 V, 50 Hz, 150% overload		24 A
Assigned motor current IM at 220 - 240 V, 60 Hz, 150% overload		24 A
Assigned motor current IM at 230 V, 50 Hz, 150% overload		24 A
Assigned motor current IM at 400 V, 50 Hz, 150% overload		24 A
Assigned motor current IM at 440 - 480 V, 60 Hz, 150% overload		24 A
Assigned motor power at 115/120 V, 60 Hz, 1-phase		7.5 HP
Assigned motor power at 230/240 V, 60 Hz, 1-phase		7.5 HP
Assigned motor power at 460/480 V, 60 Hz		7.5 HP
Assigned motor power at 460/480 V, 60 Hz, 3-phase		7.5 HP
Apparent power at 230 V		5.52 kV-A
Apparent power at 240 V		5.76 kV-A
Braking resistance		20 Ω
Braking torque		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 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 (ecI@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	24
Max. output at quadratic load at rated output voltage	kW	5.5
Max. output at linear load at rated output voltage	kW	5.5
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	310
Width		mm	210.5
Depth		mm	238