Eaton 185781

Eaton DC1 Variable frequency drive, 400 V AC, 3-phase, 39 A, 18.5 kW, IP20/NEMA 0, Radio interference suppression filter, Brake chopper, FS4 DC1-34039FB-A20CE1

PRODUCT NAME	Eaton DC1 Variable frequency drive
CATALOG NUMBER	185781
PRODUCT LENGTH/DEPTH	211 mm
PRODUCT HEIGHT	418.5 mm
PRODUCT WIDTH	173 mm
PRODUCT WEIGHT	8.4 kg
CERTIFICATIONS	UL Category Control No.: NMMS, NMMS7 IEC/EN 61800-3 Safety requirements: IEC/EN 61800-5-1 EAC UL 508C RCM IEC/EN61800-3 UL Certified by UL for use in Canada CSA-C22.2 No. 14 RoHS, ISO 9001 UkrSEPRO IEC/EN61800-5 CUL CE UL report applies to both US and Canada Specification for general requirements: IEC/EN 61800-2 UL File No.: E172143
CATALOG NOTES	• Environmental class: 3C2, 3S2 • Overload cycle for 60 s every 600 s

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FEATURES	Parameterization: drivesConnect Parameterization: drivesConnect mobile (App) Parameterization: Fieldbus Parameterization: Keypad
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.
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	Does not apply, since the

DECLARATIONS OF CONFORMITY	eaton-variable-frequency-drive-declaration-of-conformity-uk251078en.pdf
INSTALLATION VIDEOS	Video PowerXL DA1
	IL040024ZU
	eaton-powerxl-variable-frequency-drives-dc1-da1-brochure-br040001en-en-us.pdf
	eaton-frequency-inverter-dimensions-011.eps eaton-frequency-inverter-3d-drawing-019.eps
	The OP System Bus - Parameterizing - Control DX-COM-STICK3_Connection How does the internal motor protection work?

IMPACT	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.
FITTED WITH:	IGBT inverter Control unit Brake chopper Internal DC link PC connection Breaking resistance 7-digital display assembly Radio interference suppression filter Additional PCB protection
CLIMATIC PROOFING	< 95 average relative humidity (RH), no condensation, no corrosion
CONNECTION TO SMARTWIRE-DT	In conjunction with DX-NET-SWD3 SmartWire DT module Yes
OPERATING MODE	U/f control Sensorless vector control (SLV) Speed control with slip compensation

	BLDC motors PM motors Synchronous reluctance motors
RATED IMPULSE WITHSTAND VOLTAGE (UIMP)	2000 V
FRAME SIZE	FS4
ALTITUDE	Above 1000 m with 1 % derating per 100 m Max. 4000 m
APPLICATION IN DOMESTIC AND COMMERCIAL AREA PERMITTED	Yes
MAINS SWITCH-ON FREQUENCY	Maximum of one time every 30 seconds
AMBIENT OPERATING TEMPERATURE - MAX	50 °C
AMBIENT OPERATING TEMPERATURE - MIN	-10 °C
MAINS VOLTAGE - MAX	480 V
OUTPUT VOLTAGE - MAX	500 V
RELATIVE SYMMETRIC NET FREQUENCY TOLERANCE	10 %
RELATIVE SYMMETRIC NET VOLTAGE TOLERANCE	10 %
AMBIENT OPERATING TEMPERATURE AT 150% OVERLOAD - MAX	50 °C
AMBIENT OPERATING TEMPERATURE AT 150% OVERLOAD - MIN	-10 °C
AMBIENT STORAGE TEMPERATURE - MAX	60 °C
AMBIENT STORAGE TEMPERATURE - MIN	-40 °C
APPARENT POWER AT 400 V	15.6 kVA
APPARENT POWER AT 480 V	18.72 kVA
APPLICATION IN INDUSTRIAL AREA PERMITTED	Yes
HEAT DISSIPATION DETAILS	Operation (with 150 % overload)

PRODUCT CATEGORY	Variable frequency drives
PROTECTION	Finger and back-of-hand proof, Protection against direct contact (BGV A3, VBG4)
RESOLUTION	0.1 Hz (Frequency resolution, setpoint value)
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	0 W
SWITCH-ON THRESHOLD FOR THE BRAKING TRANSISTOR	780 VDC
VOLTAGE RATING - MAX	240 V
MOUNTING POSITION	Vertical
OVERVOLTAGE CATEGORY	III
COMMUNICATION INTERFACE	CANopen®, built in SmartWire-DT, optional OP-Bus (RS485), built in Modbus RTU, built in
CONVERTER TYPE	U converter
DEGREE OF PROTECTION	IP20 NEMA Other
ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE	25 HP
BRAKING RESISTANCE	22 Ω
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	728 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
INPUT CURRENT ILN AT 150% OVERLOAD	44.1 A
MAINS CURRENT DISTORTION	120 %
PROTOCOL	CAN MODBUS Other bus systems EtherNet/IP
OVERLOAD CURRENT IL AT 150% OVERLOAD	58.5 A
RATED FREQUENCY -	62 Hz

MAX	
RATED FREQUENCY - MIN	48 Hz
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	39 A
RATED OPERATIONAL POWER AT 380/400 V, 50 HZ, 3-PHASE	18.5 kW
ASSIGNED MOTOR CURRENT IM AT 400 V, 50 HZ, 150% OVERLOAD	39 A
ASSIGNED MOTOR CURRENT IM AT 440 - 480 V, 60 HZ, 150% OVERLOAD	39 A
SYSTEM CONFIGURATION TYPE	AC supply systems with earthed center point
BRAKING CURRENT	≤ 0.6 A (max. 6 A for 120 ms), Actuator for external motor brake
ELECTROMAGNETIC COMPATIBILITY	1st and 2nd environments (according to EN 61800-3)
BRAKING TORQUE	Max. 100 % of rated operational current Ie, variable, DC - Main circuit
CABLE LENGTH	300 m, unscreened, with motor choke, maximum permissible, Motor feeder 200 m, screened, with motor choke, maximum permissible, Motor feeder 150 m, unscreened, maximum permissible, Motor feeder C3 ≤ 25 m, Radio interference level, maximum motor cable length 100 m, screened, maximum permissible, Motor feeder C2 ≤ 5 m, Radio interference level, maximum motor cable length
FUNCTIONS	4-quadrant operation possible
OUTPUT VOLTAGE (U2)	480 V AC, 3-phase 400 V AC, 3-phase
DELAY TIME	< 10 ms, On-delay < 10 ms, Off-delay

NUMBER OF INPUTS (ANALOG)	2 (parameterizable, 0 - 10 V DC, 0/4 - 20 mA)
NUMBER OF INPUTS (DIGITAL)	4 (parameterizable, 10 - 30 V DC)
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
NUMBER OF OUTPUTS (DIGITAL)	1
STARTING CURRENT - MAX	175 %, IH, max. starting current (High Overload), For 2.5 seconds every 600 seconds, Power section
NUMBER OF PHASES (INPUT)	3
NUMBER OF RELAY OUTPUTS	1 (parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1))
NUMBER OF PHASES (OUTPUT)	3
POWER CONSUMPTION	728 W
RATED CONTROL SUPPLY VOLTAGE	10 V DC (Us, max. 10 mA)
SUPPLY FREQUENCY	50/60 Hz
LEAKAGE CURRENT AT GROUND IPE - MAX	12.9 mA
MAINS VOLTAGE - MIN	380 V
NOMINAL OUTPUT CURRENT I2N	39 A
NUMBER OF HW-INTERFACES (INDUSTRIAL ETHERNET)	0
NUMBER OF HW-INTERFACES (OTHER)	0
NUMBER OF HW-INTERFACES (PARALLEL)	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 INTERFACES (PROFINET)	0
NUMBER OF OUTPUTS (ANALOG)	1
OUTPUT AT LINEAR LOAD AT RATED OUTPUT VOLTAGE - MAX	18.5 kW
OUTPUT AT QUADRATIC LOAD AT RATED OUTPUT VOLTAGE - MAX	18.5 kW
OUTPUT FREQUENCY - MAX	500 Hz
OUTPUT FREQUENCY - MIN	0 Hz
SHORT-CIRCUIT PROTECTION (EXTERNAL OUTPUT CIRCUITS)	Type 1 coordination via the power bus' feeder unit, Main circuit
SUITABLE FOR	Branch circuits, (UL/CSA)
SWITCHING FREQUENCY	8 kHz, 4 - 24 kHz adjustable (audible), fPWM, Power section, Main circuit
RATED OPERATIONAL CURRENT (IE)	39 A at 150% overload (at an operating frequency of 16 kHz and an ambient air temperature of +50 °C)
RATED OPERATIONAL VOLTAGE	480 V AC, 3-phase 400 V AC, 3-phase
SHORT-CIRCUIT PROTECTION RATING	60 A, UL (Class CC or J), Safety device (fuse or miniature circuit-breaker), Power Wiring
HEAT DISSIPATION AT CURRENT/SPEED	198 W at 25% current and 0% speed 198 W at 25% current and 50% speed 198 W at 50% current and 0% speed 214 W at 50% current and 50% speed 227 W at 50% current and 90% speed

	363 W at 100% current and 0% speed 413 W at 100% current and 50% speed 460 W at 100% current and 90% speed

PROJECT NAME:
PROJECT NUMBER:
PREPARED BY:
:

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