Eaton 199442

Eaton DC1 Variable frequency drive, 400 V AC, 3-phase, 18 A, 7.5 kW, IP66/NEMA 4X, Radio interference suppression filter, Brake chopper, 7-digital display assembly, Local controls, Additional PCB protection, UV resistant, FS3

PRODUCT NAME	Eaton DC1 Variable frequency drive
CATALOG NUMBER	199442
PRODUCT LENGTH/DEPTH	238 mm
PRODUCT HEIGHT	310 mm
PRODUCT WIDTH	210.5 mm
PRODUCT WEIGHT	7 kg
CERTIFICATIONS	EAC IEC/EN 61800-2 IEC/EN 61800-5-1 UL File No.: E172143 CUL UkrSEPRO UL 508C UL report applies to both US and Canada UL RoHS, ISO 9001 CSA-C22.2 No. 14 UL Listed RCM IEC/EN61800-5 CE marking CE Certified by UL for use in Canada IEC/EN 61800-3 UL Category Control No.: NMMS, NMMS7
CATALOG NOTES	• Environmental class: 3C3, 3S3 • Overload cycle for

Powering Business Worldwide

	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: drivesConnect Parameterization: Keypad Parameterization: drivesConnect mobile (App)
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

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:	Local controls Brake chopper PC connection Internal DC link IGBT inverter UV resistance Control unit Radio interference suppression filter Breaking resistance 7-digital display assembly Additional PCB protection
CLIMATIC PROOFING	< 95 average relative humidity (RH), no condensation, no corrosion
CONNECTION TO SMARTWIRE-DT	No
OPERATING MODE	BLDC motors Speed control with slip compensation Sensorless vector control (SLV)

	Synchronous reluctance motors PM motors U/f control
RATED IMPULSE WITHSTAND VOLTAGE (UIMP)	2000 V
FRAME SIZE	FS3
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	40 °C
AMBIENT OPERATING TEMPERATURE - MIN	-20 °C
MAINS VOLTAGE - MAX	480 V
OUTPUT VOLTAGE - MAX	500 V
RELATIVE SYMMETRIC NET FREQUENCY TOLERANCE	10 %
RELATIVE SYMMETRIC NET VOLTAGE TOLERANCE	10 %
AMBIENT STORAGE TEMPERATURE - MAX	60 °C
AMBIENT STORAGE TEMPERATURE - MIN	-40 °C
APPARENT POWER AT 400 V	12.47 kVA
APPARENT POWER AT 480 V	14.96 kVA
APPLICATION IN INDUSTRIAL AREA PERMITTED	Yes
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)
SWITCH-ON THRESHOLD	780 VDC

FOR THE BRAKING TRANSISTOR	
VOLTAGE RATING - MAX	480 V
MOUNTING POSITION	Vertical
OVERVOLTAGE CATEGORY	III
COMMUNICATION INTERFACE	OP-Bus (RS485), built in SmartWire-DT, optional Modbus RTU, built in CANopen®, built in
CONVERTER TYPE	U converter
DEGREE OF PROTECTION	IP66 NEMA 4X
ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE	10 HP
BRAKING RESISTANCE	80 Ω
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
INPUT CURRENT ILN AT 150% OVERLOAD	21.2 A
MAINS CURRENT DISTORTION	120 %
PROTOCOL	CAN EtherNet/IP Other bus systems MODBUS
OVERLOAD CURRENT IL AT 150% OVERLOAD	27 A
RATED FREQUENCY - MAX	62 Hz
RATED FREQUENCY - MIN	48 Hz
RATED OPERATIONAL POWER AT 380/400 V, 50 HZ, 3-PHASE	7.5 kW
ASSIGNED MOTOR CURRENT IM AT 400 V, 50 HZ, 150% OVERLOAD	15.2 A
ASSIGNED MOTOR CURRENT IM AT 440 - 480 V, 60 HZ, 150% OVERLOAD	14 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. 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
CABLE LENGTH	100 m, screened, maximum permissible cable length 300 m, unscreened, with motor choke, maximum permissible, Motor feeder C3 ≤ 25 m, maximum motor cable length C2 ≤ 5 m, maximum motor cable length 200 m, screened, with motor choke, maximum permissible cable length 150 m, unscreened, maximum permissible cable length
FUNCTIONS	4-quadrant operation possible
OUTPUT VOLTAGE (U2)	400 V AC, 3-phase 480 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
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	304 W
RATED CONTROL SUPPLY VOLTAGE	10 V DC (Us, max. 10 mA)
EFFICIENCY	97 % (η)
SUPPLY FREQUENCY	50/60 Hz
LEAKAGE CURRENT AT GROUND IPE - MAX	12.7 mA
MAINS VOLTAGE - MIN	380 V
NOMINAL OUTPUT CURRENT I2N	18 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	7.5 kW
OUTPUT AT QUADRATIC LOAD AT RATED OUTPUT	7.5 kW

VOLTAGE - MAX	
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)	18 A at 150% overload (at an operating frequency of 6 kHz and an ambient air temperature of +40 °C)
RATED OPERATIONAL VOLTAGE	480 V AC, 3-phase 400 V AC, 3-phase
SHORT-CIRCUIT PROTECTION RATING	25 A, UL (Class CC or J), Safety device (fuse or miniature circuit-breaker), Power Wiring
HEAT DISSIPATION AT CURRENT/SPEED	153 W at 25% current and 0% speed 153 W at 25% current and 50% speed 158 W at 50% current and 90% speed 160 W at 50% current and 0% speed 180 W at 50% current and 50% speed 243 W at 100% current and 0% speed 272 W at 100% current and 50% speed 301 W at 100% current and 90% speed

INSTALLATION VIDEOS	Video PowerXL DA1
MCAD MODEL	e3_s3_ip66_mit_bedienelementen.dwg e3_s3_ip66_mit_bedienelementen.stp
	eaton-powerxl-variable-frequency-drives-dc1-da1-brochure-br040001en-en-us.pdf
	eaton-frequency-inverter-dc1-dimensions-005.eps

	[How does the internal motor protection work?] [The OP System Bus - Parameterizing - Control] [DX-COM-STICK3_Connection]

PROJECT NAME:	
PROJECT NUMBER:	
PREPARED BY:	
:	

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