Specifications



Eaton 185800

Eaton DC1 Variable frequency drive, 230 V AC, 1-phase, 15.3 A, 4 kW, IP20/NEMA 0, Brake chopper, FS3 DC1-12015NB-A20CE1

General specifications	
PRODUCT NAME	Eaton DC1 Variable frequency drive
CATALOG NUMBER	185800
MODEL CODE	DC1-12015NB-A20CE1
EAN	4015081812998
PRODUCT LENGTH/DEPTH	175 mm
PRODUCT HEIGHT	273 mm
PRODUCT WIDTH	129 mm
PRODUCT WEIGHT	6 kg
CERTIFICATIONS	EAC CUL Specification for general requirements: IEC/EN 61800-2 UL Category Control No.: NMMS, NMMS7 IEC/EN61800-3 RCM RoHS, ISO 9001 Safety requirements: IEC/EN 61800-5-1 CSA-C22.2 No. 14 Certified by UL for use in Canada IEC/EN61800-5 IEC/EN 61800-3 UkrSEPRO UL UL 508C CE UL File No.: E172143 UL report applies to both US and Canada
CATALOG NOTES	• Environmental class: 3C2, 3S2 • Overload cycle for 60 s every 600 s
GLOBAL CATALOG	185800

Powering Business Worldwide

PRODUCT TYPE	Variable frequency drive

Product specifications

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 IMPACT	Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 INSCRIPTIONS	Meets the product

Resources

APPLICATION NOTES	eaton-powerxl-da1-dc1-db1-de1-rapidlink5-firmware-update-ap040214-en-us.pdf eaton-powerxl-dx-com-stick-3-ap040190-en-us.pdf eaton-powerxl-dc1-derating-ap040059-en-us.pdf eaton-powerxl-dc1-starting-stopping-operation-ap040054-en-us.pdf eaton-powerxl-da1-dc1-de1-conformal-coating-ap040182-en-us.pdf eaton-powerxl-dc1-accesslevel-parameterlock-ap040052-en-us.pdf eaton-powerxl-dc1-pi-controller-ap040053-en-us.pdf eaton-powerxl-dc1-motor-vf-curves-ap040049-en-us.pdf eaton-powerxl-dc1-setpoint-setting-ap040060-en-us.pdf eaton-powerxl-vfd-dual-rating-ap040114-en-us.pdf eaton-powerxl-dc1-operating-pm-bldc-motors-ap040063-en-us.pdf eaton-powerxl-dc1-fire-mode-ap040064-en-us.pdf eaton-powerxl-da1-dc1-de1-system-bus-ap040022-en-us.pdf eaton-powerxl-dc1-io-configuration-ap040057-en-us.pdf

	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:	7-digital display assembly Control unit Brake chopper PC connection Breaking resistance IGBT inverter Internal DC link 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 Speed control with slip compensation Sensorless vector control (SLV) BLDC motors PM motors Synchronous reluctance motors
RATED IMPULSE WITHSTAND VOLTAGE (UIMP)	2000 V
FRAME SIZE	FS3

	eaton-powerxl-da1-dc1-de1-internal-motor-protection-ap040016-en-us.pdf
BROCHURES	eaton-powerxl-variable-frequency-drives-dc1-da1-brochure-br040001en-en-us.pdf
CATALOGS	eaton-drives-soft-starter-catalog-ca04020001zen-us.pdf
DECLARATIONS OF CONFORMITY	eaton-variable-frequency-drive-declaration-of-conformity-uk251078en.pdf eaton-variable-frequency-drive-declaration-of-conformity-eu250595en.pdf
DRAWINGS	eaton-frequency-inverter-dimensions-020.eps eaton-frequency-inverter-3d-drawing-009.eps
ECAD MODEL	DA-CE-ETN.DC1-12015NB-A20CE1
INSTALLATION INSTRUCTIONS	IL04020009Z
INSTALLATION VIDEOS	PowerXL Variable Frequency Drives DC1 and DA1 - EN Video PowerXL DA1
MANUALS AND USER GUIDES	MN040022_EN MN040018_EN eaton-dc1-variable-frequency-drive-mn040059en-us.pdf eaton-canopen-communication-manual-for-variable-frequency-drives-variable-speed-starters-da1-db1-dc1-de11-mn040019-en-us.pdf
MCAD MODEL	DA-CS-dc1_fs3
MULTIMEDIA	Looking for variable frequency drives DC1 and DA1 which can be used in harsh environments?

ALTITUDE	Max. 4000 m Above 1000 m with 1 % derating per 100 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	240 V
OUTPUT VOLTAGE - MAX	250 V
RATED OPERATIONAL POWER AT 220/230 V, 50 HZ, 3-PHASE	4 kW
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 230 V	5.98 kVA
APPARENT POWER AT 240 V	6.24 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)
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT	0 W

PVS	
SWITCH-ON THRESHOLD FOR THE BRAKING TRANSISTOR	390 VDC
VOLTAGE RATING - MAX	240 V
MOUNTING POSITION	Vertical
OVERVOLTAGE CATEGORY	III
COMMUNICATION INTERFACE	CANopen®, built in Modbus RTU, built in OP-Bus (RS485), built in SmartWire-DT, optional
CONVERTER TYPE	U converter
DEGREE OF PROTECTION	IP20 NEMA Other
ASSIGNED MOTOR POWER AT 220/230 V, 60 HZ, 3-PHASE	5 HP
BRAKING RESISTANCE	25 Ω
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	160 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
INPUT CURRENT ILN AT 150% OVERLOAD	29.2 A
MAINS CURRENT DISTORTION	120 %
ASSIGNED MOTOR CURRENT IM AT 220 - 240 V, 60 HZ, 150% OVERLOAD	15.2 A
ASSIGNED MOTOR CURRENT IM AT 230 V, 50 HZ, 150% OVERLOAD	14.8 A
PROTOCOL	MODBUS CAN Other bus systems EtherNet/IP
OVERLOAD CURRENT IL AT 150% OVERLOAD	22.9 A
RATED FREQUENCY - MAX	62 Hz
RATED FREQUENCY - MIN	48 Hz
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	15 A
RATED OPERATIONAL	18.5 kW

POWER AT 380/400 V, 50 HZ, 3-PHASE	
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
BRAKING TORQUE	Max. 100 % of rated operational current Ie, variable, DC - Main circuit Max. 100 % of rated operational current Ie with external braking resistor - Main circuit Max. 30 % MN, Standard - Main circuit
CABLE LENGTH	150 m, unscreened, maximum permissible, Motor feeder 200 m, screened, with motor choke, maximum permissible, Motor feeder 100 m, screened, maximum permissible, Motor feeder 300 m, unscreened, with motor choke, maximum permissible, Motor feeder
FUNCTIONS	4-quadrant operation possible
OUTPUT VOLTAGE (U2)	240 V AC, 3-phase 230 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	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)	1
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	160W
RATED CONTROL SUPPLY VOLTAGE	10 V DC (Us, max. 10 mA)
EFFICIENCY	96 % (η)
SUPPLY FREQUENCY	50/60 Hz
LEAKAGE CURRENT AT GROUND IPE - MAX	4.7 mA
MAINS VOLTAGE - MIN	200 V
NOMINAL OUTPUT CURRENT I2N	15 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	4 kW
OUTPUT AT QUADRATIC LOAD AT RATED OUTPUT VOLTAGE - MAX	4 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)	15.3 A at 150% overload At a switching frequency of 8 kHz and an ambient air temperature of +50 °C
RATED OPERATIONAL VOLTAGE	240 V AC, 1-phase 230 V AC, 1-phase
SHORT-CIRCUIT PROTECTION RATING	50 A, UL (Class CC or J), Safety device (fuse or miniature circuit-breaker), Power Wiring
HEAT DISSIPATION AT CURRENT/SPEED	113 W at 100% current and 0% speed 115 W at 50% current and 90% speed 152 W at 100% current and 50% speed 190 W at 100% current and 90% speed 58 W at 25% current and 0% speed 73 W at 25% current and 50% speed 73 W at 50% current and 0% speed 94 W at 50% current and 50% speed

PROJECT NAME:	
PROJECT NUMBER:	
PREPARED BY:	
DATE:	

Eaton Corporation plc Eaton House
30 Pembroke Road
Dublin 4, Ireland
Eaton.com

© 2026 Eaton. All Rights Reserved.

Follow us on social media to get the latest product and support information.