Specifications



Photo is representative



Eaton DX1-32031FB-C21CE

Eaton PowerXL DX1 High Performance Frequency inverter, Three-phase, 240 V, 48 A, 7.5 kW/11 kW, EMC Filter & DC-Choke, Brake chopper, LCD, IP21, NEMA 1

General Specifications

PRODUCT NAME	Eaton PowerXL DX1 Variable frequency drives
CATALOG NUMBER	DX1-32031FB-C21CE
PRODUCT LENGTH/DEPTH	298 mm
PRODUCT HEIGHT	558 mm
PRODUCT WIDTH	205 mm
PRODUCT WEIGHT	22.3 kg
CERTIFICATIONS	CE
CATALOG NOTES	The brake resistors are assigned based on the maximum rated power of the variable frequency drive. Additional brake resistors and designs (e.g. different duty cycles) are available upon request.
UPC	786689830106
MODEL CODE	DX1-32031FB-C21CE

Powering Business Worldwide

Product specifications

BRAKE CHOPPER	Brake chopper
FRAME SIZE	FR3
PHASE	Three-phase
VOLTAGE RATING	230 V
COMMUNICATION	• Modbus RTU • Modbus TCP • Bluetooth
ENCLOSURE	IP21
SERIES	P0600
KEYPAD	Membrane Keypad
DISPLAY	LCD
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	The device meets the requirements, provided the information in the instruction leaflet (IL) is 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.

Resources

BROCHURES	eaton-powerxl-dx1-vfd-brochure-br040026en-us.pdf
CATALOGUES	eaton-drives-soft-starter-catalog-ca04020001zen-us.pdf
FLYERS	eaton-powerxl-dx1-vfd-flyer-fl040007en-us.pdf
MANUALS AND USER GUIDES	eaton-powerxl-dx1-safety-tool-mn040074en-us.pdf eaton-dual-port-eip-communication-manual-mn040077en-us.pdf eaton-dx1-io-options-card-user-manual-mn040079en-us.pdf eaton-powerxl-dx1-dxx-ext-sabz-dxx-ext-fs-mn040070en-us.pdf
SOFTWARE, FIRMWARE, AND APPLICATIONS	eaton-powerxl-dx1-profinet-gsdml-v244.zip

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.
AMBIENT OPERATING TEMPERATURE - MAX	50 °C
AMBIENT OPERATING TEMPERATURE - MIN	-10 °C
AMBIENT OPERATING TEMPERATURE AT 150% OVERLOAD - MAX	50 °C
AMBIENT OPERATING TEMPERATURE AT 150% OVERLOAD - MIN	-30 °C
AMBIENT STORAGE TEMPERATURE - MAX	70 °C
AMBIENT STORAGE TEMPERATURE - MIN	-40 °C
ASSIGNED MOTOR CURRENT IM AT 220 - 240 V, 60 HZ, 150% OVERLOAD	28 A
ASSIGNED MOTOR CURRENT IM AT 230 V, 50	38 A

HZ, 110% OVERLOAD	
ASSIGNED MOTOR CURRENT IM AT 230 V, 50 HZ, 150% OVERLOAD	26.4 A
ASSIGNED MOTOR CURRENT IM AT 230 V, 60 HZ, 110% OVERLOAD	42 A
RELATIVE SYMMETRIC NET FREQUENCY TOLERANCE	10 %
RELATIVE SYMMETRIC NET VOLTAGE TOLERANCE	10 %
SWITCH-ON THRESHOLD FOR THE BRAKING TRANSISTOR	425 VDC
VOLTAGE RATING - MAX	240
ASSIGNED MOTOR CURRENT IM AT 440 - 480 V, 60 HZ, 150% OVERLOAD	10 A
ASSIGNED MOTOR CURRENT IM AT 440/480 V, 60 HZ, 110% OVERLOAD	15 A
ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ	10 HP
ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 110% OVERLOAD	15 HP
ASSIGNED MOTOR POWER AT 230/240 V, 60 HZ, 3-PHASE, 110 % OVERLOAD	15 HP
BRAKING RESISTANCE	10 Ω
INPUT CURRENT ILN AT 110% OVERLOAD	44.2 A
INPUT CURRENT ILN AT 150% OVERLOAD	28.7 A
MAINS CURRENT DISTORTION	30.8 %
MAINS VOLTAGE - MAX	240 V
MAINS VOLTAGE - MIN	208 V
NOMINAL OUTPUT CURRENT I2N	48 A
NUMBER OF HW-INTERFACES (INDUSTRIAL ETHERNET)	1
NUMBER OF HW-INTERFACES (OTHER)	1

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)	2
NUMBER OF OUTPUTS (ANALOG)	2
OUTPUT AT LINEAR LOAD AT RATED OUTPUT VOLTAGE - MAX	7.5 kW
OUTPUT AT QUADRATIC LOAD AT RATED OUTPUT VOLTAGE - MAX	11 kW
OUTPUT FREQUENCY - MAX	400 Hz
OUTPUT VOLTAGE - MAX	240 V
OVERLOAD CURRENT IL AT 110% OVERLOAD	52.8 A
OVERLOAD CURRENT IL AT 150% OVERLOAD	46.5 A
RATED FREQUENCY - MAX	66 Hz
RATED FREQUENCY - MIN	45 Hz
RATED OPERATIONAL CURRENT (IE) AT 110% OVERLOAD	48 A
RATED OPERATIONAL CURRENT (IE) AT 150% OVERLOAD	31 A
AIR VOLUME CAPACITY	144 m^3/h
ALTITUDE	Max. 1000 m Max. 3000 m Above 1000 m with 1 % derating per 100 m Max. 2000 m for Corner Grounded TN Systems
PROTECTION	Finger and back-of-hand proof, Protection against direct contact (BGV A3, VBG4)
RESOLUTION	0.01 Hz (Frequency resolution, setpoint value)

APPLICATION IN DOMESTIC AND COMMERCIAL AREA PERMITTED	Yes
APPLICATION IN INDUSTRIAL AREA PERMITTED	Yes
BRAKING TORQUE	Adjustable to 150 % (I/Ie), DC - Main circuit Max. 30 % MN, Standard - Main circuit Adjustable to 150 %, DC - Main circuit Max. 100 % of rated operational current Ie with external braking resistor - Main circuit
CABLE LENGTH	100 m, screened, maximum permissible, Motor feeder C3 ≤ 50 m, Radio interference level, maximum motor cable length C2 ≤ 10 m, Radio interference level, maximum motor cable length
CLIMATIC PROOFING	< 95 average relative humidity (RH), no condensation, no corrosion
COMMUNICATION INTERFACE	Modbus RTU, built in Modbus TCP, built in Ethernet IP, built in Ethernet IP dual port, optional PROFIBUS, optional PROFINET, optional
CONVERTER TYPE	U converter
DEGREE OF PROTECTION	NEMA 1 IP21
EFFICIENCY	97.20%
ELECTROMAGNETIC COMPATIBILITY	1st and 2nd environments (according to EN 61800-3)
ENVIRONMENTAL CLASS	3C2, 3S2 (Air quality)
FEATURES	Parameterization: Fieldbus Parameterization: Keypad Parameterization: Power Xpert inControl Tool-less swapping of fan Temperature-controlled fan
FITTED WITH:	Internal DC link

	Brake chopper Multi-line graphic display DC link choke IGBT inverter Radio interference suppression filter Additional PCB protection Breaking resistance Control unit PC connection
FRAME SIZE	FS3
FUNCTIONS	4-quadrant operation possible, Closed loop control with Encoder feedback, extended Safety functions with Option board
LEAKAGE CURRENT AT GROUND IPE - MAX	8.2 mA
MAINS SWITCH-ON FREQUENCY	Maximum of one time every 60 seconds
MOUNTING POSITION	Vertical
NUMBER OF INPUTS (ANALOG)	2
NUMBER OF INPUTS (DIGITAL)	6
NUMBER OF OUTPUTS (DIGITAL)	1
NUMBER OF PHASES (INPUT)	3
NUMBER OF PHASES (OUTPUT)	3
NUMBER OF RELAY OUTPUTS	2 (parameterizable, 2 changeover contacts, 6 A (240 V AC) / 6 A (30 V DC))
NUMBER OF SLOTS	4 (expansion)
OPERATING MODE	Closed loop speed control (CL) Closed Loop Torque control (CLT) Sensorless vector control (SLV) Speed control with slip compensation Torque regulation V/f control
OVERVOLTAGE CATEGORY	III
POLLUTION DEGREE	2
POWER CONSUMPTION	17608 W
PROTOCOL	Other bus systems
RADIO INTERFERENCE	C1: with external filter, for

CLASS	conducted emissions only 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
RATED CONDITIONAL SHORT-CIRCUIT CURRENT (IQ)	100 kA
RATED CONTROL SUPPLY VOLTAGE	internal, 10 V DC (Us, max. 10 mA) for analog references, 24 V DC external supply Uc
RATED CONTROL VOLTAGE (UC)	24 V DC (external, max. 250 mA options incl.)
SAFETY FUNCTION/LEVEL	STO (Safe Torque Off, SIL3, PLe Cat 4), SS1, SBC, SLS, SSM, SLA, SSR, SAR (SIL3, PLe, Cat 3), SOS, SS2, SDI (SIL2, PLc, Cat 2)
SHOCK RESISTANCE	Mechanical, According to EN 61800-5-1, IEC/EN 60068-2-27 UPS drop test (for weights inside the UPS frame) Storage and transportation: maximum 15 g, 11 ms (inside the packaging)
SHORT-CIRCUIT PROTECTION RATING	60 A, UL (Class CC or J), Safety device (fuse or miniature circuit-breaker), Power Wiring
STARTING CURRENT - MAX	200 %, IH, max. starting current (High Overload), For 2 seconds every 20 seconds, Power section
SUITABLE FOR	Branch circuits, (UL/CSA)
SUPPLY FREQUENCY	50/60 Hz
SWITCHING FREQUENCY	4 kHz, 1 - 12 kHz adjustable, PWM, Power section, Main circuit
SYSTEM CONFIGURATION TYPE	TN-S TN-C TN-C-S TT

	IT
VIBRATION	Vibration according to EN 61800-5-1, IEC/EN 60068-2-6: 10 – 150 Hz, displacement amplitute 0.075 mm at 10 Hz to 57 Hz, maximum acceleration amplitude: 1 g at 57 Hz to 150 Hz

PROJECT NAME:	
PROJECT NUMBER:	
PREPARED BY:	
DATE:	

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