Specifications







Eaton 174336

Eaton DE1 Variable speed starter, Rated operational voltage 400 V AC, 3-phase, Ie 5 A, 2.2 kW, 3 HP, Radio interference suppression filter

General specifications	
PRODUCT NAME	Eaton DE1 Variable speed starter
CATALOG NUMBER	174336
MODEL CODE	DE1-345D0FN-N20N
EAN	4015081707980
PRODUCT LENGTH/DEPTH	169 mm
PRODUCT HEIGHT	230 mm
PRODUCT WIDTH	90 mm
PRODUCT WEIGHT	1.6 kg
CERTIFICATIONS	Certified by UL for use in Canada IEC/EN61800-3 IEC/EN61800-5 RCM RoHS, ISO 9001 UL 508C CE CSA-C22.2 No. 14 UL File No.: E172143 CUL UL Category Control No.: NMMS, NMMS7 Specification for general requirements: IEC/EN 61800-2 UL report applies to both US and Canada IEC/EN 61800-3 Safety requirements: IEC/EN 61800-5-1 UL
CATALOG NOTES	Overload cycle for 60 s every 600 s

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Apparent power

APPARENT POWER AT 400 V	3.46 kVA
APPARENT POWER AT 480 V	4.16 kVA

Braking function

BRAKING TORQUE	Max. 30 % MN, Standard - Main circuit Adjustable to 100 %, DC - Main circuit

Climatic environmental conditions

ALTITUDE	Above 1000 m with 1 % derating per 100 m Max. 2000 m
AMBIENT OPERATING TEMPERATURE - MAX	60 °C
AMBIENT STORAGE TEMPERATURE - MAX	70 °C
AMBIENT OPERATING TEMPERATURE - MIN	-10 °C
AMBIENT OPERATING TEMPERATURE AT 150% OVERLOAD - MAX	60 °C
AMBIENT OPERATING TEMPERATURE AT 150% OVERLOAD - MIN	-10 °C
AMBIENT STORAGE TEMPERATURE - MIN	-40 °C
CLIMATIC PROOFING	< 95 average relative humidity (RH), no condensation, no corrosion

Control circuit

NUMBER OF INPUTS (ANALOG)	1 (parameterizable, 0 - 10 V DC, 0/4 - 20 mA)
NUMBER OF INPUTS (DIGITAL)	4 (parameterizable, 10 - 30 V DC)
NUMBER OF OUTPUTS (ANALOG)	0
NUMBER OF OUTPUTS (DIGITAL)	0
NUMBER OF RELAY OUTPUTS	1 (parameterizable, N/O, 6 A (250 V, AC-1) / 5 A (30 V, DC-1))

Design verification

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 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	Does not apply, since the

Features & functions

FEATURES	Parameterization: drivesConnect Parameterization: drivesConnect mobile (App) Parameterization: Fieldbus Parameterization: Keypad
FITTED WITH:	PC connection Radio interference suppression filter

AGAINST ELECTRIC SHOCK	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.
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	56 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	5 A
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	0 W

General information

CABLE LENGTH	C3 ≤ 25 m, Radio interference level, maximum motor cable length C2 ≤ 10 m, Radio interference level, maximum motor cable length
COMMUNICATION INTERFACE	OP-Bus (RS485), built in Modbus RTU, built in
CONNECTION TO SMARTWIRE-DT	Yes In conjunction with DX-NET-SWD3 SmartWire DT module
DEGREE OF PROTECTION	IP20 NEMA Other
ELECTROMAGNETIC COMPATIBILITY	1st and 2nd environments (according to EN 61800-3)
FRAME SIZE	FS2
PRODUCT CATEGORY	Variable speed starter
PROTECTION	Finger and back-of-hand proof, Protection against direct contact (BGV A3, VBG4)
PROTOCOL	MODBUS EtherNet/IP Other bus systems
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
SHOCK RESISTANCE	15 g, Mechanical, According to IEC/EN 60068-2-27, 11 ms
SUITABLE FOR	Branch circuits, (UL/CSA)
VIBRATION	Resistance: According to EN 61800-5-1

Main circuit

HEAT DISSIPATION AT CURRENT/SPEED	29 W at 25% current and 0% speed 30 W at 25% current and 50% speed 36 W at 50% current and 0% speed 37 W at 50% current and 50% speed 39 W at 50% current and 90% speed 50 W at 100% current and 0% speed 50 W at 100% current and 50% speed 57 W at 100% current and 90% speed
INPUT CURRENT ILN AT 150% OVERLOAD	7 A
LEAKAGE CURRENT AT GROUND IPE - MAX	< 10 mA (DC-operated) < 3.5 mA (AC-operated)
MAINS SWITCH-ON FREQUENCY	Maximum of one time every 30 seconds
MAINS VOLTAGE - MAX	480 V
MAINS VOLTAGE - MIN	380 V
OPERATING MODE	U/f control Speed control with slip compensation
OUTPUT FREQUENCY - MAX	300 Hz
OUTPUT FREQUENCY - MIN	0 Hz
OUTPUT VOLTAGE (U2)	400 V AC, 3-phase 480 V AC, 3-phase
OVERLOAD CURRENT IL AT 150% OVERLOAD	7.5 A
RATED CONTROL SUPPLY VOLTAGE	10 V DC (Us, max. 0.2 mA)
RATED FREQUENCY - MAX	66 Hz
RATED FREQUENCY - MIN	45 Hz
RATED OPERATIONAL CURRENT (IE)	5 A at 150% overload (at an operating frequency of 16 kHz and an ambient air temperature of +50 °C)
RATED OPERATIONAL POWER AT 380/400 V, 50 HZ, 3-PHASE	2.2 kW
RATED OPERATIONAL VOLTAGE	480 V AC, 3-phase 400 V AC, 3-phase
RESOLUTION	0.025 Hz (Frequency resolution, setpoint value)

SHORT-CIRCUIT PROTECTION RATING	15 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 1.875 seconds every 600 seconds, Power section
SUPPLY FREQUENCY	50/60 Hz
SWITCHING FREQUENCY	16 kHz, 4 - 32 kHz adjustable (audible), fPWM, Power section, Main circuit
VOLTAGE RATING - MAX	480 V

Motor rating

ASSIGNED MOTOR CURRENT IM AT 400 V, 50 HZ, 150% OVERLOAD	5 A
ASSIGNED MOTOR CURRENT IM AT 440 - 480 V, 60 HZ, 150% OVERLOAD	4.8 A
ASSIGNED MOTOR POWER AT 460/480 V, 60 HZ, 3-PHASE	3 HP

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-da1-dc1-de1-system-bus-ap040022-en-us.pdf eaton-powerxl-de1-fire-mode-ap040181-en-us.pdf eaton-powerxl-da1-dc1-de1-conformal-coating-ap040182-en-us.pdf eaton-powerxl-de1-accesslevel2-parameterlock-ap040020-en-us.pdf eaton-powerxl-da1-dc1-de1-internal-motor-protection-ap040016-en-us.pdf eaton-powerxl-vfd-dual-rating-ap040114-en-us.pdf eaton-powerxl-de1-motor-vf-curves-ap040017-en-us.pdf eaton-powerxl-de1-io-configuration-ap040036-en-us.pdf

	eaton-powerxl-de1-starting-stopping-operation-ap040029-en-us.pdf eaton-powerxl-de1-setpoint-setting-ap040042-en-us.pdf
BROCHURES	eaton-powerxl-variable-frequency-drives-hvac-brochure-br040012en-en-us.pdf eaton-powerxl-de1-variable-speed-starter-brochure-br040003en-en-us.pdf
CATALOGUES	eaton-drives-soft-starter-catalog-ca04020001zen-us.pdf_
DECLARATIONS OF CONFORMITY	eaton-variable-speed-starter-declaration-of-conformity-eu250596en.pdf eaton-variable-speed-starter-declaration-of-conformity-uk251079en.pdf
DRAWINGS	eaton-frequency-inverter-dimensions-010.eps eaton-frequency-inverter-3d-drawing-018.eps
ECAD MODEL	ETN.DE1-345D0FN-N20N.edz
INSTALLATION INSTRUCTIONS	IL040005ZU
INSTALLATION VIDEOS	PowerXL DE1 variable speed starter
MANUALS AND USER GUIDES	MN040018_EN eaton-canopen-communication-manual-for-variable-frequency-drives-variable-speed-starters-da1-db1-dc1-de11-mn040019-en-us.pdf eaton-de1-variable-speed-starter-manual-mn040011en-us.pdf
MCAD MODEL	DA-CS-de1_fs2_ip20
PRODUCT NOTIFICATIONS	eaton-drives-ecodesign-directive-mz040046en-en.pdf

SOFTWARE, FIRMWARE, AND APPLICATIONS	eaton-powerxl-pcsoftware-drivesconnect-v1501.zip eaton-powerxl-de1-dc1-ethernetip-eds-v120.zip eaton-powerxl-dx-cbl-pc-3m0-usb-driver.zip eaton-powerxl-dx-cbl-pc-1m5-usb-driver.zip eaton-powerxl-de1-firmware-release-note-mz040043en-us.pdf eaton-powerxl-dc1-de1-swd-codesys-v3-library.zip eaton-powerxl-dx-comstick3-ble-drivers.zip eaton-powerxl-de1-dc1-profinet-gsdml-v240.zip

PROJECT NAME:	
PROJECT NUMBER:	
PREPARED BY:	
DATE:	

Powering Business Worldwide

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

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