Specifications







Eaton 178771

Eaton XN-322 Analog input and output module, 4 analog inputs and 4 analog outputs, 0/4 to 20 mA

General specifications	
PRODUCT NAME	Eaton XN-322 I/O module
CATALOG NUMBER	178771
MODEL CODE	XN-322-8AIO-I
EAN	7640130098350
PRODUCT LENGTH/DEPTH	104.2 mm
PRODUCT HEIGHT	16.8 mm
PRODUCT WIDTH	80.3 mm
PRODUCT WEIGHT	0.061 kg
CERTIFICATIONS	CE cULus UL File No.: E135462 EN 61131-2 EN 61000-6-2 EN 61000-6-4 UL508 CSA-C22.2 No. 142-M
CATALOG NOTES	The max. heat dissipation is specified as the maximum power produced inside the device's housing.

Powering Business Worldwide

Ambient conditions, mechanical

HEIGHT OF FALL (IEC/EN 60068-2-32) - MAX	1 m
MOUNTING POSITION	Horizontal
SHOCK RESISTANCE	15 g, Mechanical, Half-sinusoidal shock 11 ms, 18 Impacts
VIBRATION RESISTANCE	5 - 8.4 / 8.4 -150 Hz, 3,5 mm / 1 g

Climatic environmental conditions

AIR PRESSURE	795 - 1080 hPa (operation)
AMBIENT OPERATING TEMPERATURE - MAX	60 °C
AMBIENT STORAGE TEMPERATURE - MAX	85 °C
AMBIENT OPERATING TEMPERATURE - MIN	0 °C
AMBIENT STORAGE TEMPERATURE - MIN	-20 °C
CLIMATIC PROOFING	Damp heat, constant, to IEC 60068-2-3 Dry heat to IEC 60068-2-2
ENVIRONMENTAL CONDITIONS	Condensation: prevent with appropriate measures
RELATIVE HUMIDITY	0 - 95 % (non-condensing)

Communication

CONNECTION TYPE	Push-in spring-cage terminal (plug-in connection), Connection design in TOP direction 2 conductors, Current measurement 2 conductors, Analog outputs, Output current
PROTOCOL	Other bus systems

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.
10.12 ELECTROMAGNETIC COMPATIBILITY	Is the panel builder's responsibility.
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)	Meets the product standard's requirements.

RADIATION	
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	Meets the product standard's requirements.
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.
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	0 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0.851 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	0 A
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	2.58 W

Electrical rating

RATED OPERATIONAL CURRENT (IE)	0.078 A (supply input)
RATED OPERATIONAL VOLTAGE	24 V (X5) 160 V (terminations)
SHORT-CIRCUIT PROTECTION	Yes, Short-circuit strength, Analog outputs
SUPPLY VOLTAGE AT DC - MAX	30 VDC
SUPPLY VOLTAGE AT DC - MIN	18 VDC

Electro magnetic compatibility

AIR DISCHARGE	8 kV
BURST IMPULSE	2 kV, Supply cable 1 kV, Signal cable
CONTACT DISCHARGE	4 kV
ELECTROMAGNETIC FIELDS	1 V/m at 2 - 2.7 GHz (according to IEC EN 61000-4-3) 10 V/m at 0.08 - 1.0 GHz (according to IEC EN 61000-4-3) 3 V/m at 1.4 - 2 GHz (according to IEC EN 61000-4-3)
EMITTED INTERFERENCE	47 dB (at 230 - 1000 MHz, Class A, radiated, high frequency) 40 dB (at 30 - 230 MHz, Class A, radiated, high frequency)
RADIATED RFI	10 V
SURGE RATING	1 kV, Signal cable, unbalanced, EMC 0.5/0.5 kV, Supply cable, balanced/unbalanced), EMC
VOLTAGE DIPS	Voltage dips: 10 ms/Voltage fluctuations: Yes

Features & functions

CURRENT MEASUREMENT	50 Ω typ., input resistance 0 - 20 mA
ELECTRIC CONNECTION TYPE	Plug-in connection
FEATURES	Analog outputs configurable Input, current Output, current Analog inputs configurable Fieldbus connection over separate bus coupler possible Input signal, configurable Fieldbus connection over separate bus coupler possible
FITTED WITH:	Parameterizable Software input filter 1 kHz, third-order low-pass input filter
VALUE REPRESENTATION	SIGNED16, Current measurement

General information

CURRENT CONSUMPTION	55 mA (typ.), for +5 V power supply (internal), Power supply - Input None mA (typ.), for +24 V, Power supply - Input
DEGREE OF PROTECTION	IP20 NEMA 1
LIMIT FREQUENCY	1 kHz (third-order low-pass filter)
MOUNTING METHOD	Rail mounting possible
NUMBER OF CHANNELS	4, Analog Inputs
OVERVOLTAGE CATEGORY	III
POLLUTION DEGREE	3
PRODUCT CATEGORY	XN-322 analog input and output module
RESOLUTION	• 12 Bit (Analog outputs) • 16 Bit (Analog inputs)
TYPE	• Analog mixed module with 4 analog outputs 0/4 to 20 mA (12 bit) and 4 analog inputs 0/4 to 20 mA (16 bit). • XN300 I/O slice module
USED WITH	XN300 XN-312-...
VOLTAGE TYPE	DC

Input/Output

ACCURACY	± 0.5 % of full scale, Analog outputs ± 0.5 % of full scale, Current measurement
INPUT	4 Analog inputs (0/4 - 20 mA)
INPUT CURRENT	Max. 100 mA
LOAD CURRENT	Not specified by plug manufacturer
MEASURED VARIABLES	Current
NUMBER OF INPUTS (ANALOG)	4
NUMBER OF OUTPUTS (ANALOG)	4
OUTPUT	4 Analog Outputs (0/4 - 20 mA)
OUTPUT CURRENT	0 - 20 mA, Analog outputs
REFRESH TIME	1 ms (analog inputs, all channels)
RESISTIVE LOAD	≤ 500 Ω, analog outputs
VALUE REFRESH TIME/CYCLE TIME	Min. 1 / 1 ms (per channel / all channels), Analog Inputs

Safety

EXPLOSION SAFETY CATEGORY FOR DUST	None
EXPLOSION SAFETY CATEGORY FOR GAS	None
POTENTIAL ISOLATION	Analog inputs: no Power supply, Input: no

Terminal capacities

GAUGE PIN	A1 (according to IEC/EN 60947-1)
INSULATING MATERIAL GROUP	I
STRIPPING LENGTH (MAIN CABLE)	10 mm
TERMINAL CAPACITY	24 - 16 AWG 0.2 - 1.5 mm², flexible without ferrule, H07V-K 0.25 - 1.5 mm², with ferrules without plastic collar according to DIN 46228-1 (ferrules crimped gas-tight) 0.2 - 1.5 mm², solid, H07V-U 0.25 - 0.75 mm², with ferrules with plastic collar according to DIN 46228-1 (ferrules crimped gas-tight)

Resources

BROCHURES	Slice card modular I/O system for the machine building industry XN300 - brochure eaton-xc300-modular-plc-brochure-br050008en-en-us.pdf
DECLARATIONS OF CONFORMITY	eaton-input-module-declaration-of-conformity-eu250715en.pdf eaton-input-module-declaration-of-conformity-uk251198en.pdf
DRAWINGS	eaton-modular-plc-xn-input-module-dimensions.eps eaton-modular-plc-xn-input-module-3d-drawing-006.eps eaton-general-xv-touch-panel-symbol.eps
ECAD MODEL	DA-CE-ETN.XN-322-8AIO-I

INSTALLATION INSTRUCTIONS	IL050025ZU IL050017ZU
MANUALS AND USER GUIDES	eaton-xn-312-gw-can-canopen-gateway-mn050003-en-us.pdf eaton-xn300-slice-modules-mn050002-en-us.pdf
MCAD MODEL	eaton-modular-system-analog-mcad-drawings-xn-322-8aio-u2.dwg eaton-modular-system-analog-mcad-3d-models-xn-322-8aio-u2.stp
MULTIMEDIA	System solutions based on EtherCAT XC100, XC200, XC300 – Eaton's modular PLC ranges
PRODUCT NOTIFICATIONS	eaton-xn-322-i-o-series-product-cybersecurity-guideline-mz050024-en-us.pdf eaton-xn-322-i-o-series-end-user-license-agreement-mz050026-en-us.pdf

PROJECT NAME:	
PROJECT NUMBER:	
PREPARED BY:	
DATE:	

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