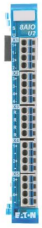
Specifications







Eaton 178791

Eaton XN-322 Analog input and output module, 4 analog inputs and 4 analog outputs, +/-10 V, Uref

General specifications	
PRODUCT NAME	Eaton XN-322 Output module
CATALOG NUMBER	178791
MODEL CODE	XN-322-8AIO-U2
EAN	7640130098251
PRODUCT LENGTH/DEPTH	104.2 mm
PRODUCT HEIGHT	16.8 mm
PRODUCT WIDTH	80.3 mm
PRODUCT WEIGHT	0.061 kg
CERTIFICATIONS	UL File No.: E135462 CE cULus EN 61131-2 EN 61000-6-2 EN 61000-6-4 UL508 CSA-C22.2 No. 142-M

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	2 conductors, Voltage measurement 2 conductors, Analog outputs, Output voltage Push-in spring-cage terminal (plug-in connection), Connection design in TOP direction
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	1.21 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	0 A
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	2.495 W

Electrical rating

RATED CONTROL SUPPLY VOLTAGE	10 V (Sensor/transmitter supply)
RATED OPERATIONAL CURRENT (IE)	Max. 0.0167 A (supply output)
RATED OPERATIONAL VOLTAGE	160 V (terminations)
SHORT-CIRCUIT CURRENT	30 mA, per channel, Analog outputs
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	40 dB (at 30 - 230 MHz, Class A, radiated, high frequency) 47 dB (at 230 - 1000 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

ELECTRIC CONNECTION TYPE	Plug-in connection
FEATURES	Analog outputs configurable Output, voltage Input, voltage Analog inputs configurable Input signal, configurable
FITTED WITH:	1 kHz, third-order low-pass input filter Parameterizable Software input filter
VALUE REPRESENTATION	SIGNED16, mV, Voltage measurement
VOLTAGE MEASUREMENT	> 10 MΩ, Input resistance The channels can also be used as potentiometer inputs. -10 - 10 V DC, Measurement range Open wire monitoring. ± 12 V DC, Common-mode range

General information

CURRENT CONSUMPTION	60 mA (typ.), for +24 V, Power supply - Input 50 mA (typ.), for +5 V power supply (internal), 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 -10 - +10 V (16 bit) and 4 analog inputs -10 - +10 V (12 bit) or potentiometer inputs (0-100%, reference output (+10 V/10 mA). • XN300 I/O slice module
USED WITH	XN300 XN-312-...
VOLTAGE TYPE	DC

Input/Output

ACCURACY	± 0.5 % of full scale, Analog outputs ± 0.3 % of full scale, Voltage measurement
CAPACITIVE LOAD	0.1 µ F, Analog outputs
INPUT	4 Analog inputs (±10 V, Uref)
INPUT VOLTAGE	Max. 14 V DC
LOAD CURRENT	Not specified by plug manufacturer
MEASURED VARIABLES	Voltage or potentiometer
NUMBER OF INPUTS (ANALOG)	4
NUMBER OF OUTPUTS (ANALOG)	4
OUTPUT	4 Analog Outputs (±10 V)
OUTPUT VOLTAGE	-10 - 10 V DC (analog outputs)
REFRESH TIME	1 ms (analog inputs, all channels)
RESISTIVE LOAD	> 5000 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 Sensor/transmitter supply: no

Terminal capacities

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

Resources

BROCHURES	eaton-xc300-modular-plc-brochure-br050008en-en-us.pdf Slice card modular I/O system for the machine building industry XN300 - brochure
DECLARATIONS OF CONFORMITY	eaton-input-module-declaration-of-conformity-uk251198en.pdf eaton-input-module-declaration-of-conformity-eu250715en.pdf
DRAWINGS	eaton-modular-plc-xn-input-module-dimensions.eps eaton-modular-plc-xn-input-module-3d-drawing-006.eps

	eaton-modular-plc-xn-output-module-3d-drawing-002.eps eaton-general-xv-touch-panel-symbol.eps
ECAD MODEL	DA-CE-ETN.XN-322-8AIO-U2
INSTALLATION INSTRUCTIONS	IL050017ZU IL050025ZU
MANUALS AND USER GUIDES	eaton-xn300-slice-modules-mn050002-en-us.pdf eaton-xn-312-gw-can-canopen-gateway-mn050003-en-us.pdf
MCAD MODEL	eaton-modular-system-analog-mcad-3d-models-xn-322-8aio-u2.stp eaton-modular-system-analog-mcad-drawings-xn-322-8aio-u2.dwg
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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