

Specifications



Eaton 178767

Eaton XN-322 Digital input module, 20 digital inputs 24 V DC each, pulse-switching, 2/4 CNT, 25 kHz

General specifications

PRODUCT NAME	Eaton XN-322 Input module
CATALOG NUMBER	178767
MODEL CODE	XN-322-20DI-PCNT
EAN	7640130098312
PRODUCT LENGTH/DEPTH	104.2 mm
PRODUCT HEIGHT	16.8 mm
PRODUCT WIDTH	80.3 mm
PRODUCT WEIGHT	0.054 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

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

Communication

CONNECTION TYPE	Push-in spring-cage terminal (plug-in connection), Connection design in TOP direction
PROTOCOL	Other bus systems

Climatic environmental conditions

AIR PRESSURE	795 - 1080 hPa (operation)
AMBIENT OPERATING TEMPERATURE - MAX	55 °C
AMBIENT STORAGE TEMPERATURE - MAX	85 °C
AMBIENT OPERATING TEMPERATURE - MIN	0 °C
AMBIENT STORAGE TEMPERATURE - MIN	-20 °C
CLIMATIC PROOFING	Dry heat to IEC 60068-2-2 Damp heat, constant, to IEC 60068-2-3
ENVIRONMENTAL CONDITIONS	Condensation: prevent with appropriate measures
RELATIVE HUMIDITY	0 - 95 % (non-condensing)

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	0.225 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	0 W
RATED OPERATIONAL CURRENT FOR SPECIFIED HEAT DISSIPATION (IN)	0 A
STATIC HEAT DISSIPATION, NON-CURRENT-DEPENDENT PVS	3.012 W

Electrical rating

RATED OPERATIONAL VOLTAGE 160 V (terminations)

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 0.5/0.5 kV, Supply cable, balanced/unbalanced), EMC
1 kV, Signal cable, unbalanced, EMC

VOLTAGE DIPS Voltage dips: 10 ms/Voltage fluctuations: Yes

Features & functions

ELECTRIC CONNECTION TYPE Plug-in connection

FEATURES Digital inputs configurable
Fieldbus connection over separate bus coupler possible
Fieldbus connection over separate bus coupler possible

FUNCTIONS X1 signal analysis
4X signal analysis

OPERATING MODE Counter mode
Incremental encoder (A, B)

General information

COUNTER FREQUENCY 25 kHz
100 kHz

CURRENT CONSUMPTION None mA (typ.), for +24 V, Power supply - Input
40 mA (typ.), for +5 V power supply (internal), Power supply - Input

DEGREE OF PROTECTION IP20

INPUT FREQUENCY 25 kHz

MOUNTING METHOD Rail mounting possible

NUMBER OF CHANNELS 16

OVERVOLTAGE CATEGORY III

POLLUTION DEGREE 3

PRODUCT CATEGORY XN-322 digital input module

RESOLUTION • 16 Bit (Functions)

	• 8 Bit (Functions)
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	• Digital I/O module with sixteen 24 V DC / 3.7 mA (EN61131-2 type 1) inputs with a 0.5 ms input filter. An additional four 24 V DC / 3.7 mA (EN61131-2 type 1) inputs with a 0.01 ms input filter can be used as four 8-bit or two 16-bit counters with an input frequency of up to 25 kHz. • XN300 I/O slice module
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TYPE

USED WITH	XN-312-... XN300
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VOLTAGE TYPE	DC
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Safety

EXPLOSION SAFETY CATEGORY FOR DUST	None
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EXPLOSION SAFETY CATEGORY FOR GAS	None
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POTENTIAL ISOLATION	Digital inputs, Input delay: no Between Digital inputs: no
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Input/Output

INPUT	Digital inputs (according to EN61131-2 Type 1)
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INPUT CURRENT	3.7 mA (Digital inputs) ≥ 2.3 mA (Digital inputs, high level) ≤ 1.1 mA (Digital inputs, low level)
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INPUT CURRENT AT SIGNAL 1	3.7 mA
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INPUT DELAY	10 μ s (falling edge) 500 μ s (falling edge) 500 μ s (rising edge) 10 μ s (rising edge)
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INPUT VOLTAGE	0 - 8 V (low level) 0 - 8 V (Digital inputs, low level) 24 V DC (Digital inputs) 14 - 30 V (Digital inputs, high level)
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LOAD CURRENT	Not specified by plug manufacturer
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NUMBER OF INPUTS (DIGITAL)	20
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NUMBER OF OUTPUTS (DIGITAL)	0
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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	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-uk251198en.pdf eaton-input-module-declaration-of-conformity-eu250715en.pdf eaton-modular-plc-xn-input-module-dimensions.eps eaton-xn300-modular-io-system-brochure-br050004en-en-us.pdf
DRAWINGS	eaton-modular-plc-xn-input-module-3d-drawing-003.eps eaton-general-xv-touch-panel-symbol.eps eaton-modular-plc-xn-input-module-3d-drawing-006.eps
ECAD MODEL	DA-CE-ETN.XN-322-20DI-PCNT
INSTALLATION INSTRUCTIONS	IL050017ZU IL050025ZU
MANUALS AND USER GUIDES	eaton-xn300-slice-modules-mn050002-en-us.pdf eaton-xn-312-gw-ec-ethercat-gateway-mn050010-en-us.pdf eaton-xn-312-gw-can-canopen-gateway-mn050003-en-us.pdf
MCAD MODEL	eaton-modular-system-digital-mcad-drawings-xn-322-20di-pcnt.dwg eaton-modular-system-digital-mcad-3d-models-xn-322-20di-pcnt.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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