



**Digital output module; 16 digital outputs short-circuit proof 24 V DC/0.5 A each; pulse-switching**


**Part no. XN-322-16DO-P05**  
**Catalog No. 178787**  
**Alternate Catalog No. XN-322-16DO-P05**

### Delivery program

Function		XN300 I/O slice modules
Connection technique		Push-in spring-cage terminal
Function		XN-322 digital output module for XN300
Short Description		16 digital outputs short-circuit proof 24 V DC/0.5 A each, pulse-switching
For use with		XN-312-...

### Technical data

#### General

Standards			IEC/EN 61131-2 IEC/EN 61000-6-2 IEC/EN 61000-6-4
Approvals			CE, cULus EAC
shipping classification			DNV GL
			
Electromagnetic compatibility (EMC)			
ESD	Air/contact discharge	kV	8 / 4
Electromagnetic fields	(0.08...1) / (1,4...2) / (2...2,7) GHz	V/m	10 / 3 / 1
Burst			
Supply cable		kV	2
Signal cable		kV	1
Surge			
Supply cable (balanced / unbalanced)		kV	0,5 / 0,5
Signal cable (unbalanced)		kV	1
Radiated RFI		V	10
Emitted interference (radiated, high frequency)	(30...230 MHz) / (230...1000 MHz)	dB	40 / 47 class A
Voltage fluctuations/voltage dips			Yes / 10 ms
Ambient conditions			

Climatic conditions			
Climatic proofing			Dry heat to IEC 60068-2-2 Damp heat as per EN 60068-2-3
Air pressure (operation)		hPa	795 - 1080
Relative humidity			0 - 95%, non condensing
Condensation			prevent with suitable measures
Temperature			
Operation		°C	0 - +60
Storage, transport	θ	°C	-20 - +85
Degree of Protection			IP20
Mounting position			Horizontal
Free fall, packaged (IEC/EN 60068-2-32)		m	1
Vibrations	3,5 mm / 1 g	Hz	5 - 8.4 / 8.4 -150
Mechanical shock resistance	Semisinusoida	Impacts	18 15 g/11 ms

## Terminations

Rated operational data			
Insulating material group			I
Overvoltage category / pollution degree			III / 3
Rated operating voltage		V	160
Maximum load current/cross-sectional area		A / mm <sup>2</sup>	X (not specified by plug manufacturer)
Connection design in TOP direction			Push-in spring-cage terminal (plug-in connection)
Stripping length		mm	10
Gauge pin IEC/EN 60947-1			A1
Connection specifications			
"e" solid H07V-U		mm <sup>2</sup>	0.2 - 1.5
"f" flexible H 07V-K		mm <sup>2</sup>	0.2 - 1.5
"f" with ferrules without plastic collar according to DIN 46228-1 (ferrules crimped gas-tight)		mm <sup>2</sup>	0.25-1,5
"f" with ferrules with plastic collar according to DIN 46228-1 (ferrules crimped gas-tight)		mm <sup>2</sup>	0.25-1,5
Cable size		AWG	24 - 16

## Supply

Power supply - Input			
Power supply			
Current consumption for +5 V power supply (internal)	I	mA	(typ.) 45
Current consumption for +24 V power supply	I	mA	(typ.) none
Potential isolation	PE (polyethylene)		no
Rated operating voltage	U <sub>e</sub>	V	24 (terminal +1)
Rated operational current	I <sub>e</sub>	A	4
Potential isolation			no
Rated operating voltage	U <sub>e</sub>	V	24 (terminal +2)
Rated operational current	I <sub>e</sub>	A	4
Potential isolation			no
Heat dissipation			
Heat dissipation (without active channels)		W	0.25
Max. heat dissipation		W	2.745
Notes on heat dissipation			The max. heat dissipation is specified as the maximum power produced inside the device's housing.

## Digital outputs

Channels		Quantity	16
Output voltage			
Output voltage, nominal value	U <sub>a</sub>	V DC	24
Low level	U <sub>aL</sub>	V	0V < U <sub>aL</sub> < 1V
High level	U <sub>aH</sub>	V	U <sub>e</sub> - 1V < U <sub>aH</sub> < U <sub>e</sub>
Output current			
Output current, nominal value	I <sub>aL</sub>	A	0.5

Low signal	$I_A$	mA	$0 < I_{aL} < 0.5$
High level	$I_{aH}$	mA	$0 \leq I_{aH} \leq 500$
Short-circuit rating			Yes
Potential isolation		Output against output	no
Heat dissipation (internal, per active channel)		W	0.095
Utilization factor	%	g	100% (# $I_{Amax} = 8A$ )
Delay on signal change and resistive load			
from Low to High level		$\mu s$	< 100
From High to Low signal		$\mu s$	< 100
Resistive load			
Resistive load		$\Omega$	> 48
Notes on digital outputs			Protective devices must be installed directly at the inductive load in order to prevent interference.

## Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	$I_n$	A	0
Heat dissipation per pole, current-dependent	$P_{vid}$	W	0
Equipment heat dissipation, current-dependent	$P_{vid}$	W	0
Static heat dissipation, non-current-dependent	$P_{vs}$	W	2.745
Heat dissipation capacity	$P_{diss}$	W	0
Operating ambient temperature min.		$^{\circ}C$	0
Operating ambient temperature max.		$^{\circ}C$	55
Degree of Protection			IP20
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
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 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric 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			
			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 Insulation properties			
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.
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.

## Technical data ETIM 7.0

PLC's (EG000024) / Fieldbus, decentr. periphery - digital I/O module (EC001599)

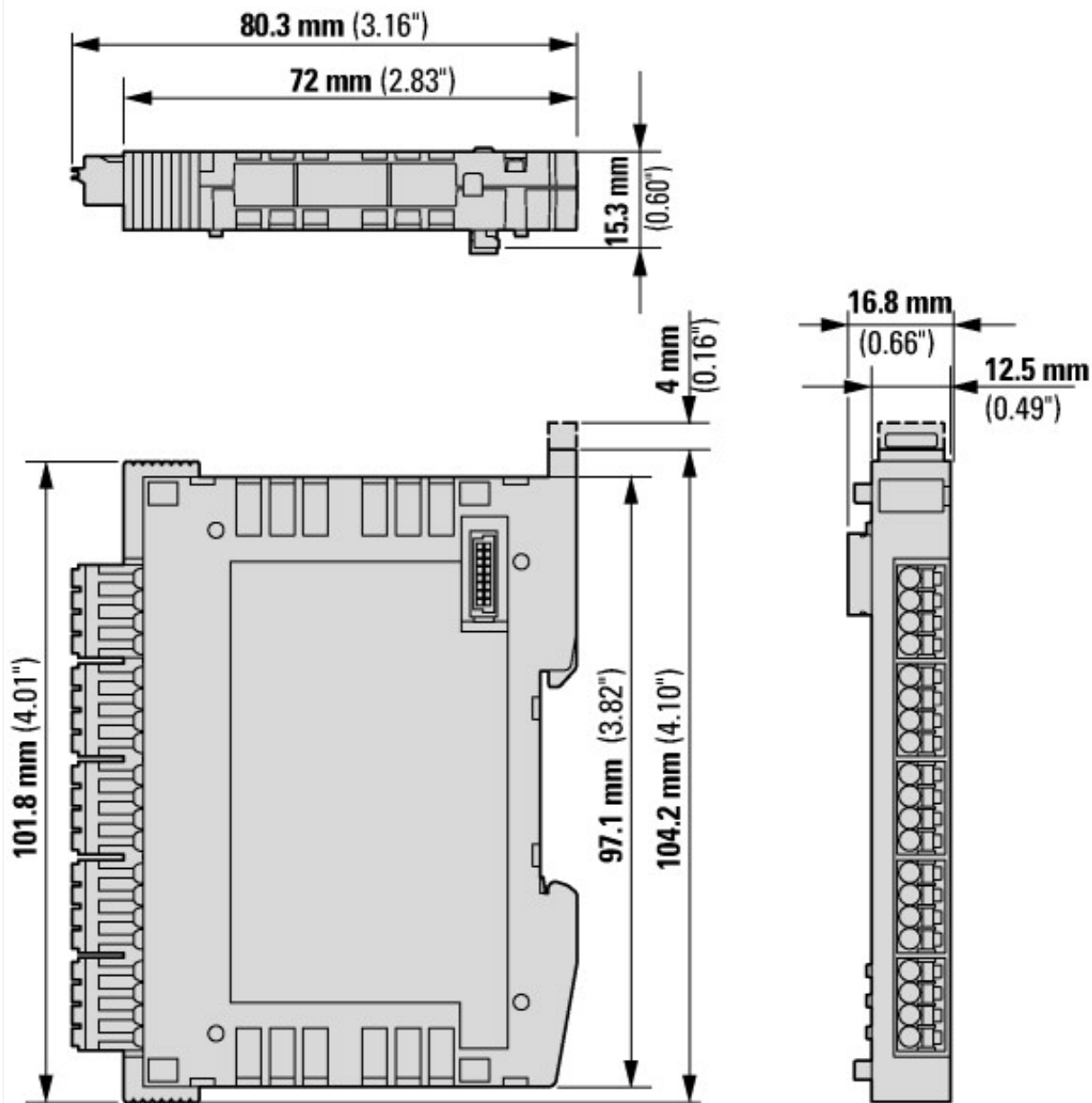
Supply voltage AC 50 Hz	V	0 - 0
Supply voltage AC 60 Hz	V	0 - 0
Supply voltage DC	V	18 - 30
Voltage type of supply voltage		DC
Number of digital inputs		0
Number of digital outputs		16
Digital inputs configurable		No
Digital outputs configurable		No
Input current at signal 1	mA	0
Permitted voltage at input	V	0 - 0
Type of voltage (input voltage)		DC
Type of digital output		Other
Output current	A	0.5
Permitted voltage at output	V	0 - 29
Type of output voltage		DC
Short-circuit protection, outputs available		Yes
Number of HW-interfaces industrial Ethernet		0
Number of interfaces PROFINET		0
Number of HW-interfaces RS-232		0
Number of HW-interfaces RS-422		0
Number of HW-interfaces RS-485		0
Number of HW-interfaces serial TTY		0
Number of HW-interfaces parallel		0
Number of HW-interfaces Wireless		0
Number of HW-interfaces USB		0
Number of HW-interfaces other		1
With optical interface		No
Supporting protocol for TCP/IP		No
Supporting protocol for PROFIBUS		No
Supporting protocol for CAN		No
Supporting protocol for INTERBUS		No
Supporting protocol for ASI		No
Supporting protocol for KNX		No
Supporting protocol for MODBUS		No
Supporting protocol for Data-Highway		No
Supporting protocol for DeviceNet		No
Supporting protocol for SUCONET		No
Supporting protocol for LON		No
Supporting protocol for PROFINET IO		No
Supporting protocol for PROFINET CBA		No
Supporting protocol for SERCOS		No
Supporting protocol for Foundation Fieldbus		No
Supporting protocol for EtherNet/IP		No
Supporting protocol for AS-Interface Safety at Work		No
Supporting protocol for DeviceNet Safety		No
Supporting protocol for INTERBUS-Safety		No
Supporting protocol for PROFIsafe		No
Supporting protocol for SafetyBUS p		No
Supporting protocol for other bus systems		No
Radio standard Bluetooth		No
Radio standard WLAN 802.11		No
Radio standard GPRS		No
Radio standard GSM		No
Radio standard UMTS		No

IO link master		No
System accessory		Yes
Degree of protection (IP)		IP20
Type of electric connection		Screw-/spring clamp connection
Time delay at signal exchange	ms	0 - 0.1
Fieldbus connection over separate bus coupler possible		Yes
Rail mounting possible		Yes
Wall mounting/direct mounting		No
Front build in possible		No
Rack-assembly possible		No
Suitable for safety functions		No
Category according to EN 954-1		None
SIL according to IEC 61508		None
Performance level acc. EN ISO 13849-1		None
Appendant operation agent (Ex ia)		No
Appendant operation agent (Ex ib)		No
Explosion safety category for gas		None
Explosion safety category for dust		None
Width	mm	16.8
Height	mm	104.2
Depth	mm	80.3

## Approvals

Product Standards		CE, cULus
UL File No.		E135462

## Dimensions



Notes: The plugs/connectors used depend on the version.

## Additional product information (links)

### Manual XN300 digital I/O modules, analog I/O modules, power supply modules, technology modules MN050002

Handbuch XN300 digitale E/A-Module, analoge E/A-Module, Stromversorgungsmodule, Technologiemodule MN050002 - Deutsch

[https://es-assets.eaton.com/DOCUMENTATION/AWB\\_MANUALS/MN050002\\_DE.pdf](https://es-assets.eaton.com/DOCUMENTATION/AWB_MANUALS/MN050002_DE.pdf)

Manual XN300 digital I/O modules, analog I/O modules, power supply modules, technology modules MN050002 - English

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