




Counter module, 4 digital inputs +24 V, 4 digital outputs, +24 V/ 2A, 1 incremental encoder input (RS422 or TTL) up to 125 kHz, 16 bits

Part no. XN-322-1CNT-8DIO
Article no. 178795
Catalog No. XN-322-1CNT-8DIO

Delivery program

Photo			
Function			XN300 technology modules
Connection technique			Push-in spring-cage terminal
Function			XN-322 counter module for XN300
Short Description			Counter module 4 digital inputs and 4 digital outputs, 1 CNT, 16 bit, RS422/TTL inputs to 125 kHz, outputs 2 A
Description			Counter module with RS422/TTL inputs for frequencies of up to 125 kHz and 4 digital inputs and 4 digital outputs with 2 A. These modules are particularly useful for reading counter values used in positioning applications.
For use with			XN-312-...

Technical data

General			
Standards			IEC/EN 61131-2 IEC/EN 61000-6-2 IEC/EN 61000-6-4
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
Umgebungsbedingungen			
Klima			
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			
Betrieb		°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 ²	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
Anschlussvermögen			
"e" solid H07V-U		mm ²	0.2 - 1.5
"f" flexible H 07V-K		mm ²	0.2 - 1.5
"f" with ferrules without plastic collar according to DIN 46228-1 (ferrules crimped gas-tight)		mm ²	0.25 - 1.5
"f" with ferrules with plastic collar according to DIN 46228-1 (ferrules crimped gas-tight)		mm ²	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.) 40
Current consumption for +24 V power supply	I	mA	(typ.) none
Potential isolation	PE		no
	(polyethylene)		
Rated operating voltage	U _e	V	24 V (for incremental encoder)
Rated operational current	I _e	A	0.25
Potential isolation			no
Rated operating voltage	U _e	V	24 V (for dig. outputs)
Rated operational current	I _e	A	6
Potential isolation			no
Power supply - Output			
Sensor/transmitter supply			
Rated operating voltage	U _a	V	5
Rated operational current	I _{max}	A	0.2
Potential isolation			no
Heat dissipation			
Heat dissipation (without active channels)		W	1.218
Max. heat dissipation		W	3.516
Notes on heat dissipation			The max. heat dissipation is specified as the maximum power produced inside the device's housing.

Digital inputs

Channels		Number	4
Input voltage			
Nominal input voltage	U _e	V DC	24
Low level	U _{eL}	V	0 < U _{eL} < +8
High level	U _{eH}	V	+14 < U _{eH} < +30
Input current			

Input current, nominal value	I_e	mA	3.7
Low level/active level	I_{eL}	mA	≤ 1.1
High level/active level	I_{eH}	mA	≥ 2.3
Input delay			
$t_{\text{Rising edge}}$		μs	< 10
$t_{\text{Falling edge}}$		μs	< 10
Potential isolation		Input to input	no
Heat dissipation (per active channel)		W	0.088

Digital inputs

Input delay			
Potential isolation		Input to input	no
Heat dissipation (per active channel)		W	0.088
Incremental encoder			
Channels		Quantity	1
Signals			
RS422			A, /A, B, /B, R, /R
Bus termination resistor			120 Ω (internal)
TTL			A, B, R
Bus termination resistor			1200 Ω (internal pull-up resistor)
Potential isolation			no
Heat dissipation (per active channel)		W	1.105
Notes on incremental encoder			The incremental encoder must be wired using a screened cable. In the case of RS422 encoders, it is recommended to use a screened twisted-pair cable. The shielding must be terminated as close as possible to the module (upstream of it).

Digital outputs

Channels		Quantity	4
Output voltage			
Output voltage, nominal value	U_a	V DC	24
Low level	U_{aL}	V	$0V < U_{aL} < 1V$
High level	U_{aH}	V	$U_e - 1V < U_{aH} < U_e$
Output current		A	
Output current, nominal value	I_{aL}	A	2
Low signal	I_A	mA	$0 < I_{aL} < 0.5$
High level	I_{aH}	mA	$0 \leq I_{aH} \leq 2000$
Short-circuit rating			Yes
Potential isolation			no
Heat dissipation (internal, per active channel)		W	0.388
Utilization factor	%	g	75% ($\Sigma I_{Amax} = 6A$)
Delay on signal change and resistive load			
from Low to High level		μs	< 200
From High to Low signal		μs	< 200
Resistive load			
Resistive load		Ω	> 12
Notes on digital outputs			Protective devices must be installed directly at the inductive load in order to prevent interference.

Functions

Counting mode			
Operate Mode			RS422
Channels		Quantity	1
Resolution		Bit	16
Input frequency	f_{max}	kHz	125
Signal analysis			X1/X2/X4 encoding
Counter frequency	f_{max}	kHz	Max. 500 kHz (X4 encoding)
Operate Mode			TTL

Channels		Quantity	1
Resolution		Bit	16
Input frequency	f_{\max}	kHz	125
Signal analysis			X1/X2/X4 encoding
Counter frequency	f_{\max}	kHz	Max. 500 kHz (X4 encoding)
Notes on operating mode			RS422 or TTL operating mode, configurable

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	0
Heat dissipation capacity	P_{diss}	W	0
Operating ambient temperature min.		°C	0
Operating ambient temperature max.		°C	60
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 6.0

PLC's (EG000024) / Fieldbus, decentr. periphery - function-/technology module (EC001601)			
Electric engineering, automation, process control engineering / Control / Field bus, decentralized peripheral / Field bus, decentralized periphery - function-/technology module (ec@ss8.1-27-24-26-05 [BAA066011])			
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 functions			0
Number of HW-interfaces industrial Ethernet			0

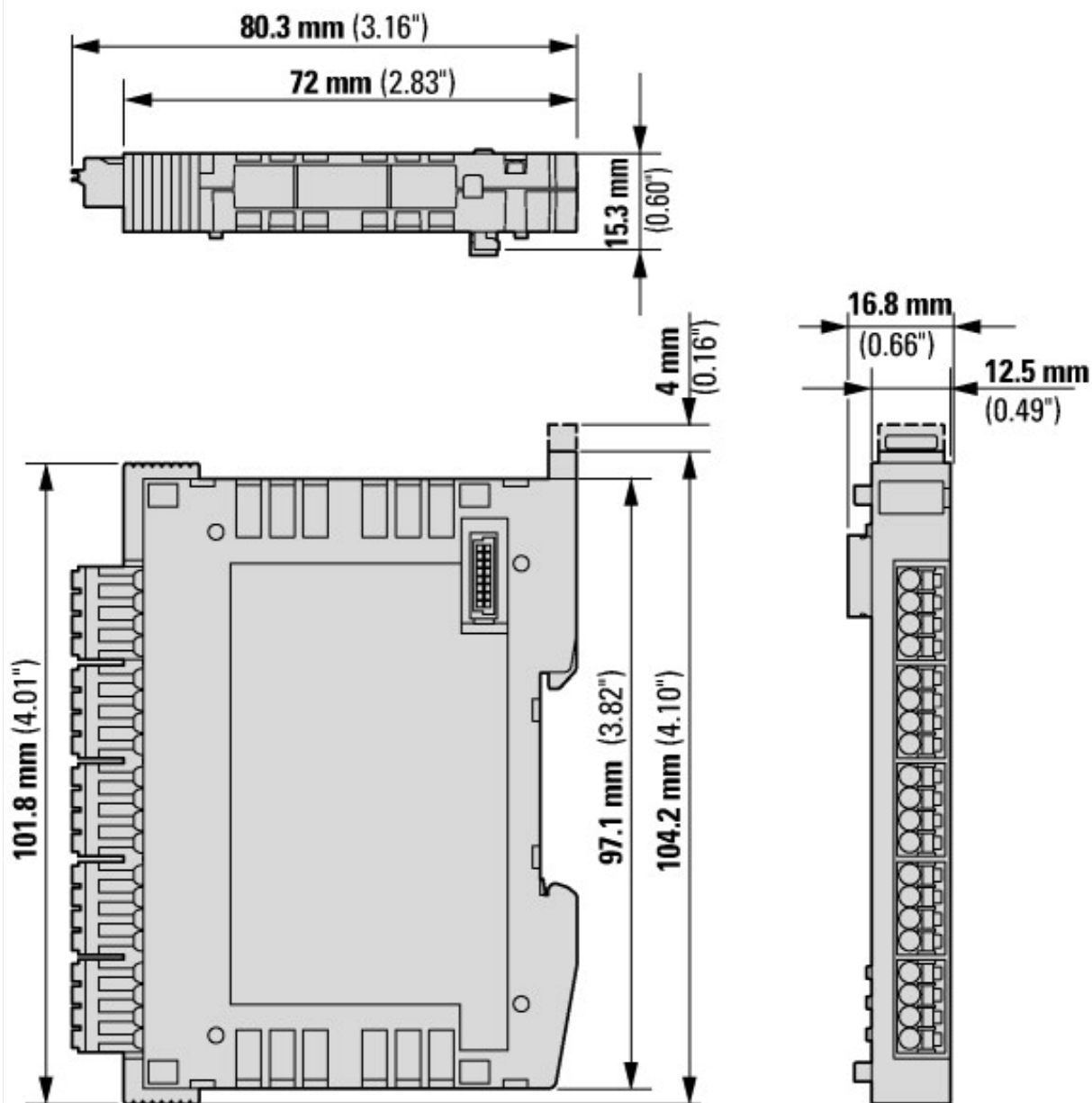
Number of HW-interfaces PROFINET		0
Number of HW-interfaces RS-232		0
Number of HW-interfaces RS-422		0
Number of HW-interfaces RS-485		0
Number of HW-interfaces serial TTY		0
Number of HW-interfaces parallel		0
Number of HW-interfaces Wireless		0
Number of HW-interfaces other		0
With optical interface		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
Suitable for counting		Yes
Suitable for weighting		No
Suitable for temperature control		No
Suitable for welding control		No
Suitable for pressure control		No
Suitable for NC		No
Function electronic positioning available		Yes
Suitable for CNC		No
Suitable for SSI		No
Suitable for incremental data detection		Yes
Suitable for detection absolute value		Yes
Flux controller possible		No
Suitable for flux measurement		No
Suitable for path controller		No
Suitable for cam controller		No
Suitable for flying saw		No
Suitable for multi-axis control		No

Single-axis controller possible			No
Suitable for multi-axis positioning			No
Single-axis positioning possible			Yes
Function block restart blockage			No
Function block automatic reset			No
Contact control function block			No
Function block emergency stop			No
Function block contactless working protection installation			No
Function block affirm pushbutton			No
Function block 2-hand switching			No
Function block operating mode selection			No
Function block access control			No
Degree of protection (IP)			IP20
Fieldbus connection over separate bus coupler possible			Yes
Frequency measurement			No
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			
SIL according to IEC 61508			None
Performance level acc. to 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)

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

MN050002 Manual XN300 digital I/O modules, analog I/O modules, power supply modules, technology modules - Deutsch ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN050002_DE.pdf

MN050002 Manual XN300 digital I/O modules, analog I/O modules, power supply modules, technology modules - English ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN050002_EN.pdf