DATASHEET - XN-4DI-24VDC-N



Digital input card XI/ON, 24 VDC, 4DI, negative switching

XN-4DI-24VDC-N Part no. Catalog No. 140059

EL-Nummer (Norway)

4520652



Delivery program

Function	I/O modules
	Digital input modules
Function	XN Slice module
Short Description	4 Digital inputs, 24 V DC Negative switching
For use with	XN-S4T-SBBS XN-S4S-SBBS XN-S6T-SBBSBB XN-S6S-SBBSBB

Technical data

General			
Standards			EN 61000-6-2 EN 61000-6-4 EN 61131-2
Potential isolation			Yes, through optocoupler
Ambient temperature			
Ambient temperature, operation		°C	0 - +55
Storage, transport	θ	°C	-25 - +85
Relative humidity			
Relative humidity			5 - 95 % (indoor), Level RH-2, no condensation (for storage at 45°C)
Ambient conditions, mechanical			
Degree of Protection			IP20
Harmful gases		ppm	SO_2 : 10 (rel. humidity < 75%, no condensation) H ₂ S: 1.0 (rel. humidity < 75 %,no condensation)
Vibration resistance, operating conditions			according to IEC/EN 60068-2-6
Mechanical shock resistance		g	according to IEC 60068-2-27
Continuous shock resistance (IEC/EN 60068-2-29)			According to IEC 60068-2-29
Drop and topple			According to IEC 60068-2-31, free fall according to IEC 60068-2-32
Electromagnetic compatibility (EMC)			
ESD	Air/contact discharge	kV	EN 61000-4-2
Electromagnetic fields	(0.081) / (1,42) / (2 2,7) GHz	V/m	EN 61100-4-2
Burst			EN 61100-4-4
Surge			EN 61100-4-5
Radiated RFI		V	EN 61100-4-6
Emitted interference (radiated, high frequency)	(30230 MHz) / (2301000 MHz)	dB	EN 55016-2-3
Voltage fluctuations/voltage dips			EN 61131-2
Type test			to EN 61131-2
Approvals			CE, cULus
Other technical data (sheet catalogue)			Technical Data

Analog input modules

Channels		Number	4
Rated voltage through supply terminal	U_{L}		24 V DC
Rated current consumption from supply terminal	IL	mA	40
Rated current consumption from module bus	I _{MB}	mA	≦ 28
Heat dissipation		W	1
Base modules			
without C connection			2-/3-wire XN-S4x-SBBS 4-wire XN-S6x-SBBSBB
Analog output modules			

Channels		Number	4
Rated voltage through supply terminal	U_L		24 V DC
Rated current consumption from supply terminal	IL	mA	40
Rated current consumption from module bus	I_{MB}	mA	≦ 28
Heat dissipation		W	1
Base modules			
without C connection			2-/3-wire XN-S4x-SBBS 4-wire XN-S6x-SBBSBB

Digital outputs

Channels		Number	4
Rated voltage through supply terminal	U_{L}		24 V DC
Rated current consumption from the supply terminal (at load current = 0 mA) $$	IL	mA	40
Rated current consumption from module bus	I _{MB}	mA	≦ 28

Digital inputs

Digital lilputs			
Channels		Number	4
Rated voltage through supply terminal	U_L		24 V DC
Rated current consumption from supply terminal	IL	mA	40
Rated current consumption from module bus	I _{MB}	mA	≦ 28
Rated insulation voltage	Ui	V AC	500
Heat dissipation		W	1
Input voltage			
Nominal input voltage	U _e	V DC	24 V DC
Low level	U _e L	V	-30 V - (U _L - 11 V)
High level	U _e H	V	0 - 5 V
Input current			
Low level/active level	I _e L	mA	0 mA - 1.2 mA
High level/active level	I _{eH}	mA	1.3 mA - 6 mA
Input delay			
[†] Rising edge		μs	< 200
[†] Falling edge		μs	< 200
Base modules			
without C connection			2-/3-wire XN-S4x-SBBS 4-wire XN-S6x-SBBSBB

Relay modules

Rated voltage through supply terminal	U_{L}		24 V DC
Rated current consumption from supply terminal	IL	mA	40
Rated current consumption from module bus	I _{MB}	mA	≦ 28
Base modules			
without C connection			2-/3-wire XN-S4x-SBBS 4-wire XN-S6x-SBBSBB

Power supply module

Rated voltage through supply terminal	UL	24 V DC	

Rated current consumption from supply terminal	IL	mA	40		
Rated current consumption from module bus	I_{MB}	mA	≦ 28		
Counter module					
Channels		Number	4		
Rated voltage through supply terminal	U_{L}		24 V DC		
Rated current consumption from supply terminal	IL	mA	40		
Rated current consumption from module bus	I _{MB}	mA	≦ 28		
Heat dissipation		W	1		
Digital inputs					
Input voltage					
Nominal input voltage	U _e	V DC	24 V DC		
Low level	U _e L	V	-30 V - (U _L - 11 V)		
High level	U_eH	V	0 - 5 V		
Input current					
Low level	I _e L	mA	0 mA - 1.2 mA		
High level	I _{eH}	mA	1.3 mA - 6 mA		
Interfaces					
Rated voltage through supply terminal	U_{L}		24 V DC		
Rated current consumption from supply terminal	IL	mA	40		
Rated current consumption from module bus	I _{MB}	mA	≦ 28		
<u> </u>					

Notes

The supply terminal (U_L) supplies power for the card's electronics and for the sensors at the inputs. The total current required for each card is the sum of all partial currents.

Part of the XI/ON card's electronics is supplied with module bus voltage (5 V DC), the other part through the supply terminal (U_L) .

Max. permissible capacity: 141 nF at 79 V AC/50 Hz; 23 nF at 265 V AC/50 Hz

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	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	1
Heat dissipation capacity	P _{diss}	W	0
Operating ambient temperature min.		°C	0
Operating ambient temperature max.		°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.

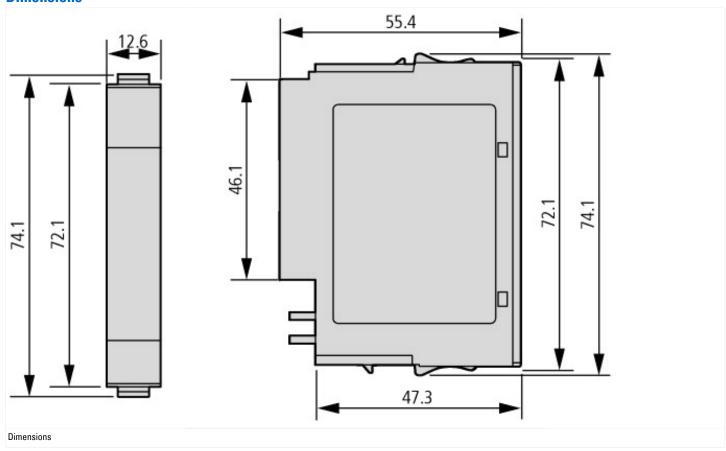
10.13 Mechanical function		leaflet (IL) is observed.			
Technical data ETIM 7.0					
PLC's (EG000024) / Fieldbus, decentr. periphery - digital I/O module (EC001599)					
	eld bus, decentralized periphe	eral / Field bus, decentralized peripheral - digital I/O module (ecl@ss10.0.1-27-24-26-04			
[BAA055014])					
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		4			
Number of digital outputs		0			
Digital inputs configurable		No			
Digital outputs configurable		No			
Input current at signal 1	mA	1.3			
Permitted voltage at input	V	0 - 30			
Type of voltage (input voltage)		DC			
Type of digital output		None			
Output current	Α	0			
Permitted voltage at output	V	0 - 0			
Type of output voltage		DC			
Short-circuit protection, outputs available		No			
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		Yes			
Supporting protocol for CAN		Yes			
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		Yes			
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			
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Supporting protocol for INTERBUS-Safety No Supporting protocol for SafetyBUS p No Supporting protocol for other bus systems Pos Radio standard Bluetooth No Radio standard BUAN 802.11 No Radio standard GPRS No Radio standard GSM No Radio standard GUMAN 802.11 No Radio standard GWTS No System accessory Yes Degree of protoction (IP) Yes Time delay at signal exchange Plug-in connection Time delay at signal exchange No Fieldbus connection over separate bus coupler possible No Wall mounting forsible No Radious connection over separate bus coupler possible No Rack-ass			
Supporting protocol for PROFIsale No Supporting protocol for SafetyBUS p No Supporting protocol for other bus systems No Radio standard Bluetoth No Radio standard Bluetoth No Radio standard WLAN 802.11 No Radio standard GPRS No Radio standard GSM No Radio standard UMTS No 10 link master No System accessory No Degrae of protoction (IP) P20 Type of electric connection P1920 Type of electric connection P1920 Stall mounting possible No Wall mounting/direct mounting No Front build in possible No Rack-assembly possible No Suitable for safety functions No Suitable for safety functions </td <td>Supporting protocol for DeviceNet Safety</td> <td></td> <td>No</td>	Supporting protocol for DeviceNet Safety		No
Supporting protocol for SafetyBUS p No Supporting protocol for other bus systems Yes Radio standard Bluetooth No Radio standard BUENDAM No Radio standard GSM No Radio standard UMTS No 10 link master No System accessory Plug-in connection Upper of protection (IP) Plug-in connection Type of electric connection Mo Rail mounting possible Mo Rail mounting possible Yes Wall mounting/direct mounting Yes Suitable for safety functions No Suitable for safety functions No Category according to EN 954-1 No Sil. according to EE 61508 No Performance level acc. EN ISO 13849-1 None Appendant operation agent (Ex ia) No Explosion safety category for dust None Width None Explosion safety category for dust Mn Width None Appendant operation agent (Ex ia) None Ex	Supporting protocol for INTERBUS-Safety		No
Supporting protocol for other bus systems Yes Radio standard Bluetooth No Radio standard WLAN 802.11 No Radio standard GSM No Radio standard GSM No Radio standard UMTS No 10 link master No System accessory Yes Degree of protection (IP) Plug-in connection Type of electric connection Plug-in connection Time delay at signal exchange Ms 0 - 0 Fieldbus connection over separate bus coupler possible Yes Rail mounting possible Yes Wall mounting/direct mounting No Front build in possible No Salc-assembly possible No Suitable for safety functions No Category according to EN 954-1 No Sil. according to EN 954-1 None Sil. according to EN 954-1 No<	Supporting protocol for PROFIsafe		No
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Degree of protection (IP) Type of electric connection Time delay at signal exchange Time delay at signal exchange Rail mounting possible Rail mounting possible Wall mounting/direct mounting Front build in possible Rack-assembly p	10 link master		No
Type of electric connection Plug-in connection Time delay at signal exchange ms 0 - 0 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 12.6 Height mm 74.1	System accessory		Yes
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Rail mounting possible Wall mounting/direct mounting Front build in possible Rack-assembly possible Rack-assembly possible Suitable for safety functions Category according to EN 954-1 SIL according to IEC 61508 Performance level acc. EN ISO 13849-1 Appendant operation agent (Ex ia) Appendant operation agent (Ex ib) Explosion safety category for gas Explosion safety category for dust Width Midth Mi	Time delay at signal exchange	ms	0 - 0
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Rack-assembly possible Suitable for safety functions Category according to EN 954-1 SIL according to IEC 61508 Performance level acc. EN ISO 13849-1 Appendant operation agent (Ex ia) Appendant operation agent (Ex ib) Explosion safety category for gas Explosion safety category for dust Width Height No No None 12.6 Meight	Wall mounting/direct mounting		No
Suitable for safety functions Category according to EN 954-1 SIL according to IEC 61508 Performance level acc. EN ISO 13849-1 Appendant operation agent (Ex ia) Appendant operation agent (Ex ib) Explosion safety category for gas Explosion safety category for dust Width Height No No No No No No No No No N	Front build in possible		No
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SIL according to IEC 61508 Performance level acc. EN ISO 13849-1 Appendant operation agent (Ex ia) Appendant operation agent (Ex ib) Explosion safety category for gas Explosion safety category for dust Width Height None	Suitable for safety functions		No
Performance level acc. EN ISO 13849-1 Appendant operation agent (Ex ia) Appendant operation agent (Ex ib) Explosion safety category for gas Explosion safety category for dust Width Height None None None None 12.6 mm 74.1	Category according to EN 954-1		None
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Appendant operation agent (Ex ib) Explosion safety category for gas Explosion safety category for dust Width Minum 12.6 Height No None 74.1	Performance level acc. EN ISO 13849-1		None
Explosion safety category for gas Explosion safety category for dust Width Minimit 12.6 Height None 74.1	Appendant operation agent (Ex ia)		No
Explosion safety category for dust Width Min 12.6 Height The interpretation of the i	Appendant operation agent (Ex ib)		No
Widthmm12.6Heightmm74.1	Explosion safety category for gas		None
Height mm 74.1	Explosion safety category for dust		None
	Width	mm	12.6
Depth mm 55.4	Height	mm	74.1
	Depth	mm	55.4

Approvals

Product Standards	UL 508; CSA-C22.2 No. 142; IEC/EN 6113-2; CE marking
UL File No.	E205091
UL Category Control No.	NRAQ, NRAQ7
CSA File No.	UL report applies to both US and Canada
CSA Class No.	2252-01, 2252-81
North America Certification	UL recognized, certified by UL for use in Canada
Specially designed for North America	No
Current Limiting Circuit-Breaker	No
Degree of Protection	IEC: IP20, UL/CSA Type: -

Dimensions



Additional product information (links)

Technical Data

http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=14.111