

## Digital input card XION ECO, 24 V DC, 16 DI, pulse-switching



Part no.	XNE-16DI-24VDC-P
Catalog No.	140040
EL-Nummer (Norway)	4520693

## Delivery program

Function		I/O modules
Function		Digital input modules
Short Description		XNE Slice module
		16 Digital inputs, 24 V DC Positive switching

## 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	8	°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 <sub>2</sub> : 10 (rel. humidity < 75%, no condensation) H <sub>2</sub> 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	(0.08...1) / (1,4...2) / (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)	(30...230 MHz) / (230...1000 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

## Terminations

Rated data			according to VDE 0611 Part 1/8.92 / IEC/EN 60947-7-1
Connection design in TOP direction			Push-In spring-cage terminals
Stripping length		mm	8
Clamping range			max. 0.14 - 1.5 mm <sup>2</sup>
Connectable conductors			
"e" solid H07V-U		mm <sup>2</sup>	0.25 - 1.5

"f" flexible H 07V-K	mm <sup>2</sup>	0.25 - 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 - 0.75
Connectable conductors		
"e" solid H07V-U	mm <sup>2</sup>	0.25 - 1.5
"f" flexible H 07V-K	mm <sup>2</sup>	0.25 - 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 - 0.75
Gauge pin IEC/EN 60947-1		A1

### Analog input modules

Channels	Number	16
Rated voltage through supply terminal	U <sub>L</sub>	24 V DC
Rated current consumption from supply terminal	I <sub>L</sub>	mA
Rated current consumption from module bus	I <sub>MB</sub>	mA
Heat dissipation		W
Base modules		
without C connection		Already built in

### Analog output modules

Channels	Number	16
Rated voltage through supply terminal	U <sub>L</sub>	24 V DC
Rated current consumption from supply terminal	I <sub>L</sub>	mA
Rated current consumption from module bus	I <sub>MB</sub>	mA
Heat dissipation		W
Base modules		
without C connection		Already built in

### Digital outputs

Channels	Number	16
Rated voltage through supply terminal	U <sub>L</sub>	24 V DC
Rated current consumption from the supply terminal (at load current = 0 mA)	I <sub>L</sub>	mA
Rated current consumption from module bus	I <sub>MB</sub>	mA

### Digital inputs

Channels	Number	16
Rated voltage through supply terminal	U <sub>L</sub>	24 V DC
Rated current consumption from supply terminal	I <sub>L</sub>	mA
Rated current consumption from module bus	I <sub>MB</sub>	mA
Rated insulation voltage	U <sub>i</sub>	V AC
Heat dissipation		W
Input voltage		
Nominal input voltage	U <sub>e</sub>	V DC
Low level	U <sub>eL</sub>	V
High level	U <sub>eH</sub>	V
Input current		
Low level/active level	I <sub>eL</sub>	mA
High level/active level	I <sub>eH</sub>	mA
Input delay		
t <sub>Rising edge</sub>		µs
t <sub>Falling edge</sub>		µs
Base modules		
without C connection		Already built in

### Relay modules

Rated voltage through supply terminal	U <sub>L</sub>	24 V DC
Rated current consumption from supply terminal	I <sub>L</sub>	mA

Rated current consumption from module bus	$I_{MB}$	mA	$\leq 15$
Base modules			
without C connection			Already built in
<b>Power supply module</b>			
Rated voltage through supply terminal	$U_L$		24 V DC
Rated current consumption from supply terminal	$I_L$	mA	3
Rated current consumption from module bus	$I_{MB}$	mA	$\leq 15$
<b>Counter module</b>			
Channels		Number	16
Rated voltage through supply terminal	$U_L$		24 V DC
Rated current consumption from supply terminal	$I_L$	mA	3
Rated current consumption from module bus	$I_{MB}$	mA	$\leq 15$
Heat dissipation		W	< 2.5
<b>Digital inputs</b>			
Input voltage			
Nominal input voltage	$U_e$	V DC	24 V DC
Low level	$U_{eL}$	V	$-U_L - +5$ V
High level	$U_{eH}$	V	11 - 30 V
Input current			
Low level	$I_{eL}$	mA	-1 mA - 1.5 mA
High level	$I_{eH}$	mA	2 mA - 5 mA
<b>Interfaces</b>			
Rated voltage through supply terminal	$U_L$		24 V DC
Rated current consumption from supply terminal	$I_L$	mA	3
Rated current consumption from module bus	$I_{MB}$	mA	$\leq 15$
<b>Notes</b>			
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	$I_n$	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	2.5
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.

## Technical data ETIM 8.0

Programmable logic controllers PLC (EG000024) / Fieldbus, decentr. periphery - digital I/O module (EC001599)

Electric engineering, automation, process control engineering / Control / Field bus, decentralized peripheral / 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		16
Number of digital outputs		0
Digital inputs configurable		No
Digital outputs configurable		No
Input current at signal 1	mA	2
Permitted voltage at input	V	0 - 30
Type of voltage (input voltage)		DC
Type of digital output		None
Output current	A	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		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		Yes
Radio standard Bluetooth		No
Radio standard Wi-Fi 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		Plug-in connection
Time delay at signal exchange	ms	0.1 - 0.3
Fieldbus connection over separate bus coupler possible		Yes
Rail mounting possible		Yes
Wall mounting/direct mounting		No
Front built-in possible		No
Rack-assembly possible		No
Suitable for safety functions		No
SIL according to IEC 61508		None
Performance level according 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	13
Height	mm	74.5
Depth	mm	161.5