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Automation Product Overview

Powering Business Worldwide

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Subject to availability and technical modifications.

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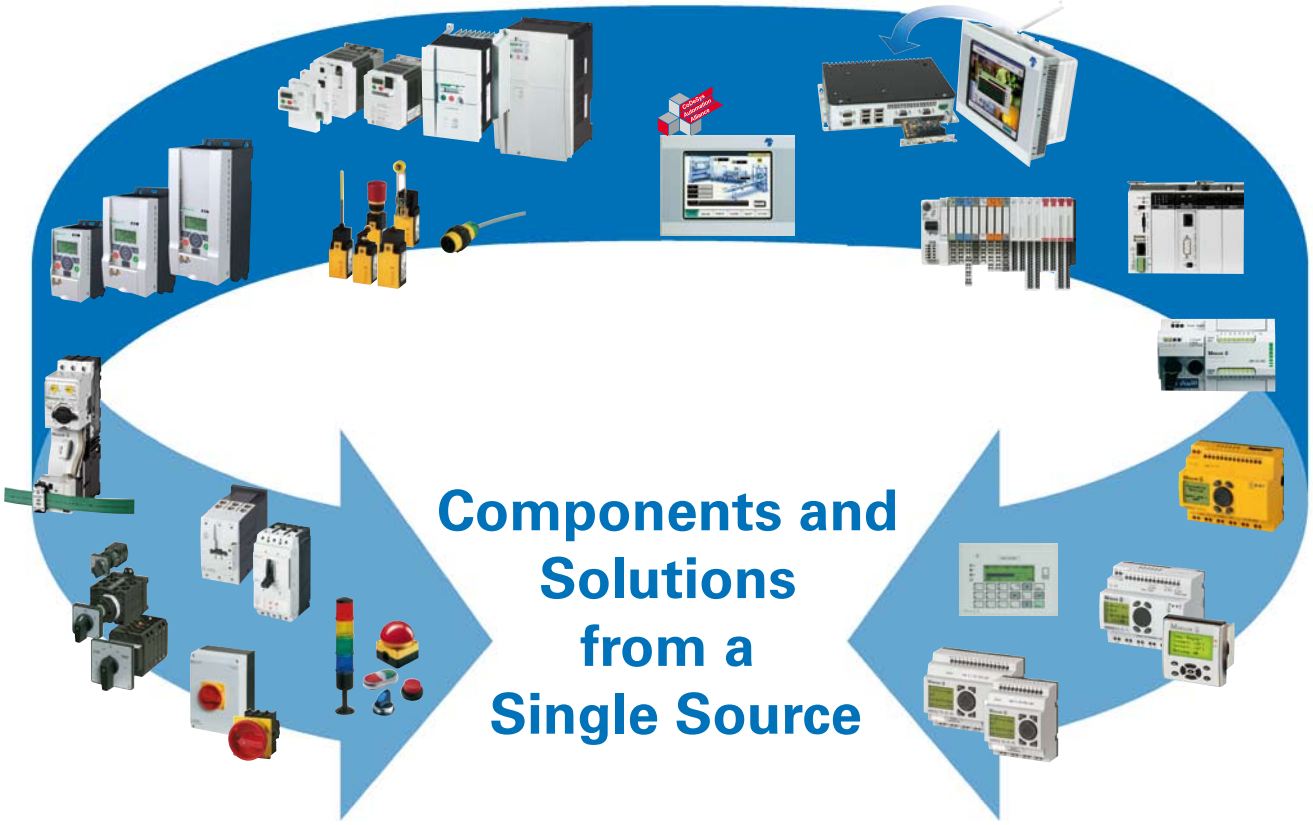
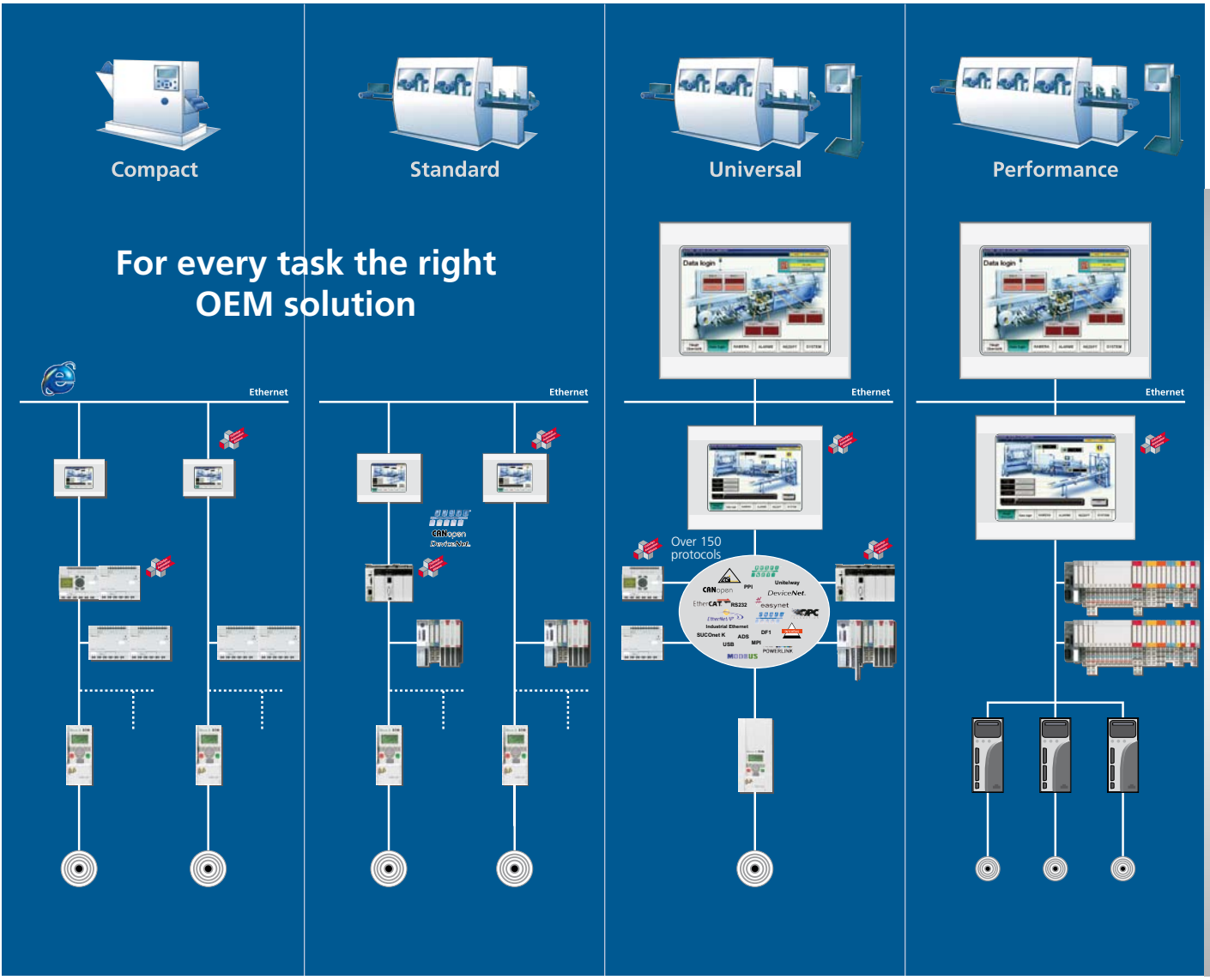


Complete Automation Solutions from a Single Source

The integration of Moeller and Micro Innovation in the Eaton group has led to the formation of a new business unit offering power distribution and automation solutions from a single source. Solutions aimed at both the panel building and the mechanical engineering.

Eaton offers HMI, PLC, HMI/PLC, Remote IO and SmartWire-DT in the field of industrial automation. Industrial automation is complemented by industrial switchgear from Eaton with contactors, motor-protective circuit-breakers, frequency inverters, soft starters, control circuit devices and circuit-breakers.

The product range is designed for machine and panel building solutions. We cater for the demands of our international customers with our systematic product conformity to UL/CSA and IEC standards. We are present on a global level just like our customers with sales subsidiaries in more than 150 countries and development centres in Asia, America and Europe.



The four performance classes at a glance:

Compact
The compact class directs itsself towards the machine and aggregate builders in the low cost price segment without lowering the level of performance.

Standard
The standard class covers the performance demands of middle standard machines.

Universal
The universal class is concepted for middle and bigger OEM machines because of its modular hardware structure and flexible employment.

Performance
The performance class offers open hard- and software platforms for high-end automation.

Industrial PCs

Today the automation world is not imaginable without Industrial PCs. Robust and cost efficient hardware, universal software and driver standards as well as modern, real time operating systems are the requirements why PC technology is more and more deployed in industrial applications. The performable combination between touch display and industrial PC distinguishes itself through a compact enclosure as also a nominal installation depth. Whether in machine engineering or installations as also in single applications - maximum openness and excellent performance parameters signify the industrial PCs from Eaton Automation.

Performant visualisation, control and motion

Performance is not only processor power, which is why the XP700 series offers more:

- High flexibility and maximum openness
- PCI slot for an optional PCI module
- No rotating parts (1GHz processor)
- Robust infrared touch

XP700 8.4", 10.4", 12.1" color	 **8.4"**	 **10.4"**	 **12.1"**
PLC function	no		
Front	Standard		
Touch	infra-red		
Display	TFT-LCD color 8.4"	TFT-LCD color 10.4"	TFT-LCD color 12.1"
Resolution	SVGA 800 x 600		XGA 1024 x 768
Number of usable colors	adjustable: 16.7m, 65k or 256 colors		
Backlight	2 CCFL		
Protective panel	Safety glass, non-reflective		
Processor Pentium 1GHz Memory 1024MB	**XP-702-C0-84TSI-10 140024**	**XP-702-C0-10TSI-10 140025**	**XP-702-C0-12TXI-10 140026**
Processor Pentium 1.8GHz Memory 2048MB	**XP-702-D0-84TSI-10 140029**	**XP-702-D0-10TSI-10 140030**	**XP-702-D0-12TXI-10 140031**
Optional memory cards	2 x CompactFlash		
Optional hard disk	1 x 2.5"		
Operating system	XP or XPe		
Video interface	CRT analog		
Interfaces onboard	4 x USB, Ethernet 10/100, Ethernet 10/100/1000, 2 x RS232		
Slots for modules	1 x PCI		
Rated value	24VDC		
Protection type	IP65 front, IP20 rear		
Dimensions device (WxH)	275 x 208mm	345 x 260mm	361 x 279mm
Depth with / without active cooling	121mm / 85mm	113mm / 77mm	113mm / 77mm
Mounting cutout (WxH)	261 x 194mm	329 x 238mm	344 x 262mm
Weight	approx. 3.4kg	approx. 4.3kg	approx. 4.7kg

1 Slot for PCI module
2 2 x RS232
3 4 x USB and 2 x Ethernet
4 Slot for optional hard disk
5 Slot for up to 2 optional CompactFlash cards

XP700 15“ color, Box	 **15“**	 **Box**
PLC function	no	
Front	Standard	-
Touch	infra-red	-
Display	TFT-LCD color 15“	-
Resolution	XGA 1024 x 768	-
Number of usable colors	adjustable: 16.7m, 65k or 256 colors	-
Backlight	4 CCFL	-
Protective panel	Safety glass, non-reflective	-
Processor Pentium 1GHz Memory 1024MB	**XP-702-C0-15TXI-10 140027**	**XP-702-C0-BOX-10 140028**
Processor Pentium 1.8GHz Memory 2048MB	**XP-702-D0-15TXI-10 140032**	**XP-702-D0-BOX-10 140033**
Optional memory cards	2 x CompactFlash	
Optional hard disk	1 x 2.5“	
Operating system	XP or XPe	
Video interface	CRT analog	DVI, CRT analog
Interfaces onboard	4 x USB, Ethernet 10/100, Ethernet 10/100/1000, 2 x RS232	
Slots for modules	1 x PCI	
Rated value	24VDC	
Protection type	IP65 front, IP20 rear	
Dimensions of device (WxH)	427 x 332mm	262 x 194mm
Depth with / without active cooling	119mm / 83mm	96mm / 60mm
Mounting cutout (WxH)	410 x 315mm	-
Weight	approx. 6.4kg	approx. 1.9kg

XP700 with infra-red touch display or as a box version for headless operation up to 5m distance (typically).

Description	License product paper required	Type Article no.	For use with
Windows licenses			
License product paper Windows XP		LIC-OS-XP-S 140410	XP-7...
License product paper Windows XP Embedded		LIC-OS-EXP-S 140412	XP-7...
Runtime system			
Galileo Open		LIC-GALILEO-OPEN-XP 140387	XP-7...
WinEpam		LIC-WIN-EPAM-XP 140395	XP-7...
Memory			
CompactFlash card, min. 2GB		MEMORY-CF-A7-S 140414	XP-7...
Standard hard disk, min. 80GB		HDU-A7-S 140431	XP-7...
Standard hard disk, Industrial Grade, min. 80GB		HDU-A7-SI 140432	XP-7...
CompactFlash card, min. 2GB Windows XP embedded installed	yes	OS-FLASH-A7-S 140374	XP-7...
Standard hard disk, min. 80GB Windows XP installed	yes	OS-HDU-A7-S 140376	XP-7...
Standard hard disk, Industrial Grade, min. 80GB Windows XP installed	yes	OS-HDU-A7-SI 140377	XP-7...
External fan			
Externer standard fan		ACCESSORIES-FAN-700-S 142580	XP-7...

HMI-PLC

Whether in machine engineering, installations or in single applications there is seldom an application in which an HMI cannot simplify operation and through that relieve the operator.
Modern touch displays provide clear, flexible menu guidance in every wished for language and allows the machine manufacturer world wide sales of their machines with just one hard- and software solution.
From 3.5" to 15" touch display HMI-PLC you have for every machine the optimal solution. Control, positioning and communication are developed with XSoft-CoDeSys-2 based on IEC 61131-3. The visualisation comfortably created with Galileo.

Compact operator interface with lots of power

- Full graphical 3.5“, 5.7“ or 7“-Widescreen TFT display with resistive touch screen
- High performance 400MHz RISC-Processor for PLC applications
- Onboard memory of 128MB on demand expandable with a SD card
- Nominal installation depth
- Ethernet interface onboard, furthermore CAN, Profibus, RS232 or RS485 possible
- integrated gateway function

XV100 3.5“ mono	 **Version A**	 **Version B (PLC)**
PLC function	no	integrated
Front	Standard	
Touch	resistive	
Display	TFT mono display 3.5“	
Resolution	QVGA 320x240	
Number of usable colors	32 grayscales	
Backlight	LED, dimmable	
Protective panel	Glass, non-reflective	
Processor	32Bit RISC, 400MHz	
Memory	64MB DRAM	
Internal Flash memory	64MB NAND Flash	
Retain memory	without	32kB NVRAM
Optional memory cards	1x SD memory card slot	
Operating system	WinCE 5.0 Core (included)	
Interfaces onboard:		
- Ethernet	**XV-102-A0-35MQR-10 Art.No. 141759**	**XV-102-B0-35MQR-10-PLC Art.No. 140012**
- Ethernet, RS232	**XV-102-A3-35MQR-10 Art.No. 141821**	**XV-102-B3-35MQR-10-PLC Art.No. 140013**
- Ethernet, RS485	**XV-102-A4-35MQR-10 Art.No. 141822**	**XV-102-B4-35MQR-10-PLC Art.No. 140014**
- Ethernet, Profibus	**XV-102-A2-35MQR-10 Art.No. 141820**	**-**
- Ethernet, RS232, CAN	**XV-102-A5-35MQR-10 Art.No. 141823**	**XV-102-B5-35MQR-10-PLC Art.No. 140015**
- Ethernet, RS485, CAN	**-**	**XV-102-B6-35MQR-10-PLC Art.No. 140016**
- Ethernet, RS485, Profibus	**-**	**XV-102-B8-35MQR-10-PLC Art.No. 140017**
Rated value	24VDC SEL V	
Protection type	IP65 front, IP20 rear	
Dimensions Device (WxHxD)	136 x 100 x 30mm	
Mounting cutout (WxH)	123 x 87mm	
Weight	approx. 0.25kg	

1 SD card
2 USB Device
3 Ethernet
4 onboard interfaces, depending on the version

XV100 3.5“ color	 **Version B**	 **Version B (PLC)**
PLC function	upgradeable	integrated
Front	Standard	
Touch	resistive	
Display	TFT color display 3.5“	
Resolution	QVGA 320x240	
Number of usable colors	64k colors	
Backlight	LED, dimmable	
Protective panel	Glass, non-reflective	
Processor	32Bit RISC, 400MHz	
Memory	64MB DRAM	
Internal Flash memory	64 MB NAND Flash	
Retain memory	32kB NVRAM	
Optional memory cards	1x SD memory card slot	
Operating system	WinCE 5.0 Core (included)	
Interfaces onboard:		
- Ethernet	**XV-102-B0-35TQR-10 Art.No. 140007**	**XV-102-B0-35TQR-10-PLC Art.No. 140018**
- Ethernet, RS232	**XV-102-B3-35TQR-10 Art.No. 140009**	**XV-102-B3-35TQR-10-PLC Art.No. 140019**
- Ethernet, RS485	**XV-102-B4-35TQR-10 Art.No. 140010**	**XV-102-B4-35TQR-10-PLC Art.No. 140020**
- Ethernet, Profibus	**XV-102-B2-35TQR-10 Art.No. 140008**	**-**
- Ethernet, RS232, CAN	**XV-102-B5-35TQR-10 Art.No. 140011**	**XV-102-B5-35TQR-10-PLC Art.No. 140021**
- Ethernet, RS485, CAN	**-**	**XV-102-B6-35TQR-10-PLC Art.No. 140022**
- Ethernet, RS485, Profibus	**-**	**XV-102-B8-35TQR-10-PLC Art.No. 140023**
Rated value	24VDC SEL V	
Protection type	IP65 front, IP20 rear	
Dimensions Device (WxHxD)	136 x 100 x 30mm	
Mounting cutout (WxH)	123 x 87mm	
Weight	approx. 0.25kg	

The 3 display sizes by comparison:

In the display sizes 5.7“ and 7“ the XV100 devices are additionally equipped with an USB-Host and RS232 interface.

XV100 5.7“ color	 **Version D**	 **Version D (PLC)**
PLC function	upgradeable	integrated
Front	Standard	
Touch	resistive	
Display	TFT color display 5.7“	
Resolution	VGA 640x480	
Number of usable colors	64k colors	
Backlight	LED, dimmable	
Protective panel	Glass, non-reflective	
Processor	32Bit RISC, 400MHz	
Memory	64MB DRAM	
Internal Flash memory	64 MB NAND Flash	
Retain memory	32kB NVRAM	
Optional memory cards	1x SD memory card slot	
Operating system	WinCE 5.0 Core (included)	
Interfaces onboard:		
- Ethernet, USB, RS232	**XV-102-D0-57TVR-10 Art.No. 142530**	**-**
- Ethernet, USB, RS232, RS485	**XV-102-D4-57TVR-10 Art.No. 150620**	**-**
- Ethernet, USB, RS232, RS485, CAN	**XV-102-D6-57TVR-10 Art.No. 142531**	**XV-102-D6-57TVRC-10 Art.No. 142533**
- Ethernet, USB, RS232, RS485, Profibus	**XV-102-D8-57TVR-10 Art.No. 142532**	**XV-102-D8-57TVRC-10 Art.No. 142534**
Rated value	24VDC SEL V	
Protection type	IP65 front, IP20 rear	
Dimensions Device (WxHxD)	170 x 130 x 39 mm	
Mounting cutout (WxH)	157 x 117 mm	
Weight	approx. 0.6kg	

1 SD card
2 USB Device
3 USB Host
4 Ethernet
5 onboard interfaces, depending on the version

XV100 7“ widescreen color	 **Version D**	 **Version D (PLC)**
PLC function	upgradeable	integrated
Front	Standard	
Touch	resistive	
Display	TFT color display 7“ Wide	
Resolution	WVGA 800x480	
Number of usable colors	64k colors	
Backlight	LED, dimmable	
Protective panel	Glass, non-reflective	
Processor	32Bit RISC, 400MHz	
Memory	64MB DRAM	
Internal Flash memory	64 MB NAND Flash	
Retain memory	32kB NVRAM	
Optional memory cards	1x SD memory card slot	
Operating system	WinCE 5.0 Core (included)	
Interfaces onboard:		
- Ethernet, USB, RS232	**XV-102-D0-70TWR-10 Art.No. 142535**	**-**
- Ethernet, USB, RS232, RS485	**XV-102-D4-70TWR-10 Art.No. 150621**	**-**
- Ethernet, USB, RS232, RS485, CAN	**XV-102-D6-70TWR-10 Art.No. 142536**	**XV-102-D6-70TWRC-10 Art.No. 142538**
- Ethernet, USB, RS232, RS485, Profibus	**XV-102-D8-70TWR-10 Art.No. 142537**	**XV-102-D8-70TWRC-10 Art.No. 142539**
Rated value	24VDC SEL V	
Protection type	IP65 front, IP20 rear	
Dimensions Device (WxHxD)	210 x 135 x 38 mm	
Mounting cutout (WxH)	197 x 122 mm	
Weight	approx. 0.6kg	

1 SD card
2 USB Device
3 USB Host
4 Ethernet
5 onboard interfaces, depending on the version

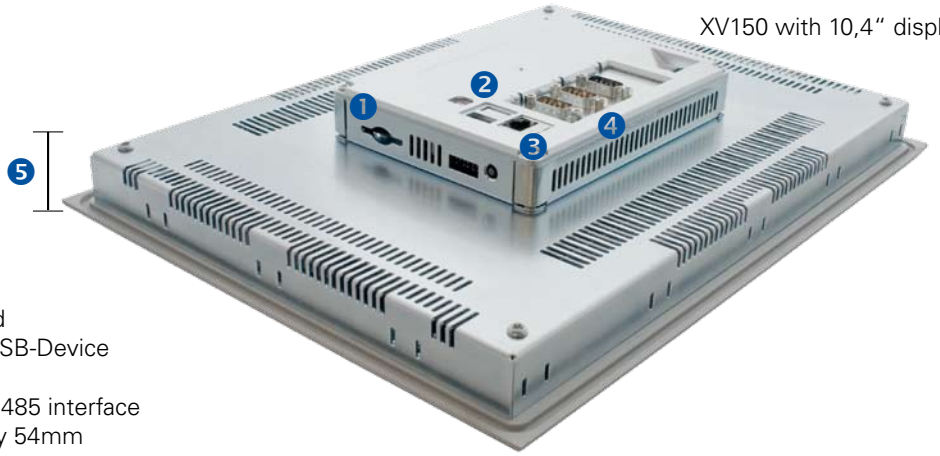
Compact and rugged

The XV150 devices impress with the nominal installation depth, the rugged metal case and the comprehensive basic equipment:
- Display sizes 5,7", 8,4" and 10,4"
- Nominal installation depth
- Mounting compatible with XV400 devices
- USB-Host, Ethernet and RS232 interface onboard
- Communication interfaces onboard depending on the type: RS485, Profibus and CAN

XV150 5.7", 8.4" color	 **5.7"**	 **5.7"**	 **8.4"**	 **8.4"**
PLC funktion	upgradeable	integrated	upgradeable	integrated
Front	Standard			
Touch	resistive			
Display	TFT color display 5.7"		TFT color display 8.4"	
Resolution	VGA 640x480			
Number of usable colors	64k colors			
Backlight	LED, dimmable			
Protective panel	Glass, non-reflective			
Processor	32Bit RISC, 400MHz			
Memory	64 MB DRAM			
Internal Flash memory	64 MB NAND Flash			
Retain memory	32kB NVRAM			
Optional memory card	1x SD Memory Card			
Operating system	WinCE 5.0 Core (included)			
Interfaces onboard:				
- Ethernet, USB, RS232	**XV-152-D0-57TVR-10 Art.No. 150525**	**-**	**XV-152-D0-84TVR-10 Art.No. 150601**	**-**
- Ethernet, USB, RS232, RS485	**XV-152-D4-57TVR-10 Art.No. 150526**	**-**	**XV-152-D4-84TVR-10 Art.No. 150602**	**-**
- Ethernet, USB, RS232, RS485, CAN	**XV-152-D6-57TVR-10 Art.No. 150527**	**XV-152-D6-57TVRC-10 Art.No. 150529**	**XV-152-D6-84TVR-10 Art.No. 150603**	**XV-152-D6-84TVRC-10 Art.No. 150605**
- Ethernet, USB, RS232, RS485, Profibus	**XV-152-D8-57TVR-10 Art.No. 150528**	**XV-152-D8-57TVRC-10 Art.No. 150600**	**XV-152-D8-84TVR-10 Art.No. 150604**	**XV-152-D8-84TVRC-10 Art.No. 150606**
Rated value	24VDC SEL V			
Protection type	IP65 front, IP20 rear			
Dimensions device (WxHxD)	212 x 156 x 53 mm		275 x 208 x 53 mm	
Mounting cutout (WxH)	198 x 142 mm		261 x 194 mm	
Weight	1.3kg		2.1kg	

XV150 10.4“ color	 **10.4“**	 **10.4“**
PLC funktion	upgradeable	integrated
Front	Standard	
Touch	resistive	
Display	TFT color display 10.4“	
Resolution	VGA 640x480	
Number of usable colors	64k colors	
Backlight	LED, dimmable	
Protective panel	Glass, non-reflective	
Processor	32Bit RISC, 400MHz	
Memory	64 MB DRAM	
Internal Flash memory	64 MB NAND Flash	
Retain memory	32kB NVRAM	
Optional memory card	1x SD Memory Card	
Operating system	WinCE 5.0 Core (included)	
Operating onboard:		
- Ethernet, USB, RS232	**XV-152-D0-TVR-10 Art.No. 150607**	**-**
- Ethernet, USB, RS232, RS485	**XV-152-D4-10TVR-10 Art.No. 150608**	**-**
- Ethernet, USB, RS232, RS485, CAN	**XV-152-D6-10TVR-10 Art.No. 150609**	**XV-152-D6-10TVRC-10 Art.No. 150611**
- Ethernet, USB, RS232, RS485, Profibus	**XV-152-D8-10TVR-10 Art.No. 150610**	**XV-152-D8-10TVRC-10 Art.No. 150612**
Rated value	24VDC SEL V	
Protection type	IP65 front, IP20 rear	
Dimensions device (WxHxD)	345 x 260 x 54 mm	
Mounting cutout (WxH)	329 x 238 mm	
Weight	3.0kg	

XV150 with 10,4“ display



1 1 x SD memory card
2 1 x USB-Host, 1 x USB-Device
3 Ethernet interface
4 CAN, RS232 and RS485 interface
5 Mounting depth only 54mm

Flexible communication
The new XV200 touch display device series offers either a fully graphical 5.7" FSTN monochrome display with 256 grayscales or a fully graphical 5.7" color display with 256 colors, industrial resistive touch technology as well as a wide range of communication and network options. The touch-sensitive display ensures intuitive operation and visualization. Language-neutral and self-explanatory touch switches can be created to provide clearly designed operating screens. PLC functionality can be implemented on the XV200 devices if required. All devices come with an Ethernet and USB Device interface. Depending on the device type, CAN, Profibus (MPI/PPI/DP) or RS232 can be provided as additional interfaces.

XV200 5.7" mono	 **XV-230-57CNN-1-10**	 **XV-230-57MPN-1-10**	 **XV-232-57BAS-1-10**
PLC function	upgradeable		
Front	Standard		
Touch	resistive		
Display	FSTN-LCD (mono display) 5.7"		
Resolution	QVGA 320 x 240		
Number of usable colors	256 grayscales		
Backlight	1 CCFL, dimmable		
Protective panel	Glass, non-reflective		
Processor	RISC 32Bit, 200MHz		
Memory	32MB		
Retain memory	100Byte		
Internal Flash memory	1.5MB linear		
Optional memory cards	1 x CompactFlash		
Operating system	WinCE		
Interfaces onboard	Ethernet, CAN	Ethernet, Profibus	Ethernet, RS232
Slots for communication modules	-		
Rated value	24VDC		
Protection type	IP65 front, IP20 rear		
Dimensions of device (WxHxD)	212 x 156 x 55mm		
Mounting cutout (WxH)	198 x 142mm		
Weight	approx. 0.7 kg		
Article no.	**139951**	**139952**	**139950**

1 RS232
2 CAN or Profibus
3 Ethernet
4 CompactFlash

XV200 5.7“ color	 **XV-252-57CNN-1-10**	 **XV-252-57MPN-1-10**
PLC function	upgradeable	
Front	Standard	
Touch	resistive	
Display	CSTN-LCD (color display) 5.7“	
Resolution	QVGA 320 x 240	
Number of usable colors	256 colors	
Backlight	1 CCFL, dimmable	
Protective panel	Glass, non-reflective	
Processor	RISC 32Bit, 200MHz	
Memory	32MB	
Retain memory	100Byte	
Internal Flash memory	1.5 MB linear	
Optional memory cards	1 x CompactFlash	
Operating system	WinCE	
Interfaces onboard	Ethernet, RS232, CAN	Ethernet, RS232, Profibus
Slots for communication modules	-	
Rated value	24VDC	
Protection type	IP65 front, IP20 rear	
Dimensions of device (WxHxD)	212 x 156 x 55mm	
Mounting cutout (WxH)	198 x 142mm	
Weight	approx. 0.7 kg	
Article no.	**139956**	**139957**

Portrait format

The panels can be used in portrait format (rotated 90°) if required.

Standard system with infra-red and resistive touch for worldwide use
Thanks to the extensive range of interfaces available onboard, the XVS400 compact devices can be adapted to the world's leading automation systems. The Profibus Master interface provided and the robust infra-red touch make the XVS devices highly flexible alternatives for the visualization and automation world. With versatile Ethernet and USB interfaces as well, these products offer the most advanced networking options. Devices with color screens and a screen diagonal of 5.7" to 12.1" are available. The integral IEC 61131-3 compliant PLC supports all the programming languages of the standard including structured text and sequential function chart for the optimum implementation of the control task.

XVS400 5.7", 8.4", 10.4" color	 **5.7"**	 **8.4"**	 **10.4"**
PLC function	upgradeable		
Front	Standard		
Infra-red touch, safety glass, non-reflective	**XVS-460-57MPI-1-10 139970**	**XV-460-84MPI-1-10 139971**	**XVS-440-10MPI-1-10 139973**
Resistive touch, glass, non-reflective	**XVS-450-57MPI-1-10 139969**	**-**	**XVS-430-10MPI-1-10 139972**
Display	5.7" TFT-LCD color	8.4" TFT-LCD color	TFT-LCD color 10.4"
Resolution	QVGA 320 x 240	VGA 640 x 480	
Number of usable colors	65'536		
Backlight	LED, dimmable	2 CCFL, dimmable	
Processor	RISC 32Bit, 400MHz		
Memory	64MB		
Retain memory	32kB		
Internal Flash memory	1.5MB linear		
optional memory cards	1 x CompactFlash		2 x CompactFlash
Operating system	WinCE		
Interfaces onboard	Ethernet, RS232, USB-Host, USB-Device, Profibus		
Rated value	24VDC		
Protection type	IP65 front, IP20 rear		
Dimensions device (WxHxD)	212 x 156 x 55 mm	275 x 208 x 75 mm	345 x 260 x 67mm
Mounting cutout (WxH)	198 x 142mm	261 x 194 mm	329 x 238mm
Weight	approx. 1.8 kg	approx. 2.6 kg	approx. 3.7kg

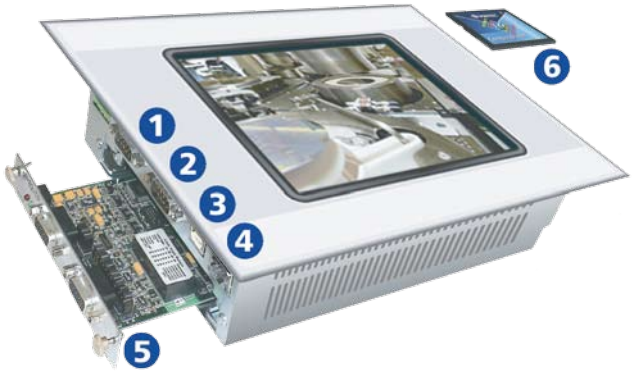
XVS400 12.1“, 15“ color	 **12.1“**	 **15“**
PLC function	upgradeable	
Front	Standard	
Infra-red touch, safety glass, non-reflective	**XVS-440-12MPI-1-10 139975**	**XVS-460-15MPI-1-10 139976**
Resistive touch, glass, non-reflective	**XVS-430-12MPI-1-10 139974**	**-**
Display	TFT-LCD color 12.1“	TFT-LCD color 15“
Resolution	SVGA 800 x 600	XVGA 1024 x 768
Number of usable colors	65‘536	
Backlight	2 CCFL, dimmable	4 CCFL, dimmable
Processor	RISC 32Bit, 400MHz	
Memory	64MB	
Retain memory	32kB	
Internal Flash memory	1.5MB linear	
optional memory cards	2 x CompactFlash	
Operating system	WinCE	
Interfaces onboard	Ethernet, RS232, USB-Host, USB-Device, Profibus	
Rated value	24VDC	
Protection type	IP65 front, IP20 rear	
Dimensions device (WxHxD)	361 x 279 x 67mm	427 x 332 x 73mm
Mounting cutout (WxH)	344 x 262mm	410 x 315mm
Weight	approx. 4.5kg	approx. 5.8kg

2x Compact Flash

1 RS232
2 Ethernet
3 USB Device
4 2x USB Host
5 Profibus

The universal professional
The devices of the XV400 series offer a wide range of communication options. One or two optional communication modules, enabling eight communications at the same time, as well as CAN, Ethernet 10/100Mbit, USB Host, USB Device, RS232 directly onboard ensure maximum flexibility, whether as HMI, HMI-PLC, panel with gateway function or as a connection via Ethernet TCP/IP to the control level. Onboard functions such as WEB browser, FTP server, remote client/ server or OPC client offer not only new networking options and programming options, they also provide customers and users with a considerable innovation edge for their automation solution.

XV400 5.7", 8.4" color	 **5.7"**	 **5.7" stainless steel**	 **8.4"**
PLC function	upgradeable		
Front	Standard	Stainless steel	Standard
Infra-red touch, safety glass, non-reflective	**XV-460-57TQB-1-10 139897**	**XV-460-57TQB-1-50 139898**	**XV-460-84TVB-1-10 139900**
Resistive touch, glass, non-reflective	**XV-450-57TQB-1-10 139899**	**-**	**-**
Display	TFT-LCD color 5.7"		TFT-LCD color 8.4"
Resolution	QVGA 320 x 240		VGA 640 x 480
Number of usable colors	65'536		
Backlight	LED, dimmable		2 CCFL, dimmable
Processor	RISC 32Bit, 400MHz		
Memory	64MB		
Retain memory	32kB		
Internal Flash memory	1.5MB linear		
Optional memory cards	1 x CompactFlash		
Operating system	WinCE		
Interfaces onboard	Ethernet, RS232, USB-Host, USB-Device, CAN		
Slots for communication modules	1		
Rated value	24VDC		
Protection type	IP65 front, IP20 rear		
Dimensions device (WxHxD)	212 x 156 x 76mm		275 x 208 x 95mm
Mounting cutout (WxH)	198 x 142mm		261 x 194mm
Weight	approx. 1.9kg	approx. 2.3kg	approx. 3.0kg



1 RS232
2 CAN
3 USB Host
4 Ethernet
5 Communication module
6 CompactFlash

XV400 10.4“, 12.1“ color	 **10.4“**	 **10.4“ stainless steel**	 **12.1“**	 **12.1“ stainless steel**
PLC function	upgradeable			
Front	Standard	Stainless steel	Standard	Stainless steel
Infra-red touch, safety glass, non-reflective	**XV-440-10TVB-1-10 139904**	**XV-440-10TVB-1-50 139908**	**XV-440-12TSB-1-10 139911**	**XV-440-12TSB-1-50 139915**
Resistive touch, glass, non-reflective	**XV-430-10TVB-1-10 139902**	**-**	**XV-430-12TSB-1-10 139909**	**-**
Display	TFT-LCD color 10.4“		TFT-LCD color 12.1“	
Resolution	VGA 640 x 480		SVGA 800 x 600	
Number of usable colors	65‘536			
Backlight	2 CCFL, dimmable			
Processor	RISC 32Bit, 400MHz			
Memory	64MB			
Retain memory	32kB			
Internal Flash memory	1.5MB linear			
Optional memory cards	2 x CompactFlash			
Operating system	WinCE			
Interfaces onboard	Ethernet, RS232, USB-Host, USB-Device, CAN			
Slots for communication modules	2			
Rated value	24VDC			
Protection type	IP65 front, IP20 rear			
Dimensions device (WxHxD)	345 x 260 x 93mm		361 x 279 x 93mm	
Mounting cutout (WxH)	329 x 238mm		344 x 262mm	
Weight	approx. 4.1kg	approx. 5.3kg	approx. 4.5kg	approx. 5.7kg

IP69K
Protected against the ingress of water with highpressure and steam

The XV400 5.7“ with stainless steel front is designed for areas where highpressure cleaners are used such as in the food industry. The IP69K protection class even guarantees absolute water tightness in applications subject to frequent cleaning.

XV-460-57TQB-1-50

EX-Zone 1
For use in explosive atmosphere

XV400 10.4“ / 12.1“ with stainless steel front are designed for use in areas where an explosive atmosphere consisting of a mixture of air and flammable substances in the form of gas, vapor or mist is likely to occur in normal operation occasionally, such as in the chemical, pharmaceutical and food industry as well as in oil refineries. When integrated in pressurized enclosures, this device meets the protection requirements for Zone 1, category 2G EEx p.

XV-440-10TVB-1-50
XV-440-12TSB-1-50

XV400 15“ color	 **15“**	 **15“ stainless steel**
PLC function	upgradeable	
Front	Standard	Stainless steel
Infra-red touch, safety glass, non-reflective	**XV-460-15TXB-1-10 139916**	**XV-460-15TXB-1-50 139918**
Resistive touch, glass, non-reflective	**-**	**-**
Display	TFT-LCD color 15“	
Resolution	XGA 1‘024 x 768	
Number of usable colors	65‘536	
Backlight	4 CCFL, dimmable	
Processor	RISC 32Bit, 400MHz	
Memory	64MB	
Retain memory	32kB	
Internal Flash memory	1.5MB linear	
Optional memory cards	2 x CompactFlash	
Operating system	WinCE	
Interfaces onboard	Ethernet, RS232, USB-Host, USB-Device, CAN	
Slots for communication modules	2	
Rated value	24VDC	
Protection type	IP65 front, IP20 rear	
Dimensions device (WxHxD)	427 x 332 x 99mm	
Mounting cutout (WxH)	410 x 315mm	
Weight	approx. 6.2kg	approx. 7.5kg

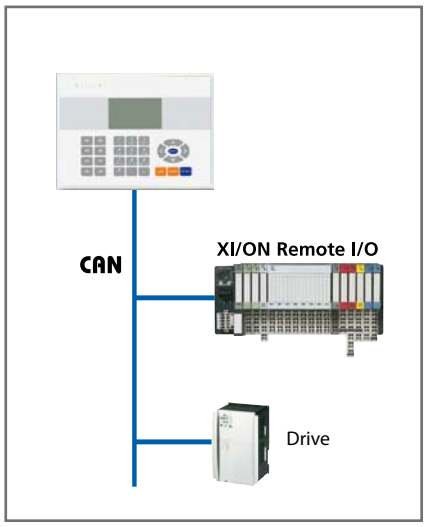
1 CAN
2 2 x USB Host
3 USB Device
4 Ethernet
5 RS232
6 2 x slot for communication module
7 2 x CompactFlash

The control panel XVM400 is a portable display and operation panel for industrial applications. Already included in the delivery is the Galileo runtime. With this industrial proven visualization tool you can create in shortest time considerable sized and complex applications. Galileo is designed to work in every market segment and acts as an universal projecting environment for all Eaton Automation products. The Ethernet interface offers a high number of protocols to established control systems. Also the hardware is designed to cover any eventuality that comes up: A robust concept of the panel and patented display guarantees a save fall from a height of up to 1.5 m. Operation with the left and right hand, a good readable display, variable cable output, different holding possibilities, three-step acknowledgement button, integrated emergency stop and a further 31 buttons that can be accessed directly in Galileo guarantees a maximum of possibilities.

XVM400 6.5“ color	 **XVM-430-65TVB-1-11**	 **XVM-450-65TVB-1-11**	 **XVM-410-65TVB-1-11**
PLC function	no		
Front	Standard		
Touch	Resistive		
Display	TFT-LCD (color display) 6.5“		
Resolution	VGA 680x480		
Number of usable colors	65536 colors		
Backlight	2 CCFL, dimmable		
Operation elements	2 3-position enabling switches, twin circuit; temergency stop switch, twin circuit	2 3-position enabling switches, twin circuit; temergency stop switch, twin circuit; key switch, (3 positions); handwheel	2 3-position enabling switches, twin circuit; key switch, (3 positions); handwheel
Processor	Xscale PXA 270, 416 MHz		
Memory	64MB, 64 MB SDRAM		
Optional memory cards	-		
Operating system	WinCE		
Visualization software	Galileo		
Interfaces onboard	Ethernet, USB-Host, RS232		
Slots for communication modules	-		
Rated value	24VDC		
Protection type	IP65		
Dimensions device	Ø 250 mm, height 125 mm		
Weight	approx. 1.3 kg		
Article no.	**139996**	**139998**	**139997**

The XVC100 compact display PLC integrates an operator panel with text display and a powerful compact PLC in one device. This device concept offers a wide range of automation and networking options. A fully-fledged compact PLC with digital and analog inputs and outputs is integrated behind the membrane keyboard with an 8 x 20 character display. The integrated CAN bus allows the connection of remote peripheral devices. All connectors can be accessed from the rear. The PLC is programmed in compliance with the IEC 61131-3 industrial standard, thus turning the XVC100 display PLC into a universal device for automation applications. A user-friendly PLC function library is available for the simple and efficient programming of visualization functions.

XVC100 mono	 **XVC-101-C192K-K82**
PLC function	integrated
Front	Standard
Operation	Membrane keyboard
Display	Passive Matrix Mono LC-Display
Active display area	approx. 71 x 39 mm
Resolution	128 x 64
Backlight	LED
Number of keys	28, (9 with LED)
Processor	c166
Data / program memory	56 kB / 384 kB
Retain memory	8 kB
Optional memory card	1 x CompactFlash
I/Os onboard	10 digital inputs 8 digital outputs, 24 V/0,5 A 8 digital inputs/outputs configurable 2 analog inputs, 0 – 10 V/10 Bit 2 analog outputs, +/-10 V/12 Bit 2 counter inputs, 50 kHz 2 interrupt inputs 1 encoder inputs, 50 kHz
Interfaces onboard	CAN, RS232
Rated value	24VDC
Protection type	IP65 front, IP20 rear
Dimensions device (WxHxD)	212 x 156 x 60 mm
Weight	approx. 0.9 kg
Article no.	**139929**



The XVC100 provides the machine and system builder with a low-cost device for a wide range of tasks whilst still offering the tried and tested features and the user-friendly project design features. The rugged and compact design enables applications that were previously impossible due to space or price restrictions.

Licensing XV100, XV150, XV200, XVS400 and XV400

The range of functions possible for each device is determined by means of license points that are uniquely assigned to the device concerned. Additional license points can be assigned to the device by means of license product papers (see Accessories XV license product papers). Licensing is carried out via the Internet at www.eaton-automation.com/license.
Entering the license product paper and device series number on the web page provides you with the license code and a license confirmation via email for your production documents. You enter the license code via the licensing menu on the device and thus increase the number of internal license points on the device.

Number of required license points depending on the required functionality:

Runtime / Tools	Onboard interface	License points
GALILEO-Runtime	-	100
EPAM-Runtime	-	100 [1)]
XSoft-CoDeSys-2-Runtime	-	100
CE Telediag	RS232	40
S7 PG Router	Ethernet and Profibus	80
CAN Monitor	CAN	-
DXS Remote (DXS communication)	Ethernet	80
Galileo Open (for XP700 / standard PC)	-	-

Communication	Onboard interface	License points		
		XSoft-CoDeSys-2	GALILEO	EPAM
Programming access	Ethernet	0	0	0
CoDeSys-SYMArti local (GALILEO/EPAM <-> XSoft-CoDeSys-2)	Local	0	0	0
CoDeSys-SYMArti external	Ethernet	0	40	0
A.Bradley DF1	RS232	-	40	-
A.Bradley EtherNet/IP	Ethernet	-	120	-
Beckhoff TwinCAT ADS	Ethernet	-	80	-
CANopen, Master	CAN	0	-	-
CANopen, Device (Slave)	CAN	0	40	-
DXS Remote (DXS communication)	Ethernet	-	80	-
Modbus TCP/IP	Ethernet	-	80	-
Modbus RTU	RS232	-	40	-
Eaton easy800/MFD	RS232	-	40	-
Eaton Sucom A	RS232	-	40	-
Eaton Suconet K on XVH342-57SKS	Suconet K	-	0	-
Profibus DP-Master (1,5 MBaud)	Profibus	40	-	-
Siemens Industrial Ethernet	Ethernet	-	80	-
Siemens MPI	Profibus	-	40	-
Siemens PPI	Profibus	-	40	-
Siemens S7 Profibus Standard Profile	Profibus	-	40	-

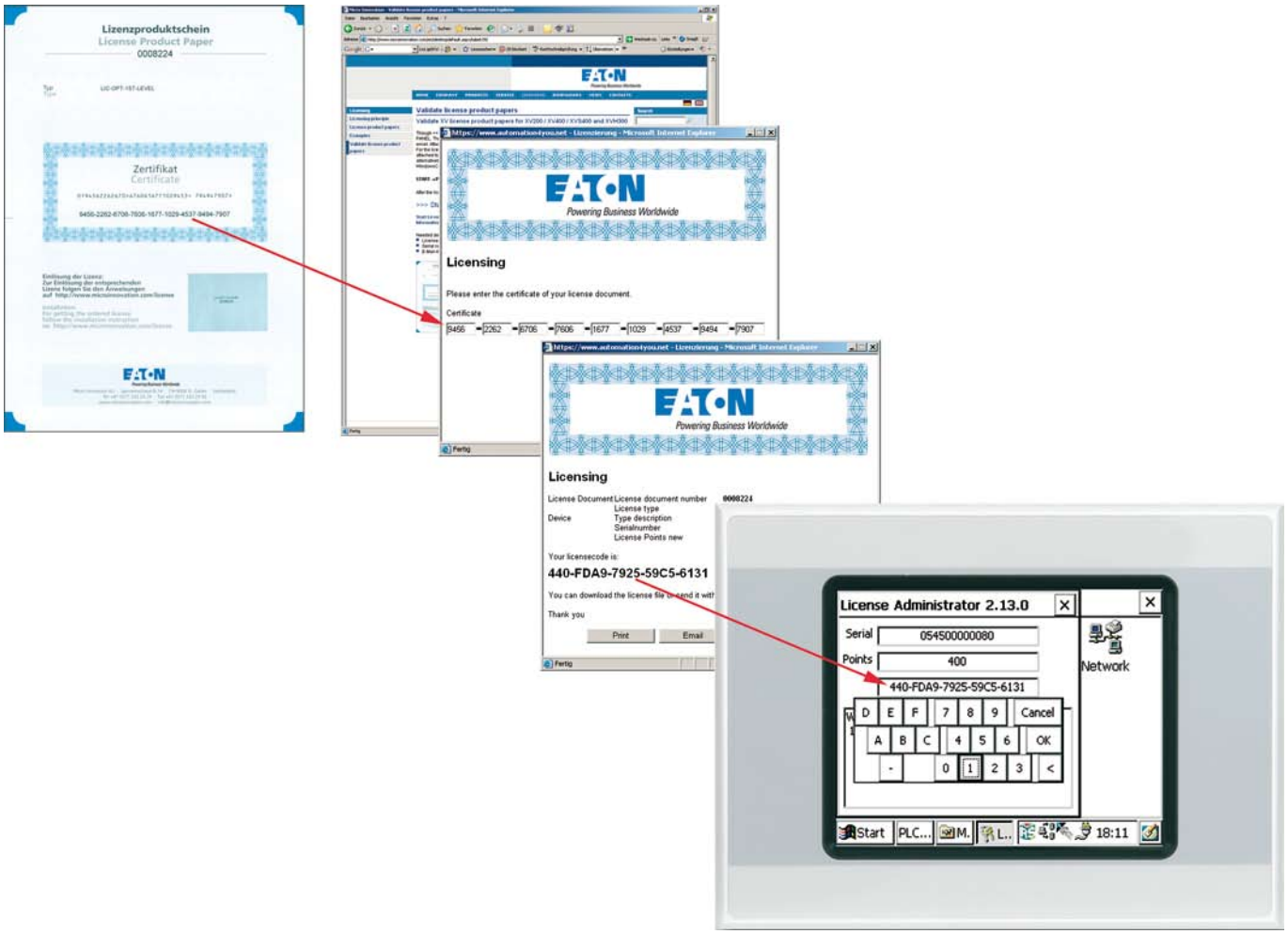
Notes: 1) A LIC-HMI-EPAM-STD license product paper is required for the operation of EPAM runtime on XV400, XVS400 and XVH300 devices. The sticker provided on the license product paper must be affixed to the device. Validation of the certificate via the Internet is unnecessary.

Calculation of the required license points

To use the PLC function in accordance with the applicable license conditions, the device license must be extended explicitly using a specific license product paper, see table „XV license product papers". These license product papers contain a PLC license sticker which must be affixed to the device. Add the required license points for each of the external communication options you use. Communication to several devices with the same protocol only has to be counted once. Deduct the number of points already on the device (e.g. 140) from the total. The resulting difference is the number of license points that must be added using the license product papers.

Validating license product papers

The validation of license product paper couldn't be simpler. Once you have entered the license product paper and the device series number on the Internet page www.eaton-automation.com/license the license code is issued immediately for activating the device functions required. After the license code is entered on the XV100, XV150, XV200, XVS400 or XV400 device, the additional license points are added directly to the device.



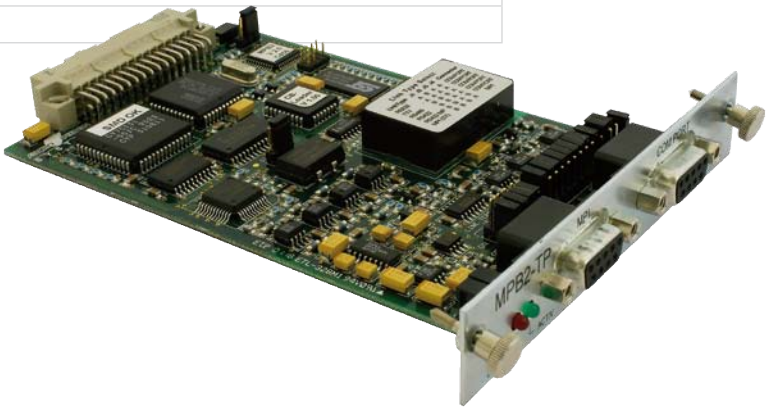
Note: You can find various licensing examples on our website www.eaton-automation.com: Licensing - License Produkt Papers - Examples.

Description	Type / Article no.	For use with
Windows CE licenses		
WinCE 3.0 Standard runtime license with license sticker	LIC-OS-CE30 140405	XV-2..., XVS-4..., XV-4...
WinCE 5.0 Core runtime license with license sticker	LIC-OS-CE50-C 140406	XV-1..., XV-2..., XVS-4..., XV-4...
WinCE 5.0 Professional Plus runtime license with license sticker	LIC-OS-CE50-PP 140408	XV-2..., XVS-4..., XV-4...
Memory cards		
SD memory card, min. 128MB, without operating system	MEMORY-SD-A1-5 139807	XV-1...
CompactFlash, min. 128MB, without operating system	MEMORY-CF-A1-S 139528	XV-2..., XVS-4..., XV-4...
CompactFlash, min. 128MB, bootable with WinCE 3.0, without WinCE license	OS-FLASH-A1-S 140366	XV-2..., XVS-4..., XV-4...
CompactFlash, min. 128MB, bootable with WinCE 5.0, without WinCE license	OS-FLASH-A1-C 140368	XV-2..., XVS-4..., XV-4...
XV license product paper		
License product paper 40 POINTS	LIC-OPT-1ST-LEVEL 140391	XV-1..., XV-2..., XVS-4..., XV-4...
License product paper 80 POINTS	LIC-OPT-2ND-LEVEL 140392	XV-1..., XV-2..., XVS-4..., XV-4...
License product paper 160 POINTS	LIC-OPT-3RD-LEVEL 140393	XV-2..., XVS-4..., XV-4...
License product paper PLC with license sticker COMPACT	LIC-OPT-MXP-COMPACT 142581	XV-1...
License product paper PLC with license sticker LIGHT	LIC-OPT-MXP-LIGHT 140388	XV-2xx-57BAS, XV-2xx-57CNN
License product paper PLC with license sticker SMALL	LIC-OPT-MXP-SMALL 140389	XV-2xx-57MPN, XVS-4xx-57..., XVS-4xx-8..., XV-4xx-57..., XV-4xx-8...
License product paper PLC with license sticker MEDIUM	LIC-OPT-MXP-MEDIUM 140390	XVS-4xx-10..., XVS-4xx-12..., XV-4xx-10..., XV-4xx-12...
Communication modules for XV400 devices		
Multiprotocol board	COM-MPB1-TP 139850	XV-4...
Multiprotocol board MPI	COM-MPB2-TP 139847	XV-4...
Profibus DP-Master (12 MBaud)	COM-DPM-MC2 139853	XV-4...
Profibus DP-Slave (12 MBaud)	COM-PDT-TP 139849	XV-4...
EIB (3release)	COM-EIB2-TP 139852	XV-4...
Accessories for XVM400 (Mobile Panel)		
Wall holder for mobile panel incl. cable holder	KETOP WB095 139999	XVM-4...
Terminal box mobile panel, outside control panel IP 65	KETOP CB211 140002	XVM-4...
Cable set mobile panel 5m	KETOP TT050 MV1 140000	XVM-4...
Cable set mobile panel 10m	KETOP TT100 MV1 140001	XVM-4...
Cable set mobile panel 15m	KETOP TT150 MV1 140005	XVM-4...
Strapping plug emergency switch mobile panel	KETOP BC001 140004	XVM-4...
Spare Key, 2 pieces	KETOP EKY001 140006	XVM-45x..., XVM-41x...

Description	Type / Article no.	For use with
Additional fixing brackets		
Additional fixing brackets for IP65 Set of retaining brackets for mouinting the device (4 retaining brackets with threaded pin)	ACCESSOIRES-HKS-IP65 139809	XVS-4xxx XV-4...
Batteries		
Spare batteries	ACCESSOIRES-BAT01x 139523	XVC-1...
Device accessories (supplied with the device)		
Device accessories as replacement - 8 Retaining brackets for mounting the device - 8 Threaded pins for mounting the device - 1 Sealing strip for mounting the device - 1 Power supply connector - 1 Touch pen	ACCESSOIRES-TP-57-KG-1 139837	XV-2...
Device accessories as replacement - 1 Set of retaining brackets for mounting the device (4 retaining brackets with threaded pin) - 1 Sealing strip for mounting the device - 1 Power supply connector - 1 Touch pen	ACCESSOIRES-TP-57-RES-1 139827	XVS-4xx-57... XV-4xx-57...
Device accessories as replacement - 2 Set of retaining brackets for mounting the device (4 retaining brackets with threaded pin) - 1 Sealing strip for mounting the device - 1 Power supply connector - 1 Touch pen	ACCESSOIRES-TP-10/12-RES-1 139831	XVS-4xx-10... XVS-4xx-12... XV-4xx-10... XV-4xx-12...

List of the most common protocols:

Protocol	Required communication module for the XV400 devices
EIB (3rd release)	COM-EIB2-TP
Matushita FP Series	COM-MPB1-TP / COM-MPB2-TP
Mitsubishi A-Serie / F-Series	COM-MPB1-TP / COM-MPB2-TP
Eaton Suconet	COM-MPB1-TP / COM-MPB2-TP
Omron C- H- K-Series	COM-MPB1-TP / COM-MPB2-TP
Telemecanique Unitelway	COM-MPB1-TP / COM-MPB2-TP
Profibus DP-Master (12MBaud)	COM-DPM-MC2
Profibus DP-Slave (12MBaud)	COM-PDP-TP
Siemens MPI	COM-MPB2-TP



Modular and compact PLCs

XC100 and XC200 modular PLCs stand out on account of their highly scalable design. Different CPU performance classes and a wide range of expansion modules are available. An important feature is their ability to be integrated in modern communication concepts. The data exchange via the Ethernet interface to OPC clients or the integrated web server allows the creation of innovative solutions.

The compact class with the EC4P controllers now offers the performance of a PLC in the housing of the renowned easy control relay. This enables the convenient creation of solutions for small and medium-sized control tasks.

XC100

The XC100 series modular PLC is a powerful automation system for small and medium-sized applications, and is locally expandable with up to 15 XI/OC modules.

XC100-FC

The XC-CPU101-FC is a modular PLC with an integrated CANopen fieldbus interface using fibre optic technology. It is therefore particularly suitable for use in environments susceptible to severe electromagnetic interference.

PLC		XC-CPU101-C64K-8DI-6DO	XC-CPU101-C128K-8DI-6DO	XC-CPU101-FC128K-8DI-6DO	XC-CPU101-C256K-8DI-6DO
Power supply:					
Input voltage	V DC	24			
Memory:					
Program code/program data	kByte	64/64	128/128		256/256
Marker/Retain data	kByte	4/4	8/8		
Cycle time for 1k instructions (Bit, Byte)	ms	< 0.5			
Operating system		proprietary			
Interfaces		RS232, CANopen			
RTC (Real Time Clock)		ja			
Digital inputs:					
Inputs	No.	8 (of which 4 interrupt inputs)			
Status indication		LED			
Digital outputs:					
Channels	No.	6			
Status indication		LED			
Utilization factor	g	1			
Article no.		**262152**	**262146**	**289169**	**274399**

XC-CPU-121

The XC-CPU121 is particularly suitable for applications where space is at premium and with high communication requirements. Two serial interfaces and two CAN interfaces are provided on the basic unit. This flexibility is -also reflected in terms of I/O expansion. Eight of the 18 digital I/Os can be used as either inputs or outputs. Eight analog inputs/outputs complete the I/O level.

PLC		XC-CPU121-2C256K
Power supply:		
Input voltage	V DC	
Memory:		
Program code/program data	kByte	256/244
Marker/Input/Output/Retain data	kByte	16/4/4/8
Cycle time for 1k instructions (Bit, Byte)	ms	< 0.3
Operating system		
Interfaces		RS232, COM2, CAN1/CAN2
RTC (Real Time Clock)		-
Digital inputs:		
Inputs	No.	-
Status indication		-
Digital outputs:		
Channels	No.	-
Status indication		-
Utilization factor	g	-
Article no.		**290446**

I/O expansion for XC121		XIO-EXT121-1			
Power supply:			**Analog inputs 0...20 mA**		
Input voltage	V DC	24	Number of channels		2
Digital inputs:			Primary voltage range	mA	0...20
Number		X2: 9 with plug BLI/O 3.5/10F or 10 with plug BLZF 3.5/180 X3: 8 (can also be used as outputs)	Resolution	Bit	10
			Overall accurancy		≤ ± 1 % (of full-scale value)
Potential isolation		no	**Pt100:**		
Digital outputs:			Number of channels		2
Number		at X3: 8 (can also be used as inputs)	Temperature range	°C	-200...+200
			Resolution	Bit	10
Utilization factor	g	1	Overall accurancy		≤ ± 2%
Potential isolation		no	**Analog outputs:**		
Parallel connection capability		yes	Number of channels		2
Analog inputs 0...10 V:			Secondary voltage range	V	0...10
Number of channels		2			
Primary voltage range	V	0...10	Resolution	Bit	12
Resolution	Bit	10	Overall accurancy		≤ ± 1 % (of full-scale value)
Overall accurancy		≤ ± 1 % (of full-scale value)			
Article no.		**290450**			

XC200

The modular PLC of the XC200 series offers a high CPU performance and outstanding communication options. This includes an integrated Ethernet interface in addition to an RS232 interface and CANopen fieldbus interface.

A technological highlight of the range is that all XV-type devices come with an integrated web server.

PLC		XC-CPU201-EC256K-8DI-6DO / XC-CPU201-EC256K-8DI-6DO-XV	XC-CPU201-EC512K-8DI-6DO / XC-CPU201-EC512K-8DI-6DO-XV	XC-CPU202-EC4M-8DI-6DO-XV
Power supply:				
Input voltage	V DC	24		
Memory:				
Program code/program data		256 kByte/256 kByte	2 MB/512 kByte	4 MB/512 kByte
Marker/Retain data	kByte	16/32		16/64
Cycle time for 1k instructions (Bit, Byte)	ms	< 0.15		< 0.025
Operating system		Windows CE		
Webserver		yes (XV type only)		
Interfaces		Ethernet, RS232, USB, CANopen		
RTC (Real Time Clock)		yes		
Digital inputs:				
Inputs	No.	8, of which parameterizable: 2 counters, 50 kHz, 2 interrupt inputs, 1 incremental input		
Status indication		LED		
Digital outputs:				
Channels	No.	6		
Status indication		LED		
Utilization factor	g	1		
Article no.		**262155 / 262156**	**262157 / 262158**	**134238**

XI/OC – Simple Expansion

XI/OC are local expansion modules for direct connection to all XControl PLCs. Up to 15 modules can be connected directly to each PLC. You can also choose between a wide range of digital, analog and technology functions.

Analog I/O modules

Digital I/O modules

Counter modules

Network modules

Digital inputs		XIOC-8DI	XIOC-16DI	XIOC-32DI
Input type		DC input		
Input voltage	V DC	24		
Input channels	No.	8	16	32
Potential isolation		with optocouplers		
Indication		LED (green)		16 LED (green), switchable: 0 - 15, 16 - 31
Terminals		Plug-in terminal block		XIOC-TERM32 (connector and cable)
Article no.		**257891**	**257892**	**267411**

Digital outputs		XIOC-8DO	XIOC-16DO	XIOC-16DO-S	XIOC-32DO
Output type		Transistor (source type)			
Output voltage	V DC	24 (-15...+20 %)			
Output channels	No.	8	16		32
Channels with the same reference potential	No.	8	16		32
Overvoltage protection		Diode			
Potential isolation		with optocouplers			
Indication		LED (green)			16 LED (green), switchable: 0 - 15, 16 - 31
Terminals		Plug-in terminal block			XIOC-TERM32 (connector and cable)
Short-circuit protection		-		yes	-
Article no.		**257894**	**257896**	**257895**	**267413**

Digital output		XIOC-12DO-R
Output type		Relays
Output voltage	V DC	24
Output voltage	V AC	100/240
Maximum load current:		
per circuit	A	2
per common potential terminal	A	5
Output channels	No.	12
Overvoltage protection		external
Potential isolation		with optocouplers
Indication		LED (green)
Terminals		Plug-in terminal block
Article no.		**257897**

Input / output modules		XIOC-16DX
Power supply:		
Supply voltage		24 V DC (-15/+20%)
Potential isolation:		
between power supply and I/O bus		yes
between power supply and I/O		no
Indication		LED
Inputs:		
Input type		DC input
Inputs	No.	4, 12, configurable
Outputs:		
Output type		Transistor (source type)
Outputs	No.	max. 12 configurable
Short-circuit rating		yes
Number of outputs that can be switched in parallel		max. 3
Article no.		**262322**

Analog inputs		XIOC-8AI-I2	XIOC-8AI-U1	XIOC-8AI-U2	XIOC-4T-PT
Input voltage	V DC	-	0 to 10	-10 to +10	-
Input current	mA	4 - 20	-	-	-
Resolution digital	Bit	12			15 with sign
Total errors	%	≤ ± 1% (of full-scale value)			
Potential isolation:					
Circuit within each channel		with optocouplers			
between the input channels		no			
Input channels	No.	8			4
Platinum RTD		-			Pt100 (IEC 75t), Pt1000
Temperature measuring range		-			-20 to +40 °C/-50 to +400 °C (uninterrupted current: 2 mA)
Article no.		**262549**	**257899**	**257900**	**257901**

Analog input / output modules		XIOC-2AI-1AO-U1	XIOC-2AI-1AO-U1-I1	XIOC-4AI-2AO-U1	XIOC-4AI-2AO-U1-I1
Inputs:					
Input voltage	V DC	0 - 10			
Input current	mA	-	0 - 20	-	0 - 20
Resolution	Bit	14			
Total errors	%	normally 0.4			
Potential isolation: Circuit within each channel		no			
Channels	No.	2		4	
Outputs:					
Output voltage	V DC	0 - 10			
Output current	mA	-	0 - 20	-	0 - 20
Resolution	Bit	12			
Errors	%	normally 0.4			
Potential isolation: Circuit within each channel		no			
Potential isolation: Between the output channels		no			
Number of channels		1		2	
Terminals		Plug-in terminal block			
Article no.		**262409**	**281545**	**262405**	**281544**

Analog outputs		XIOC-4AI-T
Number of channels		4
Temperature measuring range		Type K: -270...1370 Type J: -210...1200 Type B: 100...1800 Type N: -270...1300 Type E: -270...1000 Type R: -50...1760 Type T: -200...400
Voltage measurement		-50 mV...50 mV -100 mV...100mV -500 mV...500mV -1000 mV...1000mV
Cold-junction compensation		yes, built-in
Resolution	Bit	16
Total errors	%	±0.5 of measurement range
Article no.		**289933**

Analog outputs		XIOC-2AO-U1-2AO-I2	XIOC-4AO-U1	XIOC-2AO-U2
Output voltage	V DC	0 - 10		-10 - 10
Output current	mA	4 - 20	-	
Resolution	Bit	12		
Total errors		≤ ± 1% (of full-scale value)		
Potential isolation:				
Circuit within each channel		with optocouplers		
Between channels		no		
Terminals		Plug-in terminal block		
Article no.		**257902**	**257903**	**257904**

Network modules		XIOC-NET-DP-M	XIOC-NET-DP-S	XIOC-NET-SK-M	XIOC-SER	XIOC-TC1
Interfaces		Profibus-DP, RS485, EN 50170		RS485	RS232(C), RS422, RS485	
Protocol		Profibus-DP master (class 1)	Profibus-DP slave	Suconet K, K1	Transparent mode, Modbus master/ slave, SUCOM-A, Suconet-K slave	Transparent mode, Modbus master/ slave, SUCOM-A, DNP3 protocol
Transfer rate	kBit/s	9.6 to 12000		187.5, 375	0.3...57.6 187.5, 375 (Suconet)	0.3...57.6
Potential isolation		yes			yes (RS485, RS422)	
Number of slaves		124	-	16	-	
Send/receive data		3500 Byte each	max. 244 Byte	250 Byte each	250 Byte per slave 120 Byte per slave (Suconet-K-Slave)	250/500
Number of modules		XC100: 1 XC200: 3		XC100: 2 XC200: 4		XC200: 4
Article no.		**257908**	**286419**	**289982**	**267191**	**135265**

Counter modules		XIOC-1CNT-100KHZ	XIOC-2CNT-100KHZ	XIOC-2CNT-2AO-INC
Inputs:				
Counter limits		0 - 4294967295 (32 Bit)		
Frequency	kHz	100 (25 with four times resolution)		400 (100 with four times resolution)
Number of channels		1	2	
Input voltage	V DC	12 - 24		-
Potential isolation		with optocouplers		-
Outputs:				
Output type		Transistor (open collector)		analog
Output channels	No.	2	4	2
Potential isolation		with optocouplers		-
Output voltage	V DC	-		-10 - 10
Resolution	Bit	-		12
Total errors		-		≥ 1 kΩ
Connection for external cabling		30-pin plug: XIOC-TERM30-CNT4		Plug-in terminal block
Article no.		**257906**	**257907**	**262417**

EC4P with and without display

EC4P controllers now offer the performance of a PLC in the housing of the renowned easy control relay. This enables the convenient creation of solutions for small and medium-sized control tasks. Simple programming to IEC-61131 using easySoft-CoDeSys is the basis for this, in conjunction with a powerful CPU. This communication capability of the controller is a special feature. Serial and Ethernet interfaces for programming and connecting to OPC clients, as well as CANopen and easyNet for networking with other fieldbus components allow a wide range of communication options.

Basic units	**easyControl**							
Application	**Compact PLC for different applications**							
Type	EC4P-221-MTXD1*) EC4P-221-MTXX1*)	EC4P-221-MRXD1*) EC4P-221-MRXX1*)	EC4P-221-MTAD1*) EC4P-221-MTAX1*)	EC4P-221-MRAD1*) EC4P-221-MRAX1*)	EC4P-222-MTXD1*) EC4P-222-MTXX1*)	EC4P-222-MRXD1*) EC4P-222-MRXX1*)	EC4P-222-MTAD1*) EC4P-222-MTAX1*)	EC4P-222-MRAD1*) EC4P-222-MRAX1*)
Supply voltage	24 V DC							
Heat dissipation	7 W							
Inputs, digital	12	12	12	12	12	12	12	12
of which the following can be used as: inputs, analog 0 - 10 V	4	4	4	4	4	4	4	4
Outputs (R=Relay,T=Trans.), also (A=analog)	8T	6R	8T 1 A	6R 1 A	8T	6R	8T 1 A	6R 1 A
Continuous current outputs, digital [1]	0.5 A	8 A	0.5 A	8 A	0.5 A	8 A	0.5 A	8 A
Expandable/networkable	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes
easyNet/CANopen	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes	Yes / Yes
Ethernet	-	-	-	-	Yes	Yes	Yes	Yes
Temperature range	–25 °C to +55 °C							
Shipping approvals	DNV, GL, ABS, BV, LR							
Article no.	**106391 106392**	**106393 106394**	**106395 106396**	**106397 106398**	**106399 106400**	**106401 106402**	**106403 106404**	**106405 106406**

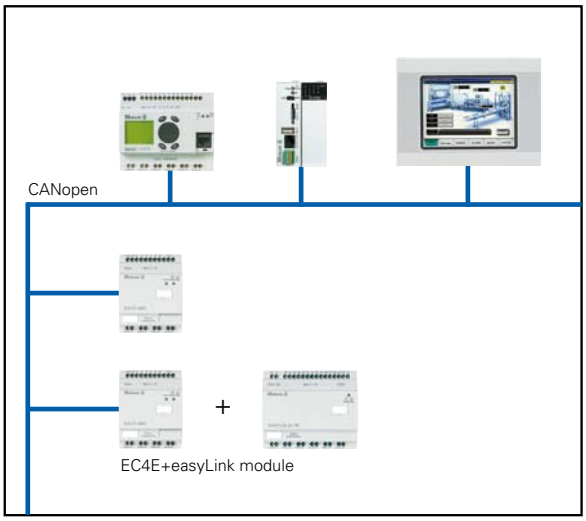
[1] Relay = 8 A (10 A to UL) with resistive load, 3 A with inductive load/transistor outputs = 0,5 A / 24 V DC, max 4 outputs switchable in parallel
*) D1 with display, X1 without display

The controllers of the EC4P series can be expanded with the standard easy I/Os:

Application	**Expansions, analog inputs / outputs**		**Expansions, digital inputs / outputs**					
			easyLink					
Type, Article no.	**EASY406-DC-ME 114294**	**EASY411-DC-ME 116567**	**EASY202-RE 232186**	**EASY410-DC-RE 114293**	**EASY410-DC-TE 114294**	**EASY618-AC-RE 212314**	**EASY618-DC-RE 232112**	**EASY620-DC-TE 212313**
Supply voltage	24 V DC	24 V DC	-	24 V DC	24 V DC	100-240 V AC	24 V DC	24 V DC
Inputs, digital	1 (3)	1 (3)	-	6	6	12	12	12
Inputs, analog	2*	6**	-	-	-	-	-	-
Outputs, digital (R=Relay, T= Trans.)	2T	2T	2R	4R	4T	6R	6R	8T
Outputs, analog (0-10 V)	1	2	-	-	-	-	-	-
Continuous current of outputs, digital[1)]	1A	1A	8A	8A	0,5A	8A	8A	0,5A
Degree of protection	IP 20							
Ambient operating temperature	- 25 °C ... + 55 °C							
Dimensions (WxHxD) mm	71,5x90x58		35,5x90x58	71,5x90x58		107,5x90x58		

1) Relay = 8 A (10 A to UL) with resistive load, 3 A with inductive load/transistor outputs = 0.5 A / 24 V DC, max 4 outputs switchable in parallel
* 2 x 0-10 V or 2x 0-20 mA or 2x Pt100 (2/3 wire connection); voltage inputs (0-10 V) also suitable for optional digital use
** 2 x 0-10 V and 2x 0-20 mA and 2x Pt100 (2/3 wire connection); voltage inputs (0-10V) also suitable for optional digital use

Application	Expansions, CANopen with digital inputs / outputs	
Type	EC4E-221-6D4R1	EC4E-221-6D4T1
Supply voltage	24 V DC	24 V DC
Inputs, digital	6	6
Outputs (R=Relay, T=Trans.)	4R	4T
Continuous current of outputs, digital[1)]	8 A	0,5 A
Degree of protection	IP 20	
Ambient operating temperature	- 25 °C ... + 55 °C	
Dimensions (WxHxD) mm	71,5 x 90 x 58	
Article no.	**114296**	**114297**



Flexible MFD-80 Text Display for CANopen and RS232

Display systems are being increasingly used in more and more applications. With smaller PLCs, the costs for these devices and the effort required for configuring the data exchange between the PLC and the display unit are often considerable. The MFD text display offers here the ideal solution for many applications. It consists of the MFD-80 display and a communication port either with a serial interface (MFD-CP4) or with a CANopen fieldbus connection (MFD-CP4-CO). The MFD-80 4-line display has IP65 protection at the front, offers customised laser inscription and can be used at temperatures as low as -25 °C. The display is programmed directly from the user program. Ready-to-use function blocks are simply assigned parameters with texts and variables.

Display	MFD-80
Display	4 x 16 characters
Character height	1, 2, 4-line
Degree of protection	IP65
Customised laser inscription	yes
Temperature range	–25 to 55 °C
Article no.	**265250**

Communication module	MFD-CP4 Article no. 280888	MFD-CP4-CO Article no. 115736
Interface	RS232	RS485
Protocol	easy	CANopen
Baud rate	max. 19,2 kB	max. 1 MB
Address		1–63
Temperature range	–25 to 55 °C	

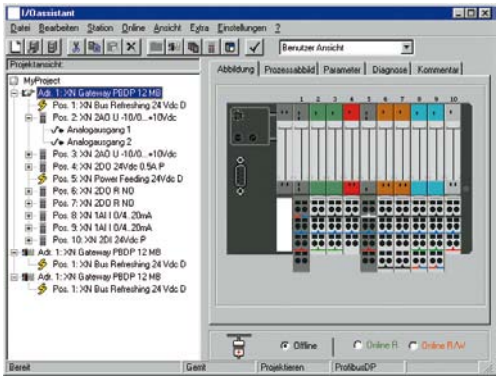
Description	Type / Article-No.	for use with
Terminals		
18-pin connector with spring-cage terminal	XIOC-TERM-18T / 258104	XC100, XC200, XIOC
18-pin connector with screw terminal	XIOC-TERM-18S / 258102	XC100, XC200, XIOC
30-pin connector for counter module, with 4m cable	XIOC-TERM30-CNT4 / 262248	XIOC counter modules
40-pin connector for digital module, with 4m cable	XIOC-TERM32 / 267414	XIOC-32DI, XIOC-32DO
Module backplane		
Basic backplane for mounting on top-hat rail. Width: 2 slots	XIOC-BP-XC / 260792	XC100/200
Expansion backplane for mounting on top-hat rail. Width: 2 slots	XIOC-BP-2 / 260794	XI/OC modules
Basic backplane for mounting on top-hat rail. Width: 3 slots	XIOC-BP-XC1 / 260793	XC100/200
Expansion backplane for mounting on top-hat rail. Width: 3 slots	XIOC-BP-3 / 260795	XI/OC modules
Expansion backplane for mounting on top-hat rail. Width: 3 slots	XIOC-BP-EXT / 274291	XI/OC modules
Memory cards		
For storage of programs, data and recipes with 512 MByte	XT-MEM-MM512M / 138257	XC100, XC121, XC200
For storage of programs, data and recipes with 32 MByte	XT-MEM-MM32M / 262731	XC100, XC121, XC200
Adapter with at least 64 MB memory card	EU4A-MEM-CARD1 / 106409	EC4P
Battery		
For backup of real-time clock and retentive data	XT-CPU-BAT1 / 256209	XC100, XC200
Empty module		
Empty module to cover free XIOC slots	XIOC-NOP / 288894	XIOC
Interface switch		
Interface adapter to split the combined RS232/Ethernet interface into RJ45 sockets	XT-RJ45-ETH-RS232 / 289170	XC200
Filter		
Interference suppression of the external 24 V DC supply	XT-FIL-1 / 285316	XC100/200
Power supply interference suppression of I/O modules	XT-FIL-2 / 118980	XC100/200
Connecting cables		
for connecting EC4P (RJ45) to MFD-CP4-CO or EC4E (terminal block)	EU4A-RJ45-CAB2 / 115387	EC4P

Remote I/O Systems

Whether controlling motion, temperature or speed measurement, current and tension recording – the fields of usage for remote I/Os are so wide ranging as are the different types of applications. They are everywhere in usage where decentral signal processing is the beginning and end of the automation concept.
Eaton Automation offers for every application the suiting I/O system. Whether fine granular graded with XI/ON or compact with WINbloc – naturally also in mix operation in on bus thread.
The result: a modular concept with easy to use handling – adaptable to any application, intelligent and future proof.

System configuration XI/ON

Design your XI/ON station simply with the "I/O Assistant" software, which can be downloaded for free from our Website: www.eaton-automation.com -> Downloads -> Software -> I/Oassistant.



Benefits of the I/Oassistant:

- A complete parts list is generated automatically for your order
- Menu item [Station] > [Verify] allows an easy verification tof the configurated station

A XI/ON station can consist of the gateway and a maximum of 74 modules in slice design (corresponds to a 1 m mounting rail length, including end brackets and end plate). When modules in block design are used, the maximum number of modules is reduced accordingly (1 module in block design is equivalent to about 8 modules in slice design).

For the maximum system configuration, the use of a sufficient number of bus refreshing and power feeding modules must be taken into account.

Maximum system configuration

	XNE-GWBR-PBDP		XNE-GWBR-CANOPEN		XNE-GWBR-2ETH-IP		XNE-GWBR-2ETH-MP		XN-GWBR-PBDP		XN-GWBR-DPV1	
Module	Channels	Modules	Channels	Modules	Channels	Modules	Channels	Modules	Channels	Modules	Channels	Modules
XN-4DI-24VDC-P	136	34	244	61	288	72	288	72	288	72	256	64
XN-4DI-24VDC-N	136	34	244	61	288	72	288	72	288	72	256	64
XN-16DI-24VDC-P	128	8	128	8	128	8	128	8	128	8	128	8
XN-32DI-24VDC-P	256	8	256	8	256	8	256	8	256	8	256	8
XNE-8DI-24VDC-P	384	48	512	64	512	64	512	64	592	74	512	64
XNE-16DI-24VDC-P	768	48	512	32	512	32	512	32	1184	74	1024	64
XN-4DO-24VDC-0.5A-P	132	33	244	61	288	72	288	72	288	72	256	64
XN-16DO-24VDC-0.5A-P	128	8	128	8	128	8	128	8	128	8	128	8
XN-32DO-24VDC-0.5A-P	256	8	256	8	256	8	256	8	256	8	256	8
XNE-8DO-24VDC-0.5A-P	384	48	488	61	512	64	512	64	592	74	512	64
XNE-16DO-24VDC-0.5A-P	640	40	512	32	512	32	512	32	1168	73	1024	64
XN-2DO-R-...	70	35	122	61	144	72	144	72	144	72	128	64
XN-2AI-I(0/4...20MA)	56	28	100	50	126	63	144	72	78	39	78	39
XN-2AI-U(-10/0...+10VDC)	56	28	100	50	126	63	144	72	78	39	78	39
XN-2AI-PT/NI-2/3	44	22	98	49	126	63	144	72	46	23	44	22
XN-2AI-THERMO-PI	44	22	98	49	126	63	144	72	58 (76)	29 (38)	58 (76)	29 (38)
XN-4AI-U/I	64 (132)	16 (33)	108	27	124	31	144	36	112	28	64 (132)	16 (33)
XNE-8AI-U/I-4PT/NI	72 (120)	9 (15)	144	18	128	16	144	18			72 (120)	9 (15)
XN-2AO-I(0/4...20MA)	50	25	70	35	126	63	144	72	38	19	38	19
XN-2AO-U(-10/0...+10VDC)	46	23	70	35	126	63	144	72	38	19	38	19
XNE-4AO-U/I	64 (76)	16 (19)	108	27	64	16	284	71	36	9	64 (76)	16 (19)
XN-1CNT-24VDC	13	13	27	27	31	31	72	72	7	7	13	13
XNE-2CNT-2PWM	16 (20)	8 (10)	72	36	32	16	32	16			16 (20)	8 (10)
XN-1RS232	7	7	27	27	31	31	68	68	22	22	22	22
XN-1RS485/422	16	16	27	27	31	31	72	72	22	22	22	22
XN-1SSI	20	20	27	27	31	31	72	72	22	22	22	22

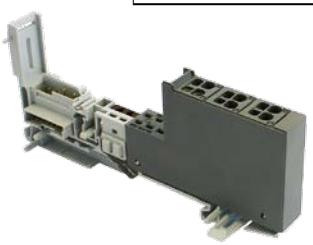
Remarks: Numeric values in brackets: max. number when diagnostic alarm disabled.
The supply module XN-BR-24VDC-D must be mounted immediately next to the gateway XN-GW-... to provide power for the gateways.

Maximum system configuration (continuation)

XN-GWBR-CANOPEN		XN-GWBR-DNET		XN-GWBR-MODBUS-TCP		XN-GW-PBDP-1.5MB		XN-GW-PBDP-12MB		XN-GW-CANOPEN		XN-GW-DNET		XN-PLC-CANOPEN	
Channels	Modules	Channels	Modules	Channels	Modules	Channels	Modules	Channels	Modules	Channels	Modules	Channels	Modules	Channels	Modules
288	72	288	72	288	72	288	72	288	72	288	72	288	72	288	72
288	72	288	72	288	72	288	72	288	72	288	72	288	72	288	72
128	8	128	8	128	8	128	8	128	8	128	8	128	8	128	8
256	8	256	8	256	8	256	8	256	8	256	8	256	8	256	8
512	64	576	72	512	64									576	72
512	32	1152	72	512	32									1008	63
288	72	128	32	288	72	288	72	288	72	288	72	288	72	288	72
128	8	128	8	128	8	128	8	128	8	128	8	128	8	128	8
256	8	256	8	256	8	256	8	256	8	256	8	256	8	256	8
512	64	256	32	512	64									576	72
512	32	512	32	512	32									1008	63
144	72	64	32	144	72	144	72	144	72	144	72	144	72	144	72
144	72	32	16	144	72	78	39	78	39	144	72	126	63	144	72
144	72	32	16	144	72	78	39	78	39	144	72	126	63	144	72
144	72	32	16	144	72	46	23	46	23	142	71	126	63	142	71
144	72	32	16	144	72	58 (76)	29 (38)	58 (76)	29 (38)	142	71	126	63	142	71
144	36	64	16	144	36	112	28	112	28	144	36	124	31	288	72
144	18	128	16	144	18										
144	72	32	16	144	72	38	19	38	19	142	71	126	63	144	72
144	72	32	16	144	72	38	19	38	19	142	71	126	63	144	72
144	36	64	16	124	31									260	65
72	72	16	16	72	72	7	7	7	7	71	71	31	31	71	71
72	36	32	16	32	16	t									
68	68	8	8	68	68	22	22	22	22	67	67	31	31	68	68
72	72	8	8	72	72	22	22	22	22	70	70	31	31	72	72
72	72	8	8	72	72	22	22	22	22	71	71	31	31	72	72

	Base Modules: XN-P4x-SBBC-B	XN-P4x-SBBC	XN-P3x-SBB-B	XN-P3x-SBB		XN-B6x-SBCSBC	XN-B6x-SBBSBB	XN-B4x-SBBC	XN-B3x-SBC	XN-B3x-SBB		XN-S6x-SBCSBC	XN-S4x-SBBS-CJ	XN-S6x-SBBSBB	XN-S4x-SBCS	XN-S4x-SBBS	XN-S4x-SBBC	XN-S3x-SBC	XN-S3x-SBB
ECO Gateways																			
XNE-GWBR-PBDP	no base modules required																		
XNE-GWBR-CANOPEN																			
XNE-GWBR-2ETH-IP																			
XNE-GWBR-2ETH-MB																			
ECO Digital Inputs																			
XNE-8DI-24VDC-D	no base modules required																		
XNE-16DI-24VDC-P																			
ECO Digital Outputs																			
XNE-8DO-24VDC-0.5A-P	no base modules required																		
XNE-16DO-24VDC-0.5A-P																			
ECO Multi Function Modules																			
XNE-8AI-U/I-4PT/NI	no base modules required																		
XNE-4AO-U/I																			
ECO Technology Modules																			
XNE-2CNT-2PWM	no base modules required																		
XNE-1SWIRE	no base modules required																		
Gateways																			
XN-GWBR-PBDP	no base modules required																		
XN-GWBR-DPV1																			
XN-GWBR-CANOPEN																			
XN-GWBR-DNET																			
XN-PLC-CANOPEN																			
Digital Inputs																			
XN-2DI-24VDC-P																	■		■
XN-2DI-24VDC-N																	■		■
XN-2DI-120/230VAC-P																	■		■
XN-4DI-24VDC-P													■		■				
XN-4DI-24VDC-N													■		■				
XN-16DI-24VDC-P								■		■									
XN-32DI-24VDC-P						■	■												
Digital Outputs																			
XN-2DO-24VDC-2A-P															■			■	
XN-2DO-24VDC-0,5A-P															■			■	
XN-2DO-120/230VAC-0,5A-P															■			■	
XN-2DO-24VDC-0,5A-N															■			■	
XN-4DO-24VDC-0,5A-P												■			■				
XN-16DO-24VDC-0,5A-P									■										
XN-32DO-24VDC-0,5A-P						■													
Relay Modules																			
XN-2DO-R-NC															■	■			
XN-2DO-R-NO															■	■			
XN-2DO-R-CO																■			
Analog Inputs																			
XN-1AI-I(0/4...20MA)																	■		■
XN-2AI-I(0/4...20MA)																	■		■
XN-1AI-U(-10/0...+10VDC)																	■		■
XN-2AI-U(-10/0...+10VDC)																	■		■
XN-4AI-U/I												■							
XN-2AI-PT/NI-2/3																	■		■
XN-2AI-THERMO-PI													■						
Analog Outputs																			
XN-1AO-I(0/4...20MA)																			■
XN-2AO-I(0/4...20MA)																			■
XN-2AO-U(-10/0...+10V)																			■
Technology Modules																			
XN-1CNT-24VDC																■			
XN-1RS232																■			
XN-1RS485/422																■			
XN-1SSI																■			
Power Supply Modules																			
XN-BR-24VDC-D	2)	1)	2)	1)															
XN-PF-24VDC-D		■		■															
XN-PF-120/240VAC-D																			

1) Base modules for gateway power supply
2) Base modules for bus refreshing within the station



General technical data	
Standards	DIN 19245 EN 61131 DIN IEC 68-2 EN 50082-2
Supported fieldbus systems	PROFIBUS-DP, CANopen, DeviceNet
Potential isolation	Yes, via optocouplers
Ambient temperature	0...55°C
Ambient temperature, storage	-25...85°C
Relative air humidity	5...95% (indoor), Level RH-2, no condensation (at 45°C for storage)
Harmful gas	
SO_2	10ppm (relative humidity < 75%, no condensation)
H_2S	1.0ppm (relative humidity < 75%, no condensation)
Vibration resistance, operating conditions	To IEC/EN 61131
Shock resistance	To IEC 60068-2-27
Repetitive shock resistance	To IEC 60068-2-29
Tipping and falling	To IEC 60068-2-31, free fall to IEC 60068-2-32
Protection type	IP20
Electromagnetic compatibility (EMC)	
ESD	EN 61131-2
Electromagnetic fields	EN 61131-2
Burst	EN 61131-2
Surge	EN 61000-6-2
HF asymmetric	EN 61000-6-2
Radiated interference / conducted interference	EN 61000-6-4
Radiated interference (radiated, high frequency)	EN 61000-6-4
Type Test	To EN 61131-2
Base modules	
Rated data	To VDE 0611 Part 1/8.92 / IEC 947-7-1/1989
Connections in TOP direction	Spring-loaded/screw terminal
Stripping length	8 mm
Terminal capacity	
Singe conductor H07V-U	1.5mm²
Singe conductor H07V-K	0.5...2.5mm²
Flexible with ferrule	0.5...1.5mm²
Plug gauge IEC/EN 60947-1	A1
Approvals	CE, UL and CSA

XI/ON ECO Gateways

- Modbus TCP
- Ethernet IP
- CANopen
- Profibus DP

XI/ON ECO Modules

- High channel density
  (up to 16 DI/DO on 12,5 mm)
- „Push-In" tension clamps
- Multi function module with 8x AI
  - Free combinable to max. 4x PT/NI
  - Every channel parameterable in current respectively tension ranges
  - Wire breakage signalization for every input
- Multi function module for 4 analog outputs
  - Every channel parameterable in current respectively tension ranges
- Multi function technology modules for:
  - 2 Counter signals and
  - 2 PWM signals

ECO Gateways			XNE-GWBR-PBDP	XNE-GWBR-CANOPEN	XNE-GWBR-2ETH-IP	XNE-GWBR-2ETH-MB
Fieldbus			PROFIBUS-DP	CANopen	Ethernet	
Protocol			DPV0 / DPV1	CANopen	Ethernet IP	Modbus-TCP
System supply	U_{sys}	V DC	24 V DC			
permissible range 24 V DC	U_{sys}	V DC	18...30			
Field voltage	U_L		24			
Permissible range		V DC	18...30			
Ripple		%	< 5 (EN 61131-2)			
Service interface			PS/2 socket		Mini USB	
Connections, fieldbus			Push-In tension clamp terminal			
Data transmission rate		kBit/s	9.6...12000	20...1000	10'000 / 100'000	
Selecting the data transmission rate			automatic	via DIP switch or automatic	automatic	
Addressing			über DIP-Schalter		via DIP switch, DHCO, BootP or PGM	
Address range			0...125	1...63	1...254	
Fieldbus termination			via DIP switch		-	
Number of parameter bytes			Max. 235 Byte	-		
Number of diagnostics bytes			DPV0: Max. 64 Byte (61 for module diagnostics + 3 Byte gateway diagnostics) DPV1: Max. 240 Byte	-		
Article no.			**140045**	**140044**	**140047**	

ECO Digital inputs			XNE-8DI-24VDC-P	XNE-16DI-24VDC-P
Channels		No.	8	16
Nominal voltage on supply terminal	U_L		24 V DC	
Nominal current drawn from supply terminal	I_L	mA	1.5 mA	13mA
Nominal current drawn from module bus	I_{MB}	mA	15 mA	
Insulation test voltage	U_i	V AC	-	
Power loss		W	< 1.5	< 2.5
Input voltage				
Input voltage nominal value		V DC	24 V DC	
Low signal	U_L		$-U_L$...+5 V	
High signal	U_H		11 V...U_L	
Frequency range		Hz	-	
Input current				
Low signal / active signal	I_L		-1 mA...1.5mA	
High signal / active signal	I_H		2 mA...5 mA	
Input delay				
$t_{rising\ edge}$		µs	< 100	< 150
$t_{falling\ edge}$		µs	< 200	< 300
Max. permissible cable capacitance			-	
Article no.			**140035**	**140040**

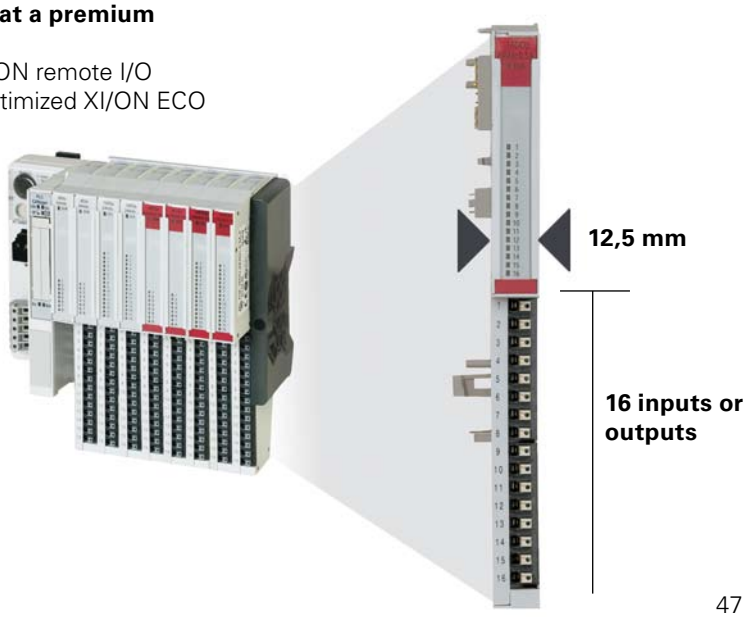
ECO Digital Outputs			XNE-8DO-24VDC-0.5A-P	XNE-16DO-24VDC-0.5A-P
Channels		No.	8	16
Nominal voltage on supply terminal	U_L		24 VCD	
Nominal current drawn from the supply terminal (at load current = 0 mA)	I_L	mA	3 mA	
Nominal current drawn from module bus	I_{MB}	mA	15 mA	25 mA
Insulation test voltage			-	
Power loss		W	normally 1.5	normally 2.5
Output voltage				
High signal	U_H / U_A		U_L ...1 V DC	
Output current				
High signal (nominal value)	I_H		0.5 A	
High signal (permissible range)	I_H	A	1.0	
Low signal	I_A	mA	-	
Delay on signal change and resistive load				
from Low to High		µs	< 300	
from High to Low		µs	< 300	
Load resistance range			-	
Utilization factor	g	%	100	50%, max. 4
Connectable equipment			resistive loads, inductive loads, lamp loads	
Resistive load		O	≥ 48	
Inductive load		H	to DC13 in accordance with IEC 60947-5-1	
Lamp load	R_{LL}	W	≤ 6	
Switching frequency				
With resistive load	f	Hz	< 100	
With inductive load		Hz	to DC13 in accordance with IEC 60947-5-1	
With lamp load		Hz	< 10	
Number of diagnostics bits			-	
Diagnostics			-	
Short-circuit proof to EN 61131-2			yes	
Restart after short-circuit rectified	I_i		automatic	
Article not.			**140036**	**140039**

XI/ON ECO Modules - More information where space is at a premium

Save space and costs with XI/ON ECO I/O modules. The XI/ON remote I/O system has been expanded with the new price and space optimized XI/ON ECO I/O modules. Depending on type, 8 or 16 inputs and outputs can be connected over a width of only 12.5 mm. The high connection density reduces the mounting width for typical applications. All modules are implemented with an integrated connection level.

Key benefits of the XI/ON ECO modules at a glance:

- Space saving with 16 channels on 12.5 mm width
- Cost saving with electronic unit with integrated connention level
- Connention via "Push in" tension clamp terminal saves time required for mounting
- Can be combined with existing XI/ON modules

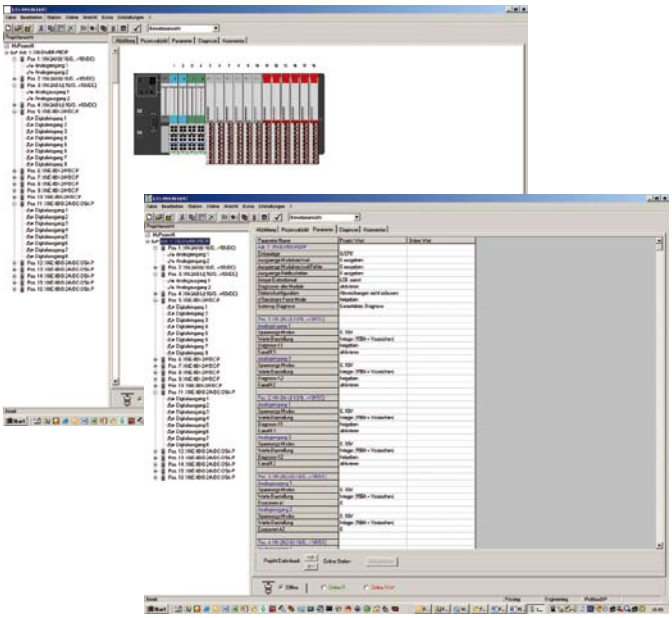


ECO Multi Function Module			XNE-8AI-U/I-4PT/NI
Channels		No.	8 (U/I) / 4 (PT/NI/R)
Nominal voltage on supply terminal	U_L		24 V DC
Nominal current drawn from the supply terminal	I_L	mA	normally 35
Nominal current drawn from module bus	I_{MB}	mA	< 30
Power loss		W	normally < 1.5 W
Adjustable measured variable			voltage, current, PT, NI, R
Voltage metering			
Measuring ranges			-10…10 VDC / 0…10 V DC
Measured value representation			Standard, 16 Bit / 12 Bit (flush-left) Extended Range, 16 Bit / 12 Bit (flush-left) PA (NE43), 16 Bit / 12 Bit (flush-left)
Capability of connecting			2-wire
Maximum input voltage	U_{max}	V DC	±20
Input resistance (burden)	R_L	kΩ	> 200
Limit frequency	f_G	Hz	1.5
Basic error limit at 23° C		%	0.2
Temperature coefficient			200 ppm/°C
Current measuring			
Measuring ranges			0…20 mA / 4…20 mA
Measured value representation			Standard, 16 Bit / 12 Bit (flush-left) Extended Range, 16 Bit / 12 Bit (flush-left) PA (NE43), 16 Bit / 12 Bit (flush-left)
Capability of connecting			2-wire
Maximum input current	Imax	mA	40
Maximum input voltage	U_{max}	V DC	< 17
Input resistance (burden)	R_L	Ω	< 52
Limit frequency	f_G	Hz	1.5
Basic error limit at 23° C		%	0.2
Temperature coefficient			200 ppm/°C
Temperature measuring			
Platin sensors (EN 60751)			PT100, PT200, PT500, PT1000
Nickel sensors			NI100, NI1000 (DIN 4343760), NI1000TK5000
Measuring ranges PT100, PT200, PT500, PT1000 (2-/3-wire)			-200…850 °C / -200…150 °C
Measuring ranges NI100, NI1000, NI1000TK5000 (2-/3-wire)			-60…250 °C / -60…150 °C
Measured value representation			Standard, 16 Bit / 12 Bit (flush-left)
Capability of connecting			2-/3-wire
Measurement current	I_{mess}		< 0.5 mA (Integral)
Limit frequency	f_G	Hz	1.5
Basic error limit		%	PT100, NI100: 0.5% PT200, PT500, PT1000, NI1000, NI1000TK5000: 0.2%
Temperature coefficient			200 ppm/°C
R (resistance measurement)			
Measuring ranges			0…250 W, 0…400 W, 0…800 W, 0…2000 W, 0…4000 W
Measured value representation			Standard, 16 Bit / 12 Bit (flush-left)
Capability of connecting			2 Leiter
Limit frequency	f_G	Hz	1.5
Basic error limit at 23° C		%	0.2
Temperature coefficient			200 ppm/°C
Number of diagnostics bytes			4
Number of parameter bytes			8
Article no.			**140037**

ECO Multi Function Modules			XNE-4AO-U/I
Channels		No.	4 (U/I)
Nominal voltage on supply terminal	U_L		24 V DC (18...30 V DC)
Nominal current drawn from the supply terminal			
without signal output	I_L	mA	< 40
with signal output	I_L	mA	< 150
Nominal current drawn from module bus	I_{MB}	mA	< 40
Power loss		W	normally < 3 W
Adjustable measured variable			voltage, current
Output parameter, voltage			
Output voltage			-10…10 VDC / 0…10 V DC
Measured value representation			Standard, 16 Bit / 12 Bit (flush-left) Extended Range, 16 Bit / 12 Bit (flush-left) PA (NE43), 16 Bit / 12 Bit (flush-left)
Capability of connecting			2-wire
Load resistance			
Resistive load		Ω	> 1000
Capacitive load		µF	< 1
Transmission frequency		Hz	< 20
Recovery time			
Resistive load		ms	< 1
Inductive load		ms	< 2
Capacitive load		ms	< 2
Short-circuit current		mA	< 40
Basic error limit at 23° C		%	0.2
Temperature coefficient			200 ppm/°C
Output parameter, current			
Output current			0…20 mA / 4…20 mA
Measured value representation			Standard, 16 Bit / 12 Bit (flush-left) Extended Range, 16 Bit / 12 Bit (flush-left) PA (NE43), 16 Bit / 12 Bit (flush-left)
Capability of connecting			2-wire
Load resistance			
Resistive load		Ω	< 450
Capacitive load		µF	< 1
Transmission frequency		Hz	< 20
Recovery time			
Resistive load		ms	< 1
Inductive load		ms	< 2
Capacitive load		ms	< 2
Short-circuit current		mA	< 40
Basic error limit at 23° C		%	0.2
Temperature coefficient			200 ppm/°C
Number of parameter bytes			12 Byte
Article no.			**140034**

ECO Technology Module			XNE-2CNT-2PWM
Counter module			
Channels		No.	2
Nominal voltage on supply terminal	U_L		24 V DC
Nominal current drawn from the supply terminal	I_L	mA	≤ 50
Nominal current drawn from module bus	I_{MB}	mA	≤ 50
Power loss		W	< 3
Power supply of encoders			Output voltage U_L + (-0.8 V) / GND_L
Digital input			
Input voltage			
Input voltage nominal value		V DC	24
Low signal	U_L		-30 V DC...5 V DC
High signal	U_H		11 V DC...30 V DC
Input current			
Low signal	I_L		-8 mA...1.5 mA
High signal	I_H		2 mA...10 mA
Minimum pulse width		µs	Filter on: > 25 ms (20 kHz) Filter off: < 2.5 ms (200 kHz)
Digital output			
Channels		No.	4
Output voltage			
Output voltage nominal value		V DC	24
Low signal	U_L		≤ 3 V DC
High signal			≥ L+ (-1 V)
Output current			
High signal (permissible range)	I_H		5 mA...0.6 A
High signal (nominal value)	I_H		≤ 0.5 A (55° C)
Switching frequency			
2 PWM			20 kHz
2 DO			100 Hz
Output delay PWM			25 µs (resistive load)
Short-circuit proof			yes
Measuring ranges			
Frequency			0.1 Hz...200 kHz
Period duration			5 ms...120 s
Counter modes			
Signal evaluation A, B			Pulse and direction, rotary encoder single/double/quadruple
Mode			endless, once only, periodic count
Synchronisation			once only / periodic
Count limits			Upper count limit: 0...7FFF FFFF Lower count limit: 8000 0000...FFFF FFFF
Number of diagnostics bytes			4
Number of parameter bytes			16
Article no.			**140038**

Instantly online, instantly viewed, instantly tested!
The I/Oassistant provides you with a universal tool that supports you interactively throughout the planning and implementation stage of your XI/ON system. First of all, you need to create and structure a project on screen. To do this, you select gateways, electronics/base modules and the appropriate accessories. Then you configure the individual stations either offline or online. Once everything is set to your satisfaction, you can put the complete system into operation.



Commissioning without a fieldbus master

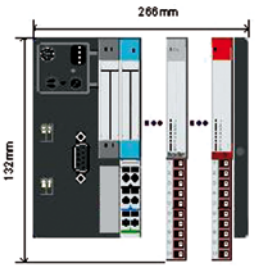
The I/Oassistant checks the station, reads in process data, outputs values and visualizes the diagnostics data of the channels. In this way you can commission your station without a higher-level controller and ensure that sections of the system are operating correctly.
You set the outputs and modify values directly from the PC. By forcing the values you can instantly view the behavior of your application. You can thus check the field wiring, for example, without having a fully installed control system.

Integration in XSoft-CoDeSys-2

The I/Oassistant integrated XSoft-CoDeSys-2 is the special configuration tool for XI/ON and can also be accessed from within XSoft-CoDeSys-2.
You can therefore make full use of all I/Oassistant functions for interactive planning and implementation of your remote XI/ON station without having to exit XSoft-CoDeSys-2.

Design plan and parts list generation

Once the planning has been completed, the software can generate a detailed project documentation that includes overview picture and parts lists.



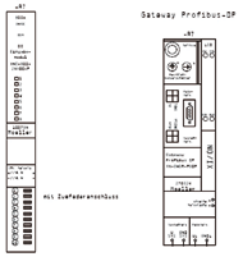
Stationshöhe :74,4 mm

5. Stock list of station

Piece	Article	Order nr
1	XN-GWBR-PBDP	270324
2	XN-2AI-U(-10/0...+10VDC)	230870
6	XNE-8DI-24VDC-P	100794
6	XNE-8DO-24VDC-0.5A-P	100795
2	XN-2AO-U(-10/0...+10VDC)	225180
4	XN-S3T-SBB	225193

EPLAN support

EPLAN macros are available for the XI/ON modular I/O system. This saves the time required for configuring and helps to prevent configuration errors.



Gateways with busrefresh			XN-GWBR-PBDP	XN-GWBR-DPV1	XN-GWBR-CANOPEN	XN-GWBR-DNET	XN-GWBR-MODBUS-TCP	XN-PLC-CANOPEN
Fieldbus			PROFIBUS-DP	PROFIBUS-DP	CANopen	DeviceNet	Modbus TCP	CANopen
Protocol			PROFIBUS-DPV0	PROFIBUS-DPV0, DPV1	CANopen	Device-Net	Modbus-TCP	CANopen
System supply	U_{sys}	V DC	24 V DC/5 V DC					
Permissible range 24 V DC	U_{sys}	V DC	18...30					
Field voltage	U_L		24					
Permissible range		V DC	18...30					
Ripple		%	< 5 (EN 61131-2)					
Connections fieldbus			1 x SUB-D connector, 9-pin		Open Style Connector	Open Style Connector	RJ45	Open Style Connector
Data transmission rate		kBit/s	9.6...12000		20, 50, 125, 250, 500, 800, 1000	125, 250, 500	10/100 MBit/s	20, 50, 125, 250, 500, 800, 1000
Addressing			2 rotary coding switches				Coding switch, BootIP, DHCP	Software
Fieldbus termination			external				automatic	external
Number of parameter bytes			5 Bytes		-			
Number of diagnostics bytes			3 Bytes		-			
Address range			1...99 dec.			1...63 dec.	1...4'162'314'256	1...127 dec.
Program code / Program data		kByte	-					128 / 128
Cycle time 1k instruction		ms	-					0.5
Real-time clock			-					Yes
Article no.			**140154**	**148561**	**140155**	**140156**	**140162**	**140157**

Gateways			XN-GW-PBDP-1.5MB	XN-GW-PBDP-12MB	XN-GW-PBDP-12MB-STD	XN-GW-CANOPEN	XN-GW-DNET
Fieldbus			PROFIBUS-DP			CANopen	DeviceNet
Protocol			PROFIBUS-DPV0			CANopen	DeviceNet
Operating voltage		V DC	5 (from bus refreshing module)				
Permissible range		V DC	4.7...5.3				
Ripple		%	< 5 (nach EN 61131-2)				
Nominal current drawn from module bus	I_{MB}	mA	≤ 430		≤ 410	≤ 350	≤ 250
Connections fieldbus			2 x SUB-D connectors, 9-pin; 2 x spring-loaded terminal strips for direct wiring	1 x SUB-D connector, 9-pin		1 x SUB-D connector, 9-pin; 1 x SUB-D connector, 9-pin; 2 x direct wiring, 5-pin, spring-loaded	Open Style Connector
Data transmission rate		kBit/s	9.6...1500	9.6...1200	9.6...1500	20, 50, 125, 250, 500, 800, 1000	125, 250, 500
Addressing			2 hex rotary coding plugs		2 rotary coding switches		2 dec. coding switches
Fieldbus termination			via SUB-D connector				via DIP switch
Number of parameter bytes			5 Bytes			-	
Number of diagnostics bytes			3 Bytes			-	
Address range			1...125 dec.			1...127 dec.	0...63 dec.
Article no.			**140049**	**140048**	**140143**	**140050**	**140051**

Digital Inputs			XN-2DI-24VDC-P	XN-2DI-24VDC-N	XN-2DI-120/230VAC
Channel		No.	2		
Nominal voltage on supply terminal	U_L		24 V DC		120/230 V AC
Nominal current drawn from supply terminal	I_L	mA	≤ 20		
Nominal current drawn from module bus	I_{MB}	mA	≤ 28		
Insulatin test voltage	U_i	V AC	-		1780
Power loss		W	0.7		1
Input voltage					
Input voltage nominal value		V DC	24 V DC		120/230 V AC
Low signal	U_L		-30...5 V	0...5 V	0...20 V AC
High signal	U_H		11...30 V	> (U_{PF} -11 V)	79...265 V AC
Frequency range		Hz	-		48...63
Input current					
Low signal / active signal	I_L		0...1.5mA	1.8...10mA	0...1mA
High signal / active signal	I_H		2...10 mA	0...1.7 mA	3...8 mA
Input delay					
$t_{rising\ edge}$		µs	< 200		< 20000
$t_{falling\ edge}$		µs	< 200		< 20000
Maximum permissible cable capacitance			-		141 nF at 79 V AC/50 Hz; 23 nF at 265 V AC/50 Hz
Base modules					
without C connection			2- / 3-wire XN-S3x-SBB 2-wire proximity switches (Bero®) can be attached, with a permissible quiescent current up to 1.5mA		2- / 3-wire XN-S3x-SBB
with C connection			4-wire XN-S4x-SBBC		
Article no.			**140056**	**140057**	**140058**

Service interface

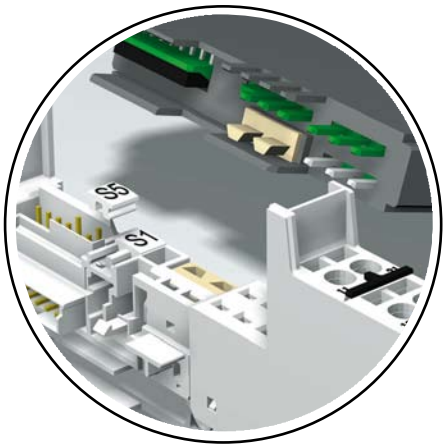
- Commissioning of station also without head-end controller
- Station diagnostics
- Programming interface

Openness

- The gateway product range supports the CANopen, Profibus-DP, DeviceNet and Ethernet fieldbus systems
- The modules can be used for any bus

CANopen
PROFIBUS PROCESS FIELD BUS
DeviceNet™
Ethernet

Digital Inputs			XN-4DI-24VDC-P	XN-4DI-24VDC-N	XN-16DI-24VDC-P	XN-32DI-24VDC-P
Channel		No.	4		16	32
Nominal voltage on supply terminal	U_L		24 V DC			
Nominal current drawn from supply terminal	I_L	mA	≤ 40			≤ 30
Nominal current drawn from module bus	I_{MB}	mA	≤ 28		≤ 45	≤ 30
Insulatin test voltage	U_i	V AC	-			
Power loss		W	1		2.5	4.2
Input voltage						
Input voltage nominal value		V DC	24 V DC			
Low signal	U_L		-30...5 V	0...5 V	-30...5 V	
High signal	U_H		15...30 V	> (U_{PF} -11 V)	15...30 V	
Frequency range		Hz	-			
Input current						
Low signal / active signal	I_L		0...1.5 mA	1.3...6 mA	0...1.5 mA	< 1.5 mA
High signal / active signal	I_H		2...10 mA	0...1.2 mA	2...10 mA	2...10 mA
Input delay						
$t_{rising\ edge}$		µs	< 200			
$t_{falling\ edge}$		µs	< 200			
Maximum permissible cable capacitance			-			
Base modules						
without C connection			2- / 3-wire XN-S4x-SBBS 4-wire XN-S6x-SBBSBB		2- / 3-wire XN-B3x-SBB	2- / 3-wire XN-B6x-SBBSBB
with C connection			-		4-wire XN-B4x-SBBC	-
Article no.			**140052**	**140059**	**140142**	**140147**



XI/ON standard modules

- Pluggable modules
- Fast modules change (hot swappable)
- Wiring on base module
- Screw or tension clamp terminal
- Mechanial coding of module

Digital Outputs			XN-2DO-24VDC-0.5A-P	XN-2DO-24VDC-0.5A-N	XN-2DO-24VDC-2A-P	XN-2DO-120/230VAC-0.5A
Channels		No.	2			
Nominal voltage on supply terminal	U_L		24 VCD			120/230 V AC
Nominal current drawn from the supply terminal (at load current = 0 mA)	I_L	mA	≤ 20		≤ 50	≤ 20
Nominal current drawn from module bus	I_{MB}	mA	≤ 32		≤ 33	≤ 35
Insulation test voltage			-			
Power loss		W	normally 1			
Output voltage						
High signal	U_H / U_A		min. L+ (-1 V)	max. GND (+1 V)	min. L+ (-1 V)	> U_L (-2 V)
Output current						
High signal (nominal value)	I_H		0.5 A		2	0.5 A
High signal (permissible range)	I_H	A	< 0.6		< 2.4	0.02...0.5
Low signal	I_A	mA	-			< 1.5
Backup fuse			-			500 mA FF
Surge current	I_S	A	-			8 (1 period at 60 Hz)
Number of outputs that can be switched in parallel	max.		-			
Total module current		A	-			
Delay on signal change and resistive load						
from Low to High		µs	< 100			< T/2 +1 ms
from High to Low		µs	< 100			< T/2 +1 ms
Load resistance range			48 Ω...1 kΩ	-	12 Ω...1 kΩ	at 120 VAC: 240 Ω...6 kΩ at 230 VAC: 460 Ω..11.5 kΩ
Utilization factor	g	%	100			
Connectable equipment			Resistive loads, inductive loads, lamp loads			
Resistive load		O	≥ 48		≥ 12	≥ 48
Inductive load		H	≤ 1.2			
Lamp load	R_{LL}	W	≤ 3	≤ 12	≤ 6	-
Switching frequency						
With resistive load	f	Hz	5000 (R_{LO} < 1kΩ)	100 (R_{LO} < 1kΩ)	5000 (R_{LO} < 1kΩ)	-
With inductive load		Hz	2			-
With lamp load		Hz	≤ 10			
Number of diagnostics bits			2			0
Diagnostics			-			
Short-circuit proof to EN 61131-2			-			
Restart after short-circuit rectified	I_i		-			
Base modules						
with C connection			2- / 3-wire XN-S3x-SBC 4-wire XN-S4x-SBCS			
Article no.			**140053**	**140060**	**140055**	**140150**

Digital Outputs			XN-4DO-24VDC-0.5A-P	XN-16DO-24VDC-0.5A-P	XN-32DO-24VDC-0.5A-P
Channels		No.	4	16	32
Nominal voltage on supply terminal	U_L		24 VCD		
Nominal current drawn from the supply terminal (at load current = 0 mA)	I_L	mA	≤ 25	≤ 30	
Nominal current drawn from module bus	I_{MB}	mA	≤ 30	≤ 45	≤ 50
Insulation test voltage			-		
Power loss		W	normally 1	normally 4	normally 5
Output voltage					
High signal	U_H / U_A		min. L+ (-1 V)		
Output current					
High signal (nominal value)	I_H		0.5 A		
High signal (permissible range)	I_H	A	1.0 A for max. 5 minutes	< 0.6	1.0
Low signal	I_A	mA	-		
Backup fuse			-		
Surge current	I_S	A	-		
Number of outputs that can be switched in parallel	max.		-		2
Total module current		A	-		10
Delay on signal change and resitive load					
from Low to High		µs	< 250	< 100	< 300
from High to Low		µs	< 250	< 100	< 300
Load resistance range			48 Ω...1 kΩ	-	48 Ω...1 kΩ
Utilization factor	g	%	100		see Total module current
Connectable equipment			Resistive loads, inductive loads, lamp loads		
Resistive load		O	≥ 48		
Inductive load		H	≤ 1.2	Category DC 13 to EN 60947-5-1	≤ 1.2
Lamp load	R_{LL}	W	≤ 6	≤ 3	≤ 6
Switching frequency					
With resistive load	f	Hz	5000 (R_{LO} < 1kΩ)	100 (R_{LO} < 1kΩ)	100 (R_{LO} < 1kΩ)
With inductive load		Hz	2	-	
With lamp load		Hz	≤ 10		
Number of diagnostics bits			1	4	8
Diagnostics			-		ja
Short-circuit proof to EN 61131-2			-		ja
Restart after short-circuit rectified	I_i		-		automatic
Basemodules					
with C connection			4-wire XN-S4x-SBCS 4 x 2- / 3-wire XN-S4x-SBCSBC	2- / 3-wire XN-B3x-SBC	2- / 3-wire XN-B6x-SBCSBC
Article no.			**140148**	**140141**	**140161**

Relay Modules			XN-2DO-R-NC	XN-2DO-R-NO	XN-2DO-R-CO
Contact type			2 break contacts	2 make contacts	2 changeover contacts, isolated
Nominal voltage on supply terminal	U_L		24 V DC		
Nominal current drawn from supply terminal	I_L	mA	≤ 20		
Nominal current drawn from module bus	I_{MB}	mA	≤ 28		
Insulation test voltage	U_i	V AC	1780		
Power loss		W	Normally 1		
Connectable equipment			Resistive loads, inductive loads, lamp loads		
Nominal load voltage			230 V AC, 30 V DC		
Output current per channel/230 V AC					
max. continuous current		A	2		
max. continuous current, resistive load			5 A, load-dependent		
Minimum load current		mA	10 mA at ≥ 12 V DC		
Output current for DC voltage (resistive)			Load limit curve		
Utilization factor	g	%	100		
Lifespan at 230 V AC					
at 5 A	Operations	x 10^6	> 0.1		
at 0.5 A	Operations	x 10^6	> 1		
Base modules					
without C connection			4-wire XN-S4x-SBBS		
with C connection			4-wire XN-S4x-SBCS		-
Article no.			**140061**	**140062**	**140054**

Programmable CANopen gateway

The programmable CANopen gateway brings PLC performance directly to the fieldbus terminal.
The device is ideal for decentralized automation concepts and for relieving the processing load on the higher-level PLC.
Programming or online commissioning can be carried out via the integrated service interface or with networked systems via the CANopen fieldbus.
The device can also be used as a stand-alone space-optimized PLC and connected to remote XI/ON stations.

Analog Inputs			XN-1AI-I (0/4...20MA)	XN-2AI-I (0/4...20MA)	XN-1AI-U (-10/0...+10VDC)	XN-2AI-U (-10/0...+10VDC)
Channels		No.	1	2	1	2
Nominal voltage on supply terminal	U_L		24 V DC			
Nominal current drawn from supply terminal	I_L	mA	≤ 50	≤ 12	≤ 50	≤ 12
Nominal current drawn from module bus	I_{MB}	mA	≤ 41	≤ 35	≤ 41	≤ 35
Power loss		W	< 1			
Inpurt current		mA	0/4...20		-	
Maximum input current		mA	50		-	
Input voltage			-		-10/0...+10 VDC	
Maximum input voltage		V DC	-		35 V continuous	
Input resistance			< 125 Ω		≥ 98.5 kΩ	
Limit frequency (-3 db)		Hz	200	> 50	200	> 50
Offset error		%	≤ 0.1			
Linearity		%	0.03	-	0.03	-
Basic error limit at 23 °C		%	< 0.2			
Repetition accuracy (deviation)		%	0.09	0.05		
Temperature coefficient			300 ppm/°C of full scale value			150 ppm/°C of full scale value
Resolution of A/D converter			14 Bit (signed integer)	16 Bit	14 Bit (signed integer)	16 Bit
Measuring principle			successive approxi-mation	Delta Sigma	successive approxi-mation	Delta Sigma
Measured value representation			16 Bit signed integer 12 Bit full range, flush-left		16 Bit signed integer 12 Bit signed integer flush-left 12 Bit full range flush-left	16 Bit signed integer 12 Bit full range flush-left
Transmitter supply			linked to L+ and L- of the supply; not short-circuit proof	≤ 250 mA; linked to L+ and L- of the sup-ply; not short-circuit proof	linked to L+ and L- of the supply; not short-circuit proof	≤ 250 mA; linked to L+ and L- of the sup-ply; not short-circuit proof
Cycle time		ms	-			
Connectable sensors			-			
Number of diagnostics bits			2 Bit		1 Bit	2 Bit
Number of parameter bits			3 Bit	1 Byte (per channel)	3 Bit	2 Byte
Base modules						
without C connection			2- / 3-wire XN-S3x-SBB			
without C connection, for trans-mitter supply			4-wire XN-S4x-SBBS			
Article no.			**140063**	**140144**	**140064**	**140145**

Analog Inputs			XN-4AI-U/I	XN-2AI-PT/NI-2/3	XN-2AI-THERMO-PI
Channels		No.	4	2	
Nominal voltage on supply terminal	U_L		24 V DC		
Nominal current drawn from supply terminal	I_L	mA	≤ 20	≤ 30	
Nominal current drawn from module bus	I_{MB}	mA	≤ 50	≤ 45	
Power loss		W	< 1		
Inpurt current		mA	0/4...20	-	
Maximum input current		mA	50	-	
Input voltage			-10/0...+10 V DC	-	
Maximum input voltage		V DC	35 V continuous	-	
Input resistance			< 62 Ω / > 98.5 Ω	-	
Limit frequency (-3 db)		Hz	20	-	
Offset error		%	≤ 0.1		
Linearity		%	0.05	< 0.1	0.1
Basic error limit at 23 °C		%	< 0.3	< 0.2	
Repetition accuracy (deviation)		%	0.05		
Temperature coefficient			300 ppm/°C of full scale value		
Resolution of A/D converter			16 Bit	-	
Measuring principle			Delta Sigma	-	
Measured value representation			16 Bit signed integer 12 Bit full range flush-left		
Transmitter supply			-		
Cycle time		ms	-	< 130 per channel	60 per channel + 100
Connectable sensors			-	Platinum sensors: PT100, PT500, PT1000 (to DIN IEC 751) Nickel sensors: Ni100, Ni1000 (to DIN 43760)	Thermocouple types B, E, J, K, N, R, S, T to DIN IEC 584, class 1, 2, 3
Number of diagnostics bits			-	2 Byte (1 Byte pro Kanal)	
Diagnostics			yes		
Number of parameter bits			-	4 Bytes (2 Bytes per channel)	2 Bytes (1 Byte per channel)
Base modules					
without C connection			2- / 3-wire XN-S6x-SBCSBC	2- / 3-wire XN-S3x-SBB	-
without C connection, for transmitter supply			-	4-wire XN-S4x-SBBS	4-wire with integrated cold junction compensation XN-S4x-SBBS-CJ
Article no.			**140158**	**140067**	**140068**

Analog Outputs			XN-1AO-I(0/4...20MA)	XN-2AO-I(0/4...20MA)	XN-2AO-U(-10/0...+10VDC)
Channels		No.	1	2	
Nominal voltage on supply terminal	U_L		24 V DC		
Nominal current drawn from supply terminal	I_L	mA	≤ 50		
Nominal current drawn from module bus	I_{MB}	mA	≤ 39	≤ 40	≤ 43
Power loss		W	normally 1		
Output voltage		V DC	-		-10/0...+10
Output current		mA	0/4...20		-
Load resistance					
Resistive load		O	< 450		> 1000
Inductive load		H	< 0.001		-
Capacitive load		µF	-		> 1
Short-circuit current		mA	-		≤ 40
Transmission frequency		Hz	≤ 200	≤ 200	≤ 100
Offset error		%	≤ 0.1		
Linearity		%	0.02	-	0.1
Basic error limit at 23 °C		%	< 0.2		
Repetition accurancy (deviation)		%	0.05	-	0.5
Output ripple		%	0.02	-	0.02
Temperature coefficient			300 ppm/°C of full scale value	150 ppm/°C of full scale value	300 ppm/°C of full scale value
Recovery time					
Resistive load		ms	0.1	2	0.1
Inductive load		ms	0.5	2	0.5
Capacitive load		ms	0.5		
RFI suppression			-		Common mode > 90 dB Differential mode > 70 dB Cross talk between channels > -50 dB
Measured value representation			16 Bit signed integer 12 Bit full range flush-left		16 Bit signed integer 12 Bit signed integer flush-left 12 Bit full range flush-left
Number of parameter bytes			3	3 (per channel)	
Base modules					
without C connection			2- / 3-wire XN-S3x-SBB		
Article no.			**140065**	**140146**	**140066**

I/Oassistant

- Project design/configuration
- Parameterization/monitoring
- Commissioning

XSoft-CoDeSys-2 – IEC 61131-3

- Programming of the XN-PLC-CANopen

Technology Modules			XN-1CNT-24VDC
Counter module			
Channels		No.	1
Nominal voltage on supply terminal	U_L		24 V DC
Nominal current drawn from supply terminal	I_L	mA	≤ 50
Nominal current drawn from module bus	I_{MB}	mA	≤ 40
Power loss		W	< 1.3
Power supply of encoders			Output voltage L+ (-0.8 V) Output current ≤ 0.5 A, short-circuit proof
Digital inputs			
Input voltage			
Input voltage nominal value		V DC	24
Low signal	U_L		-30 V DC...5 V DC
High signal	U_H		11 V DC...30 V DC
Input current			
Low signal	I_L		-8 mA...1.5 mA
High signal	I_H		2 mA...10 mA
Minimum pulse width		µs	Filter on: > 25 ms (20 kHz), Filter off: < 2.5 ms (200 kHz)
Digital Outputs			
Output voltage			
Output voltage nominal value		V DC	24
Low signal	U_L		≤ 3 V DC
High signal			≥ L+ (-1 V)
Output current			
High signal (permissible range)	I_H	A	5 mA...2 A
High signal (nominal value)	I_H		≤ 0.5 A (55° C)
Switching frequency			
With resistive load		Hz	100
With inductive load		Hz	2
with lamp load		Hz	≤ 10
Lamp load	R_{LL}	W	≤ 10
Output delay			100 µs (resistive load)
Short-circuit proof			yes
Response threshold		V	2.6...4 A
Inductive quenching			L+ (-50...-60 V)
Measuring ranges			
Frequency			0.1 Hz...200 kHz
Speed			1 rpm...25000 rpm
Period duration			5 ms...120 s
Counter modes			
Signal evaluation A, B			Pulse and direction, rotary encoder single/double/quadruple
Mode			Endless, once only or periodic count
Hysteresis		mm	0...255
Pulse durations			0...255
Synchronisation			Once only / periodic
Count limits			Upper count limit: 0...7FFF FFFF Lower count limit: 8000 0000...FFFF FFFF
Measuring modes			
Signal evaluation A, B			Pulse and direction, rotary encoder single
Temperature coefficient			≤ 100 ppm/°C of full scale value
Number of diagnostics bits			1
Number of parameter bits			15
Base module			
without C connection, for transmitter supply			4-wire XN-S4x-SBBS
Article no.			**140069**

Technology Modules			XN-1RS232	XN-1RS485/422	XN-1SSI
Type			RS 232	RS 484 / RS 422	SSI
Nominal voltage on supply terminal	U_L		24 V DC		
Nominal current drawn from supply terminal	I_L	mA	≤ 25		
Nominal current drawn from module bus	I_{MB}	mA	≤ 140	≤ 90	≤ 50
Power loss		W	normally 1		
Transmission channels			RxD, TxD, RTS, CTS	RxD, TxD	CL, D
Data buffer					
Receive		Byte	128		-
Transmit		Byte	64		-
Connection type					
RS 232			full-duplex	-	
RS 485			-	2-wire half-duplex	-
RS 422			-	2-wire half-duplex or 4-wire full-duplex	4-wire full-duplex (clock output/signal input)
Bit transmission rate			max. 115200 Bit/s (adjustable), default setting: 9600 Bit/s, 7 data bits, odd parity and 2 stop bits		max. 1 MHz (adjustable), default setting: 500 kBit/s
Insulation voltage					
Between interface and module bus / system voltage		V_{rms}	500		
Between interface and field voltage		V_{rms}	500		
Common mode range		V DC	-7...12	-	
Cable impedance		O	-	120	
Bus termination			-	120 Ω (external)	internal
Cable length RS 232		m	max. 15	max. 1000	max. 30
Number of diagnostics bits			1		
Number of parameter bits			4		
Base modules					
without C connection			4-wire XN-S4x-SBBS		
Article no.			**140151**	**140152**	**140153**

XI/ON technology modules:
Interfaces and counters

The serial interface modules of the XI/ON range enable them to transfer serial data streams via the XI/ON system. This enables the connection of different devices such as printers, scanners or barcode readers with a serial RS232, RS485 or RS422 interface.

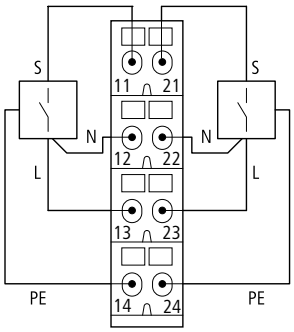
The XN-1SSI module allows the connection of encoders with an SSI interface, a supply voltage of 24 V DC (500 mA), a word length of up to 32 bits and a transmission rate of max. 1 MHz.

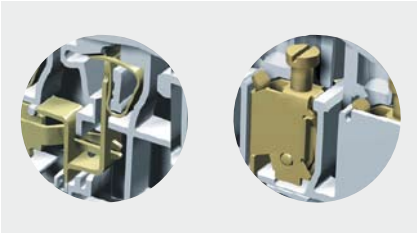
The XN-1CNT counter module detects normalized signals up to 200 kHz.

Power Supply Modules			XN-BR-24VDC-D	XN-PF-24VDC-D	XN-PF-120/230VAC-D
Operating voltage		V DC	24		120 / 230 AC
System supply	U_{SYS}	V DC	24/5	-	
Permissible range 24 V DC	U_{SYS}	V DC	18...30	-	
Permissible range 5 V DC	U_{SYS}	V DC	4.7...5.3	-	
Field voltage	U_L		24 V DC		
Permissible range			-		nach EN 61131-2
Permissible range		V DC	18...30		-
Nominal current drawn from module bus	I_{MB}	mA	-	≤ 28	≤ 25
Insulation test voltage	U_i	V AC	-		1780
Ripple		%	< 5 (to EN 61131-2)		
Maxmium operating current	I_{EI}	A	10		
Maximum system supply current	I_{MB}	A	1.5	-	
Number of diagnostics bits			4		
Base modules without gateway supply					
without C connection			-	2-/3-wire XN-P3x-SBB	
with C connection			4-wire XN-P4x-SBBC-B	4-wire XN-P4x-SBBC	
Article no.			**140071**	**140070**	**140072**

Safety through coding

The pluggable design of the modules enable them to be exchanged quickly and without tools, even under live conditions (hot swappable).
The mechanical coding prevents modules from being plugged incorrectly.





The base modules of the XI/ON standard systems are available with 2, 3 or 4-wire circuits and tension clamp or screw terminals. An additional terminal strip is unnecessary.

Bridges

The bridge connects the expandable I/O modules with Profibus-DP or CANopen, in which each I/O module represents a passive network station on the fieldbus. The bus address setting is carried out with rotary coding switches on the I/O modules.

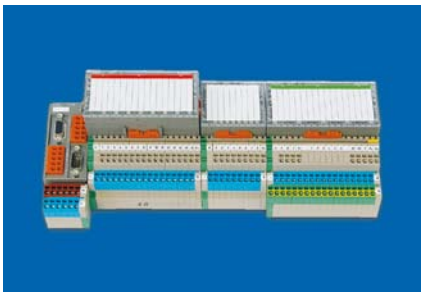
- A maximum of 10 I/O modules can be connected per bridge
- Bus connection either via SUB-D or tension clamp terminals
- Fieldbus electrically isolated
- Operating voltage: 24 V DC

DP Bridge
Transmission speed: up to 1.5 Mbit/s

DP Bridge/12 MBaud
Transmission speed: up to 12 Mbit/s

CAN Bridge
Transmission speed: up to 1 Mbit/s

Digital I/O modules for CANopen



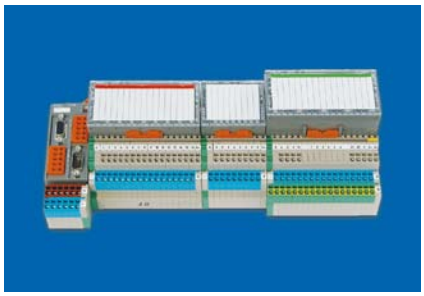
Input modules 8/16/32-channel
CAN-8-(16)DI/P
CAN-16-(32)DI/P-2x8 (2x16)

Output modules 4/8/16/32-channel
Either 0.5 A or 2 A
Short-circuit proof design -PK
With short-circuit monitoring LED
CAN-4DO/2.0A-PK
CAN-8-(16)DO/0.5A-PK
CAN-16-(32)DO/0.5A-P-2x8 (2x16)

Combi modules 8/32-channel
Optimum combination of input/ output modules
Either 0.5 A or 2 A outputs
Short-circuit proof design -PK
With short-circuit monitoring LED
CAN-4DI/4DO/0.5A-PK
CAN-24DI/8DO/0.5A-PK

Relay modules 8/16-channel
Make contact
CAN-8(16)DO-R-NO

Analog I/O modules for CANopen



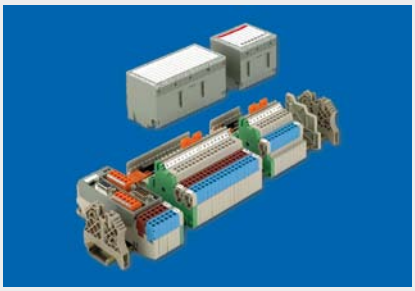
Input modules 4-channel
Input ranges:
10/0..+10 V, 0/4..20 mA
Resolution 16-bit
Reverse polarity protection
CAN-4AI/UI

Analog input PT100
Resolution 0.1 K, 0.1 W
CAN-4AI/PT100

Analog input
Thermo K, J, R, S, T, N, E, B
Resolution 1K
CAN-4AI/Thermo

Output modules 4-channel
output range:
10/0..+10 V, 0/4..20 mA
Reverse polarity protection
Resolution 16-bit
CAN-4AO/UI

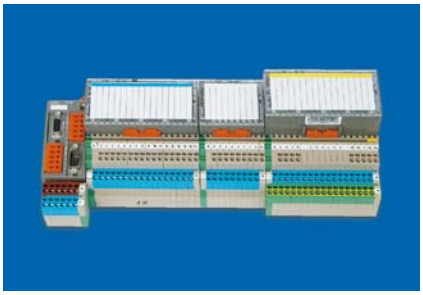
Combi modules 4-channel
Input/output ranges:
10/0..+10 V, 0/4..20 mA
Reverse polarity protection
CAN-3AI/1AO/UI



Wide selection of I/O functions
The basic structure of the WINbloc system consists of a bridge, an electronic and a base module. The wide selection of I/O modules means that any possible combination can be implemented. Simply fit up to 10 I/O modules in a row and create the station exactly to the requirements of the application. It couldn't be simpler.

Fast and economical wiring
Different base modules with either 2, 3 or 4-wire connection are available for the connection. Modularity on the entire line! The I/O points can be connected with tension clamp terminals allowing easier access.

Digital I/O modules for Profibus-DP



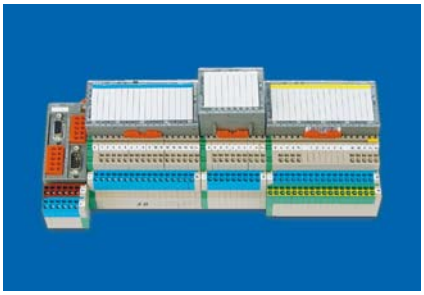
Input modules 8/16/32-channel
Either 24 V DC, 120 V AC or 230 V AC either positive/negative switching
DP-8-(16)DI/P, DP-16-(32)DI/P-2x8 (2x16)
DP-8-DI/N, DP-8-DI/115VAC (230VAC)

Output modules 4/8/16/32-channel
Either 0.5 A or 2 A
Short-circuit proof design -PK
With short-circuit monitoring LED
DP-4DO/2.0A-PK
DP-8-(16)DO/0.5A-PK
DP-16-(32)DO/0.5A-P-2x8 (2x16)

Combi modules 8/12/16/32-channel
Optimum combination of input/output modules Either 0.5 A or 2 A outputs Short-circuit proof design -PK
With short-circuit monitoring LED
DP-4DI/4DO/0.5A-PK
DP-8DI/4DO/0.5A-PK
DP-8DI/4DO/2.0A-PK
DP-8DI/8DO/0.5A-PK
DP-24DI/8DO/0.5A-PK

Relay modules 8/16-channel
Either make contact or potential-free changeover contact
DP-8(16)DO-R-NO, DP-8DO-R-CO

Analog I/O modules and counter for Profibus-DP



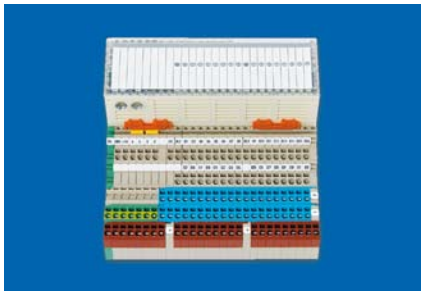
Input modules 4-channel
Input ranges: 10/0..+10 V, 0/4..20 mA
Resolution 16-bit, reverse polarity protection
DP-4AI/UI
Analog input PT100
Resolution 0.5 K, 0.1 W/0.25 K, 0.025 W
DP-4AI/PT100
Analog input
Thermo K, J, R, S, T, N, E, B
Resolution 1 K, 0.25 K
DP-4AI/Thermo

Output modules 4-channel
Output ranges: 10/0..+10 V, 0/4..20 mA
Reverse polarity protection, resolution 12-bit
DP-4AO/UI

Combi modules 4-channel
Input/output ranges:
10/0..+10 V, 0/4..20 mA
Reverse polarity protection
DP-3AI/1AO/UI

Counter module 1-channel, 25kHz
Forwards/backward positioning
Counter range 0..65535
Limit preset via Profibus-DP
DP-1CNT/24VDC

WINbloc Eco for Profibus-DP

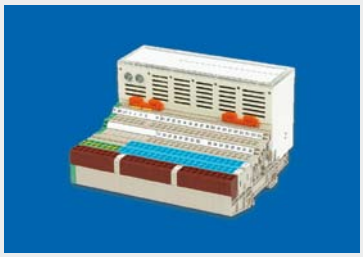


Digital input modules
Positive switching
DP-16DI/P-ECO
DP-32DI/P-ECO

Digital output modules
Positive switching
Short-circuit proof
DP-16DO/0.5A-PK-ECO
DP-32DO/0.5A-PK-ECO

Combi modules
Positive switching
Short-circuit proof
DP-16DI-P/16DO/0,5A-PK-ECO

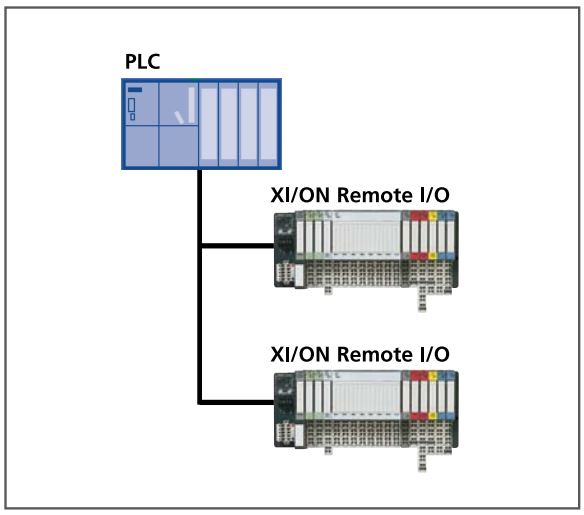
WINbloc Eco
The economical and compact alternative for connecting to Profibus-DP.
The system consists only of a base and electronic module. A bridge is not required. The fieldbus connection is implemented by direct wiring on the base module. Each WINbloc Eco module is a passive station on the Profibus-DP network. In addition to the extensive diagnostics LEDs, the signals are also indicated directly and clearly at the terminals.



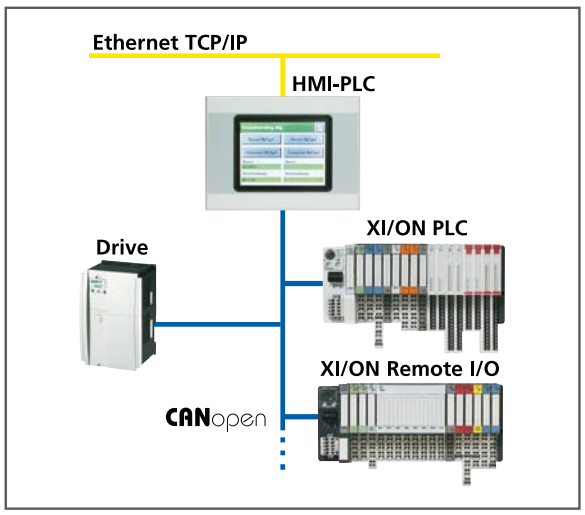
Modular plug adapter – Reliable connection
The electronics of the base elements are contacted reliably by using the sliding module bus link. A clip is used to ensure reliable mechanical connection. The electronic unit is then simply plugged onto the base modules and locked – that's it!

The decentralized structure of automation systems is an essential element of state-of-the-art automation concepts.

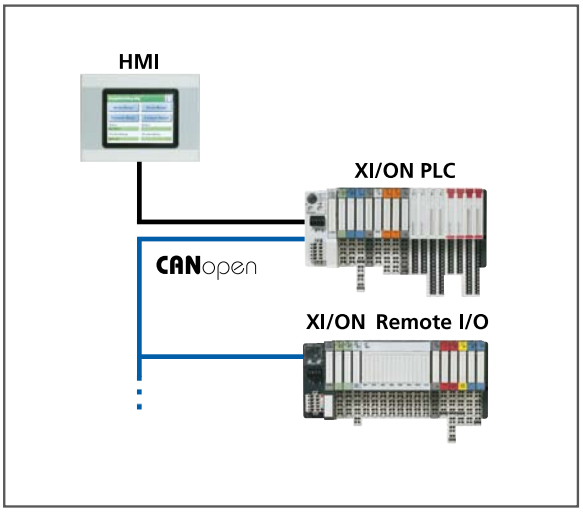
The modular design of the application is also becoming increasingly important in addition to the distribution of digital and analog I/O points. Decentralized preprocessing via intelligent gateways relieves the processing requirements of the central controller. Distributed intelligence makes automation systems faster, more reliable and more affordable.



Conventional solution with remote I/O
XI/ON can be connected to a wide range of controllers as a highly granular decentralized I/O system.



Distributed intelligence with XI/ON PLC
The programmable CANopen gateway now brings PLC performance directly to the fieldbus terminal. The device is ideal for decentralized automation concepts and for relieving the processing load on the higher-level PLC.

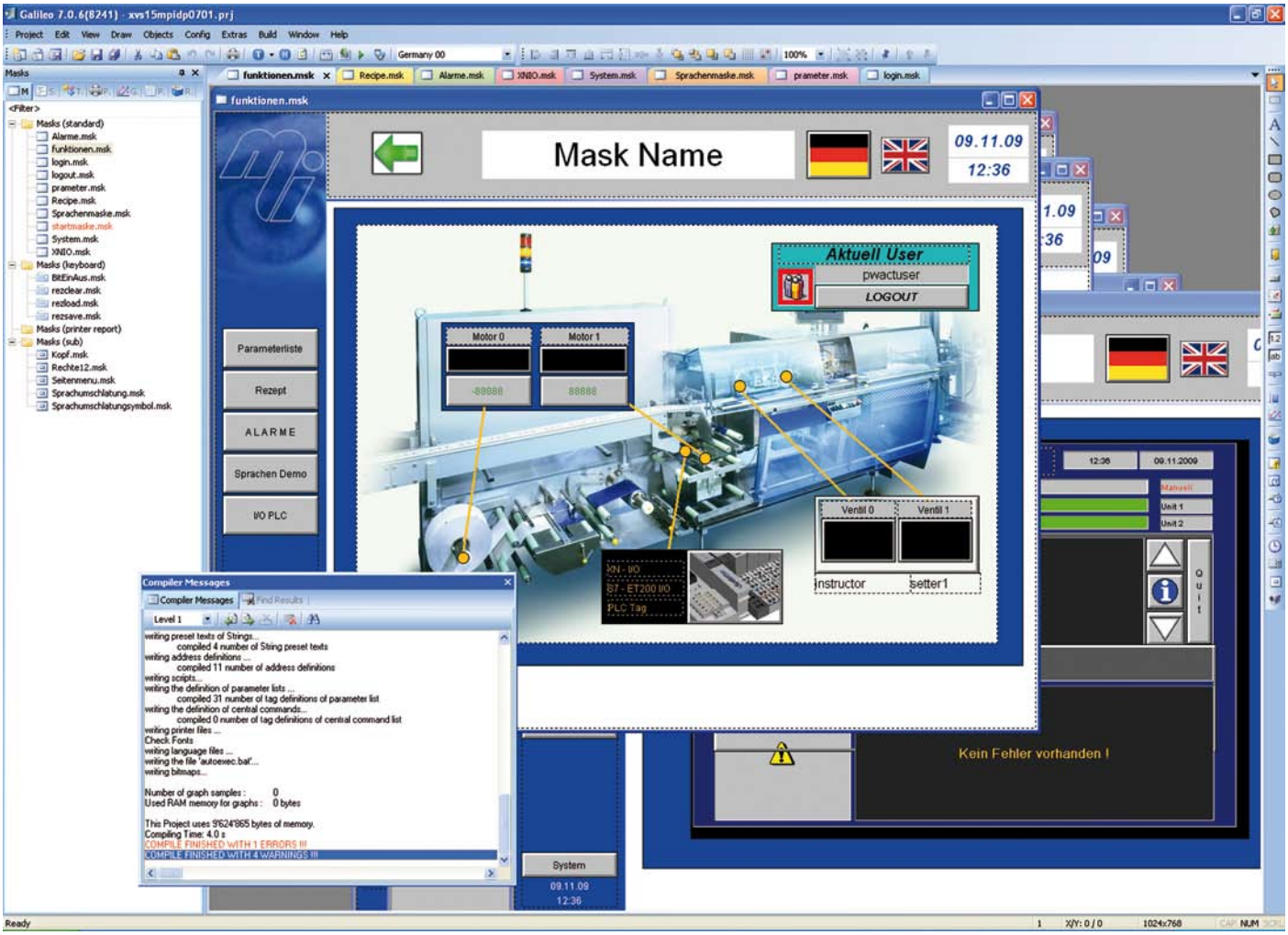


XI/ON PLC as a flexible compact controller
The intelligent gateway can also be used as a stand-alone space-optimized PLC and connected to remote stations.

Software

Eaton Automation software to program and visualise our automation systems:

GALILEO – modern interactive visualisation software: Galileo is a high performance and wide scope developing environment, ideally usable for machine and process close applications in installations and machine-building.
XSoft-CoDeSys-2 – Programming software according to international standard IEC 61131-3: well engineered technical properties, easy to handle and wide spread usage in automation components of different vendors guarantees success.
I/Oassistant – XI/ON configuration software: with the I/Oassistant you have a universal tool at you disposal that interactively supports you in the complete planning and realisation of your XI/ON application.



Galileo is an easy to learn and yet powerful and extensive project design environment that can be used ideally in all system and machine building applications close to the machine and process.
Galileo is designed for use in all sectors and offers comprehensive project design for all graphical operating devices from the Eaton Automation HMI product range as well as for stand-alone PC solutions. Galileo provides the project designer with a full range of functions without any graduated restrictions on tags or screens, and takes into account the performance level of the panel used.

Reliable and simple connection to the control level and office world.

Comprehensive project design of all graphical panels up to and with the PC control station.

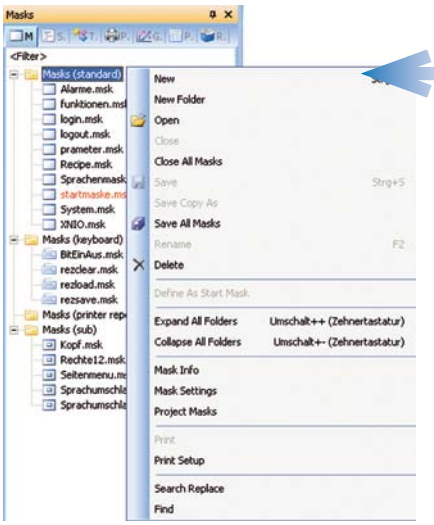
Up to 8 communication options at the same time, with data bridge.

Some of over 100 protocols to all standard PLCs

A. BRADLEY	DF1 / EtherNet/IP
BECKHOFF	TwinCAT ADS
EIB	EIB-ETS2
MITSUBISHI	A Series
EATON	easy / SucomA / Suconet K / CANopen / CoDeSys
OMRON	C H K Series
SAIA	S-Bus / MPI
SIEMENS	PPI / MPI / DP Slave / Industrial Ethernet
TELEMECH.	Unitelway new
Various	OPC / Modbus RTU / Modbus TCP/IP / CoDeSys (SymArti) / CANopen (SDO/PDO) / 3964R

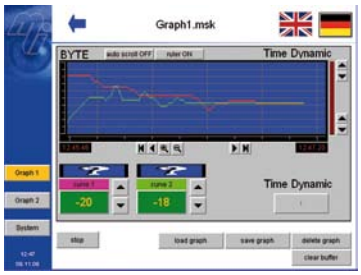
GALILEO Highlights

- Fast project design with project simulation on the design PC
- Easy to learn and intuitive graphical user interface with project overview window
- Different surface styles
- Drag & drop positioning of objects WYSIWYG (what you see is what you get)
- Simple parameter definition of objects
- Tabular object properties; easy and fast allocation of attributes – copy & paste
- Rendered panel meter object
- Enhanced password handling with complex passwort and aging
- Extensiv recipe handling
- Alarm handling with time stamp, history and diagnostics support with picture display
- User-friendly multiple definitions of texts and pictures to variables
- Many graphical objects such as bargraph, slide adjuster, graph plot, camera
- Object parameter list, any number of data objects on one screen
- Dynamic measuring unit change (e .g. °C <-> °F, inch <-> mm)
- Many specific objects and functions
- Direct printing on the panel (reports, forms)
- Brilliant picture display with up to 65536 colors
- Import of 15 different picture formats
- Simple import of PLC variables
- Online language change
- Unicode support (also Asian character sets)
- Text import/export in XML format, e. g. Excel
- Always full functionality available, no graduated performance
- Dynamic objects

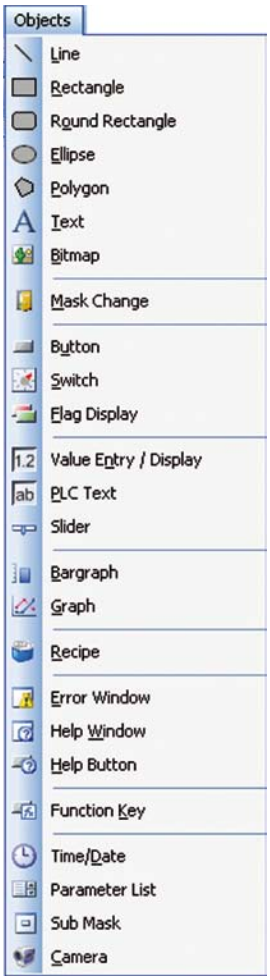


Fast project design

The required project data and information is shown in clearly visible groups in the project overview for simple selection. Other useful functions are available in every individual group via the context menu.



A number of ready-to-use objects for fast project design

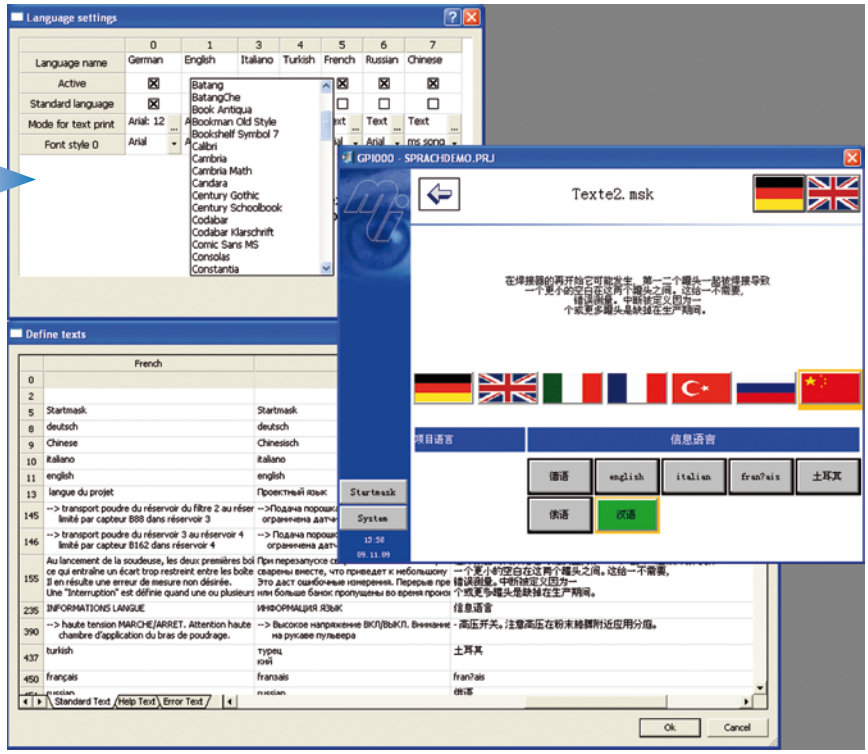


Simple configuration of objects

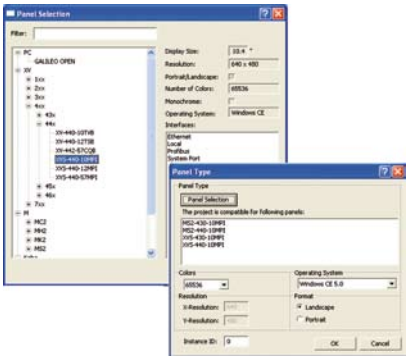
Double-clicking the object concerned will activate the object configuration: Tag selection, object style, BMP/Text/ colors, object-related settings, view and operability.

Online language change, Text export/ import with Unicode support

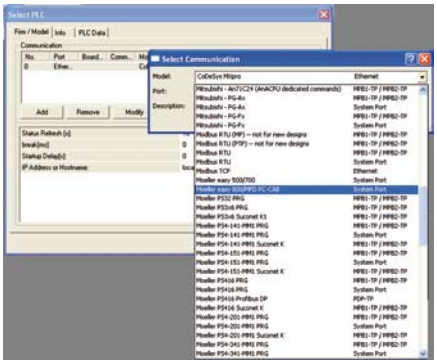
An export and import interface allows you to extract texts in XML format from the project and translate them with external tools (e.g. Excel).
Unicode support means that Asian picture characters can also be implemented.
Different languages can also be selected on the panel.



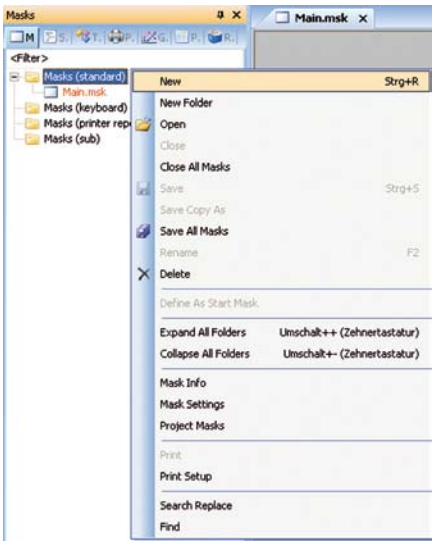
Project ready in a few steps



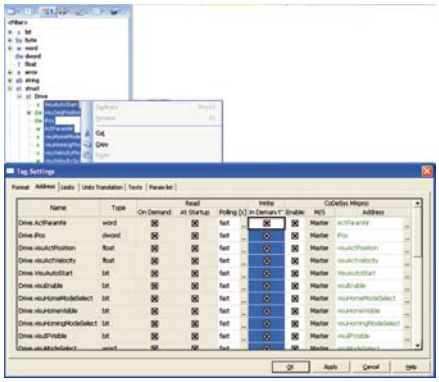
1
Open the project and select the panel type.
The project will automatically allow all the features of the selected panel.



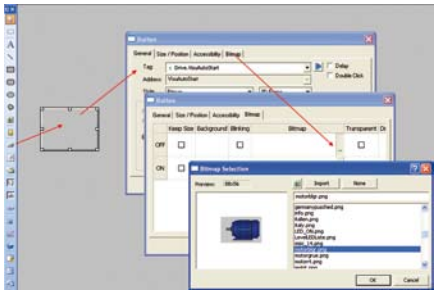
2
Select communication.
Up to 8 communication protocols can be operated simultaneously from a selection of over 100. Data can thus be transferred via the panel from PLC to PLC.



3
Create screens.
Full screens, sub screens, dialog screens and user-defined entry screens can be designed. Several ready-to-use standard screens for efficient project design are also available.

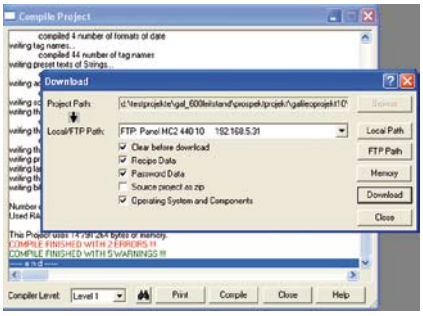


4
Create variables or import from XSoft-CoDeSys-2 (CoDeSys).
A specific entry dialog is provided for tag definition according to the communication protocol selected. Data from XSoft-CoDeSys-2 or other CoDeSys-based PLCs can be imported easily and synchronized when the PLC project is changed.



5
Position the object on screen.
Drag & drop functionality allows all visualization objects to be positioned on the screens and their wide range of properties to then be adapted to the application at hand.

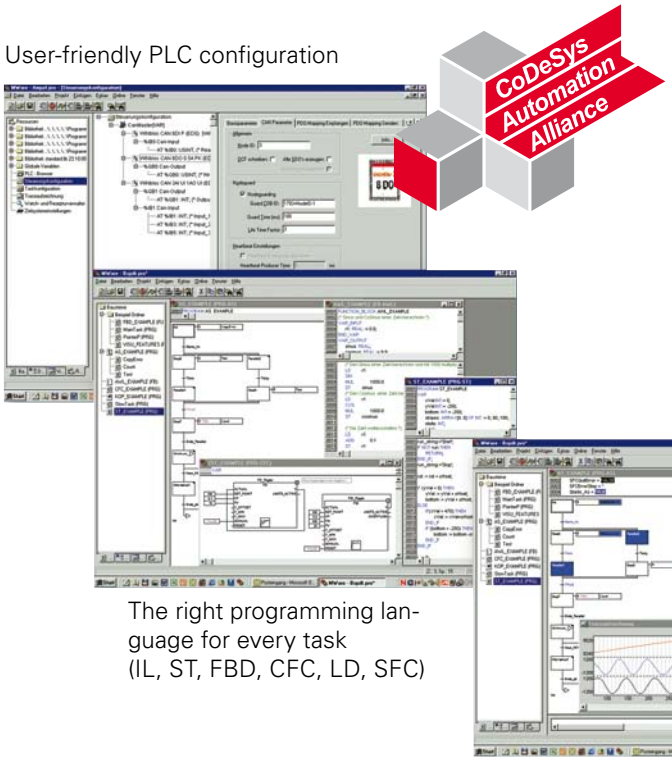
6
Simulation of the project on the design PC.
Your project can be compiled and simulated directly on the design PC at any time. Detailed error messages and warnings notify you of any inconsistencies in the project. The simulation tool enables your project to be tested easily and developed efficiently.



7
Download to the panel.
Once the compilation has been successfully completed, the project can be transferred during operation by clicking “Online” on the panel.

All controllers of Eaton Automation are programmed with XSoft-CoDeSys-2. XSoft-CoDeSys-2 is based on standard CoDeSys software from 3S. Fully developed technical features, simple handling and a widespread use of this software in automation components for different manufacturers guarantee successful programming with this software.

User-friendly PLC configuration



The right programming language for every task (IL, ST, FBD, CFC, LD, SFC)

Programming languages
Instruction list (IL) and structured text (ST)
Function block diagram (FBD)
Freely definable function block chart/continuous function chart (CFC)
Ladder diagram (LD)
Sequential function chart (SFC)

Engineering feature
Automatic variable declaration
Automatic formatting and coloring of code/declaration text

Extensive debugging and commissioning tools save time and money

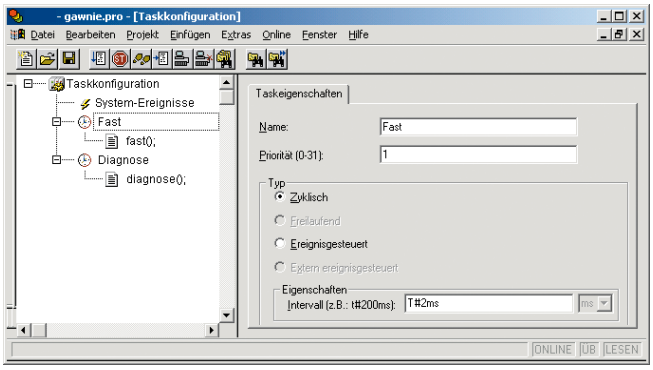
Web visualization (XV100, XV150, XVS400 and XV400 only): Optionally XSoft-CoDeSys-2 can generate an XML description from the visualization information, which is saved to the PLC together with a Java applet and can be displayed in a web browser through TCP/IP to make the visualization data available online on a wide range of platforms.

Target visualization (XV100, XV150, XVS400 and XV400 only): The programming system can convert visualization information into IEC 61131-3 code and translate it for the respective target system with the code generator.

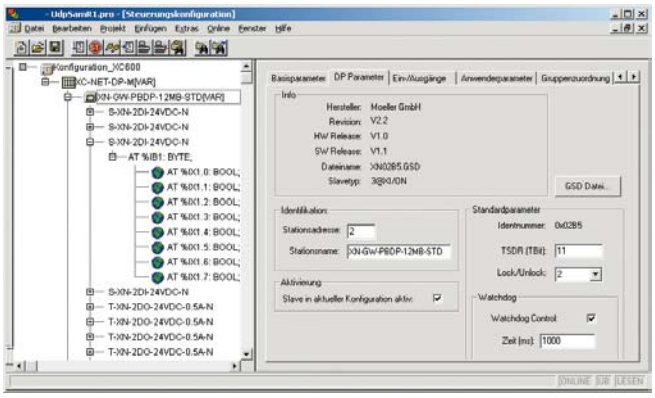
Debugging and commissioning
XSoft-CoDeSys-2 offers you a number of important functions for debugging, testing and commissioning your PLC applications quickly and efficiently.
All these features are available as soon as you log onto the PLC (online mode)

Simulation
You can also test your application program when the PLC is not connected.
This is possible thanks to the integrated online simulation. You don't need to forgo the regular operator interface either, and handling is not any different to online mode with the PLC connected.

Features simplify application creation and support one aim: cost savings by reducing engineering times.
Here is a selection of other features: Global search and replace, generation and use of libraries, context-sensitive help, output of a cross-reference list, checking of unused tags, etc.



Multitasking
The structuring of the application into several independent runtime programs (multitasking) optimizes the resources of your PLC and simplifies the implementation of time-critical tasks. Give priority to high-speed processes and provide slower processes with only as much processing time as required.



Fieldbus configurator included
The hardware configurator shows all the local I/Os and the remote periphery (Profibus or CANopen) on one user interface. You can configure and parameterize the inputs and outputs directly, and assign them with a symbolic name. This prevents the occurrence of any assignment errors between the peripheral devices and the PLC program. You can also test variables in online mode.

Multitasking
Up to 16 time and/or event driven tasks

Visualization
Integrated tool for diagnostics and commissioning support

Configuration
Configurator for local I/Os as well as CANopen and Profibus-DP stations

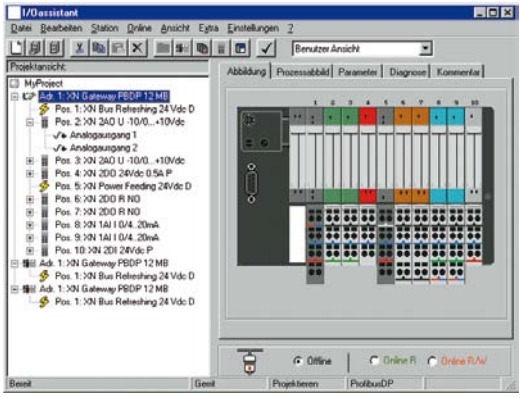
Communication
RS232, Ethernet, in distributed networks via CANopen, OPC server, UDP, TCP/IP, FTP client/server, Modbus Master/Slave, email, SMS

Password protection
8 levels

Languages
D, GB

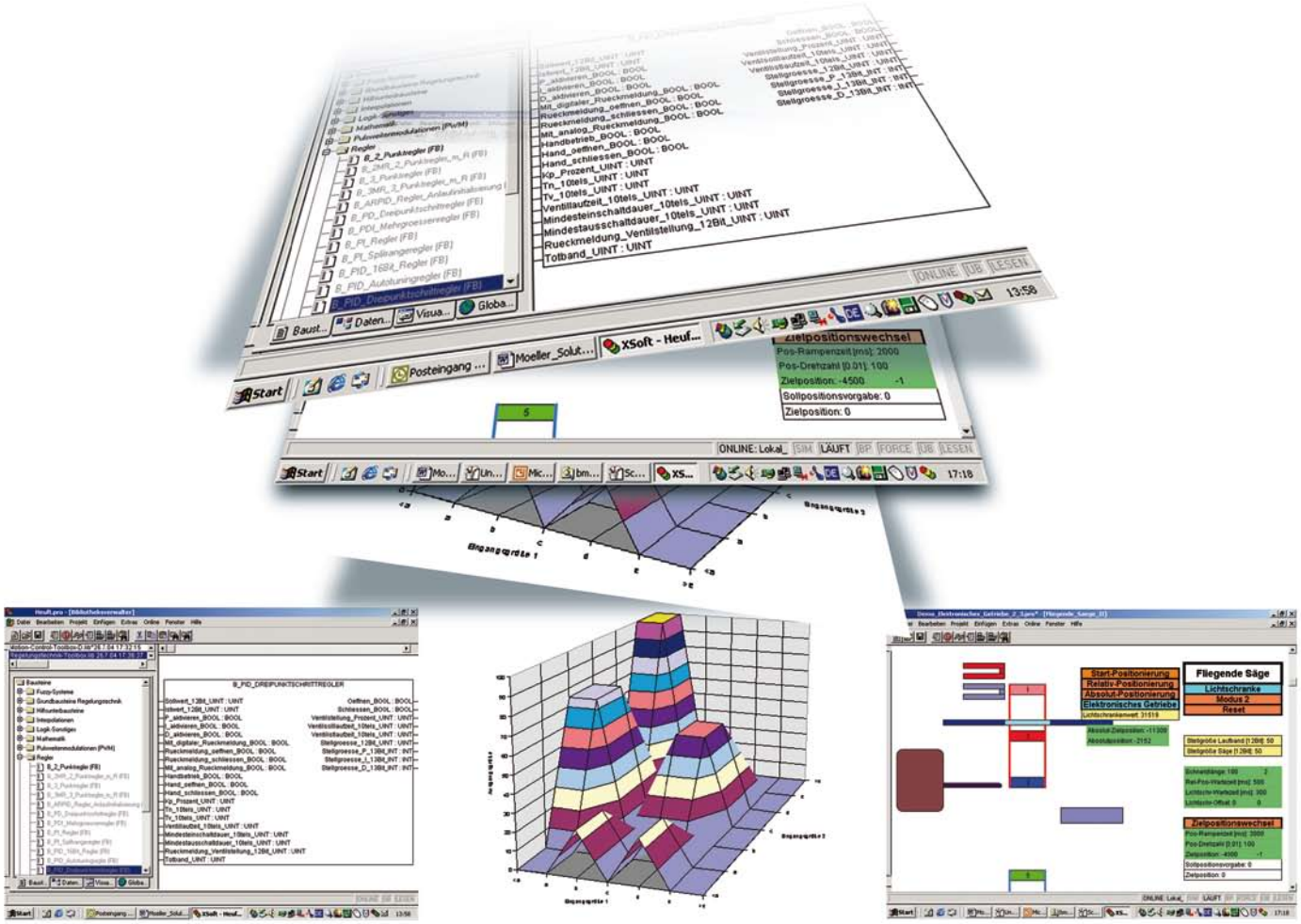
Libraries
IEC, memory card access, communications, OS functions

Special features
Network variables for cross traffic via CAN and Ethernet



I/Oassistant

Instantly online, instantly viewed, instantly tested
The I/Oassistant integrated in XSoft-CoDeSys-2 provides you with a specifically designed tool for configuring XI/ON from XSoft-CoDeSys-2.
Without leaving XSoft-CoDeSys-2, all the functions of the I/Oassistant are available for interactively planning and implementing your remote XI/ON station.
For this you select gateways, electronic and base modules as well as the corresponding accessories.
The tool automatically checks that the structure is correct.
The individual stations are then configured offline or online.
Once everything is set to your satisfaction, you can put the system into operation.

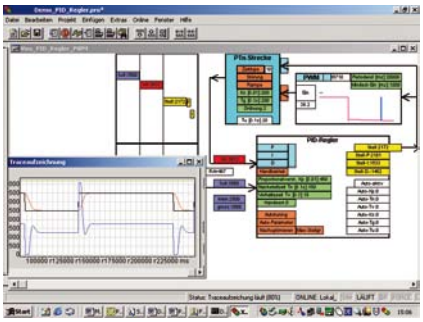


Eaton Automation provides ready-to-use libraries for programming the controllers with XSoft-CoDeSys-2 for several applications.
The libraries can be incorporated simply via the XSoft-CoDeSys-2 Library Manager. The additional function blocks of the libraries are then available like all other standard function blocks. The function block interfaces are kept as simple as possible and are normally easy to understand without requiring any extensive study in manuals.
The user is therefore provided with ready-to-use solutions for automation tasks in many situations involving closed-loop and motion control.

Closed-loop control toolbox

The closed-loop control toolbox contains around 120 function blocks. This firstly enables the implemented closed-loop control know-how to be utilized with the standard function blocks and secondly allows function blocks to be combined and cascaded in order to create special application solutions.

PID controller: The right controller can be selected for every control problem. The split range PID controller thus provides solutions for typical heating / cooling temperature controllers. The autotuning controller is used for the automatic setting of the parameters at the start of the control phase.



Three step controller:
In addition to standard PID three step controllers, other robust and easy to set variants are available that are suitable for any valve opening time. The scan times of differential and integral components are optimized automatically.

Pulse width modulation (PWM):
If the control system does not have an analog actuator, pulse width modulation outputs are connected behind the PID or fuzzy controllers. Conventional PWM algorithms are available and the noise-shape process with a highly dynamic switching frequency.

Fuzzy control: The fuzzy function blocks enable even inexperienced users to integrate fuzzy systems/controllers in a control concept. Even the gain factor or setpoint of a PID controller can be programmed effortlessly with fuzzy logic.

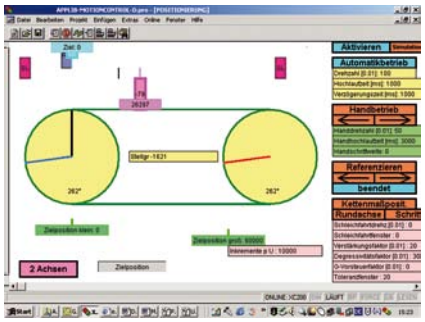
Signal processing and simulations:
Ramp delay function blocks and PT1 filters can be used to improve signal quality. First to tenth order PTn control systems can be simulated with the toolbox function blocks without an additional software package.

Motion control toolbox

The motion control toolbox contains approximately 40 function blocks that can be individually integrated and adapted to the automation solution in question.

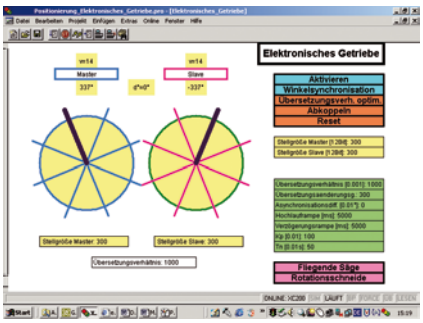
Positioning
The toolbox contains basic positioning function blocks for elementary tasks and also more powerful function blocks with the following features:

- Asynchronous point-to-point positioning
- Master-slave positioning (e.g. interpolation)
- Incremental dimension positioning
- Rotary axis positioning (bending, turning) with optimized paths over the zero point
- Automatic referencing
- Manual mode with step width limitation
- Contouring error, wire break and positioning range monitoring
- Crawl speed zone at the end of positioning
- Compensation of the zero point coverage of hydraulic axes



Possible applications include handling tasks in the automobile supplier industry (manufacture of cup springs and spiral springs), winding of spiral springs, cable winding machines, pipe bending, positioning and synchronization of stages or curtains in theaters.

Electronic gears
An electronic gear system can be implemented with the synchronization function blocks.
Different speeds can be synchronized with any transmission ratio.
Angle synchronization with online configurable offset between master and slave axes is also possible.
Three master axis variants are provided.
The internal master is controlled in the same program. The external master is used by an external device to control the master. An incremental encoder records the motion of the master axis. With the virtual master, the slave axes follow a simulated axis.



Applications include: Press synchronization control with virtual master; angle and speed synchronization of belts; drawing of weaving materials with 5 slave axes and increasing transmission ratio per axis.

Flying saw
The "flying saw" function is a combination positioning and electronic gears. Positioning operations are carried out relative to the synchronized motion.

Communication functions are increasingly becoming a central element in automation solutions. In addition to the conventional remote connections for peripheral devices via fieldbus systems such as CANopen or Profibus, data communication between PLCs or higher-level systems are of major importance. OPC, FTP, TCP/IP, email, web are just some of the technologies here that can be used for data communication or for transferring files.

FTP server: Updating recipe data
Eaton Automation controller uses a standard file system for internal program storage. This also applies to the pluggable external memory cards or a memory stick connected via the USB interface. Recipe data can be created really easily as a "normal" file, transferred to the PLC and read from there. Recipe data can now thus be updated easily via any PC.

FTP client: Sending data archives automatically
The FTP client function blocks enable files that were created by the PLC to also be stored on any drives that can be accessed via the network. If, for example, the target drive is not accessible due to problems on the network, an alternative drive can be accessed.
Daily or weekly logs can thus be stored locally and archived at any time. With a few function block calls, files can be saved from the PLC onto a network drive.

UDP and TCP/IP
UDP and TCP/IP are protocols used on very many operating system platforms, which enable a simple and standard data exchange between the PLC and external systems. This can be other controllers or even PC-based applications.

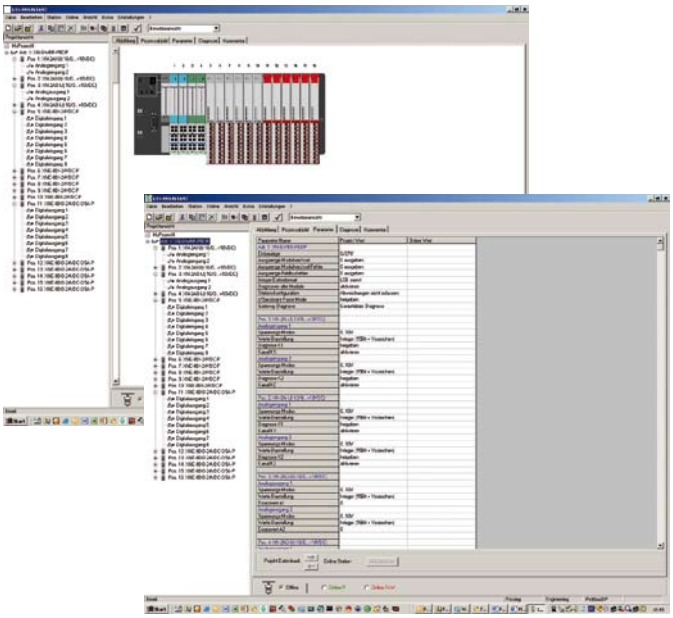
Modbus / TCP
Modbus is a communication protocol that is widely used with different communication media. Modbus can be implemented as a serial connection (RS232/485) or as a Modbus IP Ethernet version.
Ready-to-use libraries for the masters and also the slave function are also available.

OPC server
Virtually all SCADA, visualization and control systems support the OPC client/server interface.
The OPC server is used by the controllers to present the process data to the OPC clients.
The OPC server supports data access via the serial interface and via the Ethernet, and each OPC server is able to process requests from several clients. If data is to be used several times, for example by a visualization system or a database, different software packages can access the data of the OPC server without the need for any manufacturer specific conventions or additional implementations.

SMS messaging or email
System states or alarm messages can be sent simply by SMS or email – whether for logging or for direct communication with the service technician.
The ready-made user modules provide you with all the options you need to be always notified in time about the operating state of the machine or plant.

Further information and downloads can be obtained at:
http://www.eaton-automation.com

Instantly online, instantly viewed, instantly tested!
The I/Oassistant provides you with a universal tool that supports you interactively throughout the planning and implementation stage of your XI/ON system. First of all, you need to create and structure a project on screen. To do this, you select gateways, electronics/base modules and the appropriate accessories. Then you configure the individual stations either offline or online. Once everything is set to your satisfaction, you can put the complete system into operation.



Commissioning without a fieldbus master

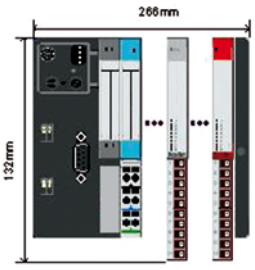
The I/Oassistant checks the station, reads in process data, outputs values and visualizes the diagnostics data of the channels. In this way you can commission your station without a higher-level controller and ensure that sections of the system are operating correctly.
You set the outputs and modify values directly from the PC. By forcing the values you can instantly view the behavior of your application. You can thus check the field wiring, for example, without having a fully installed control system.

Integration in XSoft-CoDeSys-2

The I/Oassistant integrated XSoft-CoDeSys-2 is the special configuration tool for XI/ON and can also be accessed from within XSoft-CoDeSys-2.
You can therefore make full use of all I/Oassistant functions for interactive planning and implementation of your remote XI/ON station without having to exit XSoft-CoDeSys-2.

Design plan and parts list generation

Once the planning has been completed, the software can generate a detailed project documentation that includes overview picture and parts lists.



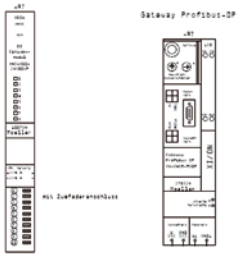
5. Stock list of station

Piece	Article	Order nr
1	XN-GWBR-PBDP	270324
2	XN-2AI-U(-10/0...+10VDC)	230870
6	XNE-8DI-24VDC-P	100794
6	XNE-8DO-24VDC-0.5A-P	100795
2	XN-2AO-U(-10/0...+10VDC)	225180
4	XN-S3T-SBB	225193

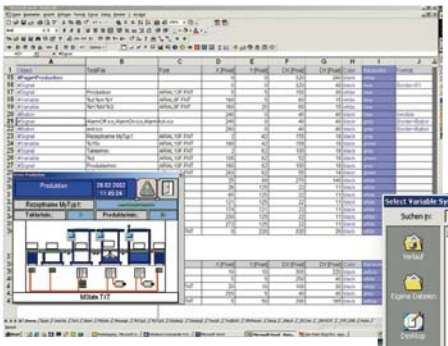
Stationshöhe :74,4mm

EPLAN support

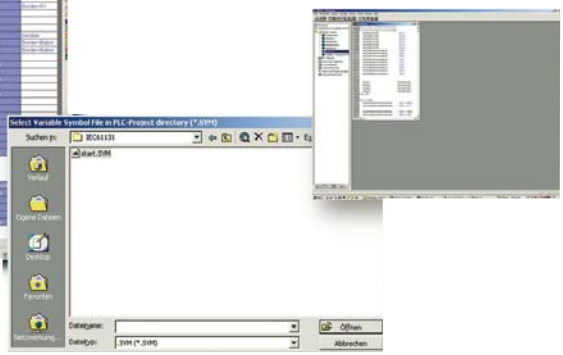
EPLAN macros are available for the XI/ON modular I/O system. This saves the time required for configuring and helps to prevent configuration errors.



EPAM is designed as an open visualization system for OEM machine builders and can be extended at any time with the customer's own functions using Visual Basic macros.



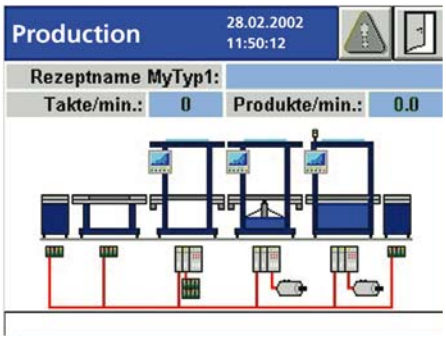
Simple and efficient project design with EXCEL



Import of variables from XSoft-CoDeSys-2

Easy positioning

... and it's ready

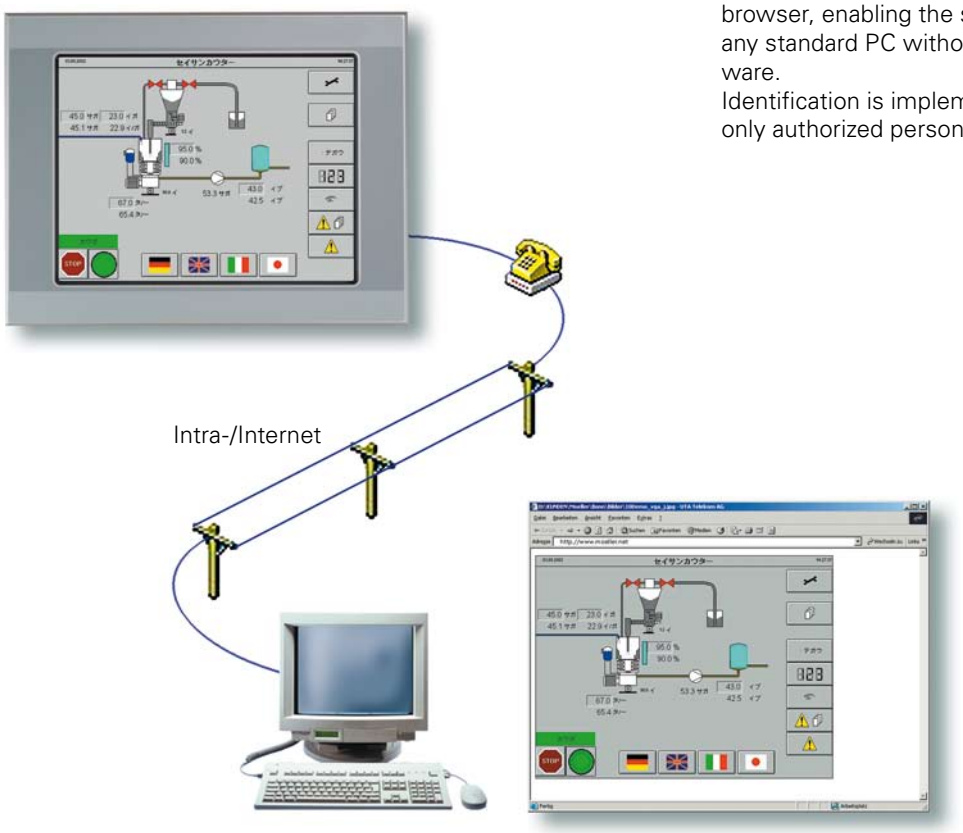


Project design with MS Excel

The visualization project is designed in Microsoft Excel. Once EPAM is installed and an add-in is installed in Microsoft-Excel, all the necessary commands and objects are available for designing a visualization system. Button, switch, alphanumeric variable, bargraph, message element, bitmaps etc.
The PLC variables can be imported simply from XSoft-CoDeSys-2. The project is designed in a tabular description of the visualization system. The tables are then later interpreted on the target system by the EPAM runtime.
An interpreter is also provided within Excel.
This enables functions and the screens to be tested beforehand on the design PC. This test also enables the visualization of process values from the PLC. All the features of Excel are available during the project design phase.
Already existing screens or objects can be reused simply with Copy & Paste.
A program expansion with custom Visual Basic macros enables the system to be linked to external data sources.

WEB-EPAM enables both new and existing EPAM applications to be turned into remote HMI systems via the Intranet/Internet.

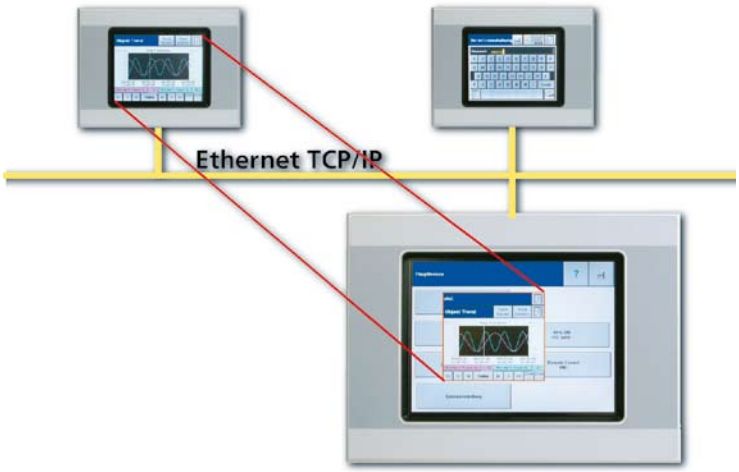
EPAM application



Java-enabled standard browser

WEB-EPAM

Each visualization system created with EPAM is web-enabled automatically. A Java applet is simply loaded on the target system via the integrated web server and generates a 1:1 image of the visualization in any standard Java-compatible browser, enabling the system to be operated remotely with any standard PC without the need to install additional software.
Identification is implemented with user passwords so that only authorized persons are allowed access.

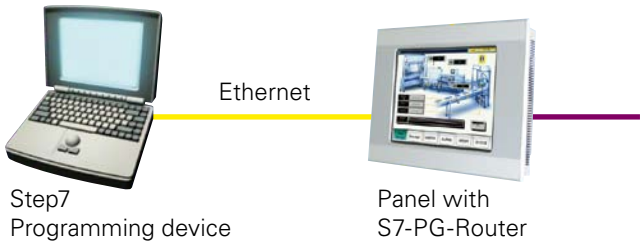


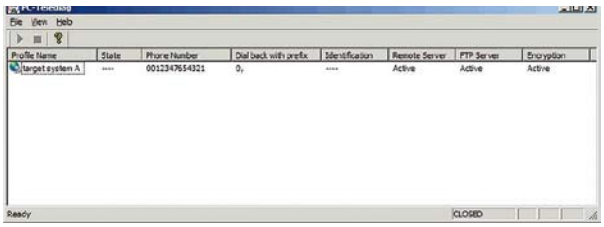
Picture in picture display with EPAM remote control

EPAM's remote control object enables the screen pages of other touch screens to be displayed.
The operating states of individual system sections can thus be diagnosed and controlled remotely.
A 1:1 copy of the actual image of a XV400 with a 5.7" display is shown on the visualization page of a XV400 with a 10.4" display. All touch functions can be carried out locally or remotely via the screen shown in the remote XV400. All this is possible at no extra cost and without any additional engineering requirements or software packages.

S7-PG-Router

This tool enables the programming of S7 programmable controllers connected to the Eaton Automation panel via its Ethernet interface.
XV200 and XVS400 devices with onboard Profibus and Ethernet interface support the S7 PG Routing function.



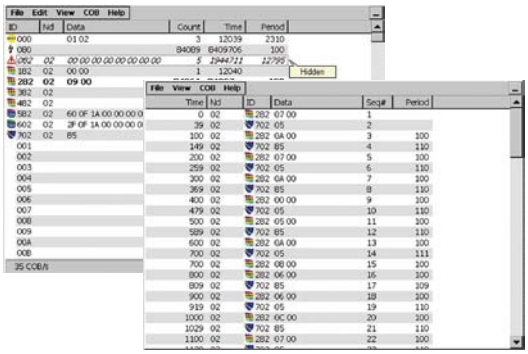


CAN-Monitor

The CAN Monitor tool enables the monitoring and tracing of CAN telegrams with a related time stamp, COB-ID and data directly on the Eaton Automation panel. Error frames are not detected.
XV100, XV200 and XV400 devices with onboard CAN interface support the CAN monitor function.

CE-Telediag

This tool enables user-friendly teleservice via a modem connection with a dialup assistant and device callback. XV100, XV200, XVS400 and XV400 devices with onboard System Port (RS232) interface support the CE Telediag function.



Visualization software	Type	Article No.
GALILEO	SW-GALILEO	140379
GALILEO OPEN	LIC-GALILEO-OPEN-PC	140385
EPAM	SW-EPAM	140380

PLC programming software	Type	Article No.
XSoft-CoDeSys-2 single license	SW-XSOFT-CODESYS-2-S	142582
XSoft-CoDeSys-2 multiuser license	SW-XSOFT-CODESYS-2-M	142583

Tools	Type	Article No.
S7-PG-Router	SW-S7-PG-ROUTER	140381
CE-Telediag	SW-CE-TELEDIAG	140383
CAN-Monitor	SW-CAN-MONITOR	140382

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