

Touch panel, 24 V DC, 3.5z, TFTcolor, ethernet, RS232, CAN, PLC



Powering Business Worldwide™

Part no. **XV-102-B5-35TQR-10-PLC**
Catalog No. **140021**

EL-Nummer **4560836**
(Norway)

Delivery program

Product range		XV100 3.5"
Product range		XV-102
Function		HMI-PLC (integrated SPS function)
Common features of the model series		Ethernet interface USB device Slot for SD card UL508, cUL approvals
Display - Type		Color display, TFT
Touch-technology		Resistive-Touch
Number of colours		64 k Colours
Resolution	Pixel	QVGA 320 x 240
Portrait format		yes
Screen diagonal	Inch	3.5
Model		Insulating enclosure and front plate
Operating system		Windows CE 5.0 (licence incl.)
PLC-licence		PLC licence inclusive
License certificates for onboard interfaces		Can be expanded as required, see Accessories -> License product certificates
built-in interfaces		1 x Ethernet 10/100 Mbps 1 x RS232 1 x USB device 1 x CANopen®/easyNet
Front type		Standard front with standard membrane (fully enclosed)
Utilization		Flush mounting
Slots		for SD card: 1
Memory card automation		Optionally with SD card -> article no. 139807
Pluggable communication cards (optional)		no
Touch sensor		Glass with film
Heat dissipation	W	5

Technical data

Display		
Display - Type		Color display, TFT
Screen diagonal	Inch	3.5
Resolution	Pixel	QVGA 320 x 240
Visible screen area	mm	70 x 53
Number of colours		64 k Colours
Contrast ratio (Normally)		Normally 300:1
Brightness	cd/m ²	Normally 250
Back-lighting		LED dimmable via software
Service life of back-lighting	h	Normally 40000
Resistive touch protective screen		Touch sensor (glass with foil)
Operation		
Technology		Resistive-Touch 4 wire
Touch sensor		Glass with film
System		
Processor		RISC CPU, 32 Bit, 400 MHz
Internal memory		DRAM (OS, Program and data memory): 64 MByte

External memory		NAND-Flash (can be used for data backup): approx. 128 MByte available NVRAM (retained data): approx. 32 KByte available
Cooling		Fanless CPU and system cooling, natural convection-based passive cooling
Back-up of real-time clock		
Battery (service life)		non-replaceable, CR2032 soldered in
Backup (time at zero voltage)		Normally 10 years
Engineering		
Visualisation software		GALILEO EPAM XSOFT-CODESYS-2 XSOFT-CODESYS-3
PLC-Programming software		XSOFT-CODESYS-2 XSOFT-CODESYS-3
PLC-licence		PLC licence inclusive
Operating system		Windows CE 5.0 (licence incl.)
Interfaces, communication		
built-in interfaces		1 x Ethernet 10/100 Mbps 1 x RS232 1 x USB device 1 x CANopen®/easyNet
USB device		USB 2.0, not galvanically isolated
RS-232		RS-232, not galvanically isolated (SUB-D plug 9 pole, UNC)
CAN		CAN, not galvanically isolated (SUB-D plug 9 pole, UNC)
Profibus		PROFIBUS galvanically isolated, max. 1.5 MBit/s (SUB-D socket 9 pole, UNC)
Slots		for SD card: 1
Ethernet		100Base-TX/10Base-T
Power supply		
Nominal voltage		24 V DC SELV (safety extra low voltage)
permissible voltage		Effective: 19.2-30.0 V DC (rated operating voltage -20%/+25%) Absolute with ripple: 18.0-31.2 V DC Battery powered: 18.0-31.2 V DC (rated operating voltage -25%/+30%) 35 V DC for a duration of < 100 ms
Voltage dips	ms	≤ 10 ms from rated voltage (24 V DC) 5 ms from undervoltage (19.2 V DC)
Power consumption	P _{max.}	W
Heat dissipation		W
Note on heat dissipation		Heat dissipation with power consumption for 24 V, all ports and interfaces connected
Protection against polarity reversal		yes
Type of fuse		Yes (fuse not accessible)
Potential isolation		no potential isolation
General		
Housing material		Plastic, gray
Front type		Standard front with standard membrane (fully enclosed)
Dimensions (W x H x D)	mm	136 x 100 x 30
flush mounted		Clearance: W x H x D ≥ 30 mm (1.18") Inclination from vertical: ±45° (if using natural convection) Material thickness at the installation cutout: min. 2 mm (0.08"), max. 5 mm (0.2")
Weight	kg	0.3
Degree of protection (IEC/EN 60529, EN50178, VBG 4)		IP65 (at front), IP20 (at rear)
Approvals		
Approvals		cUL (UL508) EAC
Explosion protection (according to ATEX 94/9/EC)		II 3D Ex II T70°C IP5x: Zone 22, Category 3D
shipping classification		DNV GL
Applied standards and directives		
EMC		(in relation to CE) EN 61000-6-2 EN 61000-6-4 EN 61131-2
Product standards		EN 50178 EN 61131-2
Security		EN 60950 UL 60950

Mechanical shock resistance	g	according to IEC 60068-2-27	
Vibration		according to IEC/EN 60068-2-6	
RoHS		conform	
Environmental conditions			
Climatic environmental conditions			
Air pressure (operation)	hPa	795 - 1080	
Temperature	°	°C	-20 - +60
Storage / Transport		°C	0
Operating ambient temperature min.		°C	+ 50
Operating ambient temperature max.			
Relative humidity		10 - 95%, non-condensing	
Relative humidity			
Supply voltage U_{Aux}			
Rated operational voltage	U_{Aux}	V	24 V DC (-20/+25%)
Protection against polarity reversal			Yes
Potential isolation			No
Supply voltage U_{Pow}			
Supply voltage	U_{Pow}	V	24 DC -20 % + 25 %
Input voltage ripple		%	≤ 5
Protection against polarity reversal			yes

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I_n	A	0
Heat dissipation per pole, current-dependent	P_{vid}	W	0
Equipment heat dissipation, current-dependent	P_{vid}	W	0
Static heat dissipation, non-current-dependent	P_{vs}	W	5
Heat dissipation capacity	P_{diss}	W	0
Operating ambient temperature min.		°C	0
Operating ambient temperature max.		°C	50
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			Please enquire
10.2.5 Lifting			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			Meets the product standard's requirements.
10.4 Clearances and creepage distances			Meets the product standard's requirements.
10.5 Protection against electric shock			Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components			Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections			Is the panel builder's responsibility.
10.8 Connections for external conductors			Is the panel builder's responsibility.
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage			Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material			Is the panel builder's responsibility.
10.10 Temperature rise			The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating			Is the panel builder's responsibility.
10.12 Electromagnetic compatibility			Is the panel builder's responsibility.

Technical data ETIM 8.0

Programmable logic controllers PLC (EG000024) / Graphic panel (EC001412)

Electric engineering, automation, process control engineering / Display and control component / Panel (HMI) / Graphic panel (HMI) (ecl@ss10.0.1-27-33-02-01 [AFX016003])

Supply voltage AC 50 Hz	V	0 - 0
Supply voltage AC 60 Hz	V	0 - 0
Supply voltage DC	V	20.4 - 28.8
Voltage type of supply voltage		DC
Number of HW-interfaces industrial Ethernet		1
Number of interfaces PROFINET		0
Number of HW-interfaces RS-232		1
Number of HW-interfaces RS-422		0
Number of HW-interfaces RS-485		0
Number of HW-interfaces serial TTY		0
Number of HW-interfaces USB		1
Number of HW-interfaces parallel		0
Number of HW-interfaces Wireless		0
Number of HW-interfaces other		1
With SW interfaces		Yes
Supporting protocol for TCP/IP		Yes
Supporting protocol for PROFIBUS		No
Supporting protocol for CAN		Yes
Supporting protocol for INTERBUS		No
Supporting protocol for ASI		No
Supporting protocol for KNX		No
Supporting protocol for Modbus		Yes
Supporting protocol for Data-Highway		No
Supporting protocol for DeviceNet		No
Supporting protocol for SUCONET		No
Supporting protocol for LON		No
Supporting protocol for PROFINET IO		No
Supporting protocol for PROFINET CBA		No
Supporting protocol for SERCOS		No
Supporting protocol for Foundation Fieldbus		No
Supporting protocol for EtherNet/IP		Yes
Supporting protocol for AS-Interface Safety at Work		No
Supporting protocol for DeviceNet Safety		No
Supporting protocol for INTERBUS-Safety		No
Supporting protocol for PROFIsafe		No
Supporting protocol for SafetyBUS p		No
Supporting protocol for other bus systems		Yes
Radio standard Bluetooth		No
Radio standard Wi-Fi 802.11		No
Radio standard GPRS		No
Radio standard GSM		No
Radio standard UMTS		No
IO link master		No
Type of display		TFT
With colour display		Yes
Number of colours of the display		65536
Number of grey-scales/blue-scales of display		0
Screen diagonal	inch	3.5
Number of pixels, horizontal		320
Number of pixels, vertical		240

Useful project memory/user memory	kByte	64000
With numeric keyboard		Yes
With alpha numeric keyboard		Yes
Number of function buttons, programmable		0
Number of buttons with LED		0
Number of system buttons		1
Touch technology		Resistive touch
With message indication		Yes
With message system (incl. buffer and confirmation)		Yes
Process value representation (output) possible		Yes
Process default value (input) possible		Yes
With recipes		Yes
Number of password levels		200
With printer output		Yes
Number of online languages		100
Additional software components, loadable		Yes
Degree of protection (IP), front side		IP65
Degree of protection (NEMA), front side		4X
Operating temperature	°C	0 - 50
Rail mounting possible		No
Wall mounting/direct mounting		No
Suitable for safety functions		No
Width of the front	mm	136
Height of the front	mm	100
Built-in depth	mm	25