



Touch panel, 24 V DC, 3.5z, TFTcolor, ethernet, SWDT, PLC

Part no. XV-102-BE-35TQRC-10
Article no. 153524
Catalog No. XV-102-BE-35TQRC-10



Delivery program

Product range			XV100 3.5"
Product range			XV-102
Subrange			SmartWire-DT touch display with integrated controller (HMI PLC)
Function			SmartWire-DT coordinator
Description			XV100 touch panel with PLC function for flush mounting plates
Description			Coordinator for the SmartWire-DT communications system
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			Not required
built-in interfaces			1 x Ethernet 10/100 Mbps 1 x USB device 1 x SmartWire-DT
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
Connection to SmartWire-DT			yes

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 dimable 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
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Internal memory			DRAM (OS, Program and data memory): 64 MByte NAND-Flash (can be used for data backup): approx. 128 MByte available NVRAM (retained data): approx. 32 KByte available
External memory			SD Memory Card Slot: SDA Specification 1.00
Cooling			Fanless CPU and system cooling, natural convection-based passive cooling
Back-up of real-time clock			
Battery (service life)			Zero maintenance
Backup (time at zero voltage)			Normally 10 years
Operating system			Windows CE 5.0 (licence incl.)

Engineering

Visualisation software			GALILEO EPAM XSOF-TCODESYS-2 XSOF-TCODESYS-3
PLC-Programming software			XSOF-TCODESYS-2 XSOF-TCODESYS-3
Target and web visualization			Yes

Interfaces, communication

built-in interfaces			1 x Ethernet 10/100 Mbps 1 x USB device 1 x SmartWire-DT
PLC-licence			PLC licence inclusive
USB Host			no
USB device			USB 2.0, not galvanically isolated
RS-232			no
RS-485			no
CAN			no
Profibus			no
Slots			for SD card: 1
SmartWire-DT master			Yes
Ethernet			100Base-TX/10Base-T
easyNet			no
MPI			no

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	5
Note on power consumption			Basic device USB Slave to USB Host: 2.5 Total: 9.5
Heat dissipation		W	5
Note on heat dissipation			Heat dissipation with power consumption for 24 V, all ports and interfaces connected
Siemens MPI, (optional)			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)
Weight		kg	0.3
Degree of protection (IEC/EN 60529, EN50178, VBG 4)			IP65 (at front), IP20 (at rear)
Approvals			
Approvals			cUL (UL508)
Explosion protection (according to ATEX 94/9/EC)			II 3D Ex II T70°C IP5x: Zone 22, Category 3D
Applied standards and directives			

EMC			(in relation to CE) EN 61000-6-2 EN 61000-6-4 EN 61131-2
Explosion protection (relevant for CE)			EN 60079-0 EN 61241-1 EN 13463_x
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

Temperature			
Operation	θ	°C	0 - +50
Storage / Transport	θ	°C	-20 - +60
Operating ambient temperature min.		°C	0
Operating ambient temperature max.		°C	+ 50
Relative humidity			
Relative humidity			10 - 95%, non-condensing

Supply voltage U_{Aux}

Rated operational voltage	U _{Aux}	V	24 V DC (-20/+25%)
Residual ripple on the input voltage		%	≤ 5
Protection against polarity reversal			Yes
Max. current	I _{max}	A	3
Note			If contactors with a total power consumption > 3 A are connected, a power feeder module EU5C-SWD-PF1/2 has to be used.
Short-circuit rating			no, external fuse FAZ Z3
Potential isolation			No
Rated operating voltage of 24-V-DC slaves		V	typ. U _{Aux} - 0.2

Supply voltage U_{Pow}

Supply voltage	U _{Pow}	V	24 DC -20 % + 25 %
Input voltage ripple		%	≤ 5
Siemens MPI, (optional)			yes
Rated current	I	A	0.7
Overload proof			yes
Inrush current and duration		A	12.5 A/6 ms
Heat dissipation at 24 V DC		W	1.0
Potential isolation between U _{Pow} and 15 V SmartWire-DT supply voltage			No
Bridging voltage dips		ms	10
Repetition rate		s	1
Status indication		LED	yes

SmartWire-DT supply voltage

Rated operating voltage	U _e	V	14,5 ± 3 %
max. current	I _{max}	A	0.7
Note			If SmartWire-DT modules with a total power consumption > 0.7 A are connected, a power feeder module EU5C-SWD-PF2 has to be used.
Short-circuit rating			Yes

Connection supply voltages

Connection type			Push in terminals
Solid		mm ²	0.2 - 1.5
Flexible with ferrule		mm ²	0.25 - 1.5
UL/CSA solid or stranded		AWG	24 - 16

SmartWire-DT network

Station type			SmartWire-DT master
Number of SmartWire-DT slaves			99
Baud Rates		kBd	125

			250
Address allocation			automatic
Status indication		LED	SmartWire-DT master LED: red/green Configurations LED: red/green
Connections			Plug, 8-pole
Plug connectors			Blade terminal SWD4-8MF2

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.
10.13 Mechanical function			The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

Technical data ETIM 6.0

PLC's (EG000024) / Graphic panel (EC001412)			
Electric engineering, automation, process control engineering / Control / Operate and Observe (HMI) / Graphic panel (HMI) (ecl@ss8.1-27-24-23-02 [BAA722010])			
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 HW-interfaces PROFINET			0
Number of HW-interfaces RS-232			0
Number of HW-interfaces RS-422			0
Number of HW-interfaces RS-485			0
Number of HW-interfaces serial TTY			0

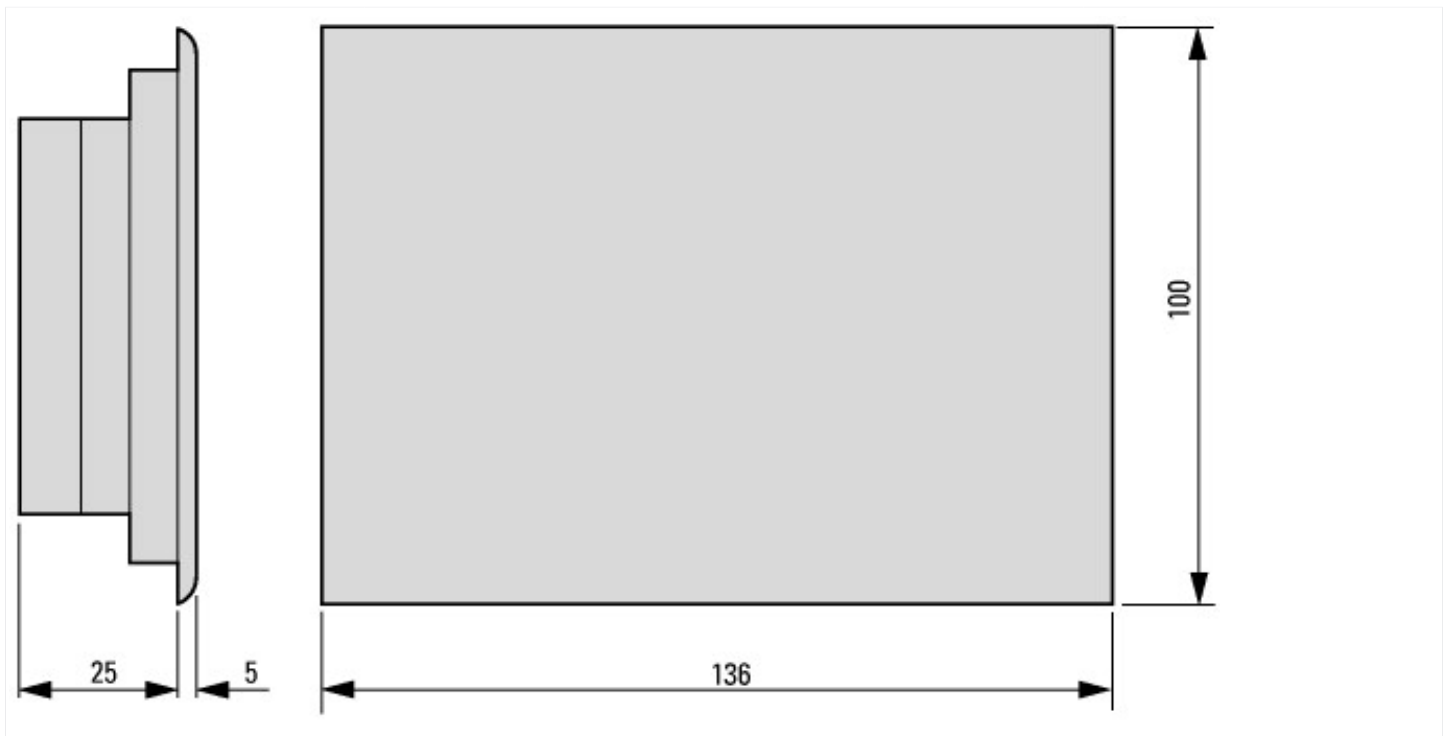
Number of HW-interfaces USB			1
Number of HW-interfaces parallel			0
Number of HW-interfaces Wireless			0
Number of HW-interfaces other			1
With SW interfaces			Yes
Supporting protocol for TCP/IP			Yes
Supporting protocol for PROFIBUS			No
Supporting protocol for CAN			No
Supporting protocol for INTERBUS			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 WLAN 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
With touch screen			Yes
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
Printer output available			Yes
Number of online languages			100

Additional software components, loadable		Yes
Degree of protection (IP), front side		IP65
Operation 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

Approvals

Product Standards		UL508, cULus; IEC/EN 61131-2, CE
UL File No.		E205091
UL Category Control No.		NRAQ
CSA File No.		UL report applies to US and Canada
CSA Class No.		-
North America Certification		UL listed, certified by UL for use in Canada
Current Limiting Circuit-Breaker		No
Degree of Protection		IEC:IP20, UL/CSA Tape: open type

Dimensions



Additional product information (links)

Instruction leaflet IL048007ZU XV-102	
Instruction leaflet IL048007ZU XV-102	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL048007ZU.pdf
MN04802004Z Operator manual XV-102	
MN04802004Z Betriebsanleitung XV-102 - Deutsch	ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN04802004Z_DE.pdf
MN04802004Z Operator manual XV-102 - English	ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN04802004Z_EN.pdf
MN04802013Z quick-start instructions XV100	
MN04802013Z Schnellstartanleitung XV100 - Deutsch	ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN04802013Z_DE.pdf
MN04802013Z quick-start instructions XV100 - English	ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN04802013Z_EN.pdf
MN04802091Z User manual XSoft-CoDeSys-2, PLC programming XV100	
MN04802091Z Benutzerhandbuch XSoft-CoDeSys-2, SPS-Programmierung XV100 - Deutsch	ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN04802091Z-DE.pdf

MN04802091Z User manual XSoft-CoDeSys-2, PLC programming XV100 - English	ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN04802091Z-EN.pdf
MN048008ZU Manual XSOFT-CODESYS-3, PLC programming	
MN048008ZU Handbuch XSOFT-CODESYS-3, SPS-Programmierung - Deutsch	ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN048008ZU_DE.pdf
MN048008ZU Manual XSOFT-CODESYS-3, PLC programming - English	ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN048008ZU_EN.pdf