



Touch panel, 24 V DC, 3.5z, TFTcolor, ethernet, (PLC)



Powering Business Worldwide™

Part no. **XV-102-BO-35TQR-10**
 Article no. **140007**

Delivery program

| | | | |
|---|--|-------|--|
| Product range | | | XV100 3.5" |
| Product range | | | XV-102 |
| Function | | | HMI-PLC (PLC retrofitted by user) |
| 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 | | | Can be fitted by user with article no. 142581 LIC-PLC-MXP-COMPACT |
| 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 USB device |
| 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 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-CODESYS-2 XSOF-CODESYS-3 |
| PLC-Programming software | | | XSOF-CODESYS-2 XSOF-CODESYS-3 |

Interfaces, communication

| | | | |
|---------------------|--|--|---|
| built-in interfaces | | | 1 x Ethernet 10/100 Mbps 1 x USB device |
| PLC-licence | | | Can be fitted by user with article no. 142581 LIC-PLC-MXP-COMPACT |
| USB device | | | USB 2.0, not galvanically isolated |
| 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 | 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 |
| 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 | 9 | °C | 0 - +50 |
| 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%) |
| 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 |
| Siemens MPI, (optional) | | | 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. |
| 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 | | 0 |
| 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 | | UL 60950-01; CSA-C22.2 No. 60950-1; IEC/EN 61131-2; CE marking |
| UL File No. | | E208621 |
| UL Category Control No. | | NWGQ2 |
| CSA File No. | | UL report applies to both US and Canada |
| CSA Class No. | | NWGQ8 |
| North America Certification | | UL recognized, certified by UL for use in Canada |
| Conditions of Acceptability | | The investigated Pollution Degree is: 2 The following end-product enclosures are required: Fire The unit must be supplied via a SELV source. The provided Ethernet Connection is only allowed to connect to inhouse networks. |
| Specially designed for North America | | No |
| Current Limiting Circuit-Breaker | | No |
| Degree of Protection | | IEC: IP65, UL/CSA Type: - |

Dimensions

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|----------------------|
| SmartWire-DT HMI-PLC |
| 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 |