



**Touch panel, 24 V DC, 7z, TFTcolor, ethernet, RS232, RS485, profibus, (PLC)**

**Part no.**                    **XV-102-D8-70TWR-10**  
**142537**  
**EL Number**                **4521122**  
**(Norway)**

| <b>General specifications</b>   |  |  |
|---------------------------------|--|--|
| Product name                    |  | Eaton XV-102 Touch panel   |
| Part no.                        |  | XV-102-D8-70TWR-10   |
| EAN                             |  | 7640130096790  |
| Product Length/Depth            |  | 210 millimetre   |
| Product height                  |  | 38 millimetre  |
| Product width                   |  | 135 millimetre   |
| Product weight                  |  | 0.64 kilogram  |
| Certifications                  |  | EAC<br>IEC/EN 61000-6-2<br>Certified by UL for use in Canada<br>UL Category Control No.: NWWGQ2<br>IEC/EN 61131-2<br>UL File No.: E208621<br>UL 60950<br>UL 60950-01<br>IEC/EN 61000-6-4<br>UL Recognized<br>EN 60950<br>CUL508<br>UL report applies to both US and Canada<br>CSA Class No.: NWWGQ8<br>DNV GL<br>CE<br>CSA-C22.2 No. 60950-1<br>EN 50178   |
| Product Tradename               |  | XV-102   |
| Product Type                    |  | Touch panel  |
| Product Sub Type                |  | None   |
| Catalog Notes                   |  | Optionally with SD card -> article no. 139807<br>Heat dissipation with power consumption for 24 V<br>Can be fitted by user with article no. 142581 LIC-PLC-MXP-COMPACT<br>Can be expanded as required, see Accessories<br>7 W for basic device + 2.5 W for USB module<br>4-wire Technology   |
| <b>Features &amp; Functions</b> |  |  |
| Enclosure material              |  | Plastic  |
| Features                        |  | Fanless CPU and system cooling, natural convection-based passive cooling<br>USB Host<br>UL508, cUL approvals<br>USB device<br>Ethernet interface<br>Portrait format<br>Slot for SD card  |
| Fitted with:                    |  | 1 x USB host 2.0 (built-in interface)<br>Color display<br>Printer output<br>Numeric keyboard<br>Alpha numeric keyboard<br>SW interfaces<br>Recipes<br>1 x RS485 (built-in interface)<br>1 x USB device (built-in interface)<br>Message system (incl. buffer and confirmation)<br>1 x Ethernet 10/100 Mbps (built-in interfaces)<br>1 x PROFIBUS/MPI (built-in interface)<br>Message indication<br>1 x RS232 (built-in interface) |
| Functions                       |  | Additional software components, loadable<br>Process default value (input) possible<br>Process value representation (output) possible   |
| <b>General information</b>      |  |  |
| Battery runtime                 |  | Back-up of real-time clock: CR 2032 (190 mA/h), zero maintenance (soldered)  |
| Conditions of acceptability     |  | The provided Ethernet Connection is only allowed to connect to inhouse networks.<br>The investigated Pollution Degree is: 2<br>The unit must be supplied via a SELV source.<br>UL/CSA  |

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|  |  | The following end-product enclosures are required: Fire   |
| Degree of protection                     |  | IP65<br>IP20, rear  |
| Degree of protection (front side)        |  | IP65<br>NEMA 4X   |
| Fuse type                                |  | Built-in fuse (not accessible)  |
| Lifespan                                 |  | 40,000 h (Service life of back-lighting)  |
| Model                                    |  | Insulating enclosure and front plate  |
| Mounting method                          |  | Flush mounting - Inclination from vertical: $\pm 45^\circ$ (if using natural convection)<br>Flush mounting - Clearance: Width x Height x Depth $\geq 30$ mm (1.18")<br>Flush mounting   |
| Product category                         |  | HMI-PLC (SPS function, retrofittable)   |
| Residual ripple                          |  | $\leq 5$ % (input voltage)  |
| RoHs conformity                          |  | Yes   |
| Software                                 |  | EPAM, Visualization software, Engineering<br>XSOF-CODESYS-3, PLC-Programming software, Engineering<br>GALILEO, Visualization software, Engineering<br>XSOF-CODESYS-2, PLC-Programming software, Engineering<br>XSOF-CODESYS-3, Visualization software, Engineering<br>XSOF-CODESYS-2, Visualization software, Engineering |
| Voltage type                             |  | DC  |
| <b>Ambient conditions, mechanical</b>    |  |   |
| Shock resistance                         |  | Mechanical, According to IEC/EN 60068-2-27  |
| Vibration resistance                     |  | According to IEC/EN 60068-2-6   |
| <b>Climatic environmental conditions</b> |  |   |
| Air pressure                             |  | 795 - 1080 hPa (operation)  |
| Ambient operating temperature - min      |  | 0 °C  |
| Ambient operating temperature - max      |  | 50 °C   |
| Operating temperature - min              |  | 0 °C  |
| Operating temperature - max              |  | 50 °C   |
| Relative humidity                        |  | 10 - 95 % (non-condensing)  |
| <b>Electro magnetic compatibility</b>    |  |   |
| Voltage dips                             |  | $\leq 10$ ms from rated voltage (24 V DC)<br>5 ms from undervoltage (19.2 V DC)   |
| <b>Electrical rating</b>                 |  |   |
| Permissible voltage                      |  | 19.2 - 30 V DC, effective (rated operating voltage -20 %/+25 %)<br>35 V DC (for a duration of $< 100$ ms)<br>18.0 - 31.2 V DC, absolute with ripple<br>18 - 31.2 V DC, battery powered (rated operating voltage -25 %/+30 %)  |
| Power consumption                        |  | 7 W<br>2.5 W (USB Slave to USB Host)<br>Max. 10 W<br>9.5 W total  |
| Rated control supply voltage             |  | 24 V DC (UAUX, -20 %/+25 %)<br>24 V DC (UPOW, -20 %/+25 %)  |
| Rated operational voltage                |  | 24 V DC (power-supply - safety extra low voltage)   |
| Supply voltage at AC, 50 Hz - min        |  | 0 V AC  |
| Supply voltage at AC, 50 Hz - max        |  | 0 V AC  |
| Supply voltage at DC - min               |  | 20.4 V DC   |
| Supply voltage at DC - max               |  | 28.8 V DC   |
| <b>Communication</b>                     |  |   |
| Communication interface                  |  | PROFIBUS, not galvanically isolated, max. 1.5 Mbit/s (SUB-D socket 9 pole, UNC)   |
| Interfaces                               |  | USB 2.0 host (1.5 - 12 Mbit/s, not galvanically isolated)<br>RS485 (not galvanically isolated, 9-pin SUB-D plug, UNC)<br>RS232 (not galvanically isolated, 9-pin SUB-D plug, UNC)<br>Ethernet (100Base-TX/10Base-T)<br>USB 2.0 device (not galvanically isolated)   |
| Number of slots                          |  | 1 (for SD-Card)   |
| Protocol                                 |  | Other bus systems<br>TCP/IP<br>MODBUS<br>PROFIBUS<br>EtherNet/IP  |
| <b>Display</b>                           |  |   |
| Display contrast ratio                   |  | 300:1   |

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| Display lighting   |  | LED<br>Dimmable via software   |
| Display size   |  | 152 x 91 mm  |
| Display type   |  | Standard front with standard membrane (fully enclosed)<br>TFT<br>Color display, TFT  |
| Luminance intensity  |  | 250 cd/m <sup>2</sup>  |
| Number of colors of the display  |  | 65536  |
| Screen size (diagonal)   |  | 7 in   |
| Touch technology   |  | Touch sensor (glass with foil), Resistive touch protective screen<br>Glass with film touch sensor<br>Resistive touch   |
| <b>Input/Output</b>  |  |  |
| Resolution   |  | WVGA<br>800 x 480 px   |
| <b>Safety</b>  |  |  |
| Explosion safety category for dust   |  | ATEX dust-ex-protection, in relation to CE<br>ATEX dust-ex-protection, II 3D Ex II T70°C IP5x: Zone 22, Category 3D  |
| Potential isolation  |  | Power supply: no<br>Supply voltage UAUX: no  |
| Protection against polarity reversal   |  | Yes, for supply voltage (Siemens MPI optional)<br>Yes  |
| <b>System</b>  |  |  |
| Backup time  |  | 10 years, typ. (time at zero voltage)  |
| Memory   |  | 32 kByte internal NVRAM (retained data)<br>SD Memory Card Slot: SDA Specification 1.00 (External)<br>128 MByte internal NAND-Flash (can be used for data backup)<br>64 MByte internal DRAM (OS, Program and data memory) |
| Memory capacity  |  | 64,000 kByte   |
| Operating system   |  | Windows CE 5.0 (license included)  |
| Processor  |  | RISC CPU, 32 Bit, 400 MHz  |
| <b>Design verification</b>   |  |  |
| Equipment heat dissipation, current-dependent P <sub>vid</sub>                   |  | 9.5 W  |
| Heat dissipation capacity P <sub>diss</sub>                                      |  | 0 W  |
| Heat dissipation per pole, current-dependent P <sub>vid</sub>                    |  | 0 W  |
| Rated operational current for specified heat dissipation (I <sub>n</sub> )       |  | 0 A  |
| Static heat dissipation, non-current-dependent P <sub>vs</sub>                   |  | 9.5 W  |
| 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 Resist. of insul. mat. to abnormal heat/fire by internal elect. 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.   |
| 10.9.2 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 9.0

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| Programmable logic controllers PLC (EG000024) / Graphic panel (EC001412)   |      |             |
| Electric engineering, automation, process control engineering / Display and control component / Panel (HMI) / Graphic panel (HMI) (ec1@ss13-27-33-02-01 [AFX016008]) |      |             |
| 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 (supply voltage)  |      | DC          |
| Power consumption  | W    | 9.5         |
| 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   |      | 1           |
| Number of HW-interfaces serial TTY   |      | 0           |
| Number of HW-interfaces USB  |      | 2           |
| 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 EtherCAT   |      | No          |
| Supporting protocol for TCP/IP   |      | Yes         |
| Supporting protocol for PROFIBUS   |      | Yes         |
| 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         |
| Colour display   |      | Yes         |
| Number of colours of the display   |      | 65536       |
| Number of grey-scales/blue-scales of display   |      | 0           |
| Screen diagonal  | inch | 7           |
| Number of pixels, horizontal   |      | 800         |
| Number of pixels, vertical   |      | 480         |

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|--|--|-------|-----------------|
| 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              |
| Certified for UL hazardous location class I                        |  |       | No              |
| Certified for UL hazardous location class II                       |  |       | No              |
| Certified for UL hazardous location class III                      |  |       | No              |
| Certified for UL hazardous location division 1                     |  |       | No              |
| Certified for UL hazardous location division 2                     |  |       | No              |
| Certified for UL hazardous location group A (acetylene)            |  |       | No              |
| Certified for UL hazardous location group B (hydrogen)             |  |       | No              |
| Certified for UL hazardous location group C (ethylene)             |  |       | No              |
| Certified for UL hazardous location group D (propane)              |  |       | No              |
| Certified for UL hazardous location group E (metal dusts)          |  |       | No              |
| Certified for UL hazardous location group F (carbonaceous dusts)   |  |       | No              |
| Certified for UL hazardous location group G (non-conductive dusts) |  |       | No              |
| Operating temperature  |  | °C    | 0 - 50          |
| Rail mounting possible   |  |       | No              |
| Wall mounting/direct mounting                                      |  |       | No              |
| Suitable for safety functions                                      |  |       | No              |
| Width of the front   |  | mm    | 210             |
| Height of the front  |  | mm    | 135             |
| Built-in depth   |  | mm    | 33              |