**ELC Graphics Panel**

**HM*i* Operator Interface**

**XV Operator Interface**

**XP Operator Interface**

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Learn
Online

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## Product and Software Selection Guides

### Operator Interfaces and Programming Software Selection Guide
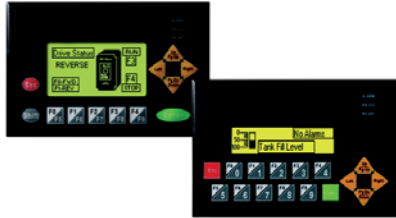
| Description | ELC-GP Graphics Panel | HM*i* Operator Interface |
|---|---|---|
| | **Page V7-T5-5** | **Page V7-T5-13** |
| Screen size | Two-line and four-line | 4.3-inch, 5.7-inch, 7.0-inch, 8.0-inch and 10.4-inch |
| Screen options | Monochrome | 65 k color TFT |
| Interface | Keypad only | Resistive touchscreen only or touchscreen and keypad |
| Communication ports | 2 serial | 3 serial; USB; Expansion port for Ethernet or Local I/O, onboard Ethernet VU models |
| Simultaneous protocols | 1 | 3 or 4 |
| Ethernet drivers | — | Yes |
| Upload/download | Serial cable | Serial, Ethernet, and/or USB |
| Operating system | Proprietary | Proprietary |
| Third-party software support | — | — |
| Screen saver | — | Yes |

### Operator Interfaces and Programming Software Selection Guide, continued

| Description | XP-500 Series Operator Interface | XV Operator Interface |
|---|---|---|
| | **Page V7-T5-21** | **Page V7-T5-24** |
| Screen size | 10.1-inch, 15.6-inch, 21.5-inch | 3.5-inch, 5.7-inch, 7.0-inch, 8.4-inch and 10.4-inch |
| Screen options | LED backlit Projected Capacitive Touchscreen (PCT), resolutions from (1024 x 600) to (1920 x 1080) | Color TFT, 64 k colors; resolutions from QVGA (320 x 240) to WVGA (800 x 480) |
| Interface | Non-reflective tempered scratch-resistant glass | Resistive touchscreen |
| Communication ports | 2 Ethernet, 1 RS-232, 1 RS-485, 2 USB 3.0, 1 DVI-I | Ethernet, RS-232 and/or RS-485, USB; CANopen or PROFIBUS®-DP, SmartWire-DT®, USB and RS-485 on CoDeSys models |
| Simultaneous protocols | 5 (8 optional) | 3 on Visual Designer, varies for Galileo and XSoft-CoDeSys-3 |
| Ethernet drivers | Yes | Yes |
| Upload/download | Serial, Ethernet, USB | Serial, Ethernet, USB |
| Operating system | Windows® Embedded Standard 7 (protected) | Windows CE 5.0 Professional |
| Third-party software support | Yes | — |
| Screen saver | Yes | Yes |

## Software Product Selection Guide

| Description | Visual Designer | XSoft-CoDeSys-3 [1] | Galileo | HM*i*Soft | ELCSoftGP |
|---|---|---|---|---|---|
| Overview | Feature-rich software package with SCADA functionality and Web serving capabilities that can be run on XV, XP, ePro PS operator interfaces or personal computers | Feature-rich software package with integrated logic and visualization that can be run on specific XV operator interface models | Intuitive visualization tool. Use Galileo on XV-102-H_ units or on XV units running CoDeSys when a stronger visualization package is needed | Use **HM*i*** Soft to create, edit, upload and download applications to the **HM*i*** family of operator interfaces | Use ELCSoftGP to create, edit, upload and download applications to ELC Graphics Panels |
| **Catalog ID** | | | | | |
| Development software seat license | VISUALDCE (CE hardware) VISUALDXP5 (5-pack of VISUALDXP) VISUALDCE5 (5-pack of VISUALDCE) VISUALDXP (PCs, XPe, and CE hardware) | SW-XSOFT-CODESYS-3-S [2] SW-XSOFT-CODESYS-3-M [3] | SW-GALILEO-S SW-GALILEO-M | HMISOFT | ELCSOFTGP |
| Runtime software for a PC | VISUALRTPC | N/A | ■ | N/A | N/A |
| **Time-Saving Editor Features** | | | | | |
| Online and offline simulation | ■ | ■ | ■ | ■ | — |
| Macro capability | ■ | ■ | ■ | ■ | — |
| VB scripting | ■ | — | — | — | — |
| Multi-language | ■ | ■ | ■ | ■ | — |
| System/internal variables | ■ | ■ | ■ | ■ | — |
| Auto-scale application to different resolution/screen size | ■ | ■ | ■ | ■ | — |
| Scripting (IF, THEN, ELSE, GOTO) | ■ | ■ | ■ | ■ | — |
| Graphics library | ■ | — | ■ | ■ | — |
| Master pages | ■ Screen groups | ■ One | ■ Screen groups | ■ Base screen | — |
| User-created controls | ■ | ■ | ■ | ■ | — |
| Customizable application symbols | ■ | ■ | ■ | — | — |
| Full math evaluation | ■ | ■ | ■ With macros | ■ With macros | — |
| Reusable controls, images and pages | ■ Via indirect tag and/ or PLC assignments | ■ | ■ | — | — |
| Advanced search and replace | ■ | ■ | ■ | — | — |
| Advanced context sensitive help | ■ | ■ | ■ | — | — |
| Conversion of legacy PanelMate® configurations | ■ | — | — | — | — |
| Optional PanelBuilder™ conversion utility | ■ | — | — | — | — |
| Online configuration/editing | ■ | ■ | — | — | — |

**Notes**

[1]  See the logic section of the catalog for details on the logic features in the XSoft-CoDeSys-3 software package.

[2]  Includes XSoft-CoDeSys-3 software for developing applications, runtime software for the XV Series. Single User License.

[3]  Includes XSoft-CoDeSys-3 software for developing applications, runtime software for the XV Series. Multi User License.

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## Software Product Selection Guide, continued

| Description | Visual Designer | XSoft-CoDeSys-3 [1] | Galileo | HM*i*Soft | ELCSoftGP |
|---|---|---|---|---|---|
| **Runtime Features** | | | | | |
| Clock synchronization with controller | ■ | ■ Configured via visualization screens | ■ | ■ | ■ |
| Sound actions or control | ■ | — | ■ | ■ | ■ |
| Security | ■ Advanced multi-level | ■ | ■ | ■ Multi-level | ■ |
| Pop-up screens | ■ And group screens | — | ■ | ■ | — |
| Animated graphics | ■ | ■ | ■ | ■ | — |
| Multi-touch and gesture support | ■ | — | ■ | — | — |
| Real-time trending | ■ | ■ | ■ | ■ | — |
| Recipes | ■ | ■ | ■ | ■ | — |
| Report generation | ■ | — | ■ | ■ Using Excel® and VU Server | — |
| Timer scheduling | ■ | ■ | ■ | ■ | — |
| Calendar scheduling | ■ | ■ | — | — | — |
| Notification of data and events via email/text messaging | ■ | ■ | — | — | — |
| Data archiving | ■ | ■ | ■ | ■ | — |
| Archive to shared network drive | ■ | ■ | ■ | — | — |
| Alarm and event archiving | ■ | ■ | ■ | ■ | — |
| Historical trending | ■ | ■ | ■ | ■ | — |
| Import/export from XML or CSV | ■ | ■ | ■ | — | — |
| Database interface | ■ ADO.net compliant | ■ DDE | — | ■ | — |
| Vision system interfaces | ■ | — | ■ | — | — |
| Secure document and Web network browser | ■ | ■ With user created passwords | — | — | — |
| Web server—viewing and control | ■ | ■ | — | — | — |
| Automatic scaling of Web clients | ■ | — | — | — | — |
| Remote desktop | ■ VNC and RemoteClient | ■ VNC and RemoteClient | ■ VNC and RemoteClient | ■ VU Remote | — |
| Launch/control third-party applications | ■ | — | — | — | — |
| Embedded PLC logic | — | ■ | — | — | — |

***Note***

[1] See the logic section of the catalog for details on the logic features in the XSoft-CoDeSys-3 software package.

**ELC Graphics Panels**

## Contents

Drawings Online

An Eaton Green Solution

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## Product Description

ELC Graphics Panels are simple to program and easily connect to ELC products. ELC graphics panels make modifying an application quick and easy. With more than 30 objects that can be placed anywhere on the display, these tough panels also communicate to other major controllers. These graphics panels have two serial ports that can be used simultaneously to communicate. Transfer applications to or from these graphics panels using the handy transfer module. Ten programmable functions keys on the outdoor rated display provide easy-to-change pages, input numeric values, enter alpha-numeric passwords, set, reset and more. Create alarms, password protect, import bitmaps and use many different fonts.

## Features

### Protocols

#### Supported Protocols

| Protocol |
|---|
| Eaton ELC |
| Eaton D50/D32LT, D320 |
| Eaton MVX ASCII |
| Eaton MVX RTU |
| Modbus® ASCII |
| Modbus RTU |
| Allen-Bradley DF1 |
| Mitsubishi FX Series |
| Mitsubishi FX2N Series |
| Koyo K-Sequence |
| LG 200S |
| OMRON C-Series |
| Siemens S7-200 Series |
| ASCII Slave Mode |

And more...

**ELC Graphics Panel Features**



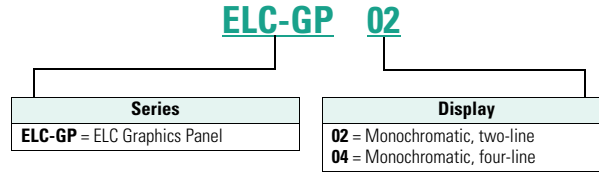| Item | ELC-GP02 | ELC-GP04 |
|---|---|---|
| Display screen | | |
| Screen | STN-LCD | STN-LCD |
| Color | Monochromatic | Monochromatic |
| Backlight | The backlight automatic turn off time is 1–99 minutes (0 = do not to turn off) (backlight life is 50 thousand hours at 25 °C) | The backlight automatic turn off time is 1–99 minutes (0 = do not to turn off) (backlight life is 50 thousand hours at 25 °C) |
| Resolution | 160 x 32 pixels | 128 x 64 pixels |
| Display range | 72 mm (W) x 22 mm (H) | 67 mm (W) x 32 mm (H) |
| Contrast adjustment | 15-step contrast adjustment | 10-step contrast adjustment |
| Language font | ASCII: characters (including European fonts) Taiwan: (BIG 5 code) traditional Chinese character font China: (GB2324-80 code) simplified Chinese character font | ASCII: characters (including European fonts) Taiwan: (BIG 5 code) traditional Chinese character font China: (GB2324-80 code) simplified Chinese character font |
| Font size (ASCII) | 5 x 8, 8 x 8, 8 x 12, 8 x 16 | 5 x 8, 8 x 8, 8 x 12, 8 x 16 |
| ALARM indication LED | 1. Power-on indication (flash three times) 2. Flash for communication error or other alarm 3. Special indication by user programming | 1. Power-on indication (flash three times) 2. Flash for communication error or other alarm 3. Special indication by user programming |
| RS-232 LED (yellow) | Flashes when communicating | Flashes when communicating |
| RS-485 LED (green) | Flashes when communicating | Flashes when communicating |
| Program memory | 256 KB flash memory | 256 KB flash memory |
| External interface | | |
| Serial communication port RS-232 (COM1) 9 PIN D-SUB male | Data length: 7 or 8 bits Stop bits: 1 or 2 bits Parity: None/Odd/Even Baud rate: 4800 bps–115,200 bps | Data length: 7 or 8 bits Stop bits: 1 or 2 bits Parity: None/Odd/Even Baud rate: 4800 bps–115,200 bps |
| Extension communication port RS-485 (COM2) 5-pin removal terminal (RS-485 or RS-422) | Data length: 7 or 8 bits Stop bits: 1 or 2 bits Parity: None/Odd/Even Baud rate: 4800 bps–115,200 bps | Data length: 7 or 8 bits Stop bits: 1 or 2 bits Parity: None/Odd/Even Baud rate: 4800 bps–115,200 bps |
| Extension slot | The slot for program copy card | The slot for program copy card |
| Power | 24 Vdc input | 24 Vdc input |

## Standards and Certifications

- UL® 508
- cUL® (CSA C22.2 No. 14)
- CE (Low Voltage Directive); Class 1 Div 2 Groups A, B, C, D
- RoHS

## Catalog Number Selection

**ELC-GP Graphics Panel**

**ELC-GP**

<center>

### ELC-GP   02

</center>

| Series | Display |
|---|---|
| **ELC-GP** = ELC Graphics Panel | **02** = Monochromatic, two-line<br>**04** = Monochromatic, four-line |

## Product Selection

**ELC-GP04**



### Graphics Panels

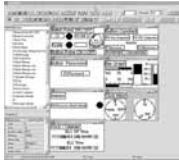| Description | Catalog Number |
|---|---|
| **Panels** | |
| 160 x 32 pixels, 10 function keys, monochrome | **ELC-GP02** |
| 128 x 64 pixels, 10 function keys, monochrome | **ELC-GP04** |
| **Spare Parts Kit** | |
| Includes several power connectors, battery doors, gaskets, mounting clips, etc. | **ELC-GPSPKIT** |

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## Software and Accessories

### ELCSoftGP Programming Software

System Requirements

• Operating Systems—Windows 2000, Windows XP

ELCSoftGP Programming Software configures all ELC graphic panels. With ELCSoftGP, applications can be created, edited, downloaded and uploaded. Move programs from one controller to a different one with ease.

**ELCSoftGP**

### ELCSoftGP Editing Environment

| Description | Catalog Number |
|---|---|
| Programming software for GP units | **ELCSOFTGP** |

### Program Transfer Cables

#### ELC-CBPCELC_

| Description | Catalog Number |
|---|---|
| 1 meter cable to connect between the **HMi** and Eaton Logic Controller (ELC) | **ELC-CBPCELC1** |
| 3 meter cable to connect between the **HMi** and Eaton Logic Controller (ELC) | **ELC-CBPCELC3** |

### ELC-CBPCGP3 Cable

Use this cable to download or upload applications between a PC and the ELC-GP graphics panels. This cable can also be used to transfer a program from an ELC-GP to another ELC-GP.

Pin definition of 9 PIN D-SUB RS-232:



| PC COM Port 9 PIN D-SUB Female | | GP02/04 COM Port 9 PIN D-SUB Female |
|---|---|---|
| Rx | 2 → 3 | Tx |
| Tx | 3 → 2 | Rx |
| GND | 5 → 5 | GND |
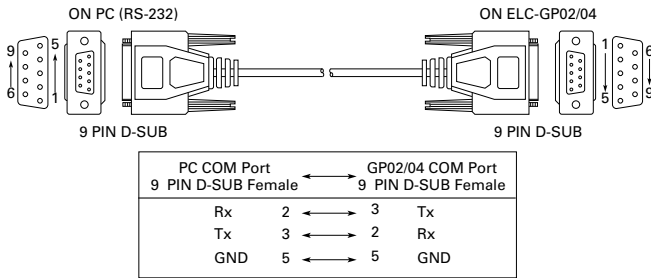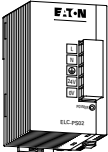
#### PC to ELC-GPxx Cable

| Description | Catalog Number |
|---|---|
| Cable, PC to ELC-GP, 9.8 ft (3 m) | **ELC-CBPCGP3** |

### Power Supplies

All ELC modules operate from 24 Vdc. These power supplies provide a convenient way to provide robust DC voltage.

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#### ELC Power Supplies

| | Description | Catalog Number |
|---|---|---|
| **ELC-PS01** | Power supply, 24 watt, 1 amp | **ELC-PS01** |
| **ELC-PS02** | Power supply, 48 watt, 2 amp | **ELC-PS02** |

## Technical Data and Specifications

### ELC Graphics Panels

| Description | Specification |
|---|---|
| **Environmental** | |
| Transportation and storage | |
| Temperature | –4 to 140 °F (–20 to 60 °C) |
| Operating | |
| Temperature | 32 to 122 °F (0 to 50 °C) |
| Humidity | 20–90% RH (noncondensing) |
| Communication interface | COM1: RS-232; COM2: RS-485/RS-422 |
| Vibration | 0.5 mm displacement, 10–55 Hz, X, Y, Z three directions and two hours for each direction |
| Impact | 10 G, 11 ms, from X, Y, Z three directions and three times for each direction |
| Weight | 0.53 lbs (0.24 kg) |
| Cooling method | Natural air cooling |
| **Electrical/EMC Approvals** | |
| Electrostatic discharge immunity | EN61000-4-2/1995 |
| Radiated immunity | EN61000-4-3/1995 |
| Electrical fast transient | EN61000-4-4/1995 |
| Radiated emission | CISPR22, Class A |
| **Other Approvals** | |
| Waterproof class of front panel | UL Type 4X outdoor rated |
| UV resistant | UL 746C |

### ELC Power Supply

| Item | ELC-PS01 | ELC-PS02 |
|---|---|---|
| Dimensions W x H x D in inches (mm) | 1.44 x 3.54 x 2.36 (36.5 x 90 x 60) | 2.17 x 3.54 x 2.36 (55 x 90 x 60) |
| Input power | 100–240 Vac 50/60 Hz | 100–240 Vac 50/60 Hz |
| Output volts | 24 Vdc | 24 Vdc |
| Output current (A) | 1A | 2A |
| Watts | 24 | 48 |

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## Dimensions

Approximate Dimensions in Inches (mm)

### ELC-GP04
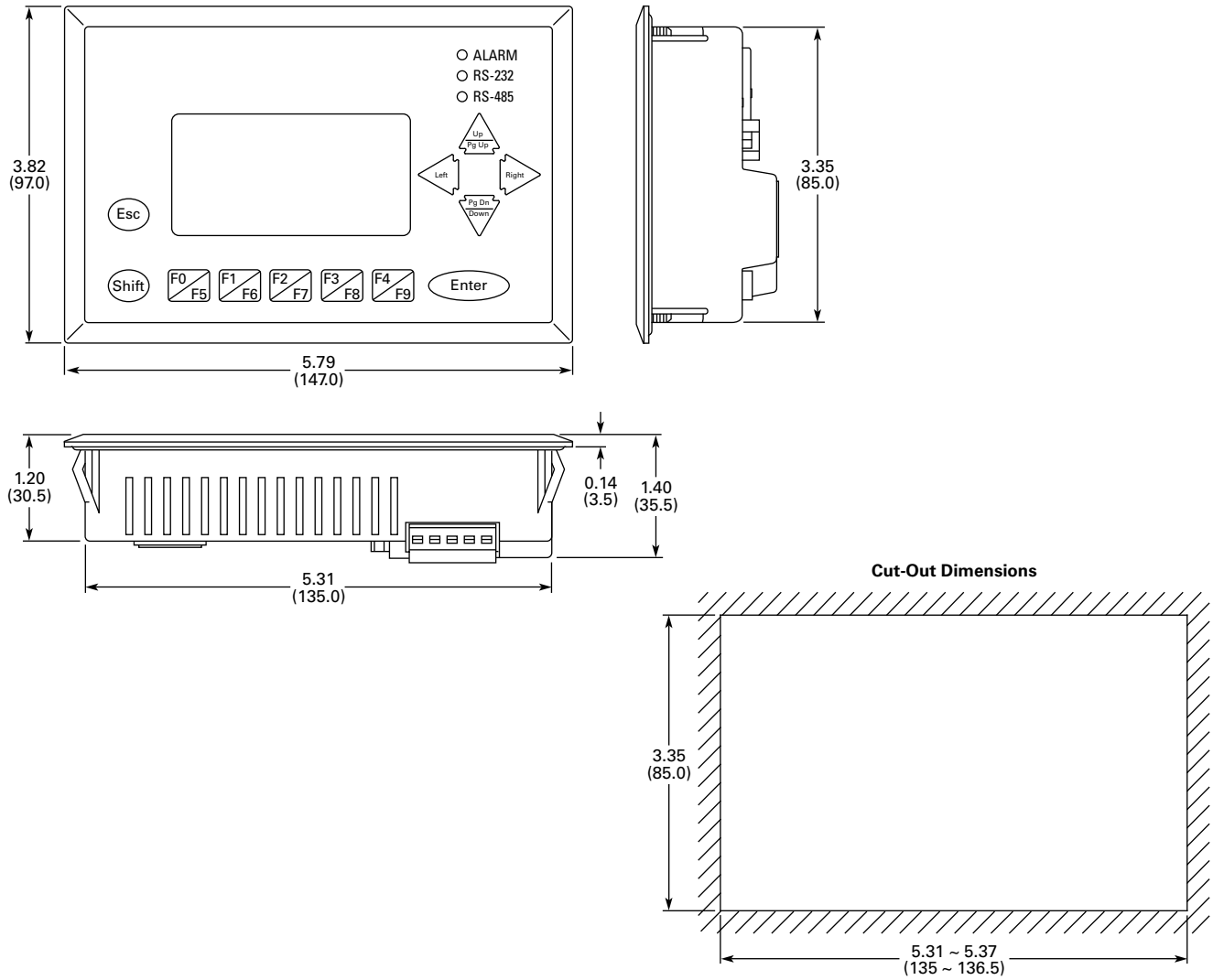
ALARM
RS-232
RS-485

Up / Pg Up

Left          Right

Esc

Pg Dn / Down

Shift    F0/F5   F1/F6   F2/F7   F3/F8   F4/F9    Enter

3.82 (97.0)

5.79 (147.0)

3.35 (85.0)

1.20 (30.5)

5.31 (135.0)

0.14 (3.5)

1.40 (35.5)

**Cut-Out Dimensions**

3.35 (85.0)

5.31 ~ 5.37 (135 ~ 136.5)

Approximate Dimensions in Inches (mm)

**ELC-GP02**



**Cut-Out Dimensions**
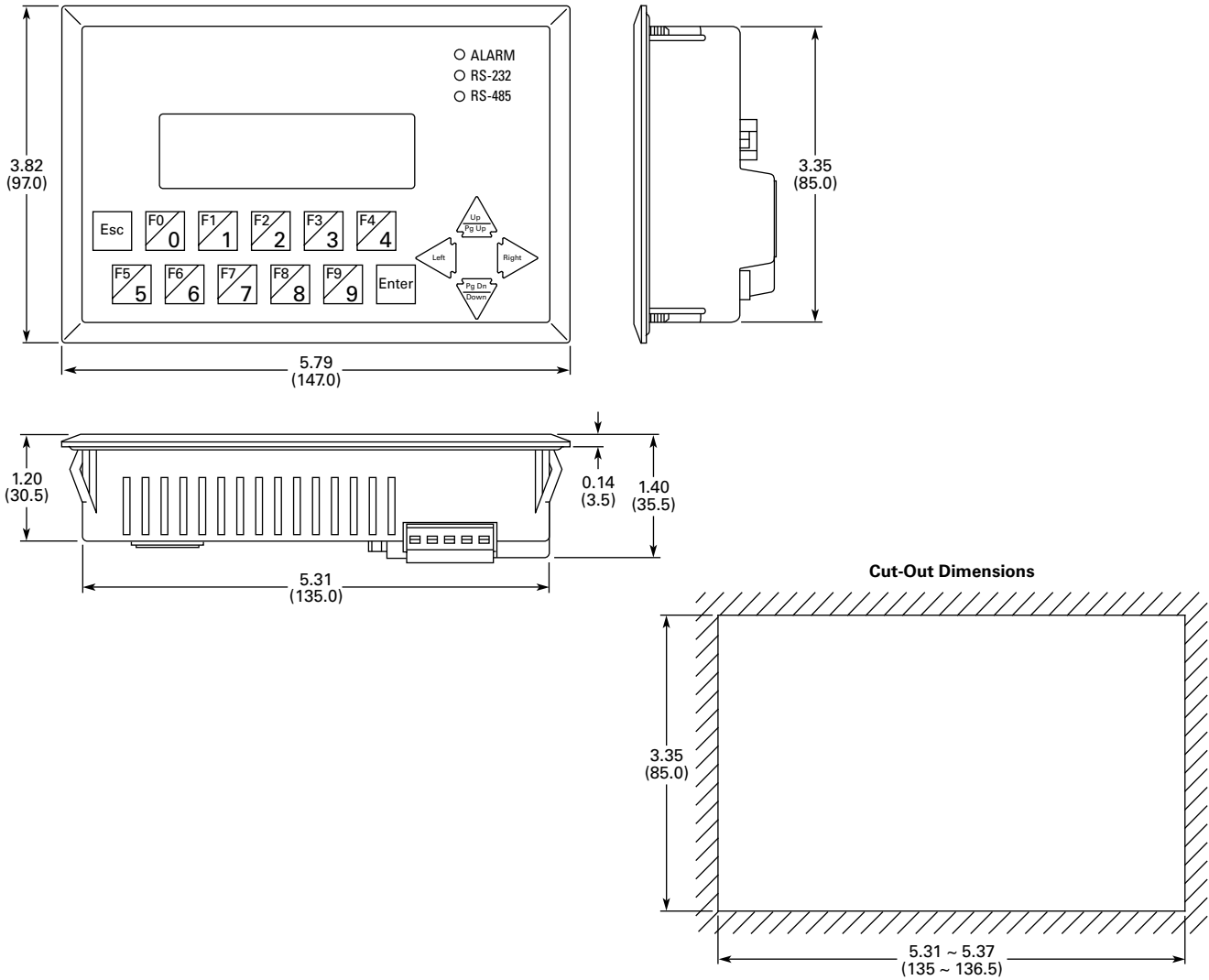


**ELC-GPXFERMOD**

**HM*i* Operator Interface**



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Drawings Online

An Eaton Green Solution

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## Product Description

Positioned between the ELC graphics panels and the XV series of operator interfaces, **HM*i*** is the workhorse of the industry. Ideal for machinery OEMs, the **HM*i*** series provides the most value with the latest technology and advanced feature set in an economical hardware and software package. All units offer RS-232, RS-485 and RS-422 communications. The 4-, 7-, 8- and 10-inch units also offer Ethernet communication options.

## Features

- Auto-scale application from 10 to 4 inches
- Screen and backlight saver
- Pop-up screens
- Animated graphics
- Conditional visibility
- Application lock for IP protection
- Data archiving
- Multi-language
- Eight levels of security
- Ethernet communication drivers

- Ethernet, COMM port and USB upload/download
- USB ports for data storage
- Three serial ports
- Up to four simultaneous protocols
- Math and logic functions
- CSV import/export tags and recipes
- Macro capability
- Alarm/event recording and viewing
- Real-time and historical trending
- Online and offline simulation

### HM*i* VU Exclusive Features

- VU server
- VU remote
- Multi-link
- Onboard Ethernet on some models
- Audio and SD on some models
- Supports USB mouse and other industrial pointing devices

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## Protocols

### Supported Protocols

| Manufacturer and Protocol | Manufacturer and Protocol | Manufacturer and Protocol | Manufacturer and Protocol |
|---|---|---|---|
| **Allen-Bradley** | **Festo** | **M2i** | **Modicon** |
| MicroLogix | Festo PLC | M2i Master | TSX Micro (Uni-Telway) |
| SLC 5 | **FuFeng** | M2i Slave | TSX Premium (Uni-Telway 1-1) |
| DH485 | APC | **Matsushita** | NEZA (Uni-Telway) |
| EtherNet/IP (Micro, Compact and ControlLogix, SCL 5 | **Fuji Electric** | FP Series | TWIDO |
| **Cimon** | Frenic Inverter | **Mirle** | **Moeller** |
| BP Series Loader Protocol | **GE Fanuc** | FAMA SC | PS3 Series |
| CP Series Loader Protocol | Series 90 SNP | **Mitsubishi** | PS4 Series |
| XP Series Loader Protocol | **Hitachi** | FX Series | **Nikki Denso** |
| **Copley** | EH Series Procedure 1 | FX2N | NCS-FI/FS Series |
| Stepnet | EH Series Procedure 2 | FX3U | **Omron** |
| **Danfoss** | **Hust** | FX Series Computer Link | C Series |
| VLT 2800 (FC Protocol) | Hust CNC Controller | A Series/J71UC24 | CJ1 Series |
| **Delta** | Hust CNC Controller v2 | A2A/A2AS/A2USH | TPM1A |
| Delta DVP PLC | **IDEC** | A1SH/A3N/A2ASH CPU Port | **Parker** |
| Delta DVP EH/SA ES/EX/SS (V5.1) | Micro Smart | Q Series CPU Port | Compax 3 |
| Delta Controller ASCII | **Jetter** | Q Series Ethernet | **Siemens** |
| Delta Controller RTU | JC Series | Q Series Computer Link | S7 200 |
| Delta DVP TCP/IP | Nano Series | J2s Series | S7 300 (with PC Adapter) |
| **Eaton** | **Keyence** | **MKS** | S7 300 (without PC Adapter) |
| ELC Series Serial | KV/KZ Series | BY125 | S7 300 (Direct MPI) |
| ELC Series TCP/IP | **Koyo** | CT150 | S7 300 (ISO TCP) |
| GVX—RTU | DL/SU Series | MC700/720 | S7 1200 (ISO TCP) |
| GVX—ASCII | K-Sequence | **Modbus** | **Taian** |
| MVX—RTU | **Lenze** | ASCII (Master) | TP02 |
| MVX—ASCII | LECOM-A/B Protocol | 984 RTU (Master) | **Ti** |
| NFX—RTU | **LG** | RTU 2W (Master) | Ti435 |
| NFX—ASCII | Master-K 120S/200S | ASCII Hex Address (Master) | **Vigor** |
| Eaton Controller ASCII | Glofa GM6 CNET | RTU Hex Address (Master) | M Series |
| Eaton Controller RTU | Master-K CNET | ASCII nW (Master) | **VIPA** |
| EasyPLC 800/MFD (EasyCom) | XGT CNET | RTU nW (Master) | S7 300 (with PC Adapter) |
| **Emerson** | **LiYan** | ASCII (Slave) | **Yokogawa** |
| EC20 Series | LYPLC EX | RTU (Slave) | ACE |
| **Facon** | | TCP/IP | |
| FB Series | | | |

## Standards and Certifications

- CE
- UL
- cUL
- C-Tick
- RoHS

## Catalog Number Selection

**HM*i* Operator Interface**

**HM*i***

<center>HMIVU    07    CU    NB    E</center>

| Series |
|---|
| **HMIVU** = **HM*i* VU** Series |

| Display |
|---|
| **04** = 4.3-inch LCD |
| **06** = 5.6-inch LCD |
| **07** = 7.0-inch LCD |
| **08** = 8.0-inch LCD |
| **10W** = 10.1-inch-wide LCD |

| Options |
|---|
| **CU** = Color TFT without expansion port |

| Options |
|---|
| **NBx** = **HM*i* VU** Firmware Series |
| **NB** = **HM*i* VU** Series no function buttons |

| Options |
|---|
| **E** = On-board Ethernet and audio out |
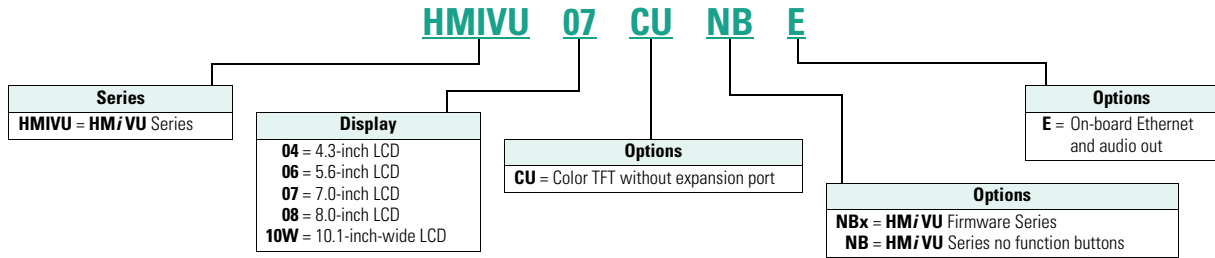
## Product Selection

**HMI_**



### HM*i* VU Products

| Description | Catalog Number |
|---|---|
| 4-inch color TFT, no function buttons, on-board Ethernet | **HMIVU04CUNBE** |
| 6-inch color TFT, no function buttons, no Ethernet | **HMIVU06CUNB1** |
| 7-inch color TFT, no function buttons, on-board Ethernet | **HMIVU07CUNBE** |
| 8-inch color TFT, no function buttons, on-board Ethernet | **HMIVU08CUNBE** |
| 10-inch color TFT, no function buttons, on-board Ethernet | **HMIVU10WCUNBE** |

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## Software and Accessories

### *HMiSoft Programming Software*

For use with the of **HM*i*** and **HM*i*VU** series touchscreens. This easy to use Windows based software can run on Windows XP and Windows 7 32-bit and 64-bit systems.

- Ethernet and serial communication drivers
- Up to four simultaneous protocols
- Screen manager
- Over 70 on-screen objects

- Pop-up screens
- Animated graphics
- Conditional visibility
- Built-in picture library
- Create your own picture library
- Multi-language
- Eight levels of security
- Macro editing with math and logic functions
- CSV import/export tags and recipes

- Alarm/event recording and viewing
- Store archived data, alarms and events to USB
- Real-time and historical trending
- Auto-scale application from 10 to 4 inches
- On and offline simulation
- Upload/download applications over USB, serial or Ethernet

- Application lock for IP protection
- Screen and backlight saver
- Multi-link allows sharing of PLC data over Ethernet [1]
- VU Server optional download [1]
- VU Remote optional download [1]

### HM*i* Editor

**HM*i* Editor**

| Description | Catalog Number |
| --- | --- |
| Programming software for **HM*i*** and **HM*i*VU** models | **HMISOFT** |

### HM*i* Screen Management

### HMiSoft Editor
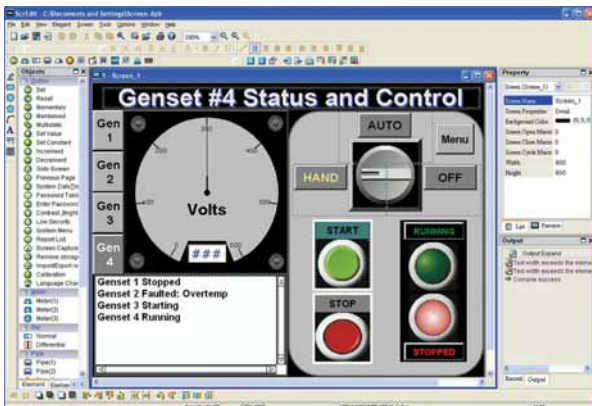
### *Note*

[1] Exclusive **HM*i*VU** features.

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### Adapter Plate

| Description | Catalog Number |
| --- | --- |
| 6-inch **HM*i*** adapter plate for PM1000 | **APPM1HMI6** |

### Kits

| Description | Catalog Number |
| --- | --- |
| **HM*i*** spare parts kits (includes several power connectors, battery doors, gaskets, mounting clips, etc.) | **HMI-SPKIT** |

### Replacement Gaskets

| Description | Catalog Number |
| --- | --- |
| 4-inch **HM*i*** replacement gasket (2/kit) | **HMI04-GASKET** |
| 6-inch **HM*i*** and 7-inch **HM*i* VU** replacement gasket (2/kit) | **HMI06-GASKET** |
| 8-inch **HM*i*** replacement gasket (2/kit) | **HMI08-GASKET** |
| 10-inch **HM*i*** replacement gasket (2/kit) | **HMI10-GASKET** |

### Cable

| Description | Catalog Number |
| --- | --- |
| 1 meter cable to connect between the **HM*i*** and Eaton Logic Controller (ELC) | **ELC-CBPCELC1** |
| 3 meter cable to connect between the **HM*i*** and Eaton Logic Controller (ELC) | **ELC-CBPCELC3** |

### Power Supply

| Description | Catalog Number |
| --- | --- |
| 1 amp 24 Vdc power supply | **ELC-PS01** |
| 2 amp 24 Vdc power supply | **ELC-PS02** |

## Technical Data and Specifications

### HM*i* VU Operator Interface

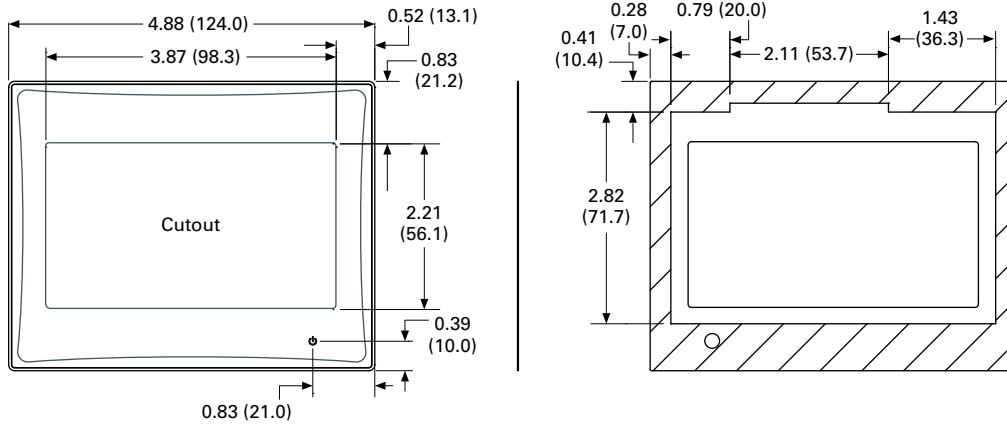| Description | Specification HMIVU04CUNBE | HMIVU06CUNB1 | HMIVU07CUNBE | HMIVU08CUNBE | HMIVU10WCUNBE |
|---|---|---|---|---|---|
| **LCD module** | | | | | |
| Display type | 4.3-inch TFT LCD | 5.6-inch TFT LCD | 7-inch TFT LCD | 8-inch TFT LCD | 10.1-inch widescreen TFT LCD |
| Display color | 65536 colors | 65536 colors | 65536 colors | 65536 colors | 65536 colors |
| Resolution | 480 x 234 pixels | 320 x 234 pixels | 800 x 600 pixels | 800 x 600 pixels | 1024 x 600 pixels |
| Backlight | LED backlight (20,000 hours half-life at 25 °C) [1] | LED backlight (20,000 hours half-life at 25 °C) [1] | LED backlight (10,000 hours half-life at 25 °C) [1] | LED backlight (10,000 hours half-life at 25 °C) [1] | LED backlight (10,000 hours half-life at 25 °C) [1] |
| Brightness NIT rating | 400 DC/m$^2$ | 200 DC/m$^2$ | 200 DC/m$^2$ | 250 DC/m$^2$ | 200 DC/m$^2$ |
| Display size | 95.04 x 53.856 mm | 113.28 x 84.70 mm | 141 x 105.75 mm | 162 x 121.5 mm | 226 x 128.7 mm |
| Operation system | Real Time OS | Real Time OS | Real Time OS | Real Time OS | Real Time OS |
| MCU | 32-bit RISC micro-controller | 32-bit RISC micro-controller | 32-bit RISC micro-controller | 32-bit RISC micro-controller | 32-bit RISC micro-controller |
| NOR Flash ROM | Flash ROM 128 MB OS System: 30 MB Backup: 16 MB User Application: 82 MB | Flash ROM 128 MB OS System: 30 MB Backup: 16 MB User Application: 82 MB | Flash ROM 128 MB OS System: 30 MB Backup: 16 MB User Application: 82 MB | Flash ROM 128 MB OS System: 30 MB Backup: 16 MB User Application: 82 MB | Flash ROM 128 MB OS System: 30 MB Backup: 16 MB User Application: 82 MB |
| SDRAM | 64 M bytes | 64 M bytes | 64 M bytes | 64 M bytes | 64 M bytes |
| Backup memory | 16 M bytes | 16 M bytes | 16 M bytes | 16 M bytes | 16 M bytes |
| **Sound effect output** | | | | | |
| Buzzer | | | Multi-tone frequency (2–4 kHz)/85 dB | | |
| AUX | N/A | N/A | Stereo output | Stereo output | Stereo output |
| Ethernet interface | IEEE 802.3, IEEE 802.3u 10/100 Mbps auto-sensing has built-in isolated power circuit [3] | N/A | IEEE 802.3, IEEE 802.3u 10/100 Mbps auto-sensing has built-in isolated power circuit [3] | IEEE 802.3, IEEE 802.3u 10/100 Mbps auto-sensing has built-in isolated power circuit [3] | IEEE 802.3, IEEE 802.3u 10/100 Mbps auto-sensing has built-in isolated power circuit [3] |
| Memory card | N/A | N/A | SD card (supports SDHC) | SD card (supports SDHC) | SD card (supports SDHC) |
| USB | | | 1 USB Host [2] Ver 2.0 1 USB Client Ver 1.1 | | |
| **Serial COM port** | | | | | |
| COM1 | RS-232 (supports hardware flow control) / RS-485 | RS-232 (supports hardware flow control) | RS-232 (supports hardware flow control) | RS-232 (supports hardware flow control) | RS-232 (supports hardware flow control) |
| COM2 | RS-422/RS-485 | RS-232/RS-485 | RS-232/RS-422/RS-485 (has built-in isolated power circuit) [3] | | |
| COM3 | N/A | RS-422/RS-485 | RS-232/RS-422/RS-485 (has built-in isolated power circuit) [3] | | |
| Perpetual calendar (RTC) | Built-in | Built-in | Built-in | Built-in | Built-in |
| Cooling method | Natural air circulation | Natural air circulation | Natural air circulation | Natural air circulation | Natural air circulation |
| Safety approval | CE/UL | CE/UL | CE/UL | CE/UL | CE/UL |
| Waterproof degree | | | IP65/NEMA® 4X (indoor use only) | | |
| Operation voltage [4] | | | DC +24 V (−10 to +15%) Please use isolated power supply | | |
| Voltage endurance | | | AC500V for 1 minute (between charging [DC24 terminal] and FG terminals) | | |
| Power consumption [4] | 4.8 W | 3.0 W | 7.68 W | 7.8 W | 12 W |
| Backup battery | 3 V lithium battery CR2032 x 1 | 3 V lithium battery CR2032 x 1 | 3 V lithium battery CR2032 x 1 | 3 V lithium battery CR2032 x 1 | 3 V lithium battery CR2032 x 1 |
| Backup battery life | | It depends on the temperature used and the conditions of usage, about 3 years or more at 25 °C | | | |
| Operation temp. | 0 to 50 °C | 0 to 50 °C | 0 to 50 °C | 0 to 50 °C | 0 to 50 °C |
| Storage temp. | −20 to 60 °C | −20 to 60 °C | −20 to 60 °C | −20 to 60 °C | −20 to 60 °C |
| Ambient humidity | | 10%~90% RH [0 to 40 °C], 10%~55% RH [41 to 50 °C] / Pollution Degree 2 | | | |
| Vibration resistance | | | 5 Hz < f < 8.3 Hz = continuous: 3.5 mm 8.3 Hz < f < 150 Hz = continuous: 1.0 g | | |
| Shock | | | IEC 61131-2 Compliant 5 Hz < f < 9 Hz = continuous: 1.75 mm/occasional: 3.5 mm 9 Hz < f < 150 Hz = continuous: 0.5 g/occasional: 1.0 g X, Y, Z directions for 10 times | | |
| Dimensions (W) x (H) x (D) mm | 129 x 103 x 39 | 184 x 144 x 50 | 184 x 144 x 50 | 227.1 x 174.1 x 61 | 272 x 200 x 61 |
| Panel cutout (W) x (H) mm | 118.8 x 92.8 | 172.4 x 132.4 | 172.4 x 132.4 | 219.4 x 166.5 | 261.3 x 189.3 |
| Weight | Approx. 264 g | Approx. 670 g | Approx. 800 g | Approx. 1228 g | Approx.1520 g |

**Notes**

[1] The half-life of backlight is defined as original luminance being reduced by 50% when the maximum driving current is supplied to **HM*i***. The life of LED backlight shown is an estimated value under 25 °C normal temperature and humidity conditions

[2] USB Host port can provide up to 5 V/500 mA of power.

[3] The withstand voltage of the isolated power circuit is 1500 V peak for 1 minute.

[4] The value of the power consumption indicates the electrical power consumed by **HM*i*** only without connecting to any peripheral devices. In order to ensure the normal operation, it is recommended to use a power supply where the capacity is 1.5~2 times the value of the power consumption.
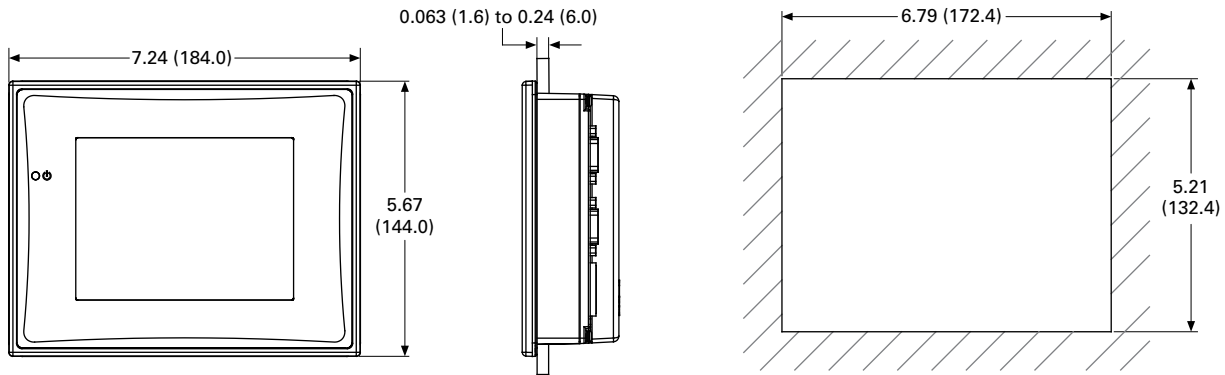
## Dimensions

Approximate Dimensions in Inches (mm)

### HMIVU04



### HMIVU06
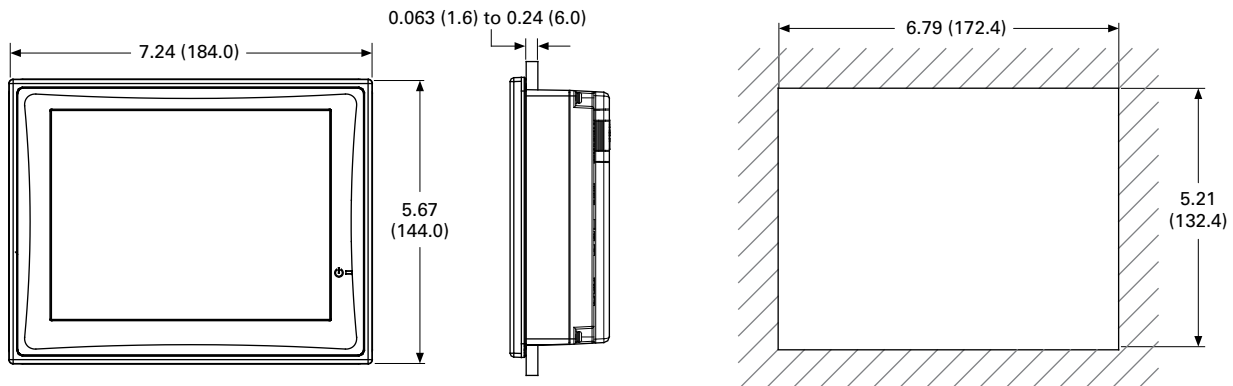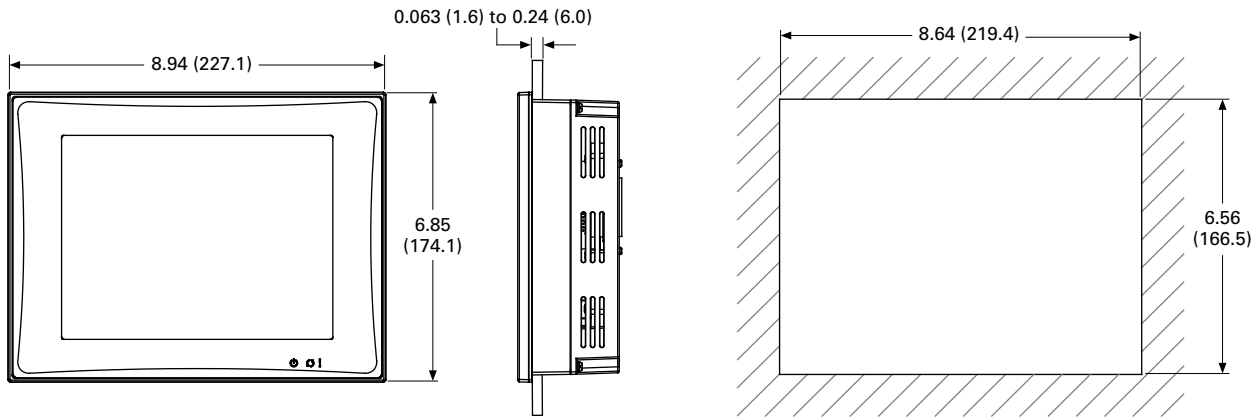


### HMIVU07

Approximate Dimensions in Inches (mm)

**HMIVU08**

0.063 (1.6) to 0.24 (6.0)

8.94 (227.1)

6.85 (174.1)

8.64 (219.4)

6.56 (166.5)

**HMIVU10**

0.063 (1.6) to 0.24 (6.0)

10.71 (272.0)

7.88 (200.0)

10.29 (261.3)

7.45 (189.3)

**XP Operator Interface**



## Contents

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## XP-503 with Visual Designer

### Product Description

The XP-500 series sets a new standard for HMI and SCADA controls. Capacitive multi-touch displays allow familiar intuitive gestures for zoom, scroll and swipe, and offer increased safety to your system with two hand or multiple button activation control for critical functions.

XP-500 Panel PCs run on an open Windows Embedded Standard 7 Operating System to support all Windows standard PC applications and feature Protect Mode™ for preventing unauthorized changes to the operating system.

XP-500 units come with advanced yet easy-to-use Visual Designer software pre-installed and licensed.

All these features come standard in a package that is slim and modern in design yet also rugged. With no fan or moving parts, a scratch-resistant glass screen, and powder-coated aluminum body, XP-500 is fit for any industrial application.

### Features

XP-500 series operator interface with Windows Embedded Standard 7 operating system

- 10.1, 15.6 and 21.5 inch high resolution widescreen displays
- Projected capacitive touchscreen supports gestures and recognizes up to 4 simultaneous touch inputs
- Remote access to mobile devices or tablets using HTML5 interface
- 1.65 GHz Dual Core CPU with fast Radeon™ HD graphics for best-in-class speed and graphics performance

- 4 GB DDR3-RAM large memory for parallel processing and increased system performance
- 32 GB internal solid-state drive high volume internal memory
- 2 independent Ethernet ports standard for separation of IT and process level communications
- All solid-state media and no moving parts or fan increases reliability
- Non-corruptible OS with Protect Mode increases security and reliability

### Standards and Certifications

- UL/cUL (UL 508)
- CE Mark
- UL Class 1 Div 2 (Groups A, B, C, D)
- ATEX Zone 22, Category 3D
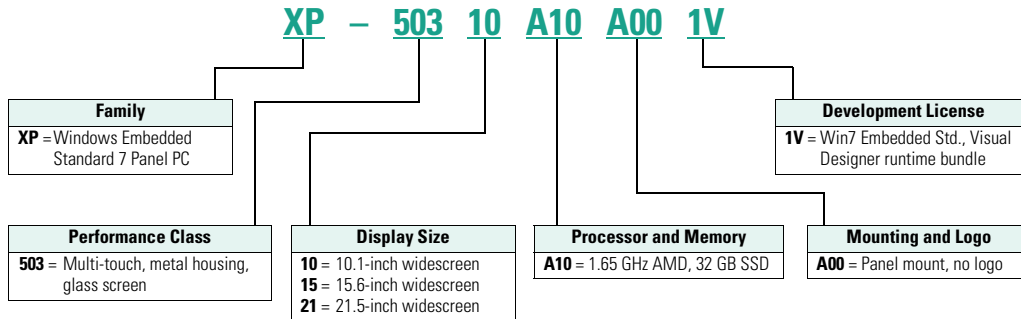- Front
  - IP65, NEMA 4X (indoor), NEMA 12
- Rear
  - IP20

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## Catalog Number Selection

### XP Operator Interface

**XP**



XP – 503 10 A10 A00 1V

| Family | |
|---|---|
| **XP** = | Windows Embedded Standard 7 Panel PC |

| Development License | |
|---|---|
| **1V** = | Win7 Embedded Std., Visual Designer runtime bundle |

| Performance Class | |
|---|---|
| **503** = | Multi-touch, metal housing, glass screen |

| Display Size | |
|---|---|
| **10** = | 10.1-inch widescreen |
| **15** = | 15.6-inch widescreen |
| **21** = | 21.5-inch widescreen |

| Processor and Memory | |
|---|---|
| **A10** = | 1.65 GHz AMD, 32 GB SSD |

| Mounting and Logo | |
|---|---|
| **A00** = | Panel mount, no logo |

## Product Selection

### Series Information

All XP-500 models have a Microsoft® Windows Embedded Standard 7 operating system and are pre-licensed with Visual Designer runtime. The standard license is for 4000 tags, 5 simultaneous communication drivers and 1 Web session each of 3 types—Thin Client, Secure Viewer and Mobile Access. Field upgrades are available for 64,000 tags, 8 drivers and 2, 4, 8, 16, 32, 64 or 128 simultaneous Web sessions of each type.

**XP Operator Interface**



### XP Operator Interface

| Description | Catalog Number |
|---|---|
| XP 10.1-inch widescreen with multi-touch, 1.65 GHz dual core CPU, 4 GB DDR3-RAM, 4 GB CFast memory, 4000 tags, 5 drivers, 1 Web session | **XP-503-10-A10-A00-1V** |
| XP 15.6-inch widescreen with multi-touch, 1.65 GHz dual core CPU, 4 GB DDR3-RAM, 4 GB CFast memory, 4000 tags, 5 drivers, 1 Web session | **XP-503-15-A10-A00-1V** |
| XP 21.5-inch widescreen with multi-touch, 1.65 GHz dual core CPU, 4 GB DDR3-RAM, 4 GB CFast memory, 4000 tags, 5 drivers, 1 Web session | **XP-503-21-A10-A00-1V** |

#### Notes
① All 5XX units have 2 x 10/100/1000 Ethernet, 2 x USB 3.0, 1 x RS-232, 1 x RS-485, 1 x DVI-I.
② Standard software on embedded hardware.

## Accessories

### XP Operator Interface

| Description | Catalog Number |
|---|---|
| XP-702 spare part kit for all XP models—1 power connector, 8 mounting brackets, 1 sealing strip | **ACC-TP-57-RES-1** |

## Technical Data and Specifications

### XP Operator Interface

| Model | 10.1-inch XP-503-10-A10-A00-1V | 15.6-inch XP-503-15-A10-A00-1V | 21.5-inch XP-503-21-A10-A00-1V |
|---|---|---|---|
| **Display** | | | |
| Screen diagonal | 10.1-inch widescreen | 15.6-inch widescreen | 21.5-inch widescreen |
| Resolution | 1024 x 600 pixels | 1366 x 768 pixels | 1920 x 1080 pixels |
| Backlight | LED, dimmable via software | LED, dimmable via software | LED, dimmable via software |
| Display brightness (typical) | 500 cd/m$^2$ | 300 cd/m$^2$ | 250 cd/m$^2$ |
| Contrast ratio (typical) | 500:1 | 500:1 | 1000:1 |
| **Operation** | | | |
| Touch sensor | Multi-touch touchscreen (4 simultaneous touches) | Multi-touch touchscreen (4 simultaneous touches) | Multi-touch touchscreen (4 simultaneous touches) |
| Technology | Projected Capacitive Touch (PCT) | Projected Capacitive Touch (PCT) | Projected Capacitive Touch (PCT) |
| **Enclosures** | | | |
| Front glass | Non-reflective tempered glass | Non-reflective tempered glass | Non-reflective tempered glass |
| Bezel | Powder-coated aluminum | Powder-coated aluminum | Powder-coated aluminum |
| Device dimensions (w x h x d) | 275 x 179 x 80 mm | 404 x 255 x 80 mm | 536 x 328 x 83 mm |
| Installation cutout (w x h) | 261 x 164 mm | 387 x 238 mm | 519 x 313 mm |
| Weight | 2.6 kg | 4.8 kg | 7.8 kg |
| **System** | | | |
| Processor | AMD GX217GA 1.65 GHz DualCore | AMD GX217GA 1.65 GHz DualCore | AMD GX217GA 1.65 GHz DualCore |
| Graphic | AMD Radeon HD8280E 450 MHz | AMD Radeon HD8280E 450 MHz | AMD Radeon HD8280E 450 MHz |
| Memory | 4 GB DDR3-RAM | 4 GB DDR3-RAM | 4 GB DDR3-RAM |
| Internal mass memory | 32 GB SSD mSATA | 32 GB SSD mSATA | 32 GB SSD mSATA |
| Removable memory | 1 x CFast slot, pre-populated with 4 GB CFast memory card | 1 x CFast slot, pre-populated with 4 GB CFast memory card | 1 x CFast slot, pre-populated with 4 GB CFast memory card |
| Interfaces | 2 x Ethernet 10/100/1000 Mbps; 2 x USB 3.0; 1 x RS-232; 1 x RS-485; 1 x DVI-I | 2 x Ethernet 10/100/1000 Mbps; 2 x USB 3.0; 1 x RS-232; 1 x RS-485; 1 x DVI-I | 2 x Ethernet 10/100/1000 Mbps; 2 x USB 3.0; 1 x RS-232; 1 x RS-485; 1 x DVI-I |
| Power supply | 24 Vdc | 24 Vdc | 24 Vdc |
| Maximum current | 1.2 A | 1.5 A | 1.7 A |
| Operating system | Windows Embedded Standard 7 | Windows Embedded Standard 7 | Windows Embedded Standard 7 |
| **Environment** | | | |
| Agency certifications | UL/cUL Class I Div 2, Groups A, B, C, D, ATEX Zone 22 | UL/cUL Class I Div 2, Groups A, B, C, D, ATEX Zone 22 | UL/cUL Class I Div 2, Groups A, B, C, D, ATEX Zone 22 |
| Degree of protection | Front: IP65, NEMA 4X (indoor), NEMA 12; Rear: IP20 | Front: IP65, NEMA 4X (indoor), NEMA 12; Rear: IP20 | Front: IP65, NEMA 4X (indoor), NEMA 12; Rear: IP20 |
| Operating temperature | 0 to +50 °C | 0 to +50 °C | 0 to +50 °C |
| Storage temperature | −20 to +60 °C | −20 to +60 °C | −20 to +60 °C |
| Relative air humidity | 10 to 20% noncondensing | 10 to 20% noncondensing | 10 to 20% noncondensing |
| Shock | IEC 60068-2-27 15 g for 11 ms duration | IEC 60068-2-27 15 g for 11 ms duration | IEC 60068-2-27 15 g for 11 ms duration |
| Vibration | IEC 60068-2-6 5–9 Hz: 3.5 mm displacement 9–60 Hz: 0.15 mm displacement 60–150 Hz: 2 g acceleration | IEC 60068-2-6 5–9 Hz: 3.5 mm displacement 9–60 Hz: 0.15 mm displacement 60–150 Hz: 2 g acceleration | IEC 60068-2-6 5–9 Hz: 3.5 mm displacement 9–60 Hz: 0.15 mm displacement 60–150 Hz: 2 g acceleration |
| **Software** | | | |
| Development software | Visual Designer | Visual Designer | Visual Designer |
| Ability to run third-party software | Yes | Yes | Yes |
| Pre-licensed tags, drivers, Web sessions Standard models | 4000 tags, 5 drivers, 1 Web session | 4000 tags, 5 drivers, 1 Web session | 4000 tags, 5 drivers, 1 Web session |
| Field upgradable max. tags, drivers, Web sessions | 64,000 tags, 8 drivers, 1, 2, 4, 8, 16, 32, 64 or 128 Web sessions simultaneously | 64,000 tags, 8 drivers, 1, 2, 4, 8, 16, 32, 64 or 128 Web sessions simultaneously | 64,000 tags, 8 drivers, 1, 2, 4, 8, 16, 32, 64 or 128 Web sessions simultaneously |

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**XV-100 and XV-300 Series Operator Interface**



## Contents

| Description | Page |
|---|---|

## XV with Visual Designer, Galileo or XSoft-CoDeSys-3

### Product Description

#### XV with Visual Designer

Positioned between the **HM*i*** and the XP series of operator interface, the XV series is ideal for applications requiring extensive connectivity and the advanced features available in Visual Designer without the expense associated with more powerful open platforms.

The XV models were designed with OEMs in mind featuring an attractive bezel and slim and light weight housing. The clip mount design simplifies installation.

#### XV with Galileo

The XV Series with Galileo offers a global visualization software package for all applications in system and machine building. It is designed to optimize performance on the XV platform. Galileo can also run as the visualization package on XV CoDeSys units when a stronger visualization tool is required.

#### XV with XSoft-CoDeSys

The XV series with XSoft-CoDeSys combines powerful logic and visualization capabilities into a single device. It is ideal for OEM applications where low component count and ease of program development and remote administration is critical.

The XV Models with XSoft-CoDeSys offer multiple field bus options built directly on-board the unit to provide an overall solution optimized both for size and cost.

#### XV-300 Software Bundles

The XV-300 series is the latest and most powerful in the XV product line. It's powerful CPU and graphics co-processor provide the high-performance engine required by demanding HMI and HMI-PLC applications. Coupled with an attractive, sleek design and multi-touch touchscreen, it supports the modern gesture based user interface that redefines ease of use.

The XV-300 series can run Visual Designer, XSoft-CoDeSys and Galileo and unlike the XV-100 series, there are bundles that include Visual Designer and XSoft-CoDeSys runtime licenses on a single unit. Because of the higher capacity and performance of the XV-300 over the XV-100, these appeal to OEMs who have demanding HMI-PLC applications in which case they will choose a model bundled with XSoft-CoDeSys software.

All XSoft-CoDeSys models include XSoft-CoDeSys logic and visualization tools, but also include a Galileo runtime license at no additional charge so the user can choose which visualization tool is appropriate for their needs. Users who have large or demanding HMI applications that also require some SCADA software features such as web serving, document (PDF) viewing, SQL database interfaces, FDA 21 CFR Part 11 compliance or other advanced functionality could choose the XV-300 models bundled with Visual Designer software. For users who need PLC applications and advanced Visualization and SCADA features, they can choose XV-300 models with both XSoft-CoDeSys and Visual Designer runtime licenses bundled in a single package.

## Features

### XV-100 with Visual Designer

XV Series operator interface with Windows CE operating system

- 3.5-, 5.7-, 7.0- (widescreen), 8.4- and 10.4-inch screen sizes
- Cost-effective plastic or metal housing
- Resistive touch with flush bezel
- Ethernet and serial ports on all models
- Visual Designer XP or CE development software
- Pre-installed Visual Designer runtime and Web serving licenses

### XV-102 with Galileo only units

- 3.5-, 5.7- and 7.0-inch (widescreen)
- Plastic housing
- Resistive touch with flush bezel
- Ethernet on all models
- RS-232 or RS-485 serial ports available
- Prelicensed for Galileo Runtime (GRS)

### XV-100 with XSoft-CoDeSys

XV Series operator interface with Windows CE operating system

- 3.5-, 5.7-, 7.0- (widescreen), 8.4- and 10.4-inch screen sizes
- Cost-effective plastic or metal housing
- Resistive touch with flush bezel
- Ethernet and serial ports on all models
- PROFIBUS, CANopen and SmartWire-DT optional
- XSoft-CoDeSys-3 programming software
- Pre-licensed for CoDeSys runtime

## Standards and Certifications

- CE
- UL
- cUL
- RoHS

CE (UL) c(UL). RoHS COMPLIANT

### Selecting the right model for your application

The XV product offered with Visual Designer, Galileo or XSoft-CoDeSys offers the highest level of flexibility for one operator interface product.

Visual Designer provides a fully integrated SCADA and HMI platform. Use Visual Designer when Web enabling, remote access, database and connectivity, and when one operator software package is required across XV and XP platforms.

Galileo provides a visualization environment designed around the needs of machine building OEMs. Use Galileo when designing high-performance machines in the OEM space.

XSoft-CoDeSys turns the XV into a fully integrated Logic and OI platform (HMI-PLC). Use XSoft-CoDeSys to unleash the PLC functionality on an XV. With optional communication interfaces like SmartWire-DT, CANopen and PROFIBUS, Eaton welcomes you into the Lean Automation space.

On XV-300 models, you can take advantage of the best of both worlds with Visual Designer and XSoft-CoDeSys together. Combining the power of these two software platforms provides limitless possibilities on an HMI-PLC and SCADA platform.

### Software Suite



FTP, Remote Client, Real VNC® Gateway, SD Slot

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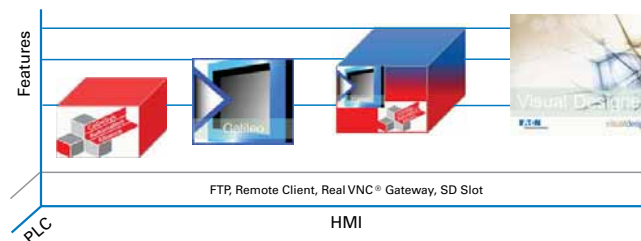
## Product Selection Guide

### XP and XV Operator Interface with Visual Designer

| Series | XP | XV | | |
|---|---|---|---|---|
| **Model** | **XP-503** | **XV-102** | **XV-152** | **XV-300** |
| **Screen Size** | **10.1, 15.6, 21.5** | **3.5, 5.7, 7.0** | **5.7, 8.4, 10.4** | **7.0, 10.1** |
| Housing material | Powder-coated aluminum | Plastic | Metal | Plastic |
| Operating system | Windows Embedded Standard 7 | WinCE 5.0 Professional | | WinCE 7.0 Professional |
| Touchscreen technology | Projected Capacitive Touchscreen (PCT), non-reflective tempered glass | Resistive | | PCT, ruggedized glass |
| Communication ports | 2 Ethernet, 2 serial, 4 USB 2 Ethernet; 1 RS-232; 1 RS-485; 2 USB 3.0 | 1 Ethernet, 1 or 2 serial, 0 or 1 USB | | 1 Ethernet, 2 serial, 1 USB, CAN |
| Optional field buses | N/A | PROFIBUS, CANopen, SmartWire-DT | | Optional Communication Ports—2nd Ethernet, SmartWire-DT, PROFIBUS-DP |
| Development software | Visual Designer (VISUALDXP) (Runtime pre-installed) | Visual Designer (VISUALDCE or VISUALDXP) | | Visual Designer |
| Pre-licensed tags, driver and Web session and field upgrade options | Standard 4000 tags, 5 drivers, 1 Web session Optional upgrades to 64,000 tags, 8 drivers, 1, 2, 4, 8, 16, 32, 64 or 128 simultaneous Web sessions | 1500 tags, 3 drivers, 1 Web session 4000 tags, 3 drivers, 1, 2, 4 or 8 simultaneous Web sessions | | 1500 tags, 3 drivers, 1 Web session Optional upgrade to 4000 tags, 3 drivers, 1, 2, 4 or 8 simultaneous Web sessions |
| Alarm online/history | Yes | Yes | | Yes |
| Trend online/history | Yes | Yes | | Yes |
| Scripting | Yes (VB Script) | Yes (VB Script) | | Yes (VB Script) |
| Scheduler | Yes | Yes | | Yes |
| Recipe | Yes | Yes | | Yes |
| Reports | Yes | Yes | | Yes |
| OPC, TCP/IP, and communication drivers | Yes | Yes | | Yes |
| Web Server and Web Thin Client support | Yes | Yes | | Yes |
| Full remote access | Yes | Yes | | Yes |
| Local/remote database interface | Yes | Yes | | Yes |
| Ability to run third-party software | Yes | No | | No |
| ActiveX and .NET controls | Yes | No | | No |
| Full document viewing | Yes | No | | Yes (PDF and HTML) |
| Windows media player | Yes | No | | No |
| Vision system interfaces | Yes | No | | No |
| Network camera monitoring | Yes | No | | No |

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## XV Series with Galileo Only Runtime Option (Not Available on XP Series)

| Series | XV |
|---|---|
| Model | Model XV-102-H |
| Screen Size | 3.5, 5.7, 7.0 |
| Housing material | Plastic |
| Operating system | WinCE 5.0 standard |
| Touchscreen | Resistive |
| Communications ports | 1 Ethernet, 1 RS-232, or 1 RS-485, 1 USB |
| Optional field buses | N/A |
| Development software | Galileo |
| Alarm online/historical | Yes |
| Trend online/historical | Yes |
| Scripting | Structured text |
| Scheduler | No |
| Recipe | Yes |
| Reports | No |
| Full remote access | Yes |
| Ability to run third-party software | No |
| Vision system interfaces | Yes |
| Multi-language support | Yes |
| PLC variable import | Yes |

## XV Series with CoDeSys Runtime (Not Available on XP Series)

| Series | XV | | |
|---|---|---|---|
| Model | XV-102 | XV-152 | XV-303 |
| Screen Size | 3.5, 5.7, 7.0 | 5.7, 8.4, 10.4 | 7.0, 10.1 |
| Housing material | Plastic | Metal | Plastic |
| Operating system | WinCE 5.0 Standard | WinCE 5.0 Standard | WinCE 7.0 Professional |
| Touchscreen | Resistive | Resistive | PCT, ruggedized glass |
| Communications ports | 1 Ethernet, 1 or 2 serial, 0 or 1 USB | 1 Ethernet, 1 or 2 serial, 0 or 1 USB | 1 Ethernet, 2 serial, 1 USB, CAN |
| Optional field buses | PROFIBUS, CANopen, SmartWire-DT | PROFIBUS, CANopen, SmartWire-DT | Optional Field Buses—2nd Ethernet, SmartWire-DT, PROFIBUS |
| Development software | XSoft-CoDeSys-3 | XSoft-CoDeSys-3 | XSoft-CoDeSys-3 |
| IEC-61131-3 logic programming | (LD, ST, SFC, IL, FBD, CFC) Yes | (LD, ST, SFC, IL, FBD, CFC) Yes | (LD, ST, SFC, IL, FBD, CFC) Yes |
| Integrated screen design | Yes | Yes | Yes |
| Integrated field bus configuration | Yes | Yes | Yes |
| Alarm online/historical | Yes | Yes | Yes |
| Trend online/historical | Yes | Yes | Yes |
| Scripting | Structured Text | Structured Text | Structured Text (ST) |
| Scheduler | Yes | Yes | Yes |
| Recipe | Yes | Yes | Yes |
| Reports | No | No | Yes |
| OPC, TCP/IP and communication driver | Yes (OPC Server for PC) | Yes (OPC Server for PC) | Yes (OPC Server for PC) |
| Web Server and Web Thin Client support | Yes | Yes | Yes |
| Full remote access | Yes | Yes | Yes |
| Local/remote data base access | Limited (DDE) | Limited (DDE) | Yes (with Visual Designer software bundle) |
| Ability to run third-party software | No | No | No |
| ActiveX and .NET controls | No | No | No |
| Full document viewing | No | No | Yes (PDF and HTML) |
| Windows media player | No | No | No |
| Vision system interfaces | No | No | No |
| Network camera monitoring | No | No | No |

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## Catalog Number Selection

*XV Operator Interface—XV-102, XV-152*

### XV-102, XV-152

<center>XV &ndash; 102 &ndash; B3 &ndash; 35TQRG &ndash; 10</center>

| Family | |
|---|---|
| **XV** = Microsoft Windows CE operating system | |

| Branding and Bezel | |
|---|---|
| **10** = Standard blank front bezel with Eaton branded product label | |

| Performance Class | |
|---|---|
| **102** = CE, plastic housing, 2nd gen | |
| **152** = CE, metal housing, 2nd gen | |

| Features Base Unit Variant ① | Features Additional COMM Options |
|---|---|
| **B** = Retentive memory | **3** = 1-RS-232 |
| **D** = Retentive memory, USB host, RS-232 | **4** = 1-RS-485 |
| | **6** = 1-CANopen |
| **E** = Retentive memory, USB host, SmartWire-DT | **8** = 1-PROFIBUS |
| **H** = Galileo only unit, USB host | **E** = 1-SmartWire-DT |

| Display Size | Display Technology | OS Build |
|---|---|---|
| **35** = 3.5-inch | **TQR** = TFT (QVGA) resistive | **C** = XSoft-CoDeSys/Galileo |
| **57** = 5.7-inch | **TVR** = TFT (VGA) resistive | **G** = CE Professional OS and Visual Designer runtime 1500 tags ② |
| **70** = 7.0-inch | **TWR** = TFT (widescreen) resistive | |
| **84** = 8.4-inch | | **L** = Galileo only unit |
| **10** = 10.4-inch | | |

## Product Selection

**XV Operator Interface**



### XV Operator Interface with Visual Designer

| Description | Catalog Number |
|---|---|
| XV 3.5-inch TFT, plastic housing, resistive touch, Ethernet and RS-232 | **XV-102-B3-35TQRG-10** |
| XV 3.5-inch TFT, plastic housing, resistive touch, Ethernet and RS-485 | **XV-102-B4-35TQRG-10** |
| XV 5.7-inch TFT, plastic housing, resistive touch, Ethernet, RS-232, RS-485 | **XV-102-D4-57TVRG-10** |
| XV 7.0-inch TFT wide screen, plastic housing, resistive touch, Ethernet, RS-232, RS-485 | **XV-102-D4-70TWRG-10** |
| XV 5.7-inch TFT, metal housing, resistive touch, Ethernet, RS-232, RS-485 | **XV-152-D4-57TVRG-10** |
| XV 8.4-inch TFT, metal housing, resistive touch, Ethernet, RS-232, RS-485 | **XV-152-D4-84TVRG-10** |
| XV 10.4-inch TFT, metal housing, resistive touch, Ethernet, RS-232, RS-485 | **XV-152-D4-10TVRG-10** |

### Notes

① All 1xx performance class units have 400 MHz processor, 64 MB DRAM, 1 x 10/100 Ethernet, and 1 x USB device.

② Standard software on embedded hardware. These XV models have a Microsoft Windows CE 5.0 Professional operating system and are pre-licensed with Visual Designer runtime for up to 1500 tags, 3 simultaneous communication drivers, and 1 Web session. Field upgrades are available for up to 4000 tags, 3 drivers, and 2, 4 or 8 simultaneous Web sessions.

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### XV Operator Interface with XSoft-CoDeSys, HMI-PLC

| Description | Catalog Number |
|---|---|
| XV 3.5-inch TFT plastic housing, resistive touch, CANopen, Ethernet, RS-485 | **XV-102-B6-35TQRC-10** |
| XV 3.5-inch TFT plastic housing, resistive touch, PROFIBUS, Ethernet, RS-485 | **XV-102-B8-35TQRC-10** |
| XV 3.5-inch TFT plastic housing, resistive touch, SmartWire-DT, Ethernet | **XV-102-BE-35TQRC-10** |
| XV 5.7-inch TFT plastic housing, resistive touch, CANopen, Ethernet, RS-232, RS-485 | **XV-102-D6-57TVRC-10** |
| XV 5.7-inch TFT plastic housing, resistive touch, PROFIBUS, Ethernet, RS-232, RS-485 | **XV-102-D8-57TVRC-10** |
| XV 5.7-inch TFT plastic housing, resistive touch, CANopen, SmartWire-DT, Ethernet, RS-485 | **XV-102-E6-57TVRC-10** |
| XV 5.7-inch TFT plastic housing, resistive touch, PROFIBUS, SmartWire-DT, Ethernet, RS-485 | **XV-102-E8-57TVRC-10** |
| XV 7.0-inch TFT plastic housing, resistive touch, CANopen, Ethernet, RS-232, RS-485 | **XV-102-D6-70TWRC-10** |
| XV 7.0-inch TFT plastic housing, resistive touch, PROFIBUS, Ethernet, RS-232, RS-485 | **XV-102-D8-70TWRC-10** |
| XV 7.0-inch TFT plastic housing, resistive touch, CANopen, SmartWire-DT, Ethernet, RS-485 | **XV-102-E6-70TWRC-10** |
| XV 7.0-inch TFT plastic housing, resistive touch, PROFIBUS, SmartWire-DT, Ethernet, RS-485 | **XV-102-E8-70TWRC-10** |
| XV 5.7-inch TFT metal housing, resistive touch, CANopen, Ethernet, RS-232, RS-485 | **XV-152-D6-57TVRC-10** |
| XV 5.7-inch TFT metal housing, resistive touch, PROFIBUS, Ethernet, RS-232, RS-485 | **XV-152-D8-57TVRC-10** |
| XV 5.7-inch TFT metal housing, resistive touch, CANopen, SmartWire-DT, Ethernet, RS-485 | **XV-152-E6-57TVRC-10** |
| XV 5.7-inch TFT metal housing, resistive touch, PROFIBUS, SmartWire-DT, Ethernet, RS-485 | **XV-152-E8-57TVRC-10** |
| XV 8.4-inch TFT metal housing, resistive touch, CANopen, Ethernet, RS-232, RS-485 | **XV-152-D6-84TVRC-10** |
| XV 8.4-inch TFT metal housing, resistive touch, PROFIBUS, Ethernet, RS-232, RS-485 | **XV-152-D8-84TVRC-10** |
| XV 8.4-inch TFT metal housing, resistive touch, CANopen, SmartWire-DT, Ethernet, RS-485 | **XV-152-E6-84TVRC-10** |
| XV 8.4-inch TFT metal housing, resistive touch, PROFIBUS, SmartWire-DT, Ethernet, RS-485 | **XV-152-E8-84TVRC-10** |
| XV 10.4-inch TFT metal housing, resistive touch, CANopen, Ethernet, RS-232, RS-485 | **XV-152-D6-10TVRC-10** |
| XV 10.4-inch TFT metal housing, resistive touch, PROFIBUS, Ethernet, RS-232, RS-485 | **XV-152-D8-10TVRC-10** |
| XV 10.4-inch TFT metal housing, resistive touch, CANopen, SmartWire-DT, Ethernet, RS-485 | **XV-152-E6-10TVRC-10** |
| XV 10.4-inch TFT metal housing, resistive touch, PROFIBUS, SmartWire-DT, Ethernet, RS-485 | **XV-152-E8-10TVRC-10** |

### XV Operator Interface with Galileo Only

| Description | Catalog Number |
|---|---|
| XV 3.5-inch TFT plastic housing, resistive touch, Ethernet, RS-232 | **XV-102-H3-35TQRL-10** |
| XV 3.5-inch TFT plastic housing, resistive touch, Ethernet, RS-485 | **XV-102-H4-35TQRL-10** |
| XV 5.7-inch TFT plastic housing, resistive touch, Ethernet, RS-232 | **XV-102-H3-57TVRL-10** |
| XV 5.7-inch TFT plastic housing, resistive touch, Ethernet, RS-485 | **XV-102-H4-57TVRL-10** |
| XV 7.0-inch TFT plastic housing, resistive touch, Ethernet, RS-232 | **XV-102-H3-70TWRL-10** |
| XV 7.0-inch TFT plastic housing, resistive touch, Ethernet, RS-485 | **XV-102-H4-70TWRL-10** |

## Catalog Number Selection

### *XV Operator Interface—XV-303, XV-313*

**XV-303, XV-313**
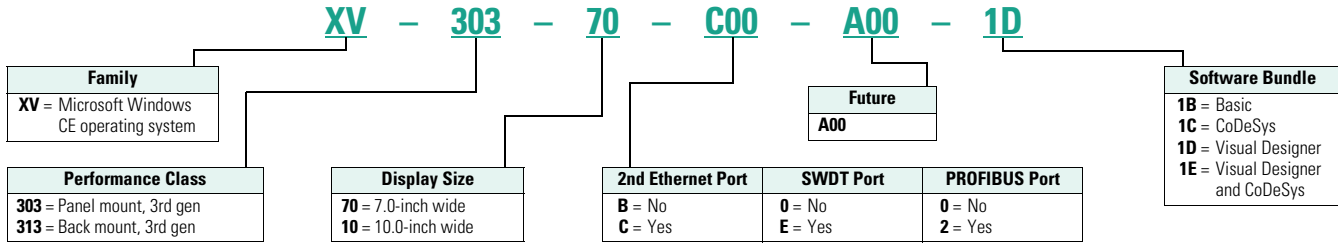
XV – 303 – 70 – C00 – A00 – 1D

| Family | | |
|---|---|---|
| **XV** = Microsoft Windows CE operating system | | |

| Performance Class |
|---|
| **303** = Panel mount, 3rd gen |
| **313** = Back mount, 3rd gen |

| Display Size |
|---|
| **70** = 7.0-inch wide |
| **10** = 10.0-inch wide |

| 2nd Ethernet Port |
|---|
| **B** = No |
| **C** = Yes |

| Future |
|---|
| **A00** |

| SWDT Port |
|---|
| **0** = No |
| **E** = Yes |

| PROFIBUS Port |
|---|
| **0** = No |
| **2** = Yes |

| Software Bundle |
|---|
| **1B** = Basic |
| **1C** = CoDeSys |
| **1D** = Visual Designer |
| **1E** = Visual Designer and CoDeSys |

## Product Selection

**XV Operator Interface**

### XV Operator Interface with Visual Designer

| Description | Catalog Number |
|---|---|
| XV with 7.0-inch TFT, plastic housing, PCT multi-touch, dual Ethernet, CAN, RS-232, RS-485, USB host | **XV-303-70-C00-A00-1D** |
| XV with 10.0-inch TFT, plastic housing, PCT multi-touch, dual Ethernet, CAN, RS-232, RS-485, USB host | **XV-303-10-C00-A00-1D** |

### XV Operator Interface with XSoft-CoDeSys, HMI-PLC

CoDeSys Automation Alliance

| Description | Catalog Number |
|---|---|
| XV with 7.0-inch TFT, plastic housing, PCT multi-touch, single Ethernet, CAN, RS-232, RS-485, USB host | **XV-303-70-B00-A00-1C** |
| XV with 7.0-inch TFT, plastic housing, PCT multi-touch, dual Ethernet, CAN, RS-232, RS-485, USB host | **XV-303-70-C00-A00-1C** |
| XV with 7.0-inch TFT, plastic housing, PCT multi-touch, single Ethernet, CAN, PROFIBUS, RS-232, RS-485, USB host | **XV-303-70-B02-A00-1C** |
| XV with 7.0-inch TFT, plastic housing, PCT multi-touch, dual Ethernet, CAN, PROFIBUS, RS-232, RS-485, USB host | **XV-303-70-C02-A00-1C** |
| XV with 7.0-inch TFT, plastic housing, PCT multi-touch, single Ethernet, CAN, SmartWire-DT, RS-232, RS-485, USB host | **XV-303-70-BE0-A00-1C** |
| XV with 7.0-inch TFT, plastic housing, PCT multi-touch, dual Ethernet, CAN, SmartWire-DT, RS-232, RS-485, USB host | **XV-303-70-CE0-A00-1C** |
| XV with 10.0-inch TFT, plastic housing, PCT multi-touch, single Ethernet, CAN, RS-232, RS-485, USB host | **XV-303-10-B00-A00-1C** |
| XV with 10.0-inch TFT, plastic housing, PCT multi-touch, dual Ethernet, CAN, RS-232, RS-485, USB host | **XV-303-10-C00-A00-1C** |
| XV with 10.0-inch TFT, plastic housing, PCT multi-touch, single Ethernet, CAN, PROFIBUS, RS-232, RS-485, USB host | **XV-303-10-B02-A00-1C** |
| XV with 10.0-inch TFT, plastic housing, PCT multi-touch, dual Ethernet, CAN, PROFIBUS, RS-232, RS-485, USB host | **XV-303-70-C02-A00-1C** |
| XV with 10.0-inch TFT, plastic housing, PCT multi-touch, single Ethernet, CAN, SmartWire-DT, RS-232, RS-485, USB host | **XV-303-10-BE0-A00-1C** |
| XV with 10.0-inch TFT, plastic housing, PCT multi-touch, dual Ethernet, CAN, SmartWire-DT, RS-232, RS-485, USB host | **XV-303-10-CE0-A00-1C** |

### XV Operator Interface with Visual Designer and XSoft-CoDeSys, HMI-PLC-SCADA

| Description | Catalog Number |
|---|---|
| XV with 7.0-inch TFT, plastic housing, PCT multi-touch, dual Ethernet, CAN, RS-232, RS-485, USB host | **XV-303-70-C00-A00-1E** |
| XV with 7.0-inch TFT, plastic housing, PCT multi-touch, dual Ethernet, CAN, SmartWire-DT, RS-232, RS-485, USB host | **XV-303-70-CE0-A00-1E** |
| XV with 10.0-inch TFT, plastic housing, PCT multi-touch, dual Ethernet, CAN, RS-232, RS-485, USB host | **XV-303-10-C00-A00-1E** |
| XV with 10.0-inch TFT, plastic housing, PCT multi-touch, dual Ethernet, CAN, SmartWire-DT, RS-232, RS-485, USB host | **XV-303-10-CE0-A00-1E** |

**Accessories**

### XV Family Accessories

| Description | Catalog Number |
|---|---|
| SD memory card for all XV-102 and XV-152 models | **MEMORY-SD-A1-S** |
| Spare part kit for XV-102 models—1 power connector, 8 mounting brackets, 1 sealing strip, 1 touch pen | **ACC-TP-57-KG-1** |
| Spare part kit for XV-152 models—1 power connector, 8 mounting brackets, 1 sealing strip, 1 touch pen | **ACC-TP-10-12-RES-1** |
| SD memory card with 1 GB storage for all XV-100 and XV-300 models | **MEMORY-SD-A2-S** |
| Accessory set for XV-303 (10 mounting brackets and 1 power plug) | **ACCESSORIES-TP-10-KG** |

### XV Family Software Options

| Description | Catalog Number |
|---|---|
| Product license for 40 points for use with Galileo or XSoft-CoDeSys units | **LIC-OPT-1ST-LEVEL** |
| Product license for 80 points for use with Galileo or XSoft-CoDeSys units | **LIC-OPT-2ND-LEVEL** |
| License product Paper PLC with license sticker for XSoft-CoDeSys-2/-3 for XV-300 | **LIC-PLC-A** |
| License product Paper Visual Designer with license sticker for XV-300 | **LIC-VISD-A** |

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**5**

## Technical Data and Specifications

### XV Operator Interface

| Series | **XV Midrange Operator Interface** | | | | | |
|---|---|---|---|---|---|---|
| **Model** | **XV-102** | | | **XV-152** | | |
| **Screen Size** | **3.5-Inch** | **5.7-Inch** | **7.0-Inch** | **5.7-Inch** | **8.4-Inch** | **10.4-Inch** |
| Operating system | WinCE 5.0 Professional/Standard | | | WinCE 5.0 Professional/Standard | | |
| Touchscreen technology | Resistive | Resistive | Resistive | Resistive | Resistive | Resistive |
| Display, colors | Color TFT, 64 k colors | Color TFT, 64 k colors | Color TFT, 64 k colors | Color TFT, 64 k colors | Color TFT, 64 k colors | Color TFT, 64 k colors |
| Pixel resolution (landscape) portrait mode also available | QVGA 320 x 240 | VGA 640 x 480 | WVGA 800 x 480 | VGA 640 x 480 | VGA 640 x 480 | VGA 640 x 480 |
| Brightness (cd/m$^2$) | 250 | 250 | 250 | 350 | 350 | 350 |
| Backlight | LED, selectable dimming | LED, selectable dimming | LED, selectable dimming | LED, selectable dimming | LED, selectable dimming | LED, selectable dimming |
| Lifespan of backlight (half-life) | 40,000 hrs | 40,000 hrs | 40,000 hrs | 40,000 hrs | 40,000 hrs | 40,000 hrs |
| Processor | 32 bit RISC, 400 MHz | 32 bit RISC, 400 MHz | 32 bit RISC, 400 MHz | 32 bit RISC, 400 MHz | 32 bit RISC, 400 MHz | 32 bit RISC, 400 MHz |
| Volatile memory | 64 MB DRAM | 64 MB DRAM | 64 MB DRAM | 64 MB DRAM | 64 MB DRAM | 64 MB DRAM |
| Non-volatile memory | 125 KB NVRAM/64 MB NAND, 1 SD card slot | 125 KB NVRAM/64 MB NAND/ 2 MB NOR, 1 SD card slot | | 125 KB NVRAM/64 MB NAND/ 2 MB NOR, 1 SD card slot | | |
| Real time clock | Yes | Yes | Yes | Yes | Yes | Yes |
| Communication ports | Ethernet 10/100, RS-485 or RS-232 USB Device | Ethernet 10/100, RS-485, RS-232 USB Host, USB Device | | Ethernet 10/100, RS-485, RS-232 USB Host, USB Device | | |
| Slots for COMM modules | None | None | None | None | None | None |
| Power supply rated voltage | 24 Vdc nominal (–20%/+25%) with polarity protection | | | 24 Vdc nominal (–20%/+25%) with polarity protection | | |
| Continuous current consumption (max. amps) | 0.2 | 0.4 | 0.4 | 0.4 | 0.6 | 0.6 |
| Starting current inrush (A$^2$s) | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| Ambient conditions | | | | | | |
| Operation—relative humidity, noncondensing | 0 to 50 °C, 10 to 95% | 0 to 50 °C, 10 to 95% | 0 to 50 °C, 10 to 95% | 0 to 50 °C, 10 to 95% | 0 to 50 °C, 10 to 95% | 0 to 50 °C, 10 to 95% |
| Storage/transport—relative humidity, noncondensing | –20 to 60 °C, 10 to 95% | –20 to 60 °C, 10 to 95% | –20 to 60 °C, 10 to 95% | –20 to 60 °C, 10 to 95% | –20 to 60 °C, 10 to 95% | –20 to 60 °C, 10 to 95% |
| Shock | IEC 60068-2-27 15 g for 11 ms duration | | | IEC 60068-2-27 15 g for 11 ms duration | | |
| Vibration | IEC 60068-2-6 5–9 Hz: 3.5 mm displacement 9–60 Hz: 0.15 mm displacement 60–150 Hz: 2 g acceleration | | | IEC 60068-2-6 5–9 Hz: 3.5 mm displacement 9–60 Hz: 0.15 mm displacement 60–150 Hz: 2 g acceleration | | |
| Agency certifications and standards | CE, UL/cUL, CSA (pending), RoHS | | | CE, UL/cUL, CSA (pending), RoHS | | |
| Protection type | | | | | | |
| Front | IP65, NEMA 4X (indoor) | IP65, NEMA 4X (indoor) | IP65, NEMA 4X (indoor) | IP65, NEMA 4X (indoor) | IP65, NEMA 4X (indoor) | IP65, NEMA 4X (indoor) |
| Rear | IP20, NEMA 1 | IP20, NEMA 1 | IP20, NEMA 1 | IP20, NEMA 1 | IP20, NEMA 1 | IP20, NEMA 1 |
| Housing material | Plastic | Plastic | Plastic | Metal | Metal | Metal |
| Dimensions W x H x D (mm) | 136 x 100 x 30 | 170 x 130 x 39 | 210 x 135 x 38 | 212 x 156 x 53 | 275 x 208 x 53 | 345 x 260 x 54 |
| Mounting cutout W x H (mm) | 123 x 87 | 157 x 117 | 197 x 122 | 198 x 142 | 261 x 194 | 329 x 238 |
| Approximate weight lbs (kg) | 0.7 (0.3) | 1.3 (0.6) | 1.3 (0.6) | 2.9 (1.3) | 4.3 (2.1) | 6.1 (3.0) |
| Ability to run third-party software | No | No | No | No | No | No |
| Visual Designer development software | VISUALDCE or VISUALDXP | | | VISUALDCE or VISUALDXP | | |
| Pre-licensed tags, drivers, Web sessions (Visual Designer models) | 1500 tags, 3 drivers, 1 Web session | | | 1500 tags, 3 drivers, 1 Web session | | |
| Field upgradeable max tags, drivers, Web sessions (Visual Designer Models) | 4000 tags, 3 drivers, 1, 2, 4, or 8 Web sessions simultaneously | | | 4000 tags, 3 drivers, 1, 2, 4, or 8 Web sessions simultaneously | | |
| XSoft-CoDeSys-3 development software | SW-XSOFT-CODESYS-3-S (seat) SW-XSOFT-CODESYS-3-M (multi-seat) | | | SW-XSOFT-CODESYS-3-S (seat) SW-XSOFT-CODESYS-3-M (multi-seat) | | |
| Galileo development software | SW-GALILEO-S (seat) SW-GALILEO-M (multi-seat) | | | SW-GALILEO-S (seat) SW-GALILEO-M (multi-seat) | | |

## XV Operator Interface

| Series Model Screen Size | XV-303 7.0-Inch | 10.0-Inch |
|---|---|---|
| Operating system | WinCE7.0 Professional | |
| Touchscreen technology | Projected Capacitive Multi-touch | |
| Display colors | 16 million | |
| Pixel resolution (landscape) portrait mode also available | WSVGA 1024 x 600 | |
| Brightness (cd/m$^2$) | 400 | |
| Backlight | LED, selectable dimming | |
| Lifespan of backlight (half-life) | 50,000 hrs | |
| Processor | 800 MHz Cortex A8 CPU with graphics co-processor | |
| Volatile memory | 512 MB DRAM | |
| Non-volatile memory | 128 KB NVRAM (PLC), 1 GB SLC, 1 SD card slot | |
| Real time clock | Yes | |
| Communication ports | Ethernet 10/100, RS-232, RS-485, CAN, USB Host, USB Device | |
| Optional communication ports | Second Ethernet 10/100, PROFIBUS DP, SmartWire-DT | |
| Power supply rated voltage | 24 Vdc nominal (−20%/+25%) with polarity protection | |
| Continuous current consumption (max. amps) | 0.6 (7.0-inch) | 0.75 (10.1-inch) |
| Starting current inrush (A2s) | 1.0 (7.0-inch) | 1.0 (10.1-inch) |
| Ambient conditions | | |
| Operation-relative humidity, noncondensing | 0 to 50 °C, 10 to 95% | |
| Storage/transport-relative humidity, noncondensing | −20 to +60 °C, 10 to 95% | |
| Shock | IEC 60068-2-27 15 g for 11 ms duration | |
| Vibration | IEC 60068-2-6 5–9 Hz: 3.5 mm displacement 9–60 Hz: 0.15 mm displacement 60–150 Hz: 2 g acceleration | |
| Agency certifications and standards | CE, UL/cUL, RoHS2, UL/cUL Class I Div 2 groups A, B, C, D (pending) ATEX Zone 22 (pending) | |
| Protection type | | |
| Front | IP65, NEMA 4X (indoor) | |
| Rear | IP20, NEMA 1 | |
| Housing material | Plastic | |
| Dimensions W x H x D (mm) | 196 x 135 x 51 | 269 x 174 x 58 |
| Mounting cutout W x H (mm) | 182 x 121 | 254 x 160 |
| Approximate weight lbs (kg) | 1.6 (0.74) | 2.5 (1.13) |
| Ability to run third-party software | No | |
| Visual Designer development software | VISUALDCE or VISUALDXP | |
| Pre-licensed tags, drivers, Web | 1500 tags, 3 drivers, 1 Web session | |
| Field upgradeable max. tags, drivers, Web sessions (VisD) | 4000 tags, 5 drivers, 1, 2, 4 or 8 simultaneous Web sessions | |
| XSoft-CoDeSys-3 development software | SW-XSOFT-CODESYS-3-S (seat) | SW-XSOFT-CODESYS-3-M (multi-seat) |

**Visual Designer Software**
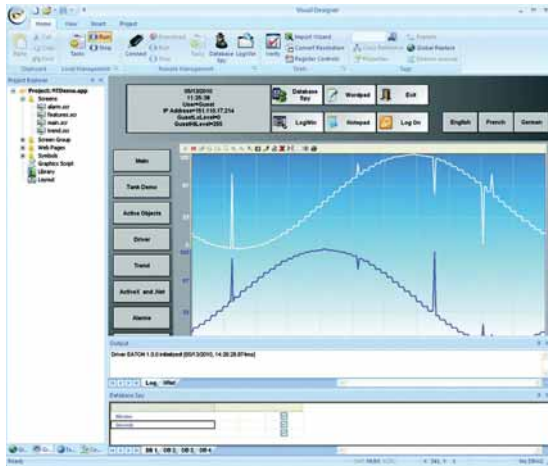


## Contents

| Description | Page |
|---|---|

## Visual Designer Software

### Product Description

#### Advanced GUI Development, Made Easy

Time-saving solutions, lower costs.

With application development expense often outweighing the hardware expense, the demand to quickly design and implement advanced GUI solutions is greater than ever. Even advanced features such as data archiving, recipe management, multi-language, SQL database access, and Web serving are made easy through an elegant and modern user interface. Visual Designer's ease-of-use and time-saving features lower your total installed cost.

### Features

Visual Designer is a software development package optimized for OEMs. New tools streamline the application development process, and the creation of Web-based applications has never been easier. In addition to basic monitor and control functionality, Visual Designer is packed with advanced features streamlining the design of sophisticated applications.

#### Advanced Features

- Pop-ups and group screens
- Full mathematical and logical evaluation
- Web browsing and document viewing
- Remote access and control without having to install software to the remote PC
- Database interfacing
- Historical alarms and events
- Historical data archiving and trending
- Recipe management
- Multi-language
- VB scripting
- Report generation
- Scheduling
- Resolution conversion
- Emailing and text messaging
- Launch and control of third-party applications

#### Advanced Development Features

- Conversion of legacy PanelMate configurations
- Optional PanelBuilder conversion utility
- Online configuration/ editing
- Advanced search and replace
- Automatic scaling of Web clients
- Customizable application symbols
- Reusable controls, images, and screens via indirect tag and/or PLC assignments

#### System Requirements

Windows XP and Windows 7 32-bit and 64-bit systems

## Fully connected, Web-enabled

Today's operator interface applications range from basic monitor and control to high-end, feature-rich HMI software with Supervisory Control and Data Acquisition (SCADA). Customers demand communications capability with any network, PLC, Web client, and database. The answer: Eaton's Web-enabled Visual Designer operator interface software.

### Web-based thin client

- Zero admin client—no need to install software on the remote PC
- Supports multiple simultaneous and independent Web clients
- Simplified security—the same local user accounts and passwords for viewing and control also apply remotely

### Connectivity

- Extensive list of over 240 native communication drivers for PLCs, drives, and many other industrial and commercial devices
- Visual Designer software can interface to any relational database—access both local and enterprise functions such as MRP/ERP through databases such as Microsoft® Access, FoxPro, SQL Server, Oracle®, PI System® and many others
- Other connectivity tools provide redundancy capabilities, Real-Time Data Exchange, Centralized Alarm Management, and more

### Open platform

- Visual Designer Software can host third-party ActiveX® and .NET controls and Visual Basic® programs
- In addition to Eaton's Operator Interface families, Visual Designer's runtime may be licensed on any 32 or 64-bit Windows PC

### Interoperability

- Software is designed to open standards such as XML, OPC, ActiveX, .NET, ODBC, ADO, SOAP, DDE and more
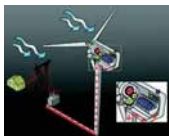
### Peace of mind

All of these capabilities—combined with Eaton's commitment to provide free technical support for both OI hardware and software—make it quick and easy to purchase, develop and deploy XP and XV operator interface solutions.

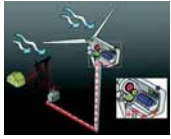## Product Selection

### *Visual Designer Software*

**Visual Designer**

### Visual Designer Development Software License Key

| Description | Development Software Catalog Number | Runtime Software Catalog Number |
|---|---|---|
| Development license for CE hardware | **VISUALDCE** | — |
| Development license for PCs, XP-503 and CE hardware | **VISUALDXP** | — |
| Multiple development licenses for CE hardware (5-pack of VISUALDCE) | **VISUALDCE5** | — |
| Multiple development licenses for PCs, XP-503 and CE hardware (5-pack of VISUALDXP) | **VISUALDXP5** | — |
| Development license for all hardware platforms (for use with VISUALD-LIC-SERVER) | **VISUALDXPLS** | — |
| Multiple development licenses for use with VISUALD-LIC-SERVER (5-pack for use with VISUALDXPLS) | **VISUALDXP5LS** | — |
| License server key to serve development licenses over a LAN | **VISUALD-LIC-SERVER** | — |
| Visual Designer development software license and PC Runtime software licenses for a maximum of 64 k tags, 8 drivers, 1 Web session | **VISUALRTDEVPC** | **VISUALRTDEVPC** |
| For a PC Runtime license with a maximum of 64 k tags, 8 drivers, 1 Web session | — | **VISUALRTPC64K** |
| For a PC Runtime license with a maximum of 4 k tags, 5 drivers, 1 Web session | — | **VISUALRTPC4k** |
| For a PC Runtime license with a maximum of 1500 tags, 3 drivers, 1 Web session | — | **VISUALRTPC1500** |
| For a PC Runtime license with a maximum of 300 tags, 3 drivers, 1 Web session | — | **VISUALRTPC300** |
| For an XP-503 PC Runtime license with a maximum of 4 k tags, 5 drivers, 1 Web session | — | **N/A: Unit pre-licensed** |
| For an XP-503 PC Runtime license with up to 64 k tags, 8 drivers, and 128 Web sessions | — | **See upgrade list on next page** |

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**Visual Designer**

### Software Updates and Upgrades

| Description | Catalog Number |
|---|---|
| Update to current version Visual Designer development software for CE hardware | **VISUALDUPCE** |
| Update to current version Visual Designer development software PCs/XPe/CE | **VISUALDUPXP** |
| Update to current version of Visual Designer runtime license for PCs | **VISUALRTUPPC** |
| Upgrade from Visual Designer CE 1500 tag to 4000 tag runtime | **VISUALRT4KCE** |
| Upgrade from Visual Designer XP-500 4000 tag, 5 driver to 64 k tag, 8 driver runtime license | **VISUALRT64KXP** |
| Upgrade from Visual Designer development software CE to CE plus PC and XPe (64 k tag, 8 drivers) | **VISUALDCE2XP** |
| Visual Designer PanelBuilder conversion utility optional plug-in (requires Visual Designer software) | **VISUALDPBCU** |
| Visual Designer 1 additional Web thin client license for Internet Explorer: Total of 2 | **VISUALWEB1** |
| Visual Designer 3 additional Web thin client licenses for Internet Explorer: Total of 4 | **VISUALWEB3** |
| Visual Designer 7 additional Web thin client licenses for Internet Explorer Total of 8 | **VISUALWEB7** |
| Visual Designer 15 additional Web thin client licenses for Internet Explorer: Total of 16 | **VISUALWEB16** |
| Visual Designer 31 additional Web thin client licenses for Internet Explorer: Total of 32 | **VISUALWEB32** |
| Visual Designer 63 additional Web thin client licenses for Internet Explorer: Total of 64 | **VISUALWEB64** |
| Visual Designer 127 additional Web thin client licenses for Internet Explorer: Total of 128 | **VISUALWEB128** |
| Visual Designer 1 additional Secure Viewer Thin Client license: Total of 2 | **VISUALSVT2** |
| Visual Designer 3 additional Secure Viewer Thin Client license: Total of 4 | **VISUALSVT4** |
| Visual Designer 7 additional Secure Viewer Thin Client license: Total of 8 | **VISUALSVT8** |
| Visual Designer 15 additional Secure Viewer Thin Client license: Total of 16 | **VISUALSVT16** |
| Visual Designer 31 additional Secure Viewer Thin Client license: Total of 32 | **VISUALSVT32** |
| Visual Designer 63 additional Secure Viewer Thin Client license: Total of 64 | **VISUALSVT64** |
| Visual Designer 127 additional Secure Viewer Thin Client license: Total of 128 | **VISUALSVT128** |
| Visual Designer 1 additional SMA Thin Client license: Total of 2 | **VISUALSMA2** |
| Visual Designer 3 additional SMA Thin Client license: Total of 4 | **VISUALSMA4** |
| Visual Designer 7 additional SMA Thin Client license: Total of 8 | **VISUALSMA8** |
| Visual Designer 15 additional SMA Thin Client license: Total of 16 | **VISUALSMA16** |
| Visual Designer 31 additional SMA Thin Client license: Total of 32 | **VISUALSMA32** |
| Visual Designer 63 additional SMA Thin Client license: Total of 64 | **VISUALSMA64** |
| Visual Designer 127 additional SMA Thin Client license: Total of 128 | **VISUALSMA128** |
| Visual Designer collaborative server | **VISUALCBSERVER** |
| Visual Designer business dashboard tool | **VISUALDASHBOARD** |
| Visual Designer communication package for electrical products | **VISUALDELECDRVS** |

**Galileo Software**
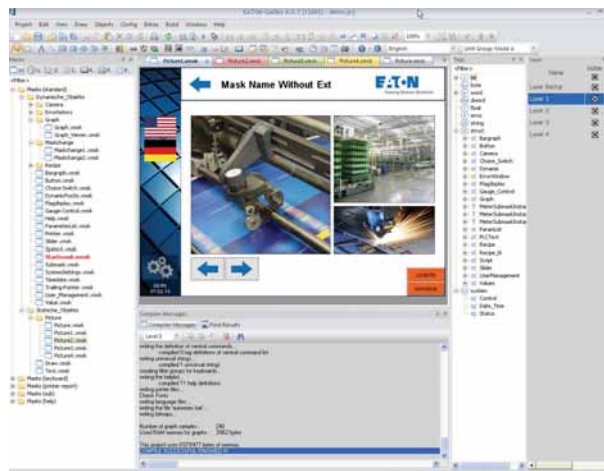


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## Galileo Software

### Product Description

#### *The Intuitive Visualization Tool*

Galileo is an easy to learn 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 tools. Galileo provides a full range of functions without any graduated restrictions on tags or screens, and is optimized for our XV operator interface panels.

### Features

- Easy to learn and intuitive graphical user interface with a project overview window
- User-friendly project design with project simulation on development PC
- Different user interface styles
- Drag and drop positioning of objects, WYSIWYG (what you see is what you get)
- Simple, clear user guidance
- Tabular object properties, easy and fast assignment of attributes—copy and paste
- Convenient series assignment of texts and images to tags
- Many graphical objects such as bar graph, slide adjuster, graph plotter, curve chart, camera
- Anti-aliased gauge display
- Enhanced password handling with complex password and aging
- Extensive recipe handling
- Alarm handling with time stamp, history and diagnostics support with image display

- Multi-line display of alarm entries
- Online language selection
- Unicode support (also Asian character sets)
- Text import/export in XML format (example, Excel®)
- Brilliant image display, up to 65536 colors
- Import of 15 different image formats
- Dynamic objects
- Object parameter list, any number of data objects in a screen
- Dynamic unit of measure selection (example, °C–°F, inch–mm)
- Direct printing on panel (reports, forms)
- Many specific objects and system functions
- Simple import of PLC variables
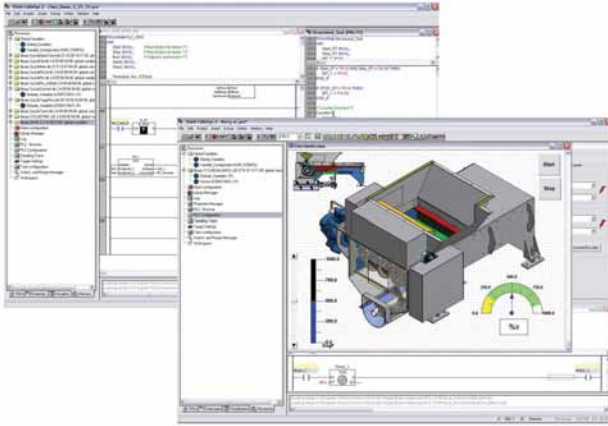- Full functionality always available, no graduated performance level

#### *System Requirements*

Windows XP and Windows 7

### Product Selection

#### Galileo Development Software

| Description | Catalog Number |
|---|---|
| Single-seat license | **SW-GALILEO-S** |
| Multiple-seat license | **SW-GALILEO-M** |

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**XSoft-CoDeSys-3 Software**



## Contents

## XSoft-CoDeSys-3 Software

### Product Description

#### *Combined Logic and Visualization Development*

#### IEC 61131-3 Logic Programming

- Ladder Diagram (LD)
- Structured Text (ST)
- Sequential function chart (SFC)
- Function block diagram (FBD)
- Freely definable function block chart/continuous function chart (CFC)
- Instruction List (IL)

### Target Visualization

Integrated design of Operator Interface screens for the XV series. Visualization and logic developed as part of the same project. Simplifies screen design and always keeps the Logic and visualization in synch.

### Web Visualization

Optionally XSoft-CoDeSys-3 can automatically generate XML-based runtime screens to make the screens from the XV accessible remotely using a Web browser with a JavaScript plug-in such as Internet Explorer®, Firefox® and others.

### Features

#### Project Development

- Automatic variable declaration
- On line editing
- Pop-up variable and function search/pick tools
- Automatic formatting and color coding of logic/declaration text
- Re-usable Visual-Logic Function Blocks

#### Debugging and commissioning

XSoft-CoDeSys-3 offers you a number of important functions for debugging, testing and commissioning your XV applications quickly and efficiently.

All these features are available as soon as you log on to the XV (online mode) over an Ethernet connection.

### Simulation

Users can also test the application when the XV is not connected to the process. This is possible thanks to the integrated online simulation feature. Simulation supports both the screens and logic that have been designed using XSoft-CoDeSys.

### *Advanced Features*

- Up to 16 time and/or event driven tasks per project
- Each task can include multiple logic programs or subroutines
- Programs and screen designs can be exported and imported to support reuse
- Powerful, built-in function block libraries
- Ability to create user-defined function blocks
- Fieldbus Configurator for CANopen, PROFIBUS-DP and SmartWire-DT device I/O
- Ethernet and serial communication function blocks (OPC server, UDP, TCP/IP, FTP client/ server, Modbus Master/Slave, email, SMS, and more)

- 8-level password protection
- Web access selectable per screen
- System function libraries (OS Storage Card, and more)
- Online and historical alarms
- Online and historical trends

### *System Requirements*

Windows XP and Windows 7 32-bit systems

## Product Selection

**XSoft-CoDeSys-3**



### XSoft-CoDeSys-3 Software

| Description | Catalog Number |
|---|---|
| Single Seat License | **SW-XSOFT-CODESYS-3-S** |
| Multiple Seat License (3) | **SW-XSOFT-CODESYS-3-M** |