Lean Line for the Machine
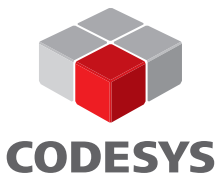
EAT•N

Powering Business Worldwide

HMI/PLC XV102 and XV152 with Integrated SmartWire-DT® Master

Eaton's new XV102/XV152 touch display PLCs are high-performance HMI/PLCs with an integrated SmartWire-DT master. SmartWire-DT is the seamless connection and communication technology from Eaton. The uniformly designed and open system replaces the control wiring to control circuit devices, contactors, motor starters, circuit-breakers, soft starters and frequency inverters. The system is completed with a full range of I/O modules.
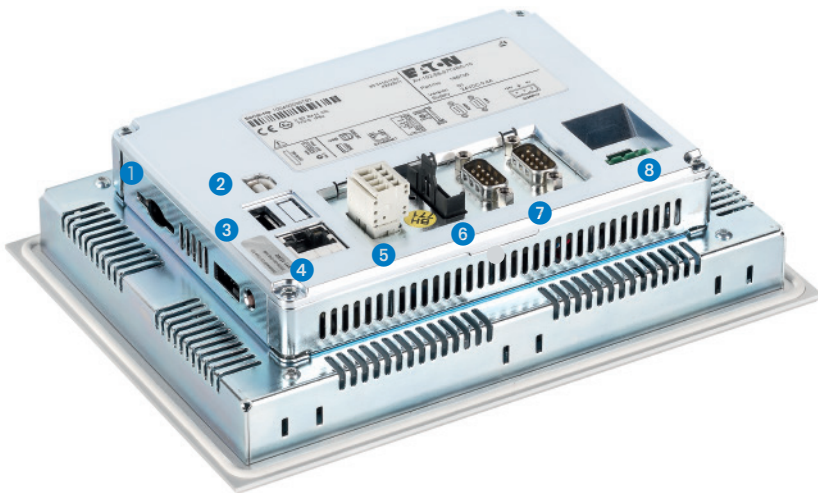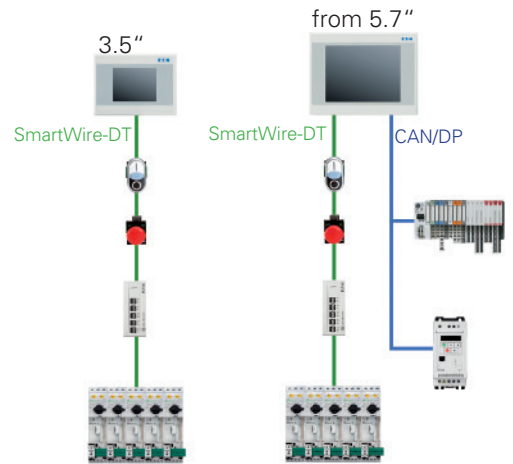
The large data transparency of SmartWire-DT offers a host of options for evaluating and assessing the states of devices, thus enabling plants/machines to be more reliable and effective. Both device series stand out on account of their small dimensions and high performance. The integrated PLC enables the implementation of demanding applications.

Direct, lean communication

The XV102 and XV152 with SmartWire-DT are ideal for the visualization and control of compact to large machines and plants. SmartWire-DT enables the switching devices to be connected simply to the HMI/PLC. Gateways are no longer needed. The SmartWire-DT I/O modules enable the acquisition and output of additional signals and the control of actuators. Depending on type, an RS485 and Profibus DP/MPI interface or CANopen/easyNet interface are provided in addition to the integrated Ethernet interface. Other devices with a standard fieldbus can be connected easily.

Terminals:
1. Slot for SD card
2. USB device
3. USB host (from 5.7")
4. Ethernet
5. POW and AUX 24 V power supply
6. SmartWire-DT interface
7. Onboard interfaces: RS485 and CANopen or Profibus DP/MPI, depending on type
8. Power supply XV

Product features

- XV102 in 3.5", 5.7" and 7" versions. Housing/front plate in plastic
- XV152 in 5.7", 8.4" and 10.4" versions. Housing/front plate in metal
- High performance thanks to a 400 MHz RISC processor, onboard memory
- Integrated 64 MB memory, if required expandable with an SD memory card
- The SmartWire-DT line can be configured easily via CODESYS or SWD-Assist

- SmartWire-DT master with up to 99 slaves
- GALILEO visualization software or CODESYS visualization
- XSoft-CODESYS-2/3 programming system for PLC programming to IEC61131-3
- Easy to install even in confined spaces thanks to the small mounting depth
- Scalable TFT displays

Programming and visualization with CODESYS and GALILEO

Like all Eaton HMI/PLCs, the PLC function of the XV102 and XV152 panels can be programmed with the xSoft CODESYS programming system to IEC61131-3.
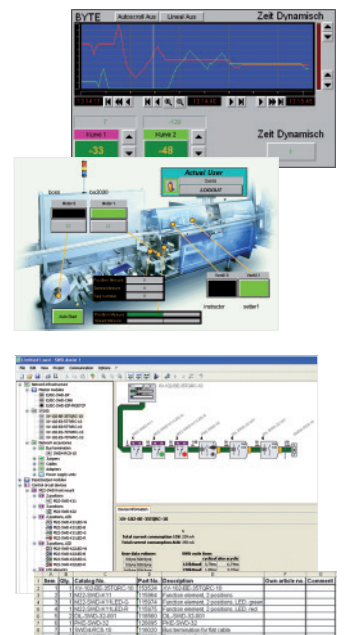
Eaton's GALILEO visualization software is used for visualization, and CODESYS visualization can also be used.

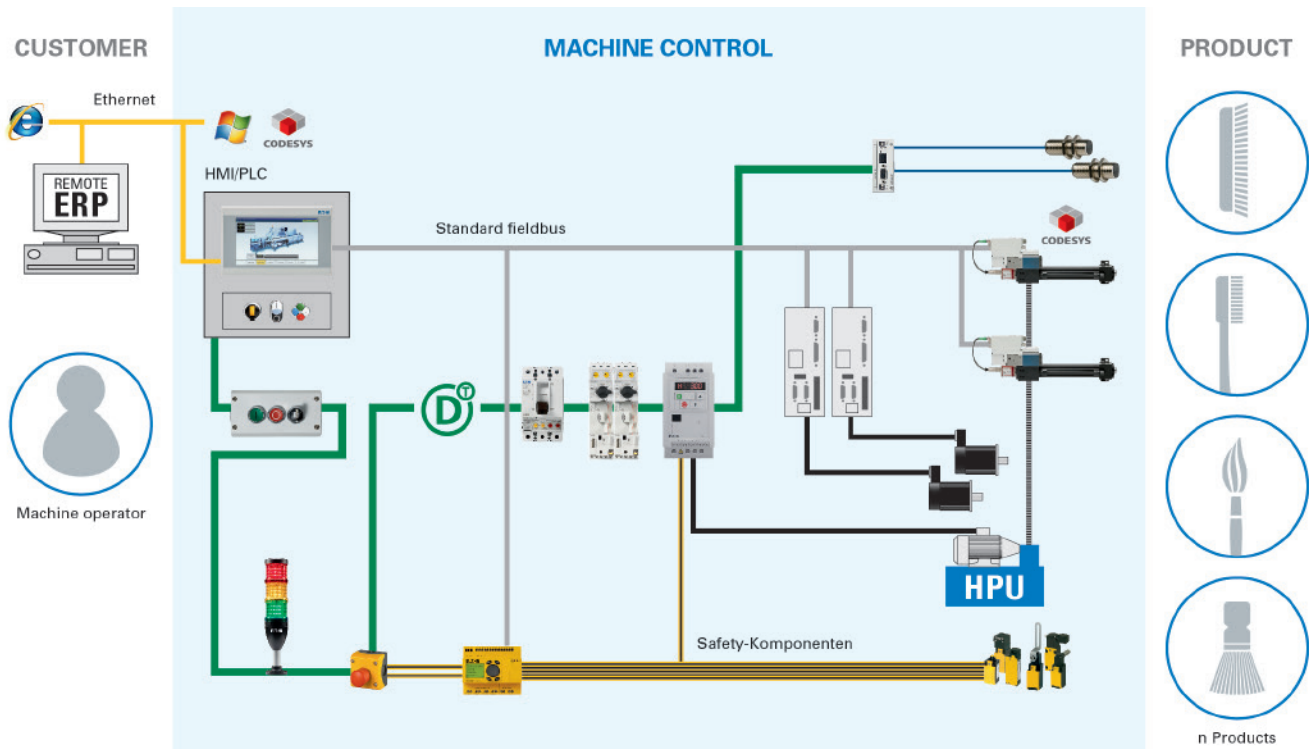The free SWD-Assist is used for the configuration of the SmartWire-DT line.

The parts list function integrated in SWD-Assist also allows simple and convenient order processing.

From Lean Connectivity to Lean Automation with HMI/PLC and SmartWire-DT®

Benefits for the user thanks to the integrated SmartWire-DT master

The integrated SmartWire-DT master offers users a host of benefits. The SmartWire-DT line can be configured easily and conveniently via CODESYS/SWD-Assist. The technical data of the SmartWire-DT interface is also the same as that of the previous SmartWire-DT gateways so that users can access the full range of functions and connect up to 99 slaves to one SmartWire-DT master. Following the principle of "Connecting instead of wiring" the SmartWire-DT interfaces goes directly into the PLC – without any intermediate circuitry.
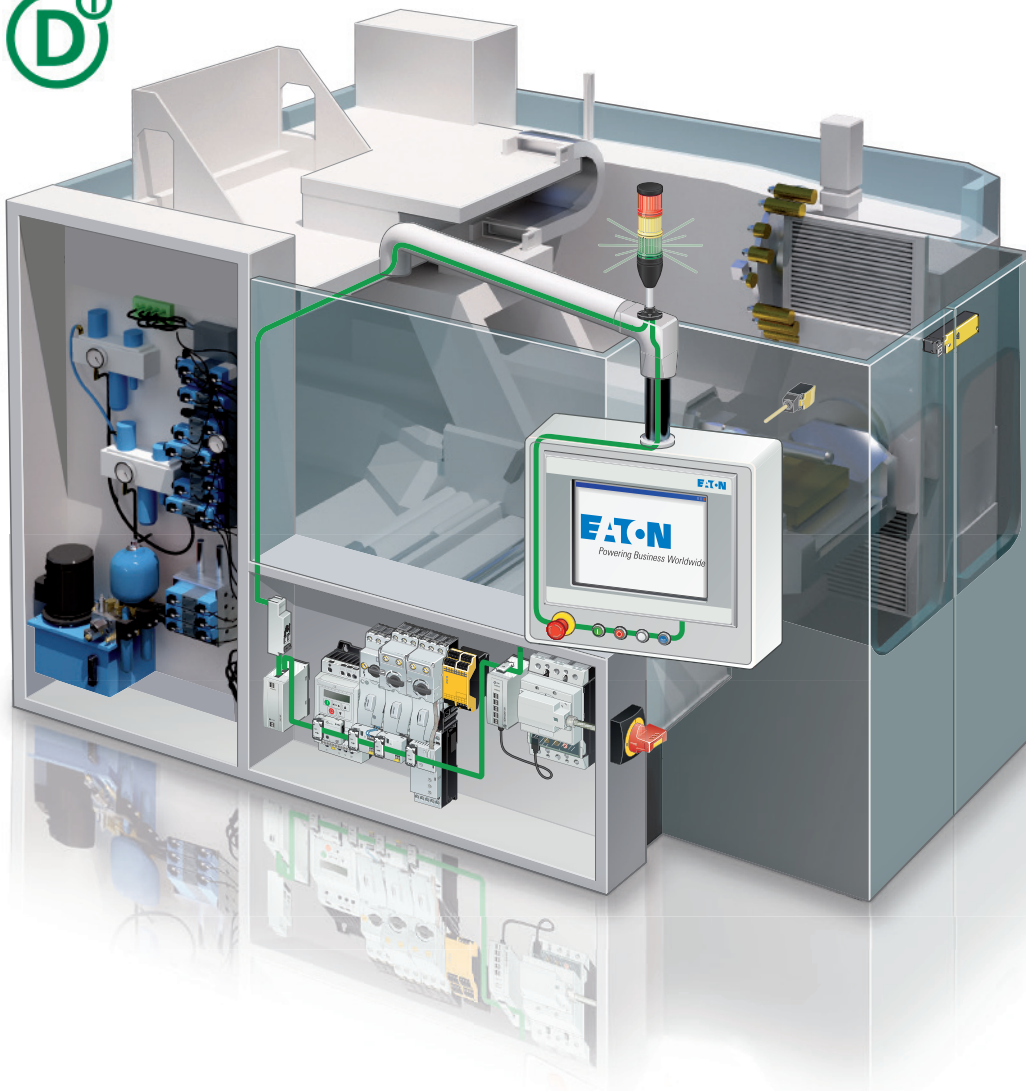
Lean Solution powered by SmartWire-DT

SmartWire-DT connects all areas of the machine: From the operator level to the visualization and control devices, the main switch, right through to the sensors, motors and actuators. With SmartWire-DT the PLC I/O level is integrated in the switching devices. Gateways and I/O level are no longer needed. This allows you to create flexible, straightline automation solutions with fewer components and little engineering outlay. This benefit of a streamlined automation solution is what we call **Lean Automation**.

SmartWire-DT replaces the previous time consuming and error-prone control wiring. A time saving of up to 85% for wiring, testing and commissioning can be achieved. We call this innovative connection technology **Lean Connectivity**.

Via SmartWire-DT, the XV HMI/PLC can access the digital and analog data from control circuit devices right through to the circuit-breaker. The data transparency helps the analysis and optimization of energy consumption. It also supports maintenance and diagnostics. Failures can be prevented and availability can be considerably increased through the signaling of motor data and warnings prior to an overload. We call these benefits **Lean Power**.

The **Lean Solution** drastically reduces the wastage of material, work time and thus considerably increases the profitability of machines and plants.
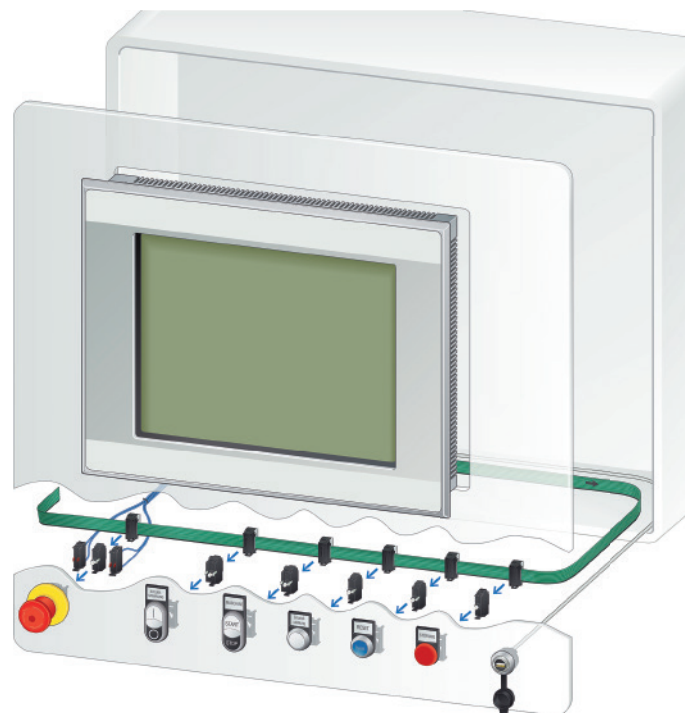
Lean Connectivity – SmartWire-DT

SmartWire-DT forms the basis for Lean Connectivity and
- Replaces the control wiring for all components
- Enables standard communication to all components
- Offers one user software for all variants (multiple variants!)
- Enables remote intelligence in the components
- Works with standard components
- Reduces engineering costs by up to 70%
- Reduces the time required for wiring, testing and commissioning by up to 85%
- Offers an open concept and business model (partner companies can offer their own products)
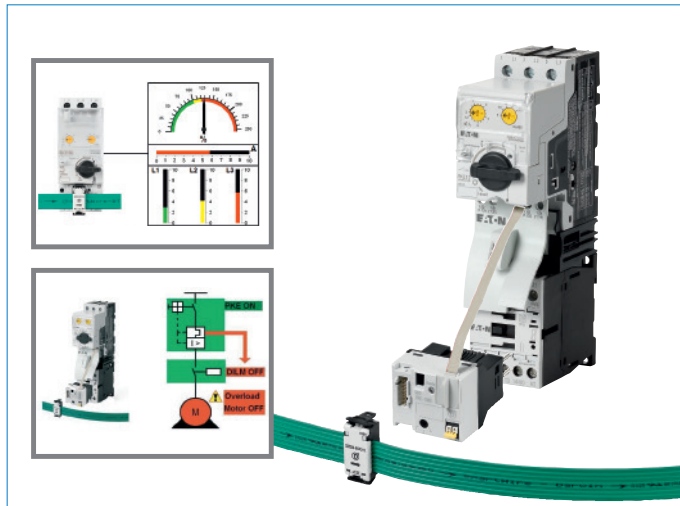
Lean Automation - HMI/PLC

The HMI/PLC forms the basis for Lean Automation and
- Enables open communication via Ethernet, fieldbus, SmartWire-DT (up to 100 protocols)
- Offers one software package for control and visualization
- Enables customized design of the operator console. This can be designed as the calling card for your machine
- Offers operation, control and communication in a single device
- The I/O level of a PLC is not needed since the switching devices can supply analog and digital data via SmartWire-DT directly to the HMI/PLC.

An XV102 and XV152 HMI/PLC can connect up to 99 slaves on a SmartWire-DT line over a maximum length of 600 meters. The connection cable starts at the integrated SmartWire-DT interface

Ready for use in a few simple steps

A standard motor starter combination, consisting of a PKZ motor-protective circuit-breaker or PKE electronic motor-protective circuit-breaker, mechanical links and a DIL M contactor, can be turned into a communication-enabled SmartWire-DT motor starter in a few simple steps.

Simple communication

PKE motor-protective circuit-breaker on SmartWire-DT
- Signal current values/ overload warning
- Status messages
- Diagnostics data with differentiated fault indication: overload, short-circuit, phase loss
- Overload relay function

Simply ingenious

Plug connect pilot devices

The conventional wiring of pilot devices is very complex and costly, each contact or indicator light is individually wired and assigned to the I/O modules of the controller. This is very time consuming and harbors several sources for potential wiring faults.

SmartWire-DT is simply ingenious – the green ribbon cable connects up pilot devices with a simple click. This saves time and keeps fault sources to a minimum.

SmartWire-DT options

All NZM 2/3/4 circuit-breakers with an electronic release can be connected directly to SmartWire-DT via the NZM module. Currents up to 1600 A in the power distribution system can thus be accessed via SmartWire-DT.

Different I/O modules are available to integrate conventional actuators and sensors.

A SmartWire-DT interface is provided for the frequency inverter for simple and flexible data transfer.

The DS7 soft starter with a SmartWire-DT interface perfectly rounds off the Eaton starters.

The XV102 and XV152 offer maximum performance in a highly compact design. Thanks to the small mounting depth, the panels can be installed wherever space is limited.

- PLC function integrated
- Processor: RISC, 32-bit, 400 MHz
- OS, program and data memory: 64 MB
- Display sizes: 3.5″, 5.7″, 7″ widescreen, 8.4″ and 10.4″
- Vertical and horizontal mounting possible
- Resistive TFT touch
- Plastic housing and front plate for XV102
- Metal housing and front plate for XV152
- Onboard interfaces: Ethernet, SmartWire-DT
- Optional interfaces depending on type: RS485, Profibus/MPI or Can/easyNet
- USB device with 3.5″, USB host with 5.7″ to 10.4″
- External memory: 1 x SD card
- Long lifespan thanks to LED backlight
- Front IP 65

Screen diagonals	Resolution	integrated interfaces							Part no.	Article no.
Inch	Pixels	1 x Ethernet 100Base-TX/10Base-T	1 x RS485	1 x CAN	1 x PROFIBUS/MPI	1 x USB-Host	1 x USB-Device	1 x SmartWire-DT		
SmartWire-DT touch panel										
HMI-PLC (PLC integrated) Resistive touch with TFT display, 64 k colors Standard front with standard membrane (fully closed)										
Plastic housing and front plate										
3.5	320 x 240 240 x 320 with upright mounting	✓	-	-	-	-	✓	✓	**XV-102-BE-35TQRC-10**	153524
5.7	640 x 480	✓	✓	✓	-	✓	-	✓	**XV-102-E6-57TVRC-10**	153525
5.7	480 x 640 with upright mounting	✓	✓	-	✓	✓	-	✓	**XV-102-E8-57TVRC-10**	153526
7	800 x 480	✓	✓	✓	-	✓	✓	✓	**XV-102-E6-70TWRC-10**	153527
7	480 x 800 with upright mounting	✓	✓	-	✓	✓	✓	✓	**XV-102-E8-70TWRC-10**	153528
Metal housing and front plate										
5.7	640 x 480	✓	✓	✓	-	✓	-	✓	**XV-152-E6-57TVRC-10**	166700
5.7	480 x 640 with upright mounting	✓	✓	-	✓	✓	-	✓	**XV-152-E8-57TVRC-10**	166701
8.4		✓	✓	✓	-	✓	-	✓	**XV-152-E6-84TVRC-10**	166702
8.4		✓	✓	-	✓	✓	-	✓	**XV-152-E8-84TVRC-10**	166703
10.4		✓	✓	✓	-	✓	✓	✓	**XV-152-E6-10TVRC-10**	166704
10.4		✓	✓	-	✓	✓	✓	✓	**XV-152-E8-10TVRC-10**	166705

Eaton is dedicated to ensuring that reliable, efficient and safe power is available when it's needed most. With unparalleled knowledge of electrical power management across industries, experts at Eaton deliver customized, integrated solutions to solve our customers' most critical challenges.

Our focus is on delivering the right solution for the application. But, decision makers demand more than just innovative products. They turn to Eaton for an unwavering commitment to personal support that makes customer success a top priority. For more information, **visit www.eaton.eu.**

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