Revolutionizing in-panel control wiring and on-machine connection of sensors and actuators

F·T·N

Powering Business Worldwide

SmartWire-DT
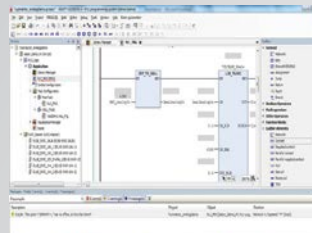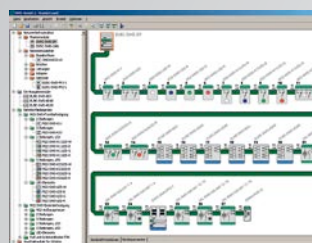## Changing the way panels...

Reduce cost throughout the value chain.

SmartWire-DT® reduces wiring time and effort, which in turn reduces costs. From design through construction to commissioning and system expansion, SmartWire-DT creates value at every step. SmartWire-DT works with third-party PLC controllers and industry-standard networks to connect motor starters and pilot devices inside the control cabinet without conventional point-to-point wiring. On the machine, sensors and actuators are easily connected with IP6K9K (washdown rated) I/O modules distributed around your machine up to 2000 ft from the system controller.
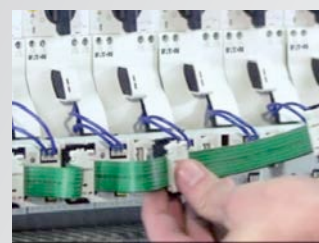
Improve productivity. Increase profitability.

Inside and outside the machine control panel, SmartWire-DT helps you to optimize the cost of machine manufacture, wiring, shipping, installation and commissioning. SmartWire-DT reduces panel and machine wiring complexity by replacing traditional control wiring with a single, durable cable that carries power and communications signals through the panel and around the machine. It's a unique, cost-effective wiring solution that simplifies device installation, connects to standard networks and streamlines commissioning.

Efficient planning and engineering

Fault-free mounting and wiring

...and machines are wired.

Faster quality control checking and commissioning	More reliable self-monitoring connections	Easier maintenance with built-in diagnostics	Faster and simpler system expansion

Stop wiring...

Your gateway to a standardized control panel...

In-panel, SmartWire-DT connects to standard PLC networks using gateways or to controllers with embedded adapters...

Gateways

Connect to any third-party PLC using EtherNet/IP, Modbus® TCP, PROFINET, EtherCAT, POWERLINK, PROFIBUS® DP or CANopen field bus connections to a SmartWire-DT gateway.

Controllers

Alternately, connect using a controller with an integrated gateway. Choose from a range of HMI-PLCs (XV-102, XV-152 or XV-303) that combine visualization and logic to compact PLCs with Web server (XC-152) to ladder logic programmable relays (EASY802/806).

Your line to easy installation...

The flat cable system simplifies assembly and establishes reliable connections to in-panel components...

Control circuit devices

Eliminate labor intensive and error prone point-to-point wiring of control circuit devices and connect the full range of M22 pushbuttons and pilot devices directly on the 8-conductor flat cable. M22 operators are now available with full metal bezels for heavy-duty applications.

Control stations

Simplify the wiring of multiple 1, 2, 3, 4 or 6-element control stations by connecting them in daisy-chain fashion using the 8-conductor round cable as an extension from the 8-conductor flat cable—up to 2000 ft away from the gateway.

Stacklights and alarms

Connect one through five element SL4 (40 mm diameter) or SL7 (70 mm) stacklights with the fast-mount base and signal advance warning of potential failure conditions or normal work flow status.

Digital and analog I/O modules

Connect digital, analog or temperature I/O modules anywhere along the flat cable and minimize the threading of field wiring through the control cabinet by locating modules near the point of entry to the cabinet.

Your connection to savings...

SmartWire-DT connects a full selection of across-the-line, reduced voltage and variable frequency motor controllers inside the panel...

Contactors, relays and electronic motor starters

XTCE contactors up to 20 hp at 480 V, four-pole XTRE interposing relays, and EMS full voltage and reversing starters up to 9 A.

Electronic manual motor protectors

XTPE manual motor protectors up to 65 A can be directly connected and used in combination motor controller applications up to 15 hp at 480 V.

Soft start controllers and variable speed starters

Connect DS7 soft start controllers up to 150 hp at 480 V or DE1 variable speed starters up to 10 hp at 480 V.

Variable frequency drives

Connect DC1 compact VFDs or advanced DA1 VFDs with safe torque off functionality up to 30 hp and 15 hp respectively, at 480 V.

...and start connecting with SmartWire-DT.

...and a machine that's easier to build and wire.

...and transitions from the standard 8-conductor flat cable to a 5-conductor round cable using simple cable adapters.

The round cable

Flexible, durable and rated to carry up to 4 A at 24 Vdc, the 5-conductor round cable extends the SmartWire-DT network outside the control panel and onto the machine itself.

Cable terminations

Preterminated cables are available in various lengths, from 6 inches to 60 feet. Special lengths available with field-wireable M12 connectors.

Flat to round cable adapter

Simple panel transition adapter seals to the panel wall and provides a connection point for the incoming flat cable and the outgoing round cable.

Round to flat cable adapter

This panel transition adapter provides a connection point for an incoming round cable and an outgoing flat cable, to accommodate remote panels with SmartWire-DT devices.

...inside the cabinet and on the machine.

...and the round cable with rugged M12 connectors enables washdown rated on-machine wiring.

IP6K9K input/output modules

Digital I/O modules available in single connector and dual connector versions.

Higher density I/O

Single-connector versions offer up to two I/O channels and dual connector versions offer up to four I/O channels.

Device connection splitters

Simple splitters from Eaton provide access to dual I/O channels and offer M12 and M8 connections for 3-pin and 4-pin devices.

Powerfeed module

Machine mount powerfeed modules feed auxiliary 24 Vdc power into the SmartWire-DT round cable system with a simple plug & play connection.

...in the control cabinet and around the machine.

...and a variety of pneumatic, hydraulic and electrical sensors and actuators on-machine.

Photoelectric and inductive sensors

Eaton offers robust sensors with long detection ranges in industry-standard packages, with standard M12 connections for easy interface to the SmartWire-DT wiring system. Sensors from other vendors can also be used.

Mechanical limit switches

NEMA and IEC switches with simple receptacles for wiring with M12 connectors.

Pneumatic and hydraulic valves

Connection of valves and other actuators to the system is simple.

Other command and control devices

Remote pushbutton stations, remote stacklights, remote/secondary enclosures with contactors and other motor control devices all can be connected to the on-machine system.

SmartWire-DT changes everything.

- Single cable provides power and I/O signals, dramatically simplifying and reducing the cost of machine wiring, shipping, installation, troubleshooting and commissioning

- Connects to third-party PLCs with fieldbus polling masters or I/O scanner cards

- Connects to devices inside and outside the main control panel

- IP6K9K washdown-rated on-machine wiring components rated for 4 A at 24 Vdc, with simple plug & play powerfeed modules to add power if necessary in a longer system

- 600 V rated flat cable can be mixed with power conductors in the panel wiring duct

- Mechanically designed to fit on high density layouts of combination motor controllers on the panel, or door-mounted pilot devices

- Connects directly to motor loads up to 20 hp at 480 V (25 hp at 600 V)

- Flat cable includes 24 Vdc control voltage for direct connection and power to contactor coils. Round cable carries communication signals and 24 Vdc to power all connected devices

- Supports a 2,000 ft (610 m) long network and up to 99 nodes per gateway

SmartWire-DT system specifications

Network type	RS-485
Network protocol	SmartWire-DT
Maximum number of nodes	99 with EtherNet/IP, Modbus TCP, PROFINET, EtherCAT or POWERLINK; 58 with PROFIBUS DP
Types of nodes	Contactors, manual motor protectors, miniature circuit breakers, control relays, variable frequency drives, soft starters, electronic motor starters, pushbuttons, selector switches, pilot devices, stacklights, sensors, limit switches, remote pilot device stations, remote contactors and starters, pneumatic and hydraulic valves, and other analog and digital I/O
Maximum length	2000 ft (600 m)
Maximum current	2 A (inside the control cabinet) / 4 A (on the machine)
Addressing	Automatically assigned
Approvals	UL®, CE, CSA®

+24 Vdc	Contactor control voltage
Earth	Contactor control voltage
GND	Ground for device supply voltage and data
Data B	
Data A	
GND	Ground for device supply voltage and data
SEL	Node selector line
+15 Vdc	Device supply voltage

Optimize your control panel operations and your machine wiring.

- Reduce engineering design time
- Reduce labor assembly time
- Reduce quality assurance checking time
- Reduce commissioning time

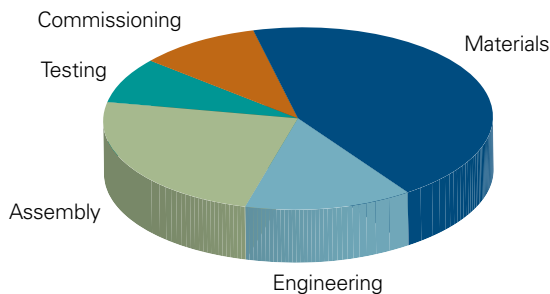## Conventional control panel

SmartWire-DT control panel
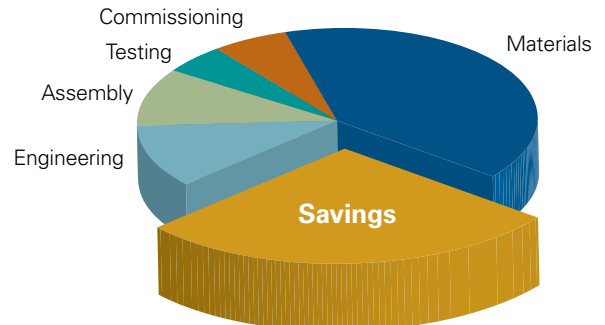

Conventional machine wiring

Machine wiring with SmartWire-DT

Wiring...the traditional way

SmartWire-DT...your connection to savings

Results shown are for typical control panels using PLC controls with 100 I/O points. To see if SmartWire-DT is a fit for your applications, please check the SmartWire-DT product application guide and value calculator at Eaton.com/SmartWireDT.

At Eaton, we're energized by the challenge of powering a world that demands more. With over 100 years experience in electrical power management, we have the expertise to see beyond today. From ground-breaking products to turnkey design and engineering services, critical industries around the globe count on Eaton.

We power businesses with reliable, efficient and safe electrical power management solutions. Combined with our personal service, support and bold thinking, we are answering tomorrow's needs today. Follow the charge with Eaton. Visit eaton.com/electrical.

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