S800 I/O System
Outline of all modules

S800 I/O is a comprehensive, distributed and modular process I/O system that communicates with parent controllers over industry-standard field buses. Thanks to its broad connectivity it fits a wide range of process controllers from ABB and other vendors.

By permitting installation in the field, close to sensors and actuators, S800 I/O reduces the installation cost by reducing the cost of cabling. And thanks to features such as “hot swap” of modules, “on-line” reconfiguration and redundancy options, it contributes to keeping production – and thereby profits – up.

For updated information regarding System 800xA hardware please visit our 800xA Hardware Selector. In the selector you can compare different communication modules, S800 I/O modules, module termination units, controllers, power supplies and voters, panels and also print your own pdf files.

www.800xahardwreselector.com

Measurement

Dimensions in mm (in.)
### Station layouts

<table>
<thead>
<tr>
<th>No. of I/O modules:</th>
<th>Up to 24 per I/O station.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulebus extension cable:</td>
<td>Plug-in, lengths: 0.3, 0.6 and 1.2 m (1, 2 &amp; 4 ft).</td>
</tr>
<tr>
<td>Optical Modulebus:</td>
<td>Up to 7 I/O clusters and 12 I/O modules per cluster. Max length: 15 m (49 ft) with POF fiber and 200 m (656.2 ft) with HCS fiber, 1000 m (3280 ft) with Optical Media Converter TB825, and 5000 m (1640.42 ft) with TB826.</td>
</tr>
</tbody>
</table>

### Communication media

- **Advant Fieldbus 100**
  - Twisted pair screened/coaxial/fiber-optic cable. Up to 79 stations per bus. Up to 32 per twisted-pair segment. Bus length: up to 750 m (2460 ft.) per twisted-pair segment overall up to: 15 km (9.3 miles).

- **PROFIBUS DP**
  - Twisted pair screened/fiber-optic cable. Up to 99 stations per bus. Up to 32 per twisted-pair segment. Bus length: up to 1200 m (3937 ft.) per twisted-pair segment.

- **Ethernet I/O network**
  - The S800 I/O can connect to multiple controllers on the Ethernet I/O Network using the Ethernet Fieldbus Communication Interface (CI845/TC810/TU860). When connected to the Ethernet I/O network an S800 I/O module under one Ethernet Fieldbus Communication Interface can distribute I/O signals to any controller on the network. The I/O network supports redundancy, Hot Configuration in Run, HART pass through and Sequence of Events.

(1) For detailed information on each module, please visit: www.800xahardwareselector.com

### Communication interfaces

- **CI810**
  - For Advant Fieldbus 100. Supports dual bus-cable redundancy. With AC 400 series controllers.

- **CI801**
  - For PROFIBUS-DP/V1. Hot Configuration in Run & HART® pass-through. GSD-file provided.

- **TB820V2**
  - Optical cluster modem for Modulebus/drives integration.

- **TB825**
  - Optical media converter. Multimode up to 1 000 meter.

- **TB826**
  - Long range optical media converter. Single mode up to 5 000 meter.

- **TB810 / 811 / 842**
  - Modulebus optical port.

- **Redundant Interface**
  - CI820
    - For redundant Advant Fieldbus 100 in combination with Advant Controller 400 series controllers.

  - TB815
    - Interconnection Unit. An electrical and optical Modulebus Interface for coordination of the two parallel CI820 needed.

  - CI840A
    - For redundant PROFIBUS-DP/V1. Hot Configuration in Run & HART® pass-through. GSD file provided.

  - TB840A
    - Optical cluster modem for redundant optical Modulebus. Installed on TU840/TU841/TU848/TU849. Use TU807 for single configuration. Used with AC 800M. Hot Conf In Run, HART pass-through and Sequence of Events. Installation on vertical DIN rail.

### Module Termination Units (MTU:s)

#### Compact, 50 V applications

- **TU810V1**
  - With screw terminals

- **TU812V1**
  - With 25 pin D-sub connector

- **TU814V1**
  - With 3 crimp snap-in connectors

- **TU818**
  - With screw terminals

- **TU819**
  - With dual 25 pin D-sub

#### Compact, 250 V applications

- **TU811V1**
  - With screw terminals

- **TU813**
  - With 3 crimp snap-in connectors

#### Compact for intrinsic safety

- **TU89X**
  - With screw terminals & isolated power supply

#### Extended, 50 V applications

- **TU830V1 / TU835V1 / TU838 / TU850**
  - With screw terminals, pwr. distribution & fuse

- **TU833**
  - With spring-cage term., pwr. distribution & fuse

- **TU834**
  - With screw terminals for shunt sticks, TY80X
## Module Termination Units (MTU:s)

### Extended, 250 V applications
- **TU83IV1 / TU836V1 / TU837V1 / TU839 / TU851**
  - With screw terminals, pwr. distribution & fuse

### Redundancy, 50 V applications

#### TU842 / 843
- (horiz./vert. mounting) with screw terminals

#### TU844 / 845
- (horiz./vert. mounting) with screw terminals and shunt sticks, TY80X

#### TU852 / 854
- (horiz./vert. mounting) with 25 pin D-subs and shunt sticks, TY80X

### Termination
- **TU805**
  - For DI801 & DO801. With field power distribution screw terminals.

## $S800$ I/O modules

### Digital Input modules

- **DI810**
  - Digital input.
  - 16 ch., 2 groups of 8 ch., 24 V d.c., current sink.

- **DI814**
  - Digital input.
  - 16 ch., 2 groups of 8 ch., 48 V d.c., current sink.

- **DI818**
  - Digital input.
  - 32 ch., 2 groups of 16 ch., 24 V d.c., current sink.

- **DI820**
  - Individually galvanic isolated channels.
  - 8 ch., separate returns, 110 V d.c., 120 V a.c.

- **DI821**
  - Individually galvanic isolated channels.
  - 8 ch., separate returns, 220 V d.c., 230 V a.c.

- **DI825**
  - Individually galvanic isolated channels with SOE (Sequence Of Events).
  - 8 ch., separate returns, 125 V d.c.

- **DI828**
  - Digital input.
  - 16 ch., separate returns, 110 V d.c., 120 V a.c. / d.c.

- **DI830**
  - With SOE (Sequence Of Events).
  - 16 ch., 2 groups of 8 ch., 24 V d.c., current sink. Event recording resolution: <0.5 ms.

- **DI831**
  - With SOE (Sequence Of Events).
  - 16 ch., 2 groups of 8 ch., 48 V d.c., current sink. Event recording resolution: <0.5 ms.

- **DI885**
  - With SOE (Sequence Of Events) & wire-fault detection.
  - 8 ch., 1 group of 8 ch., 24-48 V d.c., current sink. Event recording resolution: 1 ms.

### Pulse input module
- **DP820**
  - Individually galvanic isolated channels.
  - 2 ch., separate returns, signal voltage: RS422/5 V/12 V/24 V/13 mA d.c., freq. measurement or pulse counting 0.25 Hz - 1.5 MHz

### Digital output modules

- **DO810**
  - Digital output.
  - 16 ch., 2 groups of 8 ch., 24 V d.c., max 0.5 A, transistor, current source, short-circuit-proof.

- **DO814**
  - Digital output.
  - 16 ch., 2 groups of 8 ch., 24 V d.c., max 0.5 A, transistor, current sink, short-circuit-proof.

- **DO815**
  - With wire-fault detection.
  - 8 ch., 2 groups of 4 ch., 24 V d.c., max 2 A, transistor, current source, short-circuit-proof.

- **DO818**
  - Digital output.
  - 32 ch., 2 groups of 16 ch., 24 V d.c., max 0.5 A, transistor, current source, short-circuit-proof

- **DO820**
  - Individually galvanic isolated channels.
  - 8 ch., separate returns, 5-250 V, max 3 A a.c./d.c., relay (N.O.).

- **DO821**
  - Individually galvanic isolated channels.
  - 8 ch., separate returns, 5-250 V, max 3 A a.c./d.c., relay (N.C.).

- **DO828**
  - Individually galvanic isolated channels.
  - 16 ch., separate returns, 5-250V a.c. / 5-125V d.c. max 2A a.c./d.c., relay (N.O.).

### Analog input modules

- **AI810**
  - Analog input.
  - 8 ch., 1 group of 8 ch., single ended with common return, 0(4)-20 mA, 0(2)-10 V, 12 bits.

- **AI815**
  - With HART interface.
  - 8 ch., 1 group of 8 ch., single ended with common return, 0(4)-20 mA 0(1)-5 V, 12 bits, HART interface, transmitter power supply.

- **AI820**
  - Differential inputs.
  - 4 ch., 1 group of 4 ch., bipolar differential, ±0(1)-5 V, ±0(2)-10 V, ±0(4)-20 mA, 14 bits + sign.

- **AI825**
  - Individually galvanic isolated channels.
  - 4 ch., separate returns, isolated bipolar, ±0(2)-10 V, ±0(4)-20 mA, 14 bits + sign.

- **AI830A**
  - RTD inputs with wire-fault detection.
  - 8 ch., 1 group of 8 ch., Pt100, Ni100, Ni120, Cu10, resistor 0-400 Ω, 14 bits, 3-wire.

- **AI835A**
  - TC inputs with open circuit detection.
  - 8 ch., (7+ ref. junction), 1 group of 8 ch., TC types B, C, D, E, J, K, L, N, R, S, T, U, -30…100 mV, 15 bits.

### Analog output modules

- **AO810V2**
  - With open circuit detection.
  - 8 ch., 1 group of 8 ch., 0(4)-20 mA, 14 bits, load: max 850 Ω (short-circuit-proof).

- **AO815**
  - With HART interface and open circuit detection.
  - 8 ch., 1 group of 8 ch., 4..20 mA, 12 bit, load: max 750 Ω (short-circuit-proof ), HART interface.

- **AO820**
  - Individually galvanic isolated channels with open circuit detection.
  - 4 ch., separate returns, isolated bipolar, ±0(2)-10 V, ±0(4)-20 mA, 12 bits + sign, load: max 550 Ω (current) / ≥2 kΩ (voltage), short-circuit-proof.

### I/O modules with intrinsic-safety interface

- **DI980**
  - Individually galvanic isolated digital input channels with wire-fault detection.
  - 8 ch., separate returns, 24 V d.c., current sink.

- **DO980**
  - Individually galvanic isolated digital output channels with wire-fault detection.
  - 4 ch., separate returns, 11 V @ 40 mA, load 150-5000 Ω, current source, short circuit-proof.

- **AI980**
  - Analog inputs.
  - 8 ch., 1 group of 8 ch., single ended with common return, 0(4)-20 mA, 12 bits, transmitter power supply

- **AI983**
  - TC/RTD inputs with wire-fault detection.
  - 8 ch. (7 + ref. junction), 1 group of 8 ch., TC types B, C, E, J, K, L, N, R, S, T, U, -10…80 mV. RTD: Pt50-1000, Ni100-500, Cu10-100, resistor 0-4000 Ω, 3-wire. 15 bits + sign.

- **AI985**
  - Analog inputs with HART Interface.
  - 8 ch., 1 group of 8 ch., single ended with common return, 4-20 mA, 12 bits, HART interface, transmitter power supply.

- **AO980**
  - Analog outputs with open circuit detection.
  - 8 ch., 1 group of 8 ch., 0(4)-20 mA, 12 bits, load: max 725 Ω (short-circuit-proof).

- **AO985**
  - Analog outputs with HART Interface & open circuit detection.
  - 8 ch., 1 group of 8 ch., 4-20 mA, 12 bits, HART interface, load: max 725 Ω (short-circuit-proof).
### S800L I/O modules

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Description</th>
<th>Channels</th>
<th>Group</th>
<th>Voltage</th>
<th>Current</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>DI801</td>
<td>Digital inputs.</td>
<td>16 ch.</td>
<td>1 group</td>
<td>24 V d.c.</td>
<td>current sink</td>
<td></td>
</tr>
<tr>
<td>DI802</td>
<td>Individually galvanic isolated digital input channels.</td>
<td>8 ch.</td>
<td>separate</td>
<td>110 V d.c., 120 V a.c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DI803</td>
<td>Individually galvanic isolated digital input channels.</td>
<td>8 ch.</td>
<td>separate</td>
<td>220 V d.c., 230 V a.c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DO801</td>
<td>Digital outputs.</td>
<td>16 ch.</td>
<td>1 group</td>
<td>24 V d.c., max 0.5 A, transistor, current source, short-circuit-proof.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DO802</td>
<td>Individually galvanic isolated digital output channels.</td>
<td>8 ch.</td>
<td>separate</td>
<td>24-250 V, max 2 A a.c./d.c., relay (N.O.).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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