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 IO modules, module termination units, controllers, power supplies and voters, panels and also print your own pdf files.

www.800xahardwareselector.com

### General specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>ClImatic Operation Conditions</td>
<td>+5 to +55 °C (Storage -40 to +70 °C, RH = 5 to 95 % no condensation, IEC/EN 61131-2</td>
</tr>
<tr>
<td>Power Supply</td>
<td>24 V d.c. (19.2 - 30 V)</td>
</tr>
<tr>
<td>Protection Class</td>
<td>IP20 according to EN 60529, IEC 529</td>
</tr>
<tr>
<td>Corrosive protection</td>
<td>G3 compliant according to ISA-71.04</td>
</tr>
<tr>
<td>Electromagnetic Compatibility and CE-mark</td>
<td>Meets EMC directive 2004/108/EC according to EN 61000-6-2 and EN 61000-6-4</td>
</tr>
<tr>
<td>Electromagnetic Emission</td>
<td>Tested according to EN 61000-6-4 EMC – Generic Emission Standard, Part 2 – Industrial Environment</td>
</tr>
<tr>
<td>Electromagnetic Immunity</td>
<td>Tested according to EN 61000-6-2 EMC – Generic Immunity Standard, Part 2 – Industrial Environment</td>
</tr>
<tr>
<td>Electrical Safety</td>
<td>UL508, IEC/EN 61131-2</td>
</tr>
<tr>
<td>Hazardous Classified Locations</td>
<td>C1 Div 2 cULus, C1 Zone 2 cULus, ATEX Zone 2</td>
</tr>
<tr>
<td>Safety Integrity (IEC 61508)</td>
<td>PM865/SM811, PM867/SM812, A880A, D8800, D8800, DO880; IEC 61508 up to SIL3</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 (2,460 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.

* For detailed information on each module, please visit: www.800xahardwareselector.com

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### Dimensions

**Extended I/O**

- CI810
  - 120 x 47 mm (4.7 x 1.8 in.)
- CI820, TB815
  - 127.5 x 50 mm (5.0 x 2.0 in.)
- Compact I/O
  - 123 x 46 mm (4.8 x 1.8 in.)
- Redundant I/O
  - 132 x 52 mm (5.2 x 2.0 in.)

**Intrinsic safety I/O**

- CI801, S800L I/O
  - 58 x 23 mm (2.3 x 0.9 in.)
- Redundant Comm. Modules
  - 132 x 50 mm (5.2 x 2.0 in.)
- Intrinsic safety I/O
  - 54 x 23 mm (2.1 x 0.9 in.)

Dimensions in mm (in.)
## Station layouts

**No. of I/O modules:**
Up to 24 per I/O station.

**Modulebus extension cable:**
Plug-in, lengths: 0.3, 0.6 and 1.2 m (1, 2 & 4 ft).

**Optical Modulebus:**
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 with HCS fiber, 1000m (3280 ft) with Optical Media Converter TB825, and 5000m (16404.2 ft) with TB826.

## Communication interfaces

<table>
<thead>
<tr>
<th>CI810</th>
<th>For Advant Fieldbus 100. Supports dual bus-cable redundancy.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CI801</td>
<td>For PROFINET/DP-V1. Hot Configuration in Run &amp; HART® pass-through. GSD-file provided.</td>
</tr>
<tr>
<td>TB820V2</td>
<td>Optical cluster modem for Modulebus/drives integration.</td>
</tr>
<tr>
<td>TB825</td>
<td>Optical media converter. Multimode up to 1 000 meter.</td>
</tr>
<tr>
<td>TB826</td>
<td>Long range optical media converter. Single mode up to 5 000 meter.</td>
</tr>
<tr>
<td>TB810 / 811 / 842</td>
<td>Modulebus optical port.</td>
</tr>
</tbody>
</table>

## Redundant interface

<table>
<thead>
<tr>
<th>CI820</th>
<th>For redundant Advant Fieldbus 100 in combination with Advant Controller 400 series controllers.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB815</td>
<td>Interconnection Unit. An electrical and optical Modulebus interface for coordination of the two parallel CI820 needed.</td>
</tr>
</tbody>
</table>

## Module Termination Units (MTU:s)

### Compact, 50 V applications

<table>
<thead>
<tr>
<th>TU810V1</th>
<th>With screw terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td>TU812V1</td>
<td>With 25 pin D-sub connector</td>
</tr>
<tr>
<td>TU814V1</td>
<td>With 3 crimp snap-in connectors</td>
</tr>
<tr>
<td>TU818</td>
<td>With screw terminals</td>
</tr>
<tr>
<td>TU819</td>
<td>With dual 25 pin D-sub</td>
</tr>
</tbody>
</table>

### Compact, 250 V applications

<table>
<thead>
<tr>
<th>TU811V1</th>
<th>With screw terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td>TU813</td>
<td>With 3 crimp snap-in connectors</td>
</tr>
</tbody>
</table>

### Compact for intrinsic safety

| TU89X | With screw terminals & isolated power supply |

### Extended, 50 V applications

<table>
<thead>
<tr>
<th>TU830V1 / TU835V1 / TU838 / TU850</th>
<th>With screw terminals, pwr. distribution &amp; fuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>TU833</td>
<td>With spring-cage term., pwr. distribution &amp; fuse</td>
</tr>
<tr>
<td>TU834</td>
<td>With screw terminals for shunt sticks, TY80X</td>
</tr>
</tbody>
</table>

### Extended, 250 V applications

| TU831V1 / TU837V1 / TU839 / TU851 | With screw terminals, pwr. distribution & fuse |

### Redundancy, 50 V applications

<table>
<thead>
<tr>
<th>TU842 / 843</th>
<th>(horiz./vert. mounting) with screw terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td>TU844 / 845</td>
<td>(horiz./vert. mounting) with screw terminals and shunt sticks, TY80X</td>
</tr>
<tr>
<td>TU852 / 854</td>
<td>(horiz./ver. mounting) with 25 pin D-subs and shunt sticks, TY80X</td>
</tr>
</tbody>
</table>

### Termination

| TU805 | For DI801 & DO801. With field power distribution screw terminals. |

## S800 I/O modules

### Digital input modules

<table>
<thead>
<tr>
<th>DI810</th>
<th>Digital input</th>
</tr>
</thead>
<tbody>
<tr>
<td>DI811</td>
<td>Digital input</td>
</tr>
<tr>
<td>DI814</td>
<td>Digital input</td>
</tr>
<tr>
<td>DI818</td>
<td>Digital input</td>
</tr>
<tr>
<td>DI820</td>
<td>Individually galvanic isolated channels.</td>
</tr>
<tr>
<td>DI821</td>
<td>Individually galvanic isolated channels.</td>
</tr>
<tr>
<td>DI825</td>
<td>Individually galvanic isolated channels with SOE (Sequence Of Events).</td>
</tr>
<tr>
<td>DI828</td>
<td>Digital input</td>
</tr>
<tr>
<td>DI830</td>
<td>With SOE (Sequence Of Events).</td>
</tr>
<tr>
<td>DI831</td>
<td>With SOE (Sequence Of Events).</td>
</tr>
<tr>
<td>DI885</td>
<td>With SOE (Sequence Of Events) &amp; wire-fault detection.</td>
</tr>
</tbody>
</table>

### 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
**S800 I/O modules**

**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

**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**

- **DI890** Individually galvanic isolated digital input channels with wire-fault detection.
  - 8 ch., separate returns, 24 V d.c., current sink.
- **DO890** 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.
- **AI890** Analog inputs.
  - 8 ch., 1 group of 8 ch., single ended with common return, 0(4)-20 mA, 12 bits, transmitter power supply.
- **AI893** 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.
- **AI895** 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.
- **AO890** 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).
- **AO895** 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**

- **DI801** Digital inputs.
  - 16 ch., 1 group of 16 ch., 24 V d.c., current sink.
- **DI802** Individually galvanic isolated digital input channels.
  - 8 ch., separate returns, 110 V d.c., 120 V a.c.
- **DI803** Individually galvanic isolated digital input channels.
  - 8 ch., separate returns, 220 V d.c., 230 V a.c.
- **DO801** Digital outputs.
  - 16 ch., 1 group of 16 ch., 24 V d.c., max 0.5 A, transistor, current source, short-circuit-proof.
- **DO802** Individually galvanic isolated digital output channels.
  - 8 ch., separate returns, 24-250 V, max 2 A a.c./d.c., relay (N.O.).
- **AI801** Analog inputs.
  - 8 ch., 1 group of 8 ch., single ended with common return, 0(4)-20 mA, 12 bits.
- **AO801** Analog outputs.
  - 8 ch., 1 group of 8 ch., 0(4)-20 mA, 12 bits, load: max 850 Ω (short-circuit-proof).

**S800 I/O modules for redundancy**

- **DI840** Digital inputs with SOE.
  - 16 ch., 1 group of 16 ch., 24 V d.c., current sink, extended diagnostics, transmitter power supply.
- **DP840** Pulse counters with wire-fault detection.
  - 8 ch., 1 group of 8 ch., freq. measurement or pulse counting, 0.5-20 kHz, 12/24 V d.c or NAMUR, extended diagnostics.
- **DO840** Digital outputs with short circuit detection.
  - 16 ch., 1 group of 16 ch., 24 V d.c., max. 0.5 A, current source, short-circuit-proof, extended diagnostics.
- **AI843** TC inputs with open circuit detection.
- **AI845** Analog inputs 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, extended diagnostics, HART interface, transmitter power supply.
- **AO845A** Analog outputs with HART interface & open circuit detection.
  - 8 ch., 1 group of 8 ch., 4-20 mA, 12 bit, load: max 750 Ω (short-circuit-proof ) extended diagnostics, HART interface.

**S800 I/O modules for SIL3**

- **DI880** SIL3 digital inputs with SOE.
  - 16 ch., 1 group of 16 ch., 24 V d.c., current sink, extended diagnostics, transmitter power supply, SIL3.
- **DO880** SIL3 digital outputs with wire-fault detection.
  - 16 ch., 1 group of 16 ch., 24 V d.c., max. 0.5 A, current source, short-circuit-proof, extended diagnostics, SIL3.
- **AI880A** SIL3 analog inputs with HART interface.
  - 8 ch., 1 group of 8 ch., single ended with common return, 0(4)-20 mA, 12 bit, extended diagnostics, HART interface, transmitter power supply, SIL3.