Industrial^{IT} System 800xA
S800 I/O System

Data Sheet

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 others.

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.

General specifications

Power supply: 24V d.c. (19.2 - 30V)
Temperature range: 0...55°C
Protection class: IP20
Standards complied with:
Electrical safety: EN 3810, EN 5017-8, IEC 61131-2, UL508, CSA 22.2 No. 142-M1987
Hazardous locations (Class 1, Div. 2): CSA 22.2 No. 213-M1987, FM 3600, FM 3611, UL 1604
Corrosive gases: ISA Class G2 (G3 pending)
Isolation test voltage: 500/2000V a.c.

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 750m (2 460ft.) per twisted-pair segment overall up to: 15km (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 1200m (3937ft.) per twisted-pair segment.

Communication interfaces

CI810 For Advant Fieldbus 100. Supports dual bus-cable redundancy.

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

TB820 / 825 / 810 / 811 / 842. Optical cluster modem/ports for ModuleBus/drives integration.

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 parallell CI820 needed.

CI840 For redundant PROFIBUS-DP/V1. Hot Configuration in Run & HART® pass-through. GSD file provided.

TB840 Optical cluster modem for redundant Modulebus. Installed on TU840/TU841. Used with AC 800M.

Module Termination Units (MTU:s)

Compact, 50V applications
TU810 With screw terminals.
TU812 With 25 pin D-sub connector.
TU814 With 3 crimp snap-in connectors.

Compact, 250V applications
TU811 With screw terminals.
TU813 With 3 crimp snap-in connectors.

Compact for intrinsic safety
TU89X With screw terminals & isolated power supply.

Extended, 50V applications
TU830 / TU835 / TU838 With screw terminals, pwr. distribution & fuse.
TU833 With spring-cage term., pwr. distribution & fuse.

Extended, 250V applications
TU831 / TU836 / TU837 With screw terminals, pwr. distribution & fuse.

Redundancy, 50V applications
TU842 / 843 (horiz./vert. mounting) w. screw terminals.
TU844 / 845 (horiz./vert. mounting) With screw terminals and shunt sticks, TY80X.
TU805 For DI801 & DO801. With field power distribution screw terminals.

Station layouts

No. of I/O modules: Up to 24 per I/O station.
Extension cable: Plug-in, lengths: 0.3, 0.6 and 1.2m (1, 2 & 4ft).

(continued overleaf)

Optical ModuleBus: Up to 7 I/O clusters and/or 24 I/O modules. Max length: 15 or 200m (49 or 656ft).

S800 I/O modules

Digital input modules

DI810 16 channels, 2 groups of 8 ch., 24V d.c., current sink.

DI811 16 ch., 2 groups of 8 ch., 48V d.c., current sink.

DI814 16 ch., 2 groups of 8 ch., 24V d.c., current source.

DI820 8 ch., separate returns, 110V d.c., 120V a.c.

DI821 8 ch., separate returns, 220V d.c., 230V a.c.

DI825 **With time tagging,** 8 ch., sep. returns, 125V d.c.

DI830 **With time tagging.** 16 ch., 2 groups of 8 ch., 24V d.c., current sink. Resolution: <0.5ms.

DI831 **With time tagging.** 16 ch., 2 groups of 8 ch., 48V d.c., current sink. Resolution: <0.5ms.

DI885 **With time tagging & wire-fault detection.** 8 ch., common return, 24-48V d.c., current sink. Time tagging resolution: 1ms.

Pulse input module

DP 820 2 channels, separate returns, 0.25Hz - 1.5MHz, signal voltage: 5 / 24V d.c.

Digital output modules

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

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

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

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

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

Analog input modules

AI810 8 channels, single-ended, 0(4)-20mA, 0(2)-10V, 12 bits.

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

AI825 **Galvanically isolated,** 4 ch., ±0(2)-10V, ±0(4)-20mA, 14 bits + sign.

AI830 **RTD inputs,** 8 ch., Pt100, Ni100, Ni120, Cu10, resistor 0-400Ω, 14 bits, 3-wire.

AI835 **TC inputs,** 8 ch., (7+ ref. junction), separate returns. TC types B, C, E, J, K, N, R, S, T, -30…75mV, 15 bits.

Analog output modules

AO810 8 channels, common return, 0(4)-20mA, 14 bits, load: 850Ω (short-circuit-proof).

AO820 **Isolated output.** 4 ch., separate returns, measuring range: ±0(2)-10V, ±0(4)-20mA, resolution: 12 bits + sign, load: ≤500Ω (current) / ≥2kΩ (voltage), short-circuit-proof.

I/O modules with intrinsic-safety interface

- **DI890 digital inputs with wire-fault detection** 8 ch., separate returns, 24V d.c., current sink.
- **DO890 digital outputs with wire-fault detection** 4 ch., separate returns, load 150-5000Ω, 11V @ 40mA, current source, short circuit-proof.
- **AI890 Analog inputs.** 8 ch., single-ended, 0(4)-20mA, 12 bits, transmitter power supply
- **AI893 TC/RTD inputs.** 8 ch., TC: 7 + ref. junction, sep. returns. TC types B, C, E, J, K, L, N, R, S, T, U, -10…80mV. RTD: Pt50-1000, Ni100-500, Cu10-100, resistor 0-4000Ω, 3-wire. 15 bits + sign.
- **AI895 with intrinsic safety & HART interface** 8 ch., single-ended, 4-20mA, 12 bits, transmitter power supply.
- **AO890 with intrinsic safety & wire-fault detection** 8 ch., common return, 0(4)-20mA, 12 bits, load: 750Ω (short-circuit-proof).
- **AO895 with intrinsic safety, HART interface & wire-fault detection.** 8 ch., common return, 4-20mA, 12 bits, load: 750Ω (short-circuit-proof).

S800L I/O modules

DI801 16 channels, 1 group, 24V d.c., current sink.

DI802 8 ch., 110V d.c., 120V a.c.

DI803 8 ch., 220V d.c., 230V a.c.

DO801 16 ch., common return, 24V, max 0.5A d.c., transistor, current source, short-circuit-proof.

DO802 8 ch., 5-250V, max 2A a.c./d.c., relay (N.O.).

AI801 8 ch., single-ended, 0(4)-20mA, 12 bits.

AO801 8 ch., common return, 0(4)-20mA, 12 bits, load: <750Ω.

S800 I/O modules for redundancy & SIL3

DI840 16 channels, common return, 24V d.c., current sink, extended diagnostics.

DI880 16 ch., 24V d.c., current sink, SIL3, extended diagnostics.

DP840 8 ch., sep. returns, freq. measurement or pulse counting, 0.5-20 kHz, 12/24V d.c or NAMUR.

DO840 16 ch., common return, 24V d.c., max. 0,5A, current source, short-circuit-proof, extended diagnostics.

D0880 16 ch., 24V d.c., max. 0.5A, current source, SIL3, short-circuit-proof, extended diagnostics.

AI843 TC input, 8 ch. + ref. junction. TC types: B, C, E, J, K, L, N, R, S, T, U, -30…75mV, 16 bits, extended diagnostics.

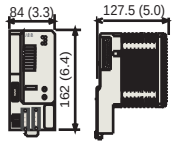
AI845 8 ch., common return, 0(4)-20mA 0(1)-5V, extended diagnostics, HART support.

AI880A 8 ch., common return, 0(4)-20mA, SIL3, extended diagnostics, HART support.

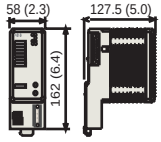
AO845 8 ch., common return, 4-20mA, extended diagnostics, HART support.

Dimensions in mm (in.)

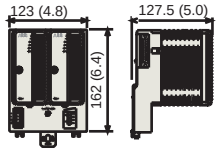
CI810



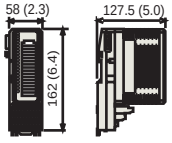
CI820, TB815



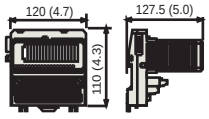
Redundant Comm. Modules



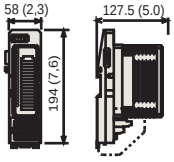
Compact I/O



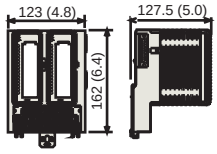
Extended I/O



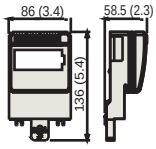
Intrinsic safety I/O



Redundant I/O



CI801, S800L I/O



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