

DI890

ABB Ability™ System 800xA® hardware selector



The DI890 Digital Input Module has 8 channels. The module includes Intrinsic Safety protection components on each channel for connection to process equipment in hazardous areas without the need for additional external devices. Each channel is galvanically isolated from the power supply, ground, and each other. Intrinsically safe Proximity sensors or volt-free contacts can be powered and monitored by any channel.

The Proximity sensor should conform to the NAMUR standard and line faults can be detected without any additional external components. For line faults to be detected when using volt-free contacts, external resistors should be connected in series and in parallel to enable the state of the field circuit to be sensed by the input channel. All eight channels are galvanic isolated from the ModuleBus and power supply individually. Power to the input stages is converted from the 24 V on the power supply connections. Three LEDs indicate module status Fault (Red), Run (Green) and Warning (Yellow).

TU890 and TU891 Compact MTU can be used with this module and it enables two wire connection to the process devices without additional terminals. TU890 for Ex applications and TU891 for non Ex applications.

Features and benefits

- 8 channels with process voltage supervision
- Output status indicators
- OSP sets outputs to predetermined state upon error detection
- Short-circuit protection to ground and 30 V
- Over-voltage and over-temperature protection
- Intrinsic Safety support
- NAMUR inputs
- G3 compliant

General info	
Article number	3BSC690073R1
Type	Digital Input
Signal specification	NAMUR input level
Number of channels	8
Signal type	Proximity sensor (NAMUR) or Voltage free contact
HART	No
SOE	No
Redundancy	No
High integrity	No
Intrinsic safety	Yes
Mechanics	S800

Detailed data	
Isolation	Individually isolated, channel-to-channel and to circuit common ground
Filter times (digital, selectable)	2, 4, 8, 16 ms; analog filter 1 ms
Current limiting	Built in current limited sensor power
Rated insulation voltage	50 V
Dielectric test voltage	500 V a.c.
Power dissipation	1.4 W
Current consumption +5 V Modulebus	Typ. 120 mA, Max. <150 mA
Current consumption +24 V external	Typ. 50 mA, Max. <70 mA

Diagnostics	
Front LED's	F(ault), R(un), W(arning), Channel 1-8 status and F(ault)
Supervision	Internal process supply Loop supervision

Environment and certification	
CE mark	Yes
Electrical safety	EN 61010-1, EN 61010-2-201
Hazardous Location	ATEX/IECEx Zone 2 with interface to Zone 0, cFMus C1, Div 2/Zone 2 with interface to C1, C2, C3 Div 1/Zone 0
Marine certification	ABS, BV, DNV, LR
Temperature, Operating	0 to +55 °C (+32 to +131 °F)
Temperature, Storage	-40 to +70 °C (-40 to +158 °F)
Pollution degree	Degree 2, IEC 60664-1
Corrosion protection	ISA-S71.04: G3
Relative humidity	5 to 95 %, non-condensing
Max ambient temperature	55 °C (131 °F), for vertical mounting in compact MTU 40 °C (104 °F)
Protection class	IP20 according to IEC 60529
Mechanical operating conditions	IEC/EN 61131-2
EMC	EN 61000-6-4, EN 61000-6-2
Overvoltage categories	IEC/EN 60664-1, EN 50178
Equipment class	Class I according to IEC 61140; (earth protected)
RoHS compliance	DIRECTIVE/2011/65/EU (EN 50581:2012)
WEEE compliance	DIRECTIVE/2012/19/EU

Compatibility	
Use with MTU	TU890, TU891
Keying code	AA

Intrinsic Safety parameters

U0 (Groups CENELEC USA)	U0 = 11 V (IIC AB)
I0 (Groups CENELEC USA)	I0 = 21 mA (IIB CE)
P0 (Groups CENELEC USA)	P0 = 58 mW (IIA DFG)
U0 - C0 (uF)	1,97
U0 -L0 (mH)	77
U0 -L/R (uH/O)	573
I0 - C0 (uF)	13,8
I0 -L0 (mH)	283
I0 -L/R (uH/O)	2100
P0 - C0 (uF)	60
P0 -L0 (mH)	580
P0 -L/R (uH/O)	4200

Dimensions

Width	45 mm (1.77")
Depth	102 mm (4.01"), 111 mm (4.37") including connector
Height	119 mm (4.7")
Weight	0.2 kg (0.44 lbs.)

Related products



TU890



TU891

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