DATA SHEET

# DI890
## Compact Product Suite 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<br>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

**solutions.abb/compactproductsuite**
**solutions.abb/controlsystems**