

# AI845

## Freelance hardware selector



The AI845 Analog Input Module for single or redundant applications. The module has 8 channels. Each channel can be either a voltage or current input when MTU TU844 or TU845 is used, when other MTUs are used all channels become voltage or current inputs.

The voltage and current input is able to withstand an overvoltage or undervoltage of at least 11 V d.c. The input resistance for voltage input is greater than 10 M ohm and the input resistance for current input is 250 ohm.

The module distributes the external HART compatible transmitter supply to each channel. This adds a simple connection to distribute the supply to 2-wire or 3-wire transmitters. The transmitter power is supervised and current limited.

## Features and benefits

- 8 channels for 0...20 mA, 4...20 mA, 0...5 V or 1...5 V d.c., single ended unipolar inputs
- Single or redundant operation
- 1 group of 8 channels isolated from ground
- 12 Bit resolution
- Current limited transmitter supply per channel
- Advanced on-board diagnostics
- HART pass-through communication

### General info

|                      |                                       |
|----------------------|---------------------------------------|
| Article number       | 3BSE023675R1                          |
| Type                 | Analog Input                          |
| Signal specification | 0...20mA, 4...20 mA, 0...5 V, 1...5 V |
| Number of channels   | 8                                     |
| Signal type          | Unipolar single ended                 |
| HART                 | Yes                                   |
| SOE                  | No                                    |
| Redundancy           | Yes                                   |
| High integrity       | No                                    |
| Intrinsic safety     | No                                    |
| Mechanics            | S800                                  |

| Detailed data                       |                                                               |
|-------------------------------------|---------------------------------------------------------------|
| Resolution                          | 12 bit                                                        |
| Input impedance                     | 10 MΩ (voltage input)<br>250 Ω (current input)                |
| Isolation                           | Groupwise isolated from ground                                |
| Under/over range                    | 0 / +15% (0..20 mA, 0..5 V), -12.5% / +15% (4..20 mA, 1..5 V) |
| Error                               | Max. 0.1%                                                     |
| Temperature drift                   | Max. 50 ppm/°C                                                |
| Input filter (rise time 0-90%)      | 290 ms                                                        |
| Update cycle time                   | 10 ms                                                         |
| Current limiting                    | Built in current limited transmitter power                    |
| Maximum field cable length          | 600 meters (656 yards)                                        |
| Max input voltage (non destructive) | 11 V d.c.                                                     |
| NMRR, 50Hz, 60Hz                    | > 40 dB                                                       |
| Rated insulation voltage            | 50 V                                                          |
| Dielectric test voltage             | 500 V a.c.                                                    |
| Power dissipation                   | 3.5 W                                                         |
| Current consumption +5 V Modulebus  | 100 mA                                                        |
| Current consumption +24 V Modulebus | 50 mA                                                         |
| Current consumption +24 V external  | Max. 265 mA (22 mA + transmitter current * 1.32)              |

| Diagnostics                      |                                                                                                                                                                                                                                                                                           |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Front LED's                      | F(ault), R(un), W(arning)                                                                                                                                                                                                                                                                 |
| Supervision                      | Module error: analog read back, reference voltage, internal power supply, checksum, watchdog and memory error<br>Internal channel error: low pass filter ´, multiplexer, test channel error<br>External channel error: external power supply low, transmitter power, external shunt error |
| Status indication of supervision | Module Error, Module Warning, Channel error                                                                                                                                                                                                                                               |

| Environment and certification   |                                                                     |
|---------------------------------|---------------------------------------------------------------------|
| CE mark                         | Yes                                                                 |
| Electrical safety               | EN 61010-1, UL 61010-1, EN 61010-2-201, UL 61010-2-201              |
| Hazardous Location              | C1 Div 2 cULus, C1 Zone 2 cULus, ATEX Zone 2                        |
| Marine certification            | BV, DNV, LR                                                         |
| Temperature, Operating          | 0 to +55 °C (+32 to +131 °F), approvals are issued for +5 to +55 °C |
| 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 and EN 61000-6-2                                       |
| Overvoltage categories          | IEC/EN 60664-1, EN 50178                                            |
| Equipment class                 | Class I according to IEC 61140; (earth protected)                   |
| RoHS compliance                 | EU RoHS, UAE RoHS, CN RoHS                                          |
| WEEE compliance                 | DIRECTIVE/2012/19/EU                                                |

| Compatibility |                                                                             |
|---------------|-----------------------------------------------------------------------------|
| Use with MTU  | TU810, TU812, TU814, TU818, TU830, TU833, TU835, TU838, TU844, TU845, TU854 |
| Keying code   | CC                                                                          |

| Dimensions |                                                    |
|------------|----------------------------------------------------|
| Width      | 45 mm (1.77")                                      |
| Depth      | 102 mm (4.01"), 111 mm (4.37") including connector |
| Height     | 119 mm (4.7")                                      |
| Weight     | 0.23 kg (0.51 lbs.)                                |



# Related products

|                                                                                    |         |                                                                                     |         |
|------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------------|---------|
|    | TU810V1 |    | TU812V1 |
|    | TU814V1 |    | TU830V1 |
|    | TU833   |    | TU835V1 |
|    | TU838   |    | TU844   |
|  | TU845   |  | TU854   |

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