

# AI830A

## ABB Ability™ System 800xA® hardware selector



The AI830/AI830A RTD Input Module has 8 channels for measurement of temperature with resistive elements (RTDs). With 3-wire connections. All the RTDs must be isolated from ground.

The AI830/AI830A can be used with Pt100, Cu10, Ni100, Ni120 or resistive sensors. Linearization and conversion of the temperature to Centigrade or Fahrenheit is performed on the module.

Every channel can be individually configured. The MainsFreq parameter is used to set mains frequency filter cycle time. This will give a notch filter at the frequency specified (50 Hz or 60 Hz).

## Features and benefits

- 8 channels for RTD (Pt100, Cu10, Ni100 and Ni120 and resistor) inputs
- 3-wire connection to RTDs
- 14 Bit resolution
- Inputs are monitored for open-circuit, shortcircuit and has a input grounded sensor

| General info         |                                                                   |
|----------------------|-------------------------------------------------------------------|
| Article number       | 3BSE040662R1                                                      |
| Type                 | Analog Input                                                      |
| Signal specification | 3-wire RTD: Pt100, Cu10, Ni100, Ni120 and resistive potentiometer |
| Number of channels   | 8                                                                 |
| Signal type          | See table in S800 Modules and Termination Units, 3BSE020924       |
| HART                 | No                                                                |
| SOE                  | No                                                                |
| Redundancy           | No                                                                |
| High integrity       | No                                                                |
| Intrinsic safety     | No                                                                |
| Mechanics            | S800                                                              |

| Detailed data                       |                                                                                                                                                                                             |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Resolution                          | See table in S800 Modules and Termination Units, 3BSE020924-xxx                                                                                                                             |
| Isolation                           | Groupwise isolated from ground                                                                                                                                                              |
| Error                               | Error dependent of the field cable resistance: $R_{err} = R \cdot (0.005 + \Delta R/100)$ $T_{err}^{\circ C} = R_{err} / (R_0 \cdot TCR)$ $T_{err}^{\circ F} = T_{err}^{\circ C} \cdot 1.8$ |
| Temperature drift                   | See table in S800 Modules and Termination Units, 3BSE020924-xxx                                                                                                                             |
| Update cycle time                   | 150 + 95 * (number of active channels) ms                                                                                                                                                   |
| CMRR, 50Hz, 60Hz                    | >120 dB (at 10Ω load)                                                                                                                                                                       |
| NMRR, 50Hz, 60Hz                    | >60 dB                                                                                                                                                                                      |
| Rated insulation voltage            | 50 V                                                                                                                                                                                        |
| Dielectric test voltage             | 500 V a.c.                                                                                                                                                                                  |
| Power dissipation                   | 1.6 W                                                                                                                                                                                       |
| Current consumption +5 V Modulebus  | 70 mA                                                                                                                                                                                       |
| Current consumption +24 V Modulebus | 50 mA                                                                                                                                                                                       |
| Current consumption +24 V external  | 0                                                                                                                                                                                           |

| Diagnostics                      |                                                                       |
|----------------------------------|-----------------------------------------------------------------------|
| Front LED's                      | F(ault), R(un), W(arning)                                             |
| Supervision                      | Open-circuit, short-circuit, reference channel, internal power supply |
| Status indication of supervision | Module Error, Module Warning, Channel error (8)                       |

| 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            | ABS, 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                 | DIRECTIVE/2011/65/EU (EN 50581:2012)                                |
| WEEE compliance                 | DIRECTIVE/2012/19/EU                                                |

| Compatibility |                                   |
|---------------|-----------------------------------|
| Use with MTU  | TU810, TU812, TU814, TU830, TU833 |
| Keying code   | AF                                |

| Dimensions |                                                    |
|------------|----------------------------------------------------|
| Width      | 45 mm (1.77")                                      |
| Depth      | 102 mm (4.01"), 111 mm (4.37") including connector |
| Height     | 119 mm (4.7")                                      |
| Weight     | 0.22 kg (0.49 lbs.)                                |



# Related products

|                                                                                  |         |                                                                                   |         |
|----------------------------------------------------------------------------------|---------|-----------------------------------------------------------------------------------|---------|
|  | TU810V1 |  | TU812V1 |
|  | TU814V1 |  | TU830V1 |
|  | TU833   |                                                                                   |         |

---

**[solutions.abb/800xA](https://solutions.abb/800xA)**  
**[solutions.abb/controlsystems](https://solutions.abb/controlsystems)**

---

800xA and Symphony Plus is a registered trademark of ABB. All rights to other trademarks reside with their respective owners.

We reserve the right to make technical changes to the products or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not assume any responsibility for any errors or incomplete information in this document.

We reserve all rights to this document and the items and images it contains. The reproduction, disclosure to third parties or the use of the content of this document – including parts thereof – are prohibited without ABB's prior written permission.

Copyright© 2025 ABB All rights reserved