



# R-8AI-8DIDO



## 8-CH UNIVERSAL ANALOG INPUTS AND 8-CH DIGITAL I/O's MODBUS RTU/MODBUS TCP-IP MODULE

### Highlights

- **Power supply:** 10..40 Vdc;  
19..28 Vac
- **Max isolation:** 1.5 kVac
- **Universal analog input:** Nr.8  
channels mA, V, mV, TC J, K, T,  
E, N, R, S, B, L, Pt100 / Cold  
junction (1 channel)
- **Digital Inputs/Outputs:** No.8  
channels PNP, Mosfet, Peer-to-  
Peer
- **ADC:** 24 bit
- **Update time:** 25 ms per channel
- **Communication protocols:**  
ModBUS RTU, ModBUS TCP-IP
- **Integrated networking  
functions:** Daisy Chain, Fault-  
By-Pass, Pass-Through
- **Configuration:** DIP Switch, Web  
Server

The R-8AI-8DIDO is a mixed data acquisition module (analog/digital) from the R Series, designed for flexible wiring needs, compact installation spaces (only 32 mm thick), and high-density I/O applications. The module can handle up to 8 measurement channels for analog signals (mA, V, mV) or temperature sensors (8 thermocouples, 1 Pt100). It also provides 8 PNP/Mosfet digital channels, configurable as inputs or outputs.

The instrument features 5-way isolation up to 1.5 kV. It supports both Modbus TCP-IP communication with dual 100 Mbps Ethernet interfaces and serial RS485 communication with Modbus RTU protocol, accommodating up to 64 nodes without a repeater and a maximum speed of 115 kbps. Configuration of the R-8AI-8DIO-2 can be done through DiP Switch and a Web Server.

Equipped with a high-resolution 24-bit ADC, the module offers a precision class of 0.1%. The update time is 25 ms per single channel. R-8AI-8DIDO supports all advanced networking features of the R Series: daisy chain (Ethernet chain connection), fault-bypass (active communication even in case of failure), passthrough (ModBUS gateway functionality), peer-to-peer (remote replication of digital signals).



## MIXED I/O MODULE

### R-8AI-8DIDO



8-CH universal analog inputs, 8-CH digital inputs/outputs  
(2xETH) Modbus TCP-IP / Modbus RTU module

#### GENERAL DATA

|                              |                                                                                                                                                                                                            |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Power supply</b>          | 10...40 Vdc; 19...28 Vac                                                                                                                                                                                   |
| <b>Power consumption</b>     | 3 W max                                                                                                                                                                                                    |
| <b>Status LED indicators</b> | Power supply<br>Inputs / Outputs status<br>STS (IP address / DHCP)<br>IP powered / assigned<br>RX / TX (RS485 data reception / transmission)<br>Ethernet TRF / LNK (packet traffic / Ethernet link status) |
| <b>Isolation</b>             | 1.500 Vac (3 ways)                                                                                                                                                                                         |
| <b>Protection degree</b>     | IP20                                                                                                                                                                                                       |
| <b>Operating temperature</b> | -25...+65°C                                                                                                                                                                                                |
| <b>Storage temperature</b>   | -30...+85°C                                                                                                                                                                                                |
| <b>Connections</b>           | Removable 3-way screw terminals, 3.5 mm pitch<br>RJ45 connectors                                                                                                                                           |
| <b>Dimension (wxhxd)</b>     | 106 x 90 x 32 mm                                                                                                                                                                                           |
| <b>Weight</b>                | 170 g                                                                                                                                                                                                      |
| <b>Housing</b>               | PC/ABS self-extinguish UL94-V0<br>RAL 7035 grey color                                                                                                                                                      |
| <b>Programming</b>           | DIP switch<br>Web server                                                                                                                                                                                   |
| <b>Special features</b>      | Dual Ethernet Daisy Chain<br>LAN fault bypass (dual Ethernet)<br>up to 32 Peer-to-Peer rules (I/O Mirror)<br>Modbus Passthrough (TCP-IP to RS485)                                                          |
| <b>Certifications</b>        | CE, UKCA                                                                                                                                                                                                   |
| <b>Installation</b>          | DIN rail mounting (IEC EN 60715), wall / panel mounting                                                                                                                                                    |

#### COMMUNICATION

|                            |                                                                             |
|----------------------------|-----------------------------------------------------------------------------|
| <b>Ethernet ports</b>      | Nr. 2 Ethernet ports (with LAN fault-bypass function),<br>100Base-T on RJ45 |
| <b>Serial ports</b>        | Nr. 1 RS485 port on M23-M24-M25 terminals                                   |
| <b>Speed</b>               | Up to 115.200 bps (RS485) / 100 Mbps (TCP-IP)                               |
| <b>Supported protocols</b> | ModBUS RTU<br>ModBUS TCP-IP<br>http                                         |

#### ANALOG INPUTS

|                       |                                                                                                                                             |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Channels</b>       | 8                                                                                                                                           |
| <b>Type and range</b> | V ( $\pm 30$ V)<br>mV ( $\pm 150$ mV)<br>mA ( $\pm 24$ mA)<br>TC: J, K, T, E, N, R, S, B, L<br>Pt100 / cold joint - input 1 (-200...+650°C) |
| <b>ADC</b>            | 24 bit                                                                                                                                      |
| <b>Update time</b>    | 25 ms per channel                                                                                                                           |
| <b>Thermal drift</b>  | 50 ppm                                                                                                                                      |
| <b>Accuracy</b>       | 0,1% f.s (0,1°C Pt100)                                                                                                                      |

#### DIGITAL CHANNELS

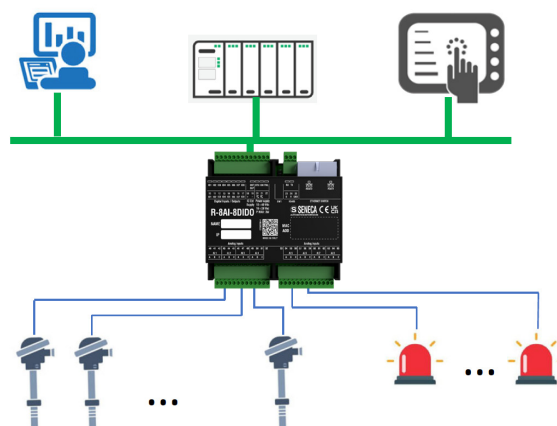
|                       |                                                                                                      |
|-----------------------|------------------------------------------------------------------------------------------------------|
| <b>Channels</b>       | Nr.8 individually configurable I/O channels                                                          |
| <b>Type and range</b> | Input: ON/OFF: > 9 V; < 4 V; Vmax: 28 V<br>Output: MOSFET, PNP; voltage / current max.: 0,2 A / 28 V |

#### ORDER CODES

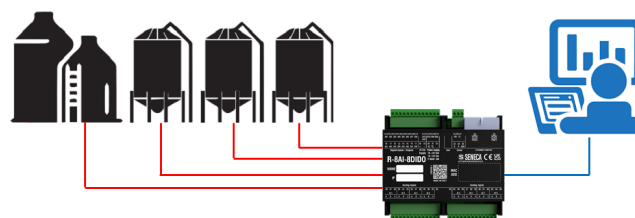
| Codes                   | Description                                                                                            |
|-------------------------|--------------------------------------------------------------------------------------------------------|
| <b>MIXED I/O MODULE</b> |                                                                                                        |
| <b>R-8AI-8DIDO-2</b>    | 8-CH universal analog inputs, 8-CH digital inputs/outputs<br>(2xETH) Modbus TCP-IP / Modbus RTU module |
| <b>ACCESSORIES</b>      |                                                                                                        |
| <b>CE-RJ45-RJ45-R</b>   | Ethernet cable (RJ45 / RJ45)                                                                           |

## APPLICATION EXAMPLES

### TEMPERATURE CONTROL



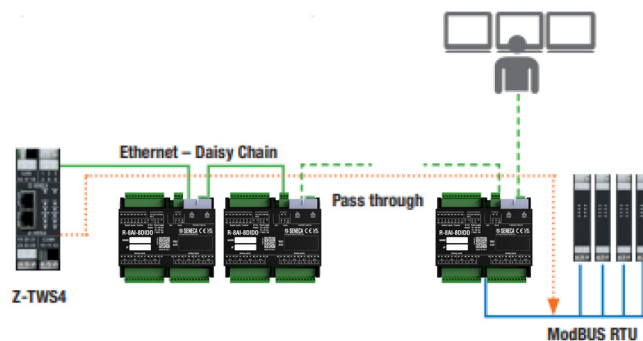
### ACQUISITION OF PROCESS MEASURES



## SPECIAL FEATURES

### DAISY-CHAIN CONNECTION

REDUCED WIRING, MINIMUM INFRASTRUCTURE COSTS  
AND INSTALLATION FLEXIBILITY



### FAULT BYPASS

MAINTAINING THE ETHERNET CHAIN CONNECTION  
EVEN IN THE EVENT OF A MODULE FAILURE

