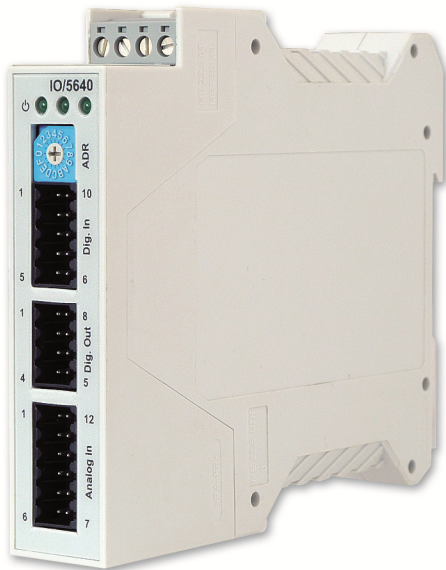


# IO/5640

## I/O-Extension for IGW/9xx-Gateways and (Industrial) PC's



- ✓ 4x Analog Input 4 – 20 mA
- ✓ 4x Analog Input 0 – 10 V
- ✓ 5x Digital Input
- ✓ 6x Digital Output
- ✓ 5x Event Counter
- ✓ Modbus RTU Slave (via RS485)
- ✓ Application-specific Code Functions

### Description

The field interfaces and the Modbus interface are galvanically isolated. All field interfaces are short-circuit-proof. The IO/5640 operates as Modbus RTU slave. Up to 15 IO/5640 can be connected to one Modbus master device.

The IO/5640's application range can be extended by Application-specific Code Functions (ACF). The ACF are special software components which enable e. g. sensor data fusion and preprocessing, high precision time measurement and more.

### Overview

- ① Screw terminals for Power and RS485
- ② Power LED
- ③ Data link/traffic LEDs
- ④ Rotary switch for Modbus address
- ⑤ Digital input interface
- ⑥ DIN-rail mounting (back)
- ⑦ Digital output interface
- ⑧ Analog input interface

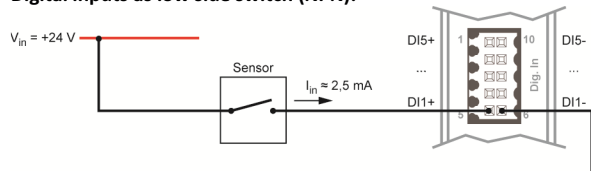
The Modbus address of the IO/5640 is set by the position of the rotary switch:  
 Modbus-Address 1 .. F = user selectable  
 Modbus-Address F = incl. RS485 termination  
 Modbus-Address 0 = for service only

#### Basic hardware elements

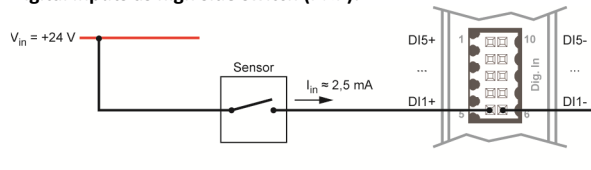
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### Connection diagrams

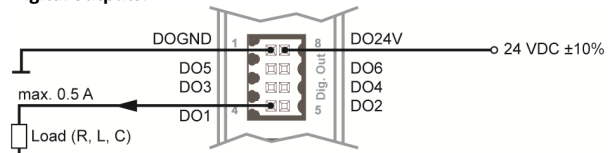
#### Digital inputs as low side switch (NPN):



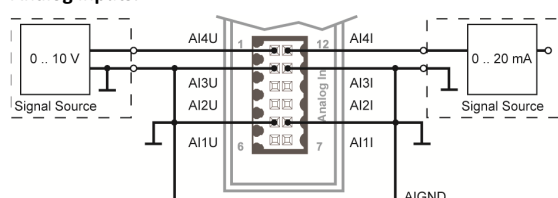
#### Digital inputs as high side switch (PNP):



#### Digital outputs:



#### Analog inputs:



## Specifications

Interfaces	
Power	1x 24 VDC power supply (screw terminal)
Serial I/Os	1x RS485 serial port for Modbus RTU (screw terminal)
Digital I/Os	5x Digital input 6x Digital output
Analog I/Os	4x Analog input 4 .. 20 mA 4x Analog input 0 .. 10 V
Properties of Digital Inputs	
Input Signal	24 VDC nominal
Input Voltage	±50 V max. (continuous load)
V <sub>m</sub> Logic 1 (High)	15 .. 30 V
V <sub>m</sub> Logic 0 (Low)	0 .. 8 V
Input Resistance	10 kΩ typ.
Input Current @24 V	2.3 mA typ.
Input Frequency	1 kHz max.
Properties of Digital Outputs (Bidirectional Switch)	
Supply Voltage	24 VDC ±10%
Power Consumption	15 mA (module + load)
Connectable Loads	Resistive (R), capacitive (C), inductive (L)
Switching Frequency	3 kHz max.
Output Current	0.5 A max.
Short Circuit Current	1.1 A typ. (thermal shutdown + overtemperature signal)
ON Resistance	150 .. 320 mΩ @0.5 A
Absorbable Energy	$W_{max} = 1 J (L_{max} = 2 \times W_{max} / I^2)$
Overcurrent Protect.	Yes
Overvoltage Protect.	Yes
Diagnosis Feedback	Internal, via Modbus
Properties of Analog Inputs 0 – 10 V	
Input Voltage	±17 V max. (with overcurrent/-voltage protection)
Signal Voltage	0 .. 10 V
Input Resistance	1 MΩ typ.
Signal Source Imped.	<= 10 kΩ
Resolution	12 bit
Conversion Rate	10 ms typ.
Measurement Errors	< ±0.2% of full scale value @25° C
Temp. Coefficient	< ±0.0015%/K of full scale value for 0 .. 70° C
Properties of Analog Inputs 4 – 20 mA	
Input Voltage	±10 V (with overcurrent/-voltage protection)
Signal Current	0 .. 20 mA typ.
Shunt Resistance	242 Ω
Resolution	12 bit
Conversion Rate	10 ms typ.
Measurement Errors	< ±0.2% of full scale value @25° C
Temp. Coefficient	< ±0.0025%/K of full scale value for 0 .. 70° C
Modbus	
Protocol	Modbus RTU slave via RS485 (half duplex)
Transfer Parameters	19.200 Baud, parity: "EVEN", stop bit: 1, timeout: 2000 μs
Miscellaneous	Up to 15 IO/5640 can be connected to one Modbus master
Electrical Wiring	
Cable Cross Section	0.08 .. 1 mm <sup>2</sup> (AWG28 to AWG18) Recommended: 0.2 .. 1 mm <sup>2</sup> (with wire end ferrule 0.34 mm <sup>2</sup> )
Stripping Length	7 mm
Special Functions	
ACF	Application-specific Code Functions

Displays / Control Elements	
LEDs	1x Power 1x RX Traffic 1x TX Traffic
Rotary switches	1x for Modbus/RS485 address (front panel)
Electrical Characteristics	
Power supply	24 VDC ±10% from external power supply
Power consumption	< 1 W
Mechanical Characteristics	
Protection class	IP20 industrial case for 35 mm DIN-rail mounting
Mass	< 200 g
Dimensions	112 mm x 100 mm x 22,5 mm
Operating temp.	0 .. 70 °C
Standards and Certifications	
EMC	CE
EMC interference immunity	EN 61000 6-2
EMC interference emission	EN 61000 6-4
Environmental standards	RoHS, WEEE
Order information	
Order number	PX-87796

## Scope of Delivery

- 1x Analog/Digital I/O-Extension IO/5640

## Startup Package (optional)

- 1x Plug-in power supply
- USB-to-RS485 Adapter for PC's

## Product Variants

- Customized variants with preinstalled configuration and/or Application-specific Code Functions (ACF) as well as individual case design on request.

## Compatible Products

- IGW/9xx
- (I)PC with RS485

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