SENECA Z-D-IN Digital Input or Output Modules Instruction Manual

INSTALLATION MANUAL
Z-D-IN

Contents

PRELIMINARY WARNINGS

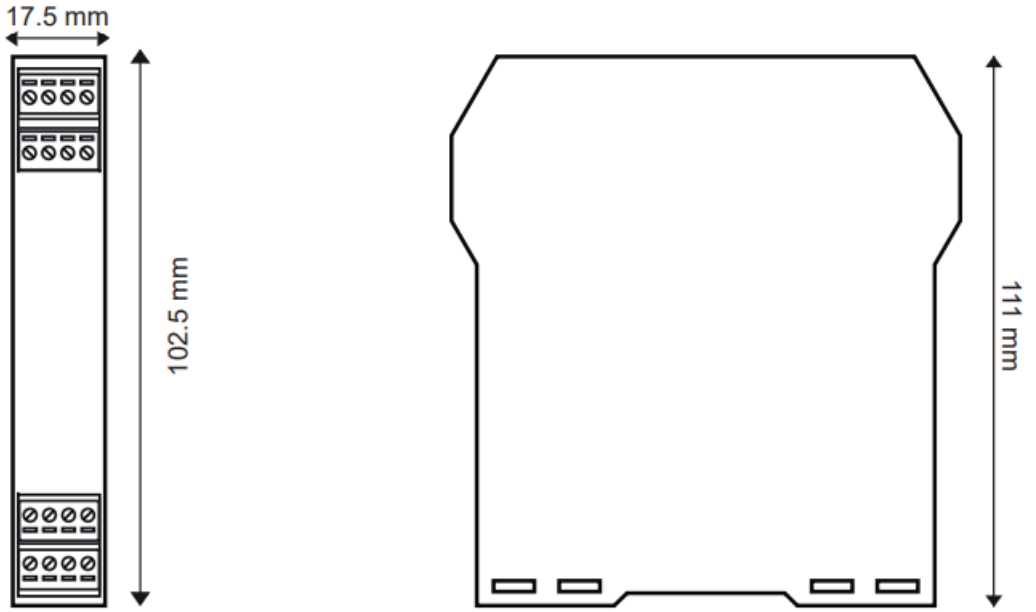
The word WARNING preceded by the symbol ⚠ indicates conditions or actions that put the user's safety at risk.

The word ATTENTION preceded by the symbol ⚠ indicates conditions or actions that might damage the

instrument or the connected equipment. The warranty shall become null and void in the event of improper use or tampering with the module or devices supplied by the manufacturer as necessary for its correct operation, and if the instructions contained in this manual are not followed.

	**WARNING:** The full content of this manual must be read before any operation. The module must o nly be used by qualified electricians. Specific documentation is available via QR-CODE shown on p age 1.
	The module must be repaired and damaged parts replaced by the Manufacturer. The product is se nsitive to electrostatic discharges. Take appropriate measures during any operation.
	Electrical and electronic waste disposal (applicable in the European Union and other countries with recycling). The symbol on the product or its packaging shows the product must be surrendered to a collection center authorized to recycle electrical and electronic waste.

MODULE LAYOUT

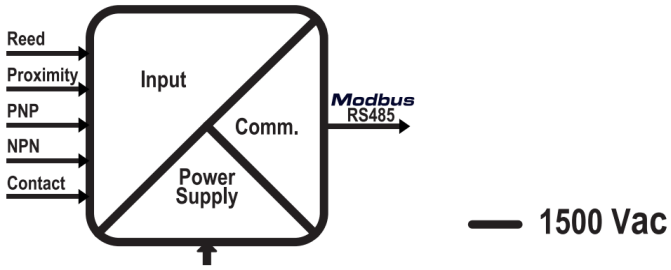


Dimensions LxHxD 17.5 x 102.5 x 111 mm; **Weight:** 110 g; **Enclosure:** PA6, black

SIGNALS VIA LED ON FRONT PANEL

LED	**STATUS**	**LED meaning**
PWR Green	ON	The device is powered correctly
FAIL yellow	ON	Anomaly or fault
FAIL yellow	Flashing	Wrong setup
RX Red	ON	Connection check
RX Red	Flashing	Receipt of packet completed
TX Red	Flashing	Transmission of packet completed

TECHNICAL SPECIFICATIONS

CERTIFICATIONS	https://www.seneca.it/products/z-d-in/doc/CE_declaration
INSULATION	
POWER SUPPLY	Voltage: 10 ÷ 40Vdc; 19 ÷ 28Vac; 50 ÷ 60Hz Absorption: Typical: 1.5W @ 24Vdc, Max: 2.5W
USE	Use in environments with pollution degree 2. The power supply unit must be class 2.
ENVIRONMENTAL CONDITIONS	Temperature: -10÷ + 65°C Humidity: 30%÷ 90% at 40°C noncondensing. Altitude: Up to 2,000 m above sea level Storage temperature: -20÷ + 85°C Degree of protection: IP20.
ASSEMBLY	IEC EN60715, 35mm DIN rail in vertical position.
CONNECTIONS	3-way removable screw terminals, 5mm pitch, 2.5mm2 section Rear connector IDC10 for DIN bar 46277

INPUTS	
Type of supported inputs:	Reed, Contatto, proximity PNP, NPN (with external resistance)
A number of channels:	5 (4+ 1) self-powered at 16Vdc
Totalizer maximum frequency	100 Hz for channels from 1 to 5 10 kHz only for input 5 (after setting)
UL (Status OFF)	0 ÷ 10 Vdc, I < 2mA
UH (status ON)	12 ÷ 30 Vdc; I > 3mA
Absorbed current	3mA (for each active input)
Protection	By means of transient TVS suppressors of 600 W/ms.

CONFIGURATION OF FACTORY SETTINGS

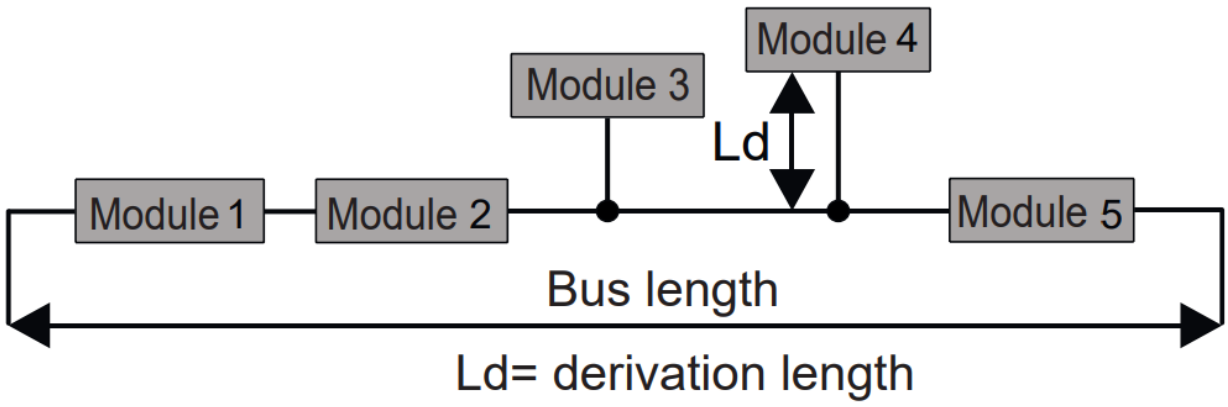
All DIP-switches in	OFF
Communication parameters of Modbus protocol:	38400 8, N, 1 Address 1
Input status inversion:	DISABLED
Digital filter	3ms
Totalizers	Counting to increment
Channel 5 at 10 kHz	Disabled
Modbus latency time	5ms

Modbus CONNECTION RULES

1. Install the modules in the DIN rail (120 max)
2. Connect the remote modules using cables of an appropriate length. The following table shows cable length data:
   – Bus length: maximum length of the Modbus network according to the Baud Rate. This is the length of the cables that connect the two farthest modules (see Diagram 1).
   – Derivation length: maximum length of a derivation 2 m (see Diagram 1).

Diagram 1

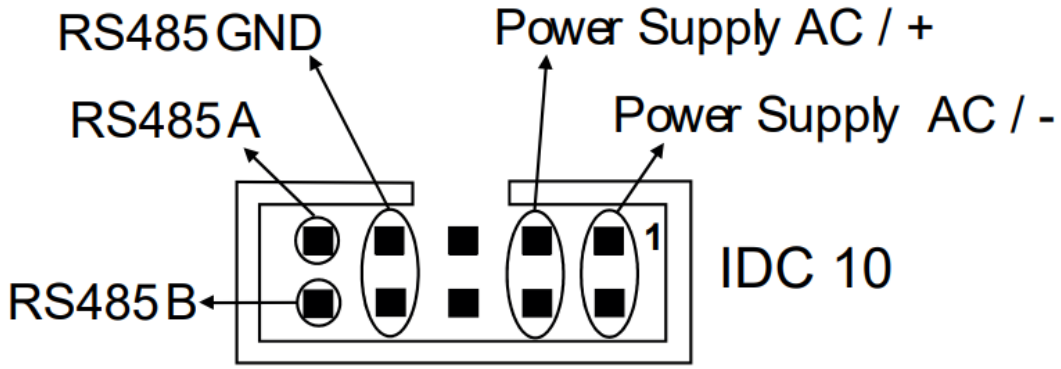
Bus length	Derivation length
1200 m	2 m



For maximum performance, it is recommended to use special shielded cables, such as BELDEN 9841.

IDC10 CONNECTOR

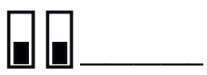
Power supply and Modbus interface are available using the Seneca DIN rail bus, via the IDC10 rear connector, or the Z-PC-DINAL2-17.5 accessory.



Rear Connector (IDC 10)
The meaning of the various pins on the IDC10 connector is shown in the figure if you wish to supply signals directly via it.

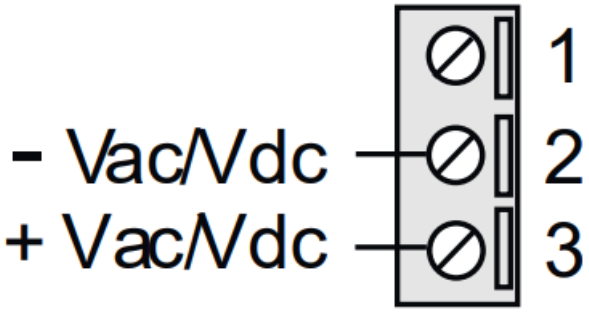
SETTING THE DIP-SWITCHES

The position of the DIP-switches defines the Modbus communication parameters of the module: Address and Baud Rate
The following table shows the values of the Baud Rate and the Address according to the setting of the DIP switches:

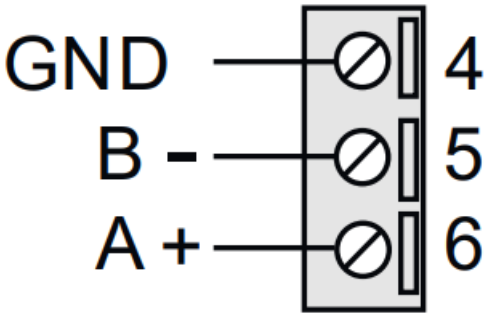
DIP-Switch status					
SW1 POSITION 1 2 3 4 5 6 7 8	BAUD RATE	SW1 POSITION 3 4 5 6 7 8	ADDRESS	POSITION 10	TERMINATOR
	9600		#1		Disabled
	19200		#2		Enabled
	38400	•••••••	#…		
	57600		#63		
	From EEPROM		From EEPROM		

Note: When DIP switches 3 to 8 are OFF, the communication settings are taken from programming (EEPROM).
Note 2: The RS485 line must be terminated only at the ends of the communication line.
The settings of the dip-switches must be compatible with the settings on the registers.
The description of the registers is available in the USER MANUAL.

ELECTRICAL CONNECTIONS

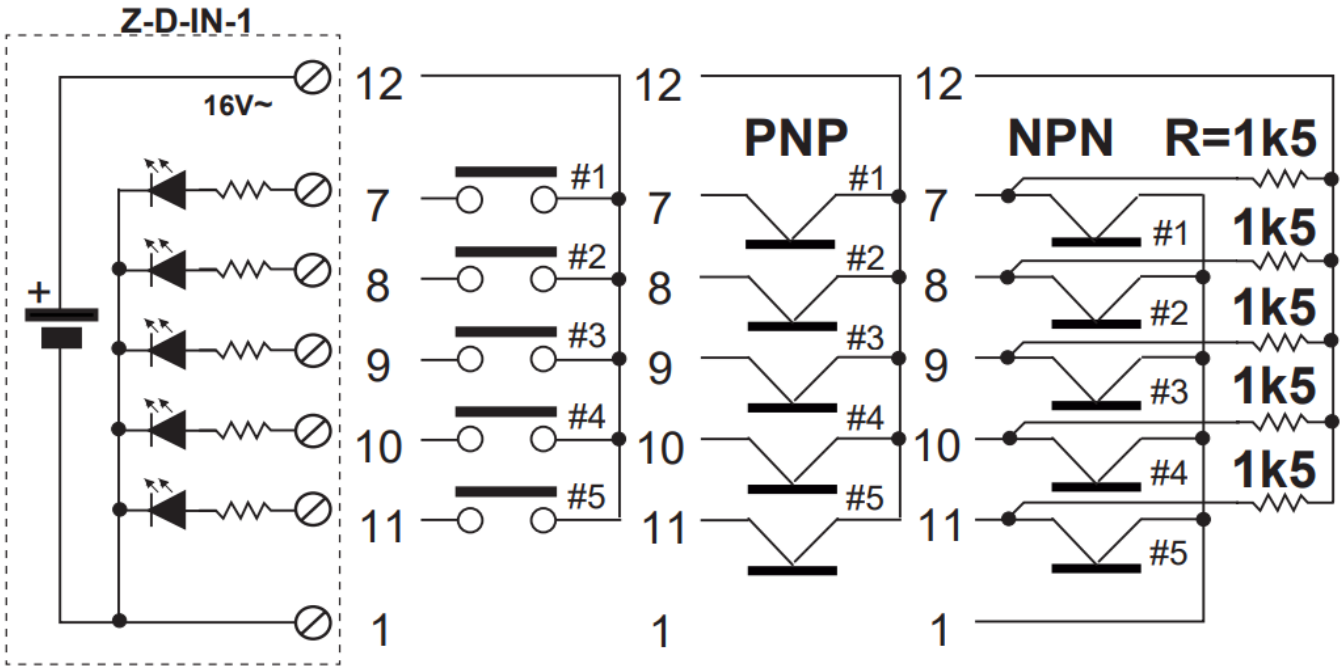


Power supply:
The upper limits must not be exceeded in order to avoid serious damage to the module.
If the power supply source is not protected against overload, a safety fuse must be installed in the power supply line with a value suitable to what the situation requires.



Modbus RS485
Connection for RS485 communication using the MODBUS master system as an alternative to the Z-PC-DINx bus.
N.B.: The indication of the RS485 connection polarity is not standardized and in some devices may be inverted.

INPUTS



INPUT SETTINGS:
Default settings:
Input #1: 0 – 100 Hz (16BIT)
Input #2: 0 – 100 Hz (16BIT)
Input #3: 0 – 100 Hz (16BIT)

Input #4: 0 – 100 Hz (16BIT)
Input #5: 0 – 100 Hz (16BIT)
Input #5 can be set as a totalizer:
Input #5: 0 – 10 kHz (32BIT)

ATTENTION

The upper power supply limits must not be exceeded, as this might cause serious damage to the module. Switch the module off before connecting inputs and outputs.

To meet the electromagnetic immunity requirements:

- use shielded signal cables;
- connect the shield to a preferential instrumentation earth system;
- a fuse with a MAX. rating of 0,5 A must be installed near the module.
- separate shielded cables from other cables used for power installations (inverters, motors, induction ovens, etc…).
- make sure that the module is not supplied with a supply voltage higher than that indicated in the technical specifications in order not to damage it.

DOCUMENTATION
Z-D-IN
www.seneca.it/products/z-d-in

QUALITY MANAGEMENT SYSTEM
ISO 9001:2015

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Documents / Resources

	SENECA Z-D-IN Digital Input or Output Modules [pdf] Instruction Manual Z-D-IN, Digital Input or Output Modules, Z-D-IN Digital Input or Output Modules

References

- seneca.it/products/z-d-in/doc/CE_declaration