SENECA

Z-PC Line

Z-TWS3

Tiny WEB SERVER, with PLC function for Modbus and CAN network

Installation Manual

Contents:

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For manual and configuration softwares, see www.seneca.it

Power supply

Voltage	10 ..40 V_{DC} 19 ..28 V_{AC} @ 50 ..60 Hz
Consumption	Max: 3.5 W

Environmental condition

Temperature	0 ..+55°C
Humidity	30 ..90% a 40°C not condensing
Storage Temperature	-20 ..+85°C
Degree protection	IP20

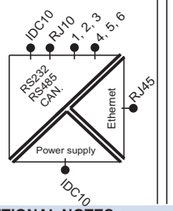
Connections

Connections	Removable 3-way screw terminals, 5,08 pitch
	Rear IDC10 connector for DIN 46277 rail
	RJ10-4/4, RJ45 (on frontal)

Box / Dimensions

Dimensions	L: 100 mm; H: 112 mm; W: 17,5 mm
Contenitore	Nylon 6 with 30% fibreglass field, self extinguishing class V0, black color.

Isolations 1500 V



Standards

The module complies with the following standards:

EN61000-6-4/2002-10 (electromagnetic emission, industrial environment).

EN61000-6-2/2006-10 (electromagnetic immunity, industrial environment)

EN61010-1/2001 (safety). All circuits must be isolated from the other circuits under dangerous voltage with double isolation. The power supply transformer must comply with EN60742: “Isolated transformers and safety transformers”.

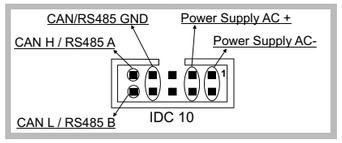
ADDITIONAL NOTES :
Use in Pollution Degree 2 Environment .
Power Supply must be Class 2.
When supplied by an Isolated Limited Voltage/Limited Current power supply a fuse rated max 2.5 A shall be installed in the field.

ELECTRICAL CONNECTIONS

Power supply, Modbus and CAN interface

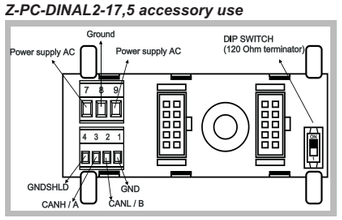
Power Supply and Modbus interface are available by using the bus for the Seneca DIN rail, by the rear IDC10 connector or by Z-PC-DINAL2-17.5 accessory.

Rear connector (IDC10)



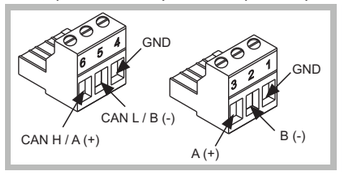
The picture shows the meaning of the IDC10 connector pins. **Power supply is available only from rear connector.**

Z-PC-DINAL2-17,5 accessory use



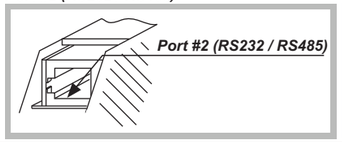
If Z-PC-DINAL2-17,5 accessory is used, the power supply signals and communication signals may be provided by the terminals block into the DIN rail support. In the figure are shown the meaning and the position of the terminal blocks. The DIP-switch that set the 120 Ω terminator is used only for CAN communication.
GNDSHLD: Shield to protect the connection cables (recommended).

Port #1(Modbus / CAN) & Port #3 (Modbus)



RS485 and CAN communications ca be available either from screw terminals blocks. For a correct employment the jumper (in side of the module) must be set in the correct position. For the best performance is recommended the use of a specific shielded cable.

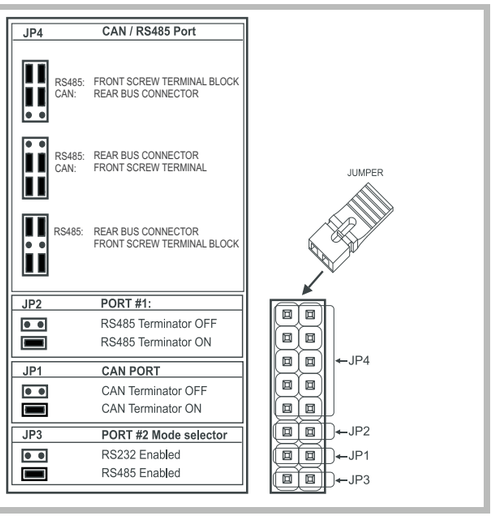
Port #2 (RS232 / RS485)



RS485 or RS232 can be connected with RJ10 4/4. The cable for the standard connections can bemountes as is explain in the paragraph: «RS232 & RS485 cable assembling». The lenght of the cable don’t have exceeded the 3 meters.

JUMPER SETTING

A correct position of jumpers is necessary to choose a specified combination of the various communication ports.
An incorrect configurations preclude the employment of the module.



LEDs signallings

LED	STATE	*Meaning of LEDs*
PWR	On	Power supply presence.
ERR	On	Fault / failure.
RUN	Blinking	Application routine not installed.
	On	Application routine installed.
LNK	Off	Ethernet connection ok.
	On	Ethernet connection absent.

GENERAL SPECIFICATIONS

- Remote or local control for PLC function to manage a medium and small automated plants.
- Master / Slave Modbus on RS232 / RS485.
- Configure the module applications with ISAgraf and Z-NET softwares that can be compliant for IEC 61131.
- CANopen communication protocol.
- Recording the signal waveforms with DATALOGGER function.
- 10 Base-T Ethernet port with Ethernet / Modbus TCP/IP communication protocol on frontal for an easy connection to PC.
- CAN communication ports with CANopen protocol.
- System protocol: PPP, HTTP, FTP, SMTP, MODBUS, CANopen.
- 32 bit internal CPU with RISC at 20 Mips
- 16MB Flash memory
- 8 MB RAM memory
- 1500 Vac output isolation compared with other low voltage circuits.
- Easy connections for power supply and serial communication by seneca bus that can be mounted on standard DIN 46277 rail.
- Removable screw terminals with section of 2.5 mm^2

TECHNICAL FEATURES

Communication port

RS485	Maximum Baud rate 115 k, Communication port: #1, #3, #2 and rear from IDC10 (see the paragraph «Jumper setting»).
RS232	Maximum Baud rate 115 k, Communication port: #2 e #0 (see the paragraph «Jumper setting»)
CAN	CAN bus port, maximum Baud rate 1 Mbit, Communication port: #1 (see the paragraph «Jumper setting»)
Ethernet	Protocollo TCP/IP, maximum Baud rate 10 Mbit, Communication port: On frontal from RJ45 Maximum connection lenght 100 m.

CPU & memory

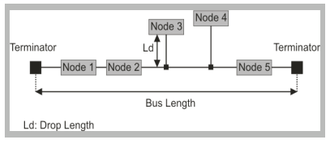
CPU	R.I.S.C. @ 32 bit, max speed 20 Mips.
Memory	8 MByte of RAM 16 MByte of FLASH.

CANOPEN AND MODBUS CONNECTIONS

1) Connect the module into the DIN rail (max 120)
2) Use a cable with a suitable length to connect the remote modules. In the following table there are data relative to:
- Maximum length of the Modbus bus: It defines the connection length between two modules that have bus terminator dip switch on . (see scheme 1).
-Drop lenght: Maximum lenght of branch (see scheme 1).

	Bus lenght	Drop Lenght	Baud rate
Modbus	1200 m	2 m	115 kbps
CAN	2500 m	150 m	20 kbps
	1000 m	60 m	50 kbps
	500 m	5 m	125 kbps
	250 m	5 m	250 kbps
	100 m	5 m	500 kbps
	50 m	3 m	800 kbps
	25 m	0.3 m	1 Mbps

Schema 1



For the maximum performances it’s recommended to use a specific schielded cable, as an example BELDEN 9841.

INSTALLATION

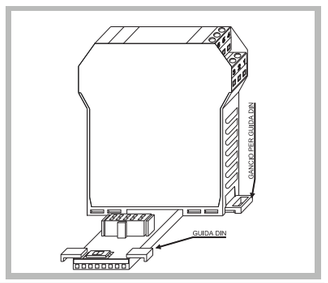
The module is designed to be installed, in vertical position, on DIN 46277 rail. For the best module performance and duration, avoid to place cables raceways and other objects that could obstruct ventilation slits.
Never install the modules near heat sources. The module installation is adviced in the bottom of the control panel..

Inserting in the DIN rail

How the picture shows:

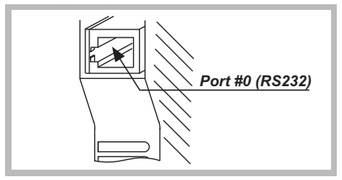
1) Insert the module IDC10 rear connnector on the DIN rail free slot (inserting is univocal because connectors are polarized).

2) The module can be fixed on the DIN rail through the clench of the two hooks in the bottom.



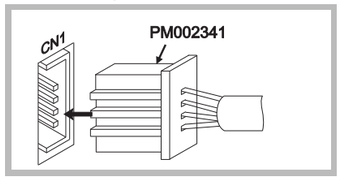
Schema 2

Port #0 (RS232)



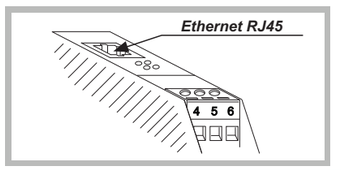
The cable for the standard connection can be mounted as is explained in the paragraph: «RS232 & RS485 cable assembling». The lenght of the cable don’t have exceeded the 3 meters.

Connessione TpWire



The TpWire connection, consent the connection between more I/O modules.
PM002341 is the specific cable for the TpWire connection, this cable don’t be extended otherwise the communication between the modules may be lost.

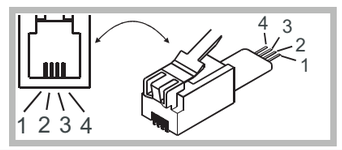
Ethernet connection RJ45 (on frontal)



Ethernet port on frontal of the module for an easy connections to PC.

RS232 & RS485 cable assembling

RS485 and RS232 connection cable for the standard serial communication can be assembling as in the picture below , or can be bought as accessory (cod. PM001601).



RS485 assembling:
4 = A(+), 3 = GND, 2 = 1 = B(-). **The lenght of the cable don’t have exceeded the 3 meters.**
RS232 assembling:
4 = RTS, 3 = GND, 2 = RX, 1 = TX. **The lenght of the cable don’t have exceeded the 3 meters.**

FACTORY SETTINGS AND ADVANCED SETTINGS

Factory settings

Setting of communication port:

- Port #1: RS485
- Port #2: RS485
- Port #3: RS485

Advanced setting

` Enable or Disable the CAN communication by jumper.

` Configure the PLC features with Seneca software configurator that can be download from www.seneca.it.

Variations of standard parameters are possible by using configuration softwares Z-NET and EASY-Z-PC (www.seneca.it).
For more information about a list of all register and their function consult the USER manual

ACCESSORIES

CODE	DESCRIPTION
PM001420	Serial cable Z-TWS-PC (RJ10-DB9)
PM001430	Serial cable Z-TWS-MODEM (RJ10-DB25)
PM001440	Serial cable Z-TWS-OP (RJ10-DB25)
PM001450	Ethernet straight cable
PM001460	Ethernet crossed cable
PM001530	Cable Z-TWS-MODEM (RJ10-DB9)
PM002460	Serial cable RS485-TpWire
PM002341	TpWire connection cable
Z-PC-DINAL1-35	Bus support: Screw terminals + 2 slot to connect Z-PC line modules
Z-PC-DINAL2-17.5	Bus support: Screw terminals + 1 slot to connect Z-PC line module
Z-PC-DIN1-35	Bus support: 1 slot to connect Z-PC line module
Z-PC-DIN2-17.5	Bus support: 2 slot to connect Z-PC line module
Z-PC-DIN4-35	Bus support: 4 slot to connect Z-PC line module
Z-PC-DIN8-17.5	Bus support: 8 slot to connect Z-PC line module

Disposal of Electrical & Electronic Equipment (Applicable throughout the European Union and other European countries with separate collections programs). This symbol, found on your producr or on its packaging, indicates that this product should not be treated as household waste when you wish to dispose of it. Instead, it should be handed over to an applicable collection point for the recycling of electrical & electronic equipment. By ensuring this product is didposed of correctly, you will help prevent potential negative consequences to the environment and human health, which could otherwise be caused by inappropriate disposal of this product. The recycling of materials will help to conserve natural resources. For more detailed information about the recycling of the product, please contact your local city office, waste disposal service of the retail store where you purchased this product.