INSTALLATION MANUAL

Z-TWS4 -IO

Web Multifunction Controller
Straton / Linux

EN



c UL us
LISTED
3LUT

SENECA

ISO 9001:2008

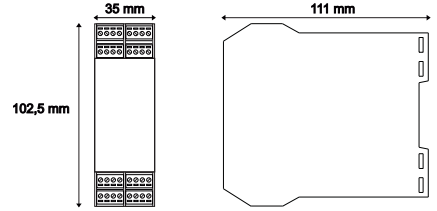
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Manuals and configuration software are available at website: www.seneca.it/products/z-tws4

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MODULE LAYOUT



Dimensions (W×H×D)	35 x 100 x 111 mm (included terminals).
Weight	210 g.
Case	Material PA6, black color.

LED SIGNALLING ON FRONT PANEL

LED	Status	LED's meaning
PWR (Green)	ON	The device is powered
	OFF	Device is powered off
RUN (Green)	Blinking	Device is ready for use
	OFF	Device is booting
DIDO (Green)	ON	Configurable input1 or output1 state is HIGH
	OFF	Configurable input1 or output1 state is LOW
DO (Green)	ON	DO digital output state is HIGH
	OFF	DO digital output state is LOW
RCD (Green)	ON	Remote connection is disabled
	OFF	Remote connection is enabled
VPN (Green)	ON / OFF	VPN connection is working properly / VPN connection is disabled
	Blinking	VPN connection is not working properly
LAN/WAN (Green)	ON	Ethernet ports are working in LAN/WAN mode
	OFF	Ethernet ports are working in SWITCH mode
SERV (Green)	ON	VPN Box "SERVICE" connection is working properly
	Blinking	VPN Box "SERVICE" connection is not working properly
	OFF	VPN Box "SERVICE" connection is disabled
RX2-4 (Green)	Blinking	RX2 data reception on COM2 port, RX4 on COM4 port
	ON	RX2 check the COM2 port connection, RX4 check the COM4 port
	OFF	RX2 no data reception on COM2 port, RX4 on COM4 port
TX2-4 (Green)	Blinking	TX2 data transmission on COM2 port, TX4 on COM4 port
	ON	TX2 check the COM2 port connection, TX4 check the COM4 port
	OFF	TX2 no data transmission on COM 2 port, TX4 on COM4 port

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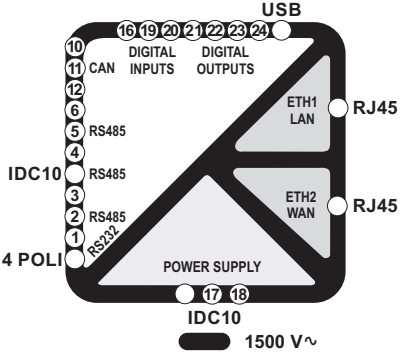
LED SIGNALLING ON FRONT PANEL

LED	Status	LED's meaning
ETH1/ETH2 (Verde)	ON	Ethernet 1-2 connection detected.
	OFF	Ethernet 1-2 connection absent.
ETH1/ETH2 (Giallo)	Blinking	Ethernet 1-2 data activity.
	OFF	Ethernet 1-2 no data activity.

⚠ ATTENTION

The device may only be powered by a power supply unit with a limited energy electric circuit max. 40Vdc / 28Vac Max output in accordance with CAN/CSA-C22.2 No. 61010-1-12 / UL Std. No. 61010-1 (3rd Edition) chapter 6.3.1/6.3.2 and 9.4 or class 2 according to CSA 223/UL 1310.

TECHNICAL SPECIFICATIONS

STANDARDS	**EN61000-6-4** Electromagnetic emission, industrial environment **EN61000-6-2** Electromagnetic immunity, industrial environment **EN61010-1** Safety
INSULATION	
ENVIRONMENTAL COND.	Temperature: -20 – + 65°C. Humidity: 30% – 90% not condensing. Storage temperature: -30 – + 85°C. Protection degree: IP20 (Not evaluated by UL)
MOUNTING	IEC EN60715 DIN rail.
CONNECTIONS	6 removable 3-way screw terminals, 5,08 mm pitch for up to 2.5 mm^2 cable, 1 rear IDC10, 1 serial 4 way removable connector, 1 micro SD slot, 2 RJ45 Ethernet connector and 1 USB connector.

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TECHNICAL SPECIFICATIONS

COMMUNICATION PORTS	COM1 RS232/RS485: removable 4 pin connector Max. cable L= 3 m. COM2 RS485: M1-M2-M3 terminals or IDC10 rear connector. COM4 RS485: screw terminals M4-M5-M6. Max. baud rate: 115 kbps Min. baud rate: 200 bps. USB HOST type A. ETH1 and ETH2 Fast Ethernet 10/100 Mbps RJ45 connectors; Max. connection length 100 m. CAN bus screw: terminals M10-M11-M12
POWERSUPPLY Voltage Power absorbed	 11 – 40 Vdc or 19 – 28 Vac 50 – 60 Hz. Max 4W.
DIGITAL INPUTS	Max. number of channels: 2. Voltage: OFF<4V ON>8V. Max. Current (Vout+): 20mA. Current absorbed: 3mA at 12Vdc; 6mA at 24Vdc.
DIGITAL OUTPUTS	Max. number of channels: 3. Voltage (+Vext): 10 – 24Vdc Current: Max. 200mA. Outputs protected against short-circuit and over-temperature.
PROCESSOR	ARM 32bits
MEMORIES	64 MB RAM and 1 GB FLASH External memory slot for micro SD card (max. 32 GB Card supported)
PROTOCOLS	FTP server, SFTP server, HTTP server, ModBUS TCP server, ModBUS RTU master, ModBUS RTU slave, STEP 7, IEC 60870-101/104, IEC 61850.
CHARACTERISTICS	Embedded Web-server. Firmware upgradable via web-server.

PRELIMINARY WARNINGS

	**Before performing any operation is mandatory to read the full contents of this manual.** The module may only be used by qualified and skilled technicians in the field of electric installation. Specific documentation is available for download at website: www.seneca.it/products/z-tws4.
	Only the Manufacturer is authorized to repair the module or to replace damaged parts. The product is susceptible to electrostatic discharge, take appropriate countermeasures during any operation.
	No warranty is guaranteed in connection with faults resulting from improper use, from modifications or repairs carried out by Manufacturer-unauthorized personnel on the device, or if the content of this user Manual is not followed.
	Disposal of electrical & electronic equipment (applicable throughout the EU and other countries with separate collection programs). The symbol found on this product or on its packaging, indicates that this product it must be handed over to an applicable collection point for **the recycling of electrical and electronic equipments.**

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INSTALLATION RULES

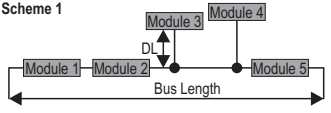
These are open-type devices and intended for installation in an end enclosure / panel offering mechanical protection and protection against spread of fire.

In order to ensure optimum performance and a longest working life, the module must be provided with adequate ventilation and no raceways or other objects that can obstruct the ventilation slots.
Never install the modules near heat sources.
We recommend installation in the lower part of the control panel.

MODBUS CONNECTION STANDARDS

1) Install the modules on the DIN rail.
2) Connect the remote modules using cables of proper length (see Scheme 1).
On the table the following data about the cables length are provided:
-Bus Length: Modbus network maximum length as a function of the Baud rate.
It is the length of the cables which connect the two bus terminators modules (see Scheme 1).
-Drop Length (DL): maximum length of a drop line (see Scheme 1).

Scheme 1



DL: Derivation Length

• MODBUS Scheme 1

Bus length	Derivation Length	Baudrate
1200 m	2 m	115kbps

In order to obtain maximum performances it's recommended to use a specific shielded cable.

INSTALLATION ON AND REMOVAL FROM IEC EN 60715 DIN RAIL

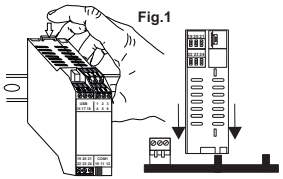


Fig.1

Insertion on the IEC EN 60715 DIN rail:
1) Move the two hooks on the back of the module outwards as illustrated in **Pic.2**.
2) Insert the module rear IDC10 connector into a free slot of DIN rail accessory as you can see in **Pic.1**. (the insertion is one way only because the connectors are polarized).
3) To secure the module to the IEC EN 60715 DIN rail, tighten the two hooks on the side of the IDC10 rear connector as shown in **Pic.1**.

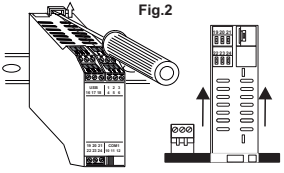


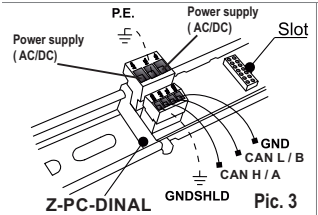
Fig.2

Removal from IEC EN 60715 DIN rail:
As shown in **Pic.2**:
1) Move outwards the two hooks on the side of the module, with the help of a screwdriver.
2) Extract the module from the IEC EN 60715 DIN rail.

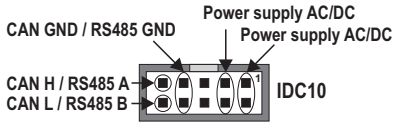
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USE OF Z-PC-DINAL ACCESSORY

Please pay attention about the right module insertion the IDC10 connector (Z-PC-DINAL1-35). The IDC10 connector located on the rear of the module will be inserted on a free slot of Z-PC-DIN/DINAL accessory. In the figure you can see the meaning of the various pins of the rear IDC10 connector if you want to provide the signals directly through this connector. The pictures **Pic.3** and **Pic.4** show how to connect power supply and RS485 COM2 port to the rear IDC10 connector.
GNDSHLD: Shield to protect the signals in the connection cables (recommended).



Pic. 3



Pic.4

ELECTRICAL CONNECTIONS

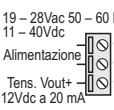
In order to satisfy the electromagnetic compliance requirements:
- Use shielded cables for signals transmission.
- Connect the shield to a preferential ground for devices.
- Space the shielded cables from power cables installations.(inverters, motors, etc...).

⚠ ATTENTION

Use copper or copper-clad aluminum conductors only or AL-CU or CU-AL

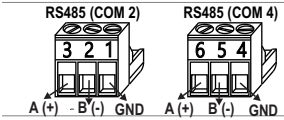
• POWER SUPPLY





In addition to the IDC10 connector, power supply can also be supplied by terminals 17 and 18. **NOTE:** A minimum 1A safety fuse, delayed, must be installed in the power supply line near the device.

• RS485 COM 2 AND RS485 COM 4 PORTS



The module has two serial communication RS485 ports: COM2 and COM4.
The RS485 COM2 port can be connected through 1, 2 and 3 screw terminals or by rear IDC10 connector.

• PORTA CANopen

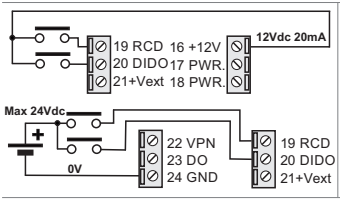


The module has a CANopen port on the 10, 11 and 12 screw terminals or by rear IDC10 connector. To have CANopen port on IDC10 connector, switch the SW1 switch to ON position.

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OTHER ELECTRICAL CONNECTIONS

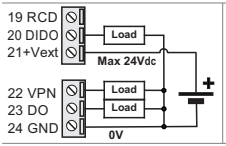
• ELECTRICAL CONNECTIONS FOR DIGITAL INPUTS (RCD and DIDO)



The device has :
- 1 Digital input (RCD) reserved for disable the remote connection.
- 1 channel software configurables as digital input or alternatively, as digital output (DIDO).

The inputs, as shown in the picture, can be powered internally or externally.
For configuration and more information please refer to the USER MANUAL.

• ELECTRICAL CONNECTIONS FOR DIGITAL OUTPUTS (VPN, DO and DIDO)

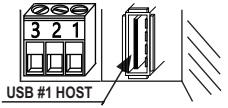


- 1 Digital output reserved to indicate that VPN is active (VPN).
- 1 Digital output (DO).
- 1 channel software configurable as digital output or alternatively, as digital input (DIDO).

For configuration and more information please refer to the USER MANUAL.

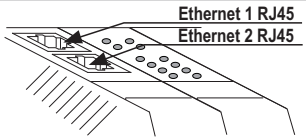
COMMUNICATION PORTS

• USB #1 HOST PORT



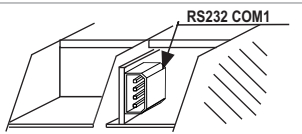
The module has a USB HOST type A connector, here you can connect a USB memory stick for firmware upgrading.
Available current: 100 mA MAX.

• ETHERNET RJ45 PORTS (ON FRONTAL PANEL)



The module has two Ethernet ports with RJ45 connectors on the front panel.
The two ports offer two operating mode: SWITCH mode or LAN / WAN mode.
The two ports have the same MAC Address.

• RS232 OR RS485 COM1 PORT(4 PINS)

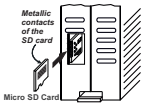


The module has a serial RS232 or RS485 COM1 port on the removable 4 pins connector.
The cable length for the RS232 interface must be less than 3 meters.

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OTHER PORTS

• SLOT FOR MICRO SD CARD

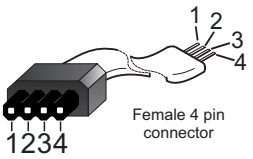


The module has a slot for micro SD card placed on the side of the case. Before pushing the micro SD or micro SHDC in this slot, please be sure that the SIM card golden contacts are facing towards left (as in the picture on side).
SD card any class Max. 32 GB.
The slot is push-push type.

RS232/485 CABLE

The 4 way for RS232 or RS485 serial connection cable can be bought by ordering Seneca code: CS-DB9M-MEF-PH.

• CABLE RS232/ RS485



PIN	RS232	RS485
1		
2	TX	B
3	RX	A
4	GND	GND

The interface RS232 cable length must be less than 3 meters.

ORDER CODES

Code	Description
Z-PC-DINAL1-35	Back Rail 35 mm width modules - Power/Bus conn. + 1 slot
Z-PC-DIN1-35	Back Rail 35 mm width modules - 1 slot
CS-DB9M-MEF-PH	Communication Cable RS232/485 1.5 mt
CE-RJ45-RJ45-R	Ethernet cable L=1.5 mt (straight).
MSD	Micro SD Card

CONTACTS

Technical support	support@seneca.it
Product Informations	sales@seneca.it

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