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INSTRUCTION MANUAL
ULTRASONIC WIND GAUGE
WG15-SONIC

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Thank you for choosing W15-SONIC ultrasonic wind gauge.

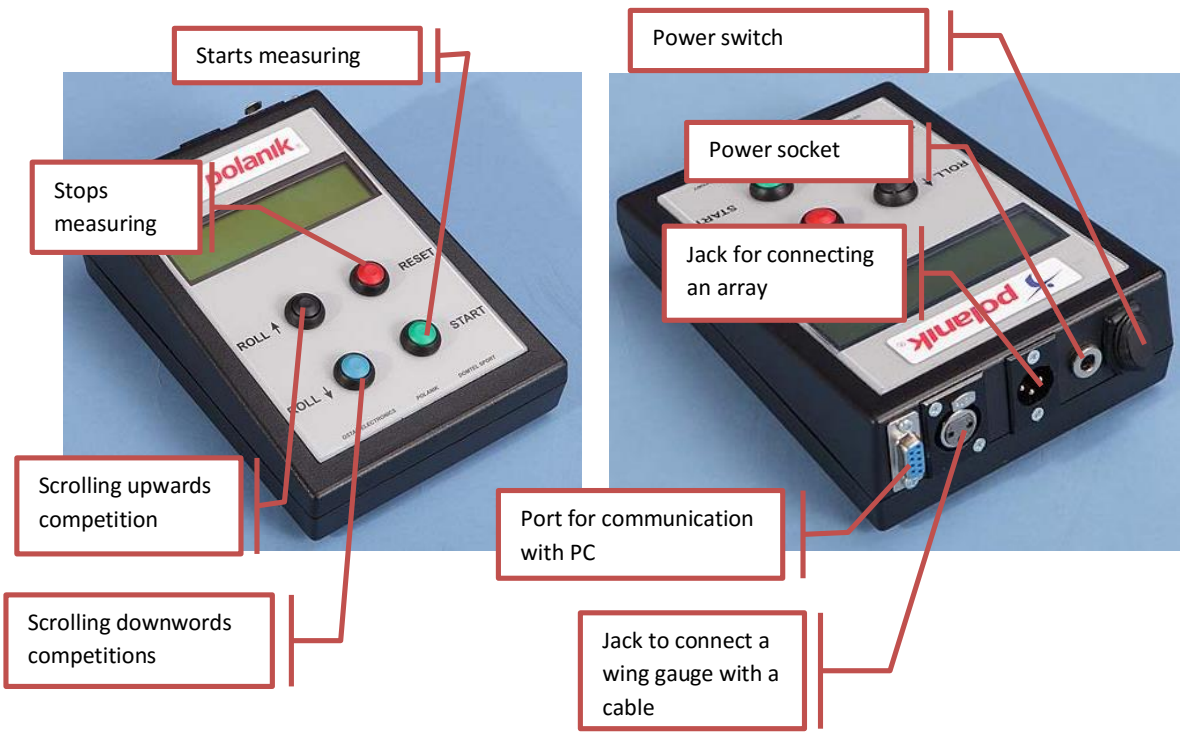
1. Introduction

Ultrasonic Wind Gauge is designed to measure the wind speed during athletics competitions and training programs. The device accuracy is 0,01 m/s, that complies with IAAF rules. The main features of the product:
- very accurate and reliable measurement,
- synthetic casing dustproof and resistant to rain,
- light and maintenance free, without moving parts,
- integrated mode and standalone operation,
- keypad, tripod and carrying case included in the set,
- battery-operated and AC adapter.

2. General description

The set elements :

Keypad:



Button caption	Function description when pressed
ROLL↓	Select next event item
ROLL↑	Select previous event item
START	Start countdown timer to take a wind velocity measurement
RESET	Reset countdown timer to prepare for measurement

The top line of the LCD display shows the competition and warning about low battery →	----------
The bottom line of the LCD display shows the speed of the wind, or countdown / next action →	----------

3. Wind gauge settings

The device set according to the label placed on it, keeping the direction of the run.

4. Operation modes

Win gauge can be operated manually or automatically via a remote computer. Two operation modes are defined:

1. Auto Control Mode: a remote computer controls the wind velocity measurement through RS485 serial communication interface.
2. Local Control Mode: users operate the wind velocity measurement by using the four control buttons on the front panel or the remote starting cable.

4.1 Auto Control Mode

For Auto Control mode, a remote computer with FinishLynx software controls the wind velocity measurement through RS485 serial communication interface. While the gauge goes into Auto Control mode, an “auto” string followed by the measure interval will be displayed on LCD panel. At this moment, the four control buttons on front panel and the remote start button won’t respond until the Auto Control mode exits. The priority of Auto Control mode command is higher than Local Control mode operation. Once the two operations conflict, the Auto Control mode command will be executed. Nevertheless, mixing use of Local Control operation with Auto Control operation is prohibited.

4.1.1 Command format for Auto Control

<0x01><0x13>CW<opcode><0x02><data><0x04>
<opcode> = R | S | I | O
<data> = <digit><digit>
<digit> 0|1|2|3|4|5|6|7|8|9

Opcode:
R - Reset.
<data> = nothing, send '00'
S - Start. Begin taking a wind reading.
<data> = nothing, send '00'
I - Interval. Set the length of the next reading.
<data> = number of seconds
O - Output. Send the most recent reading.
<data> = nothing. send '00'

4.1.2 Data format for Auto Control

<0x01><0x13>GW<0x02><0x10>0013<reading><0x04>
<reading> = <sign><digit><digit>.<digit><digit>
<sign> = + | -
<digit> = 0|1|2|3|4|5|6|7|8|9

4.1.3 Interface

Wind gauge communicates with a computer via the serial communication port labelled INPUT/OUTPUT on the left side panel of the gauge. This serial communication port has RS485 line drivers for long distance communication (up to 450 m).

Computer interface connection instructions:
a. Plug the serial communication cable (9 pin D-Subminiature, male connector) into the INPUT/OUTPUT connector on the left side of the gauge.
b. The cable and connector pin connections for short distance communication (L < 12 m) are as follows:

<table>
<tr><td rowspan="6">Wind gauge</td><td>9 pin male connector</td><td>L < 12 m</td><td>9 pin female connector</td><td rowspan="6">FinishLynx system or PC RS232</td></tr>
<tr><td>Pin 3 TX-</td><td>=</td><td>Pin 2 RX</td></tr>
<tr><td>Pin 5 RX-</td><td>=</td><td>Pin 3 TX</td></tr>
<tr><td>Pin 6 RX+</td><td rowspan="2">=</td><td rowspan="2">Pin 5 GND</td></tr>
<tr><td>Pin 7 TX+</td></tr>
</table>

c. Long distance communication (L > 12 m) requires an RS232 to RS485 converter to boost the computer or FinishLynx signal. The cable and connector pin connections are as follows:

<table>
<tr><td rowspan="5">Wind gauge</td><td>RS485
9 pin male
connector</td><td>L > 12 m</td><td rowspan="5">RS232 to RS485
converter</td><td rowspan="5">FinishLynx system
or PC
RS232</td></tr>
<tr><td>Pin 3 TX-</td><td rowspan="4">Cable with
terminators</td></tr>
<tr><td>Pin 5 RX-</td></tr>
<tr><td>Pin 6 RX+</td></tr>
<tr><td>Pin 7 TX+</td></tr>
</table>

d. Configure the computer for transmission as follows: Baud Rate = 9600; Data Bits=7; Parity=Even; Stop Bits=1.

4.2 Local Control Mode

The default operation mode when powered on is Local Control mode. In Local Control mode, users may change the event setting by pressing ROLL ↓ and ROLL ↑ buttons, and start/reset the wind velocity measurement by pressing the START and RESET buttons.

5. Power

Four size AA batteries (rechargeable, alkaline or zinc carbon) are required. Specified linear regulated AC adaptor (DC 9 volt, 500mA) provides an optional power source in addition to batteries. Mixed use of batteries of different chemical type is strictly prohibited. Wind gauge will shut off automatically if the system idles for over 2 hours. It is suggested that user check-up the system status after a long time duration of no operation. If the system has been shut off, users have to turn off the power switch to reset the system before turn it on again. A message of “Battery Low !” will be displayed on the LCD panel when the battery power is low. It is recommended to replace the batteries or use AC adaptor. When the battery power is too low, wing gauge will shut off automatically to prevent from over-discharge of the batteries. The batteries should be removed before the gauge been put into storage.

6. Notes on use

Wind gauge is a precise and delicate device. Do not use during a storm.