

ALGE-TIMING

Windspeed WS3



Manual

Important Information

General

Before using your **ALGE-TIMING** device read the complete manual carefully. It is part of the device and contains important information about installation, safety and its intended use. This manual cannot cover all conceivable applications. For further information or in case of problems that are mentioned not at all or not sufficiently detailed, please contact your **ALGE-TIMING** representative. You can find contact details on our homepage www.alge-timing.com

Safety

Apart from the information of this manual all general safety and accident prevention regulations of the legislator must be taken into account.

The device must only be used by trained persons. The setting-up and installation must only be executed according to the manufacturer's data.

Intended Use

The device must only be used for its intended applications. Technical modifications and any misuse are prohibited because of the risks involved! **ALGE-TIMING** is not liable for damages that are caused by improper use or incorrect operation.

Power supply

The stated voltage on the type plate must correspond to voltage of the power source. Check all connections and plugs before usage. Damaged connection wires must be replaced immediately by an authorized electrician. The device must only be connected to an electric supply that has been installed by an electrician according to IEC 60364-1. Never touch the mains plug with wet hands! Never touch live parts!

Cleaning

Please clean the outside of the device only with a smooth cloth. Detergents can cause damage. Never submerge in water, never open or clean with wet cloth. The cleaning must not be carried out by hose or high-pressure (risk of short circuits or other damage).

Liability Limitations

All technical information, data and information for installation and operation correspond to the latest status at time of printing and are made in all conscience considering our past experience and knowledge. Information, pictures and description do not entitle to base any claims. The manufacturer is not liable for damage due to failure to observe the manual, improper use, incorrect repairs, technical modifications, use of unauthorized spare parts. Translations are made in all conscience. We assume no liability for translation mistakes, even if the translation is carried out by us or on our behalf.

Disposal

If a label is placed on the device showing a crossed out dustbin on wheels (see drawing), the European directive 2002/96/EG applies for this device.

Please get informed about the applicable regulations for separate collection of electrical and electronical waste in your country and do not dispose of the old devices as household waste. Correct disposal of old equipment protects the environment and humans against negative consequences!



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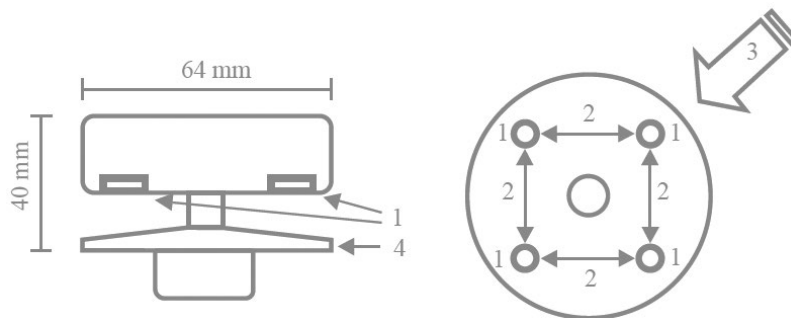
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Subject to changes and misprints

1 General

The ALGE WINDSPEED (WS3) is a terrestrial wind sensor with a data refresh rate of four times per second.

The ultrasound is transmitted by the movement of a liquid. The technology is based on electro-acoustic transducers (1) that communicate in pairs using ultrasonic signals (2). Along two orthogonal axes, the differences in wave travel time induced by the air flow (3) are determined. An integrated computer combines the measurements to determine the wind speed and wind direction in relation to a reference axis. Temperature measurements are also used for calibration corrections. The shape partially corrects for the effects of the angle of inclination of the sensor relative to the wind module.



The ideal design of the anemometer and the fast reaction time of the measurement guarantees that no change of wind will influence the result. When measuring the wind for athletics, the time will be measured between 5 and 15 seconds. The more measurements will follow in this time, the more exactly the average value for this period will be.

1.1 System components

1.1.1 Windspeed WS3-TY

- Windspeed WS3
- Timy3 W with 6 AA-Batteries (Alkaline)
- Tripod TRI128
- Cable 246-02
- Cable Reel KT245-Z10
- USB-Cable USB-AB
- Case for Timy3

1.1.2 Wndspeed WS3-W

- Windspeed WS3
- Timy3 W with 6 AA-Batteries (Alkaline)
- Tripod TRI128
- Radio WTN-WS
- USB-Cable USB-AB
- Case for Timy3

1.2 Other Accessory

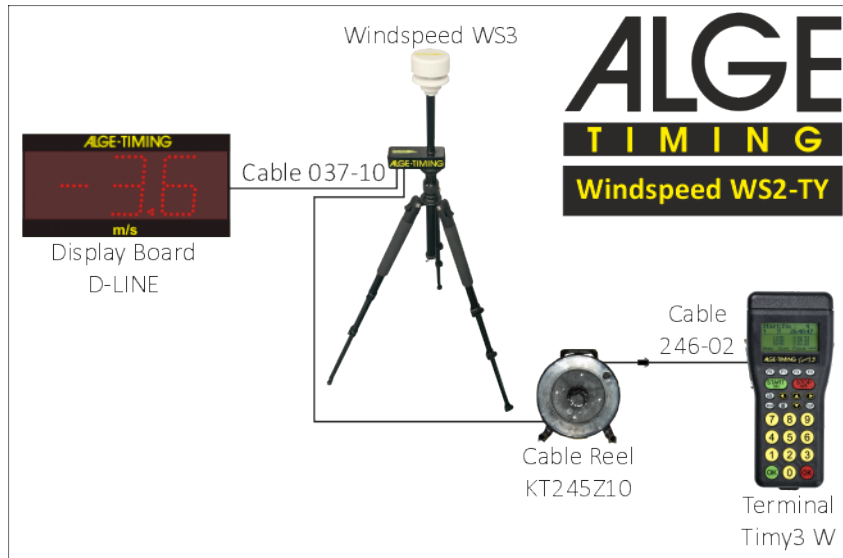
- Case with foam insert KL-WS3
- USB-RS485 adapter (for PC-Connection)
- Display Board D-LINE
- Powerbank PS-KP

2 Set Up of the System

There are several possibilities to connect the Windspeed WS3 to a photofinish. Of course, you can use the Windspeed WS3 as well without photofinish with a Timy2 or Timy3 for long jump and triple jump.

2.1 Windspeed WS3-TY (Cable)

The Timy2 or Timy3 is connected by cable 246-02 and cable reel KT245K10 with the anemometer WS3. This configuration you use for long jump or triple jump.



2.2 Windspeed WS3-TY (Cable) with OPTIc3

The Timy2 or Timy3 is connected by cable 246-02 and cable reel KT245K10 with the anemometer WS3. The photo finish camera OPTIc2 is connected to the PC by IEEE1394 cable.



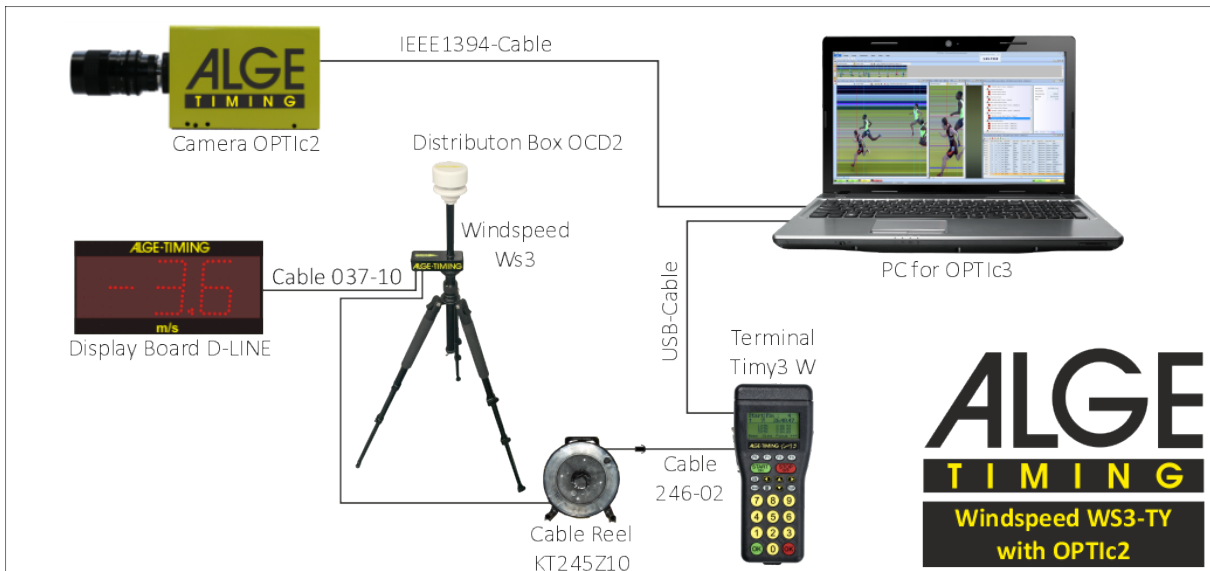
2.3 Windspeed WS3-TY with OPTIc2 and OCD2

The Timy2 or Timy3 is connected by cable 246-02 and cable reel KT245Z10 with the anemometer WS3. The distribution box OCD2 is connected by IEEE1394-Cable with the PC and the photo finish camera OPTIc2 is connected to OCD2 e.g. by cable 260-10.



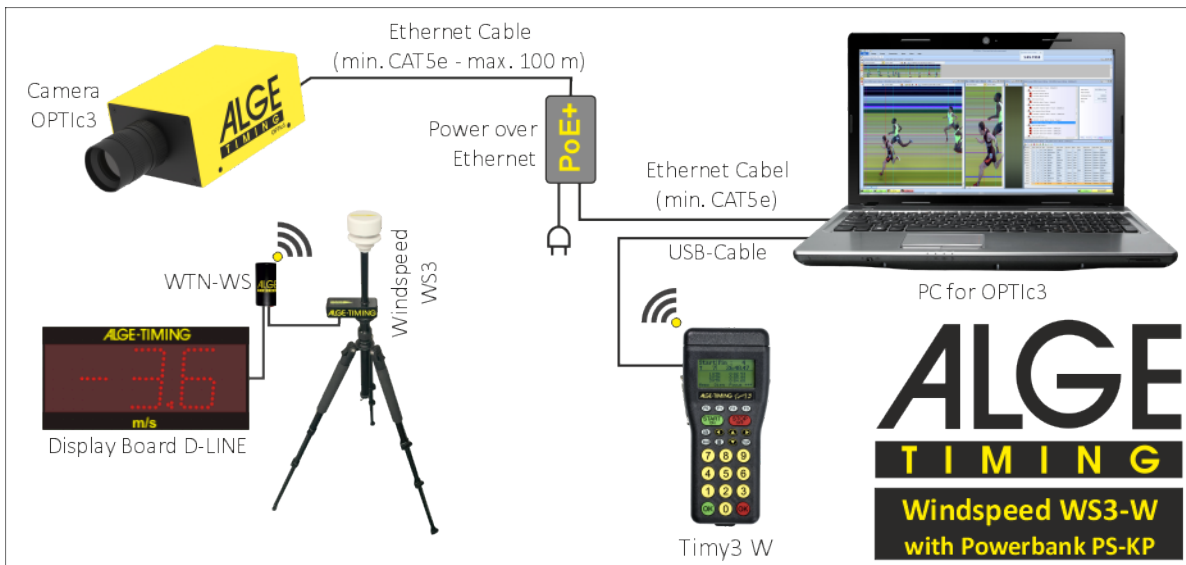
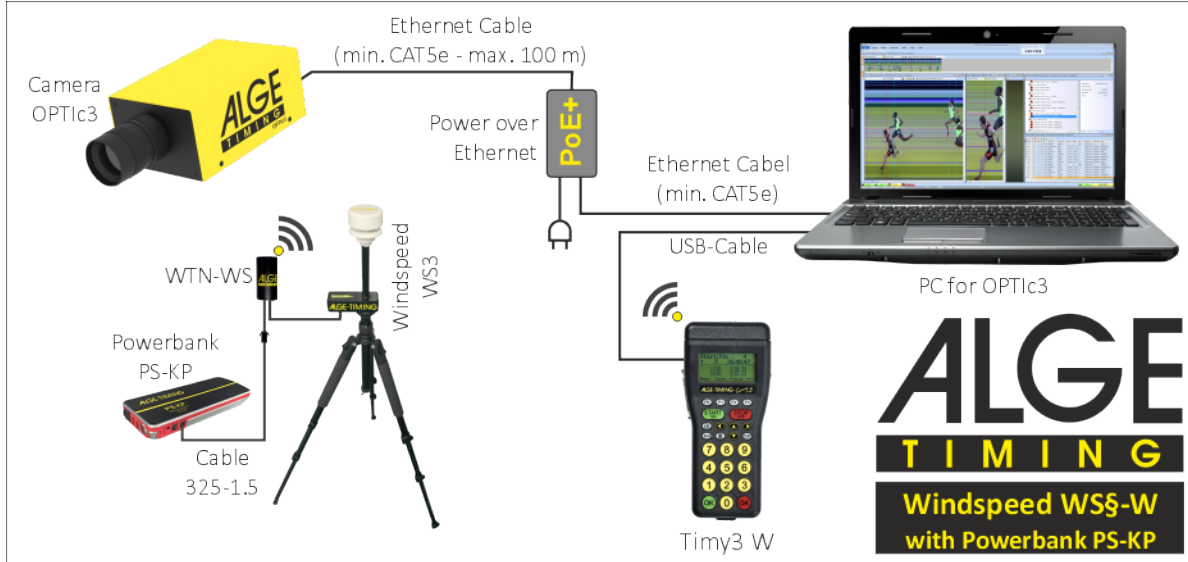
2.4 Windspeed WS3-TY with OPTIc2

In this configuration the Timy is connected directly via USB-Cable to the photo finish PC.



2.5 Anemometer with Radio System WTN-WS

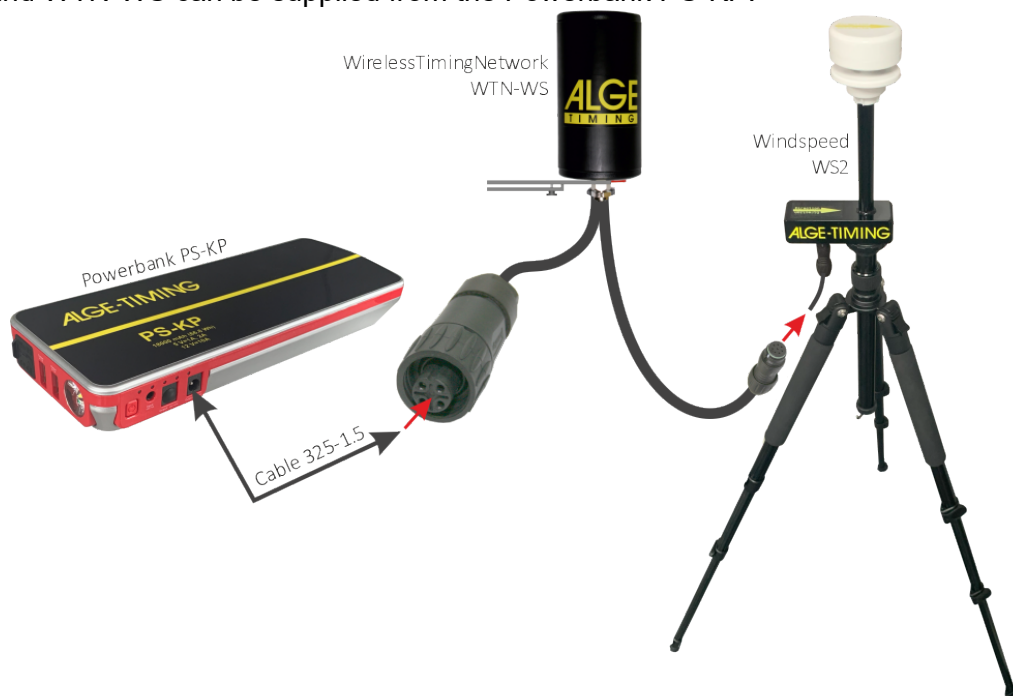
The Windspeed WS3 communicates with the Timy3 W by radio. The power supply for the WS3 and WTN-WS comes from the wind display board D-LINE or the Powerbank PS-KP.



The anemometer WS3 communicates with the Timy3 W by radio. The power supply for the WS3 and WTN-WS comes from the display board D-LINE.



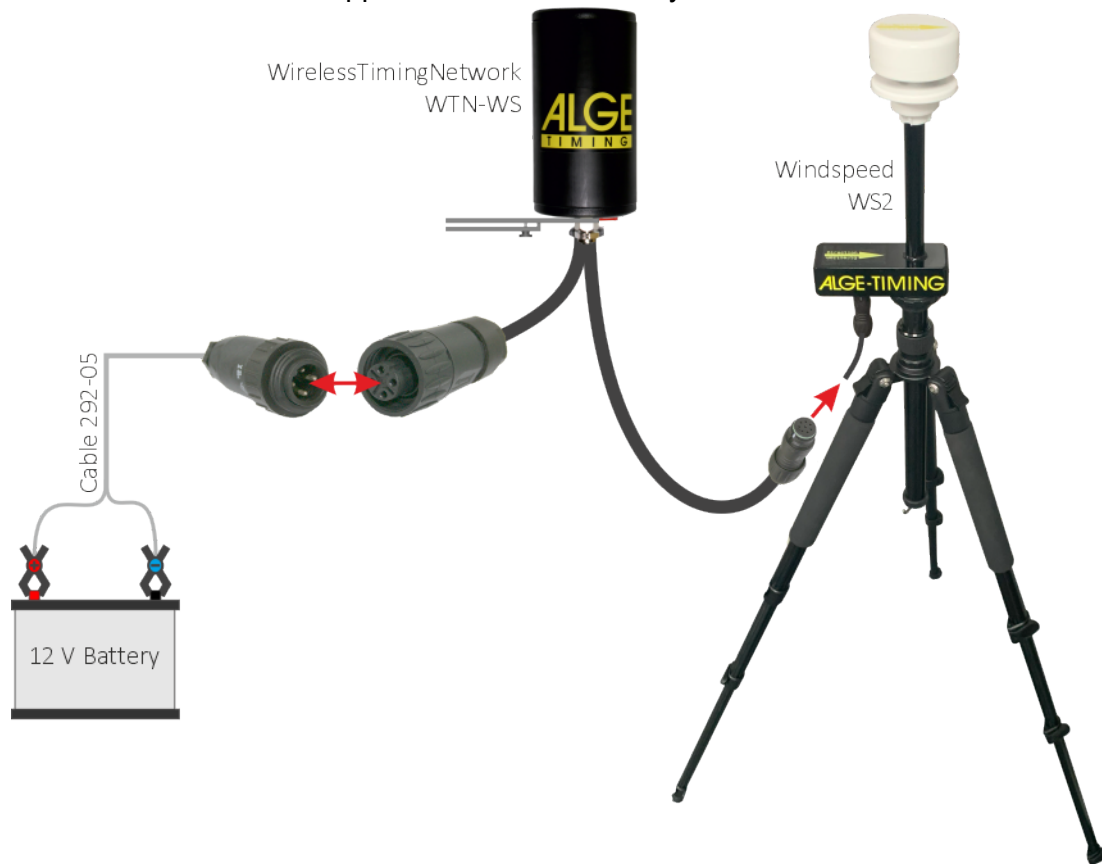
The anemometer WS3 communicates with the Timy3 W by radio. The power supply for the WS3 and WTN-WS can be supplied from the Powerbank PS-KP.



Windspeed WS3

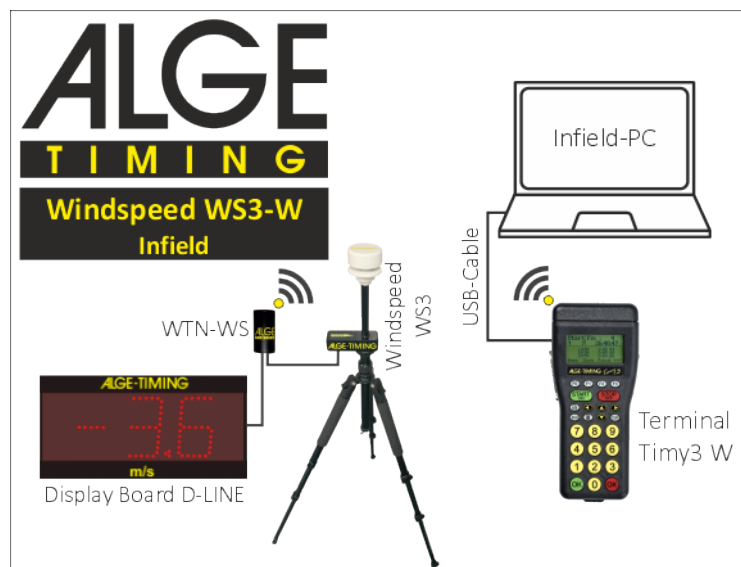
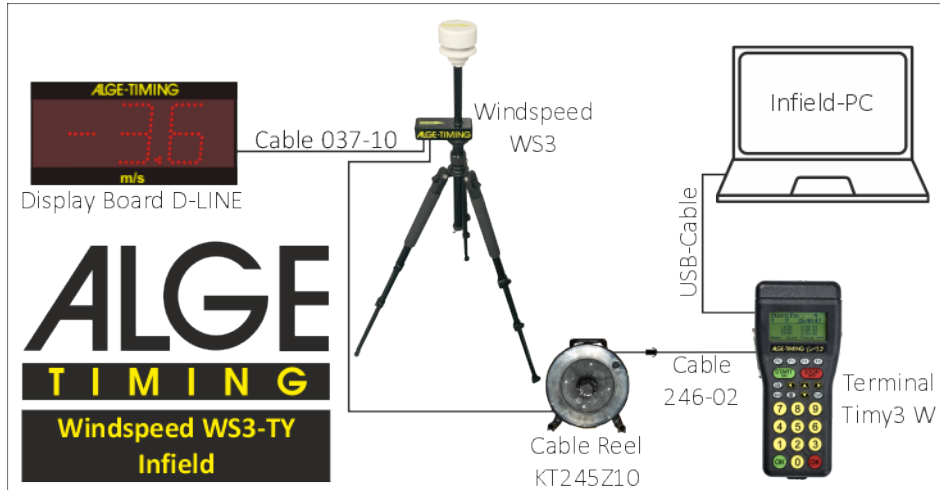


The anemometer WS3 communicates with the Timy3 W by radio. The power supply for the WS3 and WTN-WS can be supplied from a 12 V-battery with cable 292-05.



2.6 Anemometer for Infield-Events

The connection to the meet management Software is either by the display output or by the USB port of the Timy.



3 Mounting of the anemometer WS3



Release the locking mechanism of the tripod legs and pull them out so that the center of the head of the Windspeed WS3 is at a height of 1.22 m (see drawing on the left).

The arrows on the WS3 anemometer must point in the direction in which the athletes are running (towards the finish line).



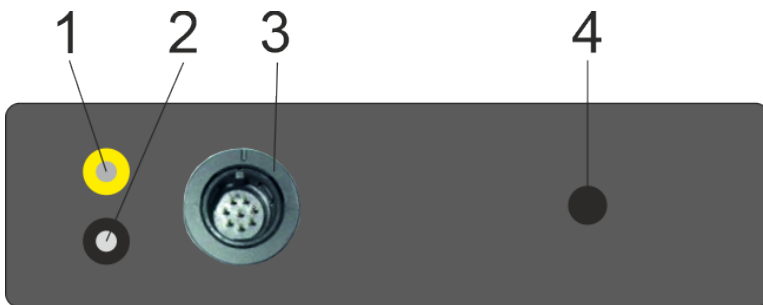
Attention: The arrow, located on the upside of the anemometer, must always show into the running direction.

3.1 Technical Data for Windspeed WS3

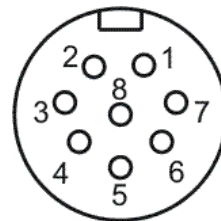
Operating Temperature: -15°C to +55°C

3.1.1 Connections

- 1..... Data for Wind-Display Board (data out)
- 2..... Data for Wind-Display Board (Ground)
- 3..... Communication WS3 with Timy3 (RS485)
- 4..... Thread for Tripod (3/8 Inch)



Pin Assign-



- 1.....RS485A
- 2.....RS485B
- 3.....GND
- 4.....+5Volt
- 5.....WIND GAZ

4 Operation with Timy3

4.1 Driver Installation

For installation of drivers, separate manuals are available. You can download them from our website www.alge-timing.com or contact your ALGE-TIMING representative.

4.2 Keypad

The Timy3 has a weather-proof (water-proof) silicone keypad. The keypad is ideal for outdoor use. The keys are raised and have ideal pressure points. Although the Timy3 is small in dimensions, the keys are easy to operate.



Control keys: all-purpose keys; the function of each one is always visible on the display.





START/ON: manual start impulse and switch on the Timy3



STOP/OFF: manual stop impulse and switch off the Timy3



Printer: paper output; combination  and , opens printer menu



2nd: always used in combination with a second key (additional function)



Menu: enter the device menu



CLR: clear the marked times or memory



Cursor: move the cursor in the display



beginning of a list



end of a list



OK green: switch on, confirm commands or start inputs



OK red: switch off, confirm commands or finish inputs

4.3 Start Up

4.3.1 Switch On

- Press „START/ON“ key.
- Display shows: “Really switch-on? Press the green OK button!”
- If you press the green OK key within 10 seconds, the Timy3 switches on, otherwise it automatically switches off again.
- Choose the program: with the keys and you can select the program “Track + Field”. Confirm it with the key .



4.3.2 Switch Off

You have got two possibilities to switch off the Timy3:

Method 1:

- Press „STOP/OFF“ key for 3 seconds.
- Display shows: “Really switch-off? Press the red OK button!”
- If you press the red OK key within 10 seconds, the Timy3 switches off, otherwise it returns to the program.



Method 2:

- Press „2nd“ and „STOP/OFF“ keys
- Display shows: “Really switch-off? Press the red OK button!”
- If you press the red OK key within 10 seconds, the Timy3 switches off, otherwise it returns to the program.













4.4 Track + Field Program

The Track + Field program has 3 sub-programs:

- **WINDSPEED**
Only used to measure wind in running and infield competitions.
- **TRACK TIMER**
Only a short description here, see the separate instructions for Timy TRACK-TIMER
- **FIELD EVENT**
Used to measure wind, display the concentration time, wind speed and display the distance. For technical disciplines only!

Attention: It is necessary that the correct anemometer type WS3 is set!

Set the anemometer type WS3:

- Switch on the Timy3 and select the 'Track + Field' program
- Select with arrow key  the 'WINDSPEED' or 'FIELD-EVENT' sub-program and confirm with the key 
- Press the menu button 
- Use the arrow key  to select 'WINDSPEED' or 'FIELD-EVENT' and confirm with the key 
- Use the arrow key  to select 'SENSOR-TYPE' and confirm with the key 
- Use the arrow key  to select 'WS3' and confirm with the key 
- Press the menu button  to exit the menu.

4.4.1 Windspeed

This program is used for pure wind measurement (e.g. for running competitions). If the Timy is connected to the WS3 anemometer and the OPTIc3 photo finish system, the wind measurement takes place automatically (controlled by the OPTIc3).

Various information is displayed on the Timy.

The measured windspeed (1) is displayed in the middle on the left. If a measurement is carried out, the measurement time is displayed instead of the wind-speed.

There are 4 different types of measurements that are shown in the lower line (2) and operated with the keys F0 – F3.

The five-digit number on the right (3) indicates how many measurements the WS3 has sent to the TIMY.



F0 NORM

It continuously measures the wind speed. This mode can be switched on before the race or during breaks. By default, the continuous wind measurement is not shown on the display board. If you want this display show it use the menu and go the "FIELD EVENT - WS NORM MODE"

F1 10

The wind is measured for 10 seconds and this mode is used for all sprint races from 75 m to 100 m (except for 100 m hurdles and 110 m hurdles).

F2 13

The wind is measured for 10 seconds and this mode is used for 100 m hurdles and 110 m hurdles.

F3 5

The wind is measured for 5 seconds and this mode is used for all sprint races under 75 m and as well for long and 3-jump competitions. If the Windspeed WS3-system is connected to the ALGE photo-finish system OPTIC the measurement is automatically started from the photofinish system and the wind data will be transmitted to the photo finish system.

4.4.1.1 Display Board:

We recommend to use a 3-digit D-LINE display board to show the wind. In case of a anemometer with radio connection (WTN) the anemometer and WTN-WS is supplied direct from the display board.

The duration of the windspeed shown on the display board can be regulated in the menu "DISPLAY" and then "TAG TIME ". A detailed explanation is given in the "General Operating Instructions of the Timy".

The display board needs the following settings for 3-digit D-LINE:



Brightness

Set the brightness you need (1 = low brightness, 9 = high brightness)



Display Mode and Interface

t = format = ss.z

2 = Protocol = 2400 Baud, no parity bit, 8 data bit, 1 stop bit,



Time-Out for Time, Date and Temperature

If you set to 00 it will show only the wind data and no time of day



Address Setting

No address is necessary, therefore use address 00.

For use in athletics, 3-digit displays can be used that show the concentration time, then the wind and finally the width one after the other in the "Field Event" program. If the display is used universally in athletics, or if several such display boards are used, we recommend the following setting in the extended data mode. The display board can then be used for both, the "Windspeed" and "Field-Event" programs, without changing the settings.



extended protocol, 2400 bps



address of display board = 03



first digit of display board, byte 13



first decimal point of display board, byte 14



second digit of display board, byte 15



second decimal point of display board, byte 16



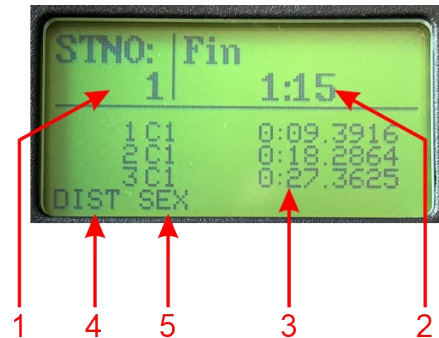
third digit of display board, byte 17

4.4.2 Tracktimer

Simple program for hand timing in training or competitions.

You can enter the start number (run number) (1). The running time is displayed in field (2), while the intermediate times are displayed in field 3. You can enter the running distance by pressing the <F0> key and the gender with F5.

The external channels can be used for time measurement (e.g. C0) or the buttons **START ON** and **STOP OFF**.



4.4.3 Field-Event

After selecting the FIELD-EVENT program, the functions listed below are available for selection.

1. Windspeed
2. ID-Number, Attempt, Width
3. Adjusted Countdown Time
4. Countdown Time in selected (in use)
5. Status of Windspeed



Depending on the display boards used, all data can be shown on the display. In most cases, however, only the concentration time and wind speed are displayed.

- The ID-number position flashes (2).
- Enter a start number with up to 4 digits and confirm with the red OK button.
- Enter the number of attempts and confirm with the red OK button.
- Use the F0-F2 keys to select the current countdown time (concentration clock).
- The countdown time is started with the green start key.
- When the athlete starts his attempt, you have to start the wind measurement with the F3 key.
- The wind is automatically displayed after a measurement time of 5 seconds.
- The width field flashes. Enter the distance or height of the athlete and confirm with the red OK button.








4.4.3.1 Display Board:

Different display boards can be used. Depending on the type and what is to be displayed, each display board must be set differently.










Display board for wind and concentration clock:

For use in “Field-Events” display boards with 3 or 4-digits can be used. They can show the concentration time, then the wind and the distance (for the width 4-digit display boards are needed).

Adjustment for a 3-digit D-LINE

	extended protocol, 2400 bps
	address of display board = 03
	first digit of display board, byte 13
	first decimal point of display board, byte 14
	second digit of display board, byte 15
	second decimal point of display board, byte 16
	third digit of display board, byte 17

Adjustment for a 4-digit D-LINE

	extended protocol, 2400 bps
	address of display board = 03
	first digit of display board, byte 11
	first decimal point of display board, byte 12
	second digit of display board, byte 13
	second decimal point of display board, byte 14
	third digit of display board, byte 15
	third decimal point of display board, byte 16
	fourth digit of display board, byte 17

Freeze Decimal Point or Colon

With older ALGE-TIMING timing devices it can happen that the decimal point or the colon are not part of the protocol. In such a case it can be programmed permanently on the D-LINE.

Decimal Point	98
Colon	99

Infield Display Board D-LINE150-3+1+5-OR or D-LINE250-3+1+5-OR

These display boards are pre-programmed for use as infield display boards and do not require any settings.



4.5 Technical Data of Timy3

Processor:	Siemens C161 with 3.3 V technology
Time reference:	12.8 MHz TCXO or standard quartz
Time resolution:	1/10,000 seconds
Running precision:	Temperature compensated quartz oscillator TCXO: temperature range -25 to 50 °C:..... +/- 2.5 ppm (+/- 0.009 sec/h) at aging:.....max. +/- 1 ppm per year at 25 °C, calibrated +/- 0.3 ppm
Program memory:	FLASH memory with 16 MBit
Data memory:	RAM with 4 MBit, approx. 30,000 times
Display:	monochrome LCD graphic display 128 x 64 pixels with extended temperature range and backlight
Keypad:	silicone keypad, 26 buttons
Connections:	DIN-plug for photocell (7) banana plug pair – start input (5) banana plug pair – finish input (6) banana plug pair – display board (4) D-sub-25 pin (3) <ul style="list-style-type: none"> • 9 timing channels • RS232 (PC-connection) • display board • RS485 (network) • power supply (8 - 22 VDC in / 7.5 - 21 VDC out) USB (1) power supply 8 - 22 VDC in (2)
Radio module WTN:	2.4 GHz band, integrated with 16 adjustable frequencies, adjustable output 10 to 100 mW, 5 different timing channels, range approx. 350 m at free sight
Timing Channels:	9 independent timing channels (normally open contact) C0 to C5 with 1/10,000 th seconds precision C6 to C8 with 1/100 th seconds precision max. loop resistance per channel is 2000 Ohm
Channel extension:	5 channels per extension, max. 99 channels
Power supply:	Internal: NM-TIMY2 battery pack or 6 x AA-Alkaline 2 Ah (only for Timy3 W) External: with charger PS12A, 12 V battery or 8 -24 VDC
Operating time (20 °C):	Alkaline: without printer about 50 hours NM-TIMY2: without printer about 60 hours NM-TIMY2: with printer (3 printed lines per minute) about 47 hours approx. 14 hours
Charging:	
Printer:	graphic thermal printer, max. 5 lines per second
Temperature range:	Timy3 W and WP: -20 to 60°C
Dimensions:	Timy3 W: 204 x 91 x 50 mm Timy3 WP: 307 x 91 x 65 mm
Weight:	Timy3 W: 450 g (without battery) Timy3 WP: 650 g (without battery and paper)

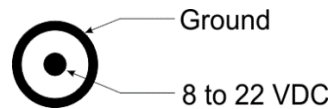
4.5.1 Pin Assignment



USB Interface (1):

The USB interface is used as interface between Timy3 and computer. Via this interface the Timy3 can be controlled completely and all data can be recalled.

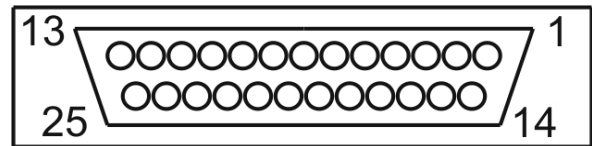
Charger Connection (2):



ALGE-TIMING Multiport (3):

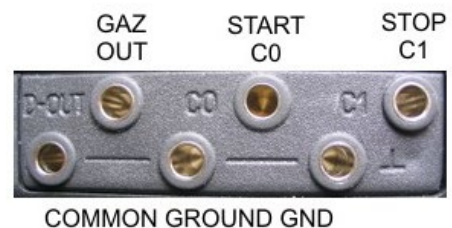
Pin assignment:

- 1..... terminal numbering connection
- 2.....c0..... start channel (precision 1/10,000 s)
- 3.....c2..... timing channel 2 (precision 1/10,000 s)
- 4.....c3..... timing channel 3 (precision 1/10,000 s)
- 5.....c7..... timing channel 7 (precision 1/100 s)
- 6..... data output for display board
- 7..... RS485B
- 8..... RS485A
- 9..... clock for terminals CLK
- 10..... RS232 TX
- 11..... RS232 RX
- 12..... common ground GND
- 13..... stabilized voltage out (+5 V 100 mA limited, short circuit proof)
- 14.....c1..... stop channel (precision 1/10,000 s)
- 15.....c5..... timing channel 5 (precision 1/10,000 s)
- 16.....c8..... timing channel 8 (precision 1/100 s)
- 17.....c6..... timing channel 6 (precision 1/100 s)
- 18.....c4..... timing channel 4 (precision 1/10,000 s)
- 19..... RS232 RTS
- 20..... printer data out
- 21..... horn output 8 Ω
- 22..... RS232 CTS
- 23..... power supply out: 7.5 - 21 VDC 2A max.
- 24..... common ground GND
- 25..... power supply in: 8 - 22 VDC



Banana Socket:

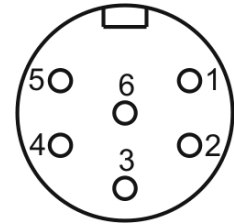
- banana socket for display board (4)
- banana socket for start channel C0 (5)
- banana socket for stop channel C1 (6)



Photocell socket (7)

Pin assignment:

- 1.....c0..... start channel
- 2.....c1..... stop channel
- 3.....GND..... common ground
- 4.....+Ua power supply out 8-22 VDC (only on external supply)
- 5.....+5V stabilized voltage out (+5 VDC 100 mA limited)
- 6.....c2..... intermediate time channel



4.5.2 Settings for the Display board

Display boards which are showing all information are readjusted from the factory. There is no need to adjust anything on such displays.

You can show all information also on multiple display boards.

4.5.2.1 Wind Speed

Following settings you have to choose if you like to show only the wind speed.

4.5.2.1.1 D-LINE Display Board

For D-LINE scoreboards use the following settings [parameters].

D-LINE with version 3.6 and higher:

3-digit Scoreboard:

St2
t00
A00

D-LINE with version 3.6 and higher:

6-digit Scoreboard:

SEt2
t000
Ad00

D-LINE with version 3.5 and lower:

3-digit Scoreboard

S E2
A 00
1 15
1:10
2 16
2:17
3 18

D-LINE with version 3.5 and lower:

6-Digit Scoreboard:

SEE2
T000
Ad00
1 00
1:00
2 00
2:00
3 15
3:10
4 16
4:17
5 18
5:00
6 00

4.5.2.1.2 GAZ Display Board

Adjust the thumb wheel switch to position 0. The toggle-switch has to be on middle position.

4.5.2.2 Concentration and performance

Following settings, you have to choose if you like to show the concentration time and the performance.

4.5.2.2.1 D-LINE Display Board

For D-LINE scoreboards use the following settings [parameters].

3-digit Display Board:

SS2
t00
A02

6-digit Display Board:

SES2
t000
Ad02

4.5.2.2.2 GAZ Display board

Adjust the thumb wheel switch to position 2. The toggle-switch has to be on middle position.

4.5.2.3 Start number and Attempt

Following settings, you have to choose if you like to show the start number and the attempt. You can use only D-LINE scoreboards!

4.5.2.3.1.1 D-LINE Display Board

For D-LINE scoreboards use the following settings [parameters].

6-digit Scoreboard:

SEE2
t000
Ad03
1 01
1:00
2 02
2:00
3 03
3:00
4 04
4:00
5 05
5:00
6 00

4.5.2.4 Concentration time, Wind and Performance

4.5.2.4.1 3-digit D-LINE

Settings:



Extended protocol, 2400 bps

Device address 03

First digit Byte 13

First comma Byte 14

Second digit Byte 15



Second comma Byte 16



Third digit Byte 17

4.5.2.4.2 4-Digit D-LINE

Settings:



Extended protocol, 2400 bps



Device address 03



First digit Byte 11



First comma Byte 12



Second digit Byte 13



Second comma Byte 14



Third digit Byte 15



Third comma Byte 16



Fourth digit Byte 17

Subject to changes and misprints

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