Version-E130722

ALGE-TIMING

WTN-WS

Wireless Timing Network for Windspeed

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!

Operating ranges and interferences

The ALGE WTN operates in 4.2 GHz frequency band, the same as WLAN. This is also used by other services. The operating range as well as the operation may be disturbed by devices working at the same or neighboring frequencies.

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Declaration of Conformity

We hereby declare that the following product complies with the below stated standards. All components used by us are CE certified by their producer and are not modified by ALGE-TIMING GmbH.

We, **ALGE-TIMING GmbH**
Rotkreuzstrasse 39
A-6890 Lustenau

declare in sole responsibility that the radio receiver

Wireless Timing Network WTN-WS

complies with the following standards/normative documents and in case of intended use complies with the basic requirements of R&TTE 1999/5/EC:

Telecommunication (TC)terminal device
Short Range Device

Applied harmonized standards…

EN 60950-1:2006+A11:2009+A1:2010+A12:2011

EMC: EN301 489-17 v2.1.1. (2009-05)
EN 300 328 v1.7.1 (2006-10)
EN 55022 : 2010 / AC : 2011
EN 55024 : 2010
EN 61000 3-2:2006
EN 61000 3-3:2008

Additional information:
The product complies with the low voltage directive 73/23/EEC and EMC directive 2004/108EG and carries the CE sign.

Lustenau, 14.05.2013

ALGE-TIMING GmbH

Albert Vetter

Albert Vetter
(CEO)

Table of Contents

1 Device Description

The ALGE WTN is a compact radio system for timing and is equipped with the most updated technology. A radio network consists of two or more devices of the WTN series.

ALGE-TIMING offers the following devices of the WTN-Series:

- WTN .....Universal Radio Network
- Timy3 WP .....Timing Device with built in Radio Network
- PR1aW .....Photocell with built in Radio
- WTN-DB .....Radio Network for Display Boards
- WTN-WS.....Radio Network for Windspeed (Athletic)

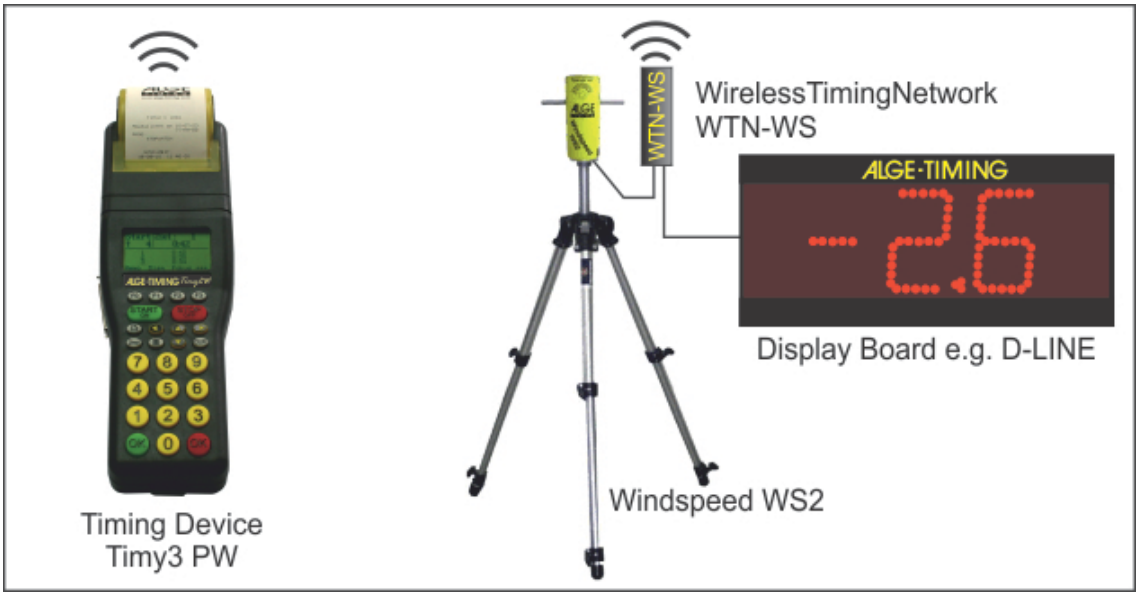
The network is designed in such a way that you can transmit data to a display board (e.g. ALGE GAZ or D-LINE), serial RS232 data (e.g. to a PC), RS485 data, and timing impulses at the same time (e.g. photocell PR1aW).

The WTN-WS is specially designed as data-radio for the Windspeed WS2 in athletic, meaning it receives the display board data and sending the windspeed data.

When designing the Wireless Timing Network the ALGE development team concentrated on features that make ALGE devices unique, but also on features that stand for ALGE products: easy operation, highest reliability, rugged casing. Up-to-date technology, integrated in a solid case, results in exceptional features.

Attention: Before using the device make sure that you are allowed to operate it in your country. The radio power output must be adjusted so that it is legal to use it in the country you operate it in.

EU: max. 10 mW is allowed
USA: max. 100 mW is allowed



2 Operating Elements

Rotation switch with 16 positions

0.....Test
1.....Frequency 1S (Single)
2.....Frequency 2S (Single)
3.....Frequency 3S (Single)
4.....Frequency 4S (Single)
5.....Frequency 5S (Single)
6.....Frequency 6S (Single)
7.....Frequency 7S (Single)
8.....Frequency 8S (Single)
9.....Frequency 9S (Single)
A .....Frequency AA (All)
B .....Frequency BA (All)
C .....Frequency CA (All)
D .....Frequency DA (All)
E .....Frequency EA (All)
F .....Frequency FA (All)

With the rotation switch you can select the team in which the device communicates and in which he is member.

The teams that you can adjust with the rotation switch of the WTN-WS are identical with the teams that you can adjust with other WTN-devices.

You can select between 15 team numbers. There are 9 single teams (S) and 6 joint teams (A).

Separate Teams <S> = SINGLE
Used for completely independent networks. If you operate two networks next to each other both networks work in this mode on different frequencies and do not communicate among each other.

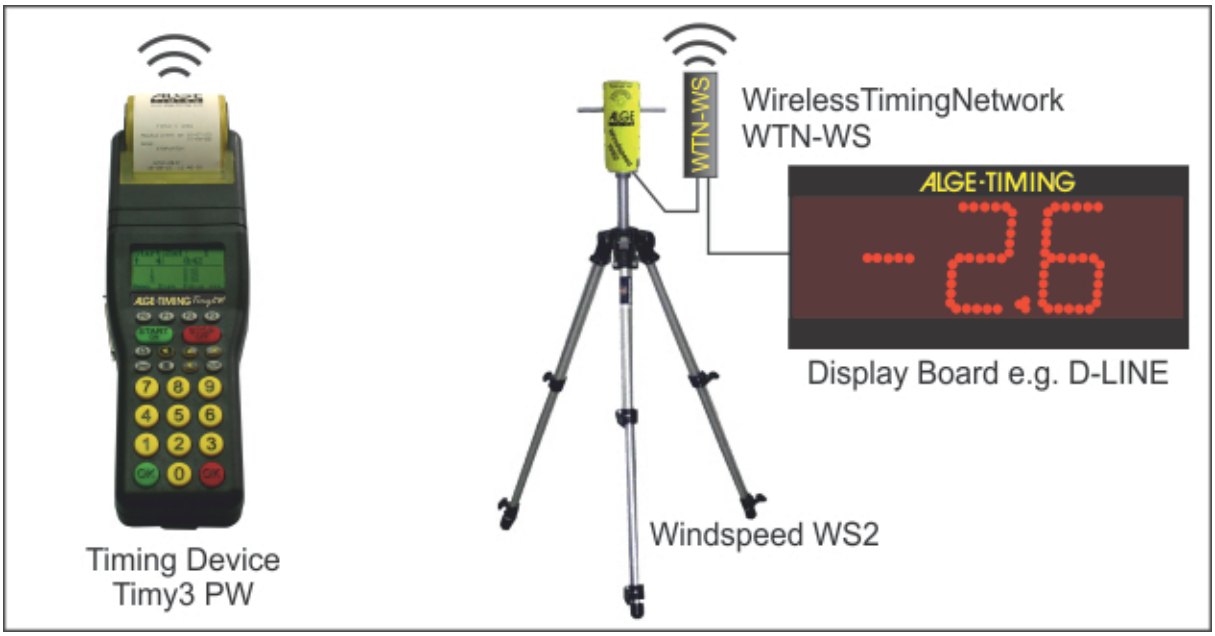
1:S 2:S 3:S 4:S 5:S 6:S
7:S 8:S 9:S

Joint Teams <A> = ALL
Used for networks that work independently next to each other. If different A teams with the same radio channel are operated, the other A teams can be used for data transmission. The data of the other team however is not used (e.g. for two show jumping grounds that are next to each other).

A:A B:A C:A D:A E:A F:A

3 Operation

The WTN-WS must be operated in a separate network (team). It is not possible to use the same team for timing and windspeed. In such a case it would produce a data collision, since the display board data would be sent from the timing device for running time and from anemometer controller for the windspeed display board. This means a separate network with different team must be used for timing.



3.1 Fastening of WTN-WS at Display Board

The WTN-WS has a clip to fasten it at the case of the display board.

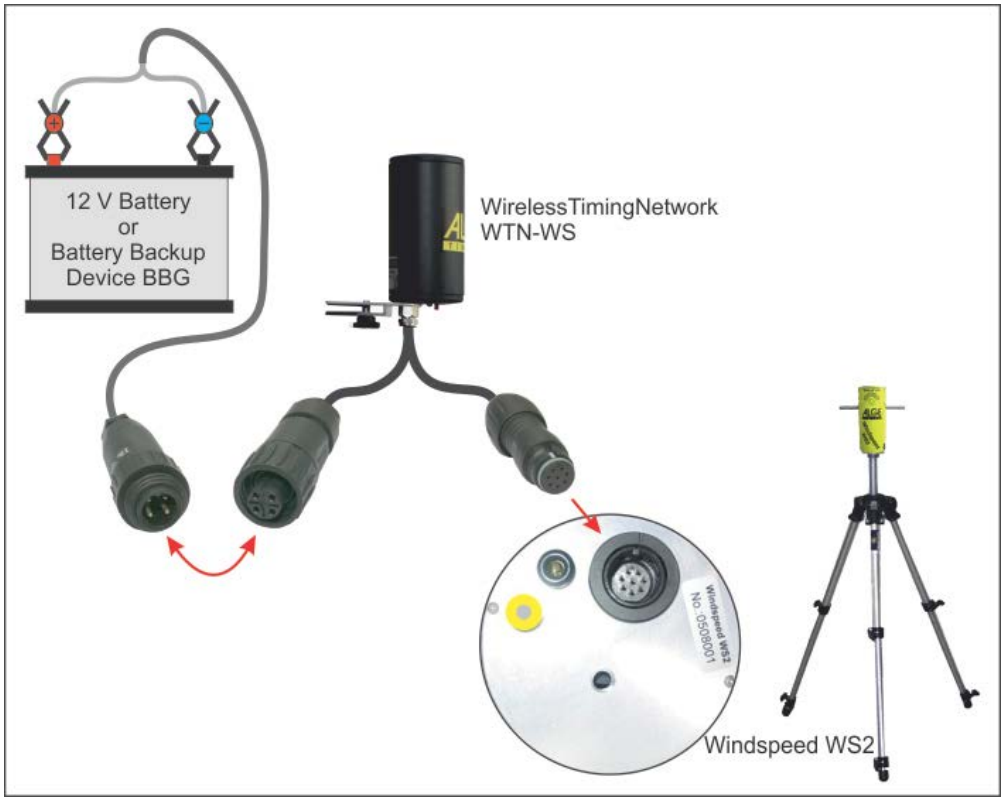
- open the screw of WTN-WS
- put holder of WTN-WS between left upper side of display board
- close screw of WTN-WS so it is fixed to display board

Attention:
Fix the WTN-WS always in the direction that the cable goes downwards. The side with the rotation switch is not water protected and must show to the bottom so no water can get into the WTN-WS. If you mount the WTN-WS incorrectly it might be destroyed.

3.2 Connecting of the WTN-WS at Display Board

The WTN-WS is connected to the anemometer Windspeed WS2 and to the windspeed display board. It is supplied through the display board.

If there is no display board for the windspeed, then it is necessary to supply the WTN-WS through cable 292-05 from an external power supply (e.g. battery).



3.3 Power Supply

The WTN-WS is supplied directly from the display board. The LED next to the rotation switch blinks when the WTN-WS gets power supply. If you do not have a display board for power supply it is necessary to have external power supply for the WTN-WS and Windspeed WS2 (5 – 24 VDC – see sketch on page 8).

3.4 Switching the WTN-WS On or Off

It is not necessary to switch this device on or off. It is automatically on when you connect it to an ALGE-display board (e.g. D-LINE) and off when you unplug it. The WTN-WS has no internal battery!

3.5 Radio Connection

The quality of the network connection for a WTN system is crucial. Before you start to use the WTN-WS check the connection quality. The LED of the WTN-WS blinks green if there is a good connection to other WTN devices. It blinks orange if the connection is poor. There is no communication to other WTN-devices, when the LED of WTN-WS is continuous on red.

In case you have problems with receiving the data you can try to move the WTN-WS receiver to get a better reception or to move to another radio channel.

3.6 Adjusting the Baud Rate for Display Board

It is not possible to adjust the baud rate directly in the WTN-WS. You can adjust it from another device that is operating in the same team (e.g. WTN). If you adjust e.g. the baud rate to 9600 baud for the display board in the WTN, it will also change the baud rate of all other WTN-devices in this team to 9600 baud.

Adjustable Baud Rates: **2400, 4800, 9600, 19200**
Factory Setting: **2400 baud**

3.7 Adjusting the Baud Rate for RS485 Interface

The terminal Timy communicates with anemometer Windspeed WS2 by RS485 interface. The RS485 interface has a fixed Baud rate (you cannot change this Baud rate).

3.8 Adjusting the Power Output

It is not possible to adjust the power output directly in the WTN-WS. You can adjust it from another device that is operating in the same team (e.g. WTN). If you adjust e.g. 100 mW in the WTN, it will also change power output of all other WTN-devices in this team to 100 W.

Factory Setting: **10 mW**

3.9 Test Mode

If you connect the WTN-WS when the switch is on position 0 (zero) the test mode is activated. The test mode will be automatically deactivated if you do not operate the rotation switch for 30 seconds.

In the test mode data is shown on the display board and on a WTN that is on team 1S in the info-menu. If you rotate the switch you should have the following information on the display:

0 ..... it shows the MAC number of the WTN-WS
1 ..... it shows the software version of the WTN-WS
2 ..... it shows 2 for switch position 2
3 ..... it shows 3 for switch position 3
4 ..... it shows 4 for switch position 4
5 ..... it shows 5 for switch position 5
6 ..... it shows 6 for switch position 6
7 ..... it shows 7 for switch position 7
8 ..... it shows 8 for switch position 8
9 ..... it shows 9 for switch position 9
A..... it shows A for switch position A
B..... it shows B for switch position B
C..... it shows C for switch position C
D..... it shows D for switch position D
E..... it shows E for switch position E
F..... it shows F for switch position F

4 Updating of the WTN-WS

To update a WTN-WS you need a WTN device. First you update the WTN as described in the WTN manual and then you can transmit the new firmware to the WTN-WS. The WTN-DB LED blinks red during the update.

Transmit New Firmware to Other WTN Devices <RF-UPD>

When you have several WTN-devices in a network you can make the update of the firmware on one device through RS232 from a PC. This device can now update the firmware of all other devices in the same network.

- Update the WTN as described in the WTN manual
- Switch on all WTN-devices that you want to update from the WTN with the new firmware and check that they all use the same team.
- Start the update as described below in the device with the updated firmware. For the devices that you want to update you do not have to make any further adjustment.
- Go to the submenu <SETTINGS> by pressing continuously the key „MENU“ (1) for about 5 seconds.
- Press „MENU“ (1) to move through the menu until it shows <RF-UPD>.
- Press key „ON/OFF“ (2) to start the update.
- Do not turn the WTN-WS off for two minutes after the update finished. Internal it will reprogram itself and if you turn it off it will destroy the software and the WTN-WS is defect.

5 Technical Data

Frequency:	2.4 GHz band (16 adjustable frequencies)
Power Output:	10 mW or 10 to100 mW (adjustable)
Maximum Distance:	about 350 m at free sight
Display board Interface:	Display Board Interface RS232 - 2400 to 19200 Baud
RS485 interface:	fixed Baud rate (not adjustable)
Case:	Plastic case with built in antenna for outdoor use

5.1 Connections

5.1.1 Display Board

1 ..... external supply (5 – 24 VDC in)
2 ..... ground
3 ..... empty
⏚ ..... RS232 Data for Display Board

female

5.1.2 Anemometer Windspeed WS2

1 ..... RS485 A
2 ..... RS485 B
3 ..... ground
4 ..... power supply +5VDC out for Windspeed WS2
5 ..... empty
6 ..... empty
7 ..... empty
8 ..... empty

female

5.2 Interfaces

5.2.1 Display Board Interface (RS232)

Output Format:	1 Start Bit, 8 Data Bit, no Parity Bit, 1 Stop Bit
Transmission Speed:	2400 to 19200 Baud adjustable Factory setting = 2400 Baud
Transmission Protocol:	ASCII

5.2.2 RS 485 Interface

Communication with anemometer Windspeed WS2 (fixed Baud rate))

5.3 Case

Plastic case with built in antenna to protect the device at any weather condition and clamp to fix it at the case of the display board.

Subject to changes

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