

**Repeater for Remote Controlled
Weather Systems
WS 3000, WS 2000, WS 2010,
WS 2200, WS 7000, WS7015 and
WS 1000
Versions Standard/HQ
OPERATING MANUAL**

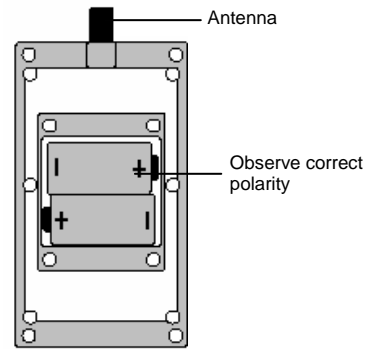
Introduction

Congratulations on purchasing this innovative product which offers a remarkable feature for use with your Professional Wireless Weather Station. In order to avoid incorrect operation, please read this manual thoroughly.

Setup

Insertion of batteries

- Unscrew the 4 screws of the battery compartment on the front of the casing and remove the battery cover.
- Insert 2 x C, IEC LR14, 1.5V batteries (Alkaline type) according to the marking in the battery compartment (see picture).
- Replace the battery cover and securely fasten all screws.



Battery life

By using high quality Alkaline batteries the Repeater's duty cycle will exceed 1 year. During this time, the unit can be operated without any supervision.



Caution!

**Strictly observe battery regulations!
Please return used up batteries an
authorized battery depot.**

Function

Despite the initially high transmission range of the Remote Controlled Weather Sensors of up to 100 m, in some cases, limitations of these transmission ranges may occur due to external interference such as

steel/concrete constructions, radio waves, computer monitors, electronic household products, etc. The use of the Weather Sensors within large areas such as horticulture facilities may also show ineffective transmission ranges. In such a case, the Repeater provides the solution. It multiplies the Remote Controlled Weather Sensor's transmission range by storing and re-transmitting the data transmitted by the Weather Sensor(s) to the Professional Wireless Weather Station (base receiver). In doing so, transmission ranges (also by use of several Repeaters) of several hundred meters can easily be achieved and interference from electrical devices operating on the 433MHz signal frequency, or interference from surrounding environment can thus be minimized.

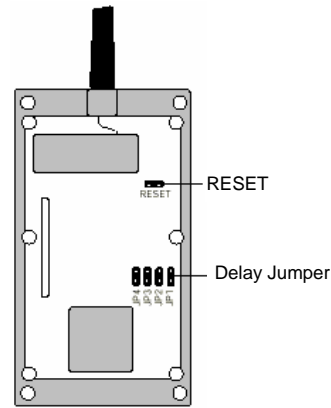
Operation of Standard and HQ Repeater is basically the same, the only difference being the greater transmission range of the HQ version compared to the Standard version.

Setup of re-transmission delay

When using several Repeaters (cascaded operation), there is a transmission time delay caused by re-transmission of the same frequency signal to the next Repeater and so on. If multiple Repeaters are in use, the time delay of re-transmission will be longer. In addition, the time delay transmission must be extended to avoid signal cross over transmission from the Weather Sensor(s). If only one Repeater is used, there will be no time delay. The time delay can be set by means of jumpers in 100 ms steps (JP1-4, see picture below) between 100 ms (JP1), 200 ms (JP2), 400 ms (JP3) and 800 ms (JP4). In the case of only one

Repeater being in operation, no jumper needs to be set.

Setting the Delay jumpers



- Remove batteries from the battery compartment (see "Insertion of batteries").
- Open the casing by removing the 6 casing screws and set the desired delay times by setting the appropriate jumpers (see drawing above).
- Close the casing by securely fastening all screws in order to avoid infiltrating of water.
- Re-insert batteries as described below.

RESET

When inserting the batteries, make sure that the batteries do not spring free from contacts, otherwise start-up problems may occur. In such a case open the casing as described under "**Set-up of retransmission delay**" and reset the unit by shortening the RESET jumper for several seconds.

Cascading

In order to overcome large transmission distances several Repeaters can be cascaded. Please observe the various time delay settings necessary for the various Repeaters to avoid signal cross over at transmission overshoot. Distance between Repeater, according to version, is a maximum of up to 100 m (Standard) or up to 500 m (HQ).

Positioning the Repeater

The Repeater should be placed in a location suitable to receive efficient signal reception from the Weather Sensor transmitters and to transmit stable signal to the Professional Wireless Weather Station (base receiver).

Important note:

A minimum of 5 meters distance apart must be observed between the HQ version and the sensor(s).

By means of its four large mounting bore-holes the Repeater can be easily mounted to trees, wooden masts, sheds etc. When mounting the unit the antenna must point vertically upwards.

Choose the mounting location at a safe distance from large metal surfaces, high tension line systems or any other objects interfering with correct signal reception.

Mounting should take place at a reasonably high altitude but roof-ridges, tree tops or mast tops should be avoided (observe the appropriate lightning protection regulations). Mounting at higher altitudes will efficiently tune-out interference as well as protect against vandalism and curiosity.

In any case perform a thorough test operation prior to final mounting in order to optimize the desired mounting location.

Specifications

Transmission/Reception

Frequency : 433.92 MHz
Transmission Range : up to 100 m (Standard Repeater) / 500 m (HQ Repeater)

Power Supply : 2 x C, IEC LR14, 1.5V batteries (alkaline batteries recommended)

Dimensions (W x H x D) : 81 x 176 x 44 mm

Transmission distances and interferences

- The Repeater operates in the 433 MHz range which is also used by other radio transmission services. Units operating at identical or close by frequencies may therefore cause limitations in operation and transmission range.
- The given transmission ranges of up to 100 / 500 m pertain to the distances over open field, i.e. the transmission distance at sight contact between Repeater and base receiver unit. During practical use however walls, ceilings etc. between the Repeater and the base receiver will reduce the transmission ranges.

Further causes for reduced transmission distances

- High frequency interference of any kind.
- Construction and vegetation of any kind.
- Conducting matter leading to field distortions or field attenuation may be in the near vicinity of the units and/or within or close to the path of transmission.
- The distance between the Repeater or base receiver unit and conducting surfaces or matters (also the ground or the human body) will influence the radiation characteristics of antennas and thus their transmitting ranges
- Wide band interference in urban areas may reach levels reducing signal to noise ratios and thus limiting transmission ranges.
- Insufficient shielding of personal computers may influence receivers and thus reduce transmission distances.

R&TTE Directive 1999/5/EC

Summary of the Declaration of Conformity: We hereby declare that this wireless transmission device does comply with the essential requirements of R&TTE Directive 1999/5/EC.