EN

Solexa II

Radio control system

Technical description, installation instructions

Item numbers 10144 (Display), 10150 (Set)

elsner

Elsner Elektronik GmbH Control and Automation Engineering
Sohlengrund 16
75395 Ostelsheim
Germany
Phone +49 (0) 70 33 / 30 945-0 info@elsner-elektronik.de
Fax +49 (0) 70 33 / 30 945-20 www.elsner-elektronik.de

Technical support: +49 (0) 70 33 / 30 945-250

This document contains the technical data for the Solexa II controller system and describes the installation.
The complete manual can be found at www.elsner-elektronik.de.

Installation, testing, operational start-up and troubleshooting of the unit should only be performed by an electrician (accredited according to VDE 0100).

This manual is subject to change and will be brought into line with new software releases. The change status (software release and date) can be found in the footnote.
If you have a device with a later software release, please check on **www.elsner-elektronik.de** whether a more up-to-date version of this document is available.

Key to the symbols

Safety information.

Safety information for working on electrical connections, components, etc.

DANGER! ... indicates an immediately hazardous situation which will lead to death or severe injuries if it is not avoided.

WARNING! ... indicates a potentially hazardous situation which may lead to death or severe injuries if it is not avoided.

BEWARE! ... indicates a potentially hazardous situation which may lead to trivial or minor injuries if it is not avoided.

ATTENTION! ... indicates a situation which may lead to damage to property if it is not avoided.

1. Range of application and functions

Solexa II controls via a wireless connection drives and devices on Elsner electronic wireless actuators and makes the convenient manual operation of these drives and consumers possible.

The basis of the system are the Solexa II display and weather station, which allow for automatic control according to time, indoor temperature, outdoor temperature, brightness, sun position, wind speed and precipitation.

- The **shading automatic** with weather station controls shutters, awnings and blinds according to the brightness and takes into account the direction of the sun, movement delays set, temperature blocks, wind, rain and frost alarms, movement position, timer and night functions.
- The **ventilation automatic** with weather station controls casement and sliding windows based on the indoor temperature. In doing so, outdoor temperature, wind, rain and frost alarm, movement position and timer functions are taken into account.
- The **light automatic** with weather station switches lights on and off according to the outdoor brightness (day/night) and time. If dimming modules are used, then the dim level (brightness of the lamp) is also taken into account.
- The **heating automatic** with weather station switches a one or two level heating according to the indoor temperature and takes into account day and night (timer switch) and has a timer switch for manual heating during nighttime operation.
- The **roof gutter automatic** with weather station switches a heating within a certain temperature range.
- For all outputs a daily automatic reset and an automatic reset, a short time after a manual operation, can be set.

Functions and characteristics of the Solexa II display:

- Operating part with monochrome touch display, indoor temperature sensor and real-time clock. Fixed integrated battery with USB charging socket.
  The display has a wall bracket, but can also be used like a remote control

Functions and characteristics of the Solexa II weather station:

- Brightness measurement (1 sun sensor), temperature measurement, wind speed measurement, precipitation recognition and GPS receiver for date/time and installation coordinates (sun position calculation)
- Weather station for use with up to 4 Solexa II displays
- Weather station with a connection for a 230 V motor (integrated motor control unit), for up to 16 Elsner RF wireless actuators and up to 32 Elsner RF-operating devices/sensors
- Integration of the weather station in the WLAN (for app usage) via optional interface SOL

Compatible wireless actuators for the Solexa II system:

- Motor control units RF-MSG-ST, RF-MSG, RF-MSG-PF (each above Version 3.7) for drives on shadings and windows. If necessary, a number of drives can be connected to a RF-MSG using a group controller relay
- Switching relay RF-relay-ST, RF-relay-UP (each above version 5.5) for consumers such as lamps and one level heaters
- Dimmer RF-L UN-ST, RF-L LED-ST (each above version 1.4), RF-L-UP 1-10 V (above version 1.1) for dimmable lights
- Heating module RF-HE-St (above version 5) for two level heaters

The wireless actuators with a production date after 14.01.2016 are compatible with the Solexa II system. The production date can be found as part of the serial number which has the following structure "DD MM YY consecutive number".

Compatible operating devices and sensors for the Solexa II system:

- Remote control Remo 8 (above version 1.8), Remo pro
- Button Corlo P2 RF (above version 1.0)
- Button at the interface RF-B2-UP (above version 1.0)
- Temperature sensor WGT (above version 1.0)
- Sensor WGTH-UP (above version 1.3) for temperature measurement (humidity measurement by the sensor is not evaluated)

2. Deliverables

Display and weather station are available singly or as a set.

No. 10144:

- Solexa II display (with wall bracket, 4 screw anchors 4 × 20 mm, 4 flat head screw 3 × 25 mm)
- USB cable 0.5 m (USB-A plug to USB-B micro plug)

No. 10150:

- Solexa II display (with wall bracket, 4 screw anchors 4 × 20 mm, 4 flat head screw 3 × 25 mm)
- USB cable 0.5 m (USB-A plug to USB-B micro plug)
- Solexa II weather station

3. Technical specifications

3.1. Display

Material	Plastic
Display	Visible diagonal 126 mm
Colours	white/aluminium coloured painted
Assembly	Surface mounted with wall bracket
Degree of protection	IP20

Dimensions	approx. 107 x 112 x 14 (W x H x D, mm)
Weight	approx. 170 g
Ambient temperature	Operation 0…+50°C, storage -10…+50°C
Ambient humidity	5…95% RH, avoid condensation
Operating voltage	Battery 3.8 V DC
USB charging current	100 mA
Wireless frequency	868.2 MHz
Temperature measurement range	0…+50°C

The product is compliant with the provisions of EC guidelines.

3.2. Weather station

Housing	Plastic
Colour	White / Translucent
Assembly	Surface mount
Degree of protection	IP44
Dimensions	approx. 96 × 77 × 118 (W × H × D, mm)
Weight	approx. 260 g
Ambient temperature	Operation -30…+60°C, storage -30…+70°C
Operating voltage	230 V AC, 50 Hz
Power consumption	Operation: ca. 5 W / 230 V
Wireless frequency	868.2 MHz
Switching capacity relay	max. 500 VA
Fuse	Micro fuse HT 5.0 A
Rain sensor heater	approx. 1.2 W
Temperature measurement range	-40…+80°C
Wind measurement range	0…120 km/h
Brightness measurement range	0…150 kLux

The product is compliant with the provisions of EC guidelines.

4. Installation/assembly

Installation, testing, operational start-up and troubleshooting should only be performed by an authorised electrician.

DANGER!
Risk to life from live voltage (mains voltage)!

- Inspect the device for damage before installation. Only put undamaged devices into operation.
- Comply with the locally applicable directives, regulations and provisions for electrical installation.
- Immediately take the device or system out of service and secure it against unintentional switch-on if risk-free operation is no longer guaranteed.

Use the device exclusively for building automation and observe the operating instructions. Improper use, modifications to the device or failure to observe the operating instructions will invalidate any warranty or guarantee claims.
Operate the device only as a fixed-site installation, i.e. only in assembled condition and after conclusion of all installation and operational start-up tasks, and only in the surroundings designated for it.
Elsner Elektronik is not liable for any changes in norms and standards which may occur after publication of these operating instructions.

4.1. Notes on wireless equipment

When planning facilities with devices that communicate via radio, adequate radio reception must be guaranteed. The range of wireless control will be limited by legal regulation and structural circumstances. Avoid sources of interference and obstacles between receiver and transmitter, that could disturb the wireless communication. Those would be for example:

- Walls and ceilings (especially concrete and solar protection glazing).
- Metal surfaces next to the wireless participants (e. g. aluminium construction of a conservatory).
- Other wireless devices and powerful local transmitters (e.g. wireless headphones), which transmit on the same frequency. Please maintain a minimum distance of 30 cm between wireless transmitters for that reason.

4.2. Assembling the display

4.2.1. Assembly site and assembly preparations

Only install and use the device in dry rooms. Avoid condensation.

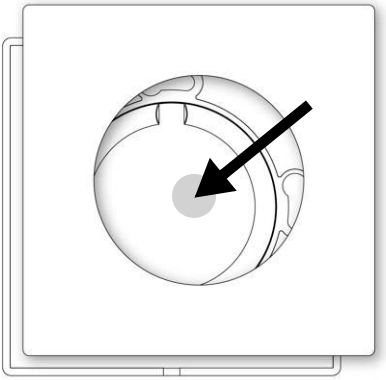
The measurement of the indoor temperature is influenced by sources of heat and cold in the proximity.
For an exact measurement
- avoid direct sunlight
- do not install above a radiator
- avoid draughts from windows/doors

Permanent, high UV exposure harms the display.
- Avoid direct sunlight

The display is battery-powered and communicates wirelessly with the weather station. It should be positioned at a height where it is easy to read, e.g. 150 cm.

4.2.2. Assembling the wall bracket

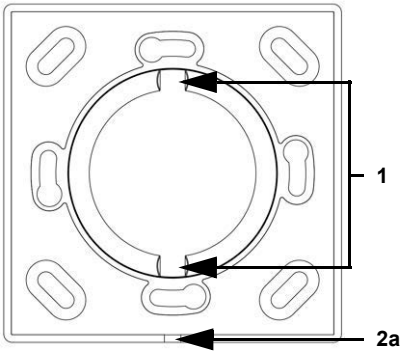
The wall bracket consists of two parts: The wall bracket and the cover.



Ill. 1

Loosen the cover from the wall bracket.

Loosen in the disassembled/as delivered state:
Separate both parts by holding the cover on the outside and pressing out the wall bracket with the thumbs.



Ill. 2 Front view

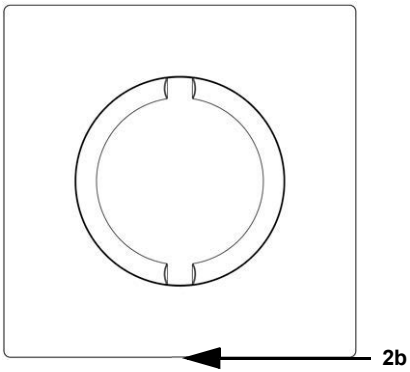
Install the wall bracket using suitable aids (screws, adhesive pads).

(1) The two recesses in the locking must be positioned vertically so that the display is correctly positioned.

(2a) The notch points downwards.

Advice for mounting with screws:

- Turn the screws until the screw head is countersunk. Only then, the cover can be stuck.
- Don't tighten the screw too tightly. The wall bracket must not bend.
- The wall bracket should be screwed securely, so that it cannot be twisted.



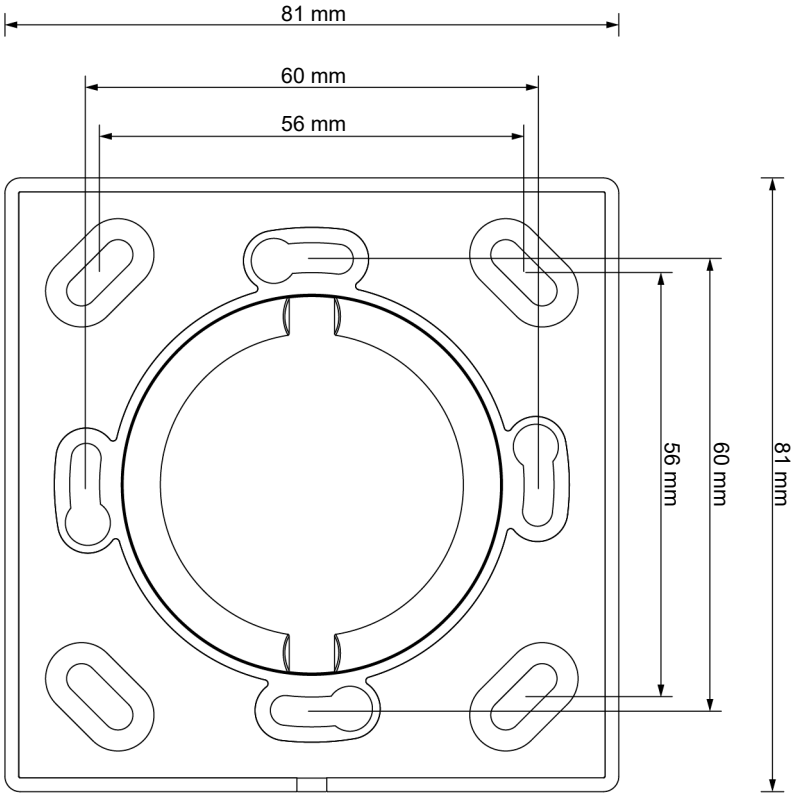
Ill. 3 Front view

Stick the cover on to the wall bracket with the pre-assembled adhesive pads.

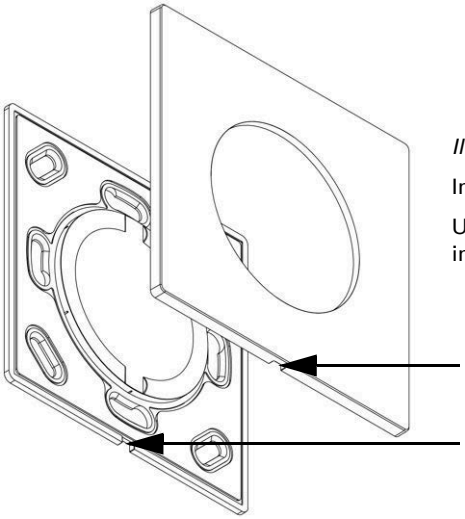
(2b) Here the notch again points downwards.

4.2.3. Drill sketch

Ill. 4
Printout not to scale! Use the wall bracket itself as a master/drill template!



4.2.4. Disassembling the wall bracket



III. 5

In the assembled state loosen the cover:

Using a small screwdriver lever carefully in the groove. Remove the cover.

4.2.5. Instructions for assembly and initial start-up

Never expose the sensor to water (e.g. rain) or dust. This can damage the electronics.

4.3. Installing the weather station

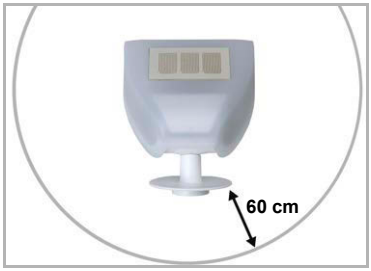
4.3.1. Installation position

Choose an installation position in the building where wind, rain and sun can be measured unhindered by the sensors. The weather station must not be installed underneath any structural parts from which water can still drip onto the rain sensor after it has stopped raining or snowing. The weather station must not be shaded by anything, such as building structures or trees.

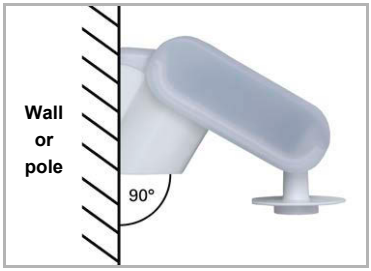
At least 60 cm of clearance must be left all round the weather station. This facilitates correct wind speed measurement without eddies. The distance concurrently prevents spray (raindrops hitting the device) or snow (snow penetration) from impairing the measurement. It also does not allow birds to bite it.
Please take note that an extended awning does not shade the device from sun and wind.

Temperature measurements can also be affected by external influences such as by warming or cooling of the building structure on which the sensor is mounted, (sunlight, heating or cold water pipes).

Magnetic fields, transmitters and interfering fields from electricity consumers (e.g. fluorescent lamps, neon signs, switched-mode power supplies etc.) can interfere with or even cut out reception of the GPS signal.

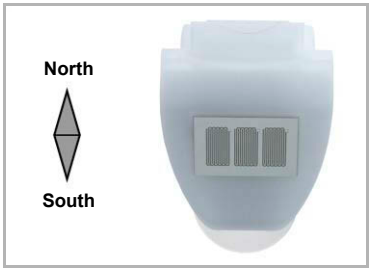


Ill. 6
There must be at least 60 cm of space below, to the sides and in front of the weather station left from other elements (structures, construction parts, etc.).



Ill. 7
The weather station must be mounted on a vertical wall (or a pole).

Ill. 8
The weather station must be mounted in the horizontal transverse direction (horizontally).



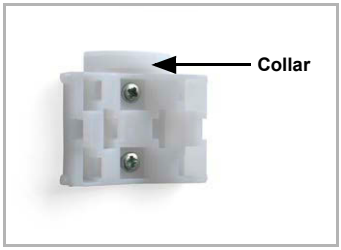
Ill. 9
For installation in the northern hemisphere, the weather station must be aligned to face south.

For installation in the southern hemisphere, the weather station must be aligned to face north.

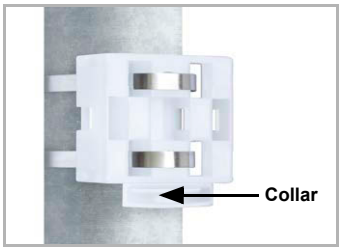
4.3.2. Attaching the mount

The weather station comes with a combination wall/pole mount. The mount comes adhered by adhesive strips to the rear side of the housing.

Fasten the holder vertically to the wall or pole.



Ill. 10
For wall mounting: Flat side to the wall, crescent moon-shaped crosspiece facing up.



Ill. 11
For pole mounting: curved side to the pole, crosspiece facing down.

Ill. 12
Different mounting arms are available from Elsner Elektronik as additional, optional accessories for flexible installation of the weather station on a wall, pole or beam.
Example of the use of a mounting arm: Due to flexible ball joints, the sensor can be brought into ideal position.

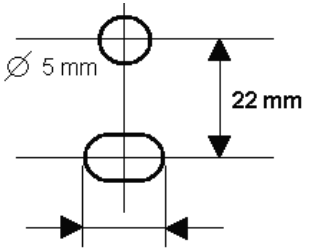
Ill. 13
Example use of the hinge arm mounting:
With the hinge arm mounting, the weather station projects from beneath the roof overhang. Sun, wind and precipitation can act upon the sensors without hindrance.

Ill. 14
Example use of the hinge arm mounting: Fitting to a pole with worm drive hose clips

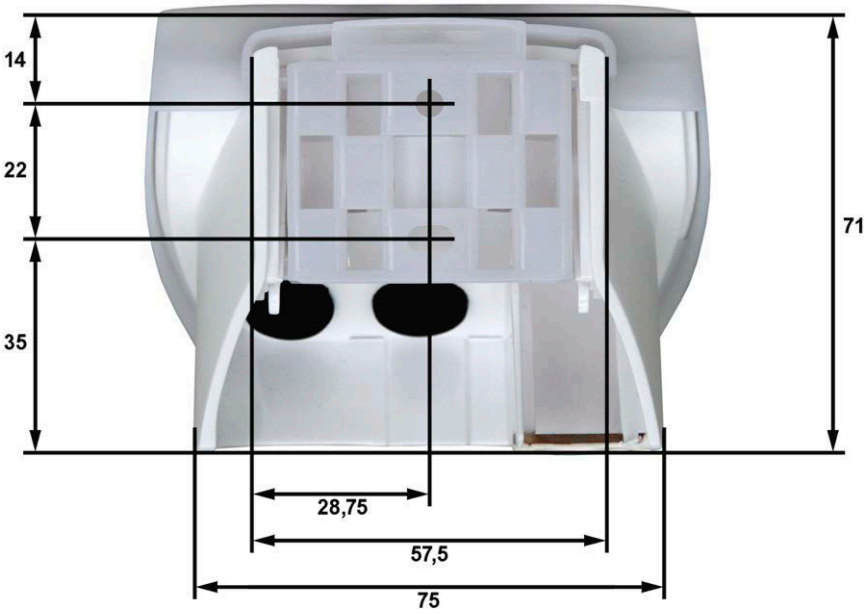
4.3.3. Rear view and drill sketch

Ill. 15 a+b
Drill sketch.

Dimensions of the rear side of the housing with holder, dimensions in mm. Divergences are possible for technical reasons.



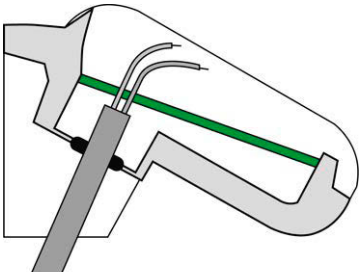
Oblong hole 7,5 x 5 mm



4.3.4. Preparing the weather station

Ill. 16
1 Screw connection for cover
2 Lid with rain sensor
3 Lid notches
4 Bottom of housing

The weather station lid with the rain sensor latches into place on the lower edge to the right and left. Remove the lid from the weather station. Proceed carefully to avoid tearing off the cable connection between the circuit board in the lower section and the rain sensor in the lid.



Ill. 17
Remove the cable shielding under the circuit board and only feed the connector cables upwards through the openings in the circuit board.

4.4. Connection

The weather station has one connection for a 230 V AC drive for awnings, shutters, blinds or windows. A number of drives can be connected in parallel. When switching motors in parallel, check whether a group control relay is specified by the motor manufacturer. Group control relays can be obtained from Elsner Elektronik or from the motor manufacturer.

STOP **ATTENTION**
Damage to property from switching unsuitable motors in parallel!
Not all drives are suitable for parallel switching in drive groups.
- Use suitable drives or connect the drives via a group control relay.

Motors with a power input exceeding 400 watt must be operated through a relay or contactor with its own power supply.

Elsner Elektronik offers appropriate power supplies for direct current drives. Where required, please enquire indicating the motor types, the manufacturer and – if available – the technical specifications.

Guide the power cable and the connecting cable for the drive through the rubber seal on the lower side of the weather station. Connect the mains (L1/N/PE) and drive (PE/N/up/down) to the appropriate terminals.

The teaching of wireless users at the weather station is easier if the weather station and wireless actuators/sensors are secured via separate automatic circuit breakers.

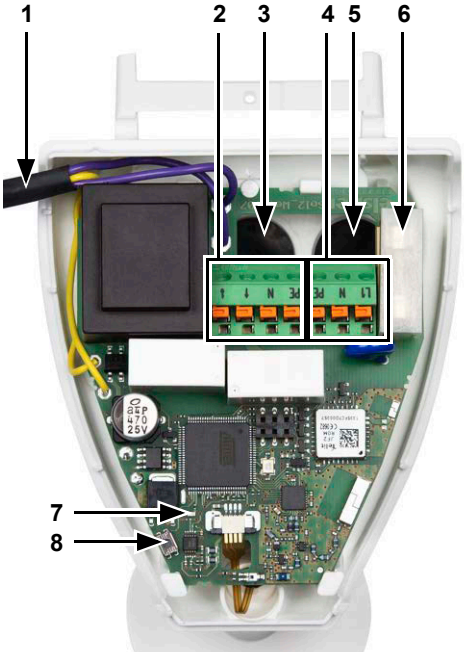
Information on teaching wireless connections

To teach a wireless connection to the display observe the chapter *creating wireless connections* in the manual (basic settings).

The wireless connection to the weather station can be created in two different ways:

1. By pressing the programming button.
   This method may only be performed by a qualified electrician (according to VDE 0100) since the programming button for the wireless connection is on the weather station circuit board.
2. By switching the power supply voltage off and on.
   To enable this method, the weather station should be fused separately (16A circuit breaker). Further wireless users can be supplied via other circuit breakers. Thereby the power supply for the weather station and other wireless users can be interrupted independent of each other.

4.4.1. Layout of the circuit board

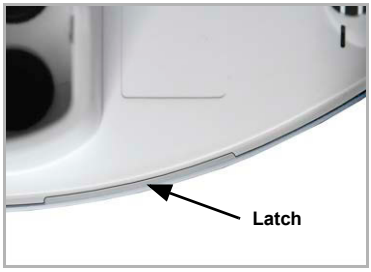


Ill. 18

1 *Cable connection to the precipitation sensor in the casing lid*
2 *Drive connectors (spring loaded terminal, PE/N/up/down), suitable ffr rigid installation cables up to 1.5 mm²*
3 *Opening for drive cable*
4 *Power supply connections (230 V AC, spring loaded terminal, L1/N/PE), suitable for rigid installation cables up to 1.5 mm²*
5 *Opening for power supply cable*
6 *Microfuse HT 5.0 A*
7 *LED programming*
8 *Programming button for teaching the wireless connection to the display*

4.4.2. Mounting the weather station

Close the casing by placing the lid on the lower section. The lid must lock into place on the right and left with a distinct click.



Ill. 19
Check that the lid and lower section have properly latched into place! The diagram shows the closed weather station from below.

Ill. 20
Screw the lid on to the underpart, to prevent unauthorised or accidental opening.

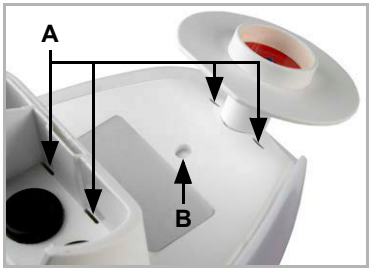
DANGER!
Risk to life from live voltage!
- In operation the lid must be screwed on.

Ill. 21
Push the casing from above into the installed holder. In doing this, the studs in the holder must click into the tracks on the casing.

For removal, the weather station can be pulled out of the holder upwards against the resistance of the notch.

4.5. Instructions for assembling the weather station

Do not open the weather station if water (rain) can get into it: Even a few drops can damage the electronics.



Ill. 22
(A) There are drainage openings on the bottom of the housing.
(B) If necessary, the additional, prepared drainage point can be pierced. Proceed with caution so as not to damage the internal circuit board.

During installation care must be taken that the temperature sensor (small circuit board on the underside of the housing) is not damaged. The cable connection between the board and the rain sensor should also not be torn off or bent when being connected.

Remove all transport protection stickers present after installation.

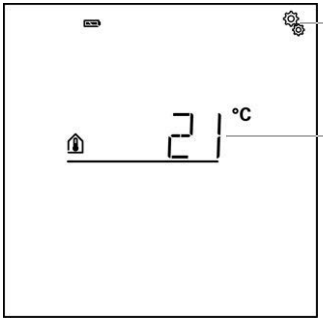
The wind value measured is outputted ca. 30 seconds after the power supply has been connected.

5. Initial start-up

Installation, testing, operational start-up and troubleshooting of the unit should only be performed by an electrician (accredited according to VDE 0100).

The display is immediately ready for operation after having been unpacked. You can start with the basic settings as soon as the wireless modules and the weather station have been installed.

The display now already displays the room temperature:



To the Settings

Indoor temperature (sensor in the display)

Proceed with the installation of the control system as follows:

1. Installation
2. Basic settings (including teaching the wireless users) see the manual *Basic settings*.
3. Setting the automatic, see manual *Automatic*.

6. Disposal

After use, the device must be disposed of in accordance with the legal regulations. Do not dispose of it with the household waste!