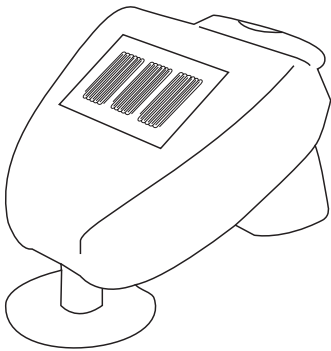# B.E.G. LUXOMAT® KNX WTS-GPS

Installation and Operating Instruction

1. Description

The Weatherstation **KNX WTS-GPS** measures temperature, wind speed and brightness. It recognises precipitation and receives a GPS signal for time and location. In addition, using location coordinates and the time, it calculates the exact position of the sun (azimuth and elevation).

All values can be used for the control of threshold value-dependent switching outputs. States can be linked via AND logic gates and OR logic gates. The compact housing of the **KNX WTS-GPS** includes the sensors, evaluation circuits and buscoupling electronics.

2. Functions

- Brightness and position of the sun: The current light intensity is measured by a sensor. In addition the **KNX WTS-GPS** calculates the position of the sun (azimuth and elevation) using time and location

- Shade control for up to 6 facades with slat and shadow edge tracking

- Wind measurement: The wind strength measurement takes place electronically and thus noiselessly and reliably, even during hail, snow and sub-zero temperatures. Even turbulent air and anabatic winds in the vicinity of the weather station are recorded

- Precipitation recognition: The sensor surface is heated, so that only drops and flakes are recognised as precipitation, but not mist or dew. When the rain or snow stops, the sensor is soon dry again and the precipitation warning ends

- Temperature measurement

- Weekly and calendar time switch: The weather station receives the time and date from the integrated GPS receiver. The weekly time switch switches up to 4 different periods per day.

- With the calendar time switch up to 3 additional time periods can be defined, in which up to 2 On/Off switches take place. The switching outputs can be used as communications objects. The switch times are set via parameters.

- Switching outputs for all measured and calculated values (threshold values can be set via parameters or communications objects)

- 8 AND and 8 OR logic gates with each 4 inputs. All switching events as well as 16 logic inputs (in the form of communications objects) can be used as inputs for the logic gates. The output of each gate can be optionally configured as 1-bit or 2 x 8-bit

3. Installation and Commissioning

⚠ Installation, inspection, commissioning and trouble-shooting of the device must only be carried out by a competent electrician.

Disconnect all lines to be assembled, and take safety precautions against accidental switch-on.

The device is exclusively intended for appropriate use. With each inappropriate change or non-observance of the instructions for use, any warranty or guarantee claim will be void.

After unpacking the device, check immediately for any mechanical damages. In case of transport damage, this must immediately notified to the supplier.

⚠ If damaged, the device must not be put into operation.

If an operation without risk may supposedly not be guaranteed, the device must be put out of operation and be secured against accidental operation.

The device must only be operated as stationary system, i.e. only in a fitted state and after completion of all installation and start-up works, and only in the environment intended for this purpose.

B.E.G. Brück Electronic GmbH does not assume any liability for changes in standards after publication of this instruction manual.

4. 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.

There must be at least 60 cm of free space underneath the weather station to allow it to measure the wind correctly and to prevent it from being snowed in when it snows. Please ensure that extended awnings do 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). Temperature variations from such sources of interference must be corrected in the ETS in order to ensure the specified accuracy of the sensor (temperature offset).
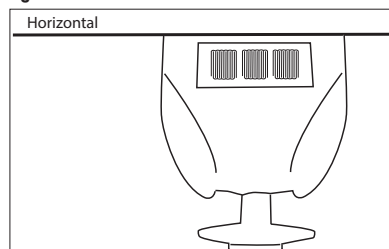
Magnetic fields, transmitters and interfering fields from electricity consumers (e.g. fluorescent lamps, neon signs, switched-mode power supplies etc.) can interfere with or even cut out reception of the GPS signal.

Fig. 1
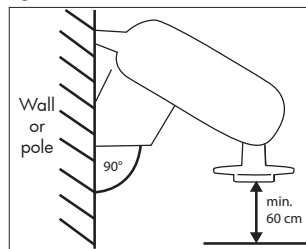
The weather station must be mounted on a vertical wall (or a pole).
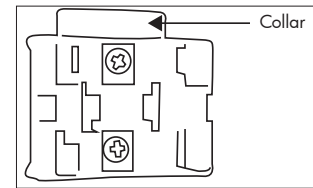
Fig. 2

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

5. 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.
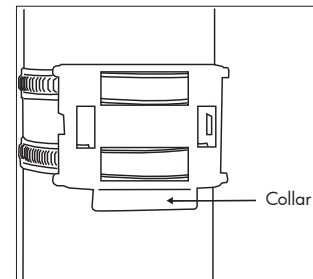
Fasten the holder vertically to the wall or pole.

Fig. 3

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

Fig. 4

For pole mounting: curved side to the pole, crosspiece facing down.
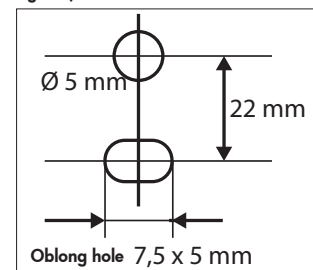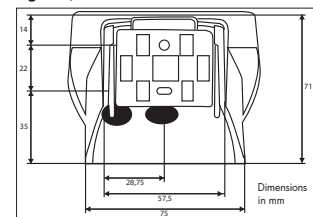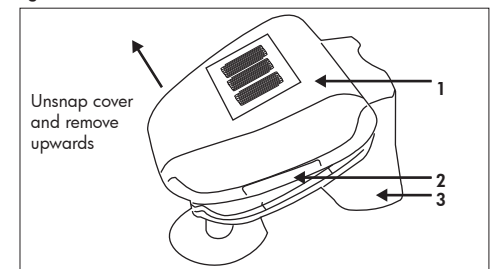
6. Rear view and drill sketch

Fig. 5 a)

Ø 5 mm
22 mm
Oblong hole 7,5 x 5 mm

Fig. 5 b)

7. Preparing the weather station

**Fig. 6**

Unsnap cover and remove upwards

1 Lid with rain sensor
2 Lid notches
3 Housing lower section

The weather station lid with the rain sensor latches into place on the lower edge to the right and left (see figure). 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 (cable with plug).

Ensure that the sheath of the cable remains below the PCB board and only the connection cables go through the rubber seals on the bottom of the weather station and connect Voltage and Bus +/- to the terminals provided.
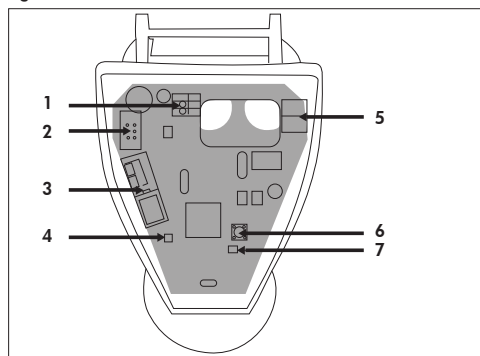
Fig. 7
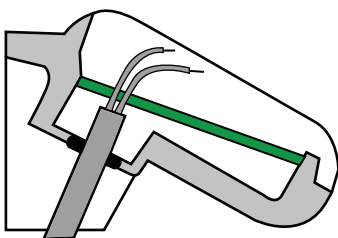
Place the sheath of the cable under the board and allow only the connection cables through the holes in the circuit board to the top.

8. Layout of the circuit board

Fig. 8

1 Spring-force auxiliary voltage terminal, suitable for solid conductor up to 1.5 mm² or fine wire conductor

2 Slot for cable connection to the precipitation sensor in the casing lid

3 GPS antenna

4 Signal LED

5 KNX terminal +/-

6 Program button for setting up the device

7 Program LED

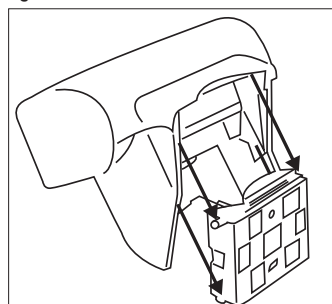## 9. Mounting the weather station

Close the housing by putting the cover back over the bottom part. The cover must snap in on the left and right with a definite "click".

Fig. 9
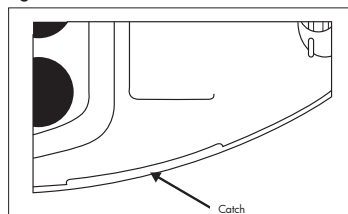
Make sure the cover and bottom part are properly snapped together! This picture is looking at the closed sensor from underneath.

Fig. 10

Push the housing from above into the fastened mount. The bumps on the mount must snap into the rails in the housing.

To remove it, the weather station can be simply pulled upwards out of the mount, against the resistance of the fastening.

10. Notes on mounting and commissioning

Do not open weather station if water (rain) might ingress: even some drops might damage the electronic system.

Observe the correct connections. Incorrect connections may destroy the weather station or connected electronic devices.

Please take care not to damage the temperature sensor (small blank at the bottom part of the housing.) when mounting the weather station. Please also take care not to break away or bend the cable connection between the blank and the rain sensor when connecting the weather station.

Remove all existing protection labels after installation.

The measured wind value and thus all other wind switching outputs may only be supplied 60 seconds after the supply voltage has been connected.

After the auxiliary voltage has been applied, the device will enter an initialisation phase lasting 5 seconds. During this phase no information can be received via the bus.

11. Maintenance

The sensor must regularly be checked for dirt twice a year and cleaned if necessary. In case of severe dirt, the sensor may not work properly anymore.

⚠ As a precaution, the device should always be separated from power supply for maintenance works (e.g. deactivate or remove fuse).

12. Article / Part nr. / Accessory

Typ	SM
KNX WTS-GPS	90221

13. Technical Data

Housing:	Housing UV- and shockresistant Polycarbonate
Degree of protection/class:	IP44 / II / CE
Dimensions W,H, D [mm]:	96 × 77 × 118
Ambient temperature:	-30° to +50°
Auxiliary voltage:	12 to 40 V DC, 12 to 28 V AC
Hilfsstrom:	max. 185 mA at 12 V DC, max. 81 mA at 24 V DC, Residual ripple 10%
Bus current:	max. 8 mA
Data output:	KNX +/-
Group addresses:	max. 254
Assignments:	max. 255
Communication objects:	254
Heater rain sensor:	ca. 1,2 W
Measurement range temperature:	-30° to +80°C
Resolution (temperature):	0,1°C
Accuracy (temperature):	±1°C at -10°C to +85°C, ±1,5°C at -25° to +150°C
Measurement range wind:	0 to 35 m/s
Resolution (wind):	0,1m/s
Accuracy (wind):	at ambient temperature -20 to +50°C: ±22% of the measurement value when incident flow is from 45 to 315° ±15% of the measurement value when incident flow is from 90 to 270° (Frontal incident flow corresponds to 180°)
Measurement range brightness:	0 to 150.000 Lux
Resolution (brightness):	1 Lux at 0 at 120 Lux, 2 Lux at 121 at 1.046 Lux, 63 Lux at 1.047 at 52.363 Lux, 423 Lux at 52.364 at 150.000 Lux
Accuracy (brightness):	±20% at 0 lx … 10 klx, ±15% at 10 klx … 150 klx

CE **Declaration of Conformity:** The product complies with the low voltage recommendation 2006/95/EG and the EMV recommendation 2004/108/EG.

The following standards have been applied:
- EN 50491-5-1: 2010
- EN 50491-5-2: 2011

B.E.G.