

Weather station GPS AP 257/61

Weather station AP 257/51



5WG1 257-3AB61
5WG1 257-3AB51

Weather station with sensors to survey temperature, brightness, rain and wind speed as well as integrated GPS module

- temperature, wind and rain sensors
- three integrated brightness sensors at 90° intervals
- GPS positioning
- easy pole installation with attached pole fixing

Functions with commissioning with ETS

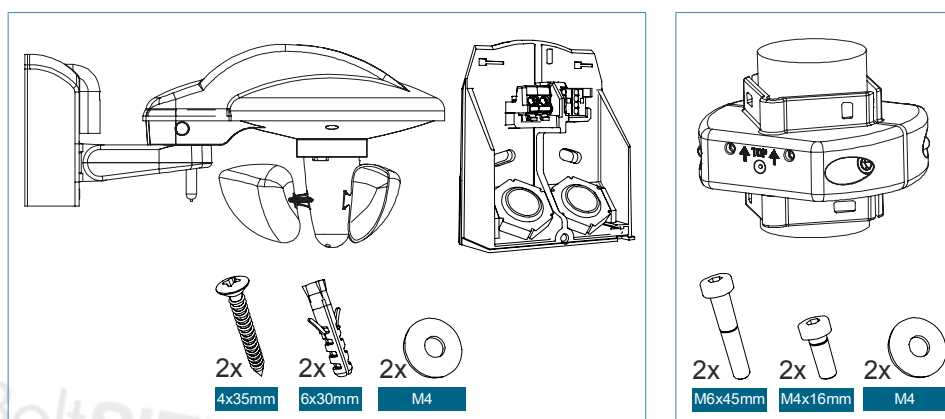
- sending of the current GPS coordinates
- two objects for external brightness sensors
- adjustment of slats position according to current sun position
- sun protection area both horizontal (azimuth) and vertical (elevation) can be set exactly
- sun protection can be temporarily interrupted via object
- sensor evaluation with logical AND/ OR operation of the measurement readings
- threshold switches with delay when falling below and exceeding
- logic modules with four input objects independent of the measurement readings



Types

Type	Article number	Description	Sensors	GPS module
AP 257/61	5WG1 257-3AB61	Weather station GPS	brightness, temperature, wind, rain	yes
AP 257/51	5WG1 257-3AB51	Weather station	brightness, temperature, wind	no

Contents



Features

These devices are weather stations with integrated brightness, temperature, wind and rain sensors to detect meteorological data. A GPS module is included as well. The devices communicate via KNX. All devices are designed for outdoor installation at buildings.

Usage

The main application is the measurement and processing of meteorological data to control venetian blinds, roller shutters or awnings.

Temperature sensor

The integrated temperature sensor detects the current temperature value.

Wind sensor

The integrated wind sensor detects the current wind speed. To be able to detect the real wind speed it is recommended to install the devices on a pole, especially for facades exposed to strong frontal winds.

Rain sensor

The integrated rain sensor detects precipitation.

Brightness sensors

Three integrated brightness sensors detect, independent of each other, the current brightness. It is possible to use the average of the three sensors for further proceeding.

GPS module

The integrated GPS module detects the GPS coordinates (longitude and latitude) of the location as well as current date and time.

Functions with configuration with ETS

The relevant sensors for evaluation of the meteorological data and the further proceeding can be set via ETS.

Functions of the weather station

The weather station contains four independent functional blocks (evaluation units). According to the settings different telegrams can be sent via the KNX bus. The values of the communication objects are set via parameters for each functional block (sensor evaluation, facade, threshold switch, logic module) separately.

Sensor evaluation

The sensor evaluation contains ten independent channels, each of it with two telegrams. Each sensor evaluation can be used for subtasks (e.g. brightness threshold) or for any combination of measurement values.

Each sensor evaluation contains up to 4 weather conditions, linked via a logical operation:

- brightness below/ above threshold
- temperature below/ above threshold
- wind speed below/ above threshold
- it rains/ it doesn't rain (AP 257/61 only)

The weather conditions can be linked via a logical AND or a logical OR. An irrelevant condition (e.g. temperature) can be omitted and will not be considered by the logical operation.

It can be defined which telegram should be sent if the AND respectively OR condition is met or is not met. If necessary a second telegram could be sent.

If required, a sensor evaluation can also be defined as safety channel, when the relevant values, i.e. temperature, rain and wind are linked via a logical OR. The result of this logical operation can be used as safety message, if the parameters for the "facades" are set accordingly.

Facade

The evaluation unit "facade" controls venetian blinds, roller shutters, awnings etc. Three (AP257/51) respectively eight (AP 257/61) independent channels with the following functions can be used:

- one dawn/ dusk threshold
- one brightness threshold for shading
- three objects to control solar protection or to activate a scene
- one object "sun control"
- one object to set the dawn/ dusk threshold
- one safety object

It can be selected if sun control should be triggered by the object "sun control" or by dawn/ dusk. Sun protection can be realized with or without sun position tracking (AP 257/61 only).

Threshold switch

The evaluation unit "threshold switch" is a separate unit, independent of the meteorological data. Four independent channels with two telegrams per channel are available.

Principle:

A value is received via the bus. It is compared with the defined threshold. If the value is greater than the defined threshold the condition is met, otherwise the condition is not met.

Logic module

The evaluation unit "logic module" is a separate unit, independent of the meteorological data. Six independent channels with two telegrams per channel are available. Therefore the logic modules can fulfill various tasks within a KNX installation.

Principle:

Up to four 1 bit input values can be linked via a logical operation.

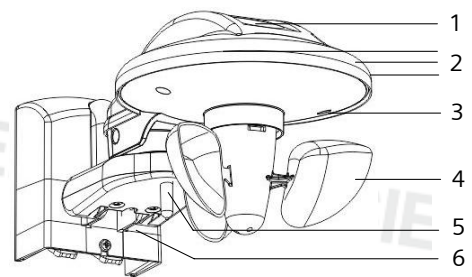
The following input values can be selected:

- input objects of the logical modules
- status of the sensor evaluations (condition met/ condition not met)
- status of the threshold switches (exceeded/ underrun)
- operation result of the other logical modules (a logic module cannot be linked with itself)

Technology/ Model

Location / Function of the Display and Operating Elements

- | | |
|---|---|
| 1 | rain sensor with heating (AP 257/61 only) |
| 2 | three brightness sensors (front, right and left) |
| 3 | programming button and LED |
| 4 | wind wheel |
| 5 | temperature sensor |
| 6 | wall bracket with connection for 24 V DC SELV (AP 257/61 only) and bus connection (KNX) |

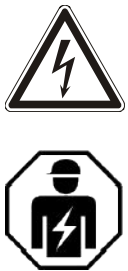


Product documentation

Additional information like operating and mounting instruction, application program description, product database, product image, CE declaration etc. is available here:

<http://www.siemens.de/gamma-td>

Security

	DANGER • The device must be mounted and commissioned by an authorized electrician. • The device must not be opened. • For planning and construction of electric installations, the relevant guidelines, regulations and standards of the respective country are to be considered.
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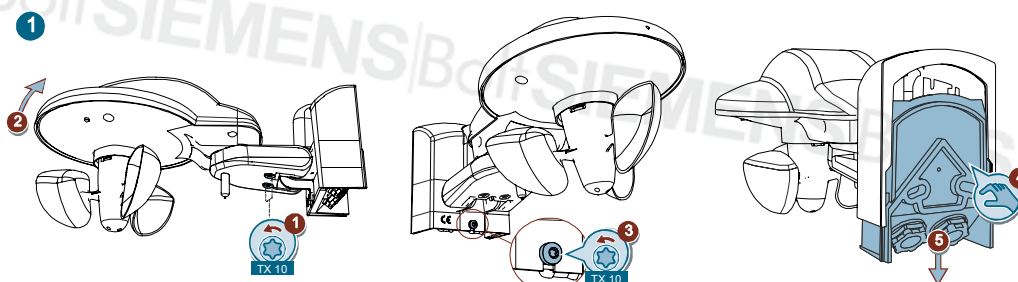
Mounting

The devices are designed for outdoor installation at buildings. They can be mounted directly at the facade of the building. Alternatively they can also be installed on a pole or at an edge of the facade, both by using the pole fixing.

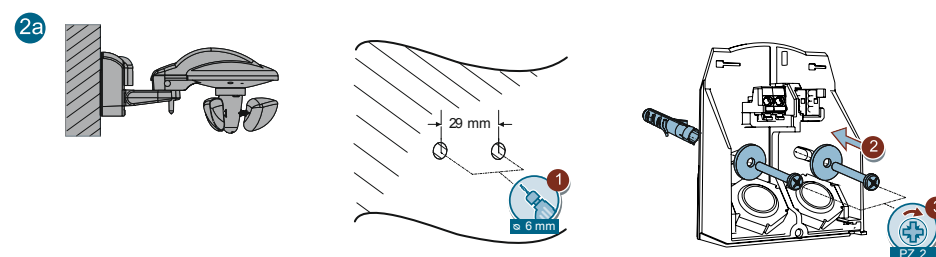
Note:

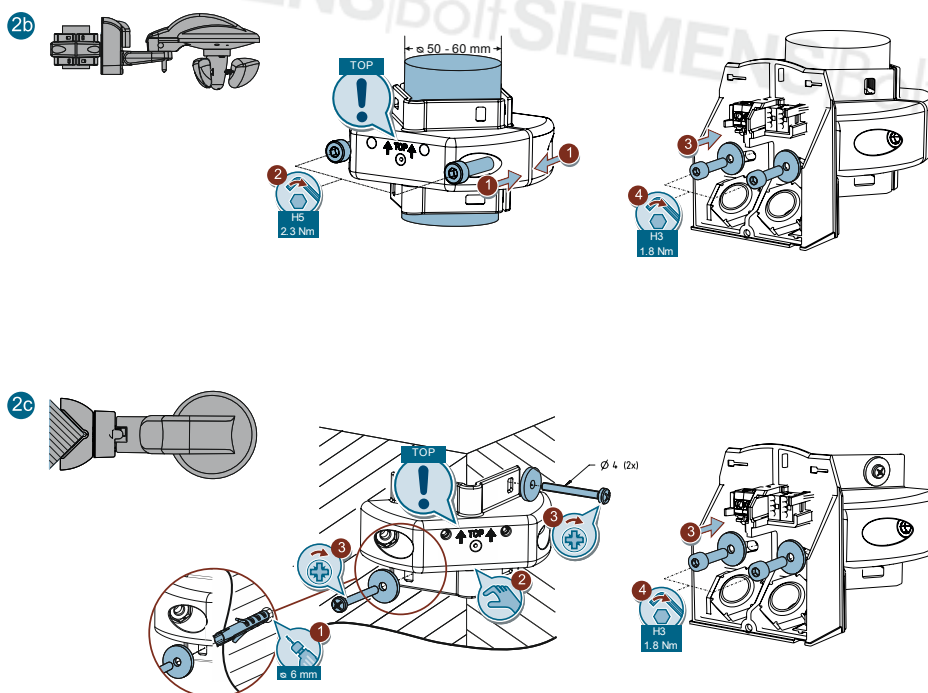
- The wind sensor should not be installed at a sheltered position.
- Shadows (e.g. from masts) and reflected light should be avoided.
- The weather station only works in correct mounting position (wind rotor at the bottom).

At first weather station and wall bracket must be separated.

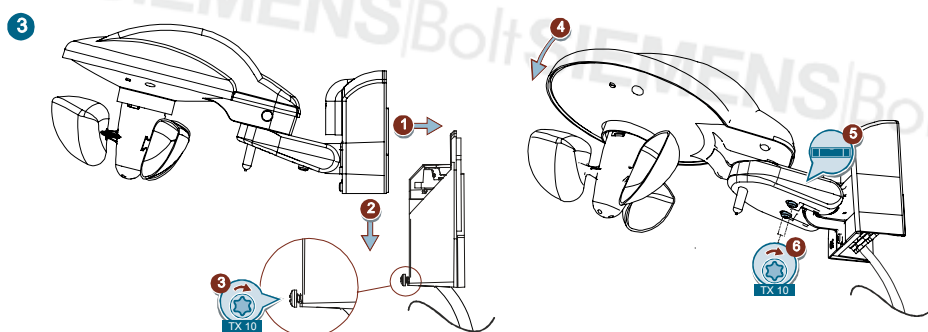


Afterwards the wall bracket and the pole fixing, if applicable, can be mounted at the building respectively at the pole.





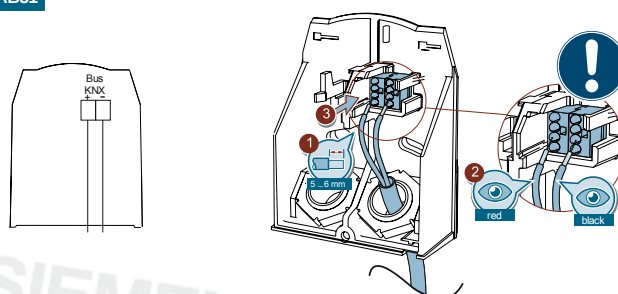
Finally the weather station has to be slipped onto the wall bracket again.

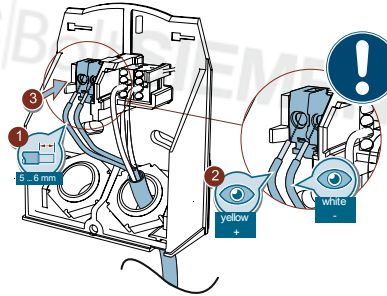
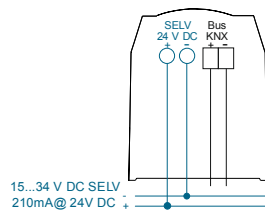


Connection

To connect the devices to the bus respectively the 24 V power supply (AP 257/61 only) the cables have to be fed through the rubber seals provided. Then the cables have to be plugged into the screwless terminal respectively the bus terminal. Correct polarity has to be ensured.

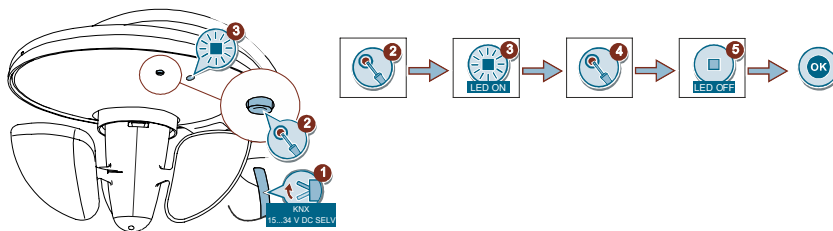
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Commissioning

The programming button at the bottom of the device is pressed with a screwdriver to receive the physical address. The programming LED is on. It turns off automatically after receiving the physical address.



Technical data

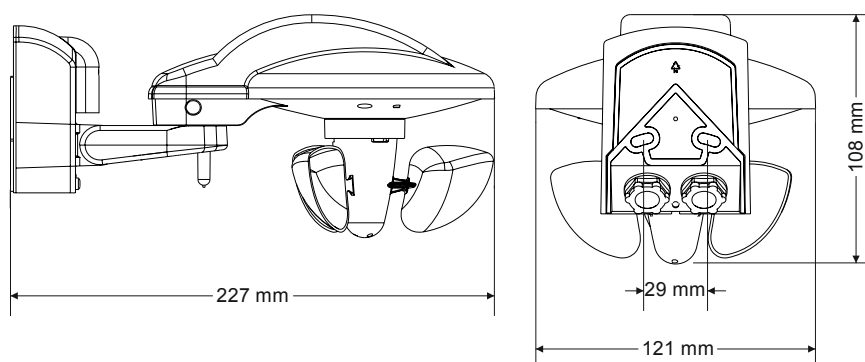
Physical Specifications	
Housing	plastic
Dimensions (H x W x D)	108 x 121 x 227 mm
Mounting	outdoor installation on-wall (wall-mounted or mounted on pole)
Weight	approx. 300 g - AP 257/51 approx. 325 g - AP 257/61 approx. 155 g – pole mounting and mounting material
Fire load	approx. 12 MJ
Color	transparent
Power supply	
Power supply	via KNX via 15 ... 34V DC SELV (for heating of rain sensor, AP 257/61 only)
Bus current	≤ 10 mA - AP 257/51 ≤ 10 mA resp. typ. 15 mA (during satellite search) - AP 257/61 and typ. 180 mA at 29 V DC - for heating of rain sensor at AP 257/61 typ. 210 mA at 24 V DC - for heating of rain sensor at AP 257/61 typ. 350 mA at 15 V DC - for heating of rain sensor at AP 257/61
Power loss typ.	max. 0.24 W at 24V DC - AP 257/51 max. 0.24 W / 0.36 W (during satellite search) at 24 V DC - AP 257/61 typ. 5 W at 24V DC – for heating of rain sensor at AP 257/61

Range of sensors	
Brightness sensors	1 ... 100.000 Lux
Wind speed	2 ... 30 m/s
Temperature	-30 ... +60 °C
Status rain sensor	rain/ no rain
Control elements	
1 Programming button	load physical address
Display elements	
1 LED	for monitoring bus voltage and for displaying normal mode/ addressing mode
Connections	
KNX	bus terminal, diameter 0.6 ... 0.8 mm, strip insulation 5 ... 6 mm
24 V DC SELV (AP 257/61 only)	screwless terminal, 0.5 ... 1.5 mm ² , strip insulation 5 ... 6 mm

Environmental conditions	
Ambient temperature in operation	-20 °C ... +55 °C
Storage temperature	-25 °C ... +70 °C
Relative humidity (non-condensing)	5 % ... 93 %
Climatic withstand capability	EN 50428
Reliability Failure rate	341 fit at 40 °C - AP 257/51 436 fit at 40 °C - AP 257/61
Environment and safety regulations	
Degree of pollution (according to IEC 60664-1)	2
Overvoltage category (according IEC 60664-1)	III
Protection class EN 60529	IP44
Electrical Safety Bus Device covers Electromagnetic compatibility	Safety extra low voltage SELV DC 24 V EN 50428 EN 50428
Markings	KNX EIB
CE marking	complies to EMC regulation (residential buildings), RoHS regulation

Dimension drawing

Dimensions in mm



General notes

- The operating instructions must be handed over to the client.
- A faulty device shall be returned with a Return Good Note for Service provided by the appropriate Siemens sales office.
- If you have further questions concerning the product, please contact our technical support.

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✉ support.automation@siemens.com

www.siemens.de/automation/support-request
