



StorMonitor



Installation and commissioning manual



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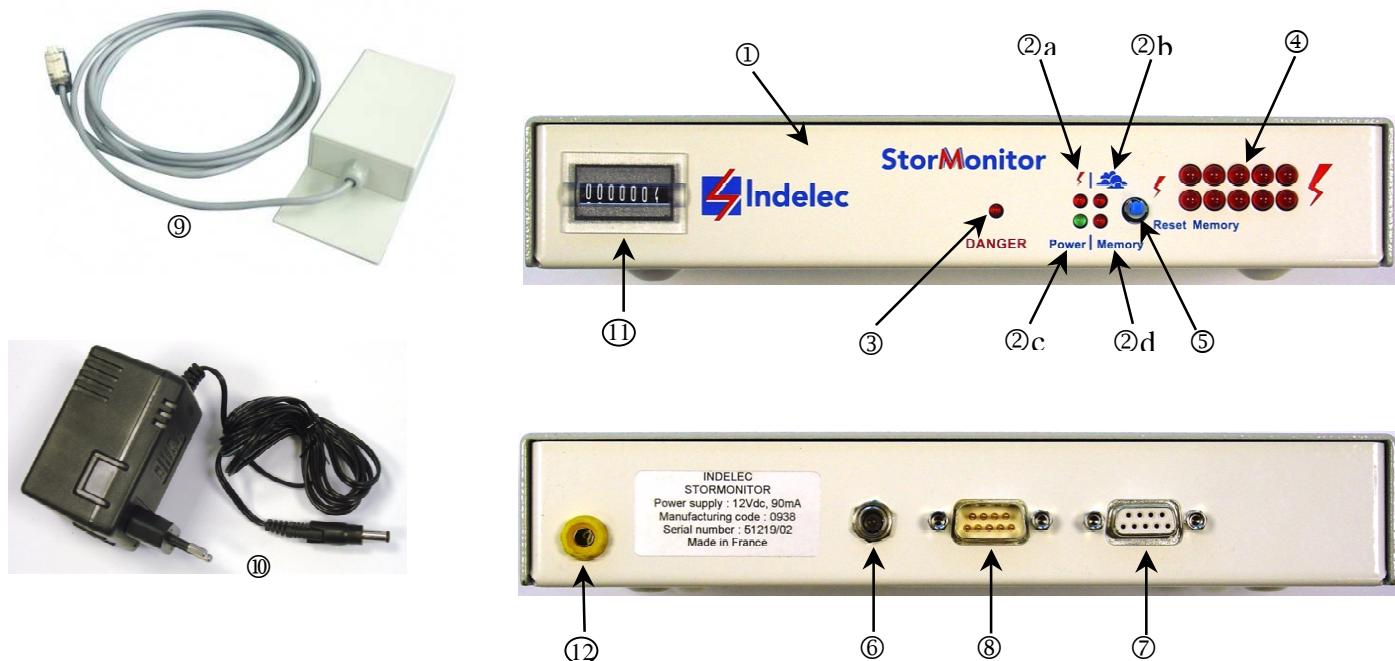
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I - General remarks:

The StorMonitor system comprises the following units:

- A metallic box ① containing the processing electronics with a display showing storm activity via a set of LEDs and a bar graph.
- A reception antenna ⑨ fixed outside the building and connected to the processing unit via a shielded cable.
- A 230Vac/12Vdc power supply ⑩ connected to the box via a jack plug.

The StorMonitor system is designed to be installed on a desk, or equivalent, inside a building.



- ① StorMonitor main unit : H:40 / L:214 / D: 133 (mm)
- ②a Top left LED: Lightning strike
- ②b Top right LED: Storm in progress
- ②c Bottom left LED: Power on
- ②d Bottom right LED: Storm memory
- ③ DANGER LED (reset at the same time as the storm memory LED)
- ④ Bar graph indicating the level of storm activity
- ⑤ Reset Memory button to acknowledge the storm memory
- ⑥ 5 mm Jack socket for StorMonitor power supply
- ⑦ Female 9-pin Sub-D socket for connecting the antenna
- ⑧ Male 9-pin Sub-D socket for information output
- ⑨ Antenna
- ⑩ 230Vac/12Vdc power supply transformer
- ⑪ Counter for the number of storms
- ⑫ Earth connector (see appendix 1)



II - Installation and commissioning:

II-1 Installing the StorMonitor main unit:

The antenna is supplied with a 25 meters long cable. If necessary the cable can be extended (follow the instructions in appendix 2 ; please pay an extreme attention to the electrical continuity of the cable screening).

The StorMonitor main unit must not be installed close to a source of electrical interference which may prevent it operating properly.

Connect the power supply unit to the mains, then connect its male Jack to the female socket ⑥ on the back of the StorMonitor main unit : check that the green "POWER" LED ②c on the processing unit is on.

II-2 Installing the antenna:

The environmental conditions existing during installation have a strong influence on the choice of geographical location of the antenna; any later changes to them may affect the system's behaviour, demonstrated by excessive, or a decrease in detection sensitivity; the nature of the ambient air at the time of installation (according to its degree of ionization) may make the system more or less sensitive; it is in this way that in certain circumstances, very dry air can increase sensitivity. It is essential therefore to check sensitivity and the environment regularly.

Electrical environment:

Ideally the antenna should be in a location without any source of electrical interference like an electric motor, neon or discharge tube, telephone, loud speaker, in a radius of at least ten metres around it. It may happen that certain electrical phenomena that cause interference do not occur during installation, but after a time, randomly or periodically, every 24 hours and at a set time for example; in this case, the origin must be identified so that the cause can be eliminated or, if this is impossible, the location of the antenna changed.

External environment:

The antenna should be fixed to an elevated point of the area to be monitored. Generally speaking, it is recommended :

- not to install it behind a metal surface (corrugated iron for example), close to a metal beam or framework or metal points that could act as a screen.
- to make sure that the cable connecting it to the main box does not pass close to a power cable or any cable likely to emit radiation, a loud speaker cable, intermittent power supply or dimmer, etc.
- to never install it inside a building that could create a Faraday cage and thus inhibit the electromagnetic waves caused by storm activity and normally sensed by the antenna.



II-3 Finding a position to site the antenna:

The choice of location for the antenna should be made during good weather and without any threat of storm activity, even far away.

Once the area of location has been determined in the light of the preceding criteria, the precise choice in this area should be determined actively, that is to say, with the antenna connected to the box itself with the power switched on.

In these conditions, with the antenna held manually, find the optimal location by watching the bar graph on the processing unit: this should always remain inactive; if the first LED located at the bottom left of the bar graph comes on and there is no storm activity on the horizon, this means that there is a source of electrical interference close to the antenna; eliminate this interference or find another location for the antenna.

Once the choice of location has been finally determined, fix the antenna in its final position in accordance with the instructions in appendix 3.

Then check that the bar graph remains inactive.

III - Limitations to use:

The StorMonitor sensitivity is optimal for negative lightning surges which are a succession of discharges. Its operation is linked to the degree of dynamic activity of the storm manifestation present in the geographical area close to the antenna.

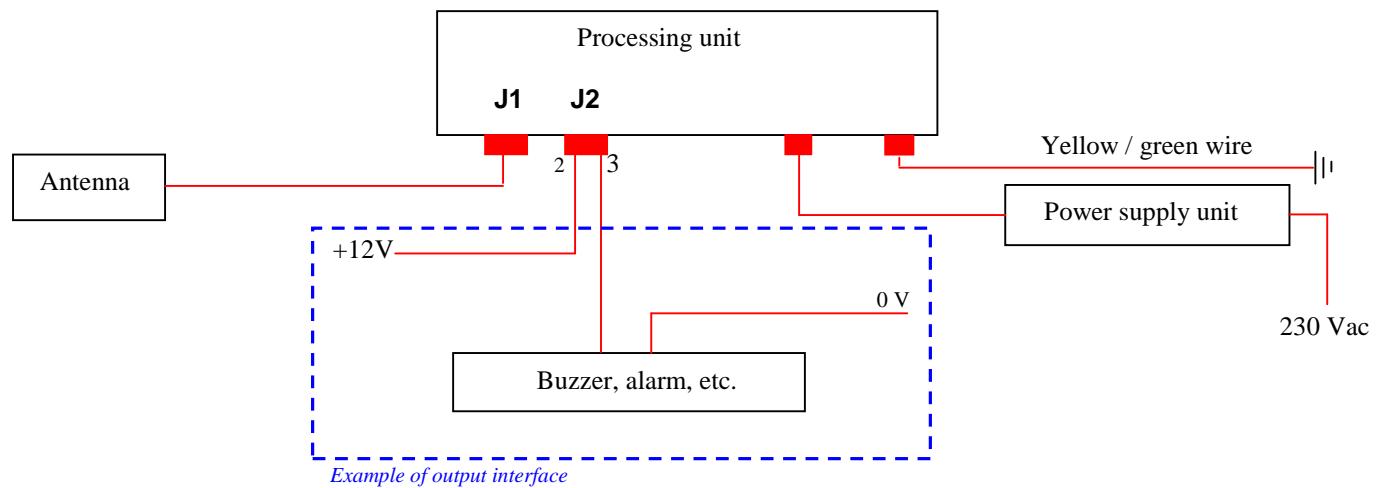
Note:

1- Lightning activity in the sky may not be detected by the StorMonitor; in fact, everything depends on the distance separating it from the antenna. As an indication, lightning can be seen with the naked eye up to a distance of 90 km, therefore well beyond the antenna's sensing range.

2- The sound of thunder is always associated with a flash of lightning, even if you do not see it. Thus it is possible that even when there is a clap of thunder, the device does not detect it: in fact, the noise of thunder can extend for up to 30 km, therefore well beyond the antenna's detection distance.

IV – Connection principles:

Diagram (see appendix 2 for more details):



Main technical data:

Power supply: 12Vdc typical, range from 11 to 13.6Vdc

Consumption at 12V (without alarm): 90 mA

Operating temperature range: -15 to + 60 °C

Antenna protection index: IP66

Sound alarm signal: via a buzzer incorporated into the processing unit, depending on the position of the jumper SW12 located on the processing unit's circuit board.

Reset of the buzzer and "Memory" LED ②d by a pressing the "Reset memory" button ⑤ on the front panel.

Timeout of the "Storm in progress" alarm: 10 minutes, retriggerable by lightning occurring during this timeout.

Alarm contact: NO, no voltage, rating 24Vdc/1A on resistive load.

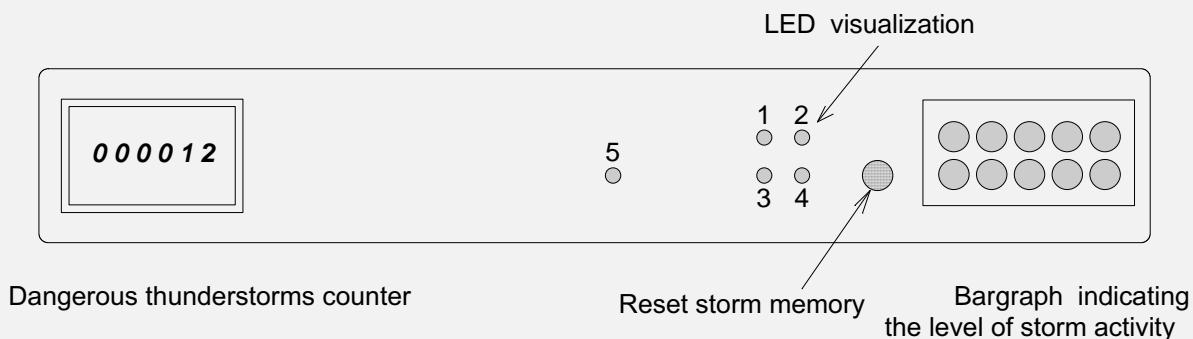
For further details concerning use, please refer to appendices 1, 2 and 3.

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Appendix 1 - StorMonitor main unit description

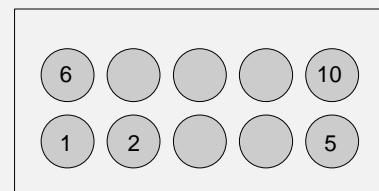


Front panel of the processing unit :



LED number

<u>LED number</u>	<u>Function</u>
1	Lightning strike detection
2	Storm occurring
3	Power on
4	Storm memory
5	Dangerous thunderstrom



Progress of the display by successive ignition of LEDs (from 1 to 10)

Rear panel of the processing unit :

Earthing 5mm Jack socket power supply 12Vdc J2- male 9-pin SubD socket for information output J1- female 9-pin SubD socket for antenna connection

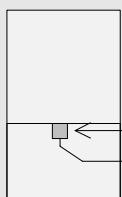


Appendix 2 - Adapting the antenna's cable length

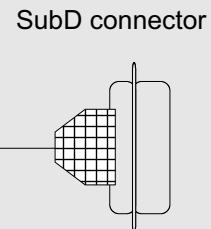


1 - Antenna with its cable ended by a 9-pin SubD male connector :

Antenna



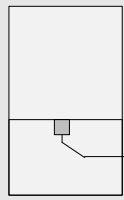
Cable gland



Cable length = 25 meters

2 - Insertion of transition connector blocks to increase or decrease the cable's length :

Antenna



Shield (metal braid)

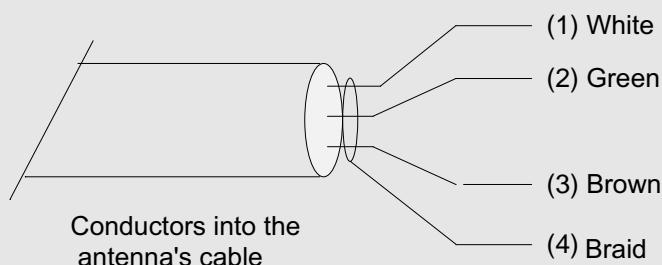
Extension cable
(see hereunder)

J2 SubD connector
(customer's interface)

Transition connector block

J1 SubD connector

Processing unit

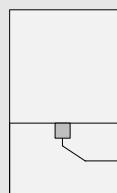


Conductors into the
antenna's cable

- (1) White
- (2) Green
- (3) Brown
- (4) Braid

Cable ref. : H1-FLEX.CY 4x0.34 soft

3 - Example of installation:



Antenna

Distribution boxes including
the connector block (*)

(*) Plexo-type box or equivalent, not supplied.

Antenna's cable connected to
J1 SubD male connector

J1

Processing
unit

Female connector

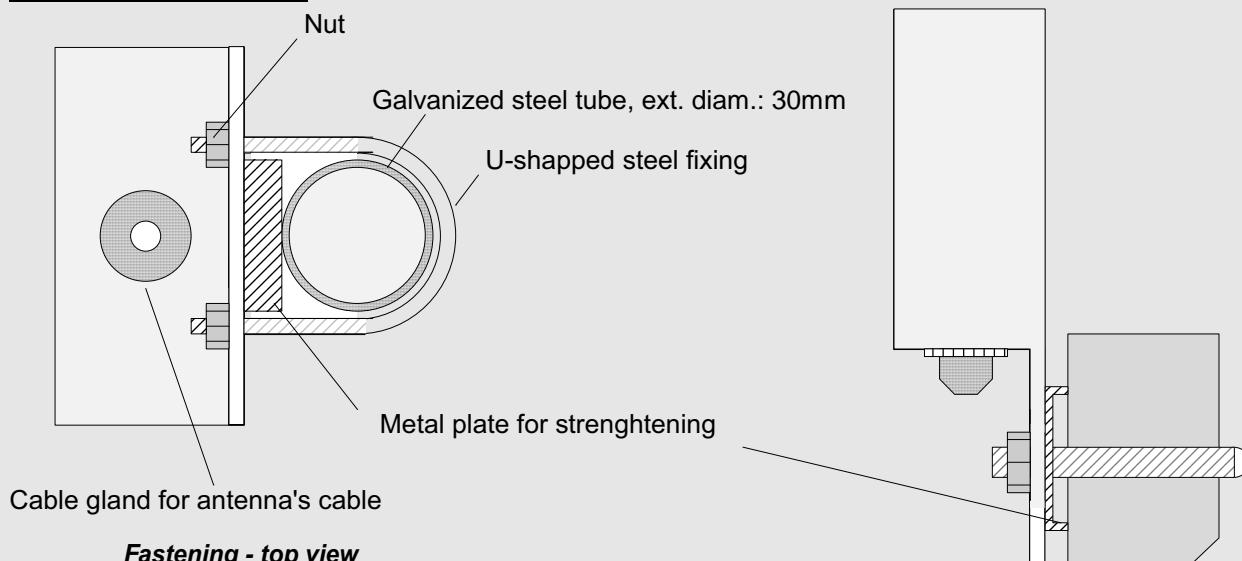
+12Vdc
0Vdc

Example of connection of an external alarm

J2's pins# 2 and 3: potential free NO contactor (factory settings)

Appendix 3 - Fastening the antenna

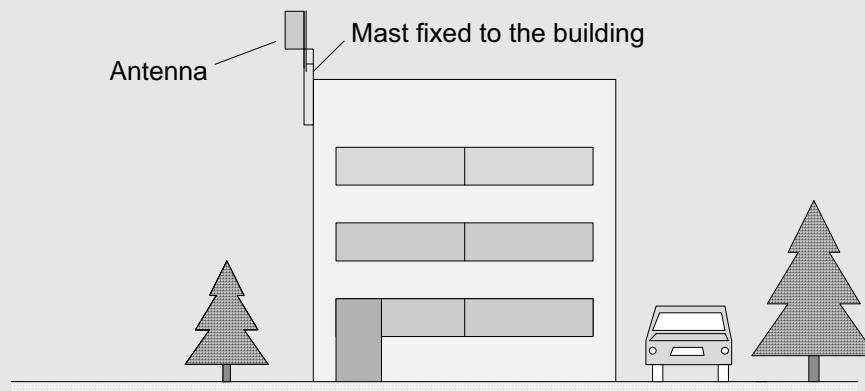
1 - Fixing on a steel tube :



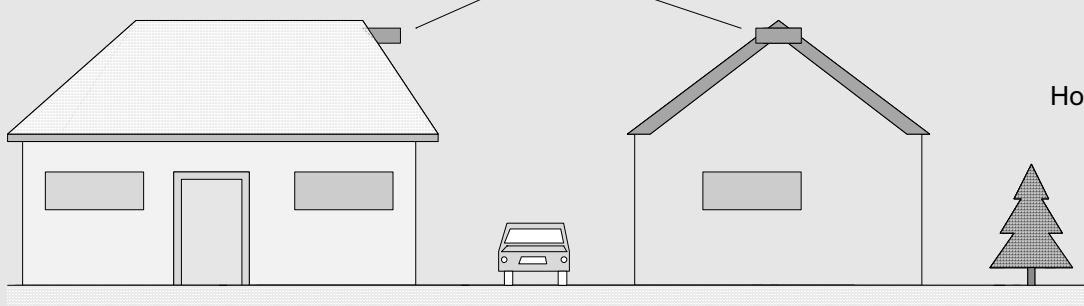
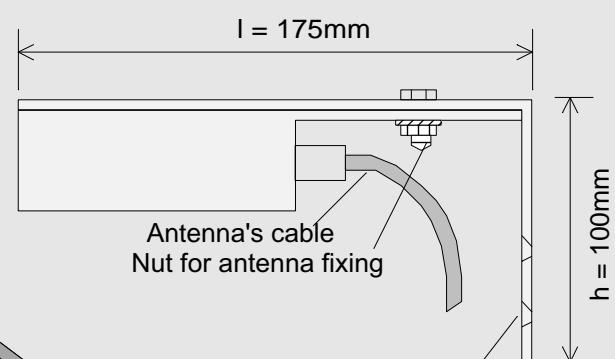
Fastening - top view

Be sure that the antenna is always fixed in one of both shown positions.

Fastening - cross-section



2 - Fixing with bracket :



Fastening - side view