

PALB10ABC

**Anodized aluminum folding pole h=10m
Weight 30Kg**



Installation Manual

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Attachment:

A2: 10m station

B: Idro station

C2: WMP6 station 10m

E: SS P1 Sensor support for bridge/wall

F: WMP6-Installation

G: 10ABC pole

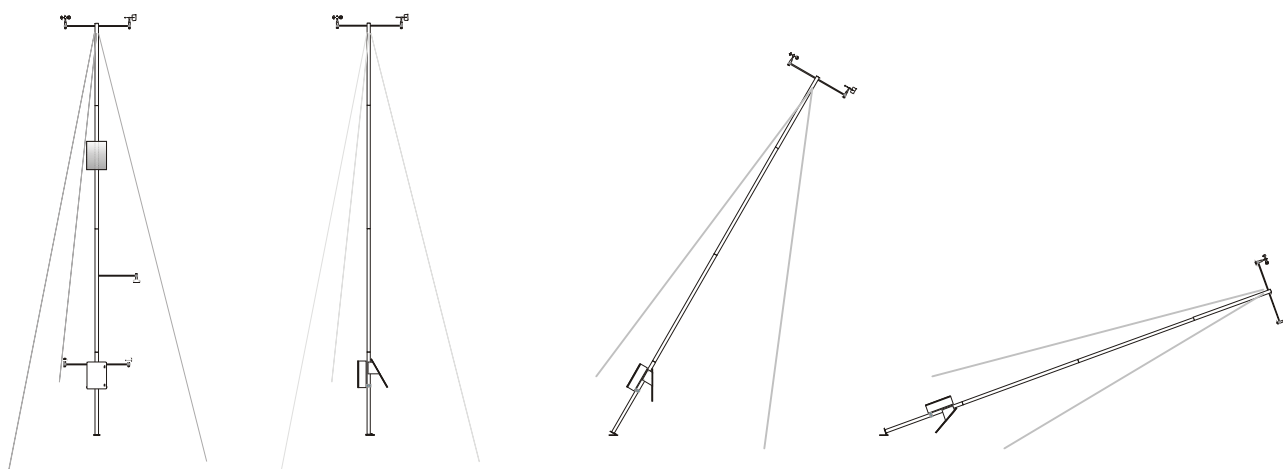
1 Part list

The pole is completely made by sectional parts. Hooking and fixing together the various pieces you compose it.

The following list parts is worth for all the versions of the 10M pole (**hinged at base, tiltable with balance at 5m and fix**), therefore some pieces couldn't be present in some configurations.

[See attachment G for details](#)

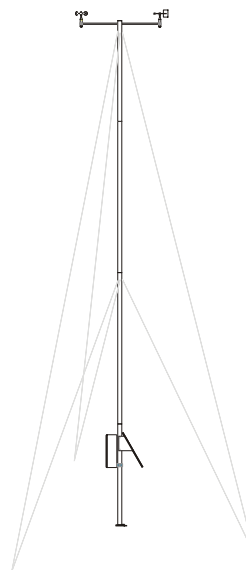
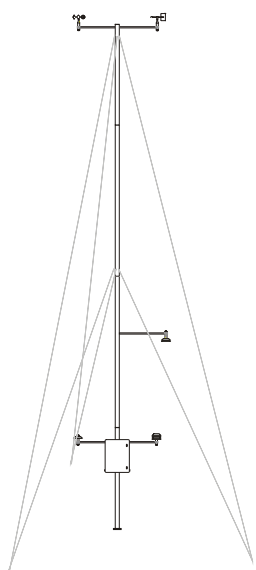
Version 1: *hinged at base*



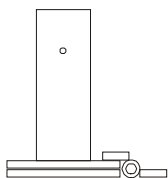
Version 2: *tiltable with balance at 5m*



Version 3: fix pole



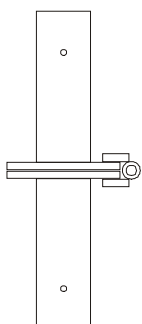
Components:



Basic Plate with hinge x1pc



Joint



Joint with hinge x1pc



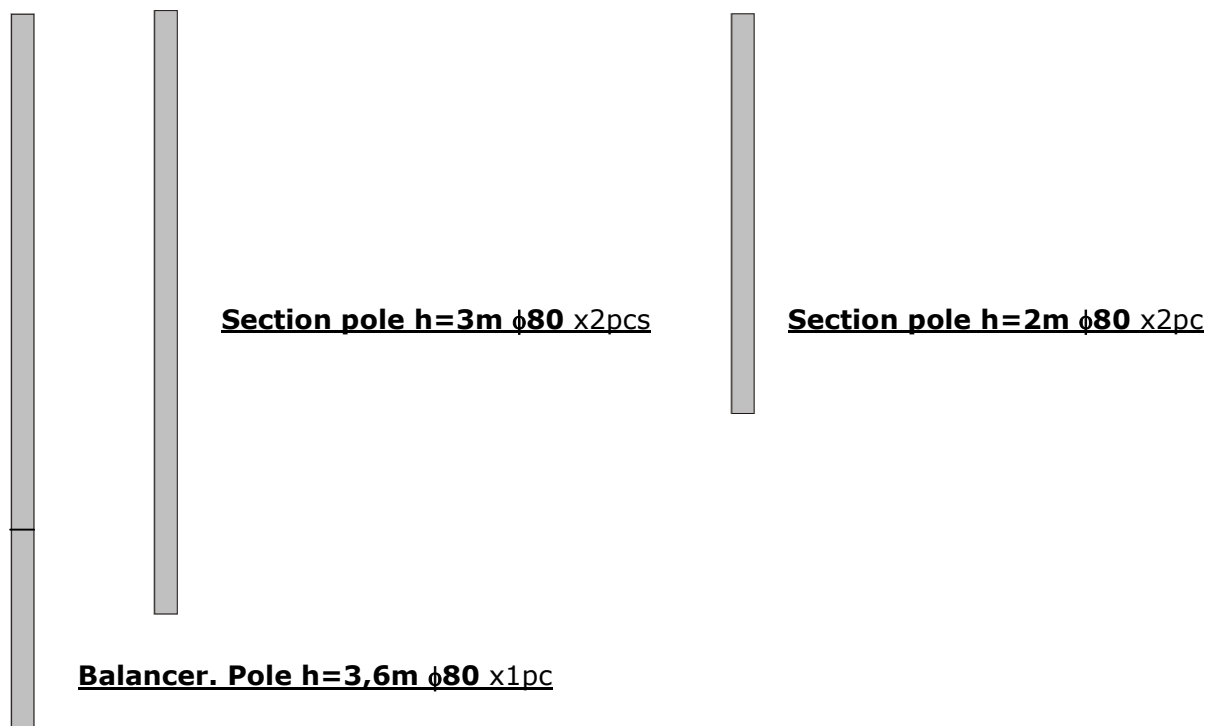
Jaws x6pcs



Screw for jaws x6pcs



Eyebolt x1pc



The bracing is made with rods in stainless steel cable, that the customer have to cut on site or supplied with standard measure (13.5m). The use of rods and their number (from 3 to 6) is optional depending on the location and intended use of the pole.

Optional rods:



Rods in stainless steel x 40-70m ca



Stop rods x 6pcs or x12pcs

Some parts (joints, plates with hinge, buttonholes for fixing connecting rods, etc.) is supplied already preassembled.

The assemblage of the pole can separately happen to the predisposition of the necessary civil works to its support.

2 Preparation of the site

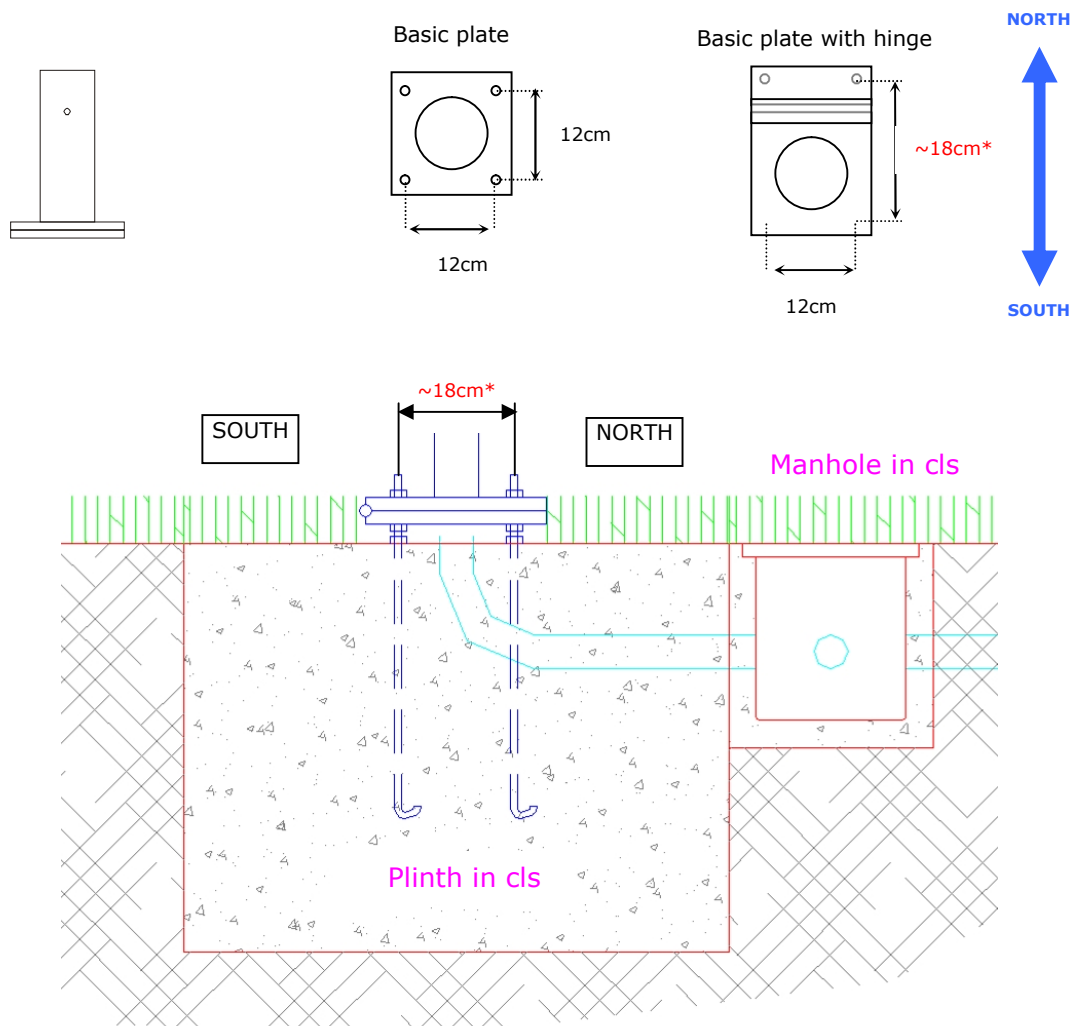
2.1 Civil works to be realized

For concrete foundation block, see Annex A2

General Note: to avoid electrical noise to the system, choose a site far from radio or noise sources (as per Radar, high power electrical transformer etc.).

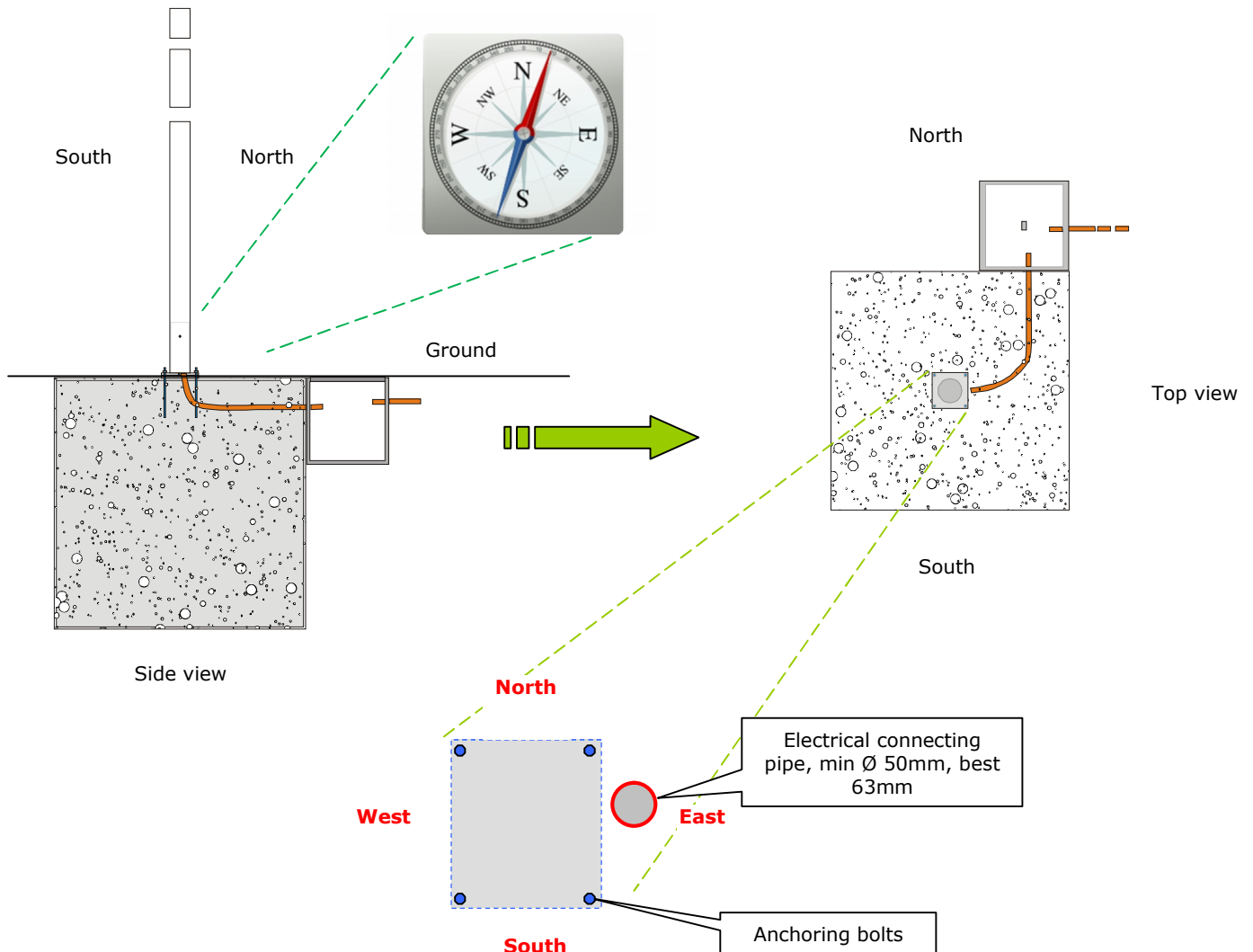
We recommends to use a plinth with dimensions of 120x120x50 cm, it's also possible to use a small plinth, with dimension of 80x80x40cm, if are installed 3 or more rods. The armor of the plinth can be realized with double wire mesh $\varnothing 8$ 20x20 opportunely "C" shaped and overlapped in the sides to form a box. Leave a net iron cover of at least 4 cm over the wire mesh. Problems of stability of the ground don't subsist, gives the small transferred loads.

As it regards the fixing of the basic plate of the pole, it sufficient put into concrete block, n.4 M10 inox anchoring bolts, preparing them to rectangle like. Place the longer side (18cm) to North-South direction and shortest side (12cm) to Easth-West direction (or 12x12cm depend on basic plate, like in Picture 1).



Picture 1 – Realization of the civil works of the plinth for the main pole

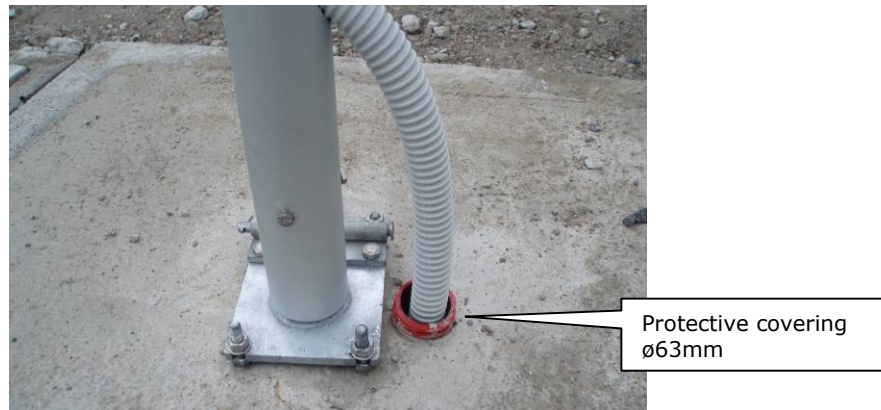
Important note: the sides of the rectangle formed by the 4 anchoring bolts must have directed on-line to the axis North-South and East-West to allow the correct bend of the pole. It is necessary therefore to **equip yourself with a compass** for the correct laying in work of the anchoring bolts.



In the case the plinth is already present, it is enough to fix the basic plate with some screw anchors **M8** or **M10** suitable for the type of material of the concrete, following the same indications for the positioning of the basic plate.

The indications that follow are worth in general, for all the versions of the poles and also in the case the works (plinth) is already existing. Depending on the case, some steps will be skipped or modified.

- Before effecting the concrete, puts a protective tube $\varnothing 63\text{mm}$ from manhole to the closest position of west pole side (see Picture 2). This tube is necessary to connect the power supply and other connection (es. Rain Gauge): in this way it will be possible to correctly graft the cables in the special hole of the pole, without the cables are stretched or torn.



Picture 2 – Positioning of the protective covering at the base of the pole

- Position the hinge base plate for attachment of the pole to south, to allow to break down the pole in the same direction.
- Fix the base plate through screw and bolt and verify the perfect horizontal levelling. In this way the whole pole will be suitably upright and it will be enough a later registration through the tie rods against the wind.

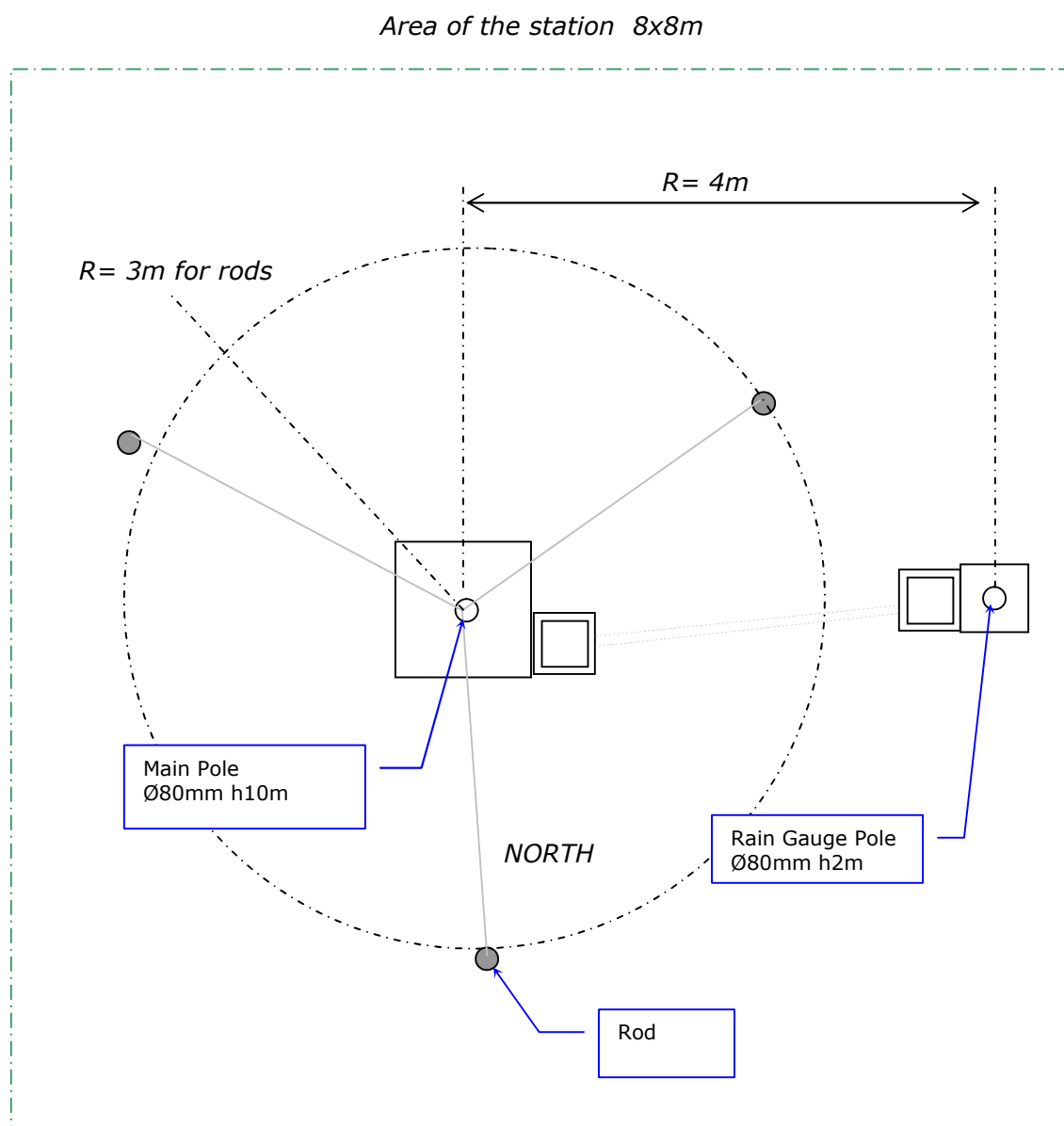
2.1.1 Installation of the fixing blocks of the bracing rods



Picture 3

- Starting from the center of the pole in a radius of 3m, puts 3 plinths to fix the 3-6 tie rods against the wind.
- In the absence of plinths, where the walking surface is consolidated, it may be enough to plant some pickets, long at least 50-60cm, or use some anchors (if the floor is concrete) sufficiently robust and with eyelet head, we recommend M12 or M14.
- Place the first tie rod oriented to NORTH, then have the other tie rods at 120° to each other. In this way, the bend of the pole is possible after the release of a single NORTH tie rod (See Pict.4).

- It is recommended that you use a screw eye, for attachment of the tie rods at least at the base, so that the release operation is simple. (see Figure 3).



Picture 4 – Plant view

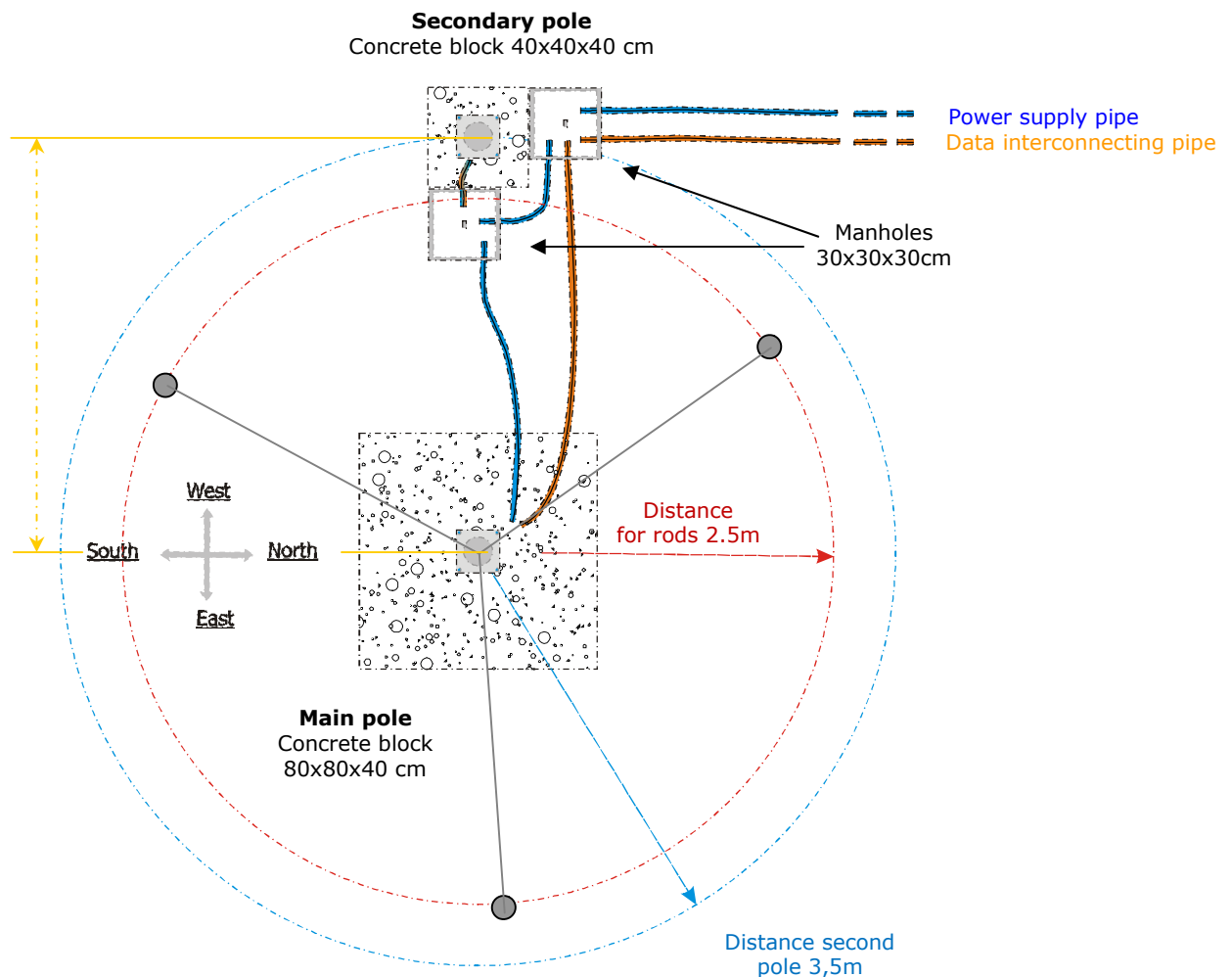
2.2 Civil works to be realized for separate rain gauge measurement (2 poles)

For concrete foundation block, see Annex A2

For the main pole (10m height), maintain all the considerations of the previous section **Errore. L'origine riferimento non è stata trovata..** about the fixing method of baseplate. Change instead, the use of manholes or shafts, due to the secondary pole and the connections between the two poles. A rain gauge separately installed from the main pole of the must be placed at least 3.5m away from the main pole and in a position where it hasn't any obstacles in a radius of about 3m around it.

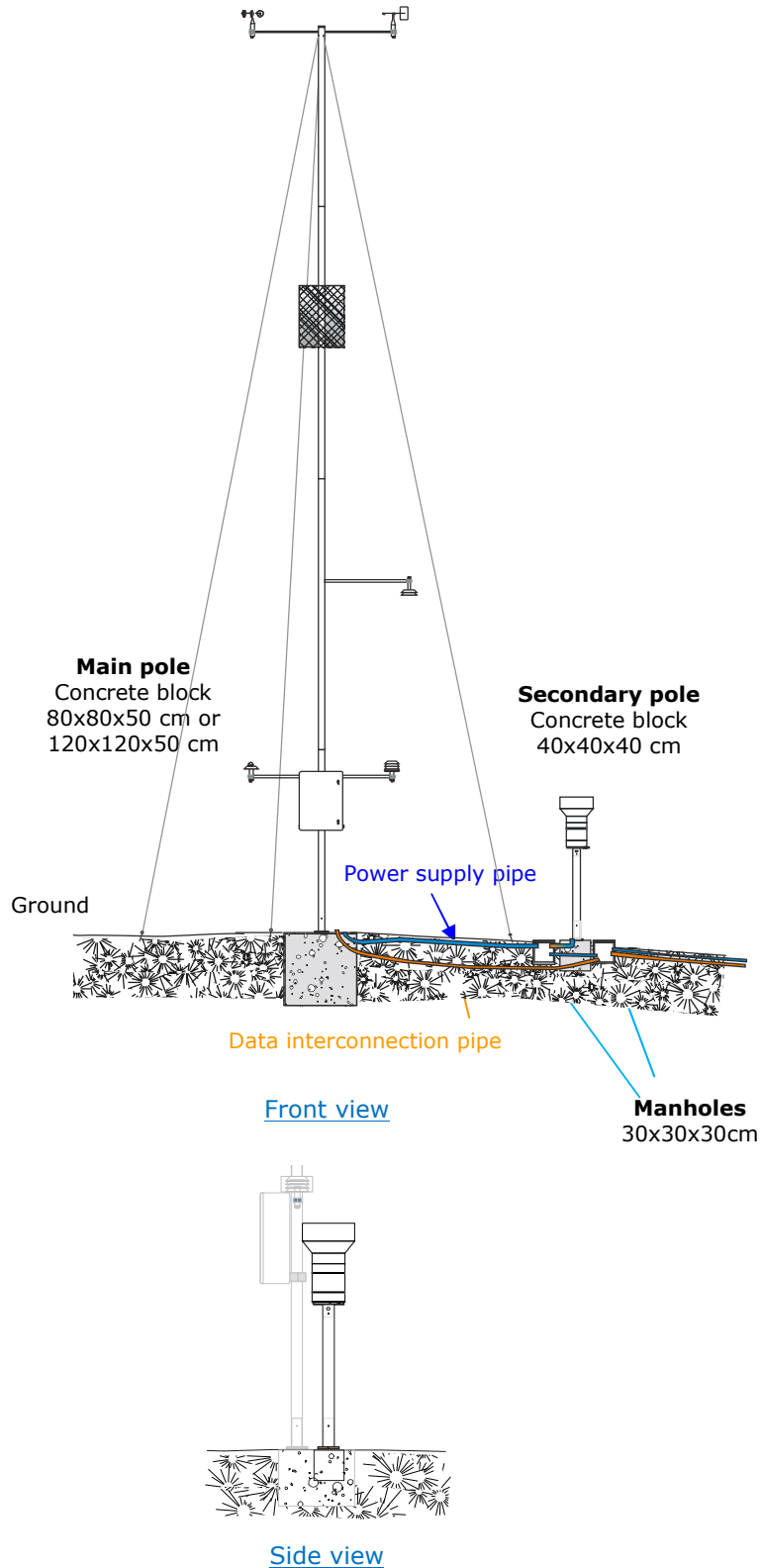
In this case, you need to use two manholes, one for the electrical connection between the two poles, and one for the grounding and, if any, for the main power supply. About the two manholes, put them preferably near the secondary pole.

Note: to maintain the correspondence to WMO norms about the configuration of weather station, the Rain gauge (mounted on the top of secondary pole), must be put at minimum 350cm far from main pole (in a radius of 350cm), like show in Pict.4.



Picture 4 – Relative positioning between main and secondary poles with manholes.

Is preferable separate the corrugate pipe between data cable and power supply cable (if a main power supply 110/220Vac is provided, not necessary if there is a photovoltaic panel), like in Pict.4 and Pict.5.



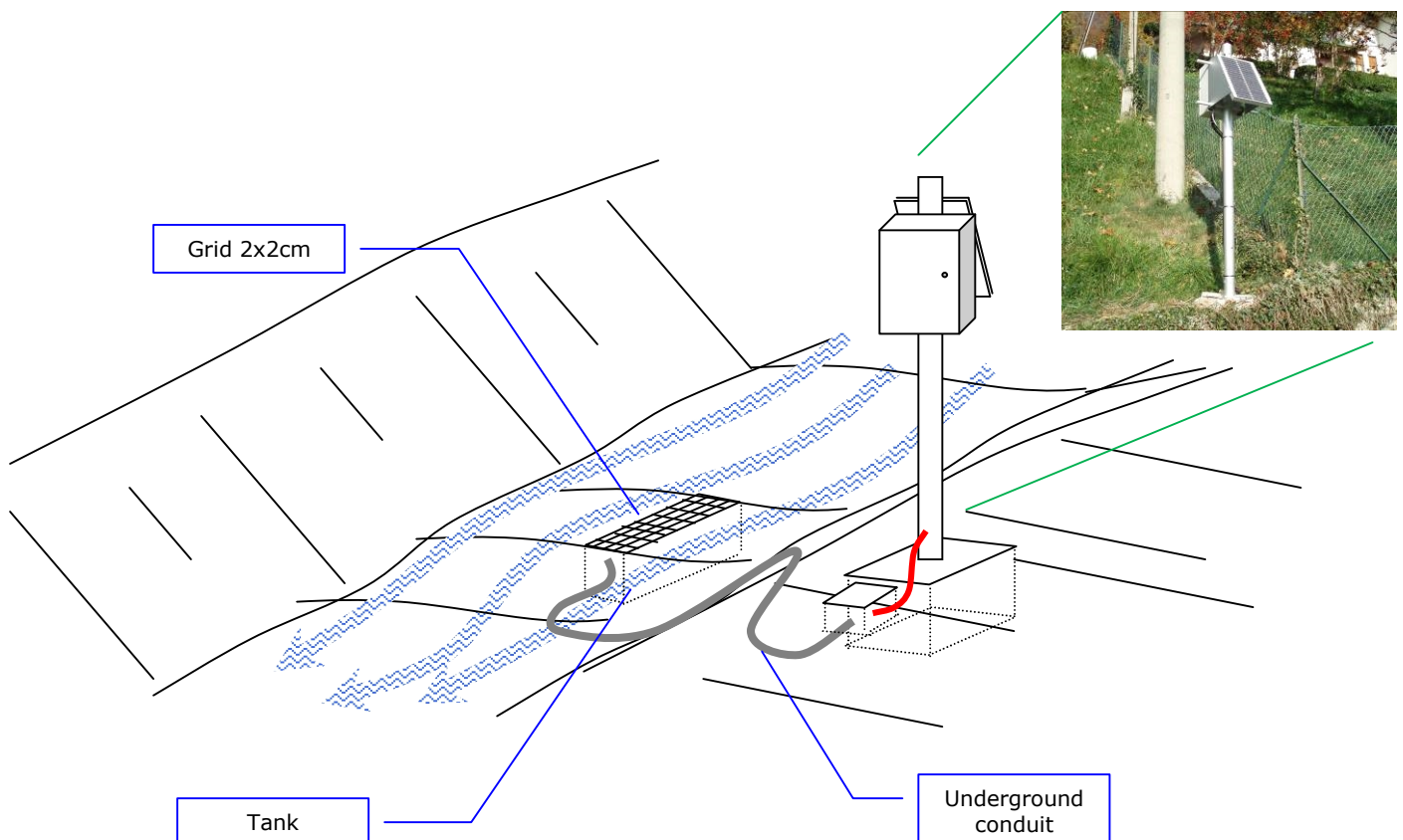
Picture 5 – How to put pipe line

2.3 Civil works to be realized for measuring probe (level or quality) instream (river/basin)

For concrete foundation block, see Annex A2, for details see Annex C2

In addition to what is described in the previous paragraphs, in case of measuring probes in the river bed for chemical and physical parameters such as multiparametric probes or instream level sensors, must be remembered that:

- It should be prepared if not yet present, a tank (or tube) of calm for the instream measurement (not supplied). It must have adequate size compared to the probe (not less than 30x25x100 WxPxL) and be positioned (only in case of the tank) aligned with the water flow direction. In particular, the position of this tank must be chosen so that it's protected as much as possible from large rolling stones, trunks or anything else that could be transported in the water, and possibly in a flat area. That tank must be fixed at the river bed.
- All cables or conduits that pass in the river bed must be placed at proper depth (at least 50 cm) or protected with cobblestone in cage or concrete, avoiding projections out of the river bed.
- If a calm tube is used (not supplied), it isn't necessary to protect the cable.
- The tank should have a fine-mesh steel cover (mesh max 2x2 cm) to prevent the accumulation of large stones.
- In case of multiparametric probe, or piezometric level sensors, the path in the river bed shouldn't exceed 30m to allow the compensation tube to take air. Electrical line can be extended up to 800m, and connected in a box outside the river.

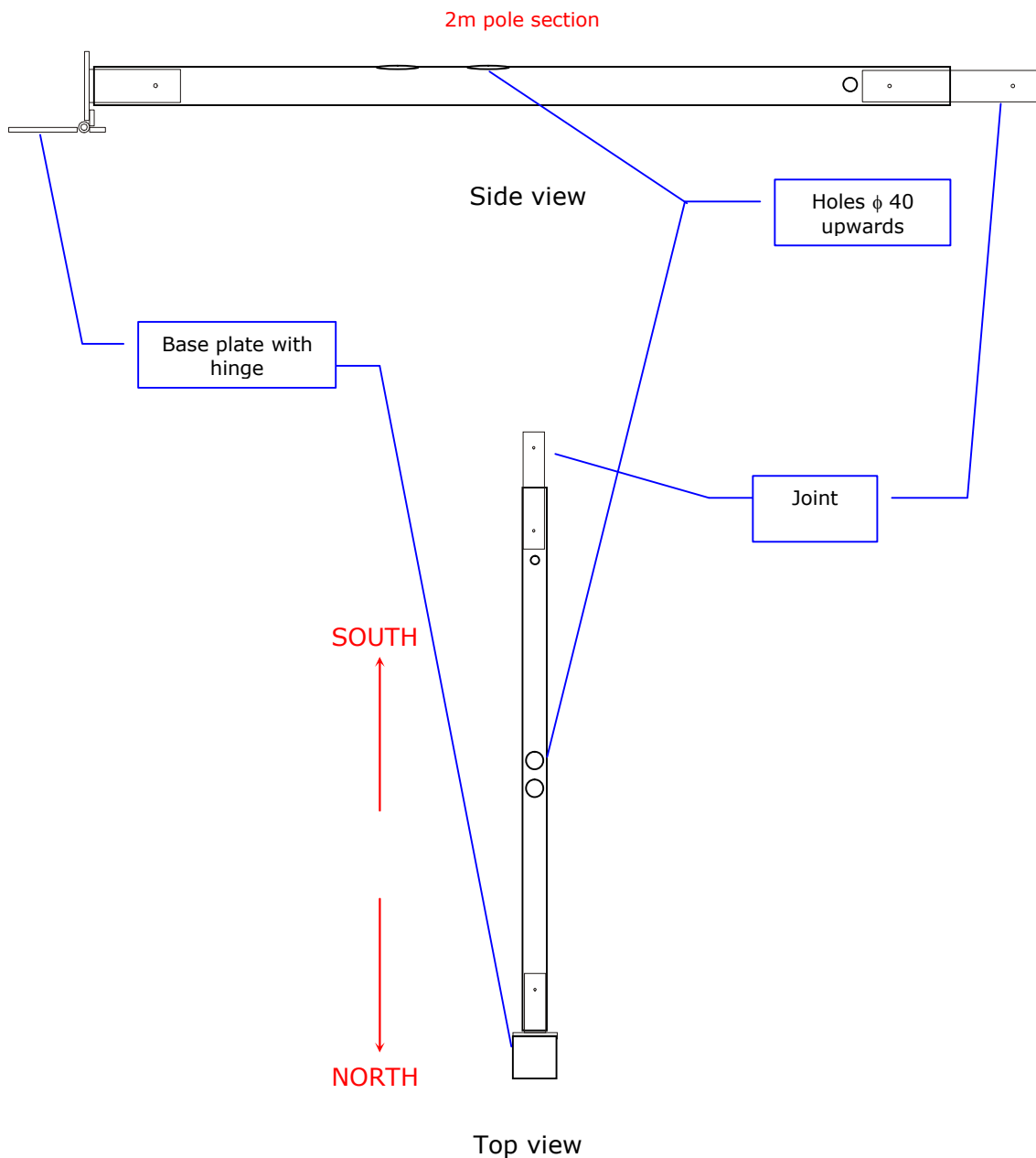


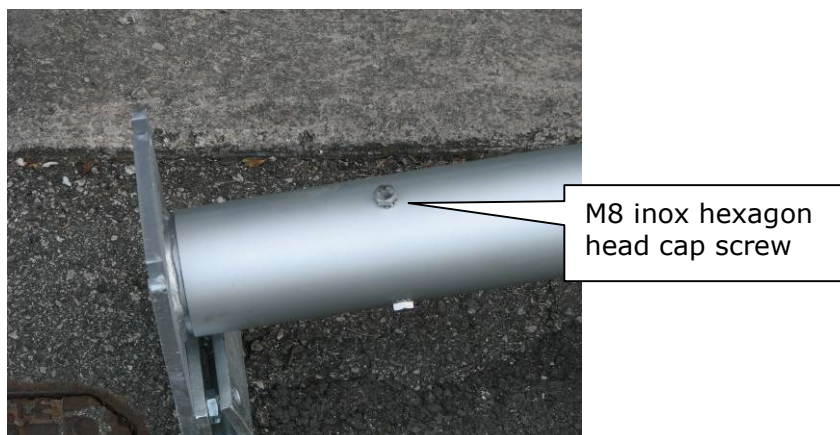
2.4 Mounting of the pole *(N.B. We recommend the use of gloves for the following steps)*

Some parts of the pole are supplied already assembled for facilitating the other operations of montage; all the screws are already positioned in the various sections of the pole.

Version 1: hinged at base.

- Fix the basic plate with hinge to the anchor bolts described in the previous paragraph
- Open the hinge like in picture and put a first section 2m long, with the care that the two biggest holes in the section of the pole are facing upwards as drawing below. Insert the first joint on the top of the pole and fasten it with the M8 screws supplied.



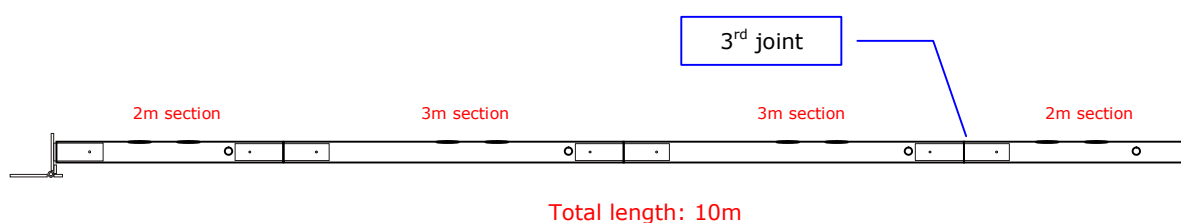


Picture 6

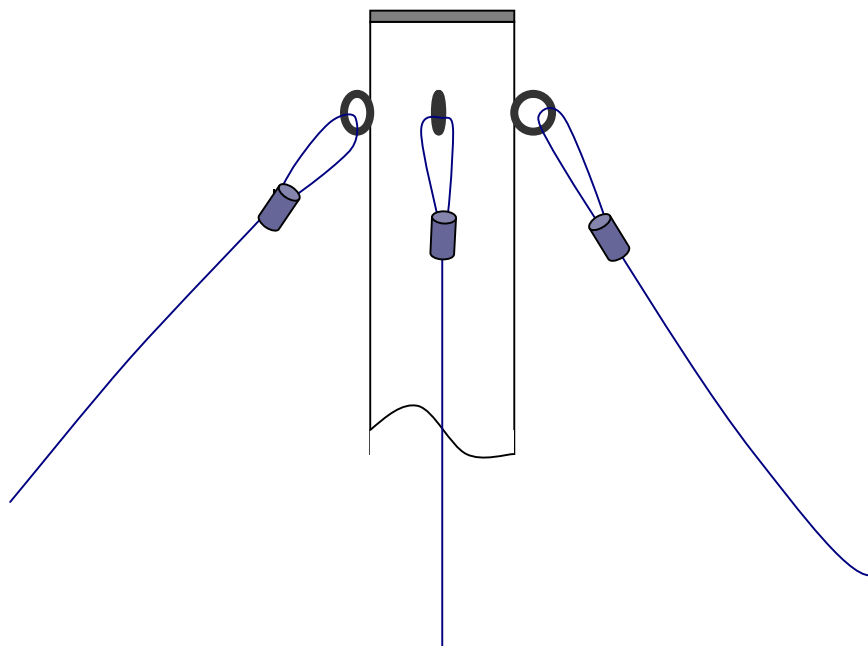
- Insert to the top of the previous joint a 3 meters section, with care that the two biggest holes in the section of the pole are facing upwards as in the previous case. Insert the second joint on top of the pole and fasten with the M8 screws supplied.



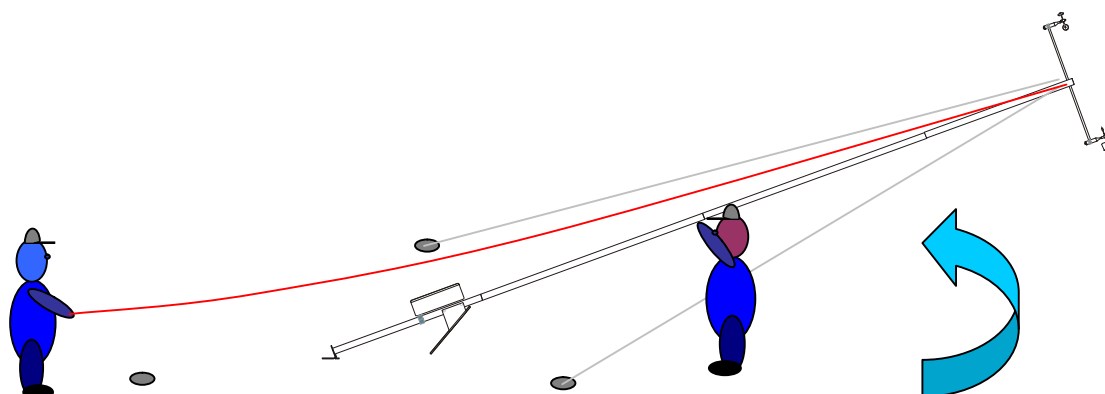
- Continue as above with the second 3m section and then with the second and last 2m section. Between each section, enter the joint and secure it with M8 screws included.



- On top of the pile, attach the heads of the higher tie rods (if any) and fix them to the eye screws matching the three holes at 120°. The other ends of the tie rods may be left free.

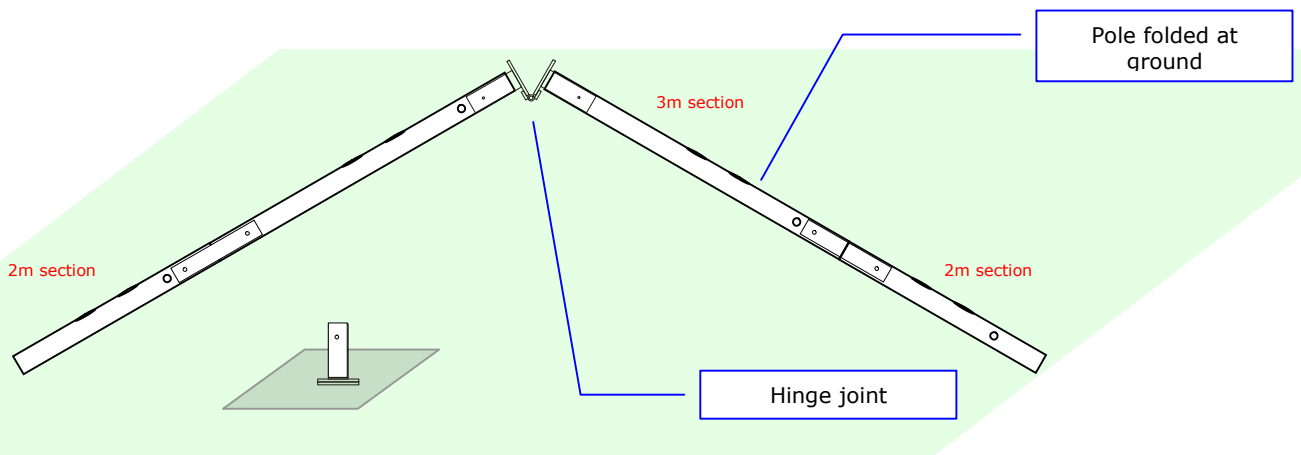


- At this point, using the tie rod placed at North, and after installing the various devices, you can raise up the pole.



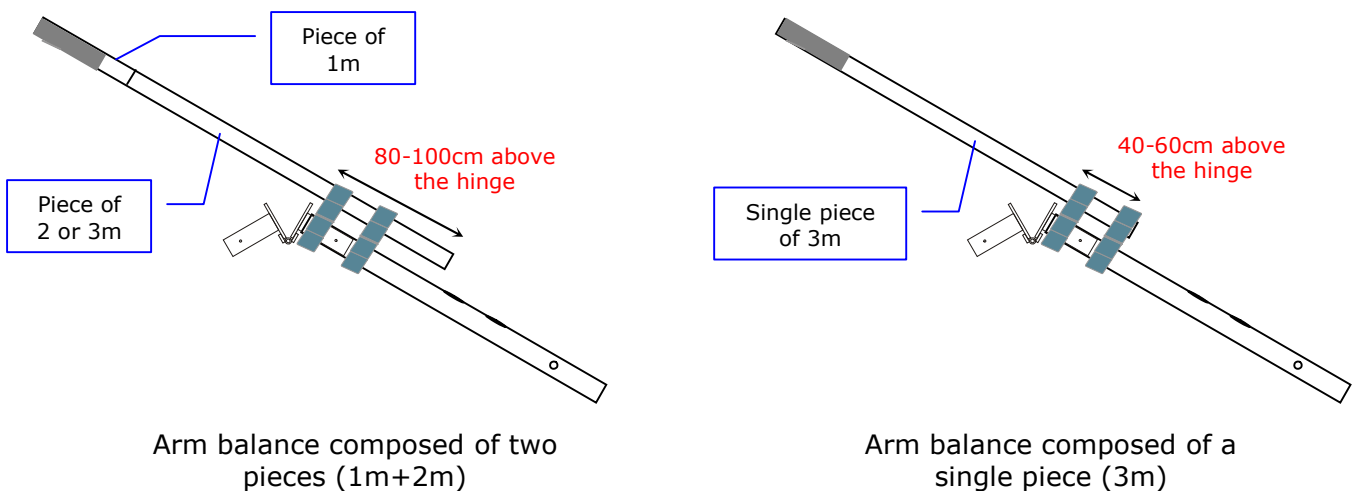
Version 2: tiltable with balance at 5m

- Fix the basic plate without hinge to the anchor bolts described in the previous paragraph 2.1
- Assemble the pole following the same procedure as version A, and installing in place of the 2° joint, the joint with the hinge, with the opening of the hinge to the south (opens from North to South), so that at 5 meters the pole is folded in 2 parts, as in the next drawing:

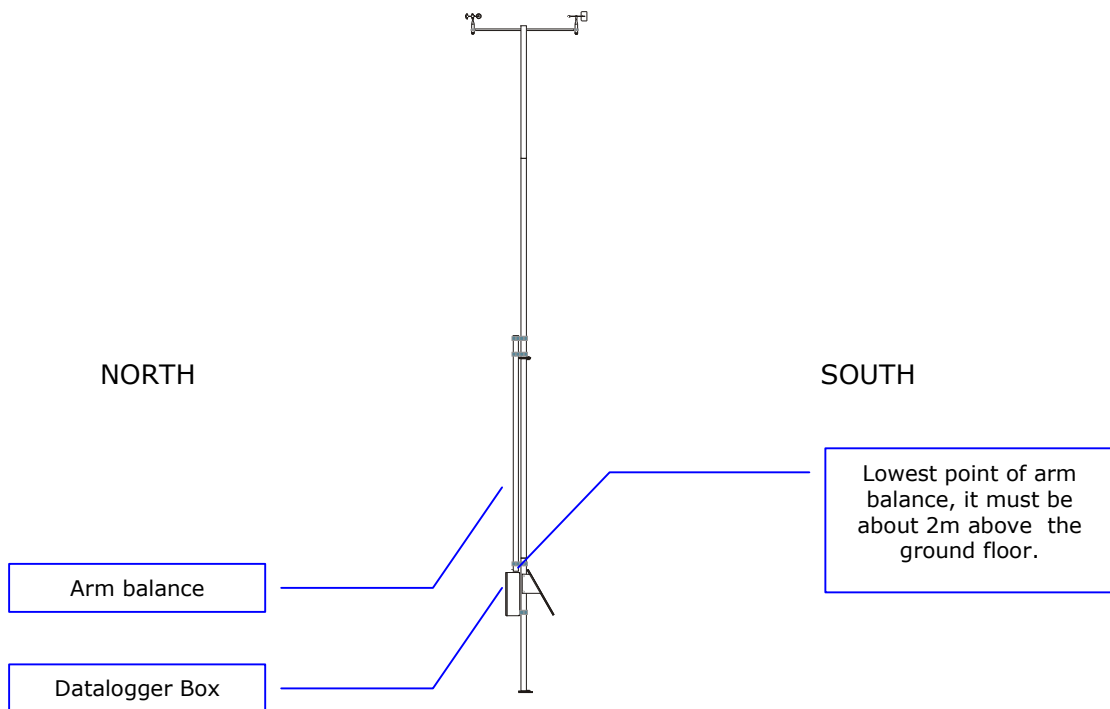
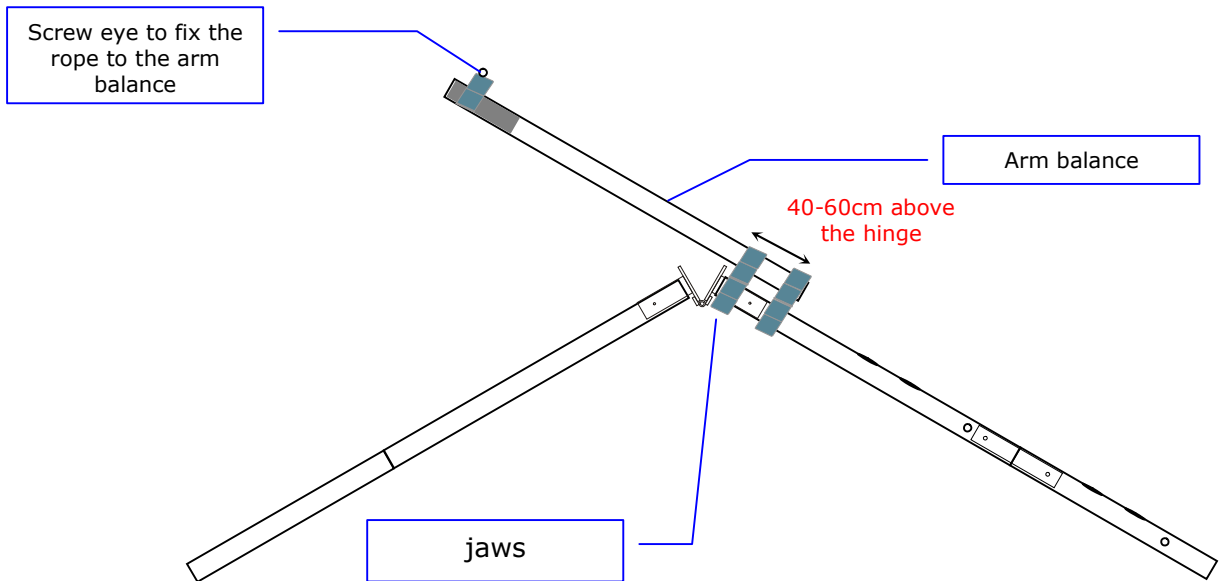


Mounting and positioning of arm balance

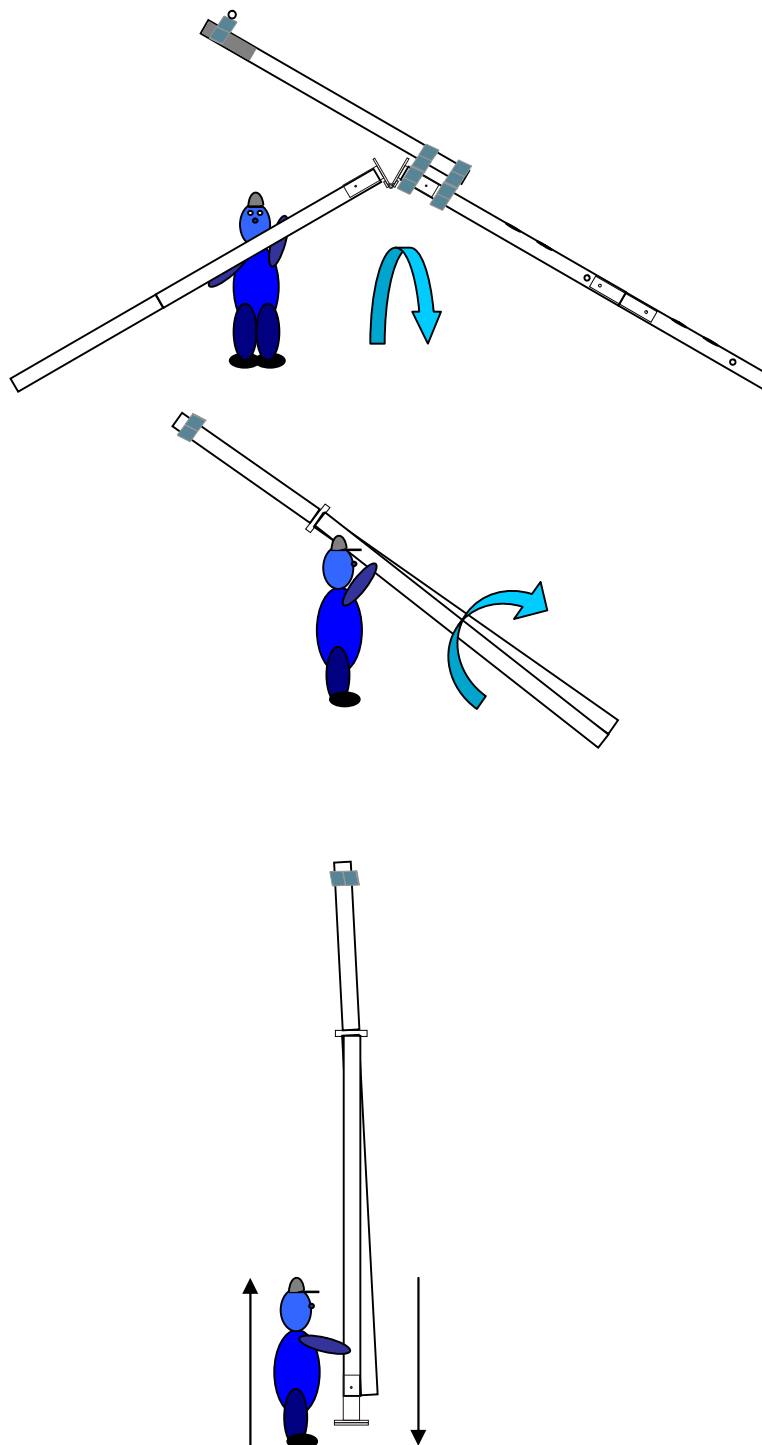
- If the arm balance is composed of a single piece of 3.6 meters long, go to the next point.
- If the arm balance is made up of 2 pieces (one of 3m and one of 1m plus the counterweight inside), do the following:
 - Attach the two pieces together, keeping in mind that the smaller piece of 1m will be down.
 - The arm balance will be fixed as the next point, however it should be left, above the jaws fastening, about 40cm (about 100cm above the hinge).



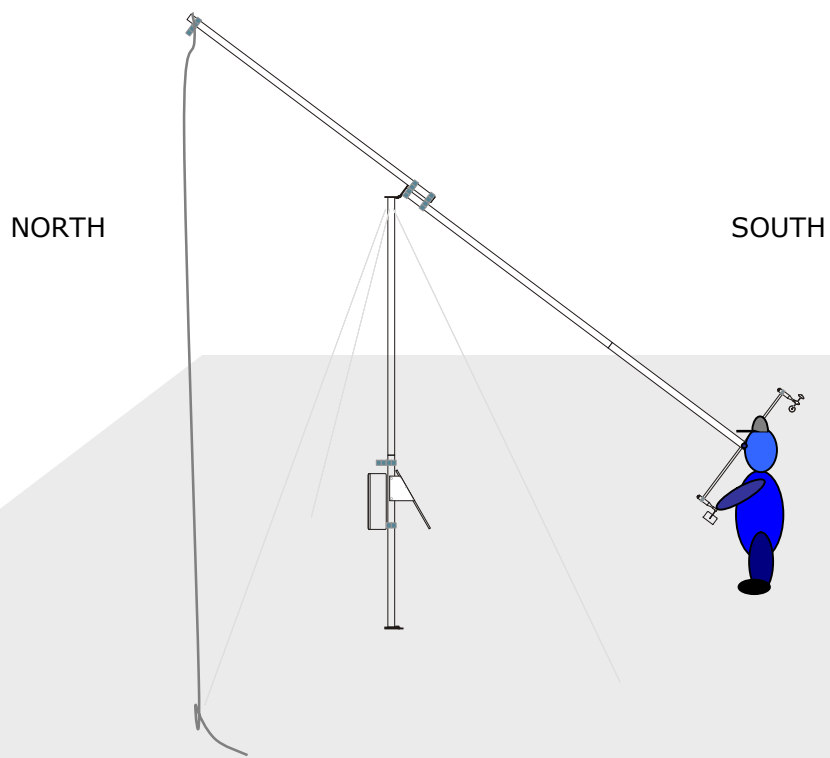
- Install now the arm balance. The total length of that arm is 3.6 m (4m in the case of 2 pieces). It has to be secured with a double pair of jaws at about 40-60cm above the hinge of the second half of the pole. It should be set so that once raised up the pole, the arm is directed to the North. So the arm, appears as unbalanced weight on one side (due to the weight introduced in the construction phase), this is the side that must be kept down, taking care that once closed and assured the lowest point of balance, it must be above the datalogger box, at about 2m from the floor ground.



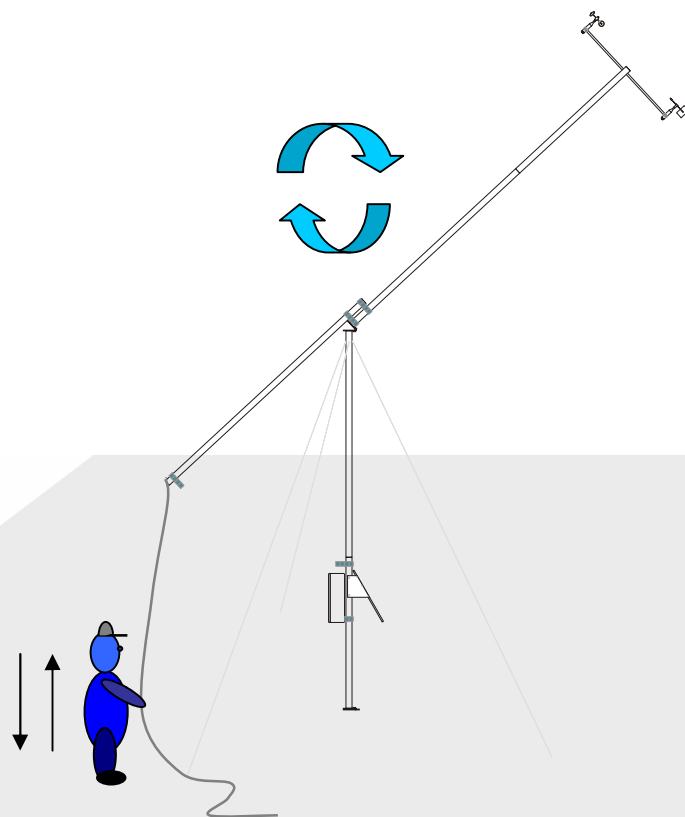
- At this point, raise up the pole laterally, leaving the two ends of the pole supported by the ground, and once in vertical position, uplifts the base of about 20cm to insert it into the base plate previously fixed to the ground (we recommend to employ two people).



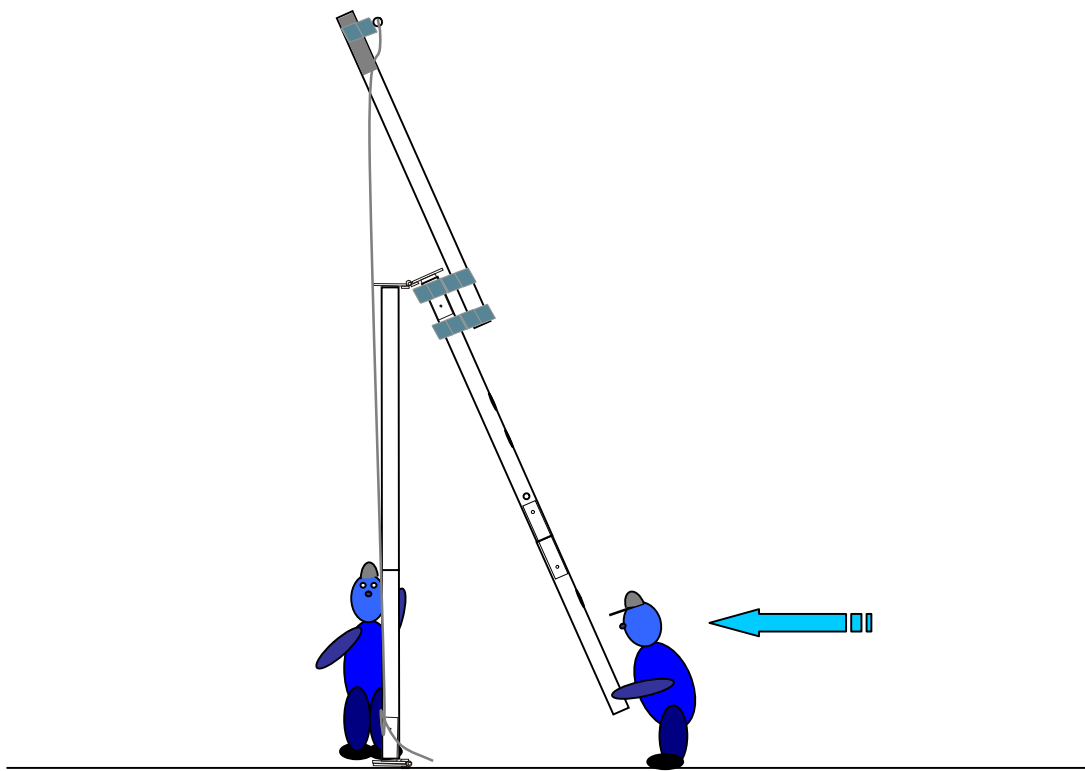
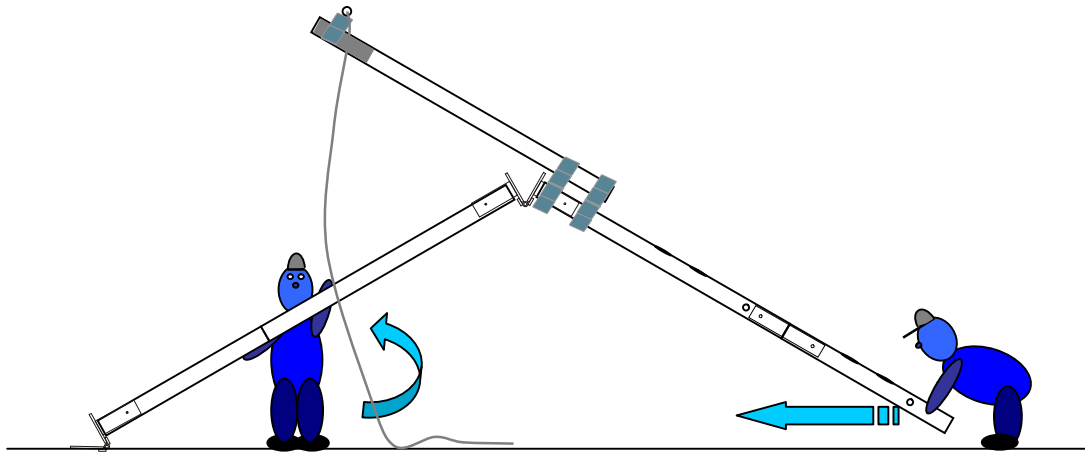
- Secure the screws on the base of the pole so inserted at the base plate. Verify the verticality of it.
- Connect the equipment provided and the rope to lift the pole, and any tie rods for bracing.



- To uplifts the pole, at this point, it's sufficient to pull the rope slowly. When you reach the vertical, establish the balance with the jaws to his lower extremities.



- Is there an alternative way to raise up the pole in case there are at least 2 people: it plans to fix the base of the pole directly to the hinge of the plinth foundation and pushing the top half of the pole (one person) along the lower half. The second person accompanies the lower half and puts it up, having the foresight to set first the rope.



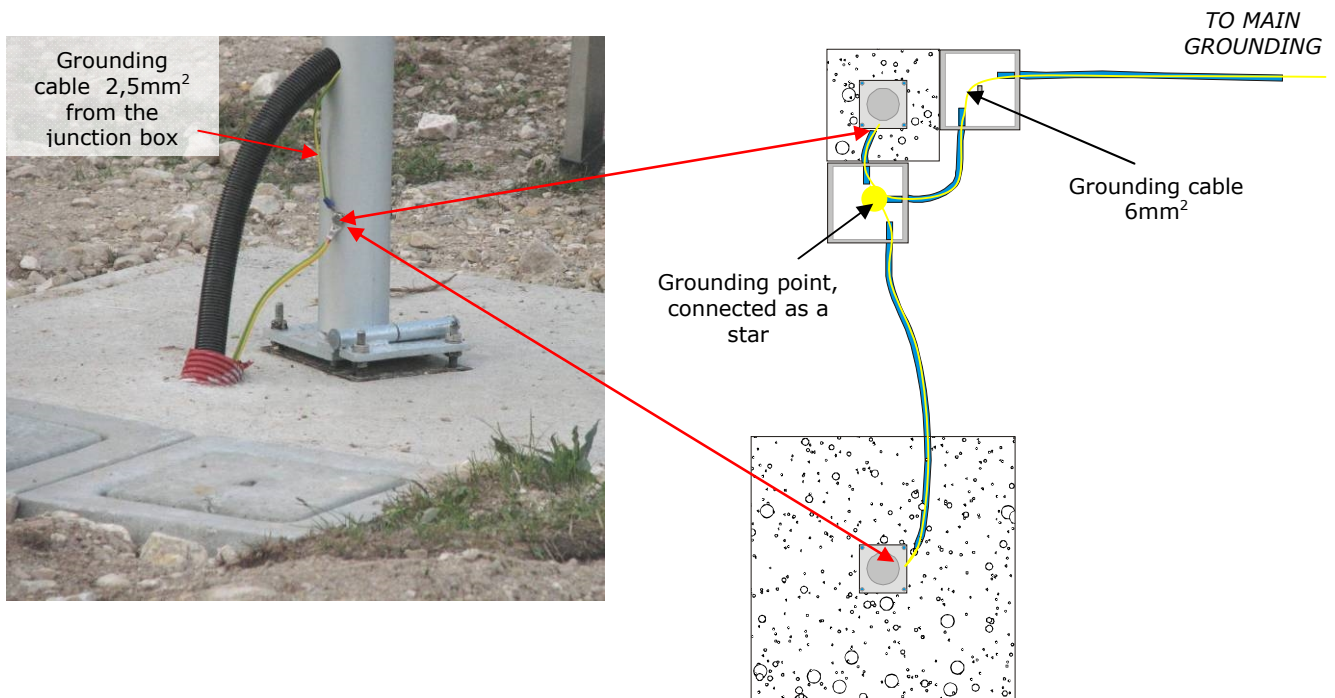
Proceed by setting the instrumentation at the top of the pole as above described.

Version 3: fix pole

- Follow the same instructions for the version 1 as described in paragraph 2.1. We recommend the use of a mobile crane to complete the installation and equipment..

2.5 Grounding

We recommend to create a grounding for the poles (also for main pole and secondary pole). In this case a manhole near one of two poles has a grounding point (through equipotential bar or pole, not included), where all the cables for grounding are connect, as a star. You need to use a 6mm² section electrical cable (yellow/green). Connect all the terminations of cables to the grounding point into a manhole, and the other terminations at a screw in the bottom of the pole, or at the anchoring bolts. Use the power supply pipe to introduce the grounding cable. One cable must be connected from the grounding point to the main grounding system if exists (specially in case of main power supply 220Vac). As specified in this section applies in case of one pole or two, in both case, see Pict.7.



Picture 7 – Grounding line

For the main pole, where is mounted the junction box, is necessary to connect a grounding cable 2.5mm², from the screw in the bottom of pole, where is connected the main grounding cable 6mm², to the grounding point into the junction box. See Pict.7 and 8.



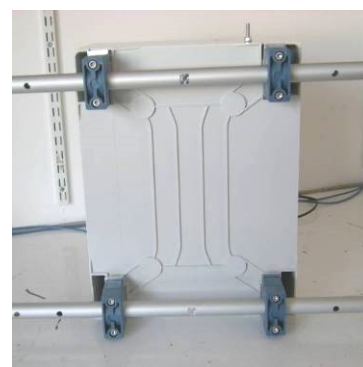
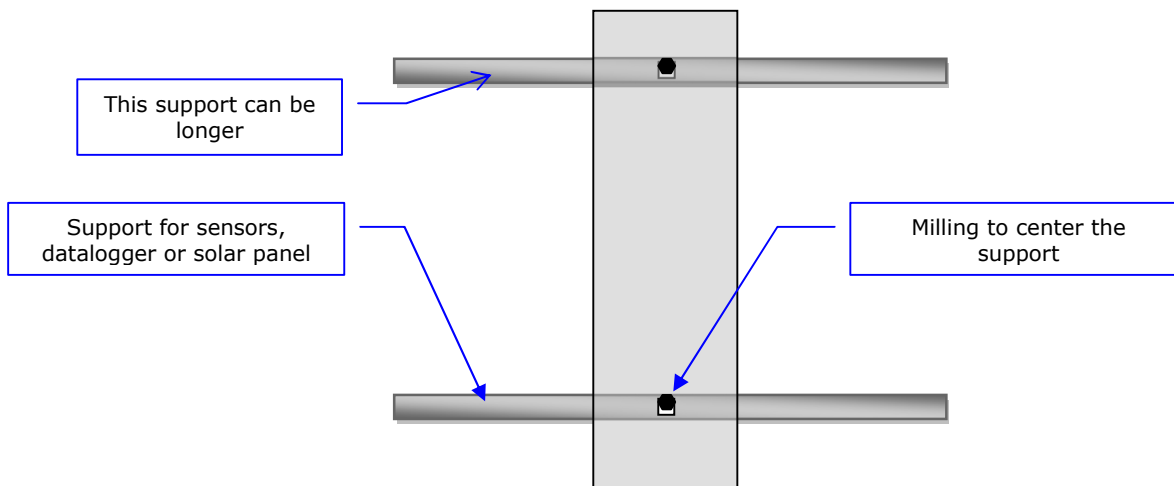
Picture 8 – Grounding point into junction box

2.6 Installation of the Nesa equipment and supports

The following description is worth for the installation of Nesa equipment and Nesa mechanical supports, although the pole can assemble third part equipment.

The elements under described, can change according to the selected configuration of the monitoring station. Therefore the information are to be intended indicatives.

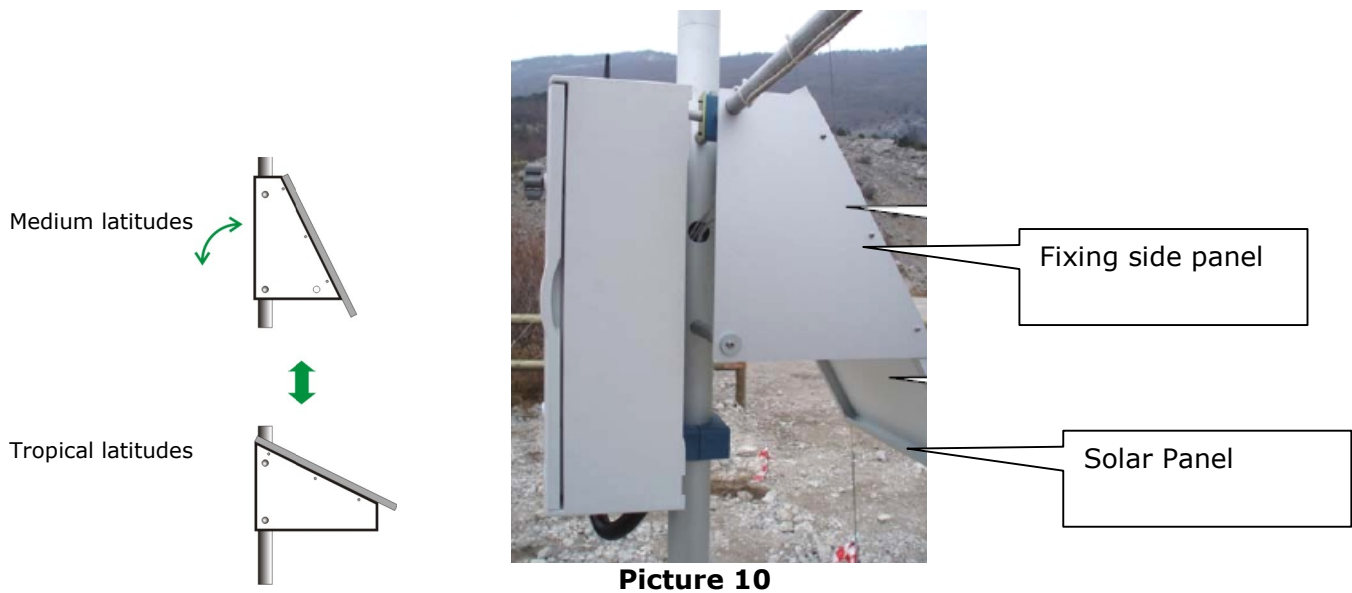
- Insert the two tubular supports as shown in Picture 9: to center correctly the two supports, it's necessary to coincide the central milling square of the tubular support, with the hole of the pole; fix the two supports to the pole using the two longer screws M8 in endowment. **Note:** in case the supports supplied are of different lengths, the longest support has to be installed above, to subsequently allow the possible fixing of meteorological sensors (see par. 2.9).
- Fix the datalogger box on the side North of the pole, using special jaws of blue colour. If the installation was carried out properly, under the Datalogger there will be two $\varnothing 40\text{mm}$ hole for the passage of the cable.



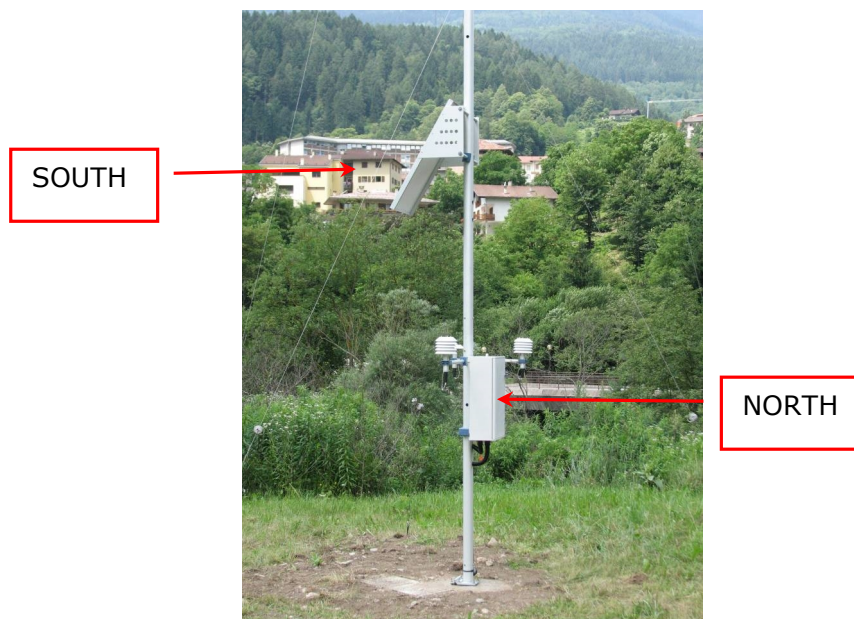
Picture 9 Mounting of the junction box (medium size box on the left, small size box on the right)

To the opposite side of the datalogger box or the junction box (and therefore to South), must be installed (where present) the solar panel as shown in Figure 10 and 11. For greater practicality, it is advisable to fix first a side panel to the solar panel with the 3 screws M4 in endowment, therefore insert the side panel in correspondence of the two supports and finally insert to the opposed side the other side panel and fix it to the solar panel in the same way.

- The panel on the pole 10m, can be set at different heights, being available different holes for the purpose. The side plates for the fixing of the solar panels can have different shapes and, depending on the vertical side of mounting, be suitable for tropical latitudes or at mid latitudes.



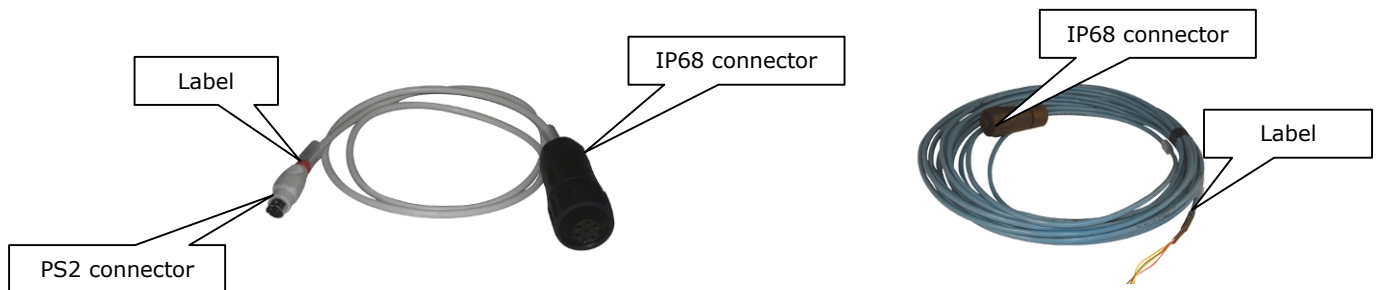
Picture 10



Picture 11 – Proper installation of box and solar panel

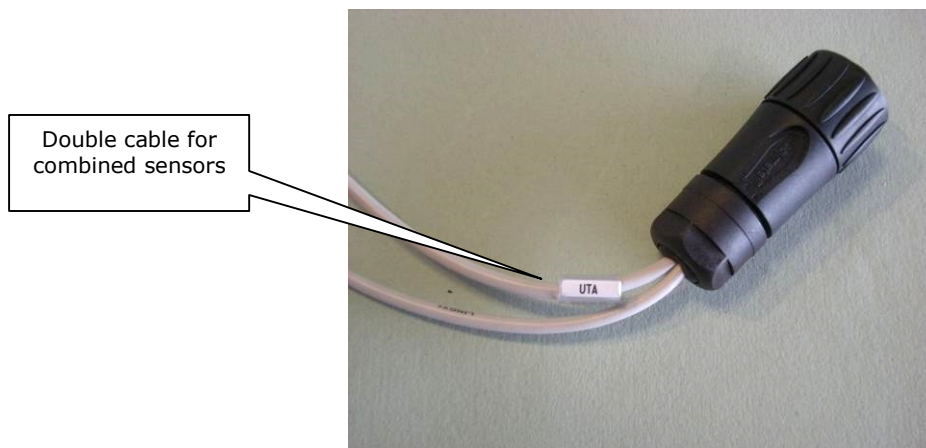
2.7 Sensor Cables

All Nesa sensors, use the same electrical cable for analog or digital signals. Each cable has an IP68 black connector in a side, and a PS2 grey connector or end sleeves to the other side. The length may be different.



So, it's not different to use a cable for a sensor instead of another. Only for an easy installation, however, this cable have a label on both side that shows usually the name of the sensor (Es. TA means Temperature) or the channel's number in the datalogger where must be connected that sensor (the sensor is configured by software on the datalogger). For special sensors, the cable may be different.

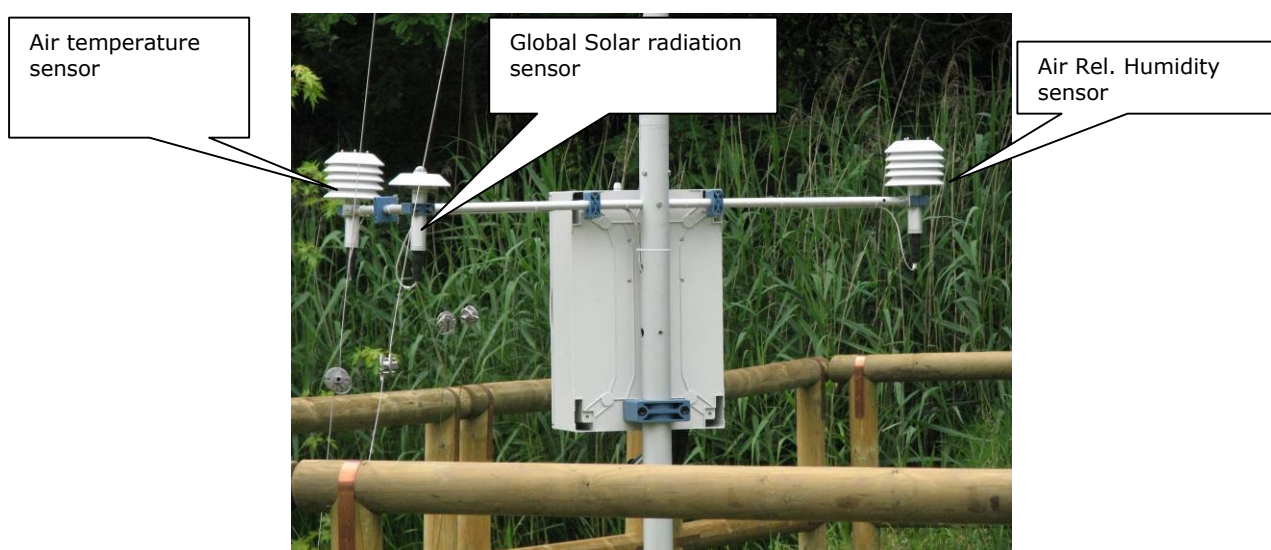
If you have a wind and direction combined sensor (VDV Nesa code), or temperature and humidity combined sensor (UTA Nesa code), the cable is double. It has a single IP68 black connector for the sensor, but ends with two PS2 connectors.



Picture 12

2.8 Installation of meteorological sensor

The installation of meteorological sensors at 2m from the soil according to the WMO norms, is carried out through the superior support for fixing of the watertight container. On the extremities can be fixed up to 4 sensors as shown in Picture 13. Note: the sensors of **temperature and humidity of the air** can indifferently be installed from a side to the other, contrary the **solar radiation sensor** has always to be directed to South to avoid possible interferences produced by the shade of impending objects.



Picture 13

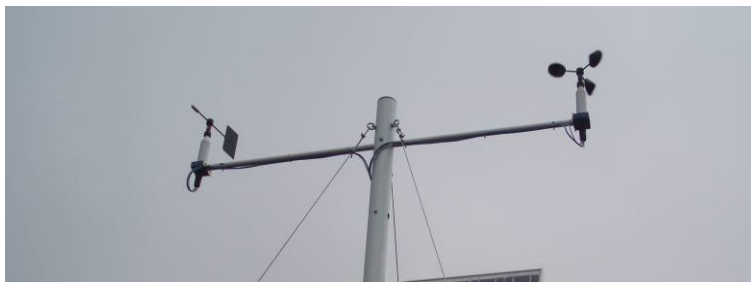
The possible sensor of atmospheric pressure (**barometer**) can be installed inside the watertight container, or with special support on the support of the meteorological sensor above mentioned.



Picture 14 – Particular of the terminal support fixed to the main support

As it is illustrated in Figure 14, the connection cables of the sensors must have fixed to the support with some plastic bands up to the first available hole on the pole where will be inserted to protect them from the atmospheric agents.

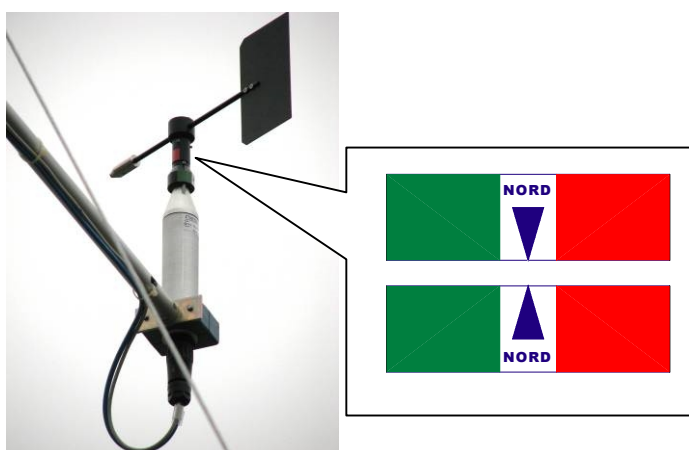
The installation of the **anemometric sensors** must be carried out as foreseen by the WMO norms to 10m height, using the last passing hole on the top of the pole (see Picture 15).



Picture 15 – Installation of anemometric sensors

Particularly for the **wind direction** sensor rotate the vane so that the two arrows of the NORTH of the two adhesive labels coincide (see Picture 16).

Maintaining aligned the two indicators of the North of the labels and with the aid of a compass, fix the sensor to the support perfectly directing the tip of the vane to North.



Picture 16

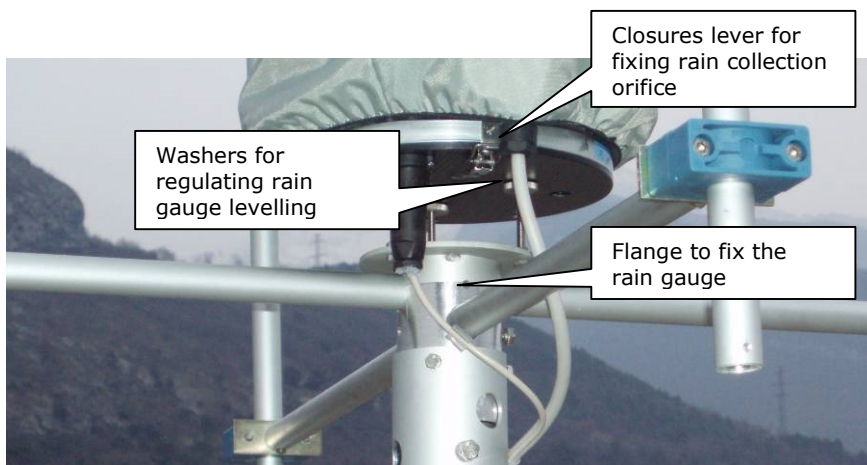
If you have sonic wind sensor, look at the red arrow which indicate the North position, where has to rotate the sensor when installing it. See Pict. 17.



Picture 17 Ultrasonic biaxial wind sensor

The installation of the **rain gauge** can be done on the top of its own 1m pole and will be carried out as follow:

- Fix the 1m pole likewise to the above mentioned for the main basic pole (paragraph 2.2 and 2.4).
- Fix the flange on the top of the pole with the special M6 screws (see Picture 18).



Picture 18 – How to install the rain gauge

- Unscrew the rain gauge side knob, which allows the orifice opening, thanks to the hinge on the opposite side
- Verify the levelling of the rain gauge using the bubble on the tilting bucket base plate and regulate it using the grained washers under the base (Picture 19) so that the base of the rain gauge is perfectly horizontal.
- Stop the base of the rain gauge with some M6 jam nut.
- Close the aluminum orifice and stop it with the two lever closings.



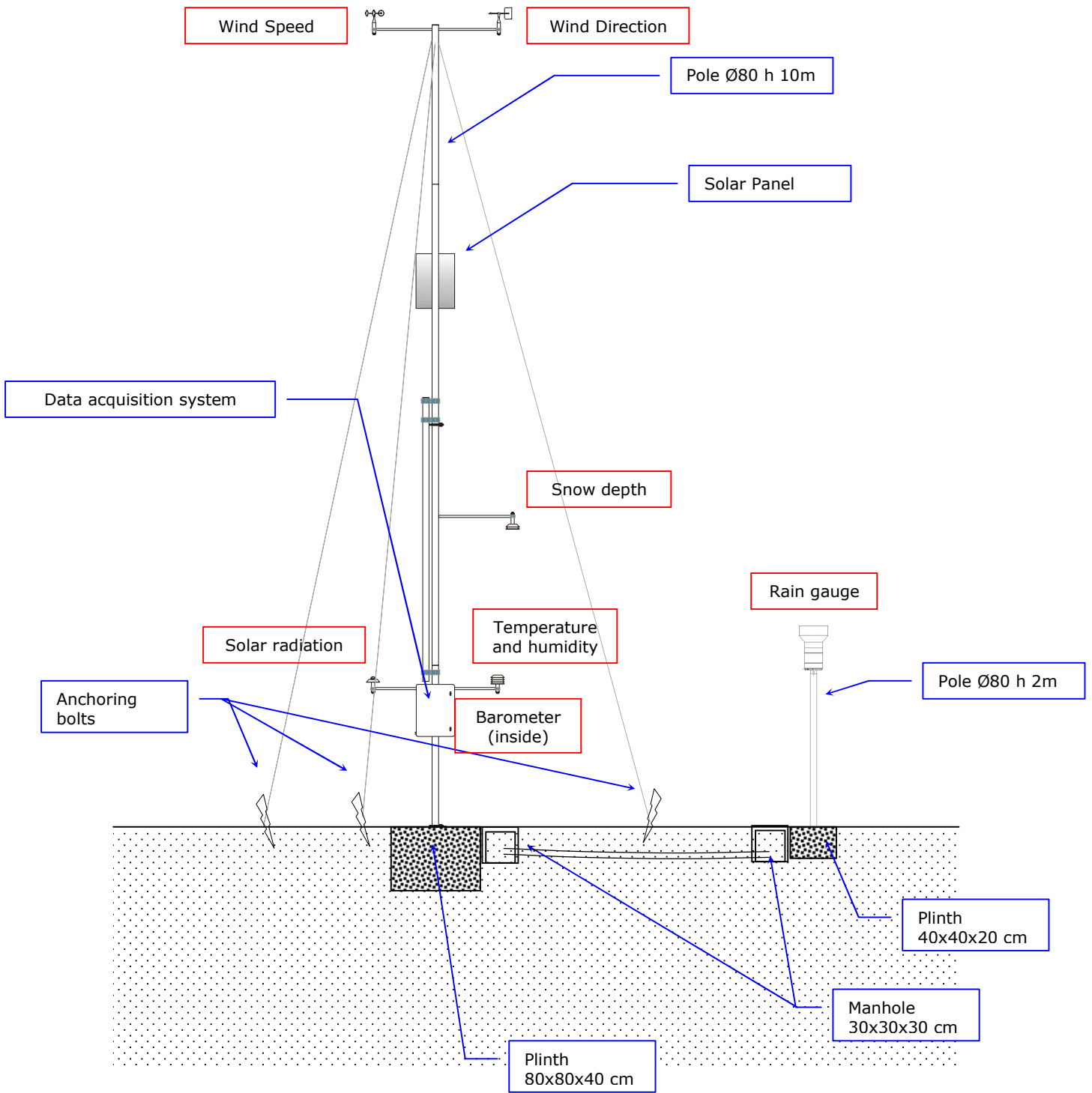
Picture 19 – Rain gauge base

If the rain gauge is endowed with windbreak screens, the definitive installation must be made as represented in Picture 20.



Picture 20 – Windbreak screens

In Picture 21 you can see how will be the installation of a typical weather station.



The installation of a **multiparametric probe** will be carried out as follow:

- The probe is supplied with a 30m self-carrier cable complete of compensation tube (Pict. 22). The cable electric component can be easily extended with a terminal connection (in a small IP66 or IP67 box) and then connected with a data cable for outdoor use with 4 poly (4x ϕ 0.5mm).
- Place the probe inside the shaft (**Annex F**) or inside the measuring tank or inside a calm tube previously installed. If the probe measures also the groundwater level, remember to measure the length of the whole cable, which is lowered into the shaft or the tube from the campaign plane. If the probe is horizontally positioned, the first reference for the level measure is the cable that goes in the probe.



Picture 22

- After having insert the cable into the probe in the cable duct previously prepared into the soil/river bed, connect the other side to the Datalogger, as shown in schemes always supplied with it.

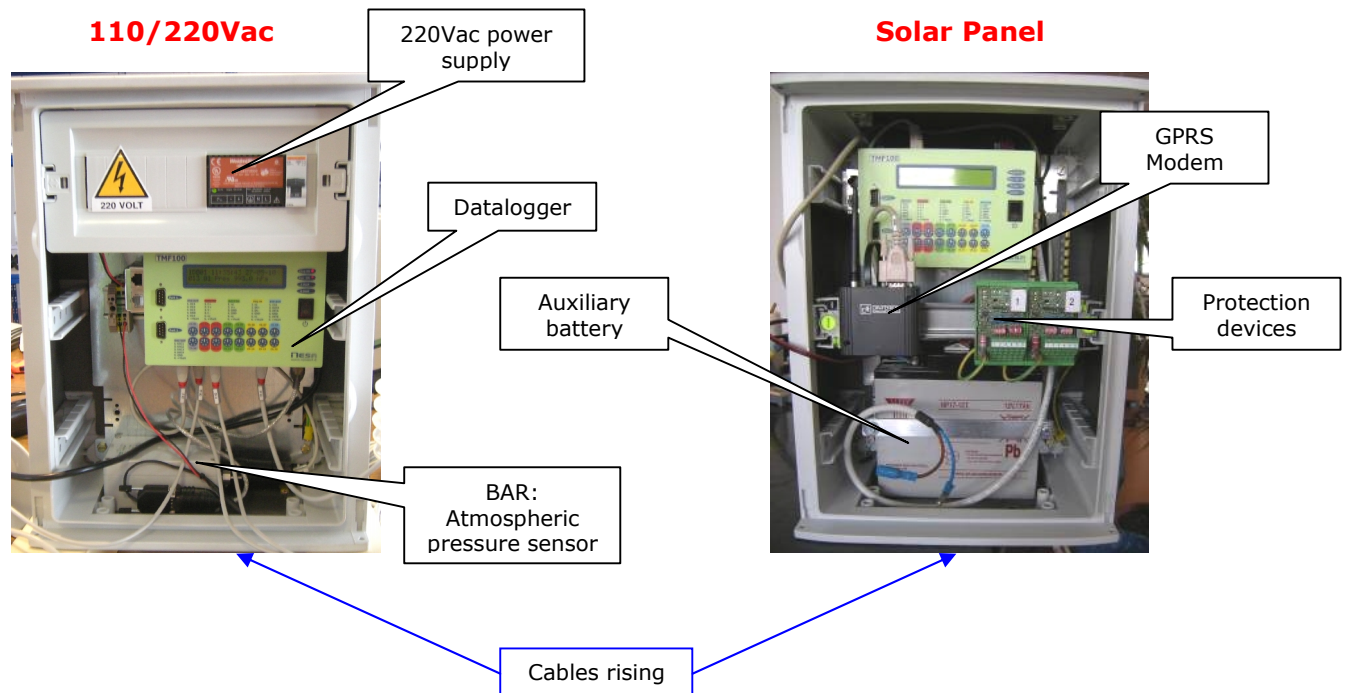
The installation of a **radar or sonic level sensor** will be carried out as follow:

- The sensor have to be mounted on the **special support fixed over the river bed** to the side of a bridge, of a structure or directly on the station pole (**Annex B**)
- Under the **sensor vertical** up to the water surface **mustn't be any obstacle** in a radius that depends on the distance of the sensor from the water. This radius is calculated taking into account that the emitted waves **beam** has an opening angle of about **5-7°**
- It's necessary to **take note** of the **water height** with an external mark (eg hydrometric bar) to lead the electric measure recorded by the sensor to the Datalogger, so that the final measure corresponds to the real water level. (See the Datalogger manual supplied with the station).

3 Electrical connection

3.1 Connection to the datalogger into junction box

The junction box includes several devices. First of all the TMF datalogger (Data Acquisition System) where all the sensor of the weather station must be connected, the power supply system and, depend on the configuration, auxiliary power supply battery and the atmospheric pressure sensor.



Picture 23 - Different configuration of junction box.

(220Vac power supply on the left, and solar panel power supply on the right).

All the cables, power supply, data and sensor coming up from the bottom of junction box trough an hole and a conduit. Because the conduit's diameter is normally greater than the cables, be sure to **cover inside the hole with nylon or paper**, to avoid insects penetration.

3.2 Power supply

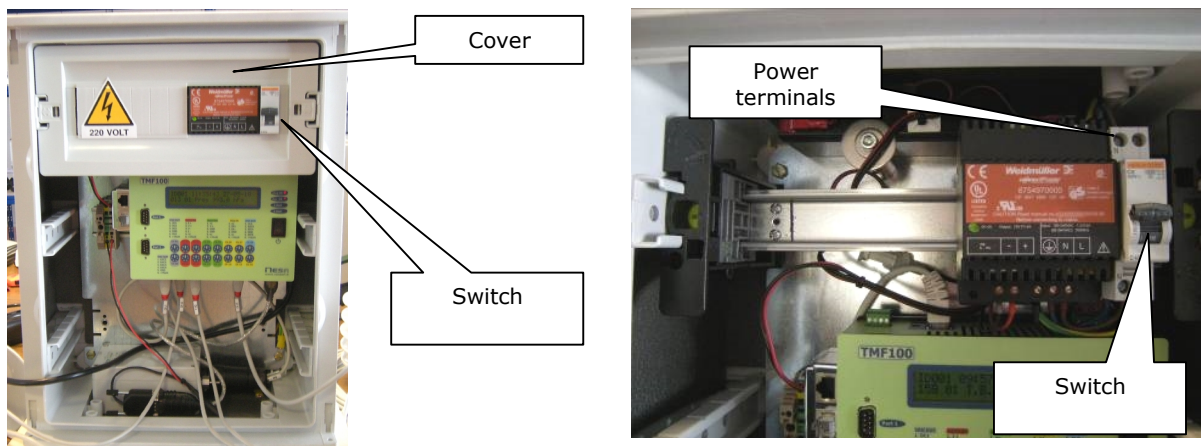
The weather station can be powered in two way, a main power supply 110/220Vac, or with a solar panel/aero-generator. In each cases the consumption is less than 5W (unless otherwise specified).

3.2.1 Main power supply 110/220Vac

Normally the junction box is supplied with a plugged cable, so is enough to connect it to a main power 220Vac.

If you need to connect directly the junction box to a power line, you have to call a professional electric technician that, following the present instructions, give you a report in accordance with the electric norms.

In this case when you open the junction box, it appear like the follow Pict. 24.



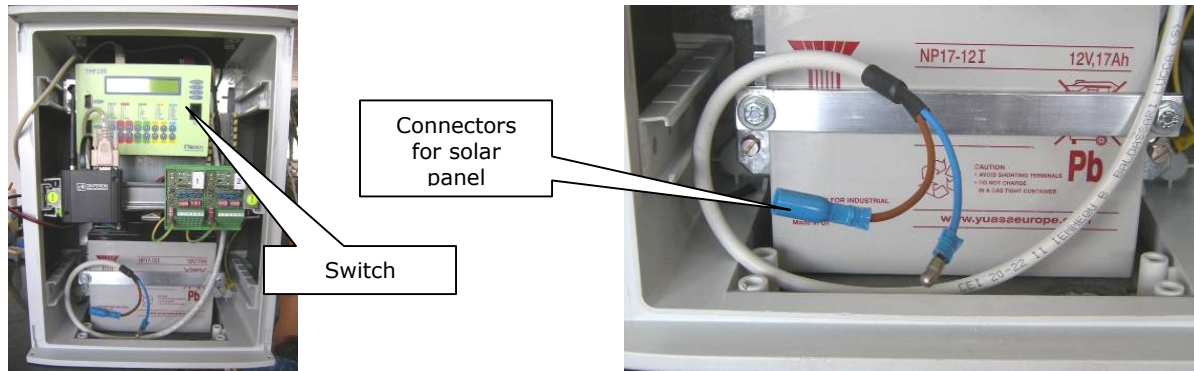
Picture 24 - Junction box with 220Vac power supply

- Remove the cover to access at the power terminals.
- Make sure that the main power line (from a power generator) is disconnected.
- Connect the line (phase, Neutral and ground) to power terminals (link above).
- Put the cover and fix it.
- Connect the main power (from the generator)

Now the weather station is powered, but before to turn on the switch, be sure to have connected all the sensors or devices (see section 3.3). If it so, switch on the main power and the datalogger (see user manual of datalogger for more detail).

3.2.2 Power supply by solar panel or aero-generator

In this case when you open the junction box, it appear like the follow Pict. 25. The weather station has a photovoltaic panel installed on (see 2.6 section).



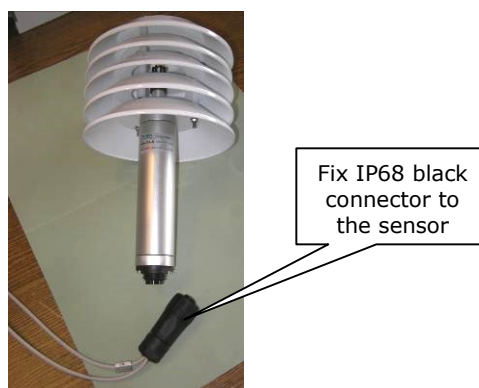
Picture 25 - Junction box with solar panel power supply

- Connect the solar panel cable to the input power cable. It is easy because the connector is different for positive and negative line.

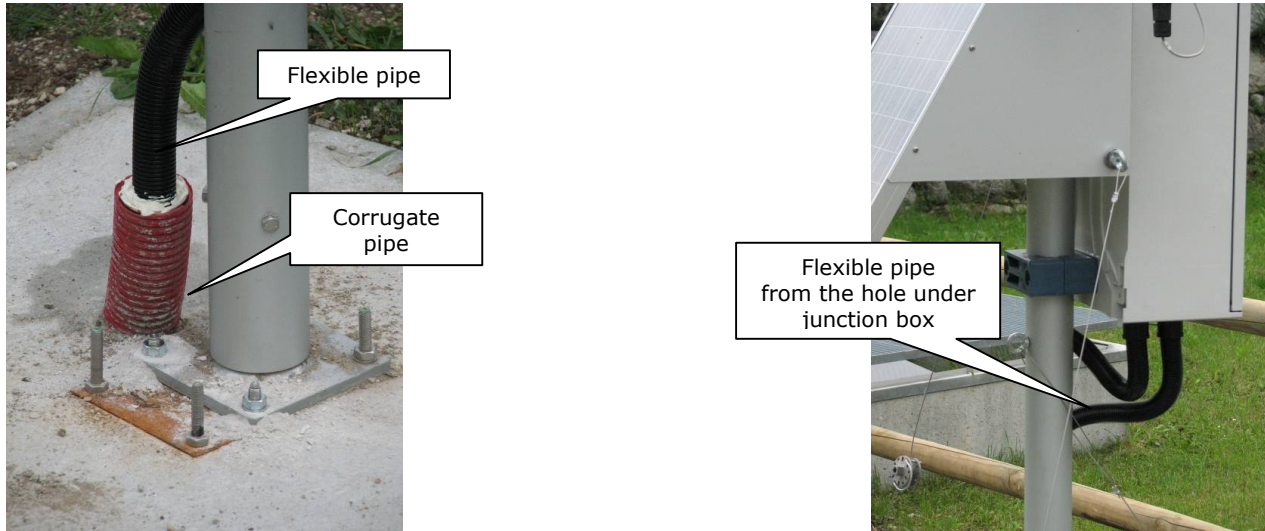
Now the weather station is powered, but before to turn on the switch of the datalogger, be sure to have connected all the sensors or devices (see section 3.3) and the battery with its special connector. If it so, switch on the datalogger (see user manual of datalogger for more details).

3.3 Electrical connection from sensors to datalogger

Once connected the cables to the sensors (IP68 black connector), try to hide all the cables inside the pole, bring them into the junction box, passing through the conduit.

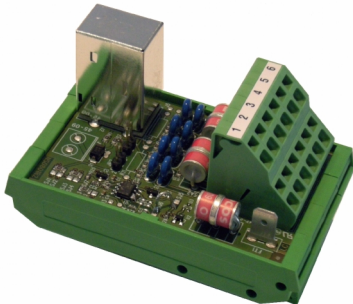


We suggest to rise from the corrugate pipe on the concrete plinth and from the Ø40mm hole just under the junction box with a flexible pipe, like showed in Pict. 26.



Picture 26 – Flexible pipe for connect sensors cables to junction box.

Depending on the configuration, the sensor cables can present end sleeves or PS2 connector, and there can be inside the box an electrical protection module with spring connectors, as follows:

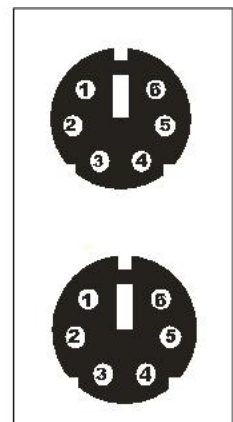


Pin	Signal
1	I+
2	V+
3	V-
4	GND
5	Vref 2 Volt
6	+Vbatt

The pin of the spring and PS2 connectors is as follows:

Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
I+	V+	V-	GND	Vref	Vbatt
Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
I+	V+	V-	GND	Vref	Vbatt

Upper terminal blocks



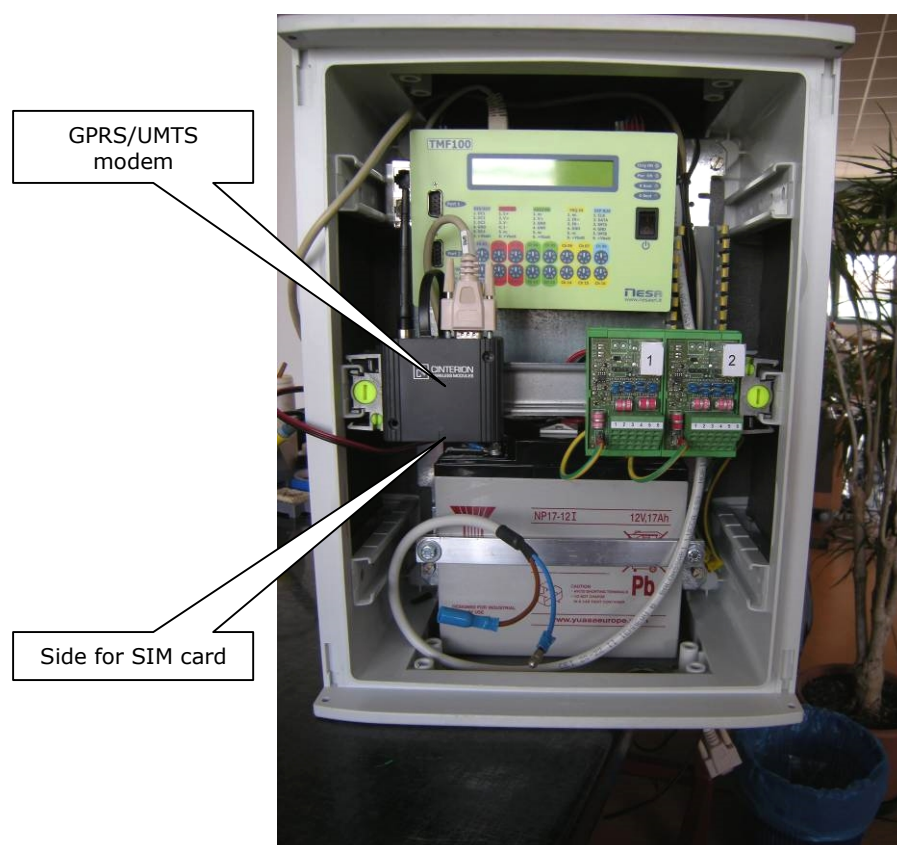
Lower terminal blocks

The configuration and the specific connection mode for each sensor are normally included to the station's documentation or in the datalogger and interfaces manuals.

4 GPRS Modem connection

If in your configuration is present a GPRS/UMTS modem, usually it is already connected to the upper RS232 port of the datalogger. You have only to insert the Sim into the modem and switch on the datalogger.

For the configuration see TMf user manual.

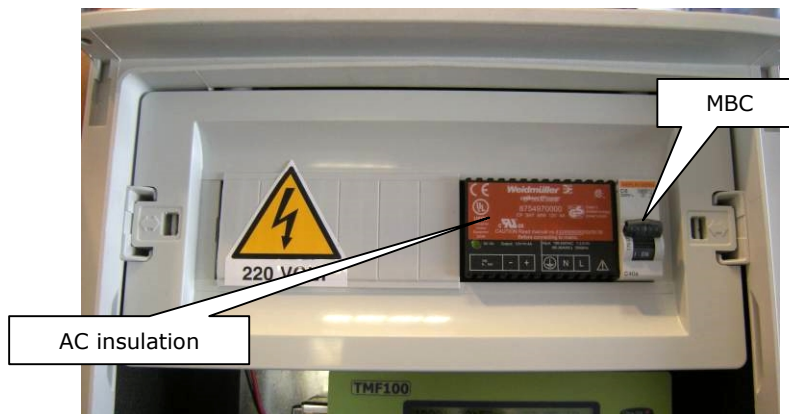


Picture 27 – GPRS activation

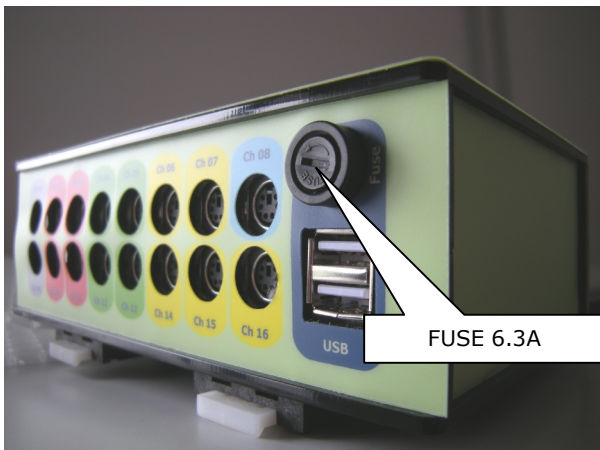
5 Electrical protection

As the configuration of weather station, with 110/220Vac main power supply or with solar panel, there are several electrical protection:

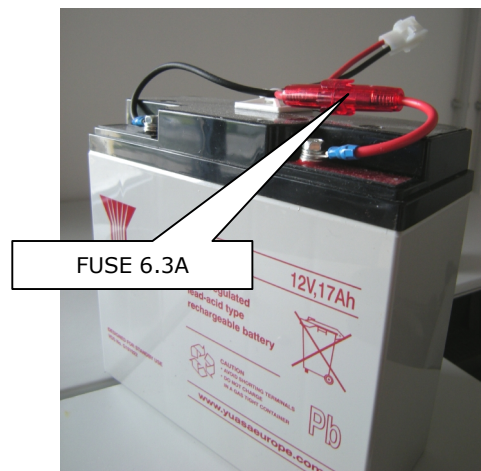
- MBC magnetothermic switch for overcurrent (only for 110/220Vac version) (see Pict. 28)
- AC insulation (only for 220Vac version) (see Pict.28)
- Fuse 6.3A for datalogger (see Pict.29)
- Fuse 6.3A for system in the battery (see Pict. 30)



Picture 28 – Electrical protection for 220Vac



Picture 29 – Fuse of the datalogger



Picture 30 – Fuse of the battery

6 Cables specifications and power consumption

As the configuration of weather station, with 220Vac main power supply or with solar panel, some cables in the following table may be omitted.

Type of cable or application	Description	Section (sqmm) Max 20 meters, if over, increase the section	Power consumption
Power supply 220Vac	Phase Line 220Vac from main distribution (brown or black colour)	2.5	< 10W
	Neutral Line 220Vac from main distribution (blue colour)	2.5	
Solar panel power supply	Line + & - from the solar panel to the junction box	2x1.5	< 20W
Ground	Ground from grounding point into manhole	6	
	Ground from a main grounding line	10	
	Ground from the screw in the bottom of poles, to junction box	4	
Sensors	Cable for sensor	Factory supplied	< 1.5/sensor
Data	STP Etherneth Lan data cable Cat.6 or 7	STP cat.6	< 1W

7 Safety

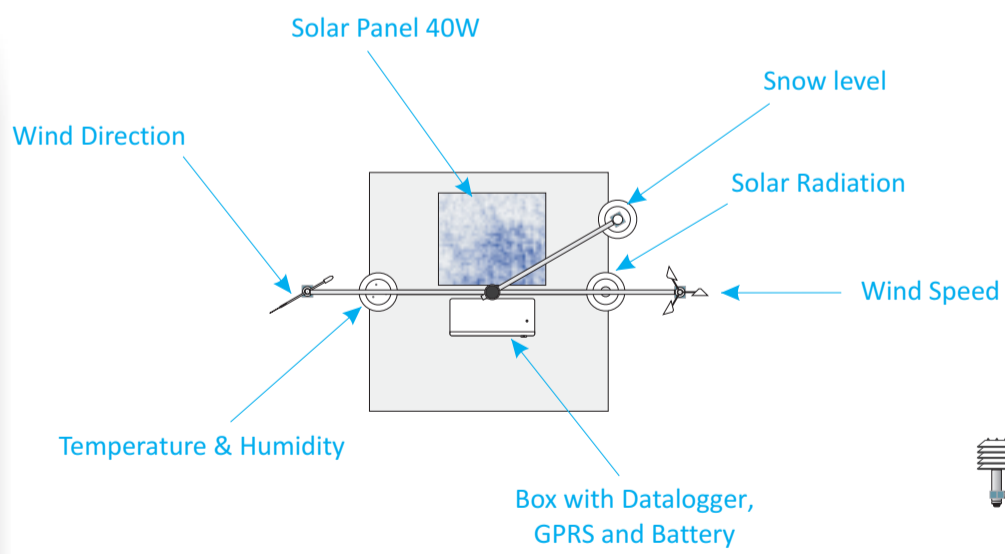
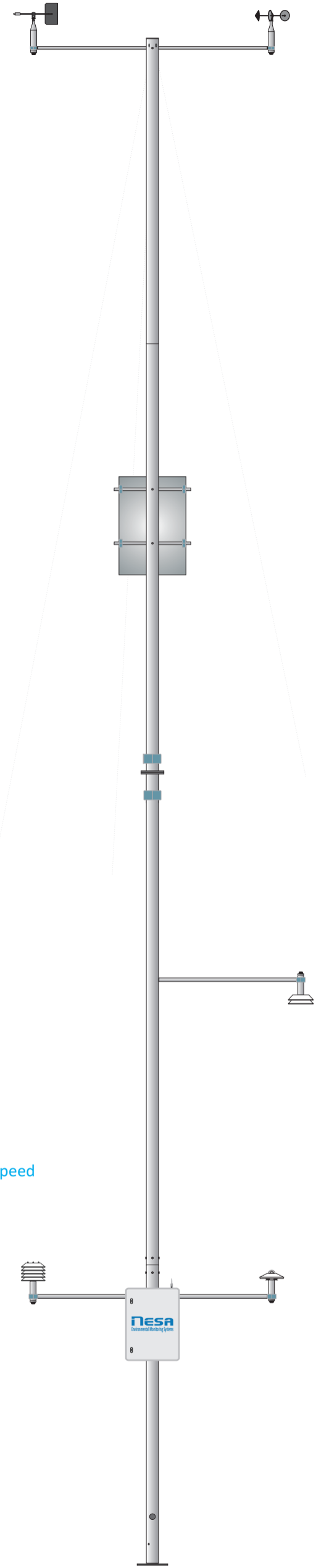
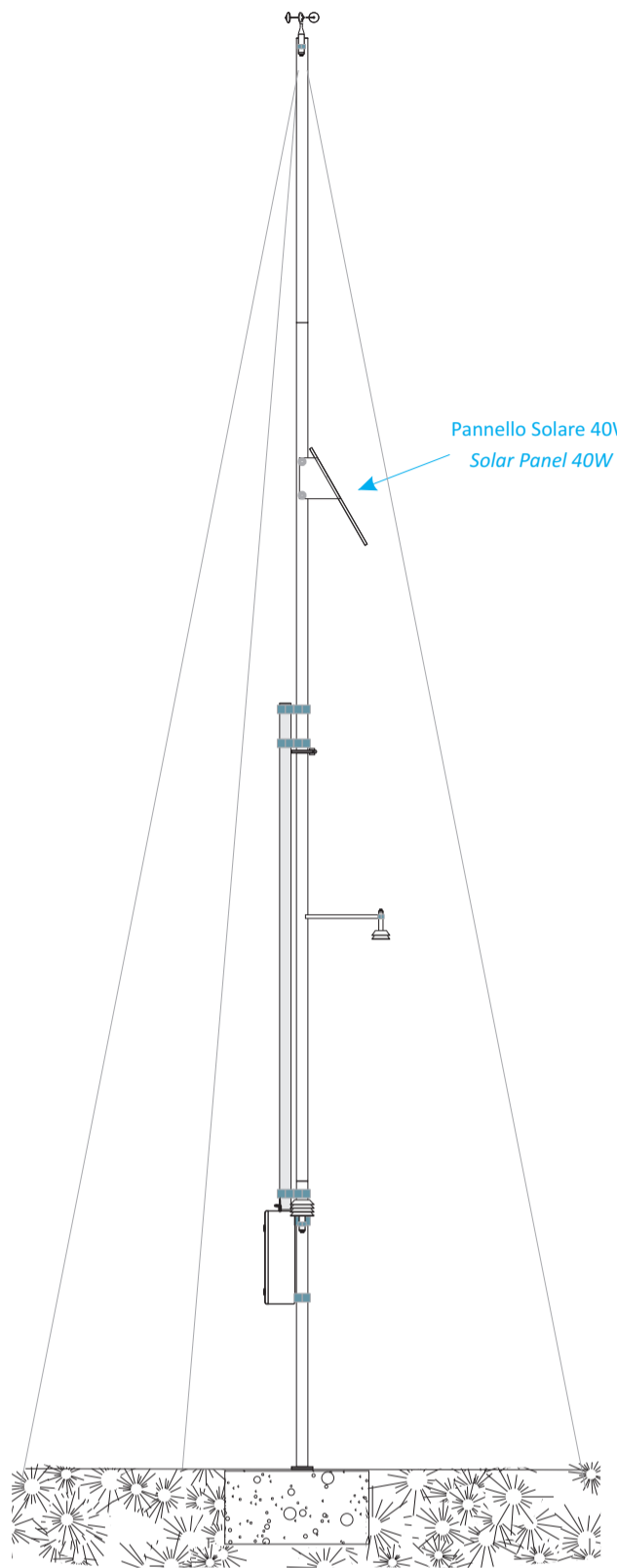
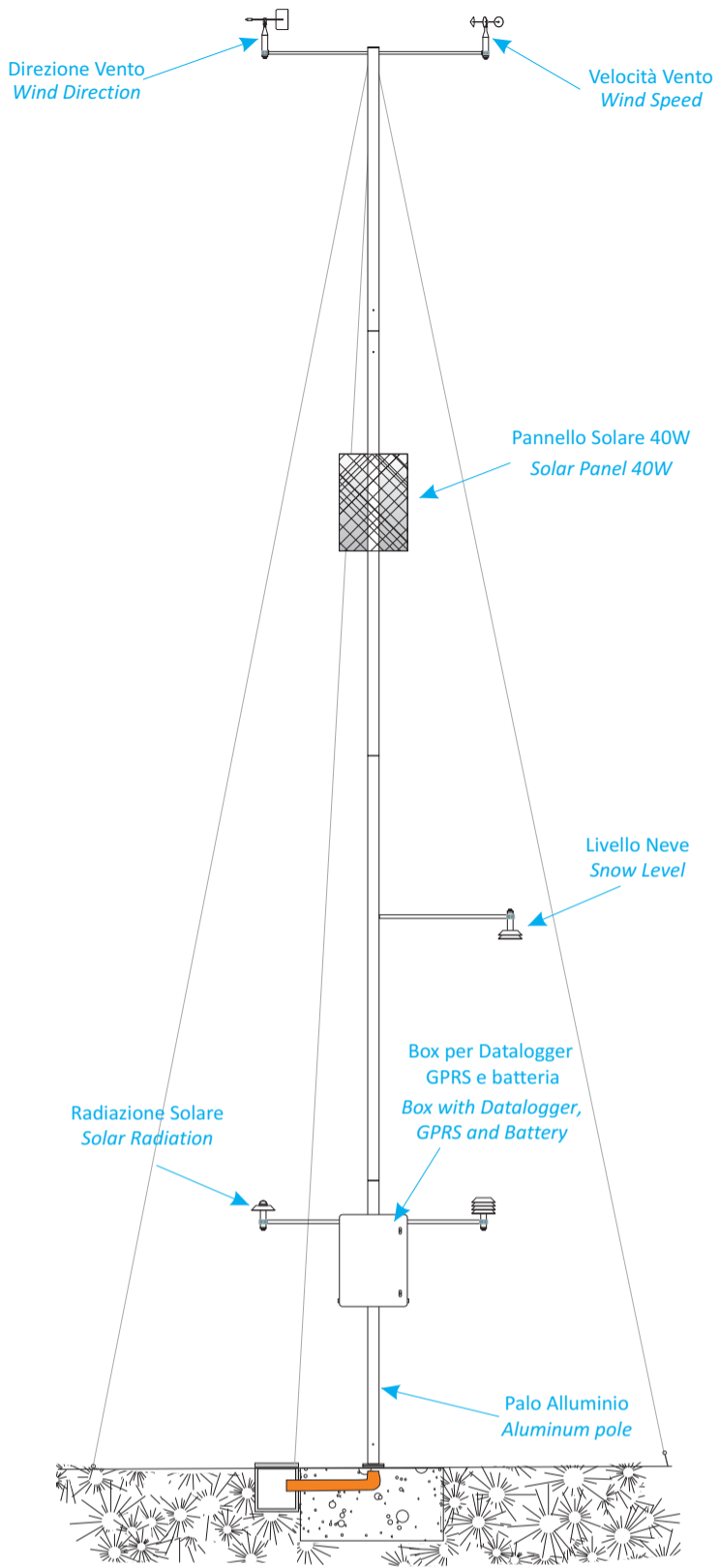
Executing company (see Annex)	Bus. Name Nesa S.r.l.
	Address Via Sartori 6/8 – 31020 Vidor (TV) -Italy
Work performed by the company:	<p>Supply and installation of meteorological monitoring equipment.</p> <p>The work consists in the installation of poles of different heights, 3m, 2m, 1m, positioned and configured as per the attached diagram.</p> <p>The installation is done at ground level, fixing the poles with special fischer to the existing concrete base.</p> <p>The free area required to operate is 4x4m.</p> <p>There will be no interference with other activities if not previously explained.</p> <p>There are no electrical connections to the electrical supply system or other connections unless explicitly requested.</p> <p>Possible risks of objects falling from the higher pole, so a protection helmet is required.</p> <p>Possible risks of cutting by abrasion to the hands, recommended the use of gloves</p> <p>Other risks are not assessed.</p>

8 Guarantee

All poles are warranted against defects in both materials used, both overall and in its operation for a period of 24 months from delivery, unless specific agreements.

Nesa will replace or repair any defective parts, subject to verification that have been made by the Customer tampering or unauthorized repairs. In any case, the guarantee covers only the works in factory, in the sense that all repairs will be made in Nesa with shipping costs charged to the customer and restitution against Nesa.

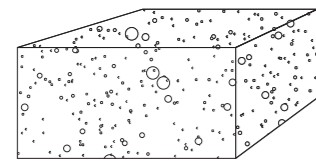
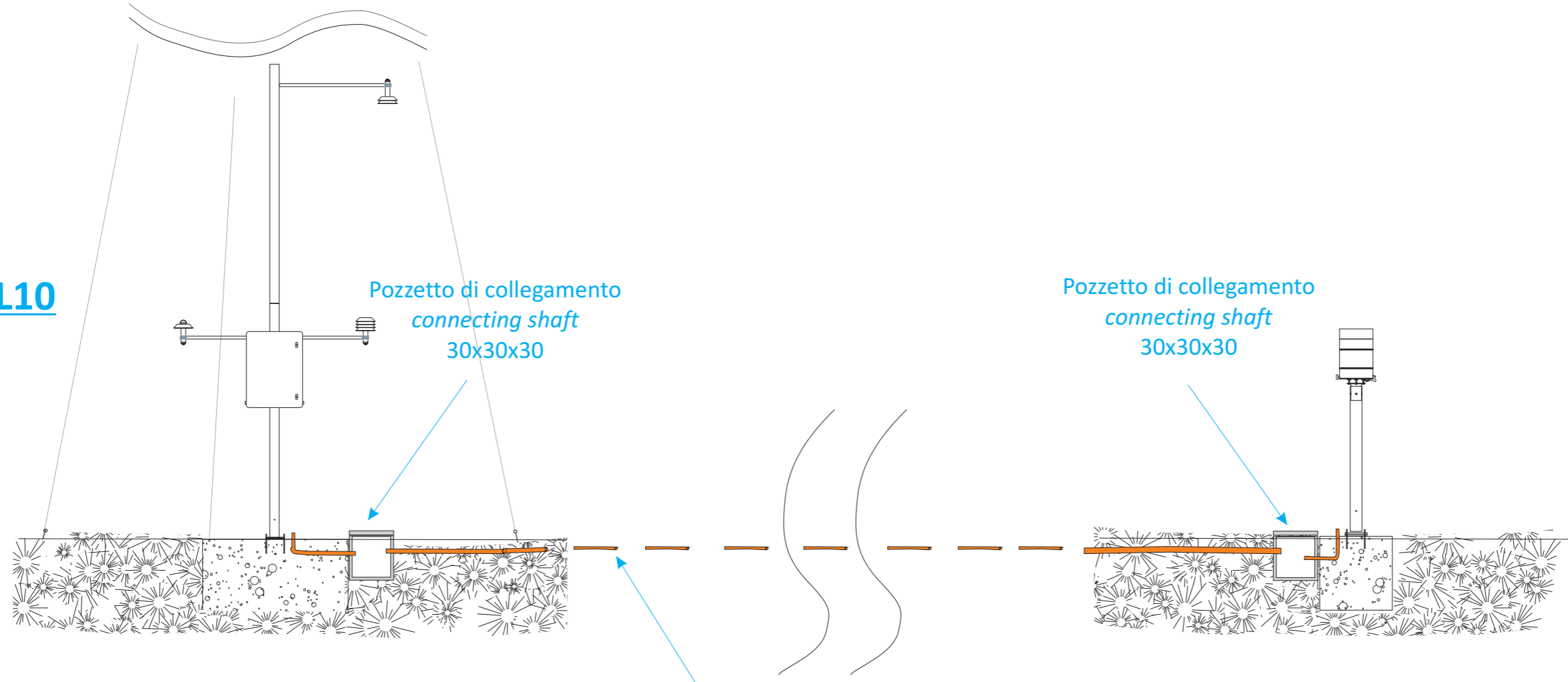
Nesa aren't assuming the costs of disassembly and reassembly on site, of defective poles or other costs related if not for the above.



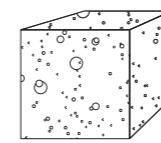
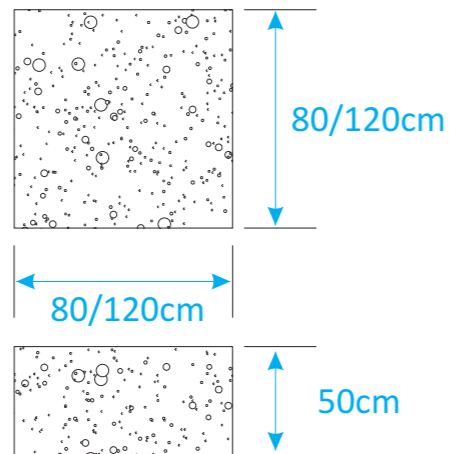
Allegato A2 - Annex A2

Designed by:	Name:	Date:	Approved:	Sheet:
NESA Srl Environmental Monitoring Systems	10m Station	11-11-14		1/2

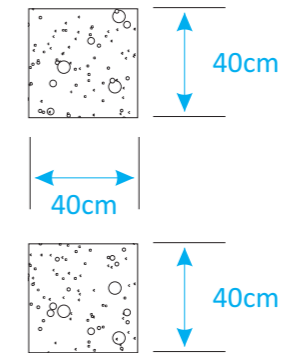
PAL10



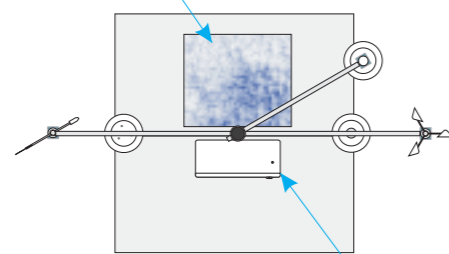
Plinto il CLS
Concrete basement



Plinto il CLS
Concrete basement



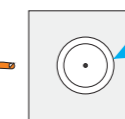
Eventuale pannello solare
Additional solar panel



Box con Datalogger,
GPRS and Battery

Tubo corrugato per collegamento
ad altri sensori o rete
conduit to connect other
sensors or power

Pluviometro
Rain Gauge

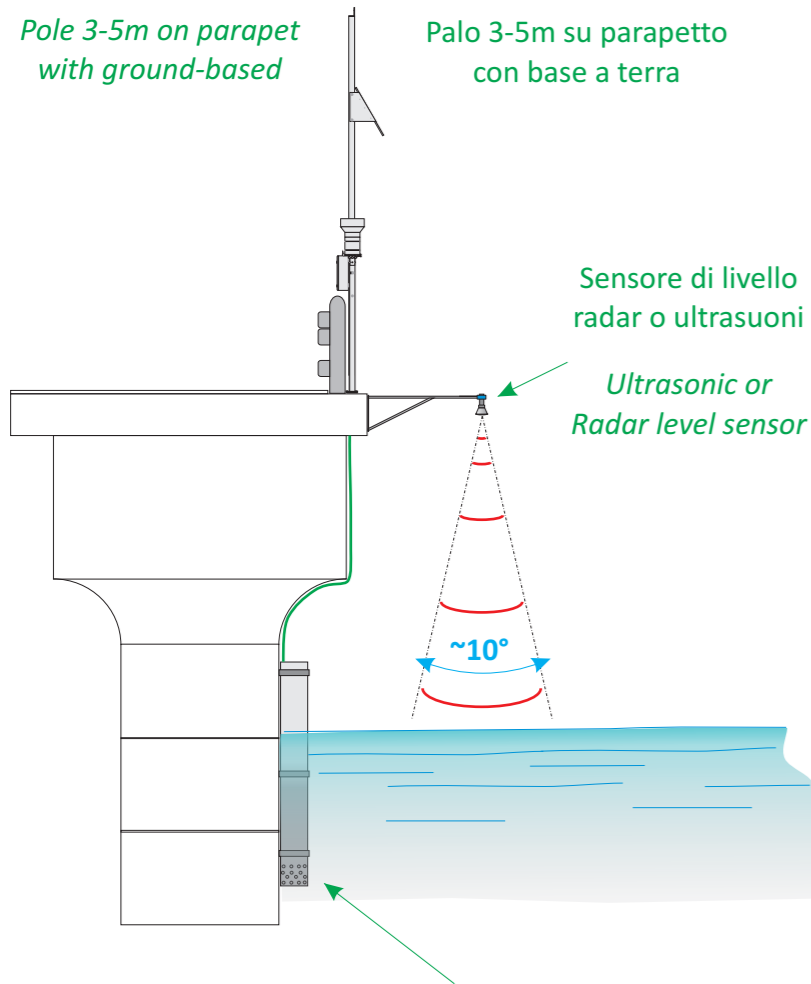


Allegato A2 - Annex A2

Designed by:	Name:	Date:	Approved:	Sheet:
NESA Srl Environmental Monitoring Systems	10m Station	11-11-14		2/2
NESA Srl - Via sartori 6/8 - 31020- Vidor TV tel. +39.0423.985209 fax +39.0423.985305 - All rights reserved				

Pole 3-5m on parapet with ground-based

Palo 3-5m su parapetto con base a terra



Sensore di livello radar o ultrasuoni

Ultrasonic or Radar level sensor

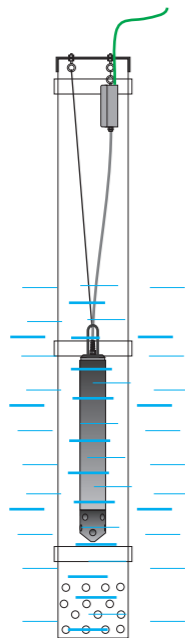
~10°

Tubo di calma per sonda o per livello piezometrico

Stilling tube for probe or for piezometric level sensor

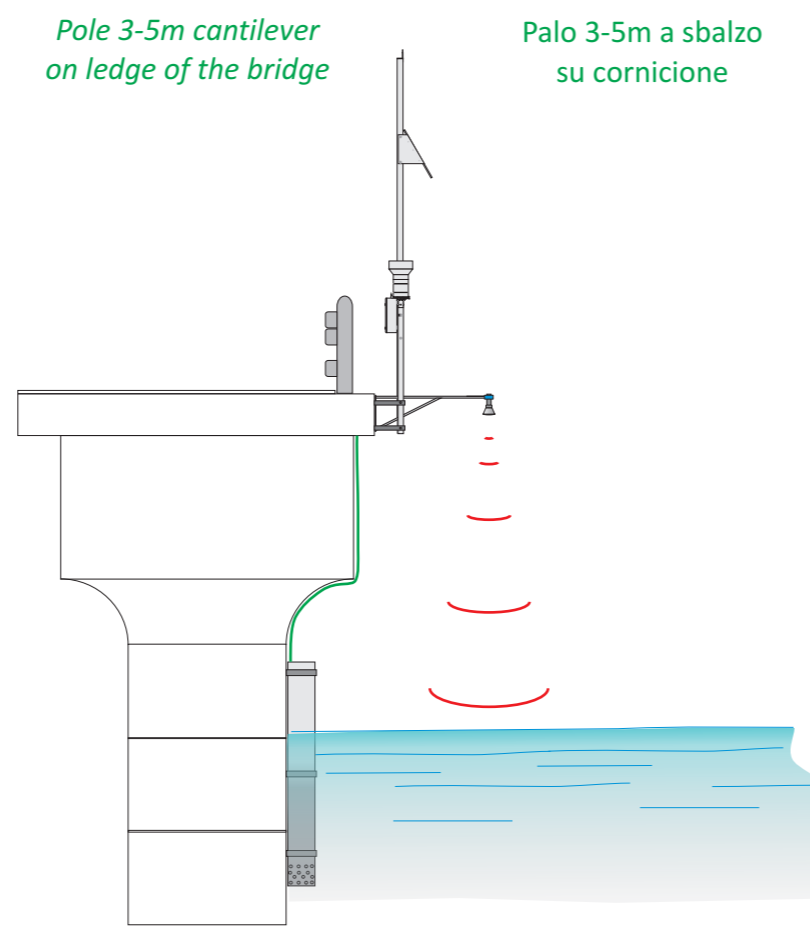
Installazione sonda entro tubo di calma

Probe installed into stilling tube



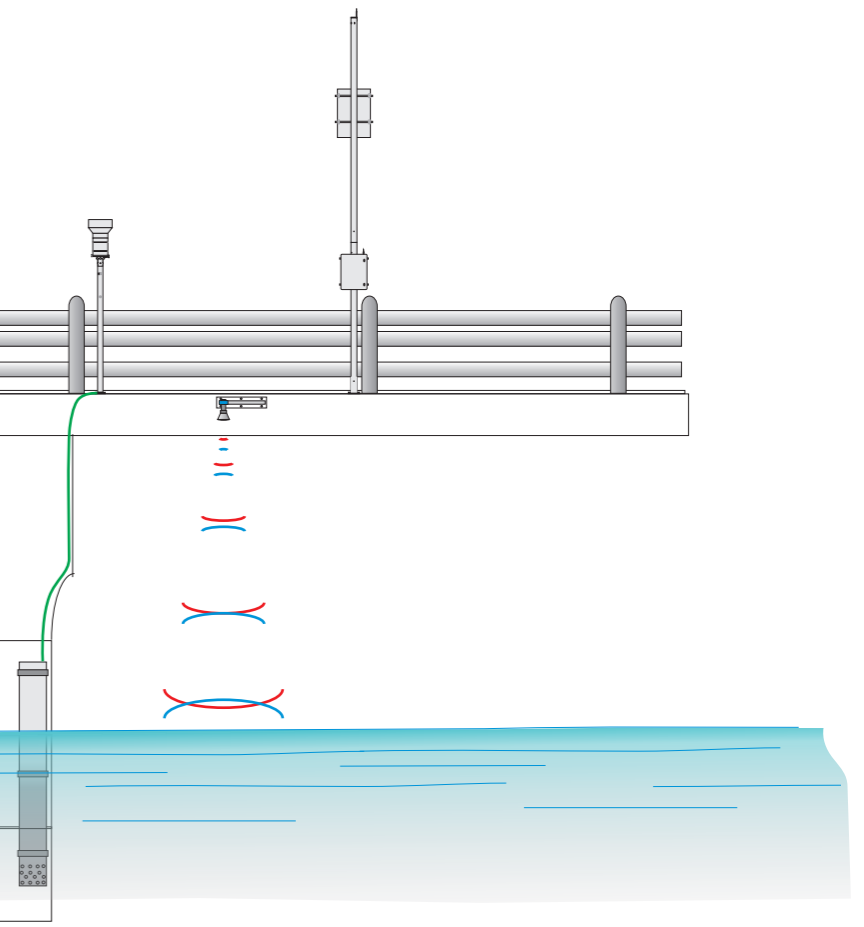
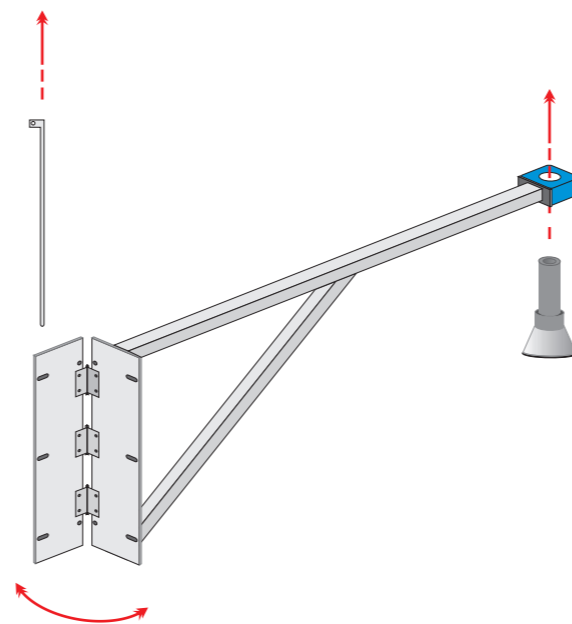
Pole 3-5m cantilever on ledge of the bridge

Palo 3-5m a sbalzo su cornicione



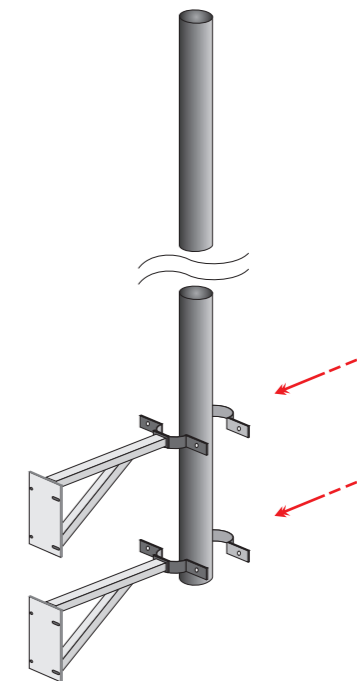
Particolare dello sbraccio sensore con cerniera per manutenzione e per installazione a sbalzo

Particular of the arm-sensor with hinge for an easy maintenance



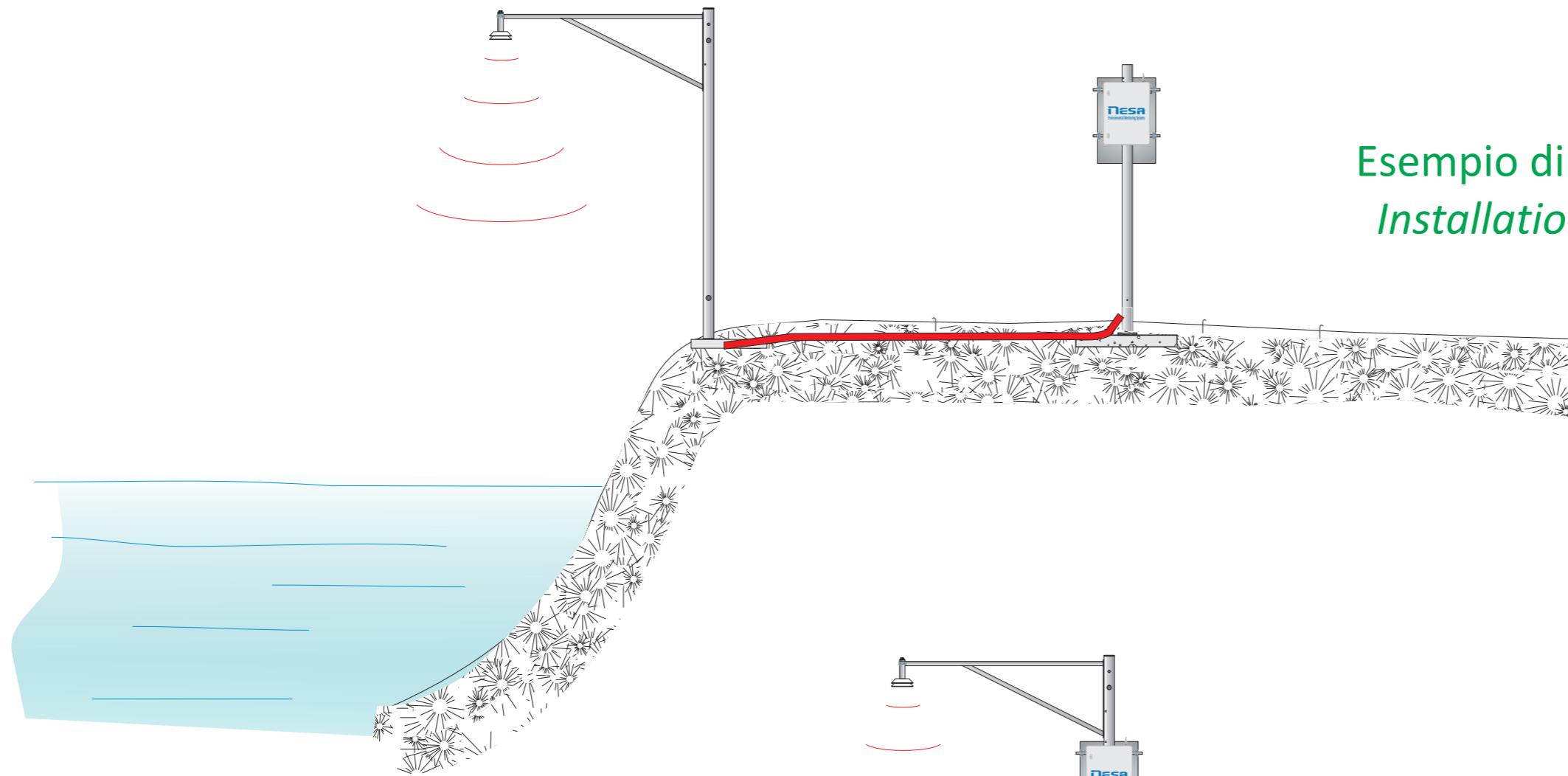
Particolare zanche fissaggio palo a sbalzo su cornicione, per pali fino a 5m

Particular of pole mounting with brackets cantilevered on the edge, for poles up to 5m

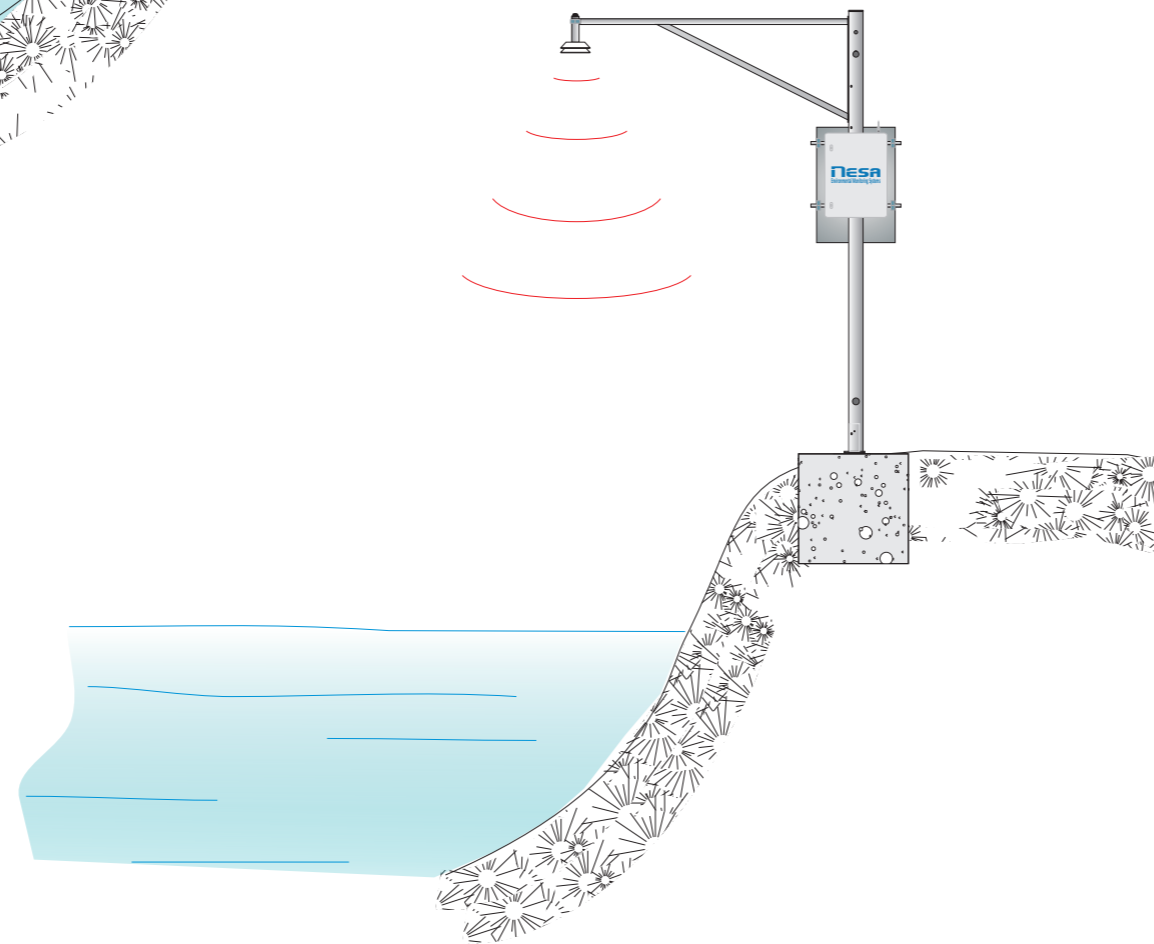


Allegato B - Annex B

Designed by:	Name:	Date:	Approved:	Sheet:
NESA Srl Environmental Monitoring Systems	Hydro Station	11-11-14		1/2
NESA Srl - Via sartori 6/8 - 31020- Vidor TV tel. +39.0423.985209 fax +39.0423.985305 - All rights reserved				




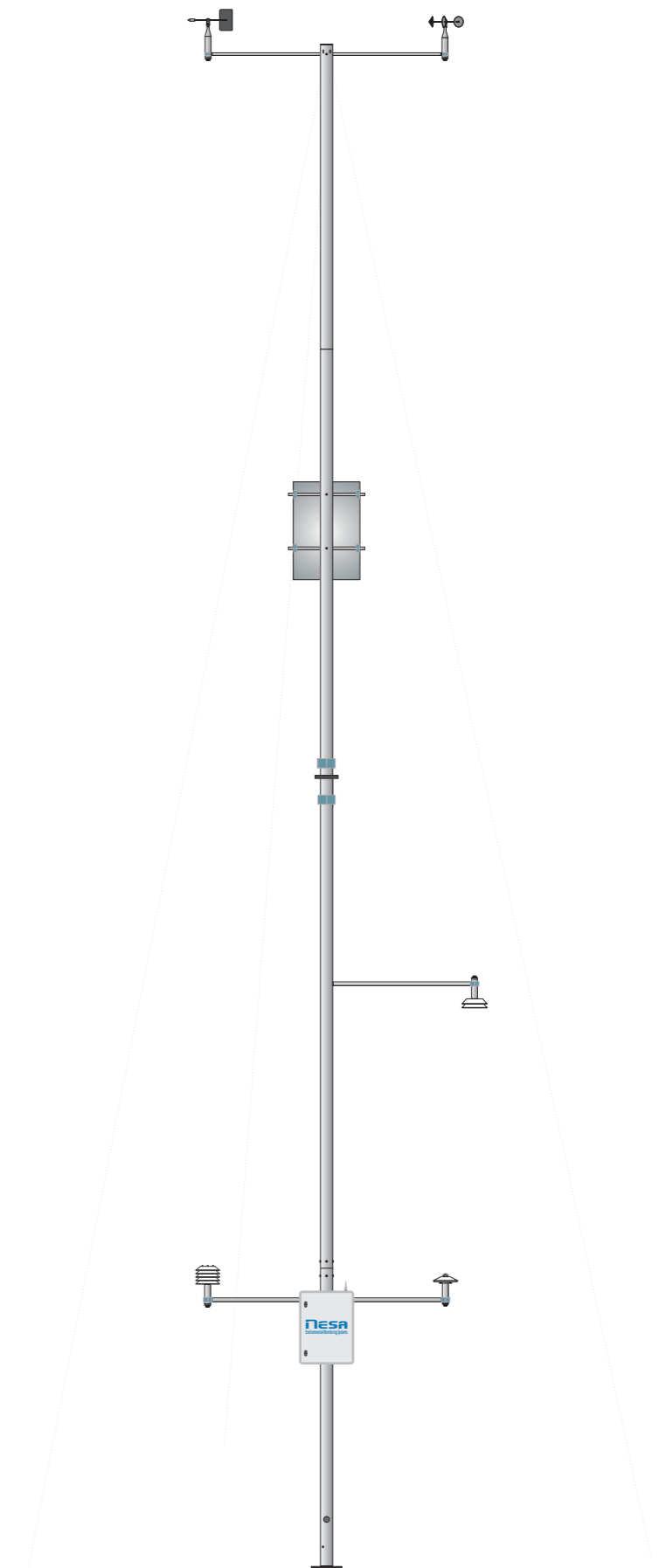
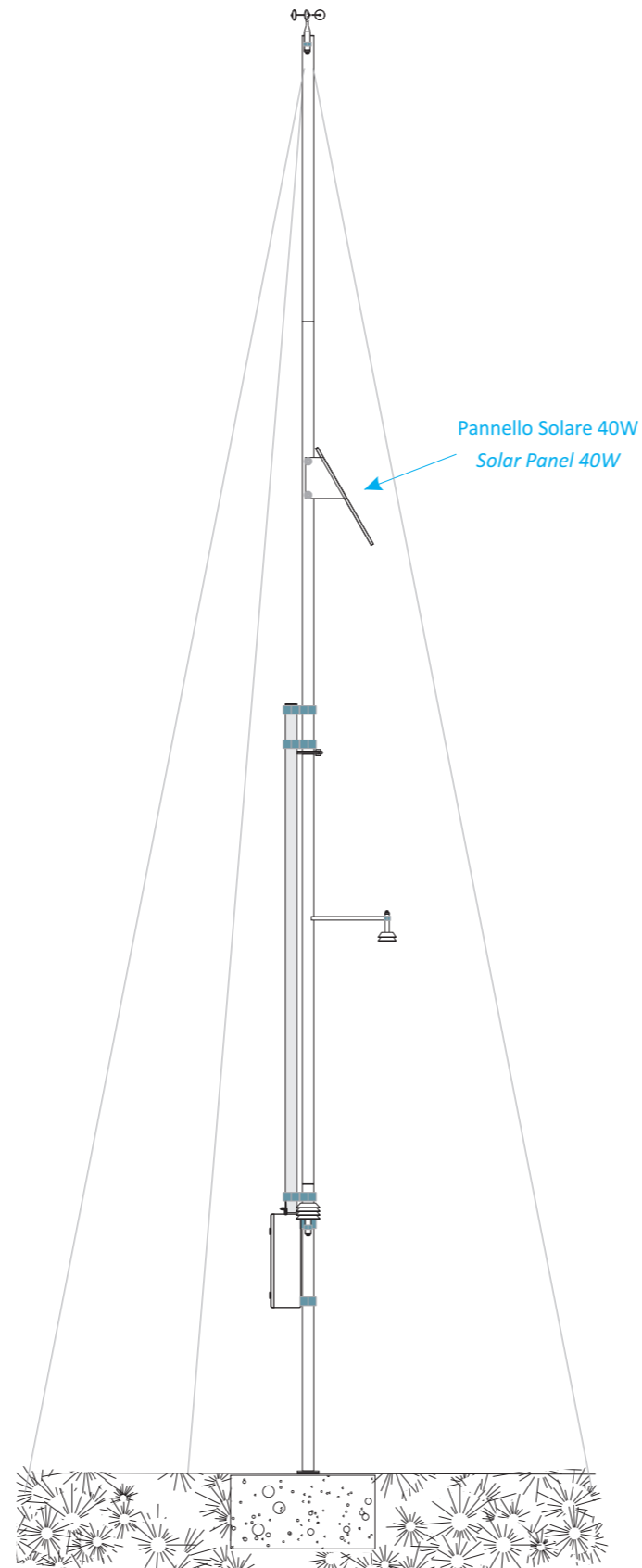
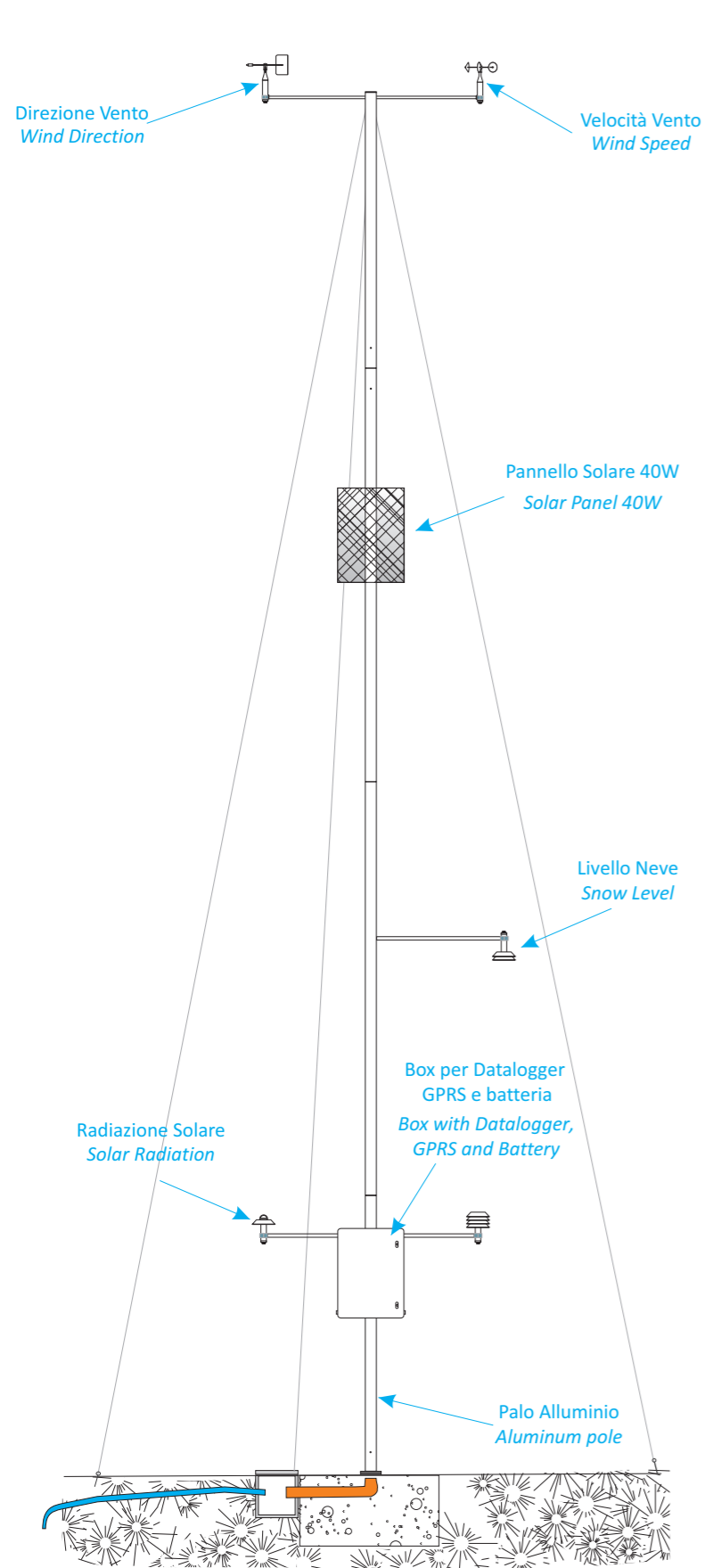
Esempio di installazione su palo dedicato
Installation example for dedicated pole



Esempio di installazione sensore su palo
Installation example for pole

Allegato B - Annex B

Designed by:	Name:	Date:	Approved:	Sheet:
 Environmental Monitoring Systems	Hydro Station	11-11-14		2/2
<small>NESA Srl - Via sartori 6/8 - 31020- Vidor TV tel. +39.0423.985209 fax +39.0423.985305 - All rights reserved</small>				

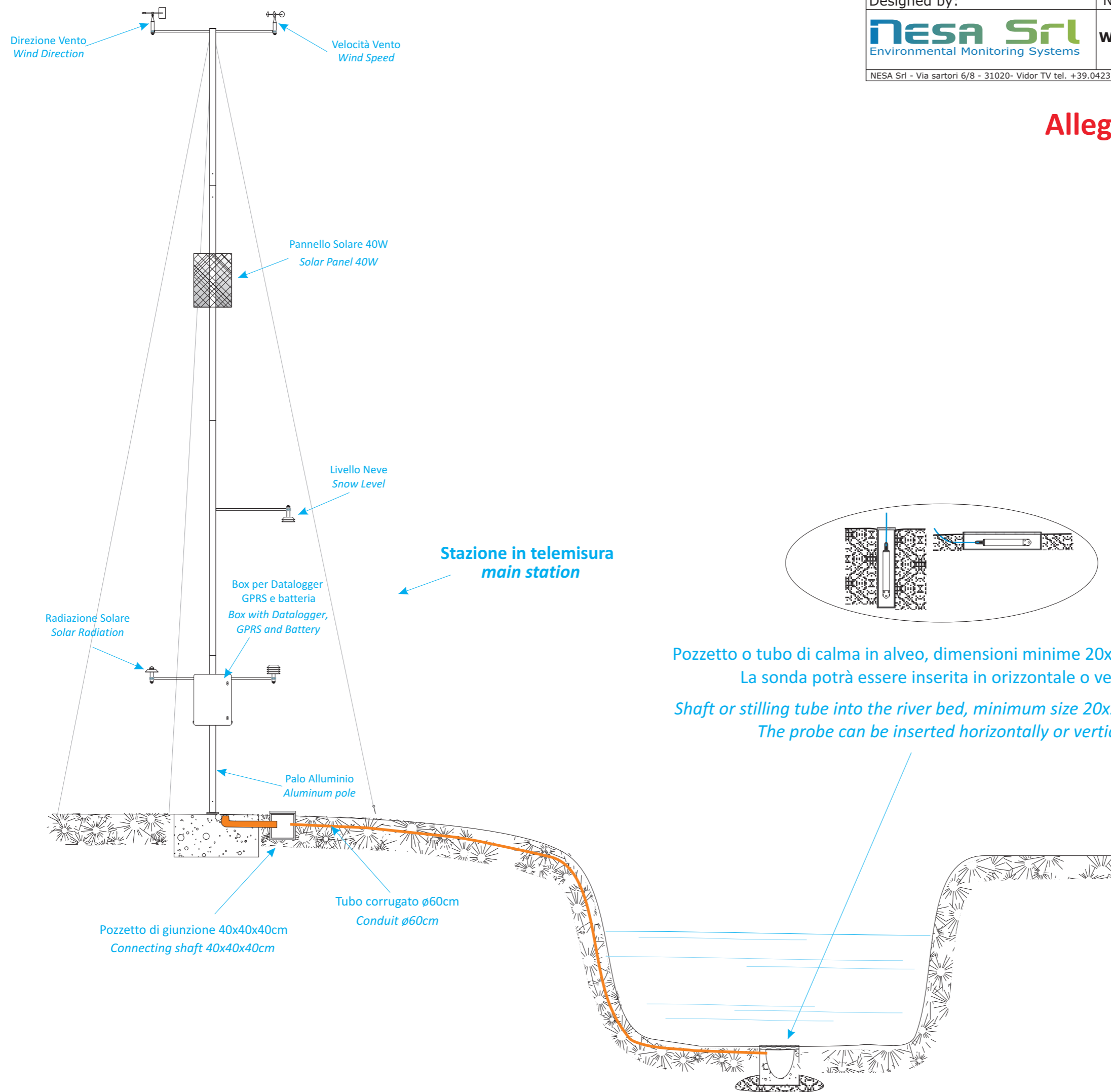


Allegato C2 - Annex C2

Designed by:	Name:	Date:	Approved:	Sheet:
NESA Srl Environmental Monitoring Systems	WMP6 Station 10m	14-07-14		1 / 2
NESA Srl - Via sartori 6/8 - 31020- Vidor TV tel. +39.0423.985209 fax +39.0423.985305 - All rights reserved				

Designed by:	Name:	Date:	Approved:	Sheet:
NESA Srl Environmental Monitoring Systems	WMP6 Station 10m	14-07-14		2 / 2
NESA Srl - Via sartori 6/8 - 31020- Vidor TV tel. +39.0423.985209 fax +39.0423.985305 - All rights reserved				

Allegato C2 - Annex C2



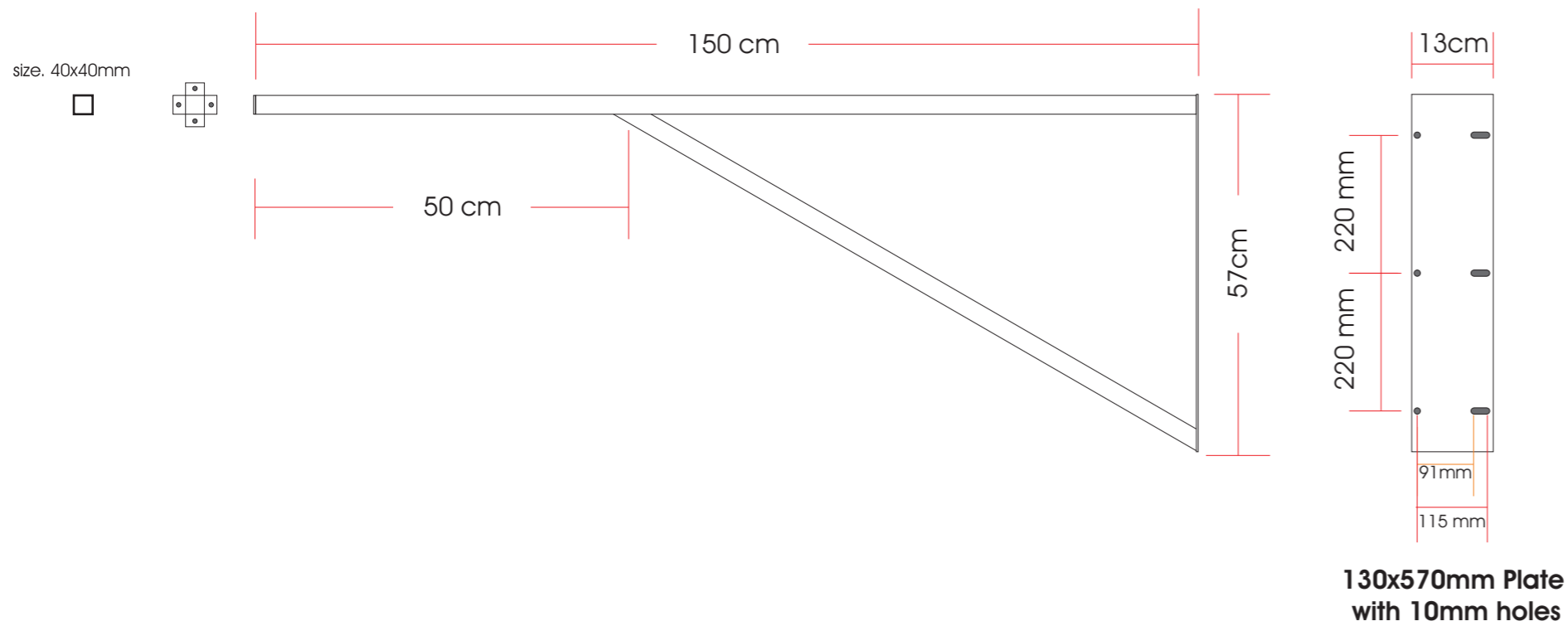
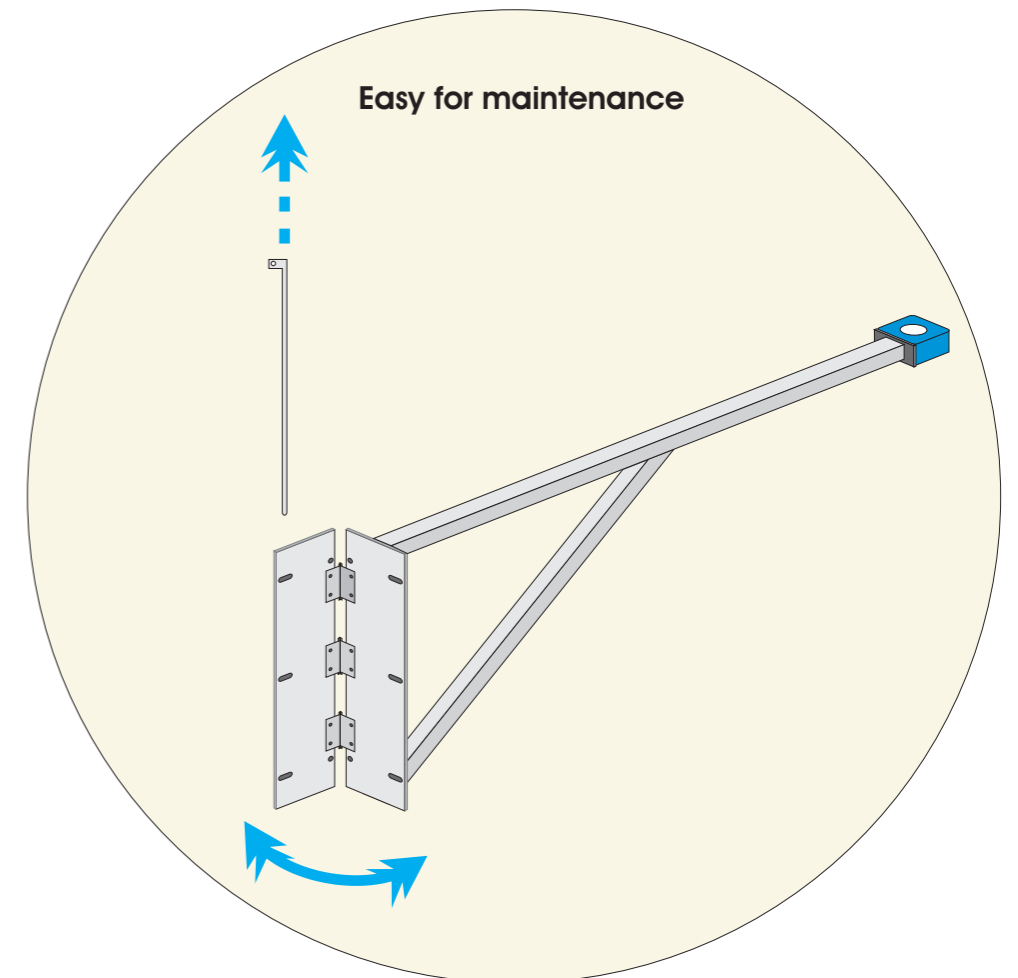
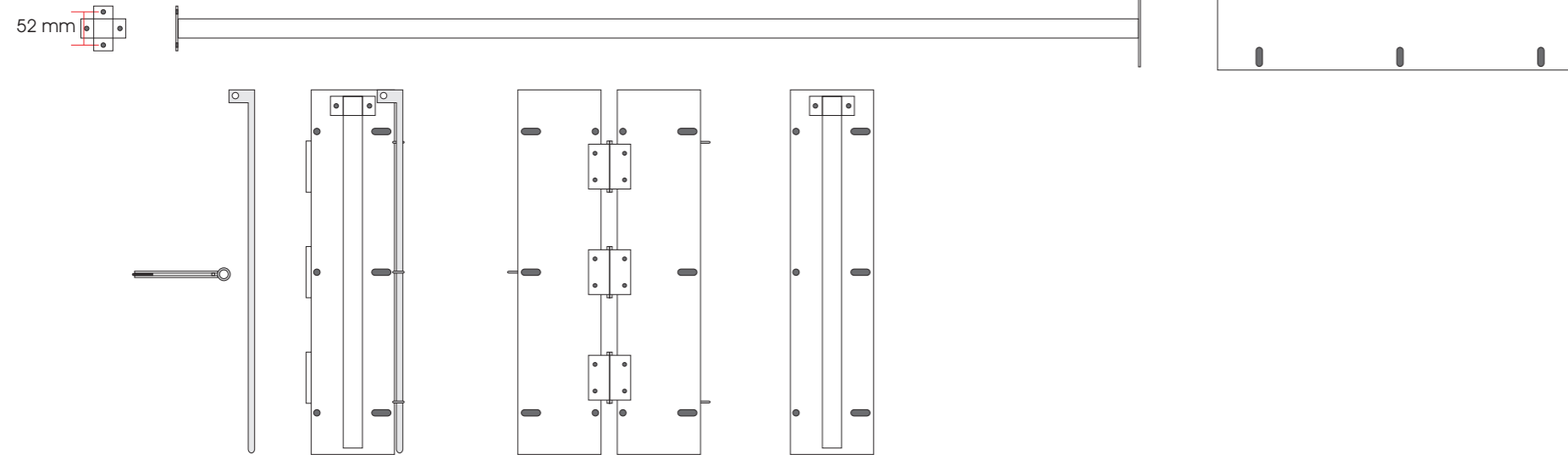


Plate 30x70mm holes 7mm



SS-P1

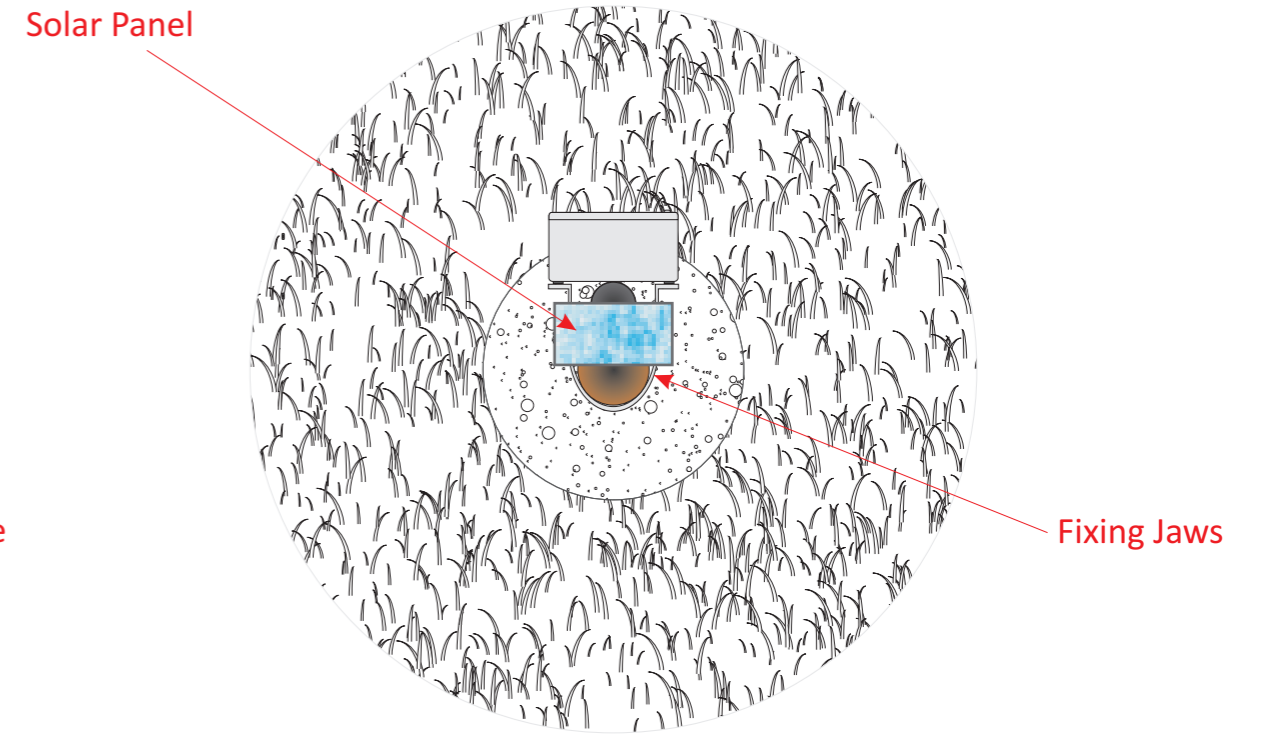
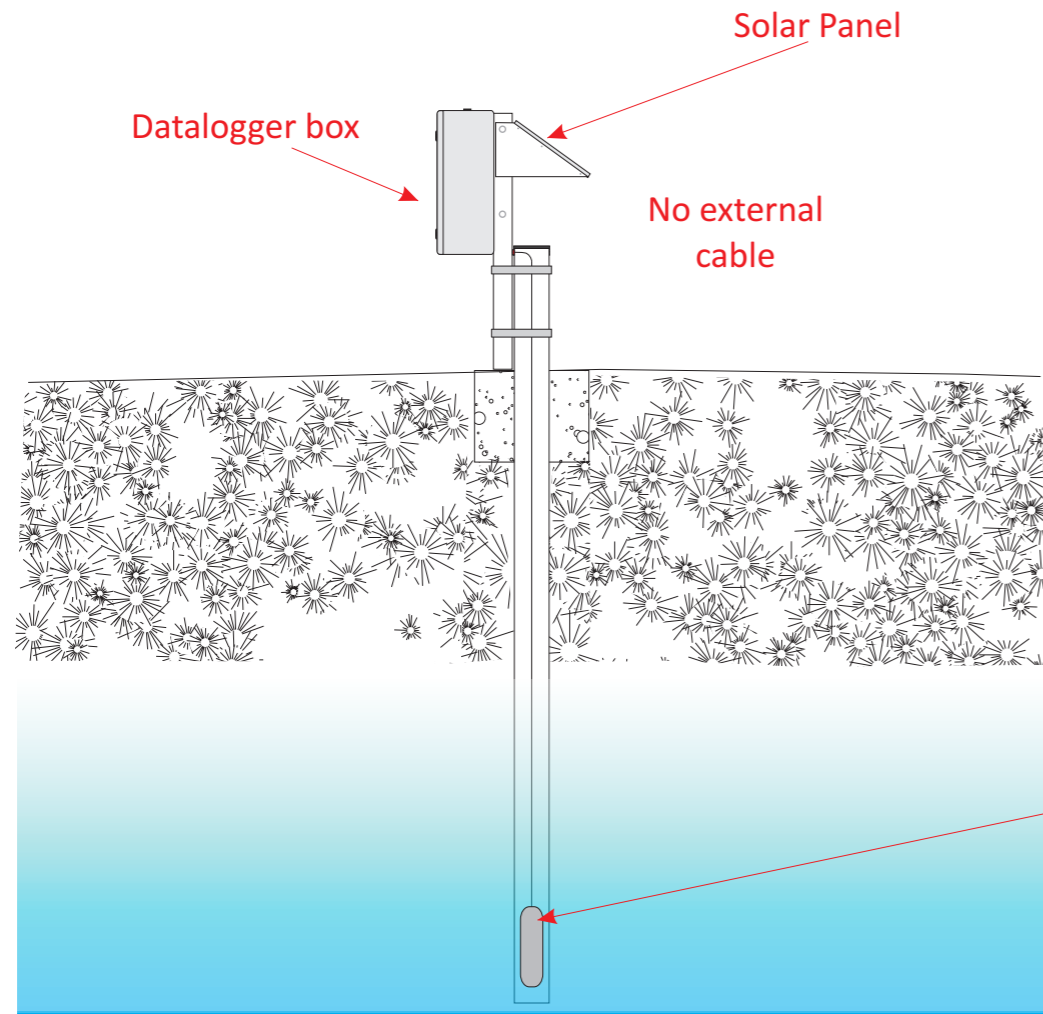
Allegato E - Annex E

NESA Srl
Sistemi per monitoraggi ambientali e telecontrolli

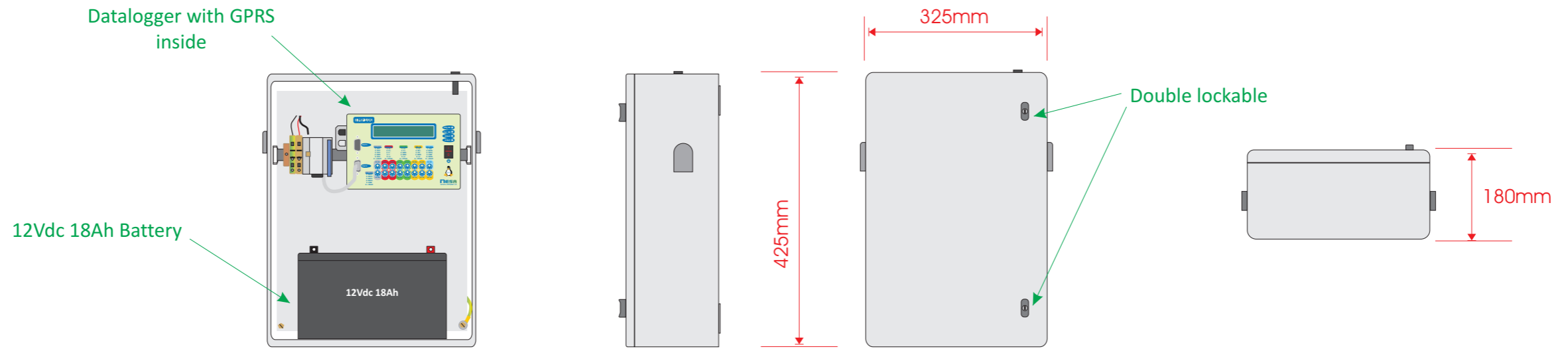
Designed By
Nesa srl

Description
SS-P1
Arm support for sensor with hing,
for bridges, wall etc.

Drawing	Uff. Tecnico	Sheet	1/1
Cod.	Supp-LU06-Palo	Date	
Rev.	A1.SX		24/01/2011



Datalogger Box

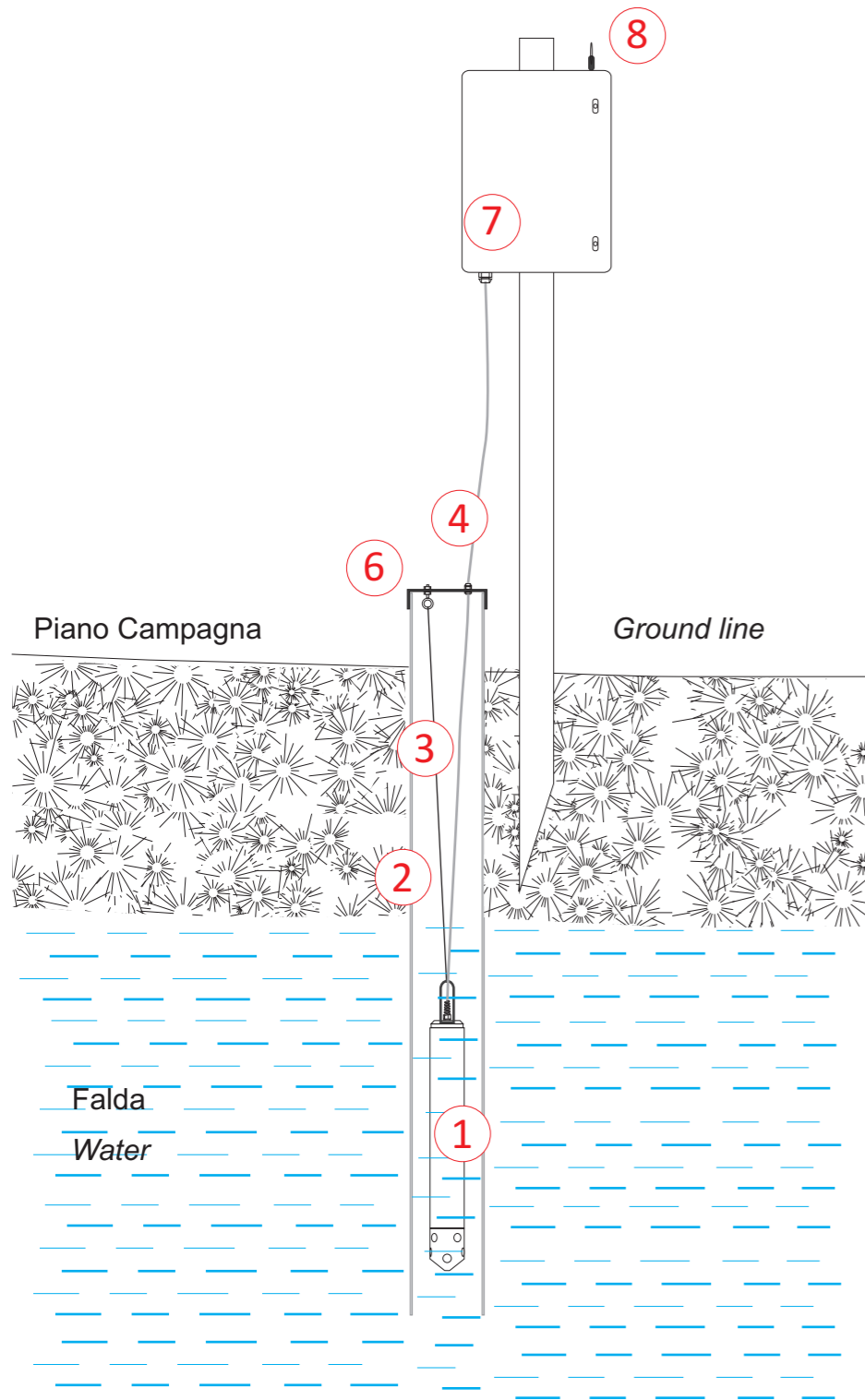


Allegato F - Annex F

Designed by:	Name:	Date:	Approved:	Sheet:
NESA Srl Environmental Monitoring Systems	Underground WMP6 Station	17-11-15		1/2
NESA Srl - Via sartori 6/8 - 31020- Vidor TV tel. +39.0423.985209 fax +39.0423.985305 - All rights reserved				

Sonda 6 parametri con **Datalogger esterno e trasmissione dati**, alimentazione da **pannello solare**

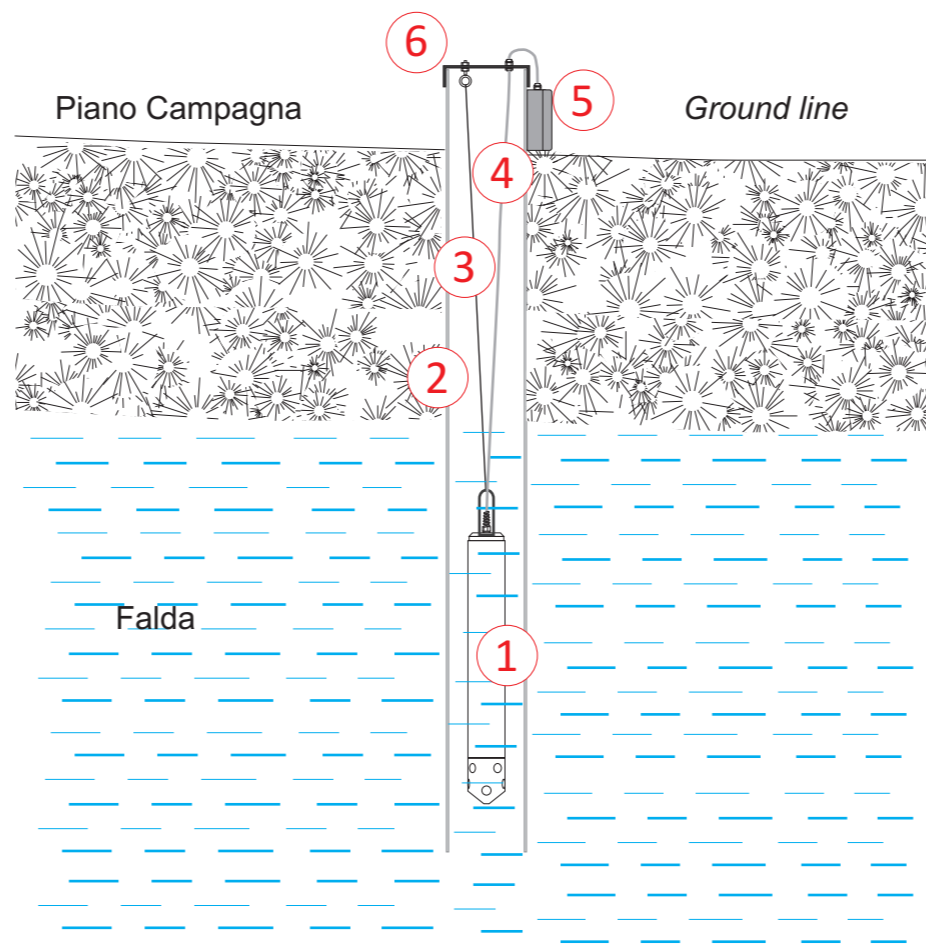
*Multiparametric water probe with **external datalogger**, data transmission system and supplied by **solar panel***



Sonda 6 parametri con **Datalogger Interno e alimentazione da batterie** (size AA litio) accessibili all'esterno (6 mesi autonomia).

*Multiparametric water probe with **internal data logger**, supplied by **external removable batteries** (Lithium AA) about 6 months of autonomy.*

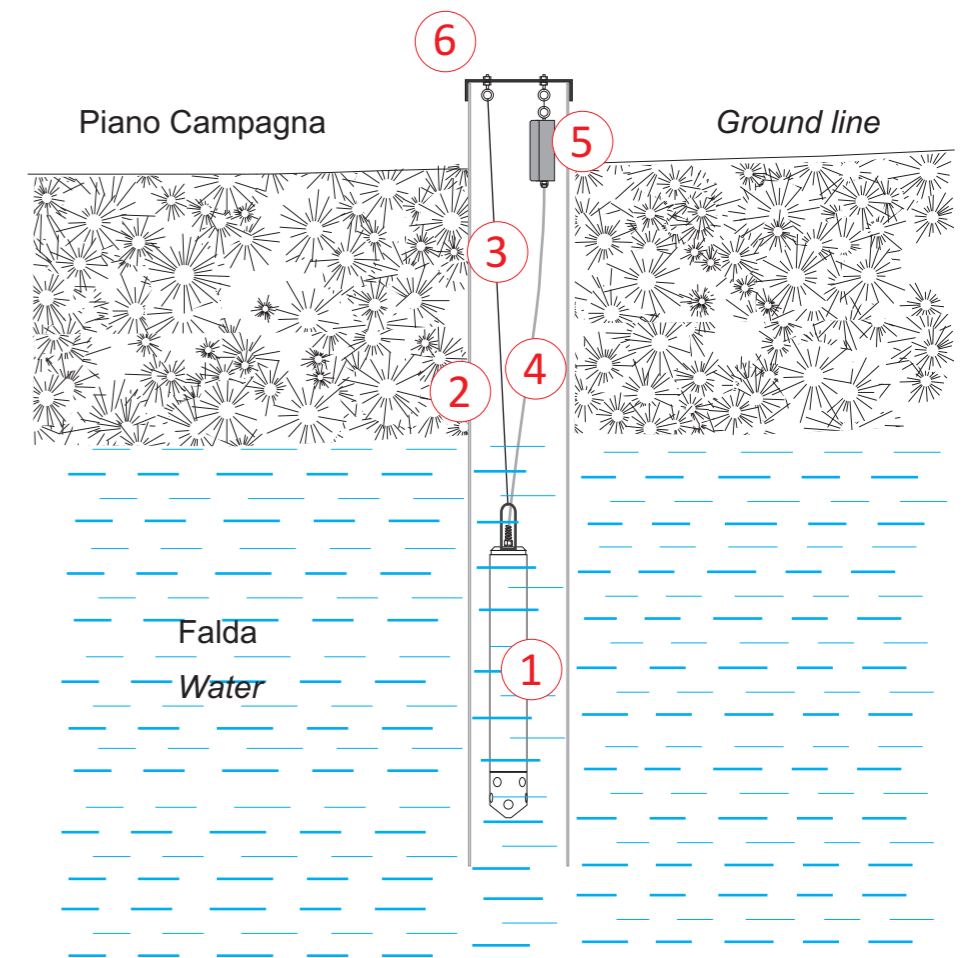
- ① Sonda 6 parametri (Ph, Redox, O2, Temp, Livello, Conducibilità)
- ② Pozzo piezometrico da 100/120mm
- ③ Cavo in acciaio per recupero sonda
- ④ Cavo alimentazione, dati e compensazione sonda
- ⑤ Box Batterie al litio 10x10x7cm
- ⑥ Coperchio tubo piezometrico
- ⑦ Box Datalogger e trasmissione dati
- ⑧ Antenna GPRS



Sonda 6 parametri con **Datalogger Interno e alimentazione da batterie** (size AA litio) nascoste dentro il pozzo piezometrico (6 mesi autonomia).

*Multiparametric water probe with **internal data logger**, supplied by **internal removable batteries** (Lithium AA) about 6 months of autonomy.*

- ① 6 Parameters probe (Ph, Redox, O2, Temp, Level, Conductivity)
- ② 100/120mm source shaft
- ③ Steel cable for probe recovery
- ④ Supply cable, data and compensation for probe
- ⑤ Battery Box 10x10x7cm
- ⑥ Piezometric tube cover
- ⑦ Box Datalogger and data transmission
- ⑧ GPRS Antenna



Allegato F - Annex F

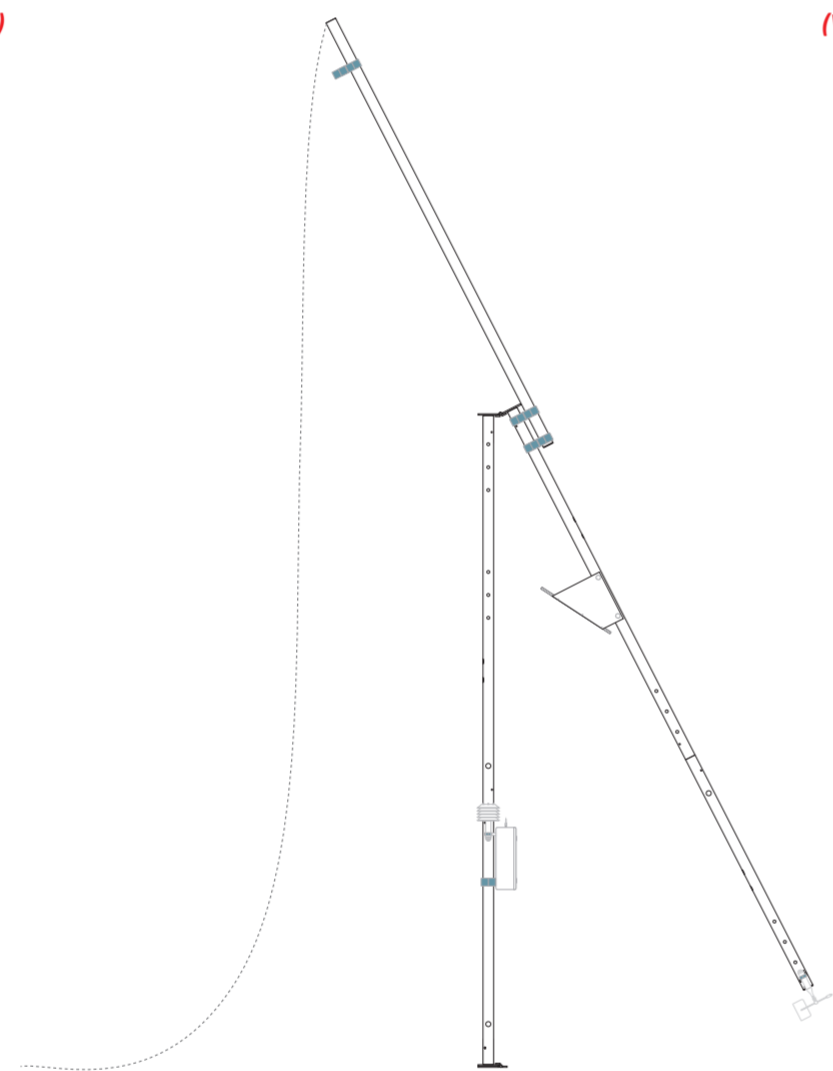
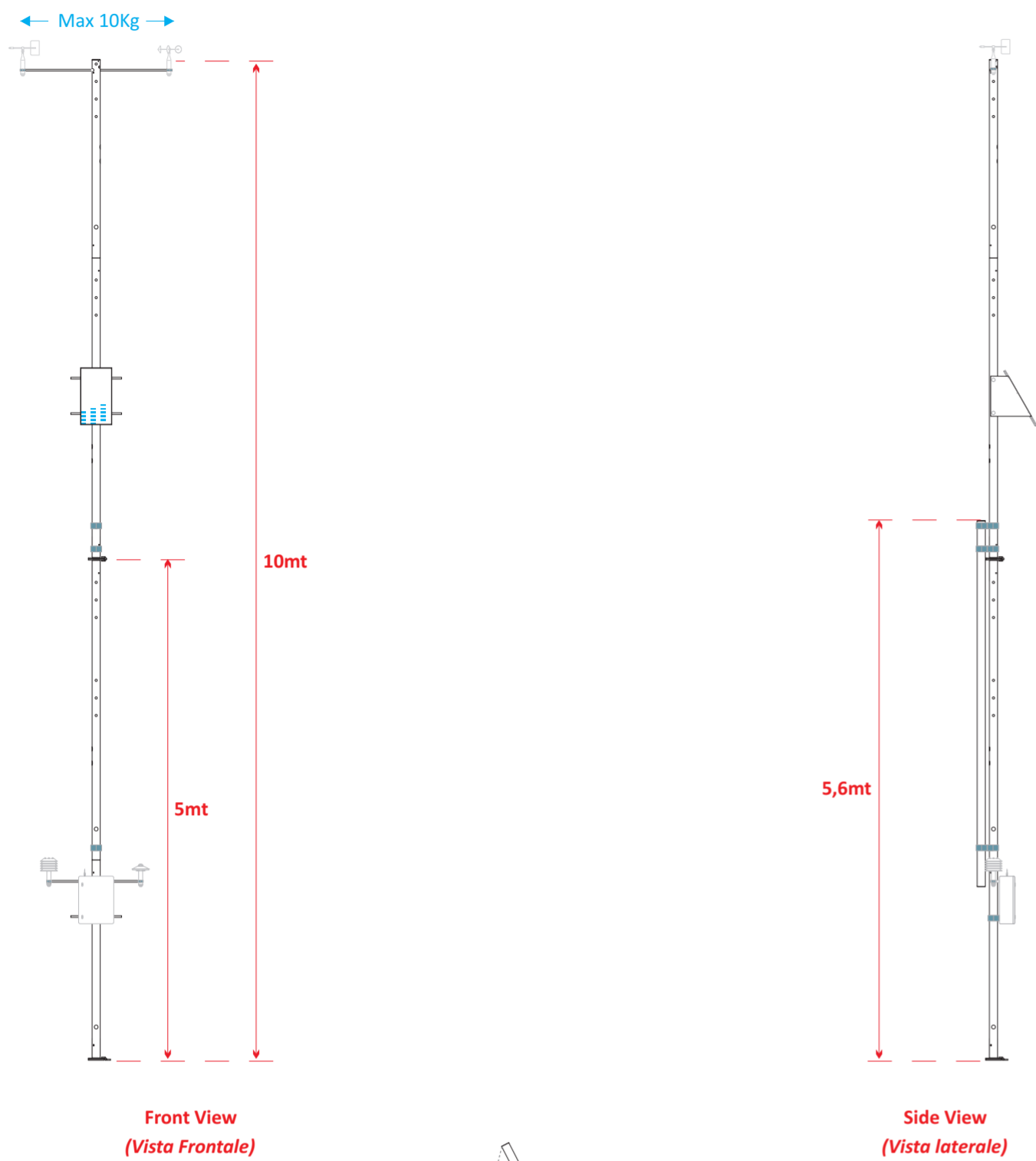
Designed by:	Name:	Date:	Approved:	Sheet:
NESA Srl Environmental Monitoring Systems	Underground WMP6 Station	17-11-14		2/2
NESA Srl - Via sartori 6/8 - 31020- Vidor TV tel. +39.0423.985209 fax +39.0423.985305 - All rights reserved				

PAL 10ABC

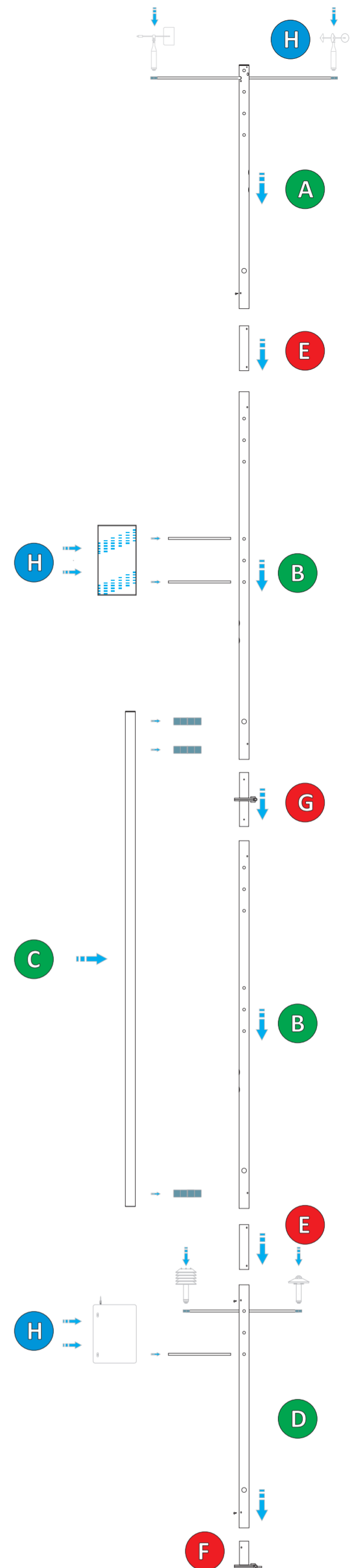
Composition for weather aluminum pole h = 10m, weight 42Kg

Composizione palo meteo Alluminio h = 10mt, peso 42Kg

Allegato G - Annex G



Tilting pole at 5m
(Ribaltamento palo a 5mt)



A

Primary pole $\varnothing 80\text{mm} \times 2\text{m}$ (Elemento Base da $\varnothing 80\text{mm} \times 2\text{mt}$)

B

Extension pole $\varnothing 80\text{mm} \times 3\text{m}$ (Elemento prolunga da $\varnothing 80\text{mm} \times 3\text{mt}$)

C

Extension pole $\varnothing 80\text{mm} \times 1\text{m}$ (Elemento prolunga da $\varnothing 80\text{mm} \times 1\text{mt}$)

D

Extension pole $\varnothing 80\text{mm} \times 2\text{m}$ (Elemento prolunga da $\varnothing 80\text{mm} \times 2\text{mt}$)

H

Arms support sensors 50, 90, 150cm

(Supporti da 50, 90, 150cm)

E

Joint $\varnothing 75\text{mm} \times 30\text{cm}$ (Giunto da $\varnothing 70\text{mm} \times 30\text{cm}$)

F

Base plate with hinge 20x20cm (Piastra base con cerniera 20x20cm)

G

Base plate with hinge 20x20cm (Piastra base con cerniera 20x20cm)

Aluminum poles

Pali in Alluminio

<p>Sistemi di monitoraggio ambientale</p>	Code	Rev.	Date
	PAL10 - ABC	2.0	10 August 2011