HD 32MT.1
METEO DATA LOGGER

The **HD32MT.1** is a **16-channel** data logger capable of capturing and logging the values measured by a series of sensors connected to its inputs.

The data logger is completely programmable by the user and is therefore very versatile. The supplied **HD32MTLogger** application software, supplied with the instrument, allows simple and intuitive programming by using graphic interfaces, without the need of learning any programming language, thus minimizing the time needed to make the system operational.

The values recorded by the instrument can be transferred to a PC by using the **HD32MTLogger** software. The data logger can be configured to memorize the instant value, the minimum value, the maximum value, the average value and the standard deviation of the measurements. For measurements that require the counting of pulses, the total counted pulses can be stored.

Different acquisition/recording intervals can be programmed per each input. Each recording includes acquisition date and time

The data logger has a "flash" internal memory arranged in circular mode: when the memory is full the new data overwrite the older ones. The number of storable measurements depends on the number of sensors employed on the type of measurement and the simultaneous acquisition by the sensors, or on the acquisition on different moments. For example, with 8 sensors capturing at the same instant you can store 100,000 records, each one composed of 8 instantaneous measurements.

Data can also be directly recorded to a removable **SD**-type memory card with a capacity of **2 GB**. The use of a memory card allows extending the memory capacity of the instrument, allowing not to loose the data when the memory is full.

We have two versions of the data logger, according to the possibility of communication with the PC:

• **Basic version**: the communication with the PC for data transfer or programming is done via cable connection.

• **Version with Radio Modem option**: in addition to the direct cable connection to your PC, you can transfer the data and programming by **VHF** radio using optional external radio modems.

Both versions can be equipped with an optional **GSM** module to be connected externally to the instrument, through which you can send **SMS** alarm messages to cell phones and send the recorded data by **e-mail** or to an **FTP** address.

The instrument can be connected to all common sensors used in industrial and environmental to the instrument, with both analog output and digital output.

The typical sensors that can be connected to the instrument are:

• sensors with analog voltage output, both unipolar and bipolar;
• sensors with analog current output (0…20mA, 4…20mA);
• temperature sensors thermocouple (type K, J, T, N, R, S, B, E);
• Pt100/Pt1000 and NTC temperature sensors;
• sensors with digital output TTL level pulse (ON/OFF);
• sensors with open/close contact output (e.g. rain gauges, cup anemometers);

The data logger is also equipped with a RS485 port specifically designed for connection of the anemometers Delta Ohm HD2003 and HD52.3D series.

There are potential-free contact alarm outputs and digital alarm outputs. The outputs are activated if the values measured by sensors connected to data loggers exceed the programmed threshold.

The instrument is particularly suitable for use in weather stations, for the detection and remote transmission of climatic variables. Delta Ohm manufactures a wide range of sensors for measuring environmental variables that can be connected to the data logger, including sensors for measuring temperature, humidity, barometric pressure, wind speed, solar radiation, amount of rainfall, etc.

The data logger can be supplied with a program of measures and stores pre-installed according to specifications of the customer, in order to be operational immediately after installation of the system. The program is installed directly from Delta Ohm to meet the required specifications when ordering.

The system can also be powered by a solar panel and battery of adequate capacity, allowing for installation in remote sites without electrical power.

An internal lithium battery keeps the date and time of the instrument in the absence of external power.

Technical characteristics

Sizes	222x140x63 mm
Weight	About 1 kg
Case material	Coated aluminium
Operating conditions	-20 … 50°C, 0 … 85% RH no condensation
Storage temperature	-25 … 65°C
Power Supply	12 … 30 Vdc
Absorption	40mA @ 12 Vdc
Data acquisition interval from sensors	Programmable from 1 to 60 seconds
Data logging interval	Programmable from 2 seconds to 24 hours
Storage capacity	4 MB internal memory SD memory card reader up to 2 GB
Number of samples that can be stored	The storage of a record consisting of N values requires (4 x N) bytes of memory plus 8 bytes for the date and time.
Analog inputs	8 channels, each channel can be used as a differential input or alternatively as 2 single-ended inputs. Measurement ranges: ±25mV, ±100mV, ±1000mV, ±2500mV Resolution: 16 bit, Accuracy: 0.01% f.s. Input impedance: 100Mohm
Digital input/output ports (I/O)	8 ports, each configurable as an input for connecting a sensor or alarm output. TTL logic levels (0⇒Vin<0.8V, 1⇒Vin>3V) Max. input voltage: 5.5 V
Inputs for high frequency pulse counting	2 inputs Frequency of pulses 50kHz max. TTL logic levels (0⇒Vin<0.8V, 1⇒Vin>3V) Minimum pulse duration 10 µs
Inputs for number of potential-free contact opening/closing counting	2 insulated inputs Switch frequency 50Hz max. Minimum opening or closing time 10 ms
RS485 connection	1 RS485 port for connection of anemometers HD2003 and HD52.3D… series
RS232 connection	2 RS232 ports, one for connection to PC or to **optional** Radio Modem and one for connection to **optional** GSM module. Sub-D 9-pole male connectors
Alarm outputs	2 insulated voltage-free contact outputs Contact: max. 1A @ 30Vdc resistive load You can configure the single digital I/O ports as alarm outputs
Auxiliary supply outputs	+5V regulated, max. 500 mA +Vsw (switched): with same value of the power input, **it is active only during acquisition of measurements**

Environmental Analysis

DESCRIPTION OF TERMINALS

1. **PWR** input,power supply 12…30Vdc.
2. Switched Power Output **+Vsw**. It has a value equal to the input of power, but is active only during the acquisition phase of the measures.
3. Regulated power supply output **+5V**.
4. Inputs for analog signals. They are divided into 8 channels corresponding to 8 differential inputs (**BIP** channels) or 16 single-line inputs (**UNI** channels). The differential input number is indicated in white on the left of the terminals.

   Each channel consists of four terminals:

   Terminal **E** (*): Excitation voltage. Used only in certain measurement configurations.

   Terminal **H**: If the channel is used as a differential input, corresponds to the connection "+" input signal.

   If the channel is used for single-line inputs, corresponds to the connection "+" input signal of the single-line channel whose number is indicated in yellow on the left side of the terminal.

   Terminal **L**: If the channel is used as a differential input, corresponds to the connection "-" input signal.

   If the channel is used for single-line inputs, corresponds to the connection "+" input signal of the single-line channel whose number is indicated in yellow on the left side of the terminal.

   Terminal **G**: Analog ground. It is at the same potential power of the mass.

   If the channel is used for single-line inputs, corresponds to the connection "-" input signal.

5. Terminal for connecting protective earth.
6. Channel Input / Output Digital. There are 8 channels that can be used as inputs for connecting sensors with digital output ON / OFF, or as alarm outputs.
7. Not used.
8. PULSE inputs for counting high frequency pulses. There are two inputs, marked P1 and P2.
9. SW IN isolated inputs for counting the number of closures / openings contacts. There are two inputs, marked 1 and 2.
10. Dry contact alarm outputs. There are two exits, marked 1 and 2.
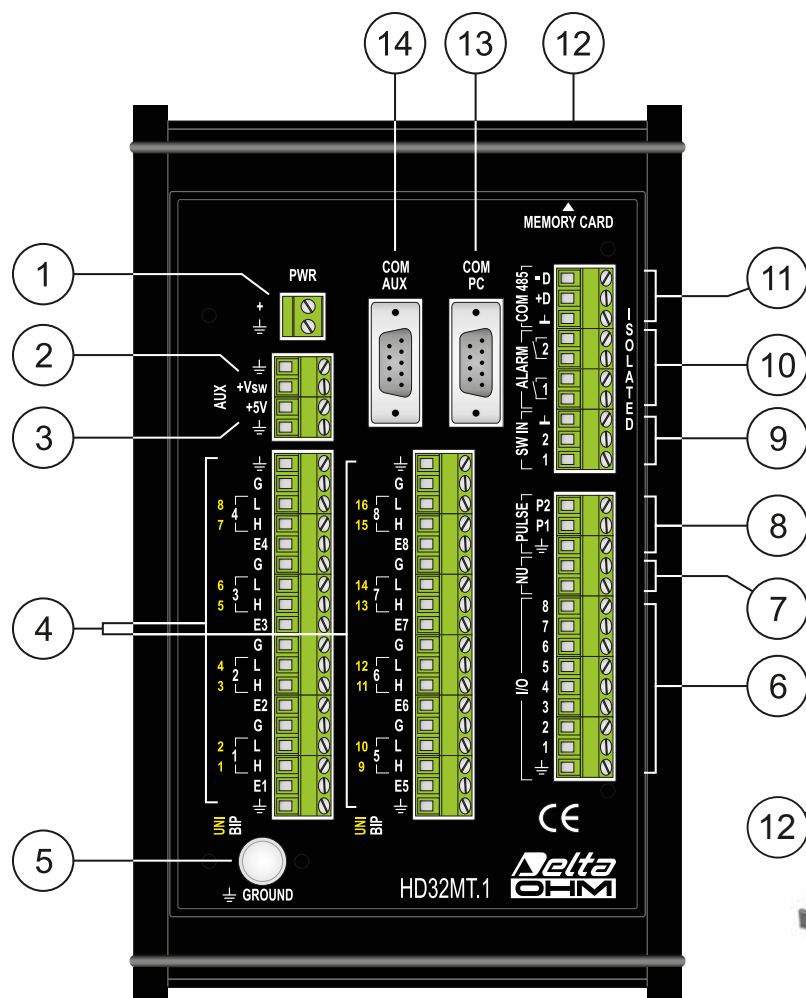11. RS485 serial port dedicated specifically to the connection of Delta Ohm anemometers series HD2003 and HD52.3D.

The connection to the RS485 port of anemometers other than indicated airspeed may not work properly due to a different communication protocol.

12. Memory Card Reader.
13. PC COM RS232 serial port for direct connection to PC or to connect the radio modem option (only for version Radio Modem).

14. AUX COM RS232 serial port for connecting the optional GSM module.

(*) The letter E is followed by channel number (E1, E2, E3, etc..). For simplicity, this manual uses only the letter E to indicate the excitation of a generic terminal channel. The actual number of terminals to be used will be indicated by the diagram of connection depending on the required connection.
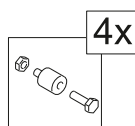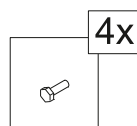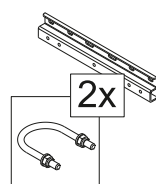

HD 32.35FP

HD 32.35
HD 32.35FP
HD 32.36
HD 32.36FP

HD32.36: Outdoor housing complete with acquisition system for weather stations. **Material: Polyester with fiberglass-reinforced hot-pressed**. Screen to protect the housing from solar radiation, powder-coated anodized aluminum. White. Key lock. Dimensions 415 x 310 x 170 mm. Degree of protection IP66. Supplied with accessories for attachment to the stainless steel pole diameter 36 ÷ 52 mm. **Provided for 100 ÷ 240Vac mains power supply**, includes: HD32MT.1 datalogger, AC/DC power supply unit with integrated battery charger, 12V rechargeable backup battery, surge protectors, disconnectors, terminal block for power supply distribution and connectors for connecting the external sensors. **Wired and tested.**
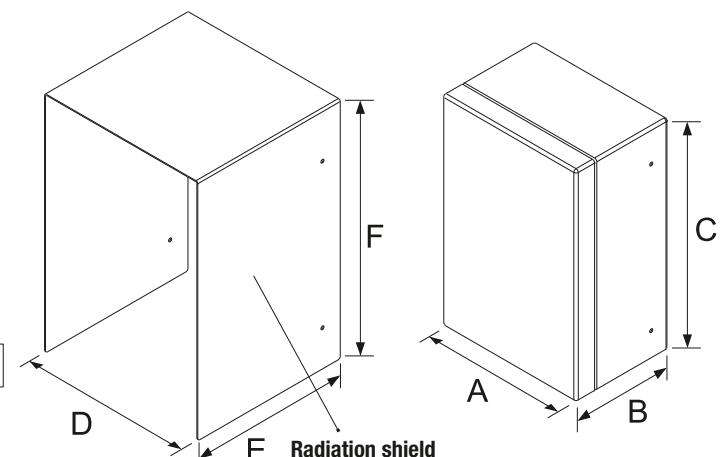
HD32.36FP: Outdoor housing complete with acquisition system for weather stations. **Material: Polyester with fiberglass-reinforced hot-pressed**. Screen to protect the housing from solar radiation, powder-coated anodized aluminum. White. Key lock. Dimensions 415 x 310 x 170 mm. Degree of protection IP66. Supplied with accessories for attachment to the stainless steel pole diameter 36 ÷ 52 mm. **Provided for power supply from solar panel**, includes: HD32MT.1 datalogger, solar charge controller, terminal block for power supply distribution and connectors for connecting the external sensors. **Wired and tested.**

HD 52.35 - HD 52.35FT - HD 52.36 - HD 52.36FT
DATA ACQUISITION SYSTEM FOR METEO STATIONS

HD32.35: Outdoor housing complete with acquisition system for weather stations. **Material: AISI 304 stainless steel**. Screen to protect the housing from solar radiation. Powder-coated white. Double locking one of which is a key. Dimensions 450 x 300 x 210 mm. Degree of protection IP66. Supplied with accessories for attachment to the pole diameter 36 ÷ 52 mm. **Provided for 100 ÷ 240Vac mains power supply**, includes: HD32MT.1 datalogger, AC/DC power supply unit with integrated battery charger, 12V rechargeable backup battery, surge protectors, disconnectors, terminal block for power supply distribution and connectors for connecting the external sensors. **Wired and tested.**

HD32.35FP: Outdoor housing complete with acquisition system for weather stations. **Material: AISI 304 stainless steel**. Screen to protect the housing from solar radiation. Powder-coated white. Double locking one of which is a key. Dimensions 450 x 300 x 210 mm. Degree of protection IP66. Supplied with accessories for attachment to the pole diameter 36 ÷ 52 mm. **Provided for power supply from solar panel**, includes: HD32MT.1 datalogger, solar charge controller, terminal block for power supply distribution and connectors for connecting the external sensors. **Wired and tested.**

HD 32.35FP

	mm					
	A	B	C	D	E	F
HD32.35 HD32.35FP	300	210	450	340	235	502
HD32.36 HD32.36FP	310	170	415	350	195	470

2x
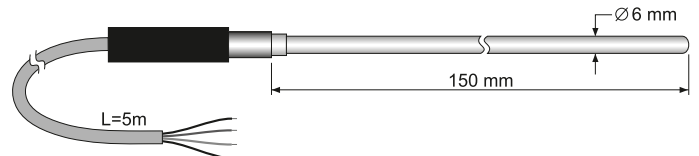
4x

4x

Radiation shield
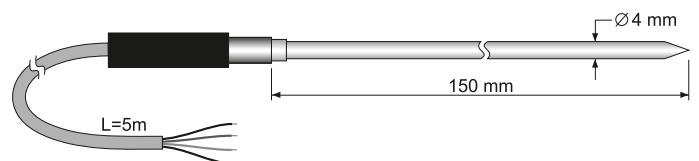
TEMPERATURE PROBES

TP32MT.1P: 4-wire 1/3 DIN Pt100 temperature probe, Ø 4mm, L=150mm, pointed, 5m cable, isolated sensor. Temperature working range -40…+100°C.
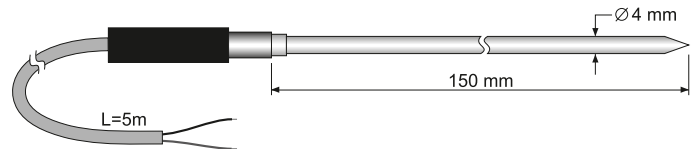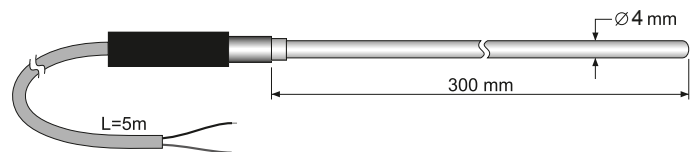

TP32MT.2: 4-wire 1/3 DIN Pt100 temperature probe, Ø 6mm, L=150mm, 5m cable, isolated sensor. Temperature working range -40…+100°C.

TP32MT.11P: T type thermocouple temperature probe, Ø 4mm, L=150mm, pointed, 5m cable, isolated. Temperature working range -40…+100°C.


TP32MT.12: T type thermocouple temperature probe, Ø 4mm, L=300mm, 5m cable, isolated. Temperature working range -40…+100°C.

HD 53GSM
QUAD-BAND GSM/GPRS MODULE

HD53GSM is a wireless quad-band GSM/GPRS modem. The module is controlled via standard RS232 serial interface and AT commands. It features:
• SIM card slot,
• SMA antenna connector,
• power line connector with remote on/off line,
• two status LED: the *POWER* LED is switched on when the GSM is powered,
                      the *NET* LED indicates the connection status to the GSM net,
• RS232 Sub-D 9-pin connector.

Specifications:

Frequency band (MHz)	GSM850, GSM900, DCS1800, PCS1900
Output power	Class 4 (2W) @ GSM850 and GSM900
	Class 1 (1W) @ DCS1800 and PCS1900
Antenna connector	Female SMA, 50 ohm
Interface	RS232, Sub-D 9-pin connector
SIM	1.8V and 3V SIM card slot
Power supply	8…28Vdc, with removable terminal block and ON/OFF pin
Operating temperature	-35…+80°C

Other features:
• Controllable via AT commands
• TCP/IP stack integrated
• Power Saving Mode

TEMPERATURE PROBE FOR SOLAR PANELS
TP878.1SS

TP878.1SS: CONTACT PROBE FOR SOLAR PANELS, Pt100 4-wire. Cable 5m. Temperature working range +4°C…+85°C.
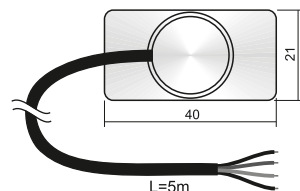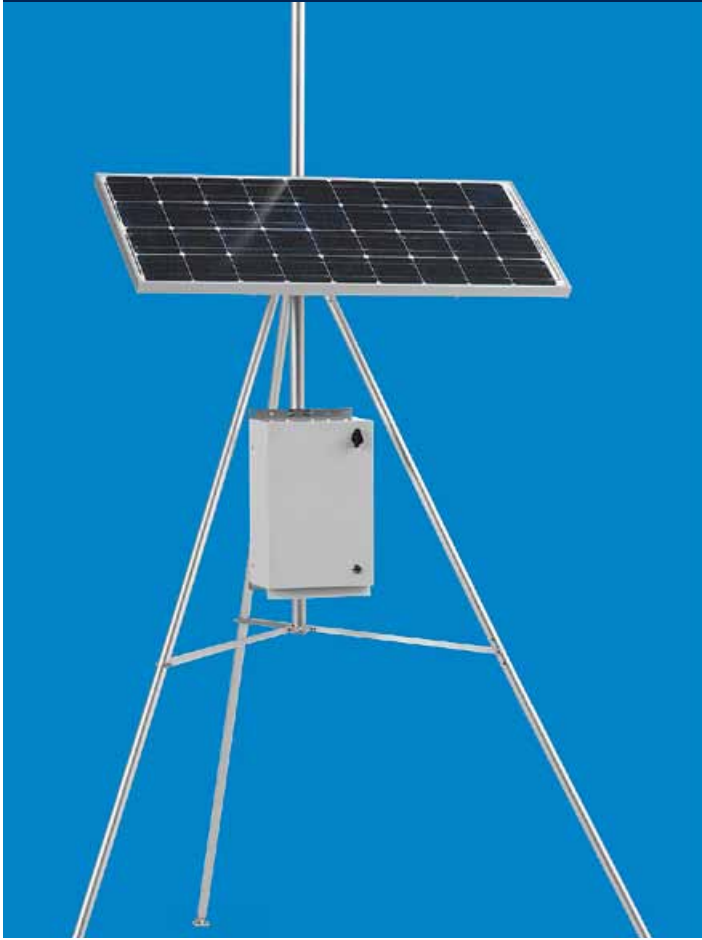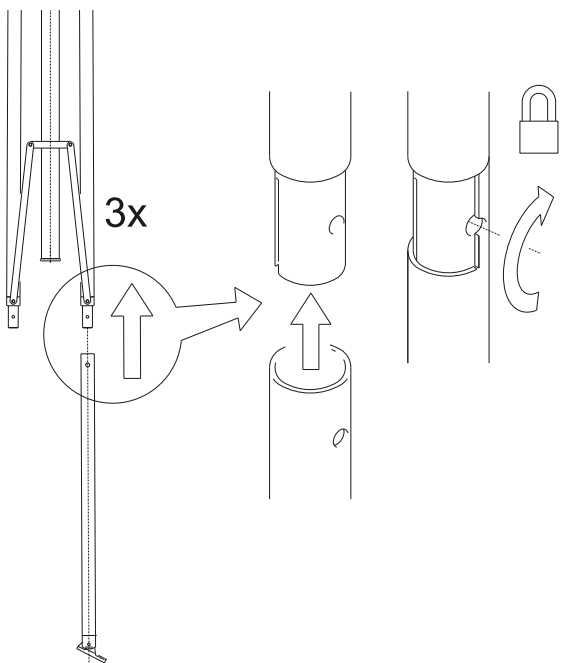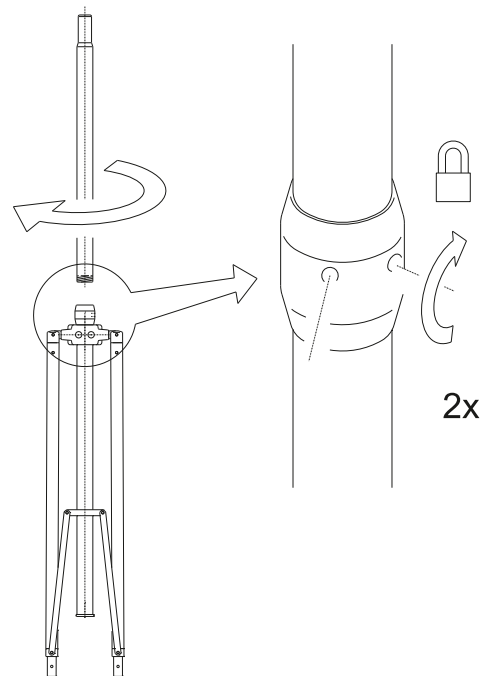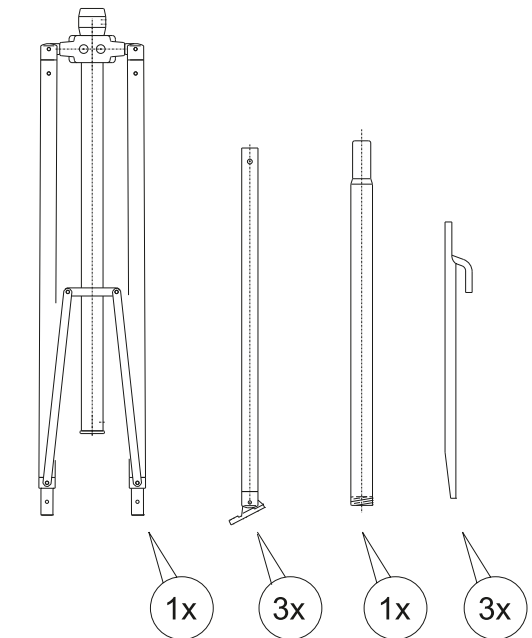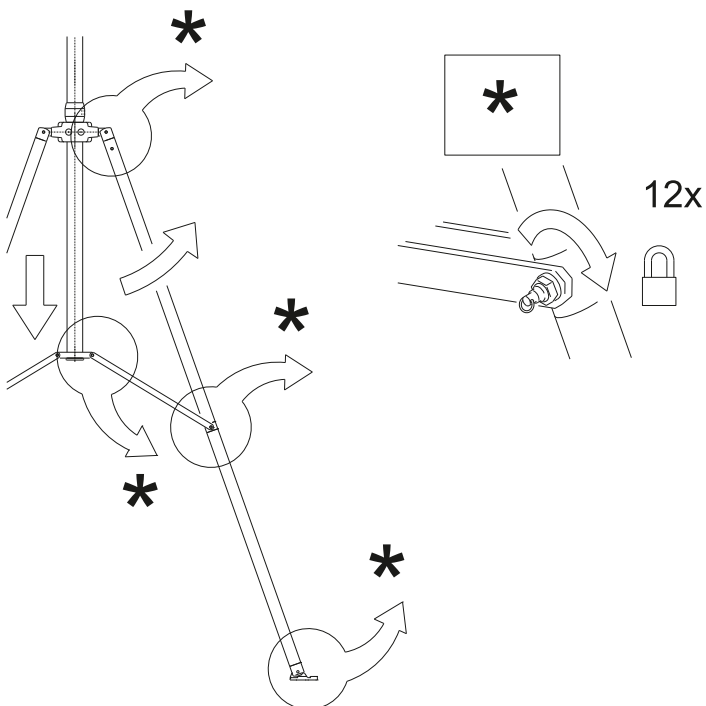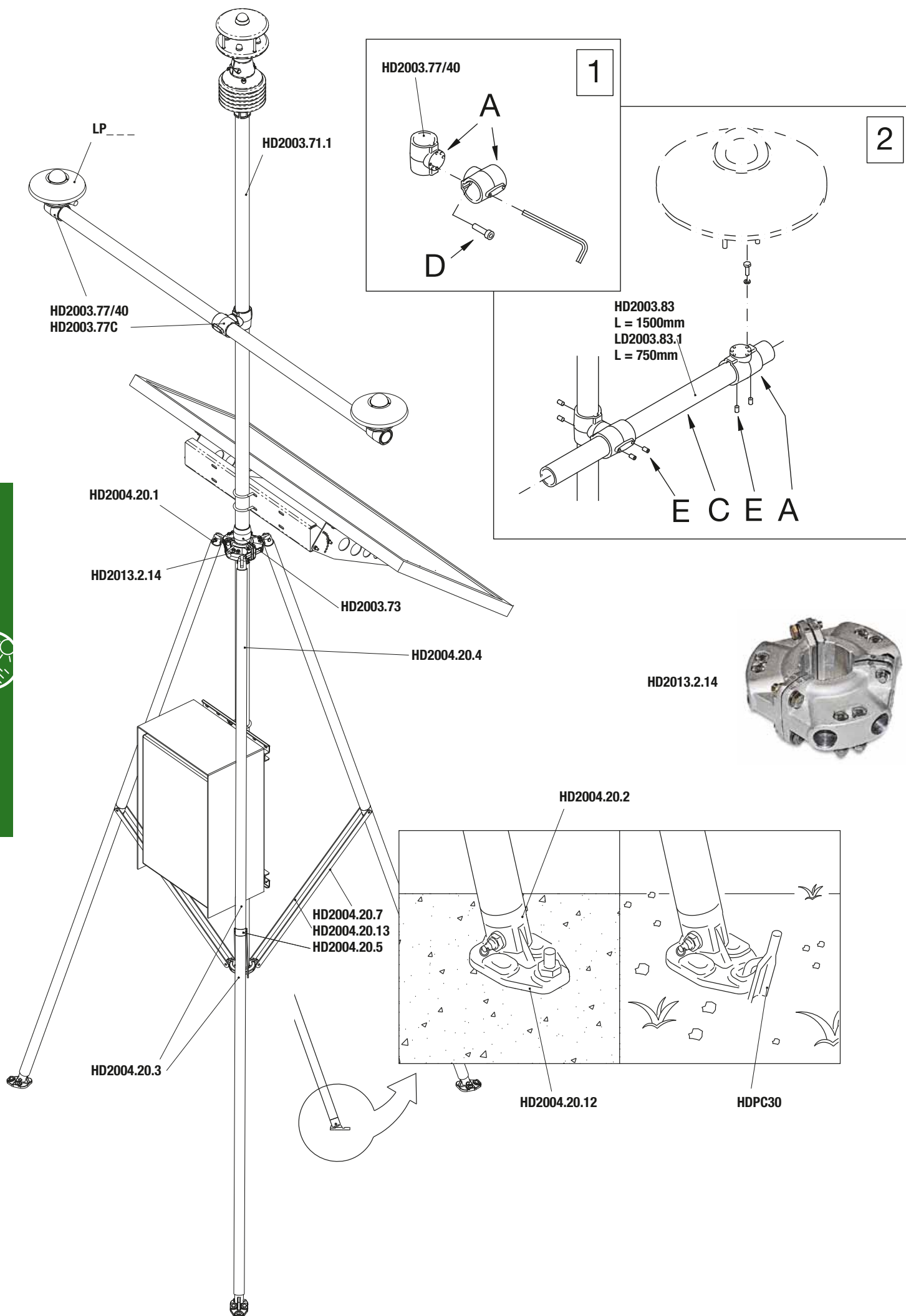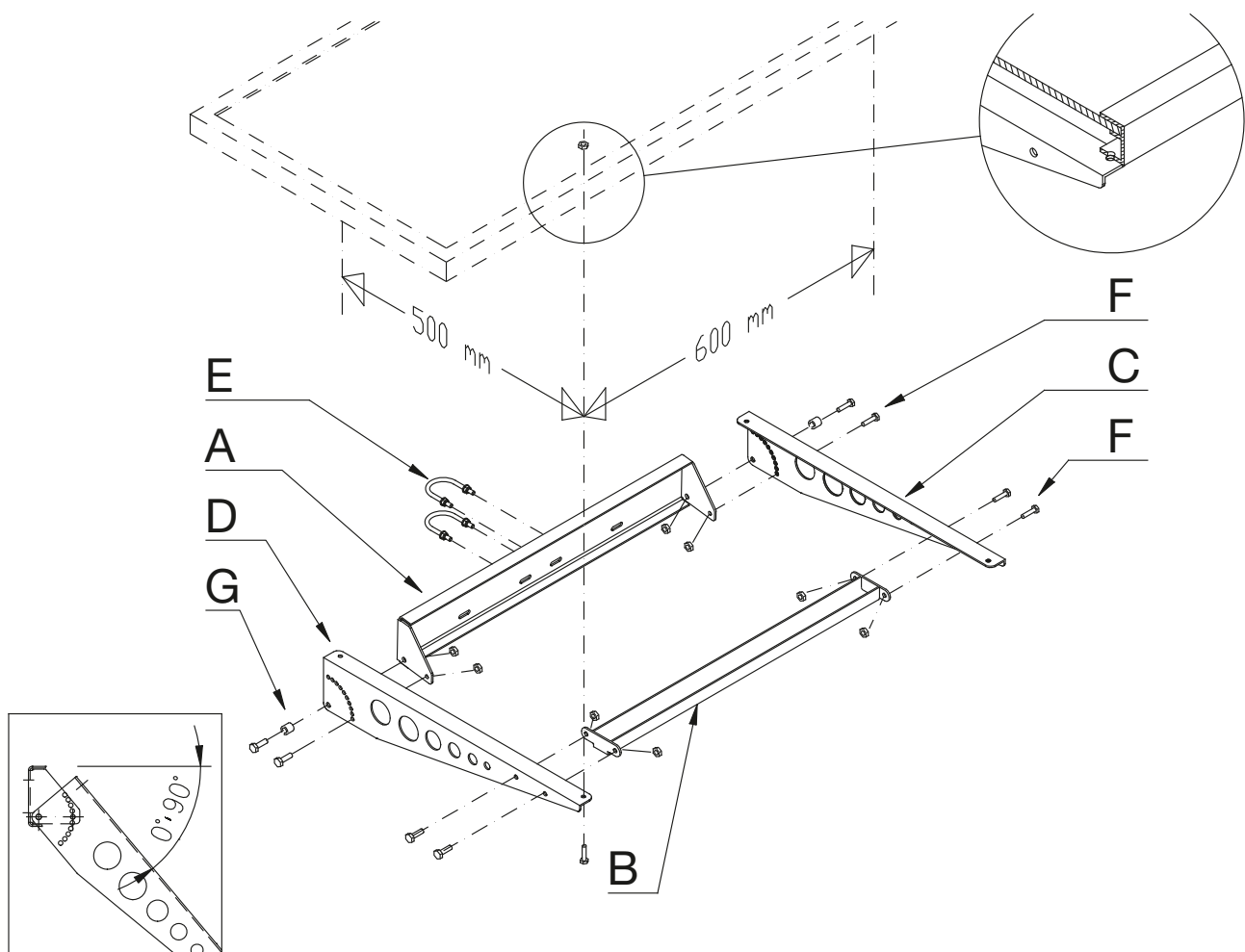
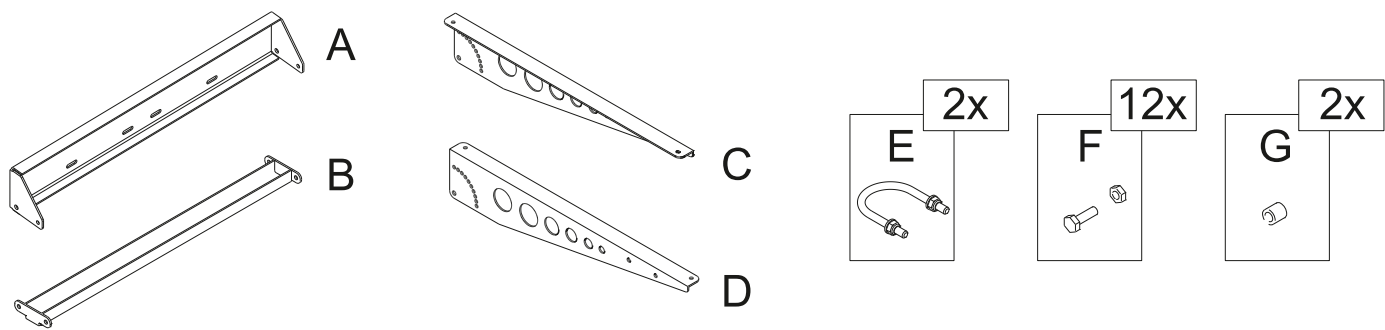## HD 2004.20
HD 2004.22

HD2004.20 TRIPOD
HD2004.22 BRACKET FOR SOLAR PANEL

HD2004.20: Tripod kit for installing anemometers on a flat ground. Height 3m. Material: anodized aluminium.

HD2004.22: 1200x530x34mm Solar panel mounting kit to a Ø40÷50mm pole. AISI 304 stainless steel.

1x   3x   1x   3x

2x

12x

3x

HD2003.77/40

1

2

LP_ _ _

HD2003.71.1

HD2003.77/40
HD2003.77C

A

D

HD2003.83
L = 1500mm
LD2003.83.1
L = 750mm

E C E A

HD2004.20.1

HD2013.2.14

HD2003.73

HD2004.20.4

HD2013.2.14

HD2004.20.2

HD2004.20.7
HD2004.20.13
HD2004.20.5

HD2004.20.3

HD2004.20.12

HDPC30

A

B

C

D

2x	12x	2x
E	F	G

500 mm

600 mm

F

E

A

D

G

C

F

B

0÷90°

HD2004.22

Kit HD2004.22