



easySPT Family

Installation and maintenance



All text and images right are reserved to:

CAVAZZA ANNA Sas

Via Algardi 5

40128 Bologna (ITALY)

C.F./P.IVA 02647311204

www.easyspt.com

info@easyspt.com

Summary

1	PREMISE.....	3
2	TECHNICAL SPECIFICATIONS.....	3
2.1	MECHANICAL CHARACTERISTICS.....	3
2.2	ELECTRONIC CHARACTERISTICS.....	3
2.3	FLOW SENSOR CHARACTERISTICS.....	3
3	CHECK-LIST OF THE THREE CONFIGURATIONS.....	4
4	FIRST TIME ASSEMBLY (SKIP THIS CHAPTER FOR “LIGHT” VERSION).	5
4.1	ASSEMBLY RAIN SHIELD.	5
4.2	ASSEMBLY WIND VANE.....	5
4.3	TRIPOD WITH SOLAR PANELS.	6
4.4	OPENING OF THE TRIPOD AND INSTALL THE SLIDING CONTACT.	6
4.5	INSTALL THE DOUBLE SOLAR PANEL (20W).....	7
4.6	INSTALL THE SAMPLER.....	8
4.7	TIPS FOR FIXING TO GROUND.	8
5	POWER SOURCES.....	9
5.1	MAINS SUPPLY.....	9
5.2	BATTERY.	9
5.3	BATTERIES MAINTENANCE.....	9
6	CLEANING AND MAINTENANCE.....	10
7	PACKAGING.....	11
8	PROBLEMS AND SOLUTIONS.	12
9	WARRANTY.....	13



easySPT Family

Installation and maintenance

Date:	25/06/2024
Revision:	1.00
Page:	2 / 13

1 PREMISE

New volumetric and cyclonic sampler for pollen, spores and other airborne particles between 1 and 100 μm in size. The impactor is of the "HIRST" type, complies with the EN16868:2019 standard and is certified in capture efficiency. It can be supplied with an interchangeable daily or weekly sampling head. The Cyclonic uses a reverse flow Cyclone head. All are battery powered, equipped with an internal flowmeter, are easy to transport and handle. It houses up to 4 groups of batteries ensuring continuous operation, without external power supply, from 1 to 5 days. The pump speed and flow rate are electronically controlled and for the flow the regulation accuracy is 0.5l/m. The instrument is completed by a control panel for setting the system operating parameters.

2 TECHNICAL SPECIFICATIONS

2.1 Mechanical characteristics


Characteristic	easySPT100	easySPT300
Size	L: P 370mm: 220mm H: 140mm	
Weight (empty)	5kg	
Weight (Full)	7kg	9Kg
Height short legs	H: 300mm - \varnothing 500mm	
Height long legs	H: 1000mm - \varnothing 1000mm	
Materials	Alluminum and Polyethylene	
Suction nozzle	2x14 mm	
Flow regulation	4 up to 15l/m	
Sampling surface	Transparent strip	Eppendorf 1.5ml
Surface transalction	2 \pm 0,02 mm/h	
Safety standard	CEE 73/23 and 89/336/EE	

2.2 Electronic Characteristics

Characteristic	easySPT100	easySPT300
External DC IN	Min: 13.8V, Max: 21V	
Battery operating voltage	Low: 9V, Max: 13V	
Pump informations	Brush motor 80mAh / 6000h	
Batteries	Max 12 cylindrical elements mod.18650 2200mAh 3.6V rechargeable lithium batteries.	
Battery protection.	<ul style="list-style-type: none"> • Minimum level 9.5V with automatic detachment. <ul style="list-style-type: none"> • Temperature • Maximum charge level. Auto power off in standby.	
Battery Duration	5 days with batteries full charged	3 days with batteries full charged
Charging time:	MPPT (Maximum power point tracking) charging system with a maximum current of 1500mAh. With all batteries inserted the average time to full charge is about 8 hours.	
Solar Panel	2x20W 21V open circuit.	

2.3 Flow Sensor Characteristics

Flow measurement	From 5 l/m up to 20 l/m \pm 0.5 l/m
------------------	---------------------------------------

	easySPT Family	Date: 25/06/2024
	Installation and maintenance	Revision: 1.00
		Page: 3 / 13

3 Check-list of the three configurations



Light Version

- 1) easySPT100/easySPT300 LIGHT.
- 2) Allen key.
- 3) Power supply adaptor.
- 4) Power supply.



Base Version

- 1) easySPT100/easySPT300 Base.
- 2) Rain shield.
- 3) Wind vane.
- 4) Power Supply.
- 5) Power supply adaptor.
- 6) Mains cord for supply.
- 7) Allen keys and Knobs.
- 8) 10M extension cord.
- 9) Short legs fixing base.
- 10) Short legs.
- 11) Rotating contact.



Full Version

- 1) easySPT100/easySPT300 Full.
- 2) Rain shield.
- 3) Wind vane.
- 4) Power Supply.
- 5) Power supply adaptor.
- 6) Mains cord for supply.
- 7) Allen keys and Knobs.
- 8) 10M extension cord.
- 9) Short legs fixing base.
- 10) Short legs.
- 11) Rotating contact.
- 12) Double solar panels adaptor.
- 13) Tripod (divided in two parts)
- 14) Solar panels.



4 First time assembly (Skip this chapter for “Light” version).

The instrument and its components have been designed to minimise bulk and weight during transport. In addition, some components have been disassembled to protect them during transport. For these reasons, it is necessary to assemble these parts once you receive the box and complete the instrument.

4.1 Assembly rain shield.

The screws are installed on the cover so unscrew it with the correct Allen key. After that put the shield with circular shape, figure 4.1.1, on the front of the cover and screws it. Fix the other shield on the rear of the cover and screws it (figure 4.1.2).



Figure 4.1.1



Figure 4.1.2

4.2 Assembly wind vane.

The screws are installed in the handle, so unscrew them and put the wind vane holes in correspondence of the holes in the handle. Using the Allen key tighten the two screws and fix the wind vane in the handle (figure 4.2.1). The instrument is now assembled (figure 4.2.2)

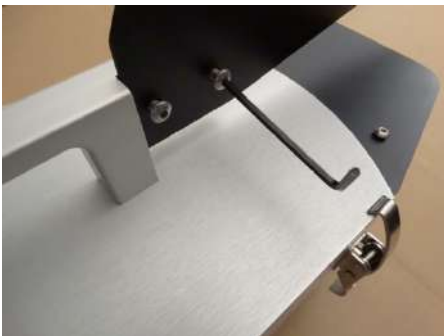


Figure 4.2.1



Figure 4.2.2

4.3 Tripod with solar panels.

The long legs tripod has been thought to be able to position the tool outside, secure it to the ground and allow the installation of a solar panel for charging the batteries.

It is made of aluminium, is simple to assemble and enables a robust and reliable support to the instrument.

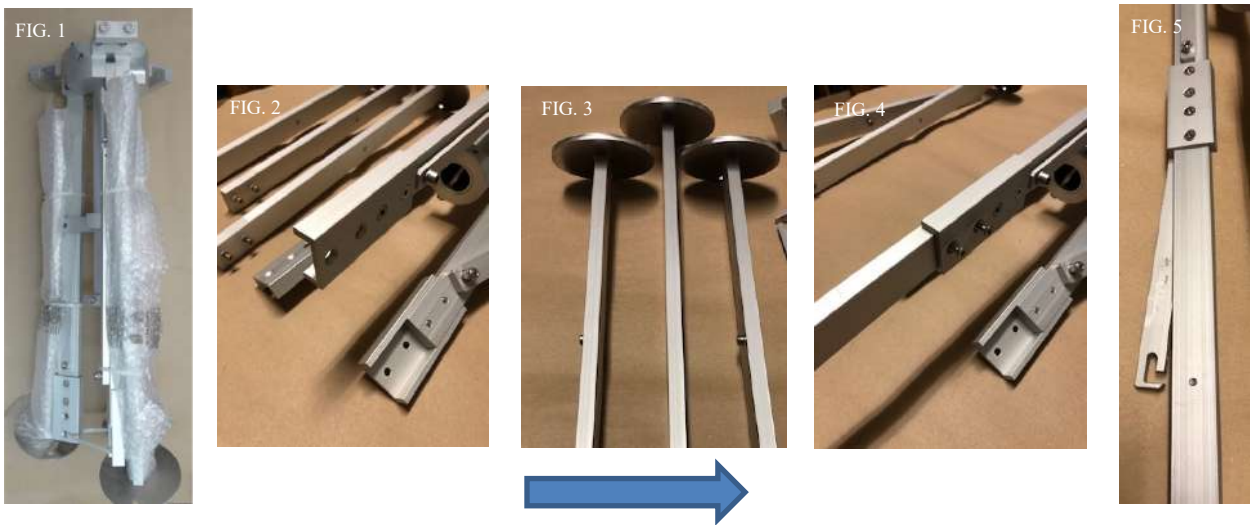
It consists of three main parts:

- Tripod.
- Rotating contact.
- Solar Panel, double 20W panel (only for full version).

It is important to find a positioning area as flat as possible because for the correct operation of the instrument, rotation in the wind direction, it is essential that the instrument will be horizontal. This is the reason why on the top of the cover is present a “bubble level” to allow and easy horizontal positioning.

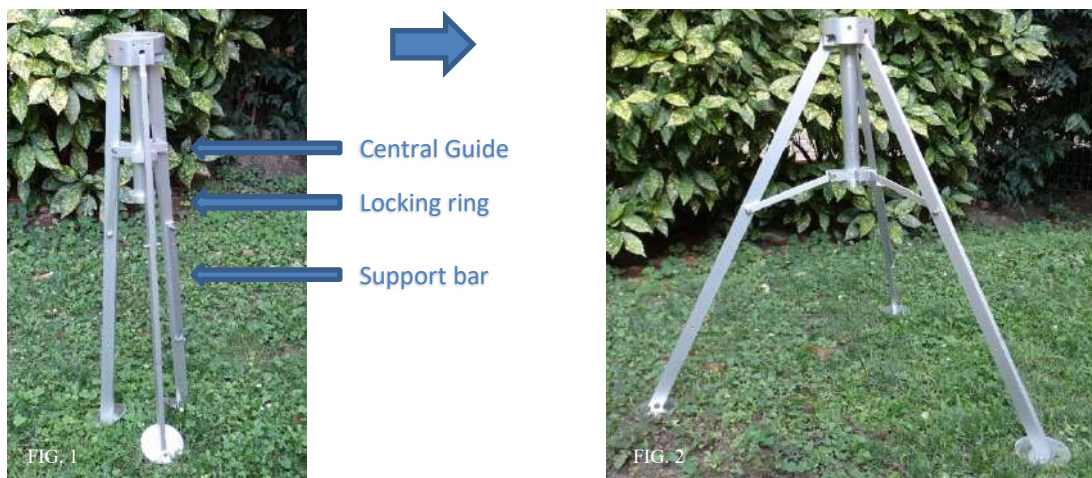
The new version of the tripod is divided in two parts to fit inside instrument carton box and facilitate transportation. For this reason it’s necessary to mount all parts before position it.

You will find 3 legs (Fig.3), with circular foot, and each of them are provided with two Allen screws installed on correct side. During transport these three legs are fixed to the other part of the tripods using plastic clamp (Fig.1). Each leg is clamped to the half-leg where it must be mounted. When you receive the tripod you have to free legs by cutting these clamps. The suggestion is to free one leg at a time and fix it to the corresponding half-leg where it has been clamped, before free other leg. Below from Fig2 to Fig4 the step to install legs.



4.4 Opening of the tripod and install the sliding contact.

To open the tripod lift slightly from the ground, in an upright position, as in the image to the left, and extend the legs until the central guide does not reach the locking ring.



Once you open the tripod, you can use a bubble level to make it horizontal. If you do not have a bubble level it is possible to perform this operation once the sampler is fastened to it using the bubble level on the cover. Next operation is to fix the sliding contact on the tripod.



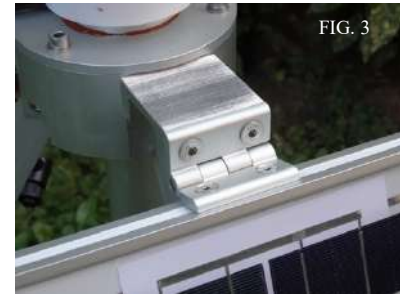
The base has 3 holes in which to insert the fixing screws of the sliding contact. Place the sliding contact with the input cable, bottom cable, in correspondence of the support bar of the solar panel.

Fixed the sliding contact at the base of the tripod is now possible to mount the solar panel.

If you check the base of the tripod, where you fixed sliding contact, you can find three bevels at 120 degree. For each bevels you can find two holes for screws. The distance between this two holes is the same of the holes in the hinge installed on the solar panels. In the next chapter we will describe how to install solar panels on the tripod.

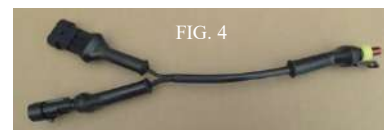
4.5 Install the double solar panel (20W)

The installation of the two solar panel is similar to the previous chapter 3.2. The main difference is that the tripod is provided with two extension, Fig.1 and Fig.2. To fix the two solar panel use the screw provided and the Allen key also provided (Fig.3)



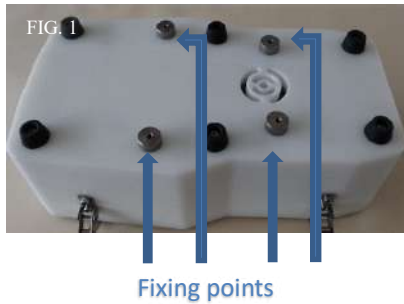
Fix the two panels using the two extensions present in the tripod base (Fig.5). After that you have to connect the two solar panels with the cable coming from the sliding contact (Fig.6). For this purpose we provide a cross cable like in Fig.4.

Use the support bars, figure Fig.7, to fix solar panel with the right inclination. As explained before is important to turn the sampler in south direction to have maximum performance of the solar panel.



4.6 Install the sampler.

The sampler is equipped, on the basis, of 4 fixing points identified by the arrows (Fig.1). These attachment points are not symmetrical but two, those from the nozzle side, are wider than the other two. The support base is similar to a "T" then the two wider fixing point will be placed on the widest part of the sliding contact. Then use the knobs provided to hold the four points as in the image (Fig.2). Connect the cable of the sliding contact to the DC connector on the rear panel (Fig.3).



4.7 Tips for fixing to ground.

To avoid problems in case of strong wind, the sampler should be fixed as firmly as possible to the ground. For this reason it is equipped with two fixing solutions:


1. Fixing with picket or plug of the 3 disks.
2. Attaches via weights or loop.

The first solution utilizes the holes present in the three disks (Fig.4). The hole in each of the three support discs allows the use of dowels, screws or pegs for fastening to the tripod soil. If you have an hard surface the screw plug is the most suitable. If the base is made of wood, or a material in which to use self-tapping screws, we recommend the use of screws directly. If, however, the instrument is placed on the ground using picket is the most indicated. In addition to these holes, the stand is equipped with a small pin inside the slide tube (Fig.5). Observing from under the tripod is visible that pin. It's possible, using an hook, to attach a strap to secure the tripod to a weight or fix it to the ground. If you are using a weight is important to size correctly, consider that solar panel acts as a "sail", so we suggest at least 30Kg of weight.

Is however suggested, especially in very windy areas, to use both systems together for a more secure fastening of the instrument.

Please be careful to better fix the instrument to ground because the solar panel are a big surface for the wind.



	easySPT Family	Date: 25/06/2024
	Installation and maintenance	Revision: 1.00
		Page: 8 / 13

5 Power sources.

The instrument is designed to be powered by batteries or external supply that can be power supply or solar panels. The battery provided in some version (Base and Full) allow a sampling duration, without external power, of 5 days for easySPT100 and 3 days for easySPT300. easy

Batteries have a life cycle that depend from different external parameters:

- Number of charge cycle.
- Temperature.
- Discharge
- Etc. etc.

For these reasons there could be situations where batteries are in fail (voltage too low, current too low etc. etc.) and in these situations the system doesn't start. In the failure situation the only possibility is to connect an external power supply.

5.1 Mains supply.

The instrument can be supplied directly form mains using the provided power supply. The external power supply charge batteries, if present, and supply all parts of the instrument (display, pump etc. etc.). When mains fail the instrument continue to sample without interruption if batteries are present (backup).

The commutation between power sources is automatic and the external power supply priority.


5.2 Battery.

The system uses lithium battery of type 18650 with a capacity of 2200mAh. The battery pack contain a maximum of 12 batteries divided into four groups of three batteries in series. This means that in order to charge each battery pack is necessary that the DC IN connector is supplied with a voltage starting from a minimum of 13.8V to a maximum of 21V (typical values of a solar panel). It uses a charging current of 1500mAh, using an MPPT algorithm, allowing a total recharging of batteries in about 5 hours.

5.3 Batteries maintenance.

The batteries should always be kept at a sufficient level of charge to avoid damage. If the batteries drop below 2V per cell is very likely to break it. This can happen even when not in use for a long period due to self-discharge of the batteries. To avoid such problem it is advisable to:


- Before turning off the instrument make sure the batteries are full charged. Otherwise put in charge the instrument with the appropriate power supply.
- If you do not plan to use the instrument for a long time, you should unplug the "activation" cable by unplugging the connector from the cover of "charger."
- At least once a month remember to recharge the batteries using the supplied adapter. Then plug the "activation" cable if disconnected, and supply for at least one day the instrument with the appropriate power supply.

	easySPT Family	Date: 25/06/2024
	Installation and maintenance	Revision: 1.00
		Page: 9 / 13

6 Cleaning and Maintenance

To maintain efficient the instrument some precaution must be taken:

- a) Every time a new sample period is started check the nozzle orifice. It' must be completely free from obstacle, dust or other particles, otherwise there could be a loss in the suction.
- b) The sampling drum must be clean before sampling. Use alcohol, or other similar diluent, to clean the drum surface before put strip on it.
- c) Check the presence of water inside the instrument and remove it if present.
- d) Check the rubber gasket on the body profile. Clean it and use some silicon grease on it. If powder or particles are present on gasket there could be a losses in the suction flow.
- e) During long period of inactivity please clean all instrument internally and externally. Remove water if present and leave the cap opened for a period to allow evaporation.
- f) During long period of inactivity is suggested to place the sampler in a dry and protected place. Leaving the instrument on the outside with pump off could generate problem to pump or clock for humidity. Indeed with pump switched on the air flow inside the instrument and avoid humidity deposition.
- g) If you notice that the drum stop before the end of 7 days there could be a problem with the clock. The instrument suck in air and dust. Dust may enter the clock and generate a rotation problem. In this case we suggest to substitute the clock. We can provide a new clock or refurbished one. If you return the broken one, and we detect that it's repairable, we can apply a discount on the new.

	easySPT Family	Date: 25/06/2024
	Installation and maintenance	Revision: 1.00
		Page: 10 / 13

7 Packaging

The instrument is shipped with a cartoon box that guarantees its integrity during transport. It is advisable to check the goods upon receipt as the company Cavazza Anna Sas does not guarantee transport damages if the customer accepts the package from the courier. It is also advisable to keep the same packaging so that it can be reused in case it is necessary to return the instrument to our company. The responsibility for damages deriving from inadequate packaging will be of the customer.

The instrument is provided with Lithium batteries and for this reason is subjected to some restrictions in transport (Dangerous Goods Regulations). You can empty from battery the instrument and send it without battery. In this case you avoid the restrictions but it's clear that we can't test batteries for problems. Other possibility is to declare the content following the instructions of the courier.

For examples DHL report the following table:

Lithium ion and lithium polymer cells or batteries - 2019 IATA DGR							
UN3480 - PI965				UN 3481 -PI966		UN3481 - PI967	
Description	Lithium Cells / Batteries loose (bulk) <i>Important: State of Charge (SoC) of the battery/ cell must not exceed 30%</i>			Lithium Cells/Batteries packed with equipment		Lithium Cells / Batteries contained in equipment	
Section	PI965 - Section II			PI965-Section IB	PI966 - Section II	PI967 - Section II	
Lithium ion cells / batteries capacity	Per cell or battery ≤ 2.7Wh	Per cell: > 2.7Wh but ≤ 20Wh	Per battery: > 2.7Wh but ≤ 100Wh	Per cell: ≤ 20Wh Per battery: ≤ 100Wh	Per cell: ≤ 20Wh Per battery: ≤ 100Wh	Per cell: ≤ 20Wh Per battery: ≤ 100Wh	Per cell: ≤ 20Wh Per battery: ≤ 100Wh
Maximum number of cells / batteries per package and packages/consignment	N/A <i>Only one package per consignment and/or overpack allowed</i>			>2 batteries > 8 cells	Those necessary to power the equipment and 2 spare sets (See "Note 2" for set details)	≤ 2 batteries or 4 cells ≤ 2 packages per consignment	> 2 batteries or 4 cells and consignments with more than 2 packages with ≤ 2 batt. or 4 cells
Maximum net weight of cells / batteries per package	2.5 kg (CAO)	N/A	N/A	10 kg (CAO)	5 kg (PAX & CAO)	5 kg (PAX & CAO)	5 kg (PAX & CAO)
"Description of content" statement as per IATA DGR	"Lithium ion batteries in compliance with Section II of PI965" and "CAO"			"Dangerous goods as per attached Shipper's Declaration" and "CAO"	"Lithium ion batteries in compliance with Section II of PI966"	No Requirements	"Lithium ion batteries in compliance with Section II of PI967"
Required marks and labels						No Requirements	
Accepted in Time Definite International (door to door)	Yes (See "Note 1")			Yes (See "Note 1")	Yes	Yes	Yes
Account approval required for Time Definite Int'l	Yes <i>Separate approval for PI965 Section II</i>			Yes	Yes	No	Yes
Requirements for Air Capacity Sales (airport to airport)	Select "LB" and mention "CAO" in the restricted commodity type			Select "DG" and mention "CAO" in the restricted commodity type	Select "LB" and mention "Section II" in the restricted commodity type	No Requirements	Select "LB" and mention "Section II" in the restricted commodity type
<small>Note 1: Limited service worldwide due to CAO limitations. For additional information please contact your local DHL representative. (PAX – Passenger and Cargo Aircraft, CAO – Cargo Aircraft Only)</small> <small>Note 2: A "set" of cells or batteries is the number of individual cells or batteries that are required to power each piece of equipment.</small>							
Section	PI965 - Section IA (State of Charge (SoC) ≤ 30%)			PI966 & PI967 - Section I			
Per Cell: > 20Wh Per Battery: > 100Wh	Accepted as Air Capacity Sales (See "Note 3") - CAO: ≤ 35 kg UN specification packaging required Fully regulated dangerous goods - Class 9 – Select "DG" and mention "CAO"			Accepted as Air Capacity Sales (See "Note 3") - PAX: ≤ 5 KG or CAO: ≤ 35 kg UN specification packaging required (only for PI966) Fully regulated dangerous goods - Class 9 – Select "DG" and mention "PAX" or "CAO"			
<small>Note 3: Lithium batteries packed according to PI965 Section IA and PI966 / PI967 Section I are not accepted in Time Definite International when transported via road to/from an ADR member state.</small> <small>PI965 Section IA / IB and PI966, PI967 Section I - Cells and batteries must not be packed in the same outer packaging, or placed in an overpack with, dangerous goods classified in Class 1 (except 1.4S), Division 2.1, Class 3, Division 4.1 and Division 5.1. (For PI966 and PI967 Section I is a DHL requirement)</small> <small>PI965 Section II: Cells and batteries must not be packed in the same outer packaging with other dangerous goods. Cells and batteries must not be placed in an overpack with dangerous goods classified in Class 1 (except 1.4S), Division 2.1, Class 3, Division 4.1 and Division 5.1.</small>							
IMPORTANT: RECALLED OR DEFECTED LITHIUM BATTERIES ARE FORBIDDEN FOR AIR TRANSPORT.							

Our instrument is under the section UN3841-PI967 and for this reason the box used for the transport must be marked with the label UN3841 (image on the right). We provided a box with all necessary label so please do not throw or broken the original packaging provided. However if want to use another courier, the main information for transport are:

- 12 batteries 2.2A/h (type 18650)
- Total power installed 95W/h.
- Total weight of the batteries: 500grams.
- Batteries are inside the instrument and protected.

In our web site is also available the Safety Datasheet of the batteries. These informations could be requested by courier.



	easySPT Family	Date: 25/06/2024
	Installation and maintenance	Revision: 1.00
		Page: 11 / 13

8 Problems and solutions.

Problem	Possible cause.	Solutions
Problem to reach flow rate of 10 liters per minutes.	The cover isn't correctly closed	Check the cover of the instrument that is fixed correctly.
	Sealing gasket	Check the seal gasket along the profile of the base. It must be inserted correctly inserted in the guide and must be intact. Also check the presence of powder or particles. Use silicon grease on it to improve the seal.
	Drum distance.	The distance of the internal sampling drum from the nozzle inlet must be correct.
	Orifice obstructed	Check the front orifice and clean it.
System doesn't start when power button is pressed.	Broken pump	Check the pump and if it's broken change it. The main cause of this problem is usually in the bearing and for this reason is possible to ear a big noise.
	Battery level too low.	Connect external power sources in DC IN and, when display start, check under Batt menu the status of the batteries
System doesn't start when you supply it from DC IN.	Battery disconnected.	Check that all cables are connected.
	Broken batteries.	To check if batteries are broken you have to extract it from battery holder. In the chapter 12.1 you can find instructions on how to force batteries bypass.
System seems to be "freezed"	If the user interface doesn't respond to button pressure, nothing happens when you press any buttons, there could be a problem in firmware.	Check the chapter 8.1 where is described how to reset systems.
System isn't visible in the smartphone application	Problem with Bluetooth module.	Check the chapter 8.1 where is described how to reset systems.



easySPT Family

Installation and maintenance

Date:
25/06/2024

Revision:
1.00

Page:
12 / 13

9 Warranty

Cavazza Anna Sas guarantees the instrument, when used according to the instructions in this manual, for a period of 24 months from the date of sale, with the exception of the pump and the batteries which are guaranteed only for the first 2 months from the date of sale.


Defective parts will be replaced free of charge once the actual defect is determined. The replacement will have to be done by our company and the return will have to take place ex our office.

The warranty does not cover failures or damages due to:

- Improper maintenance by the user.
- Unauthorized modifications to parts of the equipment.
- Use of non-original accessories.
- Neglect.

In case of return for repair or maintenance you need:

- If possible, pack the instrument using the original packaging.
- Attach to the shipment a descriptive document which contains all the information necessary for a quick diagnosis of the problem or the reasons for the return.
- Indicate the exact return address and all billing information for the invoice.
- At least one contact person for any requests and clarification. Then name, phone and email.

	easySPT Family	Date: 25/06/2024
	Installation and maintenance	Revision: 1.00
		Page: 13 / 13