100 years Since 1925 SIAP+MICROS Environmental Monitoring Solutions

t018 TPP

Rain and snow Presence Transducer

User Manual and maintenance

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Summary

1 Introduction

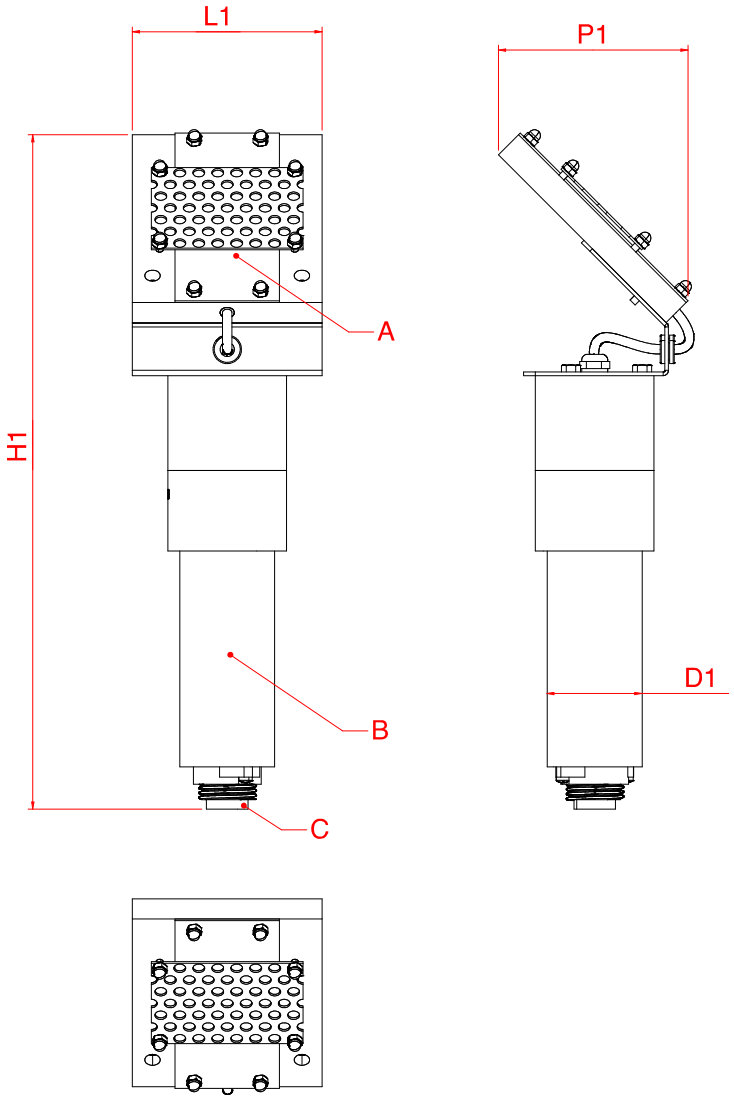
TPP is an excellent easy-to-use device, which allows to detect rainfall, establishing the start and end of the precipitation in a very precise way, not being activated by dew or water condensation. The sensor indeed has been thoroughly designed in order to manufacture a very accurate device, capable of measuring also very short and small precipitation. TPP sensing element is composed of two rolled electrodes, one of whose is pierced and slightly sloped, and they are placed at short distance one from the other. In presence of water the system bursts in electrical conductivity, and a heater located behind the lower rolled surface provides evaporation of the rain residual, dew or ice. The sensor can detect not only the presence of rain, but even the presence of snow if properly configured (upon specific request). TPP is supplied with power and signal cable (4 m).

Ordering codes:

Sensor Natural Output: t018-TPP-N

2 Technical specificaion

Measurement performance			
Transducer	Laminated electrodes and heater		
Measurement range	ON / OFF rain/snow presence time		
Sensibility	1 s		
Accuracy	1 s		
Heating system power	10 W max		
Operating conditions			
Temperature	-10 ÷ +70 °C		
Humidity	0 ÷ 100 %		
Outputs			
Natural	Contatto Relé		
Maximum current reed contact output	1000 mA		
Maximum tension reed contact output	30 W		
Power supply and Consumption			
Voltage supply (versioni uscita non naturale)	6 ÷ 22 Vdc		
Power consumption	Min	Typical	Max
Relay contact		15	
Heater		250	
Mechanical specifications			
Protective body	Plastic material and stainless steel		



Dimension:

H1 – maximum height: 285 mm

L1 – maximum lenght: 80 mm

P1 - depth: 80 mm

D1 – fixing diameter: 40 mm

Element:

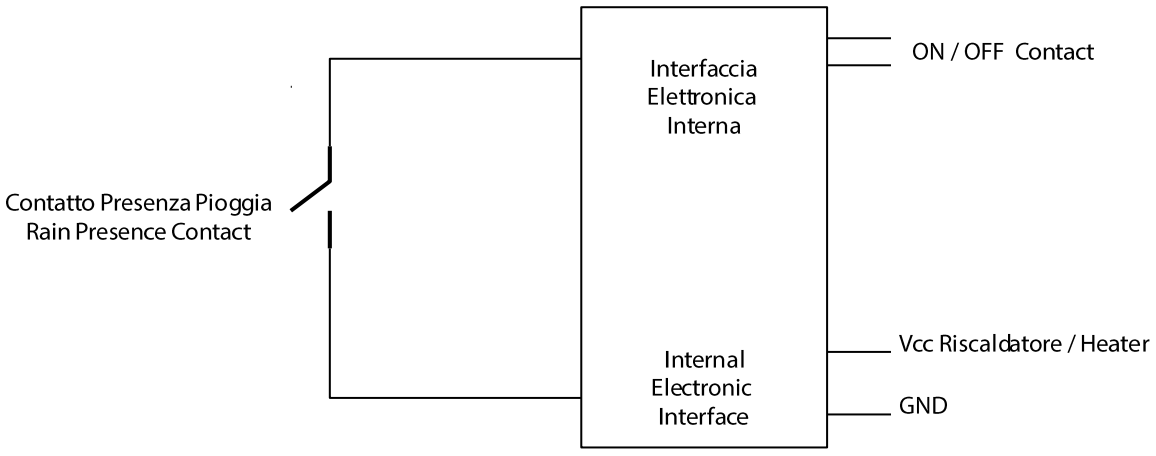
A – sensitive element

B – fixing shank

C – connector

Weight: 410 g

2.1 Operation scheme



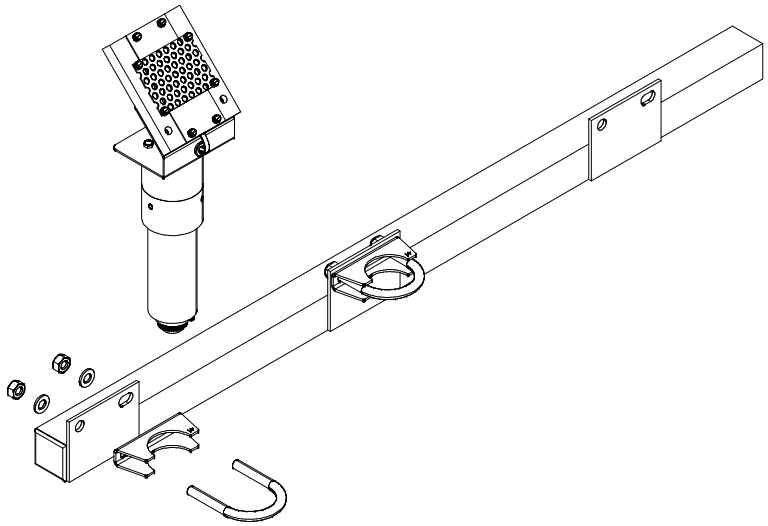
3 Installation and maintenance

3.1 Installation

For correct installation, the monitoring station should be placed at a distance from the closest obstacle (pylons, trees, buildings) equal to 10 times the height of the obstacle itself.

Normally, according to WMO standards, the installation height of the sensor must be between 1.25 and 2 meters.

As illustrated in the image below, the sensor must be fixed to the plastic stem with jumpers, or similar elements, of 40mm diameter indiscriminately in any position of the standard Siap+Micros support bracket.



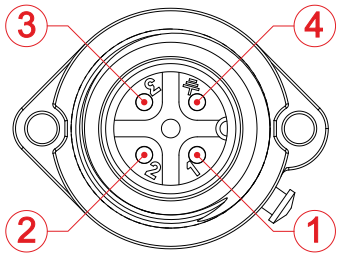
Note: when installing, pay attention not to position the TPP below elements which could drip during the drying phase, distorting the detection of rain by the TPP itself.

3.2 Maintenance

This type of transducer does not require particular maintenance operations: periodic cleaning of the rain detection plates is recommended, at least every 6 months or when necessary, to eliminate deposits of dirt present between the plates themselves.

4 Electrical connection

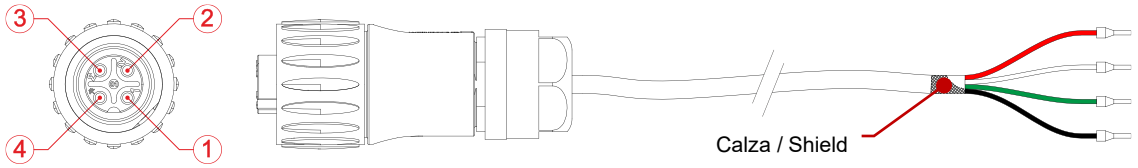
4.1 Connector pinout



Pin	Output
1	Vcc
2	Contact
3	Contact
4	GND

4.2 Connection cable

The connection cable supplied with the sensor is made with circular connectors with housing, 4x24 AWG shielded cable and ferrules for connection to the data logger terminals. The sock is connected to the black cable.



Pin	1	2	3	4
Cable	Red	White	Green	Black+Shield
Signal	Vcc	Contact	Contact	GND

5 Generic information

The qualitative level of our instruments is the result of a continuous evolution of the product. This may cause differences between what is reported in the manual and the instrument you have purchased.

Siap+Micros S.p.A. reserves the right to modify without notice technical specifications and dimensions to adapt them to the needs of the product.

5.1 Safety

Please read these safety instructions carefully before using this product:

- The warranty will be void if the product is used differently from the instructions described in this manual.
- Any sign of tampering will void the warranty
- Use the devices only according to the instructions (environmental management, operation, wiring, installation, etc.) provided in this manual
- The correct and safe operation of the device can only be guaranteed if the transport, storage, operation and management of the device are compliant. This also applies to product maintenance.
- The device shall not be exposed to aggressive chemicals or solvents that could damage the plastic casing and/or corrode the metal parts.
- Maintenance should only be performed by qualified and well trained personnel.

It is appropriate to carry out a careful risk assessment in relation to the context of installation and use of the device by the installer considering the possible meteorological station in its complexity without being limited to the sensor.

The instruments must be installed according to the rules of the trade, with equipment that complies with applicable regulations and using supports correctly sized by qualified technicians and designed for the specific purpose.

During installation operations, check the suitability of the surrounding environment and compliance with local safety regulations.

The manufacturer declines all responsibility in case of failure due to negligence of the instructions, tampering, uses not described in this manual, improper use, use by operators not trained.

Read the instructions and intended use carefully and be sure you understand before installing the device

Before starting the activities, check the integrity of the instrument to be installed, prepare the equipment necessary for the work and wear the necessary PPE.

Take adequate measures to prevent the access of foreign personnel (untrained and uninformed) during the installation, maintenance or replacement of the instrument.

Take precautions to avoid falling objects, both during the installation phases and during the operation of the instrument.

Do not perform any activity in bad weather conditions.

During maintenance, particularly if the station is not frequented, visually check for the absence of dangerous insects and, if not, use suitable insecticides.

Consider the presence of any animals near the station, if so, pay attention to them.

Use only SIAP+MICROS original spare parts.

The instrument is not classified suitable (according to Directive 2014/34/EU) for use in atmospheres with potential explosion risk pursuant to Directive 99/92/EC..

SIAP+MICROS strives to minimize health and safety risks in all phases of the instrument's life, including installation, use, maintenance, decommissioning and disposal.

5.2 Appropriate use of the equipment

Use the instrument for its intended purpose, do not use it for any other purpose or cause malfunctions and/or damage.

5.3 Storage

If you do not plan to use the equipment for an extended period of time (at least one year) disconnect all cables from the equipment, place it in a clear plastic bag along with a bag of desiccant salts and seal the bag with tape. Put appropriate indication on the bag of the contents and weight of the equipment by inserting the wording "HANDLE WITH CARE".

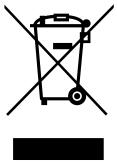
Store the instrument in an environment with a temperature between 0°C and 60°C with a humidity not exceeding 80%. Make sure that the instrument is stored in a stable position and that it cannot be damaged or moved by inexperience or carelessness. Do not stack other tools or weights. Do not place the instrument on top of other instruments and in any case ensure the solidity and stability of the underlying support.

Non esporre, stoccare lo strumento in ambienti con presenza di vapori e/o gas corrosivi.

5.4 Moving

In order to avoid any damage to the device during transportation, please keep it in upright position without shaking.

5.5 Disposal information



Electrical and electronic equipment marked with specific symbol in compliance with 2012/19/EU Directive must be disposed of separately from household waste. European users can hand them over to the dealer or to the manufacturer when purchasing a new electrical and electronic equipment, or to a WEEE collection point designated by local authorities. Illegal disposal is punished by law.

Disposing of electrical and electronic equipment separately from normal waste helps to preserve natural resources and allows materials to be recycled in an environmentally friendly way without risks to human health.

6 Revision history

The following table shows the description of the changes made to this document.

Version	Date	Updates
1.0	05/06/2023	Current version of the document.

7 Declaration of Conformity

MD 751.1 rev. 03

EU Declaration of Conformity (DoC)

Manufacturer: SIAP+MICROS S.p.A.
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This declaration of conformity is issued under the sole responsibility of the manufacturer.

Object of the declaration:

Description	Product Code/Model
TPP Rain Detector, natural output (ON-OFF contact)	PSM-t018-TPP-N

The object of the declaration described above is in conformity with the relevant Union harmonization legislation:

- **2014/30/EU** Electromagnetic Compatibility (EMC)
- **2011/65/EU** The Restriction of Hazardous Substances Directive (RoHSD)

The following harmonised standards and technical specifications have been applied:

EMC references:

EN 61326-1 2021-06	Electrical equipment for measurement, control and laboratory use - EMC requirements - General requirements

RoHSD references:

EN 63000 2016+AMD1:2022	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Date
31-01-2023

CEO
Alex Stevanin