PRECIPITATION MEASURING TECHNOLOGY

Precipitation Analyzer

Part number: 5.4107.xx.xxx
Precipitation analysis perfected: Precipitation Analyzer.

Our cutting edge technology detects and measures different precipitation types, especially supercooled precipitation. Thanks to the unique design with a pyramid-shaped measuring surface made of special ceramic material and resistant glass coating, we detect precise surface temperatures.

The sensor uses as measurement principles the analysis of temperature peaks to detect the heat of crystallization and the different dielectric properties of water and ice. This enables very accurate discrimination and quantification of precipitation incidents, including phase changes.

The analyzer is ideal for early warning systems in traffic applications, on roads, bridges, airports, marine and industrial applications where icing poses a safety risk.

With its advanced method for early detection of supercooled precipitation, the device contributes to efficient winter maintenance and timely initiation of safety measures. The device was developed and tested with the German Weather Service (DWD) for use at airports.

Specification

Part number: 5.4107.xx.xxx	
Precipitation Freezing Rain	
Measured variable	Detection of crystallizing and non-crystallizing supercooled precipitates.
Minimum intensity	› 0.4 mm/h
Period until precipitation signal	5 min. From minimum intensity.
Accuracy	Detection of supercooled precipitation: › 95% of the events (Reference to DWD Weather Observer)
Precipitation type	- Liquid precipitation Intensity in mm / h - Supercooled drizzle(freezing drizzle, FZDZ) - Supercooled rain (freezing rain, FZRA) - Crystallization (type 3) - Undercooled Water - Ice - Precipitation - Sensor soiling
Interface	
Type	RS485

Operation mode	Half-duplex mode
Data format	8N1
Baud rate	2400 ... 115200 Baud
Operating voltage	
Electronic	11 ... 28 V DC
Current consumption	100mA (max. 800mA, with heating on)
Heating	4 x separate heating control of the ceramic surfaces
General	
Ambient conditions	-40 ... +85 °C 0 ... 100 rel. humidity, including condensation
Mounting	Mounting on mast Outer diameter = 34mm Inner diameter = 22mm Note: Mounting on other mast tubes with separate Adapter (option) possible.
Housing	Anodized aluminum / plastic / ceramic
Protection	IP 65
Weight	approx. 0,25 kg

Versions

As per 5.4107.xx.xxx, but:

Product number 5.4107.00.100	
Interface	
Data	ASCII (command interpreter: THIES)

Product number 5.4107.00.000	
Precipitation	
Sensitivity	= 0.4 mm / h
Precipitation types	Precipitation Crystallization Supercooled water on sensor Ice on sensor Freezing Rain (FZRA) Freezing Drizzle (FZDZ) Hoarfrost Mixed precipitation solid/liquid Sensor contamination
Data output digital	

Interface	RS485
Duplex mode	Half duplex
Protocol	ASCII
Switching output	24V AC/DC max. 2A
Operating voltage	
Electronic	11 ... 28V DC
General	
Current load	100mA (max. 800mA, at heating on)
Ambient temp.	-40 ... +85 °C
Electr. connection	8 pol. Plug
Mounting	Mounting on mast Outer diameter = 34mm Inner diameter = 22mm Remark: mounting on other mast is possible with separate adapter (option).
Material	Kunststoff, Ceramic, Anodized aluminum
Protection	IP 67
Dimension	Ø 108 x 112 mm
Weight	0.25 kg

Accessories

Product	Product name	Brief description
	Plug 8 pol 507550	Coupling socket
	Adapter PRECIPITATION ANALYZER to mast tube Ø50mm 510471	Clima Sensor US on traverse compact
	Adapter PRECIPITATION ANALYZER to mast tube Ø60mm. 510472	Adapter PRECIPITATION ANALYZER to mast tube Ø60mm.

	Cable for Precipitation analyzer 510597	Connection cable ready for use: • cable socket, instrument-site • open ends, receive-site • shielded

General

Cable length	4 m