PRECIPITATION MEASURING TECHNOLOGY

Laser Precipitation Monitor

Part number: 5.4110.10.xxx
The acquisition comprises the types of precipitation, intensity and the spectrum. All measuring values are available for the user via an RS485/422 interface. In addition, the instrument is equipped with two further digital outputs (opto-couplers), which output, for ex., pulses and state of precipitation. The optical components are equipped with an integrated heating.

Suitable Transmitters:
Hygro-Thermotransmitter 1.1005.54.000
Wind Transmitter 4.3519.00.000
Wind Direction Transmitter 4.3129.00.000

Specification

Part number: 5.4110.10.xxx

Wind speed

Electrical input	Impulse
Measuring range	0 ... 50 m/s (0 ... 630 Hz)
Resolution	0.1 m/s
Accuracy	±0.1 m/s

Wind direction

Electrical input	serial synchron
Measuring range	0 ... 360 °
Resolution	11.25 °

Precipitation

Meas. principle	laser beam
Particle size	0.16 ... 8 mm
Particle speed	0.2 ... 20 m/s
Intensity	0.001 ... 1000 mm/h
Error intensity -/ quantity measurement	±5% at adjustment under laboratory conditions with a specific test system with the permissible tolerance of ± 5%. Each LNM is supplied with a factory acceptance certificate after passing the calibration. 15% rain 0,5... 20mm/h 30% snow (WS 3m/s)

Precipitation types	drizzle (also freezing) rain (also freezing) hail snow snow grains / ice needles soft hail / ice grains
Accuracy	comparing with synoptic observation drizzle > 97% rain > 99% hail > 97%* snow > 99% soft hail > 85% snow grains > 60% *According to human observer

Temperature	
Electrical input	PT100
Measuring range	-40 ... +70 °C
Accuracy	±0,1 K
Resolution	0.1 K

Rel. Humidity	
Electrical input	0 ... 1 V
Measuring range	0 ... 100 % rel. h.
Resolution	0.1 % rel. h.
Accuracy	± 0.1% rel. h.

Sensors	
Laser diode	786 nm, max. 0.5 mW
Laser class	1M (EN60825-1:1994 A2:2001)

Data output digital	
Interface	RS485 / 422, potential isolation and 2 impulse outputs, potential isolation
Baudrate	1200 ... 115200 Baud
Output type	ASCII, Synop, Metar @ RS485 / 422 frequency @ impulse outputs
Resolution intensity	0.001 mm/h @ RS485 / 422
Resolution quantity	0,001 mm @ RS485 / 422 0.1 mm, 0,01 mm, 0,005 mm @ impulse outputs

General	
Ambient temp.	-40 ... +70 °C

Protection	IP 65
Dimension	Ø 270 x 170 x 540 mm
Weight	4.8 kg

Versions

As per 5.4110.10.xxx, but:

Product number 5.4110.10.000	
General	
Power supply	24 V AC/DC or 22 ... 30 V DC, 750 mA

Product number 5.4110.10.100	
General	
Power supply	115 V AC, 15 W

Product number 5.4110.10.200	
General	
Power supply	230 V AC, 15 W

Product number 5.4110.10.300	
General	
Power supply	24 VDC, 600 mA

Accessories

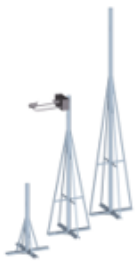
Product	Product name	Brief description

	Hygro-Thermo Transmitter compact 1.1005.54.000	Model with • Temperature output: PT100 • Temperature meas. range: -30 ... +70 °C • rel. Humidity output: 0 ... 1 V

Temperature	
Measuring range	-30 ... +70 °C
Accuracy	±0,1 K (PT100)
Electr. output	PT100
Rel. Humidity	
Electr. output	0 ... 1 V
General	
Power supply	6 ... 30 V DC

	Wind Direction Transmitter Compact 4.3129.00.x00	• Digital Synchron Serial Output • With 20 W heating

Wind direction	
Measuring range	0 ... 360 °
Resolution	11.25 °
Accuracy	±5 °
Data output digital	
Output type	5-bit serial synchron
Operating voltage	
Electronic	5 ... 30 V DC
Current consumption	15 µA (standby @ 5V) 200 µA (active @ 5V)
Heating	24 V AC/DC, max 20 W
General	
Ambient temp.	-50 ... +70 °C
Protection	IP 55



Instrument Support
4.3187.61.x00

For the vibration-reduced operation of the LPM on an available concrete foundation, provided by the customer.

General	
Material	steel, zinc plated
Tube diameter	Ø 60 mm
Mounting distance	424 mm
Dimension	645 x 645 mm
Weight	30 kg

Wind Transmitter compact
4.3519.00.x00

- Low Power
- frequency output

Wind speed	
Measuring range	0.5 ... 50 m/s
Resolution	0.1 m/s
Accuracy	±3 % of meas. value or ± 0.5 m/s
Data output digital	
Frequency	2 Hz ... 630 Hz
Operating voltage	
Electronic	3.3 V ... 42 V DC
Current consumption	1 mA
Heating	24 V AC/DC, max 20 W
General	
Ambient temp.	-40 ... +70 °C
Protection	IP 55

Wind Protection Element
5.4200.00.000

Serves as optional accessory for uninterrupted acquisition even in case of wind.

Material	
Frame	stell, zinc plated
Laminations	stainless steel
General	
Dimension	600 x 480 x 400 mm
Weight	18 kg
Mounting	Ø 48 ... 102 mm

LNM-View
9.1700.99.000

The Thies LNM View program is used to display data generated by the Thies Laser Precipitation Monitor and/or Thies 3D Stereo Disdrometer.

Compatibility	
Connectable instruments	• Laser precipitation monitor 5.4110.xx.xxx • 3D Stereo Disdrometers 5.4120.xx.xxx
System requirements	PC with: • 1GHz, 256 MBRAM, recommended 2 GHZ, 512MBRAM • Graphics resolution: 800 x 600 • Graphics colours: 16bit TrueColor
Operating system	Recommended operation system: • Windows 8 • Windows 10