LASER PRECIPITATION MONITOR

Indian

ISO9001:2015

Thies CLIMA

Maintenance-free technology with best cost-performance ratio

THE WORLD OF WEATHER DATA

Laser Precipitation Monitor

ISO9001:2015

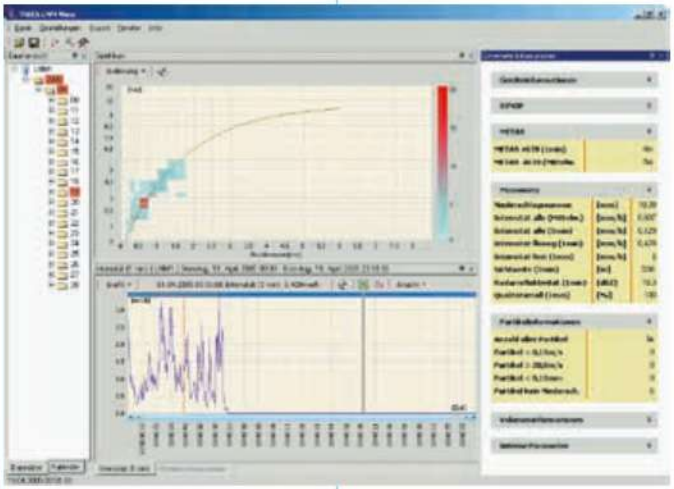
The **Thies Laser Distrometer** is especially designed for the use in several applications, and the entire precipitation characterization.
Thanks to the wide range of provided measurement parameters and its flexible configuration, the usage of a Distrometer is now advisable in numerous fields of applications.

The laser based measuring approach guarantees a reliable and accurate measurement of all known kinds of precipitation. It is possible to measure the amount, the intensity also as the particle size, and the velocity of precipitation. A main advantage of this sensor is to measure particles down to 0,16 mm diameter.

The reliable, maintenance-free laser-optic of the instrument detects and discriminates different kinds of precipitation, such as drizzle, rain, hail, snow, snow-grains, graupel (small hail/snow pellets), and ice pellets. The system calculates intensity, volume (as water equivalent), and the spectrum of precipitation (diameter and velocity), as well as the meteorological visibility (MOR in rain), and the radar reflectivity (Z). State-of-the-art DSP technology and high quality optical components guarantee, precise measurements, and faithful results in real-time. All data are transmitted via a galvanic-isolated RS485 interface for further processing. SYNOP-codes acc. to table 4680/4677 and METAR acc. to table 4678 are fixed implemented.

By the PC software LNM-view, available as accessory, all measurement values from the Laser Precipitation Monitor can be acquired, stored and analysed in an user friendly way. By the progressive Client Server architecture it is possible for several user to access the data simultaneously (multi-user ability).

The software supports several instruments in parallel, the maximum number being limited only by the PC hardware. To reach a high efficiency during data analysis, the user can select the data and its graphic rendition individually to adapt the software to the respective measurement task.



Typical applications

- Meteorological applications
- Hydrology
- Traffic control
- Research and Development
- Airport weather observation systems
- Alignment of weather radar systems

The main advantages on one view:

- Rugged and compact
- Maintenance-free
- Particle size from 0.16 mm diameter
- Future-oriented by flexible DSP technology
- Extended heaters for use in the mountains
- Remote support
- Easy mounting

The device is almost maintenance-free. The integrated, temperature-regulated heater facilitates guarantee a reliable use all-the-year. A special technology eliminates a possible influence of extrinsic light. The sensor compensates automatically fluctuations of temperature or soiling of the optics.

Output of the following parameters:

- Total precipitation quantity
- Particles speed and diameter
- Intensity mm/h
- Class of precipitation (SYNOP/METAR)
- Radar Reflectivity (Z/R Ratio)
- MOR (in rain)

Optional *

- Wind speed
- Wind direction
- Temperature
- Rel. Humidity

* It is possible to connect additional sensors to the device

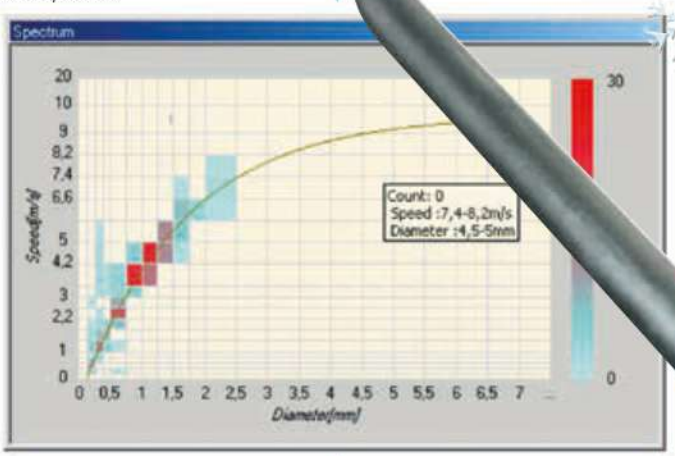
For the communication the RS485 interface as well as two digital opto-coupler outputs are available. In order to acquire further meteorological parameters, additional sensors such as wind speed, wind direction, temperature and humidity, can be connected to the optional inputs. The measured values are integrated in the various output data telegrams, and transmitted via the RS 485 interface.
The opto-coupler outputs provides an easy connection to standard data logger systems with pulse-/frequency input.

The use of flash-memory allows an easy up-dating of the instrument software also within the scope of the possible remote maintenance.

For the use in harsh environmental conditions, for example in the mountains, is a special model with extended heater available.

Accurate measurements even in harsh environmental conditions

Rain spectrum



Laser Precipitation Monitor

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Technical Data

Principle of operation		Laser 785 nm max. 0.5 mW Optical power, laser class 1M
Measuring area		46 cm² (23.0 x 2.0 cm)
Distrometer		
Classification		440 classes (22 diameter *20 speed)
Precipitation		
Particle size		Ø 0.16 ... › 8 mm
Particle speed		0.2 ... 20 m/s
Distinction of Precipitation kinds: drizzle, rain, hail, snow		› 97% compared with synopt. observer
Minimum intensity		‹ 0.001 mm/h drizzle
Maximum intensity		› 250 mm/h
Visibility in precipitation		MOR 0 ... 99.999 m
Weather codes	Synop	Tab. 4680, Tab. 4677
	Metar	Tab. 4678
Radar reflectivity		Z = -9.9 ... 99.9 dBZ
Data output		RS 485 1200 ... 115200 Bd. Full duplex, half-duplex 2 opto-couplers 24 V DC, 1 mA for precipitation amount pulses (resolution 0.1, 0.01 or 0.005 mm) rsp. frequency for kind of precipitation
Optional Inputs		PT100 (temperature), 0-1 V (rel. humidity), 0-1000 Hz (wind velocity) Serial synchronous (wind direction)
Ambient temperature		-40 ... +70 °C; 0 ... 100% rel. hum. option: -60 ... +70 °C; 0 ... 100% rel. hum.
Protection		IP 65
Mounting		Mast 48 ... 102 mm; 1.9 ... 4 inch
Power supply		24 VAC/DC 750 mA, alternatively 230 V AC or 115 V AC incl. standard heater protection against interchanging of wires
Optionally		12 V DC model
Add. heater		230 VAC/150 VA
Housing		Al die-cast, stainless steel (270 x 170 x 540) mm
Weight		4.8 kg 6.5 kg (option. add. heater)
Accessories		PC program LNM view 9.1700.99.000 Software for graphic presentation and analysis for Windows based systems: WIN 7 / 8 / 10

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