

The new generation of high quality and reliable measurement of precipitation characteristics

Laser precipitation monitor (Distrometer)

State of the art technology with best cost-performance ratio

The Thies Laser Distrometer is especially designed for the use in several applications and characterization of precipitation. Thanks to a multitude of measuring variables and configuration variants the use of a Distrometer in various ranges of application is now possible. The optical laser basing measuring principle 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 the Distrometer is to measure particles down to 0,16 mm diameter.

The Distrometer detects and discriminates the different arts of precipitation as drizzle, rain, hail, snow, snow grains, graupel (small hail / snow pellets), and ice pellets with his reliable maintenance-free Laser optic.

The Distrometer calculates the intensity, volume (water equivalent) and the precipitation spectrum (diameter and velocity) as well as the meteorological visibility (MOR) in the rain and the radar reflectivity (Z).

Latest state of the art technology like DSP, and high quality optical components stand for reliable, precise measurement and results in real-time.

All data will be transmitted via a galvanic isolated RS485 interface to further processing. SYNOP according table 4680, and METAR according table 4678 are implemented.

Typical applications

- meteorological application
- hydrology
- traffic control
- scientific examination
- airport weather monitoring systems
- Adjustment of weather radar systems

The main advantages in one view

- sturdy and compact
- low maintenance
- particle size from 0,16 mm diameter
- future-oriented by DSP-technology
- extended heaters for use in the mountains
- remote support
- easy mounting

With the PC-software LNM-View, available as accessory, all measuring values, delivered by the LNM, can be acquired, filed and analyzed. The client/server architecture allow a multi-user operation. The software supports several instruments in parallel, while the maximum number is limited only by the PC-hardware.

In order to achieve a high efficiency with the analysis, the user can select the data and their representation individually, thus adapting the software accordingly to the respective measuring task. The instrument is nearly maintenance- free. Integrated heaters guarantee a reliable use all over the year. A special technology eliminates a possible influence of extrinsic light. Thermal fluctuations and soiling of the optics are automatically compensated by the sensor. For communication the RS 485 output as well as two digital opto-coupler outputs are available.

In order to integrate other meteorological parameters, the Distrometer is prepared to connect additional sensors like wind velocity, wind direction, temperature and humidity. All measured values are integrated in the various output data telegrams and are transmitted via the RS485 interface. The opto-coupler outputs allow an easy connection to standard datalogger systems with impulse/frequency input.

The use of flash memory allows an easy update of the instrument software within a possible remote maintenance. For application under extreme conditions, for example for use in the mountains a model with extended heater is available

Main characteristics

Principle of operation Laser 785 nm, max 0,5 mW optical power, Laserclass 1M
Measuring area 46 cm² (23 x 2.0 cm)
Distrometer Classification 440 classes(22 diameters *20 velocity)
Precipitation Particle size 0,16...> 8 mm
Particle velocity 0,2 ...20 m/s
Distinction for kind of precipitation drizzle, rain, hail, snow > 97% in compar. with synopt. observer
Minimum intensity 0,005 mm/h [drizzle](#)
Maximum intensity 250 mm/h
Visibility precipitation MOR 0... 99.999 m
Weather codes Synop wawa 4680, ww 4677;
Metar 4678 Radar reflectivity Z = -9,9 ..99,9 dBZ
Data output RS485 1200...115200 Bd, full duplex 2 opt. coupler 24 V DC 1 mA
For precipitation impulses (resolution 0,1, 0,01 or 0,005 mm) resp. frequency for precipitation type
Optional inputs PT100, 0-1 V, 0-1000 Hz, serial synchronous
Ambient temperature -40...+70°C; 0 ..100% r. F., Optional -60...+70°C; 0...100% rH
Protection IP 65
Mounting Mast 48 mm...102 mm; 1.9...4 inch
Power supply 24 V AC /750 mA, alternatively 230 VAC or 115 VAC incl. std.
Heaters, protection against reverses connection
Optionally 12 V DC Version, additional heater 230VAC / 150 VA
Housing al, die cast, stainless steel, 270x 170x 540 mm
Weight 4.8 kg Accessory
Software for graphic representation and analysis for Windows basing systems: WIN 98, 2000 XP 9.1700.99.000
PC-program LNM view