



**GEONOR**

# **Geonor T-200B series**

## **All-weather precipitation gauges**

### **600 mm • 1000 mm • 1500 mm**



- More than 25 years of field use
- Easy installation and maintenance
- Precipitation intensity can be calculated
- Proven long term reliability
- No internal heating required
- No moving parts
- Interfaces to most data acquisition systems
- Vibrating wire weighing sensors

# Proven long term reliability

## DESIGN



The T-200 precipitation gauge was developed more than 25 years ago for all weather precipitation monitoring. It was designed in cooperation with the Norwegian Meteorological Institute and the Norwegian Geotechnical Institute.

Precipitation can be reported at real-time intensity to any interval required. The precipitation gauge is simple to configure for use with automatic data acquisition units. The standard T-200B has a 600 mm capacity and one vibrating wire sensor. 1000mm capacity and three sensors are options.

The gauge has a protective housing with a WMO standard 200 cm<sup>2</sup> inlet. Inside there is a container for collecting the precipitation. The amount of precipitation is measured by using vibrating wire load sensors. The instrument as well as a wind shield is mounted to the pedestal.

With the use of antifreeze any solid precipitation is melted in the container. No electrical heating is therefore required, thus eliminating a common source of error. A thin layer of oil is added to impede any evaporation.

## APPLICATIONS

The T-200 series precipitation gauges are used world wide by:

- National weather services
- Climatic research institutes
- Hydro power companies
- Airport authorities
- Road authorities
- Agricultural services
- Avalanche prediction centres
- Winter sport resorts



## MEASURING PRINCIPLE

The precipitation collected in the container are weighed with a vibrating wire load sensor, which gives a frequency output. The frequency will be a function of the applied tension on the wire, i.e. from this, the amount of precipitation can be computed. The frequency is recorded as a square-shaped 0-5 V signal. This signal can easily be transmitted and interfaced to most data acquisition systems. There are no mechanical moving parts, eliminating other possible sources of error.

Because of its simplicity and low power requirement, the T-200B is well suited for remote locations where power may only be available from solar energy.

Geonor supplies interface adaptor for use with automatic data acquisition units. Output: 0-5V square wave.

## OPTIONS



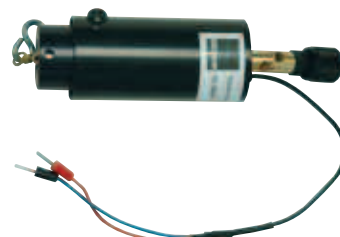
### 1500 MM CAPACITY

A version of the T-200B with 1500 mm capacity is available. The design will make it possible to retrofit existing T-200B units with the larger capacity.

### 3 SENSOR SYSTEM

Using a 3 sensor system ensures the continuation of data recording if one of the sensors should fail. This is made possible with a level retaining device. It also ensures that the total amount of the precipitation will be measured even if there is a slight deviation from the horizontal plane.

Standard single sensor units can easily be upgraded to 3 sensor systems.



### WHITE HOUSING

The standard T-200B comes with anodized housing and black inlet. The housing, including the inlet, is also available in white.



# Used by meteorological and climatic organisations world wide

Charquini Glacier 4800m, Bolivia



## SOME USERS:

Norwegian Meteorological Institute

Swedish Meteorological and Hydrological Institute

The Icelandic Meteorological Institute

Meteorological Service of Catalonia (Spain)

NCAR (National Center for Atmospheric Research) (USA)

NOAA/CRN (Climatic Reference Network) (USA)

NOAA/ATDD (Atmospheric Turbulence and Diffusion Division) (USA)

NOAA/NWS (National Weather Service) (USA)

China National Huayun Technology Development Corp

Environment Canada

Quebec Hydro (Canada)

Alberta Agriculture (Canada)

Most Nordic hydropower companies

Stora Sjöfallet, Sweden



Salt Lake City, UT, USA



Columbia, MD, USA



Kings Bay, Spitzbergen 78°55'N



Wallops Island, VA, USA



Calgary, Canada

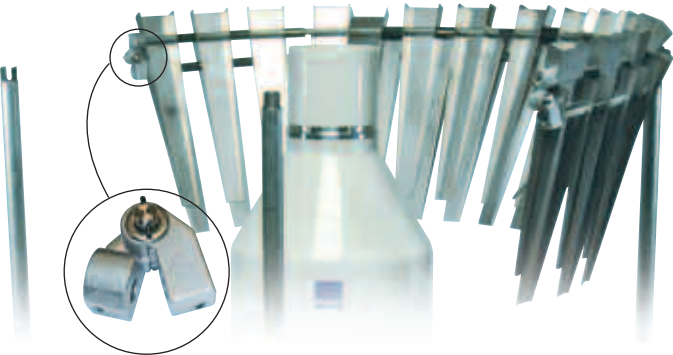




ACCESSORIES:

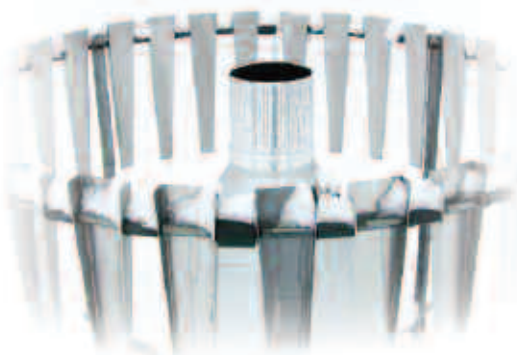
Easy access windshield hinges

Two hinges on the circumference of the windshield make it possible to raise half of the shield to give clear access to the gauge during servicing and maintenance. Hinges can be installed on existing windshields.



Inlet heater system

To prevent capping of the inlet, Geonor can provide inlet heating. The system to be used is dependent on power supply available.



TWM Rekamebyrå - Aug - 2010

TECHNICAL SPECIFICATIONS T200B

Capacity: (including antifreeze)	600 mm	1000 mm	1500 mm	Temperature range:	Sensor: -40°C to 60°C
Colleting area:	200 cm²	200 cm²	200 cm²	Temperature drift:	0.001% FS/°C
Sensitivity:	0.05 mm	0.075 mm	0.1 mm	Materials:	Aluminum alloy
Accuracy:	0.1% FS	0.1% FS	0.1% FS	Size:	Ø=390mm, H=760mm (600mm version) Ø=390mm, H=800mm (1000mm version) Ø=390mm, H=1000mm (1500mm version)
Repeatability:	0.1 mm	0.1 mm	0.15 mm	Mounting:	Universal 3-point with leveling system incorporated in base

ORDER REFERENCES

Part No. System	Part No. Equipment
T-200B -M -MD -3 -W	470250 Windshield with stainless steel blades
	470400 Pedestal, galvanized steel 1 m high
	470450 Pedestal, galvanized steel 2.5 m high
	470260 Easy access windshield hinges
	455060 Excitation units for data loggers, rail mounting
	470600 Sensor 600 mm with level retaining device
	471000 Sensor 1000 mm with level retaining device
	471500 Sensor 1500 mm with level retaining device

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