

RAIN INTENSITY GAUGE WITH NO MOVING PARTS

NEW NEEDS

- Global warming causes changes in distribution of rainfall
- Arid, irrigated, agriculture needs more data on available rain
- Municipal authorities need rain-information for drainage management
- Flood control authorities need quickly available rain data
- Manual servicing of meteorological stations has become expensive

NEW POSSIBILITIES

- Embedded controllers have become very competent
- Solid state sensors have become less expensive

MODERN RAIN INTENSITY GAUGES SHOULD BE:

- Inexpensive
- Robust
- Easily maintainable
- Connectible to any logger

THE MAD-MET LTD. NEW RAIN INTENSITY GAUGE (PATENT APPLIED FOR) EASILY COMPLIES WITH THESE NEEDS.

Field instrumentation for measuring rain intensity should minimize dependence on sensitive components. Moving parts, such as tipping buckets, very often necessitate periodic calibration at least and also removal of debris, colonizing insects and dust accumulation whenever regular functioning is hampered. Manpower suitable for periodic checks of deployed instrumentation is getting more and more scarce and expensive.

On the other hand, data flow patterns and output types have gradually become standardized in order to fit data acquisition systems such as loggers and other computerized data transmission and backup setups.

We therefore propose a novel rain intensity gauge (patent applied for), which has no moving parts. Its response is linear over a range of rain intensities wider than that of the best tipping bucket instruments, its resolution is better than

the usual and its output is a regular pulse train with frequency proportional to rain intensity.

For special purposes our instrument's characteristics can be changed, using software only, without electrical or mechanical manipulation, in order to accommodate especially high or very low rain intensities.

Our instrument's prototype has been extensively tested in the laboratory using a precision peristaltic pump water-delivery system and a computerized pulse-recording setup. It has also been field-tested and has clearly outperformed 2 different commercial tipping bucket gauges.

The size of our gauge is determined largely by WMO recommendations concerning input funnel sizes and proportions. Space needed for other components is relatively small.

Electrical consumption:
8-12V at < 50mA

Output

> 10msec, 5V pulse train (software adjustable)

Sensitivity

> 0.2mm rain per pulse (software adjustable)

Connections

> 3 conductor cable

8-12V

(input)

Ground

(common)

Signal

(output)

THIS RAIN INTENSITY GAUGE IS OFFERED FOR EITHER:

- Purchase of full manufacturing rights
- Distribution agreement for manufactured units.

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