Revolver Transmissometer

Innovative Design Delivers Reliable Performance and Minimizes Maintenance

DTN's Revolver Transmissometer, developed and built by DTN, eliminates key limitations typically associated with conventional transmissometers while introducing innovative features that enhance reliability, reduce maintenance, and lower overall cost.

Patented contamination control system

The automatic contamination detection system continuously monitors the protective rotating window, compensates for contamination as needed, and rotates a clean glass segment into place. An alarm is triggered when the rotating disk requires maintenance cleaning.

Flexible integration

The DTN Revolver can be integrated with MetConsole software as a stand-alone system or as part of a fully integrated DTN AWOS.

Optimized ROI

The DTN Revolver Transmissometer delivers long-term, high-accuracy performance with significantly reduced maintenance requirements compared to traditional systems. Its modular design supports expansion and helps minimize the total cost of ownership.

Overview

- **Visibility measurement and automatic determination of RVR.**
- **Easy installation, alignment, and calibration.** High-accuracy alignment is achieved through a computer-controlled scan at the push of a button.
- **Reduced maintenance.** Direct window contamination measurement and control reduce cleaning time and costs.
- **Standard features.** Auto-diagnostic, data validation, built-in test equipment (BITE), and remote configuration and maintenance via web interface.
- **Robust design.** Self-standing protective head with wind shield and integrated heaters for reliable operation in cold climates.
- **Compliant design and operation.** RVR is calculated from extinction, background luminance, and runway light settings using ICAO/WMO algorithms. Accuracy meets or exceeds ICAO Annex 3 requirements for CAT I to CAT IIIB/C. CE compliant.
- **Multiple communication options.** Fiber optic, FSK modem, radio modem, RS-232/422 serial output, wireless, and Ethernet.
- **Proven performance.** Successfully deployed across Europe and Asia.
- **Recognized by the Australian Bureau of Meteorology.** Listed in MA8i as one of only two instruments suitable for RVR assessment.

Technical Data

Transmissometer Technical Data

MOR range	from 10 to more than 10,000 m
Transmittance range	0-100%
Measurement resolution	0.005%
Reporting resolution	1 m
Averaging period	1 min (configurable)
Output rate	5 sec (configurable)
Lamp transmitter source	Xenon flash lamp / LED
Lamp life	200,000+ hours
Measurement principle	Pulsed Xenon / LED transmitters and receivers measure the atmospheric transmissivity
Receiver module	Human-eye adapted photo diode
Base line	10–100 m, single and double
RVR accuracy	According to ICAO and WMO specifications for RVR (±10 m up to 400, ±25 m between 400 m and 800 m, ±10% above 800 m)
Front Revolver disk	270 mm diameter toughened glass
Automatic calibration and automatic alignment	
Communication options	Ethernet (embedded web server), serial (RS-232/485/422) SHDSL, fiber, radio, and FSK modem

Background Luminance Sensor Technical Data (Model 650)

Measuring range	0–40,000 cd/m2
Accuracy	±7%
Viewing angle	10°
Environmental conditions	Temperature: –40 to +60°C Humidity: 0–100% RH Protection: IP66

Electrical Data

Power supply	115/130/230/240 VAC, 50/60Hz ±10%
Power consumption	500 W with heaters, per unit

Environmental Conditions

Ambient temperature range	40 to +60°C
Relative humidity range	0–100% RH
Wind speed range	0–75 m/s

Constructive Features

Standard height	2.5 m
Optical head	Aluminum and fiberglass
Centre pole	Aluminum
Transmitter electronics enclosure	Stainless steel and fiberglass
Protection	IP66
Frangibility	Fuse bolts according to ICAO Doc 9157, Part 6, Paragraph 4.5.2
Colour	White

Optional

Double baseline receiver
Background luminance sensor model 650
Obstruction lights for TX and RX
Battery backup

Compliances

CE Certified	ENV 50204:1995
EN 61000-3-2:1995	EN 61000-3-3:2003
EN 61000-4-2:1995	EN 61000-4-3:1995
EN 61000-4-4:1995	EN 61000-4-5:1995
EN 61000-4-6:1996	EN 61000-4-11:1994
AS/NZS CISPR11:2204 Group 1, Class A	

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