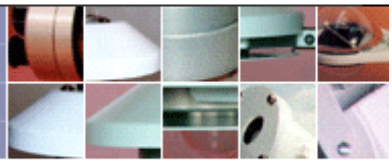
MIDDLETON SOLAR
16 WILSON AVENUE BRUNSWICK VICTORIA 3056 AUSTRALIA



DN5 & DN5-E PYRHELIOMETER

First Class Pyrheliometer for measuring Solar Direct Radiation

The Middleton Solar DN5 is an affordable precision pyrheliometer for measuring the solar direct radiation when aimed at the sun. It exceeds the international accepted specifications for a First Class pyrheliometer. The DN5 has a passive microvolt output, and the DN5-E version has an in-built amplifier to give a millivolt output for easy signal measurement.

Performance Specification	ISO 9060 First Class	DN5 & DN5-E (typical)
Response time	< 20s (95%)	< 10s (95%)
Zero offset response (5°C/hour)	± 3 $W.m^{-2}$	< ± 1 $W.m^{-2}$
Non-stability (1 year interval)	± 1%	< ± 1%
Non-linearity (100 - 1000 $W.m^{-2}$)	± 0.5%	<± 0.3%
Spectral selectivity (350-1500nm)	± 1%	± 0.5%
Temperature response (50°C span)	± 2%	± 1% (-10 to +40°C)
Tilt response (at 1000 $W.m^{-2}$)	± 0.5%	none

EXCELLENT PERFORMANCE, USER FRIENDLY, DURABLE

Window is optical sapphire for broad bandwidth and superior chemical & scratch resistance compared to glass or quartz.

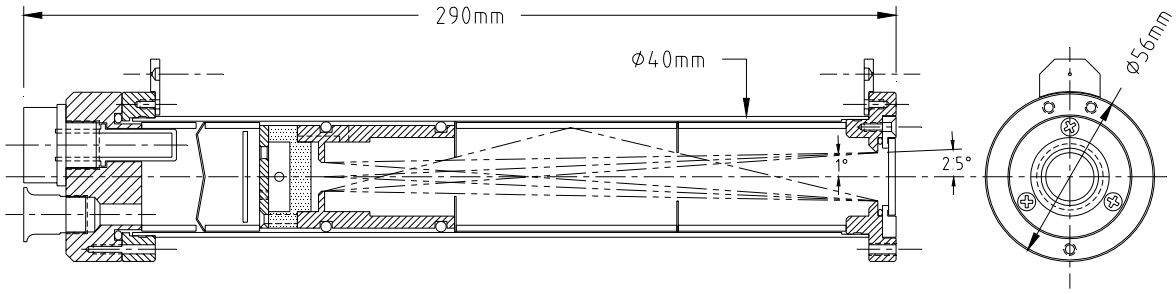
Flush-mount window to prevent obstruction by rain or debris.

Marine-grade aluminium, hard anodised for corrosion resistance.

Compact size and light weight.

An optional Filterwheel and optional Pyrheliometer Mount are also available.

Middleton Solar DN5 & DN5-E Pyrheliometer Detailed Specification



Exceeds the ISO9060 specifications for a First Class Pyrheliometer.
The DN5 has a passive microvolt output, and the DN5-E version has an in-built signal amplifier to give a millivolt output for easy measurement.
Fully sealed construction with internal desiccant.
DN5-E has a low-noise signal amplifier with negligible drift.
Can be operated with manual or motorised sun-trackers.
Condition of desiccant is easy to inspect visually.
Thermistor output provided for sensor temperature.
Aiming diopter conveniently located on top of instrument.
Temperature compensated twin-thermopile sensor has flat spectral response and is isolated from the instrument body to give low thermal error.
Optical geometry, and baffling, is set by four precisely located apertures.
Easy to dismantle, and window is simple to replace.
Supplied with User Manual and Calibration Certificate.
Optional PM02 Tracker Mount available.
Optional FW01 five-position filterwheel available: three glass filters (Schott OG530, RG630, RG695), open position, and blocked position.

General Specification

full opening angle	5.0°
slope angle	1.0°
limit angle	4.0°
irradiance	0 – 4,000 $W.m^{-2}$
spectral range (nominal)	200 – 5,000nm
sensitivity (typical)	7 $\mu V/W.m^{-2}$ (DN5) 1 $mV/ W.m^{-2}$ (DN5-E)
calibration accuracy	± 2% (factory certificate, traceable to WRR)
operating temperature	-40 to +60°C
operating humidity	0-100% RH
output impedance (DN5)	45-50Ω
power supply requirement (DN5-E)	5.5 to 14.5VDC, 6mA
standby mode (optional on DN5-E)	standby current draw: 0.1mA startup settling time: 1.5s
temperature output	YSI 44031 thermistor (10KΩ @ 25°C)
window material	optical sapphire, 2mm thick
body construction	marine grade aluminium, hard anodised
fasteners	stainless steel
desiccant	silica gel (orange, non-toxic)
lead	6m
weight	0.75kg (excluding lead)

Available from: