



Picture shown may not reflect actual configuration

Cat® Weather Station
Class C

The Cat® Microgrid Weather Station is a pre-engineered system that cost-effectively scales to Cat Microgrid Solution size and complexity. The Cat Weather station delivers best-practice PV performance tracking and correlation technology.

Features

Benefits
• Reliable performance in all weather conditions
• Standardized, pre-engineered system
• Preprogrammed system allowing quick field deployment
• Easy to install, prepackaged solution
• Includes weather station data logger, pyranometer, and module temperature sensor

Monitoring
• Plane of Array irradiance
• Back of module temperature
• Air temperature

Data Logger
• Multi-purpose, compact measurement and control data logger
• Gathers data from pyranometer, weather station, and temperature module and makes it available over varied networks
• Installed in a pre-wired weather protective enclosure for quick and easy installation
• Integrated into Cat Connect for remote monitoring and data logging.

Pyranometer
• ISO second class pyranometer
• Measures solar radiation for the full solar spectrum range with a high quality blackened thermopile
• Integrated bubble level for easy installation
• Connects directly to the weather station and data logger

Module Temperature Monitor
• Surface mount RTD in a ruggedized form factor.
• Measures back of the module temperature with high level of accuracy
• RTD housed within a specially designed self-adhesive aluminum disk.
• Rugged, accurate probe that measures air temperature

Worldwide Product Support
• Cat dealers have over 1,800 dealer branch stores operating in over 200 countries
• Your local Cat dealer provides extensive pre-sale and post-sale support, including design consultation, service contracts, and all maintenance agreement.

Weather Station



CPU	ARM Cortex M4, running at 144 MHz
Internal Memory	> 30 MB flash for data storage > 80 MB flash for CPU drive / programs > 2 MB flash for operating system
Clock Accuracy	±1 min per month
USB Micro B	For direct connection to PC (limited power source during configuration), 2.0 full speed, 12 Mbps
10/100 Ethernet RJ45	For LAN connection
RS-232	For connecting RS-232 modems or serial sensors
Battery Terminal Pair (-BAT+)	For regulated 12 V power input or rechargeable 12 V VRLA for UPS mode
Charge Terminal Pair (-CHG+)	For 16 to 32 V from dc power converter or 12 or 24 V solar panel (10 W)
Power Consumption @ 12 Vdc	> 1.5 mA (sleep) > 5 mA (1 Hz scan with one analog measurement) > 23 mA (active processor always on) > 32 mA (Ethernet idle) > 51 mA (Ethernet active)
Best Analog Accuracy	±(0.04% of reading ± 6 µV) at 0° to 40°C
Best Effective Resolution	0.23 µV (±34 mV range, differential measurement, input reversal, 50/60 Hz f_{N1})
Operating Temperature Range	-40° to +70°C

Air Temperature Probe

Element Type	Thermistor
Tolerance	±0.2°C (over 0° to 70°C range)
Temperature Measurement Range	-50° to +70°C
Steinhart-Hart Linearization Error	= 0.03°C (-50° to +70°C)
Interchangeability Error	±0.1°C (over 0° to 70°C range increasing to ±0.5°C at -50°C)
Time Constant in Air	30 to 60 s (in a wind speed of 5 m s-1)
Maximum Submersion Depth	15.24 m (50 ft)
Maximum Cable Length	305 m (1000 ft)
Probe Length	10.4 cm (4.1 in.)
Probe Diameter	0.762 cm (0.3 in.)
Weight	136 g (5 oz) with 3.05-m (10-ft) cable

Pyranometer



ISO Classification	Second class pyranometer
Calibration uncertainty	< 1.8% (k = 2)
Spectral range	285 to 3000 x 10^{-9} m
Transmitted range	0 - 1600 W/m^2
Rated operating temperature range	-40°C to +80°C
Rated operating voltage range	5 to 30 VDC

Temperature Probe Back of Module



Element Type	Precision 1000 Ohm class A platinum sensing element
Tolerance	± (0.15 + 0.002t)
Temperature Coefficient	TCR = 3850 ppm/K
Long-Term Stability	Maximum Ro drift 0.04% (after 1000 h at 400°C)
Measuring Current	0.1 to 0.3 mA
Temperature Range	-40° to +105°C
Disk Material	Anodized aluminum
Cable Jacket Material	Black semi-gloss PVC, UL VW-1 sunlight-resistant for outdoor use
Disk Diameter	2.54 cm (1.0 in.)
Overall Probe Length	6.35 cm (2.5 in.)
Overmolded Joint Dimensions	5.72 x 1.12 x 1.47 cm (2.25 x 0.44 x 0.58 in.)
Weight	90.7 g with 3.2 m cable (0.2 lb with 10.5 ft cable)



Materials and specifications are subject to change without notice.
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