



Picture shown may not reflect actual configuration

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
- Global horizontal irradiance
- Back of module temperature
- Air temperature
- Relative humidity
- Wind speed
- Wind direction
- Barometric pressure

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.

Cat[®] Weather Station Class A

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.

Pyranometer

- ISO first class pyranometer
- Measures solar radiation for the full solar spectrum range with a high quality blackened thermopile
- Desiccant filled drying cartridge prevents dew from forming on the inner sides of the domes
- Integrated bubble level and adjustable leveling screws enable the sensor to be leveled without using a leveling base
- Connects directly to the weather station and data logger

Weather Station

- Combined instrument for measuring local environmental conditions
- Measures air pressure, air temperature, wind speed, and humidity

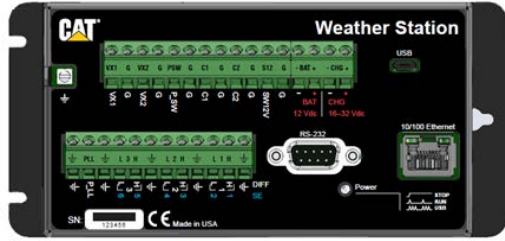
Module Temperature Monitor

- 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.

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_{NI})
Operating Temperature Range	-40° to +70°C

Weather Sensor



Wind Speed	
Range	0.1 m/s to 60 m/s
Accuracy	±3% to 40 m/s ±5% to 60 m/s
Resolution	0.01 m/s
Wind Direction	
Range	0-359°
Accuracy	±3% to 40 m/s ±5% to 60 m/s
Resolution	1°
Temperature	
Range	-40°C to +70°C
Accuracy	±0.3°C @ 20°C
Resolution	0.1°C
Humidity	
Range	0-100%
Accuracy	±2% @ 20°C (10%-90% RH)
Resolution	1%
Dew Point	
Range	-40°C to +70°C
Accuracy	±0.3°C @ 20°C
Resolution	0.1°C
Pressure	
Range	300 to 1100
Accuracy	±0.5 hPa @ 25°C
Resolution	0.1 hPa
Sampling Rate	1 Hz
Operational Temperature Range	-40°C to +70°C
IP Rating	IP66
Weight	0.6 kg

Pyranometer



ISO Classification	Secondary Standard
Light Spectrum Waveband	285 to 2800 nm
Sensitivity	7 to 14 $\mu\text{V}/\text{W}/\text{m}^2$
Temperature Response	< 1% (-10° to +40°C)
Response Time	< 5 s (95% of final value)
Zero Offset	< 7 W/m^2 (200 W/m^2)
Non-Stability	< 0.5% (change/year)
Non-Linearity	< 0.2% (0 to 1000 W/m^2)
Directional Error	< 10 W/m^2 (up to 80° with 1000 W/m^2 beam)
Tilt Error	< 0.2%
Level Accuracy	0.1°
Impedance	10 to 100 Ω
Operating Temperature Range	-40° to +80°C
Typical Signal Output	0 to 15 mV (for atmospheric applications)
Maximum Irradiance	4000 W/m^2
Expected Daily Uncertainty	< 2%
Dome Diameter	5 cm (2 in.)
Width	15 cm (5.9 in.) with shield
Height	9.25 cm (3.64 in.)
Weight	0.9 kg (2 lb) with 10.1-m (33-ft) cable

Temperature Probe



Element Type	Precision 1000 Ohm class A platinum sensing element
Tolerance	$\pm (0.15 + 0.002t)$
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.
 CAT, CATERPILLAR, LET'S DO THE WORK, their respective logos, "Caterpillar Yellow," the "Power Edge" and Cat "Modern Hex" trade dress as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.

www.cat.com/powergeneration