
NRG Systems
FLARE
Solar Resource Measurement
NRG Flare is a portfolio of solar solutions that provide the data you need to successfully plan and operate your utility-scale photovoltaic projects. Encompassing everything from standardized hardware to data management tools and installation and maintenance support, our turnkey systems ensure reliable and repeatable performance, every time.

# Flare Systems

NRG offers two complete measurement solutions – the Flare SRA System for the early prospecting and formal pre-construction resource assessment of utility-scale PV projects, and the Flare SRM System (Tower and Array options) for performance monitoring per IEC 61724-1:2021.

## Solar Resource Assessment

DEVELOPMENT PHASE

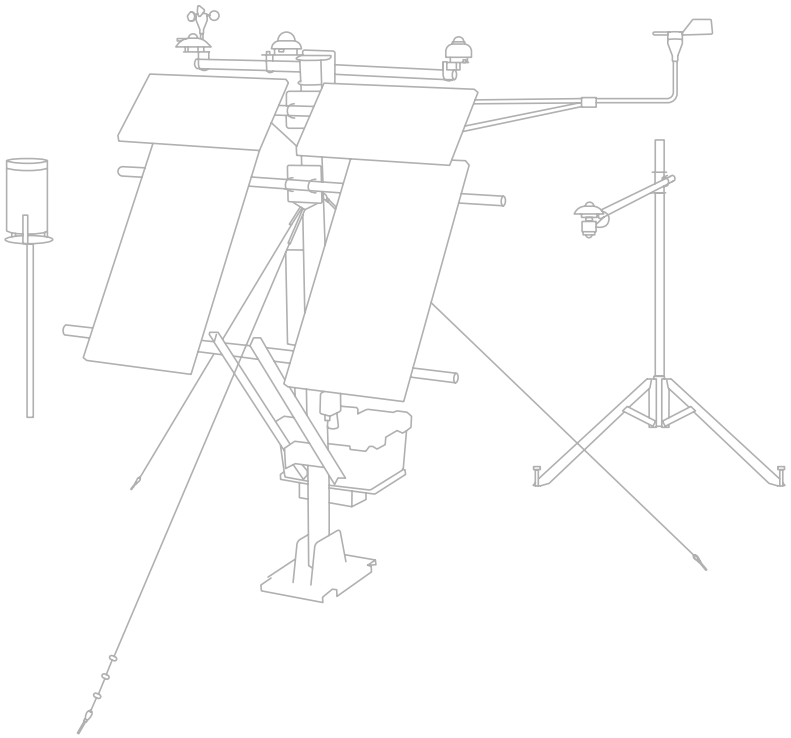
NRG Systems' Flare SRA System systematically collects "ground truth" meteorological data at a prospective solar energy production site. Our complete and integrated measurement solution captures all relevant conditions so users can lower the uncertainty of AEP estimates associated with utility-scale photovoltaic projects.

## Solar Resource Monitoring

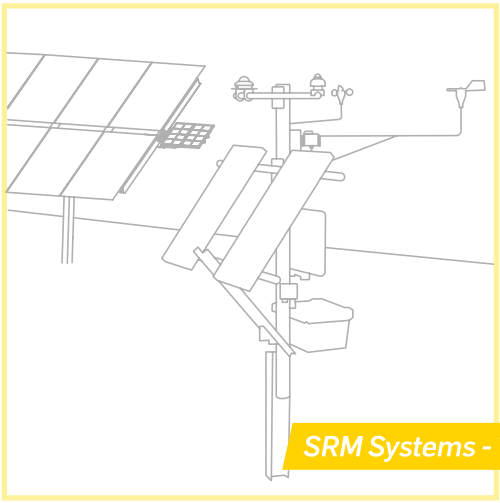
OPERATIONAL PHASE

NRG Systems' Flare SRM System helps operators monitor and optimize the output from their utility-scale PV plant. Whether the project is tracking or fixed, mono- or bifacial, we help users detect inefficiencies at the module, string, and system-wide levels so they can launch real-time maintenance and build long-term, preventative maintenance and cleaning programs.

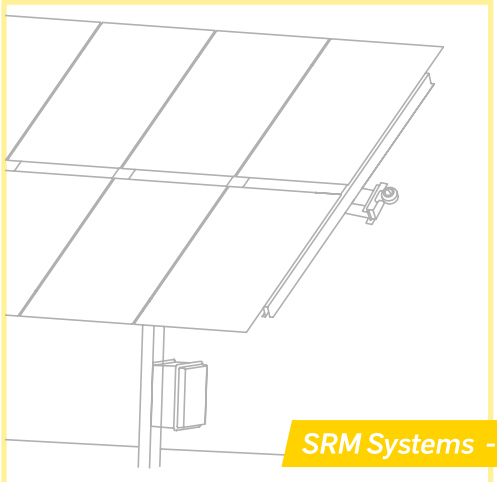
FLARE SRA Systems



FLARE SRM Systems



SRM Systems - Tower



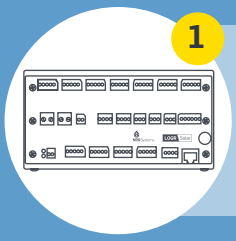
SRM Systems - Array

# How Flare Systems Work for You

NRG Systems' Flare Solar Resource Measurement soulutions apply to pre-construction assessment through post-construction operational monitoring and are designed to transition seamlessly between the two.


# Solar Resource Measurement Systems

## System Anatomy



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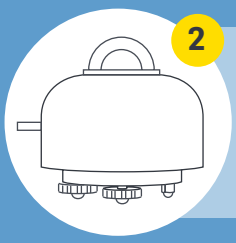
### Data Logging

NRG LOGR Family and SymphoniePRO data loggers



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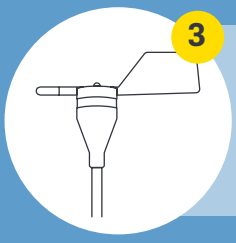
### Solar Irradiance

Industry-leading irradiance sensors



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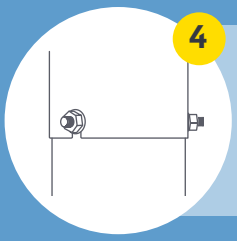
### Meteorological Sensors

Highly reliable, discrete sensors

### Turnkey Installation Services

Support for all stages of project development



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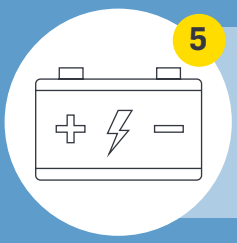
### Tubular Tower

Quick to ship, easy to install



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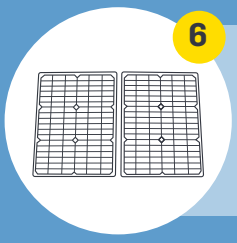
### Auxiliary Power

Autonomous power in any setting



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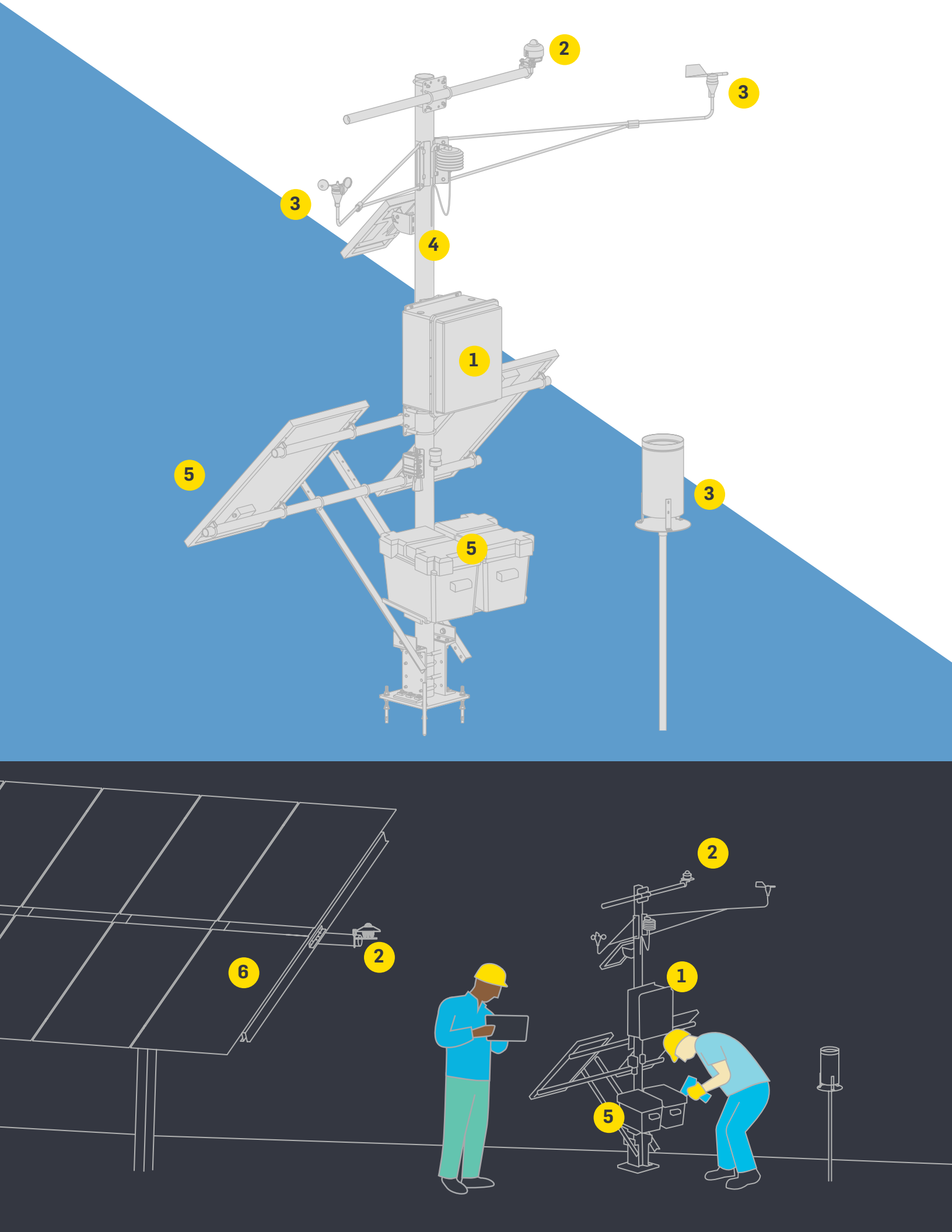
### Performance Monitoring

Soiling measurement for full-size PV

### NRG Cloud

Retrieve, store & share data, from anywhere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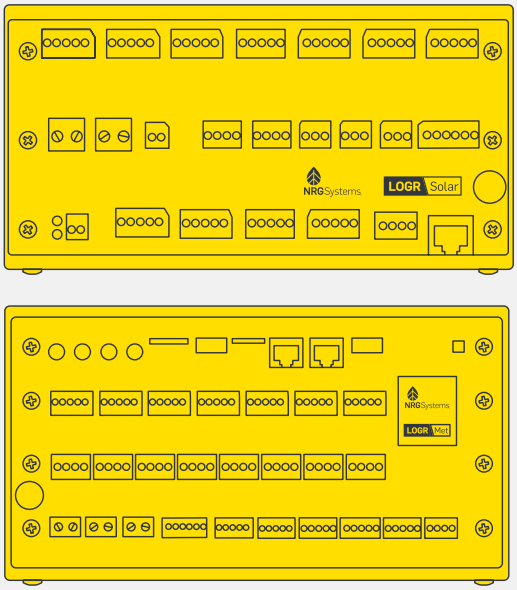
# **Solar Solutions** | Component Details

## Data Logging

NRG LOGR FAMILY AND SYMPHONIEPRO DATA LOGGERS

- High-resolution, high-accuracy measurements
- Long-term data storage
- Supports wide range of sensor types (analog, digital, serial)
- Calculated channels for additional solar information (solar position, direct normal irradiance (DNI), albedo)
- Easily configurable – no programming required
- Modular accessories for global communications & autonomous power support (Modbus TCP, Cellular, Satellite)
- Unparalleled security and ease-of-use




## Solar Irradiance

ACCURATELY CAPTURE THE PRIMARY MEASUREMENT OF INTEREST IN A SOLAR RESOURCE CAMPAIGN

- All irradiance components (Global, Diffuse, & Direct) supported
- Class A, B, or C pyranometer options
- System compatibility with all industry-leading sensor brands
- Output options: analog vs. serial (“smart”) sensors
- Thermopile pyranometer or PV reference cell
- Mounting flexibility for horizontal vs. plane-of-array irradiance capture
- Pyranometer heating & ventilation options

## FEATURED SENSORS

The Hukseflux SR30-D1 class A pyranometer measures solar irradiance with unparalleled reliability and accuracy

Innovative Delta T SPN1 class A “smart” sensor with internal heat & ventilation

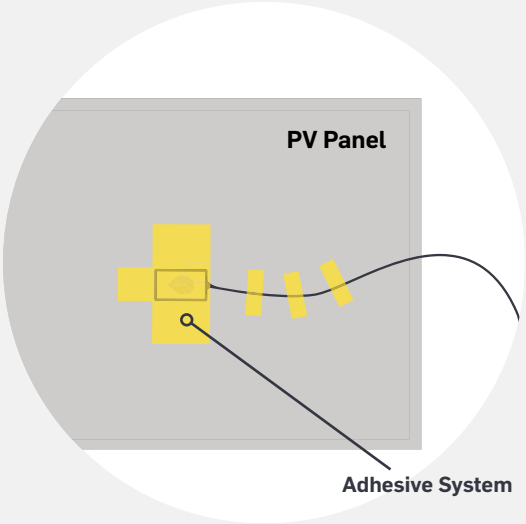
The NRG R2 is a class A pyranometer that provides highly accurate solar irradiance data


NRG SP100 supplies surge protection for array mounted serial sensors and tower mounted data loggers

# PV Module Temperature

ACHIEVE IEC CLASS A MEASUREMENTS USING OUR HIGH-ACCURACY 0.2 C INTERCHANGEABLE 10K NTC THERMISTOR OR NRG PT1000 SENSORS

- Our 0.2 C interchangeable 10K NTC Thermistor sensor delivers Class A accuracy per IEC 61724-1:2021
- 4-wire configuration maintains measurement quality over any cable length and allows flexible sensor placement across the array
- Specially engineered cable ties and adhesive system ensures quick, repeatable installation and long-term performance in the field




# Meteorological Sensors

COST-EFFECTIVE AND INDIVIDUALLY REPLACEABLE MET SENSORS CAPTURE:

- Wind Speed
- Wind Direction
- Ambient Temperature
- Relative Humidity
- Barometric Pressure
- Precipitation

# Tower & Mounting

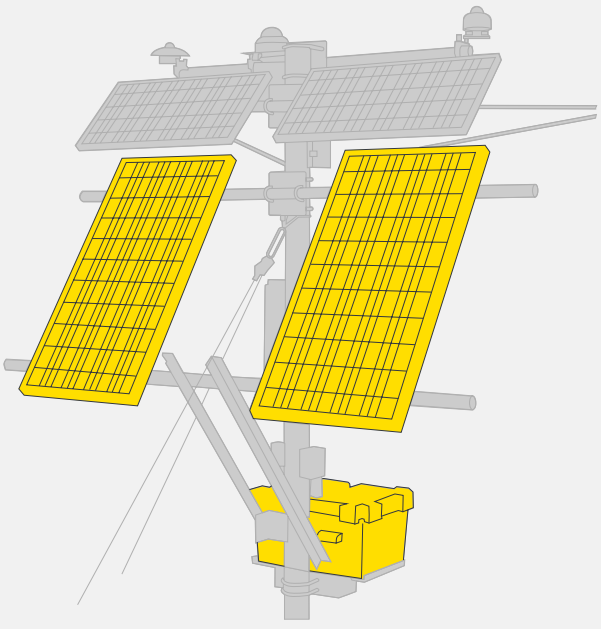
FLEXIBLE SOLUTIONS FOR ALL SETTINGS

- Tubular Tower – 2.2 m (7 ft) height for optimal sensor positioning
- Temporary (guyed) or Permanent (pad or pile-mount) base designs
- Pre-assembled system streamlines setup and reduces on-site labor
- Innovative mounting design minimizes installation errors and prevents costly schedule delays
- Robust materials ensure long-term durability

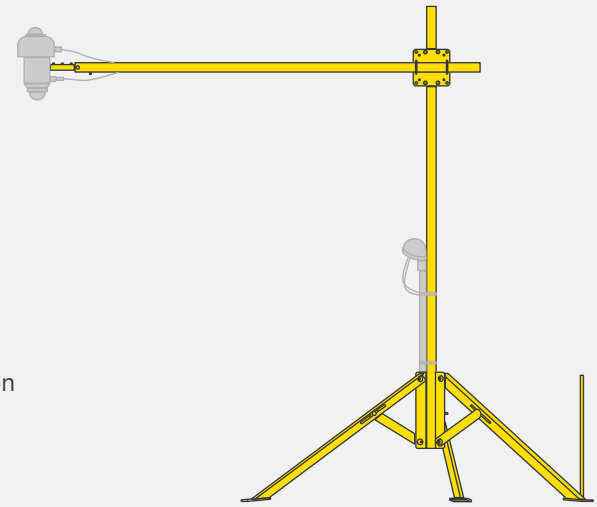
# Auxiliary Remote/ Uninterruptable Power Supplies

SCALABLE, MODULAR POWER SUPPLY, SIZED BY PROJECT DEPENDING ON:

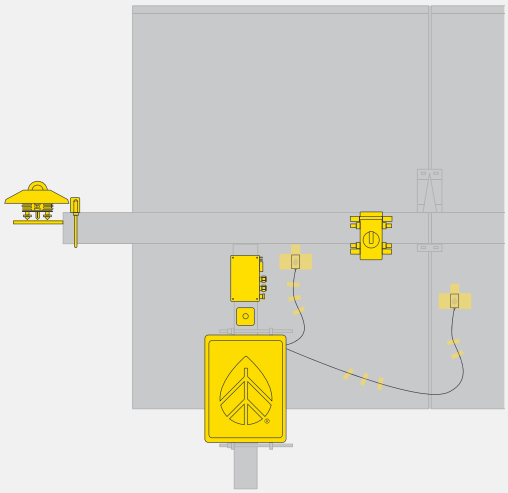
- Sensor configuration
- Project location
- Autonomy requirements



# Albedo Measurement Kit



- Unobstructed horizontal albedo measurements for bifacial PV modules
- Supports full range of pyranometers
- Matte black finish eliminates shading/reflections
- Special mounting fixture supports fixed or tracking installations
- Option for integration with Flare SRM System or as standalone solution
- Integrated grounding and surge protection for system reliability and safety



# Soiling Performance Kit

ACCURATELY AND RELIABLY MEASURE THE IMPACT OF SOILING ON PV MODULE PERFORMANCE

- IEC 61724-1:2021 Method-2 compliant
- Flexible configurations accommodate a variety of PV panels and mounting arrangements, and are compatible with the electrical ratings of both thin-film and crystalline technologies
- Key outputs include short-circuit current, open circuit voltage, back-of-module temperature, effective irradiance, soiling ratio, and daily soiling-loss index, ensuring precise performance analysis and optimization
- Robust data storage capabilities and standardized Modbus map

# Services from NRG Systems

## FOR TURNKEY MEASUREMENTS, OUR SERVICES INCLUDE:

- O&M training – Equip your team to operate and maintain systems for maximum performance and longevity
- Project management support – Keep projects on track with expert oversight, clear communication, and coordinated execution from start to finish
- Commissioning services – Verify every component is installed, tested, and performing to specification before going live
- Data services – Optimize operations with streamlined data delivery, processing, site monitoring, and quality assurance

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NRG Systems®

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