



SOLAR ACADEMY COURSE AGENDA: SUNNY CENTRAL 1

This course provides in-depth knowledge of the Sunny Central family of inverters with and without internal transformers. Applications include large-scale PV plants ranging from hundreds of kilowatts to utility scale megawatt installations. This training session provides an overview of the National Electric Code requirements and safety dealing with high voltages. It also provides a broad perspective of data logging, monitoring, command and control options for interaction with plant operators and utilities.

Sunny Central Family

Familiarization and application of the various models of Sunny Centrals, technical characteristics of UL listed Sunny Central inverters, labor saving features and installation practices. Operator interface with the Sunny Central and familiarization with the internal location of AC and DC components.

Sunny Central Connection to Grid and to PV Array

Use of combiner boxes, SMA String Monitor, and disconnects on DC side. AC interaction and connection. Inverter reaction to environment, derating scheme and protection. Data logging and revenue grade metering options.

» See reverse for detailed course topics.

Training Day Schedule

Continental breakfast: 8:30 AM

Morning break: 10:00 AM

Lunch: 12:00 PM to 1:00 PM

Afternoon break: 2:30 PM

All participants will receive training materials on the day of the training. As in any professional presentation environment, please silence or turn off cell phones, laptops, PDAs, photo and video cameras, audio recorders or any other electronic equipment.

COURSE: SUNNY CENTRAL 1 (SC1)

CLASS DURATION: 6 HOURS

NABCEP CREDITS: 5 HOURS

- 1. Sunny Central Families of Central Inverters from 100 kW to 1250 kW**
 - With Internal Transformer
 - With External Transformer
 - MV Stations with one Inverter
 - MV Stations with two inverters
 - UL Listed with internal transformer
 - UL Listed with external transformer

- 2. Safety Basics**

Safety hazards of operational and non-operational PV systems. Lethal DC and AC Voltages in a PV system.
Safety hazards, practices and protective equipment during PV system installation and maintenance.

- 3. Sunny Central inverters features**
 - With Internal Transformer SC 100, SC 200, SC 250, SC 350
 - SC inverters with indoor and outdoor enclosure ratings
 - High efficiency SC without transformer: SC 100HE, SC 250HE, SC 400HE-11, SC 500HE-11, SC 630HE-11
 - Conventional MV concept with three transformers vs. one MV transformer
 - SC 630 HE-11 features, block diagram and virtual tour
 - Cooling System
 - Efficiency curves and specifications
 - Examples of PV plants using Sunny Central inverters

- 4. Medium Voltage Stations**

With one and two inverters SC 400MV, SC 500MV, SC 630MV SC 800MV, SC 1000MV, SC 1250MV
Examples of PV plants with Medium Voltage Stations. Utility scale installations 40 MW to 60 MW

- 5. UL Listed inverters**
 - SC 500U and SC 250U, UL and NEC compliance
 - How to find UL listed equipment on the website of UL.com
 - SC 250U and SC 500U: examples of installations in the US
 - SC 500U block diagram, virtual tour, features, and efficiency curves
 - Design Tools : Sunny Design and String Sizing program
 - SC 250U block diagram, virtual tour, features, and efficiency curves
 - Examples of designs and installations with SC 250U
 - SC 500HEUS , features, block diagram and internal virtual tour
 - > Tour of SC inverters in operation. Q&A with installation engineers.

- 6. Combiner Boxes and String Monitors**
 - Types of combiner boxes and examples of designs and installations using combiner boxes.
 - String monitors internal structure and functionality
 - Wiring of strings and communications
 - String Monitors 24,32 and 64 strings.
 - Report of results of string monitors.

- 7. Data Logging, Monitoring, Command and Control**
 - Power measurement Performance Based Incentive
 - Modbus Gateway Command and Control
 - Power PBI, Demand Monitoring
 - Web Box Data Logging Options, LAN, Internet
 - Sunny Sensor Box
 - Flashview Application
 - Posting data on Sunny Portal