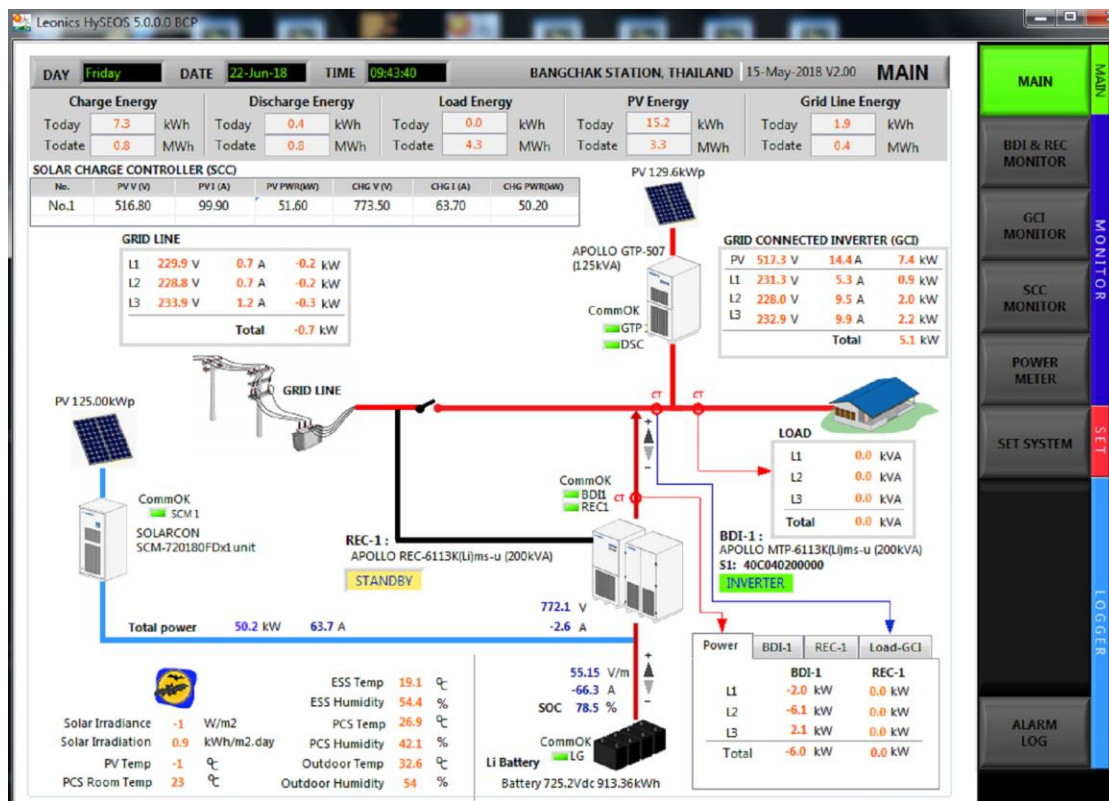


Microgrid Controller

System Overview

Leonics's microgrid controllers are specially designed to provide Isolated microgrid system that enables the maximum utilization of renewable power generation. It is designed to communication between any devices in the system. The system can include one or more of intermittent renewable energy sources; Photovoltaic (PV), wind, biomass, biogas, hydro etc. with a conventional source working together and sometimes also including energy storages to make electricity more stable and meet the consumer's energy demand while achieving a consumption and distribution power balance.



The hardware consists of:

- CPU module
- Power supply module
- Digital Input module (8 input channels)
- Digital Output module (8 output channels)
- Analog Input / Output module (6 input channels)

2. Operation mode setting

- Inverter and Generator
- Automatic control mode
- Semi-Automatic control mode
- Manual control mode
- Battery charging
- Bulk-Boost-Float mode
- Equalization mode

3. System parameter setting

- Inverter parameter setting
- Charger parameter setting
- Battery parameter setting (Float Voltage, Equalize Voltage, Cut-off Voltage, etc.)
- Diesel generator setting (Capacity, Voltage, Frequency, etc.)
- Data logging setting
- Communication setting
- System protection setting

4. Measuring parameter of operation

- By communication with system component

5. System alarm and component alarm on LCD

- Remotely through communication channel

6. Fault recording

- Date and time stamp of fault event recording for system, inverter and charge controller
- ASCII format

7. Data recording

- Date and time stamp of data recording
- Adjustable recording interval from 10 seconds to 24 hours
- Event logging up to 10,000 events
- Data log capability up to 20,000 data
- Excel compatible format
- Convertible to Text file
- Data can be recorded from Inverter, charge controller and Data Conditioner for direct sensor reading

8. AC Charging control

- Phase balance charging (PBCTM) (Option)
- Automatic current adjusting
- Preset current adjusting

9. Start and Stop of Diesel generator

- By manual command on the LCD display
- By using battery energy level
- By Load Profile Learning algorithm (LoadProTM) (option)

10. LCD display

- Display system diagram
- Display real time information of
- V, I, F, pf, power per phase of DG
- V, I, F, pf, power per phase of Inverter
- V, I, temperature of battery
- I of PV array
- Power per phase of Load
- Ambient Temperature
- Date & Time
- Energy Meter
- Display System setting menu
- Display System Alarm
- Alarm identification (option)
- Alarm trouble shooting (option)