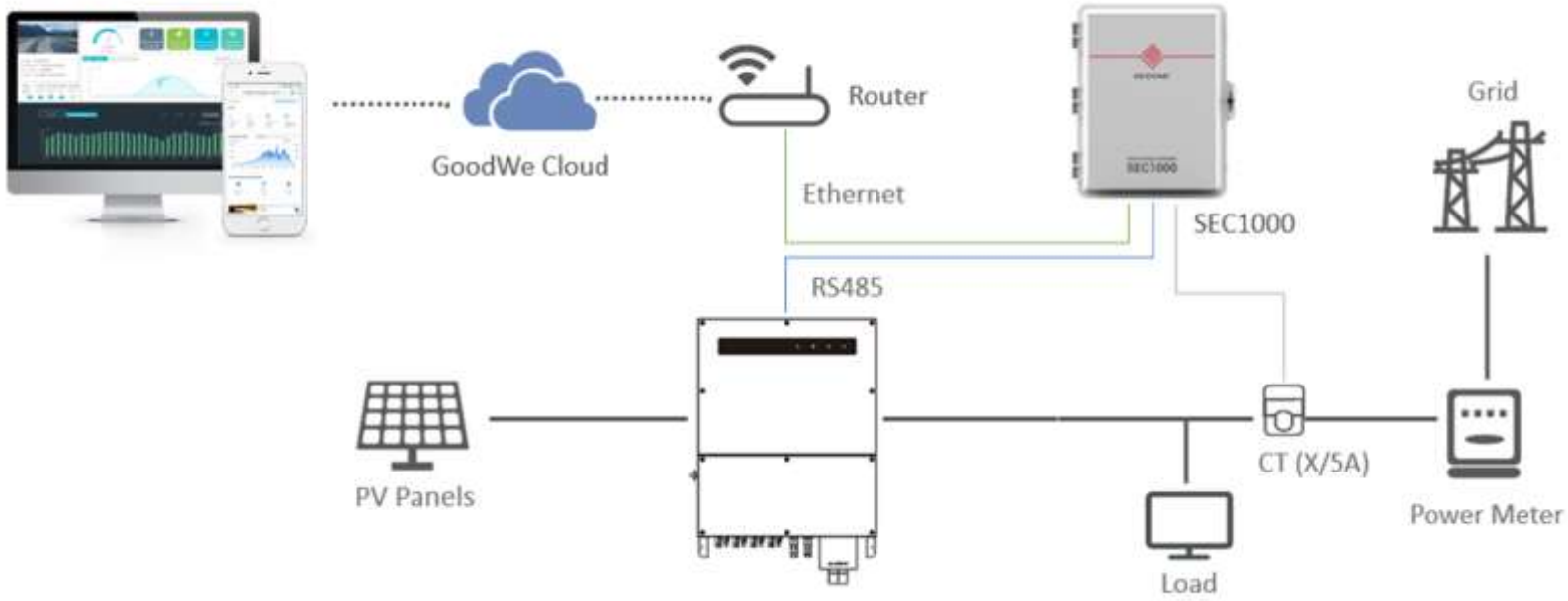
SEC1000
Setup Guideline

April 2021

SEC1000 C&I

1. The SEC1000
2. How to set up the EzLoggerPro
3. How to upgrade the firmware
4. Checks
5. Diagrams

1.1 The SEC1000



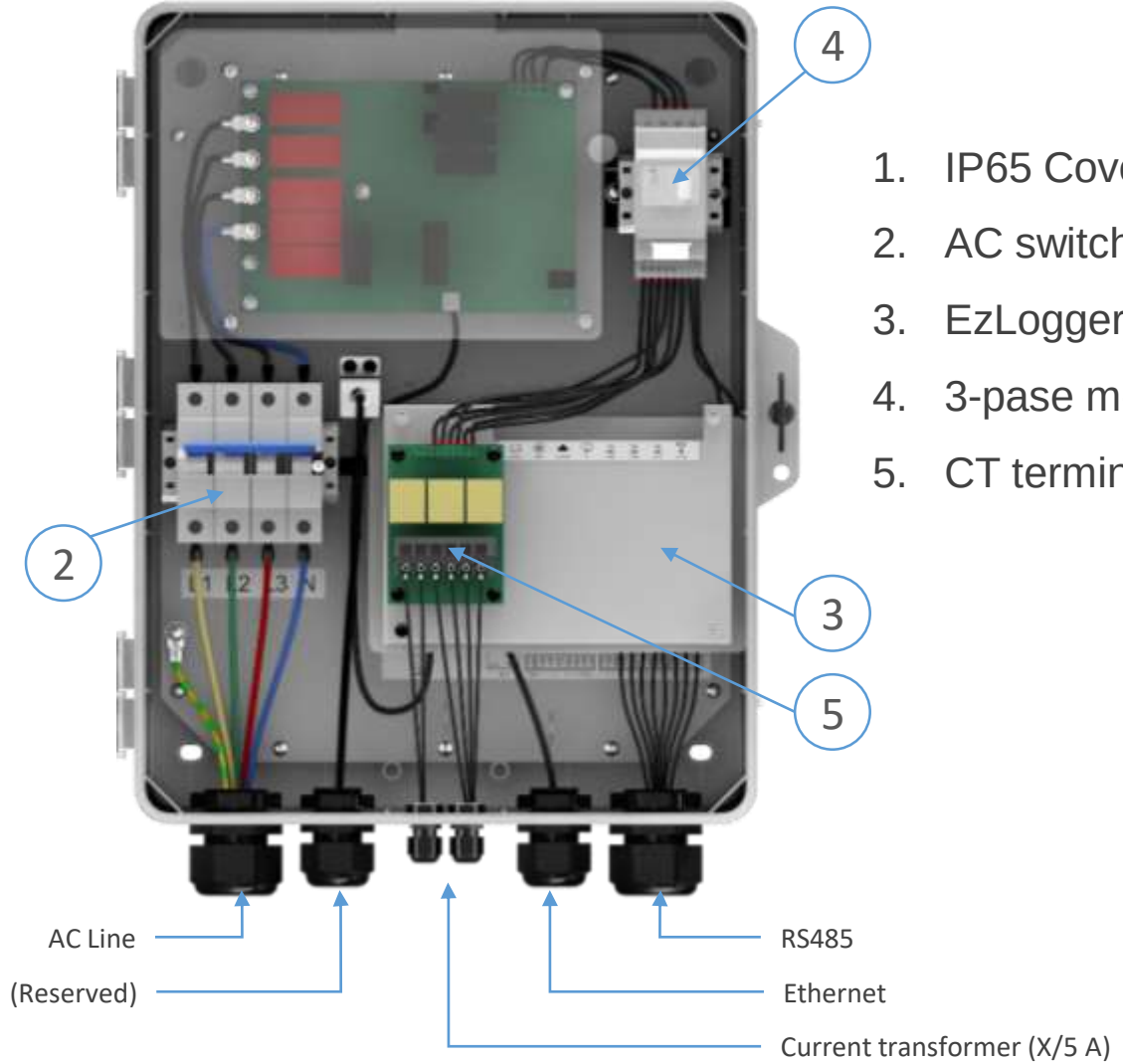
Functions

- Monitoring up to 60 inverters
- Export power limit function
- Load monitoring
- Reactive power control
- Massive update of FW
- Setup using SW Promate

SEC1000 equipped with:

- IP65 cover
- AC switch
- EzLoggerPro
- 3-phase meter
- Current transformer board

1.2 The SEC1000



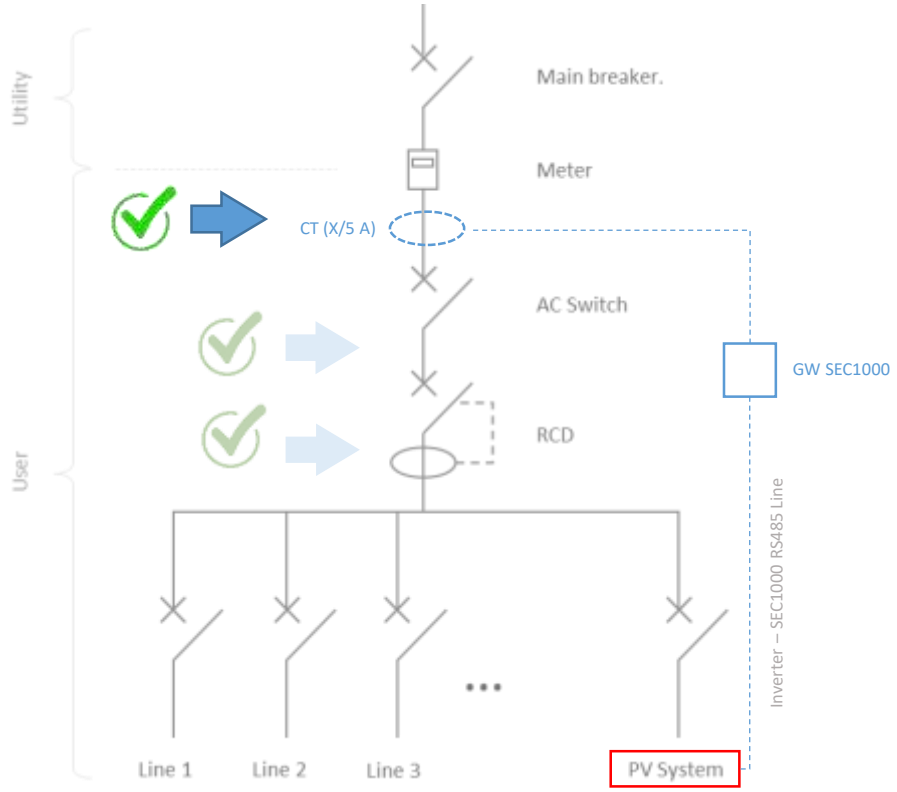
1. IP65 Cover
2. AC switch
3. EzLoggerPro
4. 3-pase meter
5. CT terminal (X/5 A)

1.3 The SEC1000: current transformers

- Current Transformers (CTs) are not included in the SEC1000
- CTs must be appropriate to the electrical installation where they will be installed
- They must be installed in an ideal location to record the import/export flow
- For your selection, special attention should be paid to:
  - Installation in bars vs wiring
  - Primary (X/5 A): suitable for the maximum current of the entire installation (not just PV)
  - Secondary (X/5 A): 5 amps
  - Recommended open-core CT for easy installation

Connecting the current transformers.

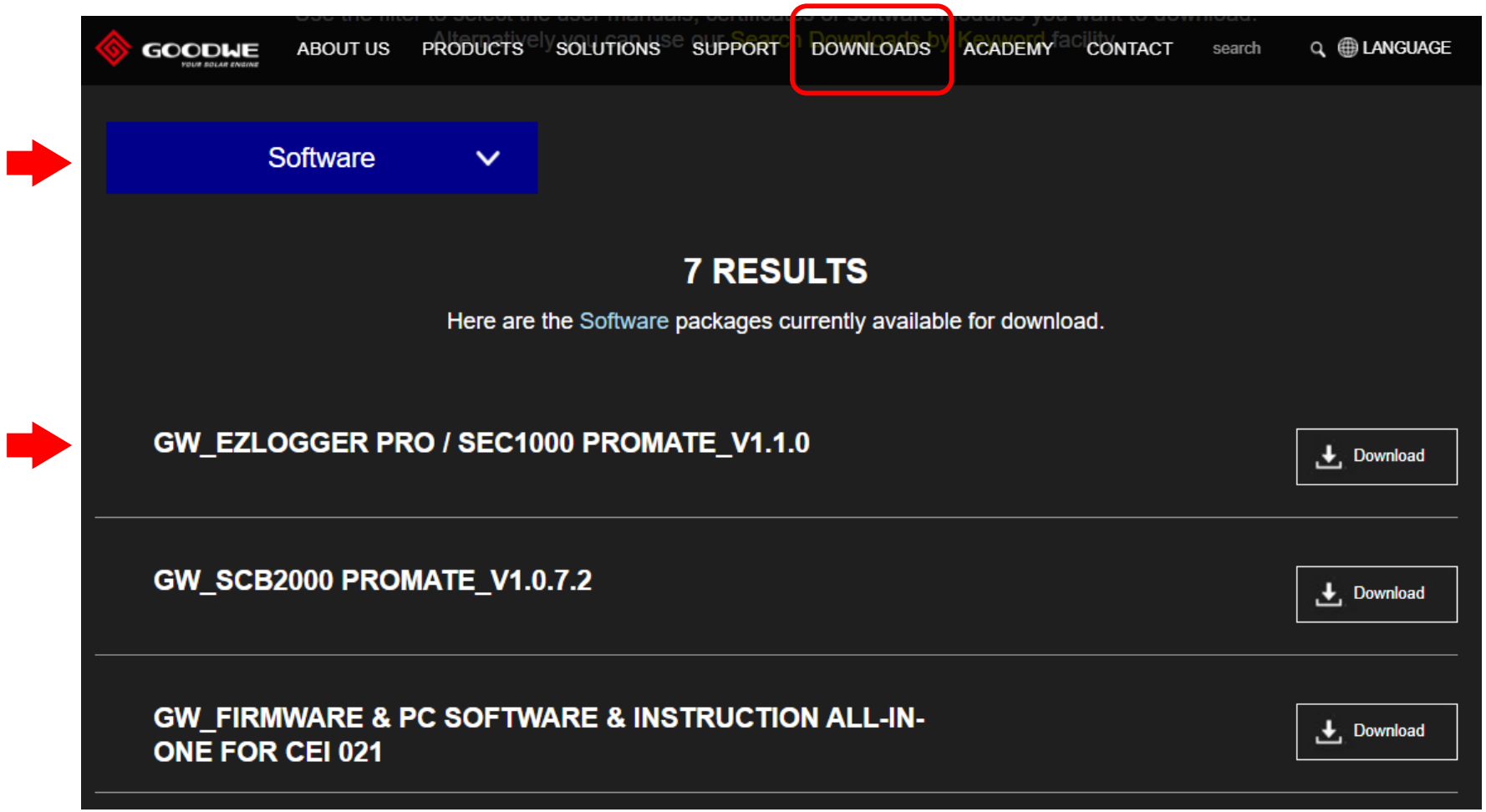
Example of open core current transformers.



Explanatory diagram of the location of the current transformers of the SEC1000.

2.1 Set up EzLoggerPro: Software Promate

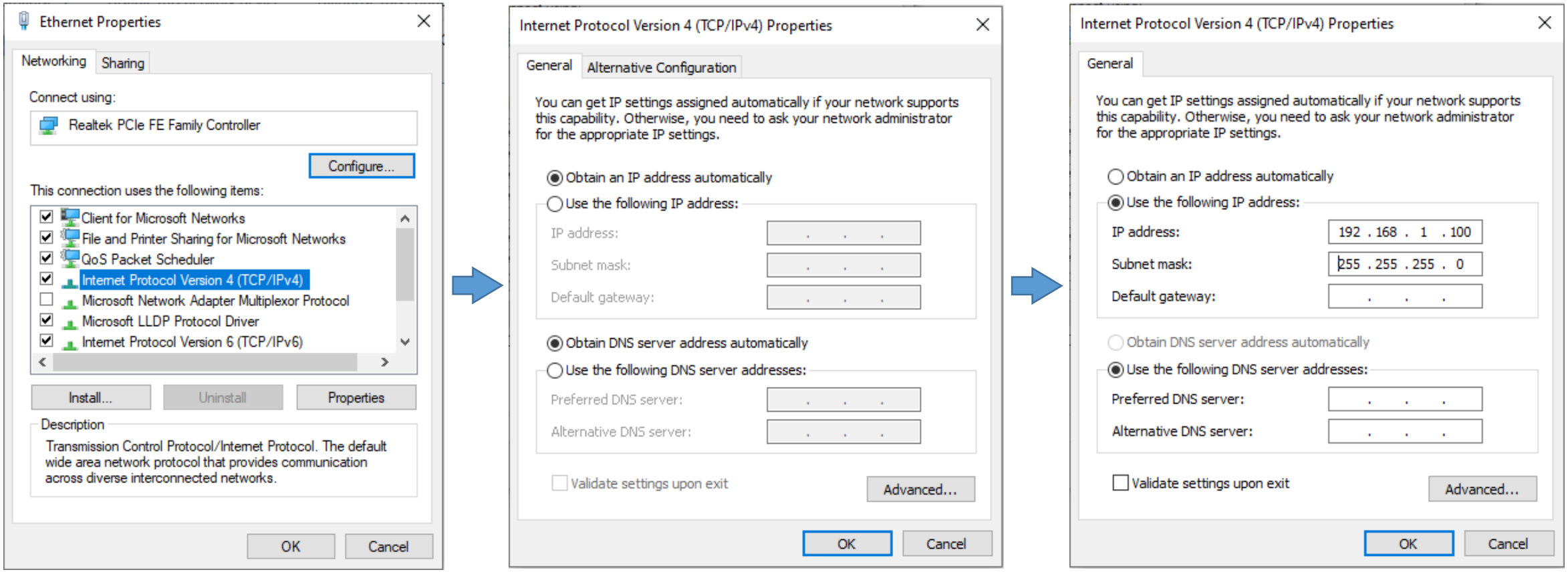
- Download the **Promate** software from goodWe's website: www.goodwe.com/downloads.asp



2.2 Set up EzLoggerPro: Ethernet connection

Set up your computer (PC)

- Connect an Ethernet cable to your laptop and The EzLoggerPro Ethernet port
- Set up your computer's Ethernet connection before using Promate software



2.3 Set up EzLoggerPro (I)

- Make sure your computer's Ethernet connection is set up correctly

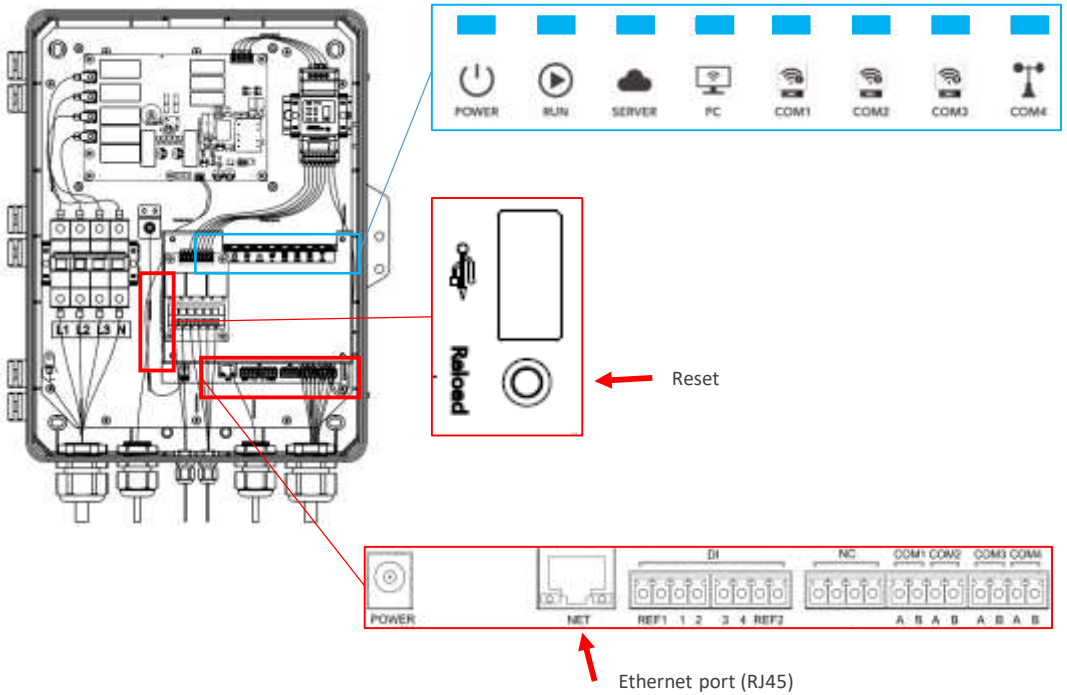
You need:

- Computer
- LAN Cable
- Software Promate (available on the web)

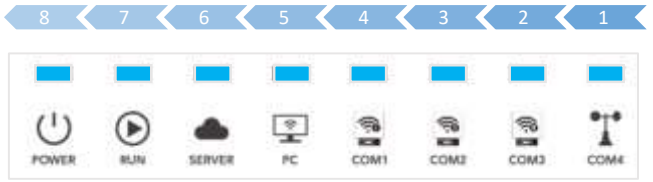
Steps:

1. Connect the computer to the Ethernet port of the EzLoggerPro
2. Press the "Reset" button of the EzLoggerPro (press > 10 sec.)
3. Watch the LEDs:
   a. Right to left sequence → correct (see point 4)
   b. No sequence → repeat point 2
4. Open the software Promate
   a. Wait a few seconds
   b. The LED PC will light up if the connection is correct
5. (Continue)

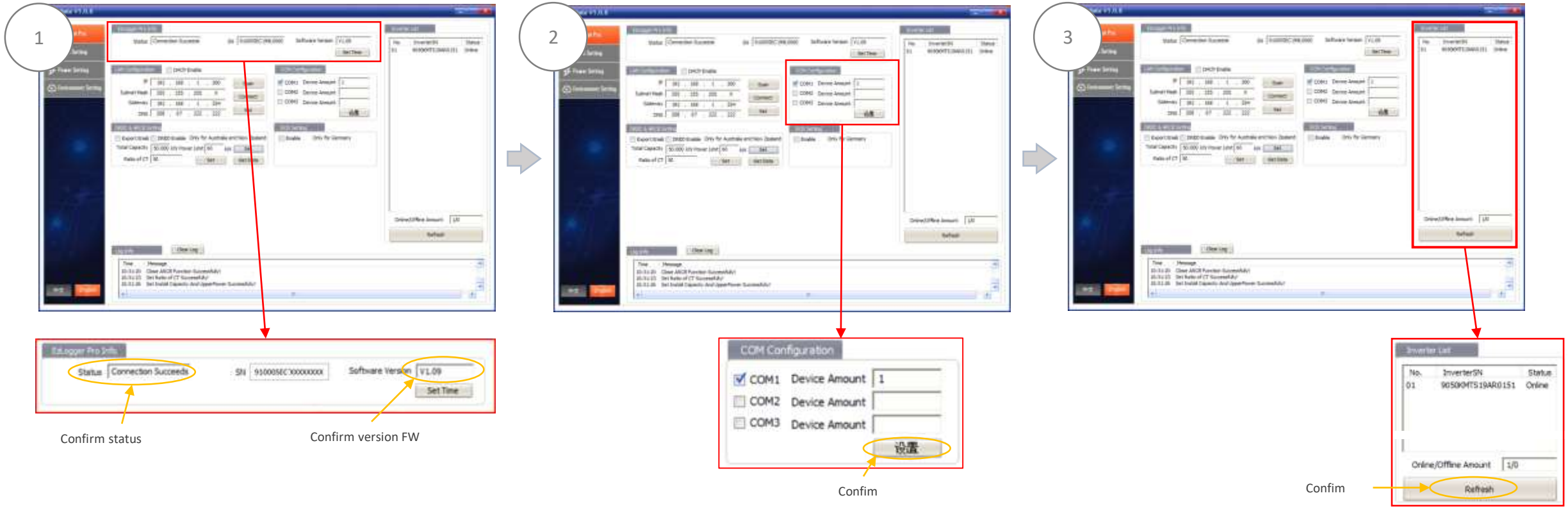
SEC1000



LED lighting sequence



2.4 Set up EzLoggerPro (II)



Step 1:

- Check the connection status with the equipment
  - *Connection Succeeds*: correct
  - *Connection fails*: failed
    - Close and open Promate
    - Repeat the "Reset" step, if necessary
- Check the correct upgarde of the FW
  - FW ≥ V1.09: correct
  - FW < V1.09: incorrect
    - Repeat the upgrade

Step 2:

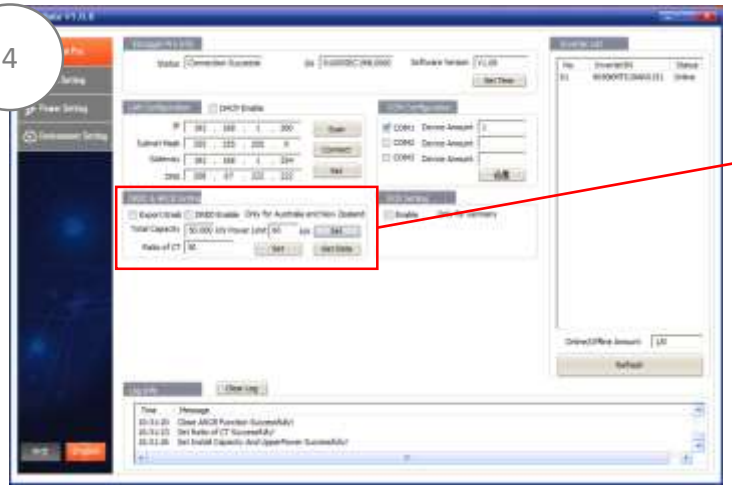
- Activate the corresponding COM port
- Indicate the number of connected inverters (RS485) on the activated port
- Confirm

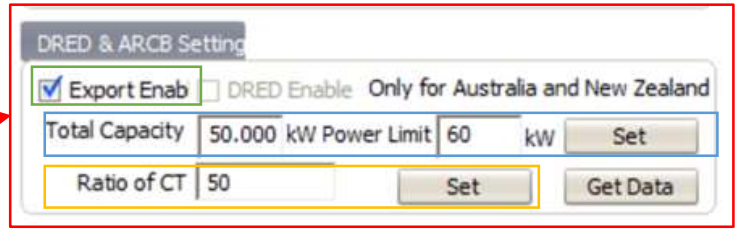
Step 3:

- Refresh the list of inverters
- Check that all inverters connected via RS485 are displayed
- If an inverter is missing, you must check that it is correctly installed and connected to the RS485

2.5 Set up EzLoggerPro (III)

4





4a

Step 4a:
- Click on the "Export Enab" box

4b

Step 4b:
- Indicate the power of the PV system in the "Total Capacity" field
- Indicate the export power to the grid in the "Power Limit" field
  - Without grid export: "0 kW"
  - With export to grid: $P_{Limit} > P_{Total\ Capacity}$
- Confirm “Set”

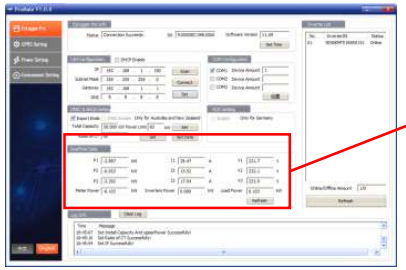
Step 4b (cont.):
- Select the corresponding analysis option
  - *Scan each phase*: by phase
  - *Scan total of three phases*: for the total number of phases (suggested)
- Confirm “Ok”

4c

Step 4c:
- Indicate the ratio of the current transformer installed
- Confirm “Set”
- Confirm “Get Data”

Example "CT Ratio" of Transformer 250/5A

$\frac{250}{5} = 50 \leftarrow$ Ratio

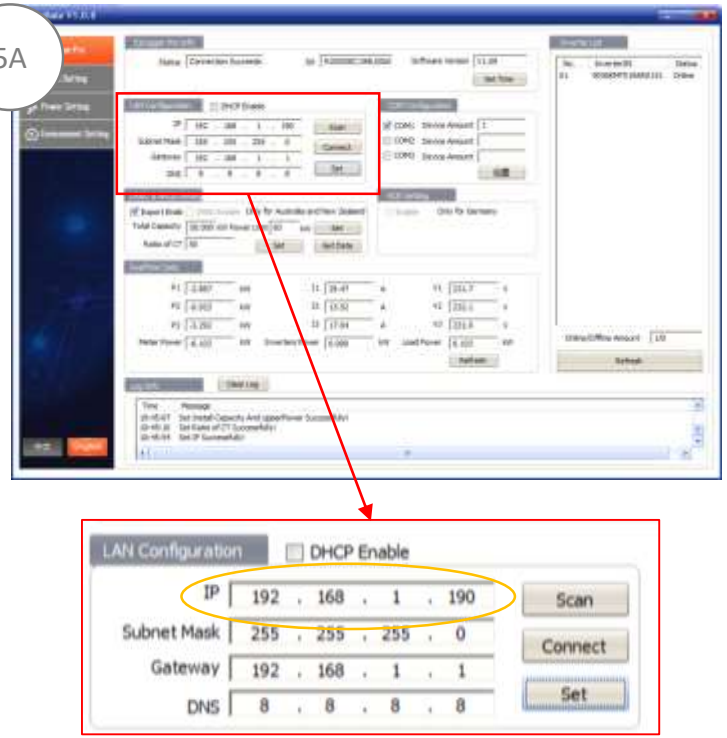


Step 4c (cont.):
- Check the values
  - Power (+): export of energy to the grid
  - Power (-): import of energy from the grid
- If there is any inconsistency, check the installation of the CTs

2.6 Set up EzLoggerPro (IV)

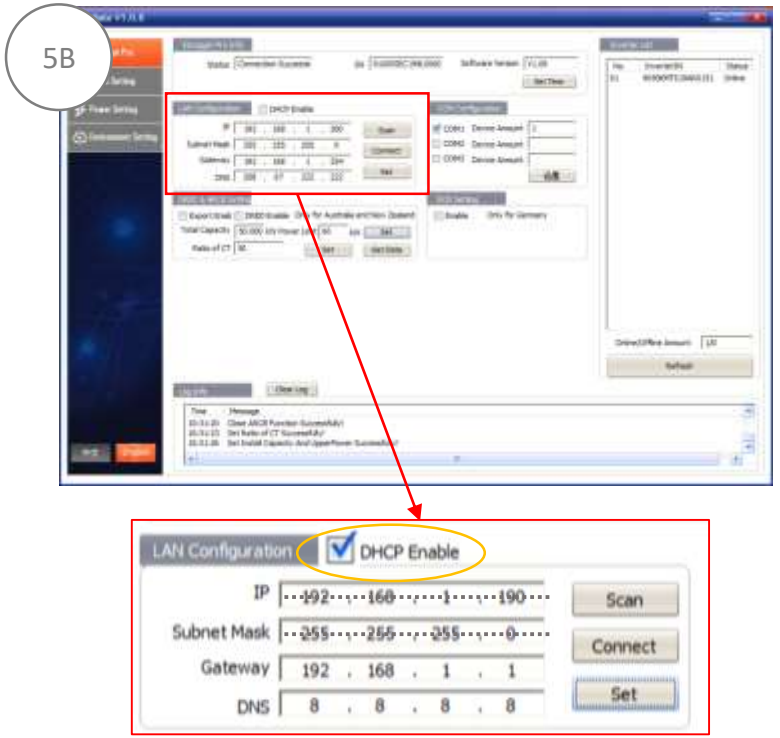
- Proceed according to IP connection type: static (5A) or dynamic (5B)

5A



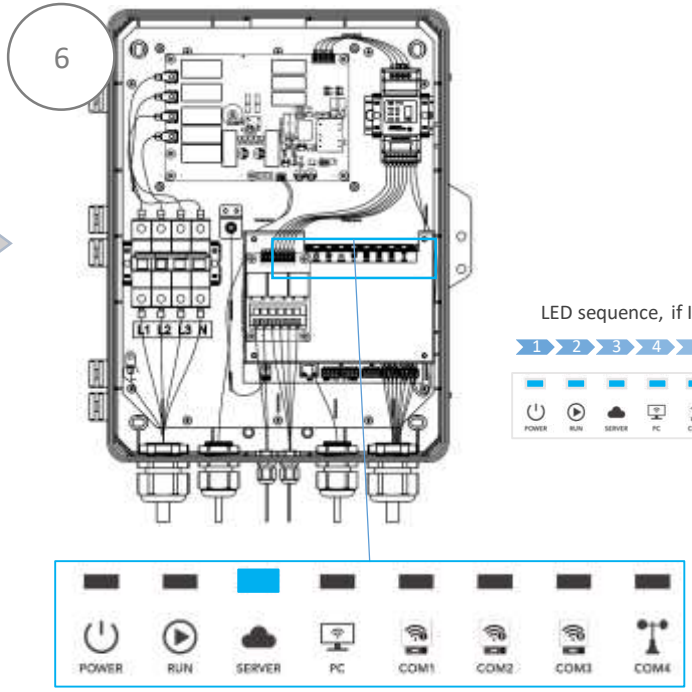
Step 5A: Static IP
- Indicate the IP of the router
- Indicate the Subnet Mask, if necessary
- Indicate the DNS, if necessary
- Confirm “Set”

5B



Step 5B: Dynamic IP
- Check the "DHCP Enable" box
- With dynamic IP, the IP and mask are automatically assigned by the router
- Confirm “Set”

6



LED sequence, if IP Dynamic

Step 6:
- Disconnect the computer from the SEC1000
- Connect the router cable to the ethernet port of the EzLoggerPro

Static IP
- Watch the LED

Dynamic IP
- Press the Reset button (pr > 5 sec.)
- LED sequence from left to right
- Watch the LED “Server”

LED “Server”:
- On: connecting and communicating correctly
- Flashing: communication failed, check assigned IP
- Off: connection failed, check the connection to the router

3.1 How to upgrade the Firmware

- In order to be able to display the consumption and meter curves, the firmware (FW) of the EzLoggerPro must be upgraded, using a USB memory stick.
- If necessary, you must update the SEC1000 using a USB stick.

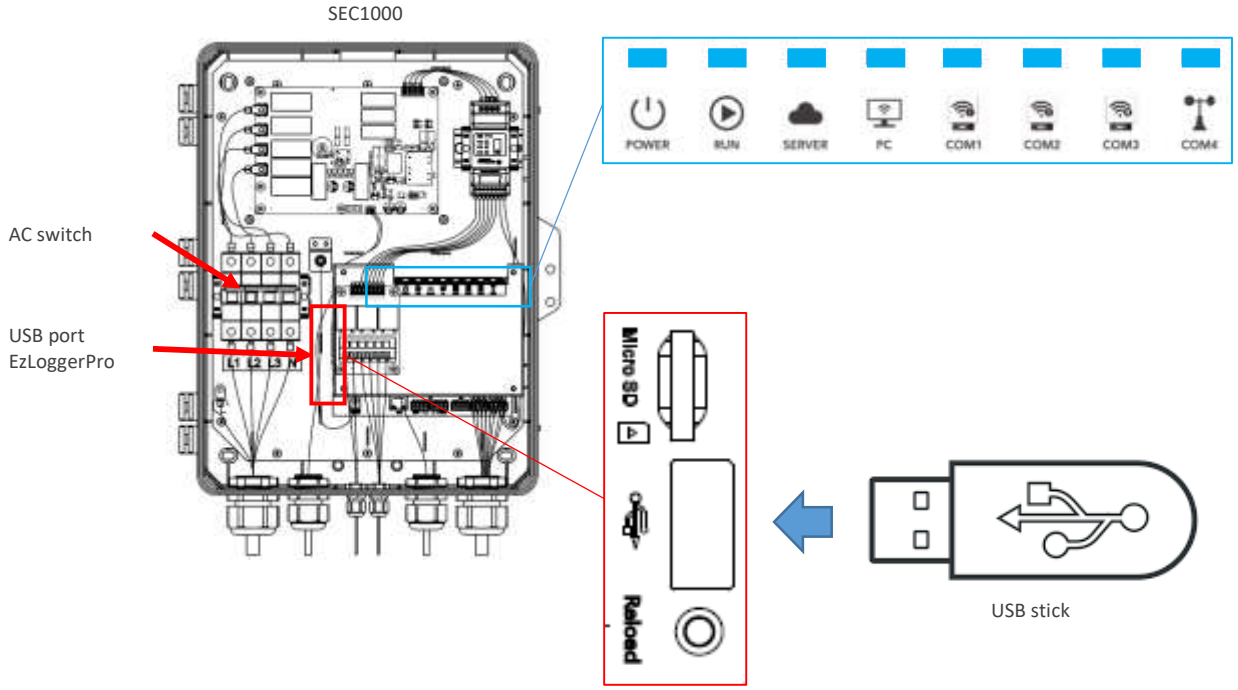
You need:

- USB Memory Stick
- GoodWe Firmware File*

Steps:

1. The USB stick must be empty
2. Save the FW file to the root of the USB
    - No folders or other documents should be on the USB
3. Turn off the AC switch
4. Insert the USB stick into the USB port of the EzLoggerPro
5. Turn on the AC switch
    - The LEDs remain lit during the upgrade
6. Wait until the LEDs flash (approx. 2 mins.)
7. Retract USB stick
8. The upgrade has been completed

(*) You can request the FW file from GoodWe Technical Support.



4.1 Check the SEMS Portal

- The SEC1000 must be added to the FV plant in SEMS next to the inverter(s).
- The correct display in the SEMS Portal must be checked.

Steps:

1. Confirm that the SEC1000 has been added to the plant correctly
   - SEMS > Settings > Plant setup > Device management
2. Status SEC1000:
   a) Online: correct
   b) Offline: check for proper communication:
      i. SEC1000 - router
      ii. Router - server
3. Check the curves shown at the PV plant
   a) If the load curve is shown overlapping the PV generation curve and/or the meter curve is shown flat (image 2), you must check the correct installation of the CTs (polarity)
   b) If the curves are shown independent but inconsistent, you must check the correct installation of the CTs (location) and/or the indicated CT ratio (step 4c)
   c) If the curves are shown independently and coherently (image 3), the installation and display is correct
4. The check has been completed

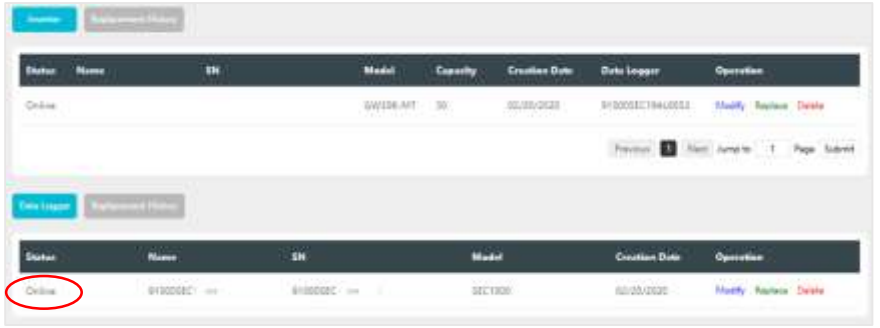


Image 1: status SEC1000.

Image 2: Incorrect PV system curves.

Image 3: Correct PV system curves.

4.2 Check the CT

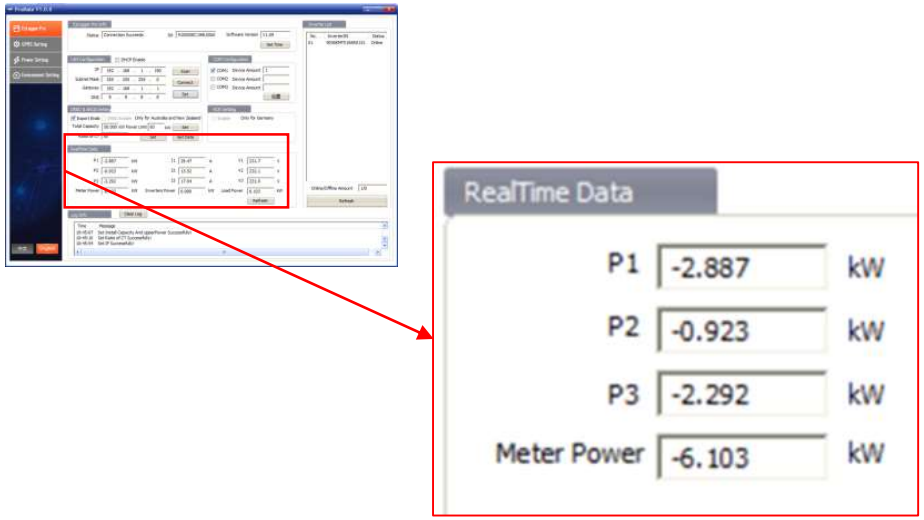
- The correct **setting**, **location** and **direction** of the current transformers (CT) should be checked
- CTs must be installed near the meter.

Checking the displayed real time data:

1. Turn OFF the PV system
    - The energy consumed is supplied by the grid (import)
2. Refresh “Get Data” in Promate
    - “RealTime Data” window will be displayed
3. Check the power values shown
    - Power (+): energy-to-grid export → impossible scenario (system OFF)
        - Check the installation (direction) of CTs
    - Power (-): importing power from the grid → correct
4. Check the consistency of the displayed values*
    - Check the “CT ratio” of the installed transformer (observe 4c)
    - Check the correlation between the measured phase (voltage) and its CT

Example "CT Ratio" of Transformer 250/5A

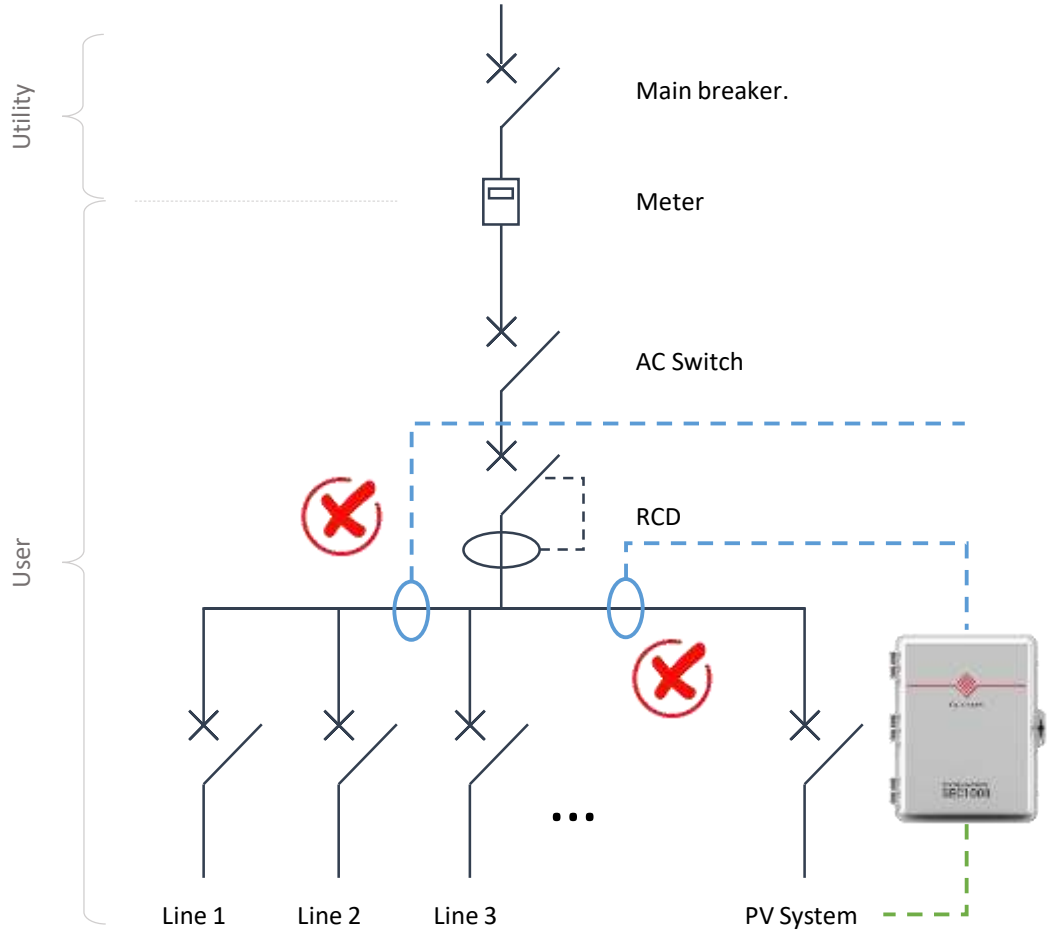
$\frac{250}{5} = \mathbf{50}$ ← Ratio

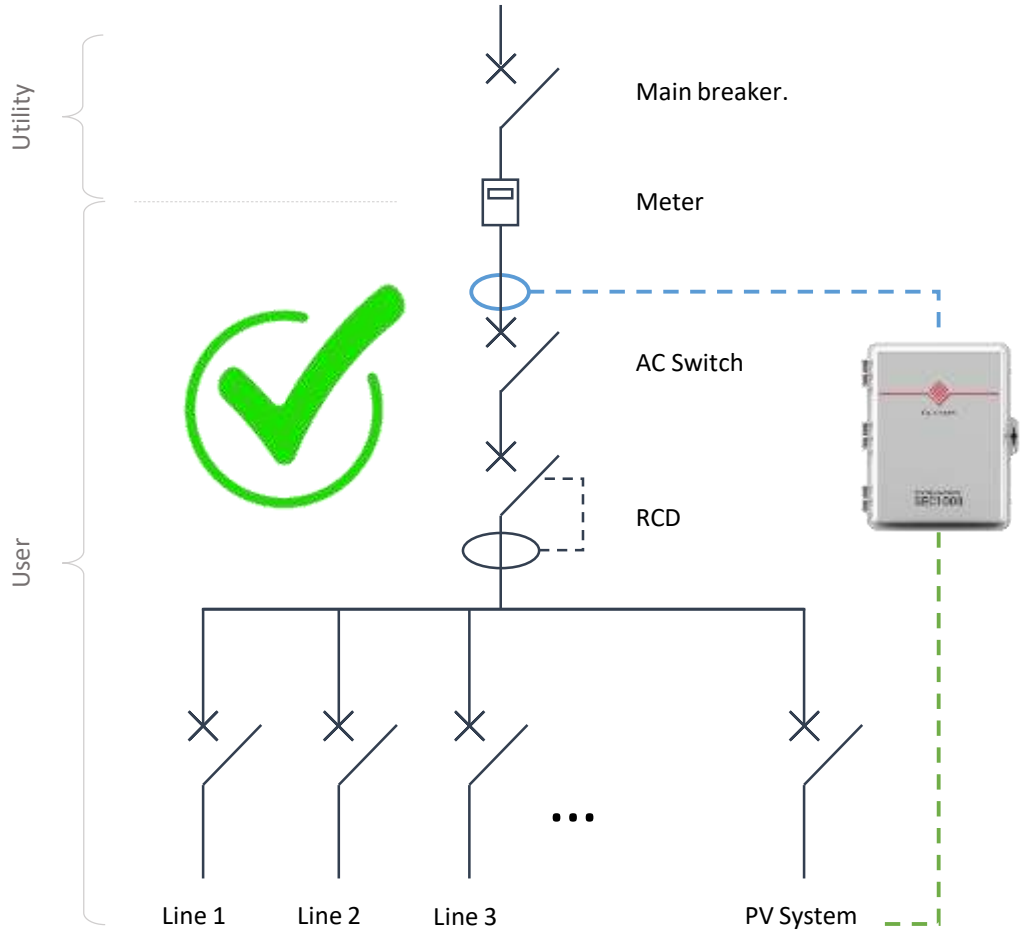


* Ref.: Pi x Ii x Vi x Cos ϕ (± % measurement accuracy) under balanced conditions

4.3 Check the CT

- The correct **setting**, **location** and **direction** of the current transformers (CT) must be checked
- CTs must be installed near the meter.





Schemas and diagrams are shown for illustrative purposes.

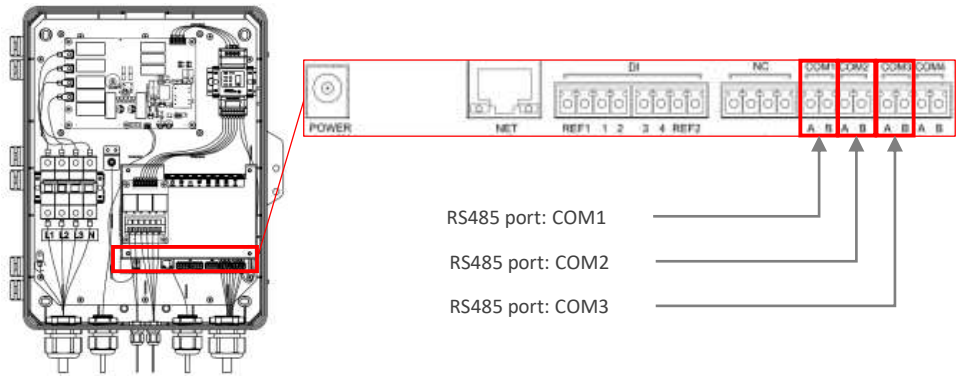
4.4 Check the RS485 connection

- The correct installation and connection of the RS485 line must be checked.

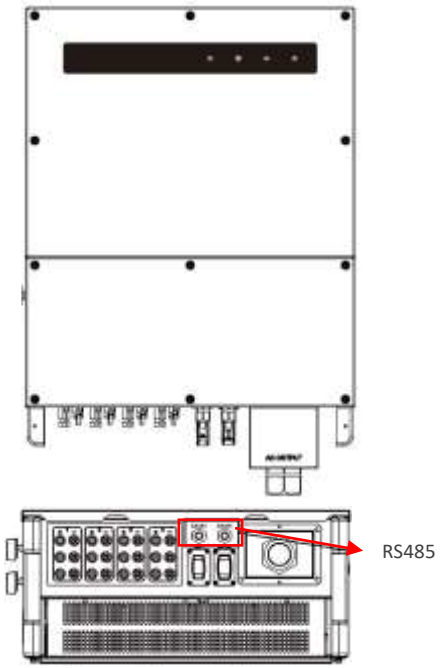
Steps:

1. Check the RS485 connection, observe the inverter manual (available on the web).
2. Correctly locate the inverter's RS485 port
3. Check the RS485 connection on the EzLoggerPro, observe the manual

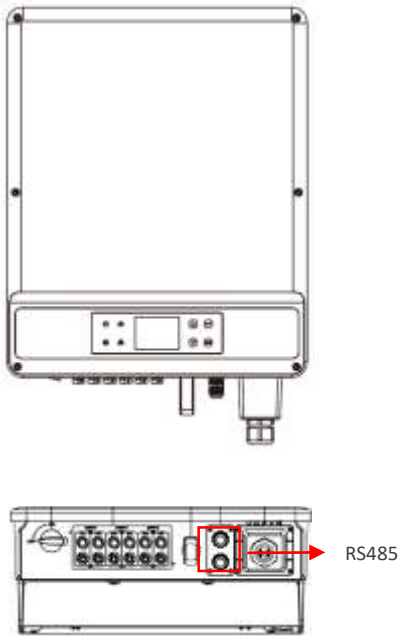
SEC1000



MT Series

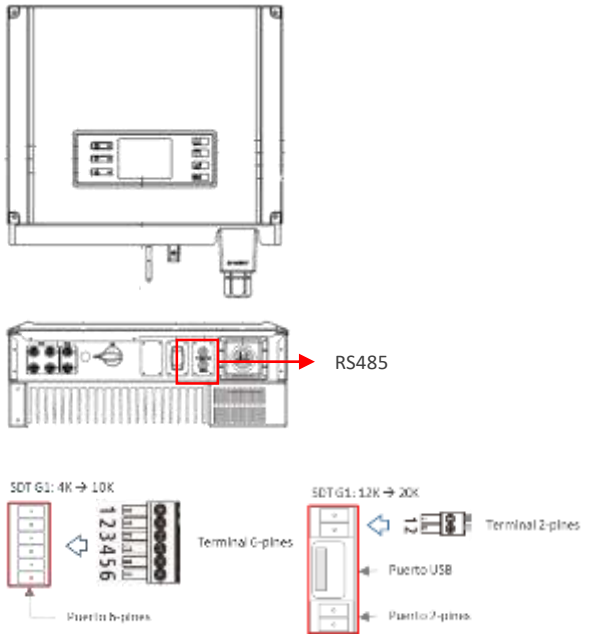


SMT Series

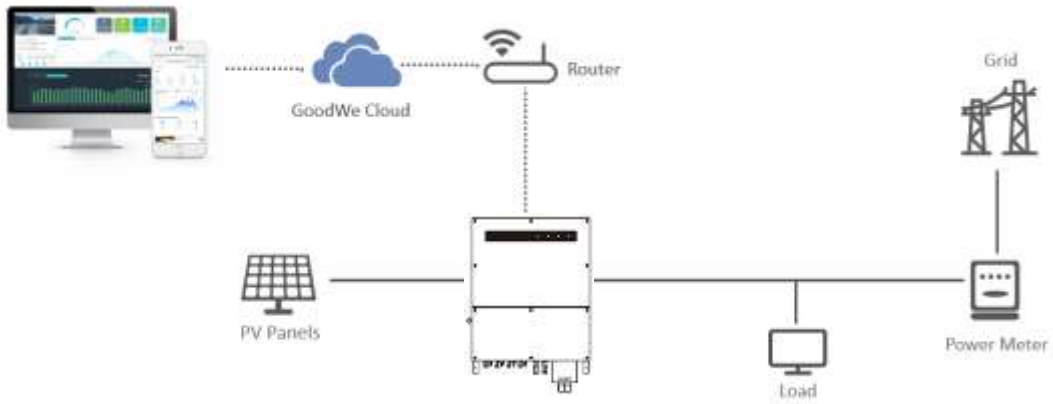


SDT G2 Series

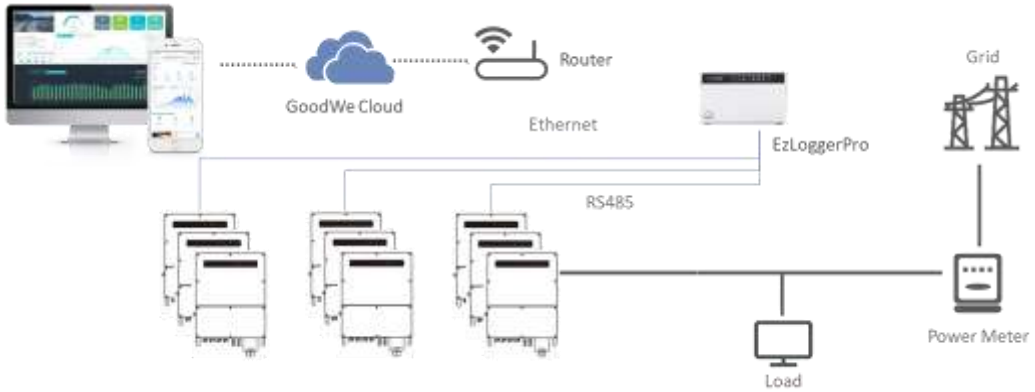
SDT G1 Series



5.1 Diagrams: Commercial & Industrial

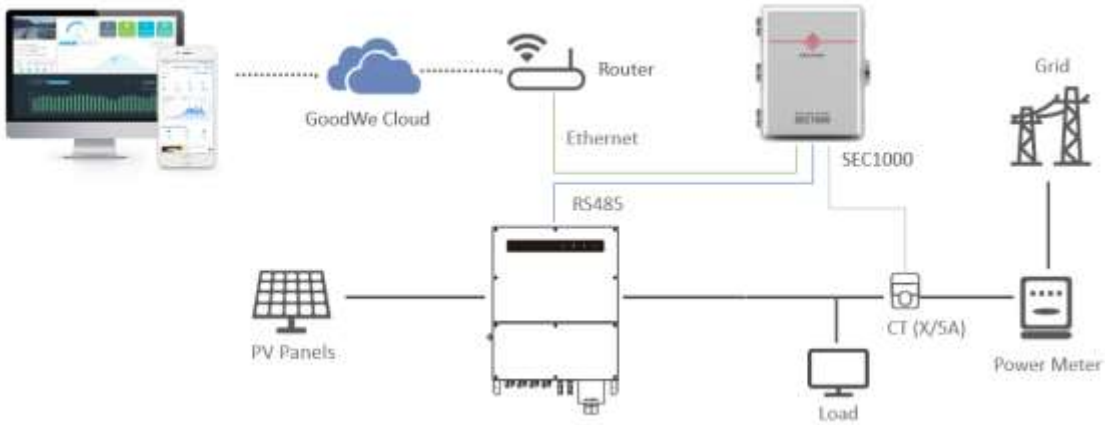


PV Monitoring (Wi-Fi / LAN)

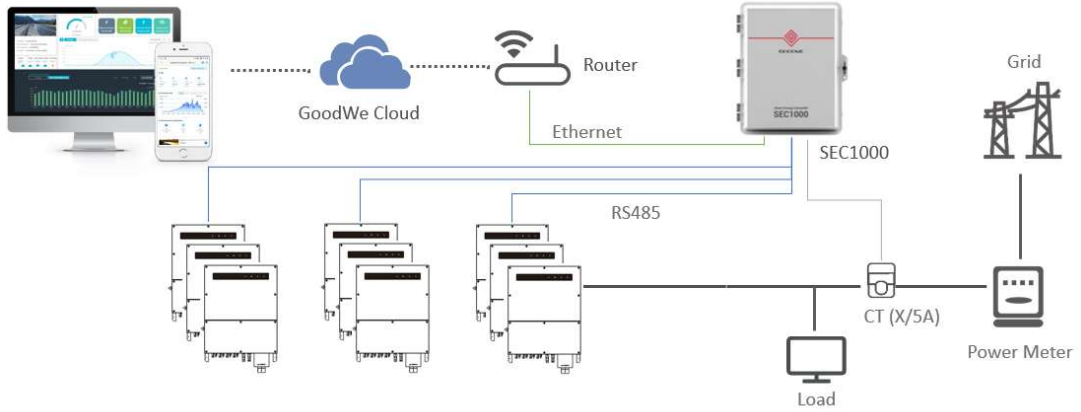


Multiple inverters (up to 60 Inv.)

PV monitoring (EzLoggerPro)



PV + Load monitoring + Export limit (SEC1000)

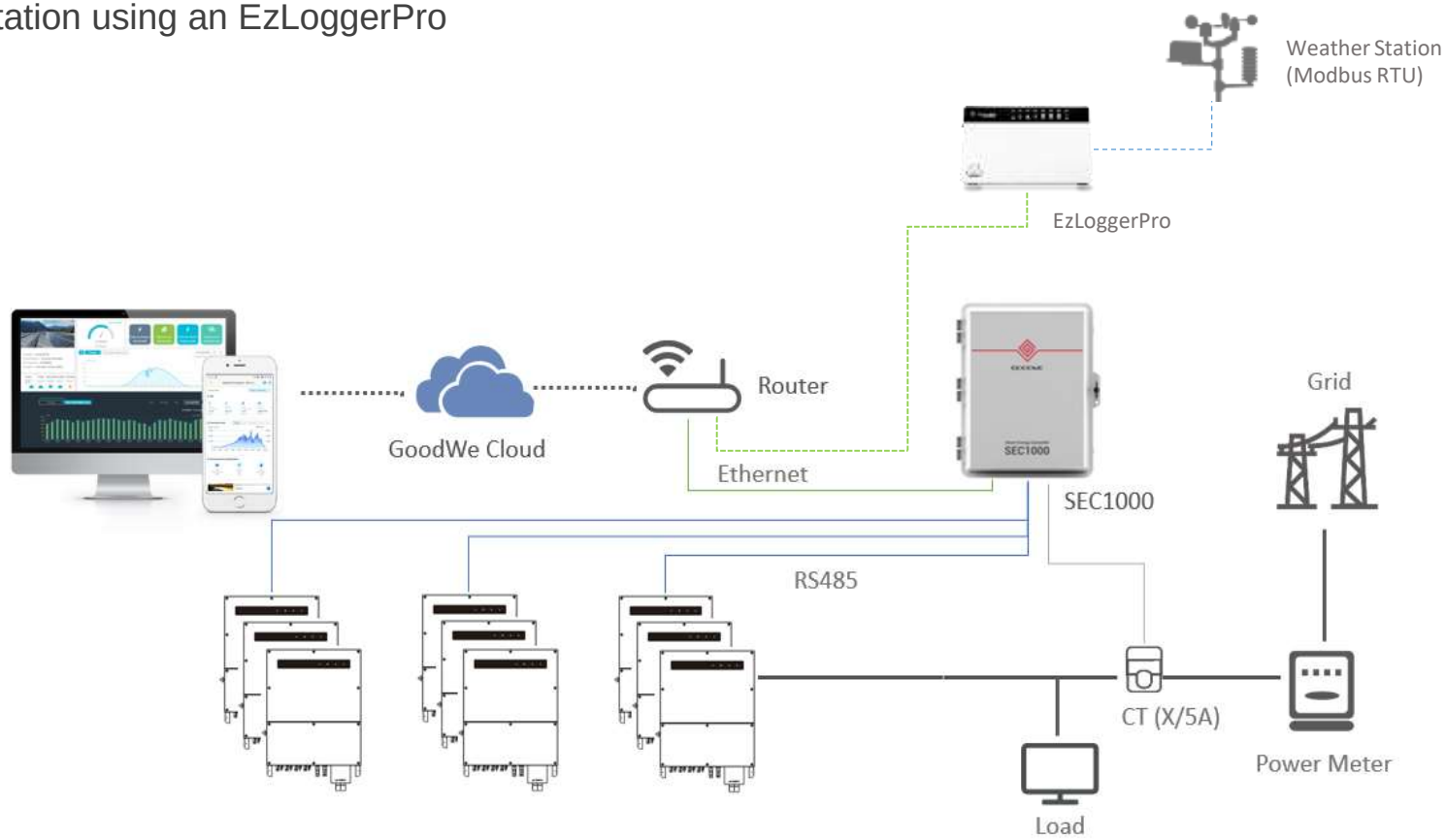


Multiple inverters (up to 60 Inv.)

PV + Load monitoring + Export limit (SEC1000)

5.2 Diagrams: C&I + Weather Station

- Adding a Weather Station using an EzLoggerPro



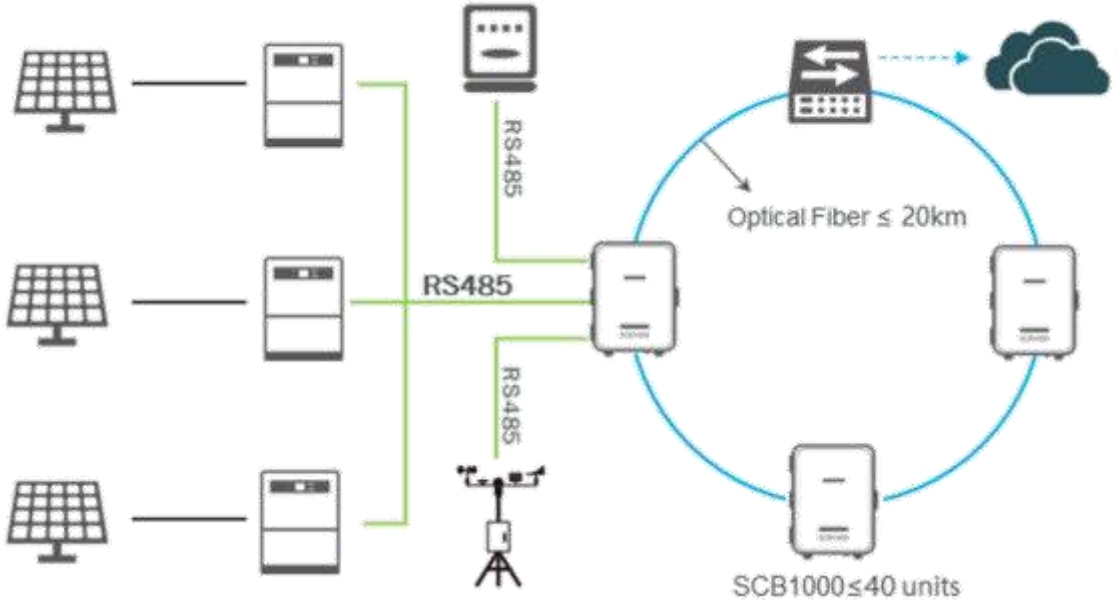
Multiple inverters (up to 60 Inv.)

PV + Load monitoring + Export limit (SEC1000)

Weather Station (EzLoggerPro)

5.3 Diagrams: C&I and Utility scale PV plants

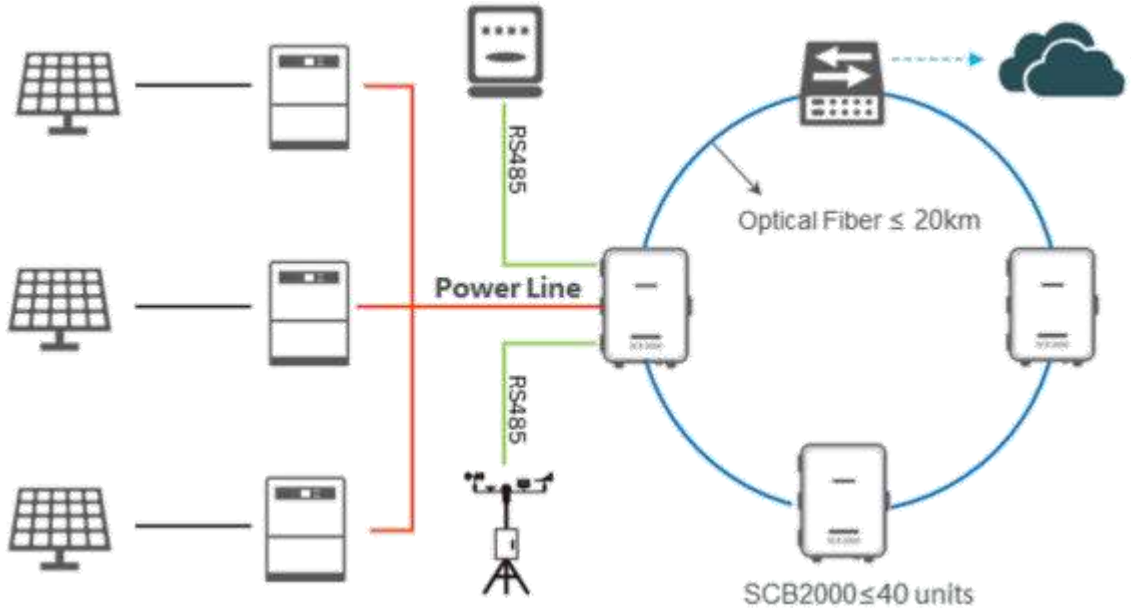
- Optical fiber ring between subsystems and communication to inverters via RS485 or PLC



Multiple inverters

Communication via RS485 y Optical fiber

SCB1000



Multiple inverters

Communication via RS485 y Optical fiber

SCB3000: SMT & HT series

SCB2000: MT series

Thank you!