



# SMA Zero Export solutions for Residential and Commercial systems

Prepared by SMA Solar India 2021

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# Requirement of Zero Export Systems



In the regions where FIT is not available, export control systems allows implementation of solar PV systems for **self consumption**.

**Zero export control can allow for:**

- larger PV systems to be installed
- simplified design where oversizing becomes more cost effective
- potentially avoid extensive grid studies and NVD
- standardized commercial PV system offering
- reduction in application processing time

> Installing **active power control** to restrict export to the grid by a commercial PV system will lower the risks to a project.

# Main components of the Zero export PV system



## On-Grid PV inverter



## Controller



SMA Sunny Home Manager up to 300kW

SMA Data Manager up to 2.5MW



## Feedback/ Smart Meter



SMA Energy Meter (LV connection)

Janitza UMG604 (MV connection)



# On-grid PV inverters – Residential and Commercial



## Single Phase- Sunny Boy



SB1.5/2.0/2.5-1VL-40  
SB3.0/3.6/4.0/5.0/6.0-1AV-41

## Three Phase- Residential



STP3.0/4.0/5.0/6.0-1AV-40  
STP8.0/10.0-1AV-40

## Three Phase- Commercial



STP15000/20000/25000TL-30  
STP50-40, STP50-41  
STP110-60  
SHP 75/100/150

# Monitoring and Control



- **Data recording, monitoring and control** of decentralized PV systems is even simpler, faster and more efficient.
- Specifically tailored to the needs of PV system operators, PV system managers and service technicians.
- Supports up to **50 devices or 2.5MW**
- Master-Slave topology for systems more than 50 inverters
- Two powerful components perfectly in tune with each other
- Cutting-edge, uniform UI design
- Future-oriented functions for an automated grid management service
- Access to the quickly changing energy market of the future via **ennexOS**

## Data Manager M and Sunny Portal powered by **ennexOS**



# DATA MANAGER M and SUNNY PORTAL powered by ennexOS



## Central communication unit

Always up-to-date due to **automatic update function**.



## Open interfaces

- Ripple control receiver interface (4 DIs + fast stop)
- Direct marketing interface
- [SCADA interface \(Modbus/TCP\)](#)

## User administration

- One central administration account
- Access via [Sunny Portal](#) account

## Fast configuration and commissioning

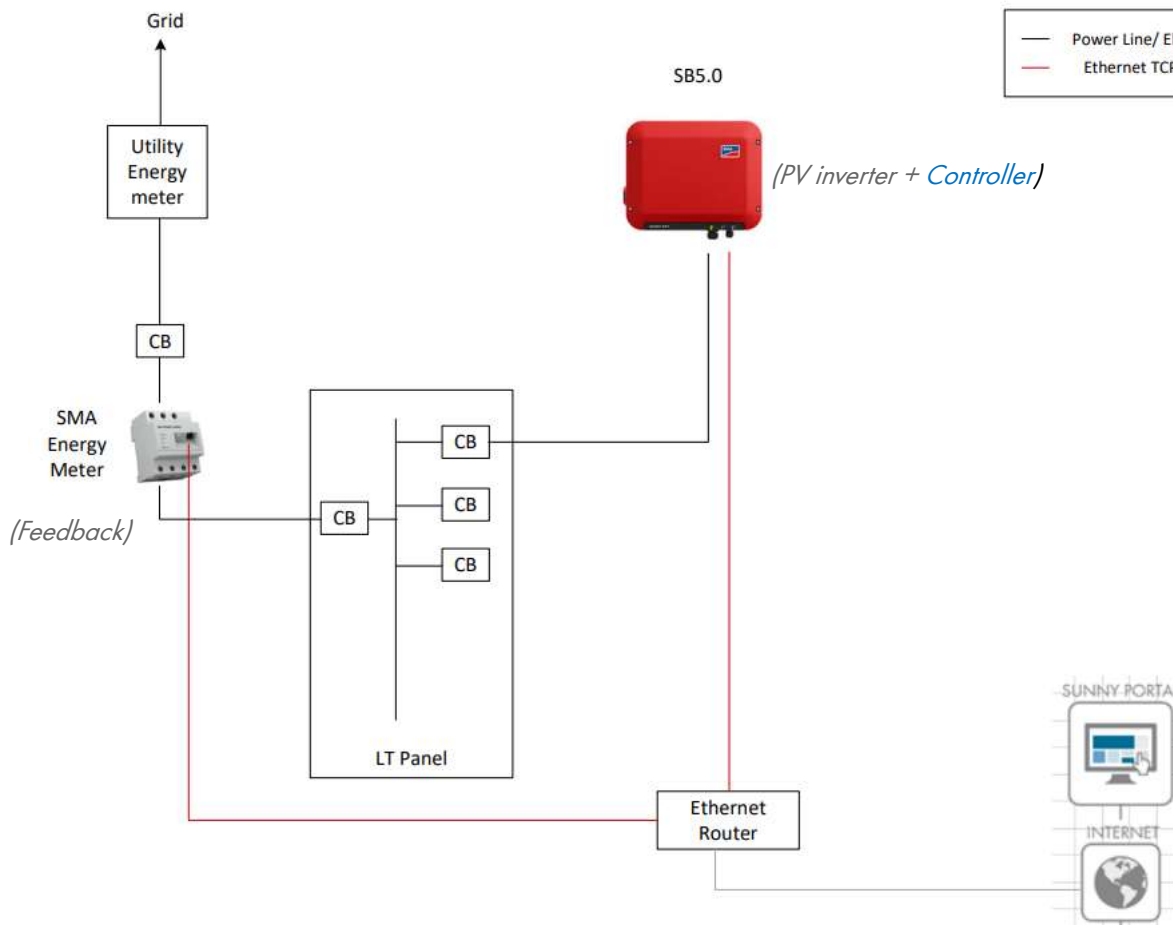
- Convenient commissioning via integrated set-up assistant
- [Secure remote configuration](#) of the Data Manager and inverters

## Improved grid system services

- Zero export
- Reactive power functions (Q setpoint,  $\cos \varphi$  setpoint, Q(V))



# Single Phase Zero Export Systems with Single Inverter system



## System Components :

### SMA

- PV Inverter : 01 Single Phase Sunny Boy
  - SB1.5/2.0/2.5-1VL-40
  - SB3.0/3.6/4.0/5.0/6.0-1AV-41
- Feedback: SMA Energy Meter

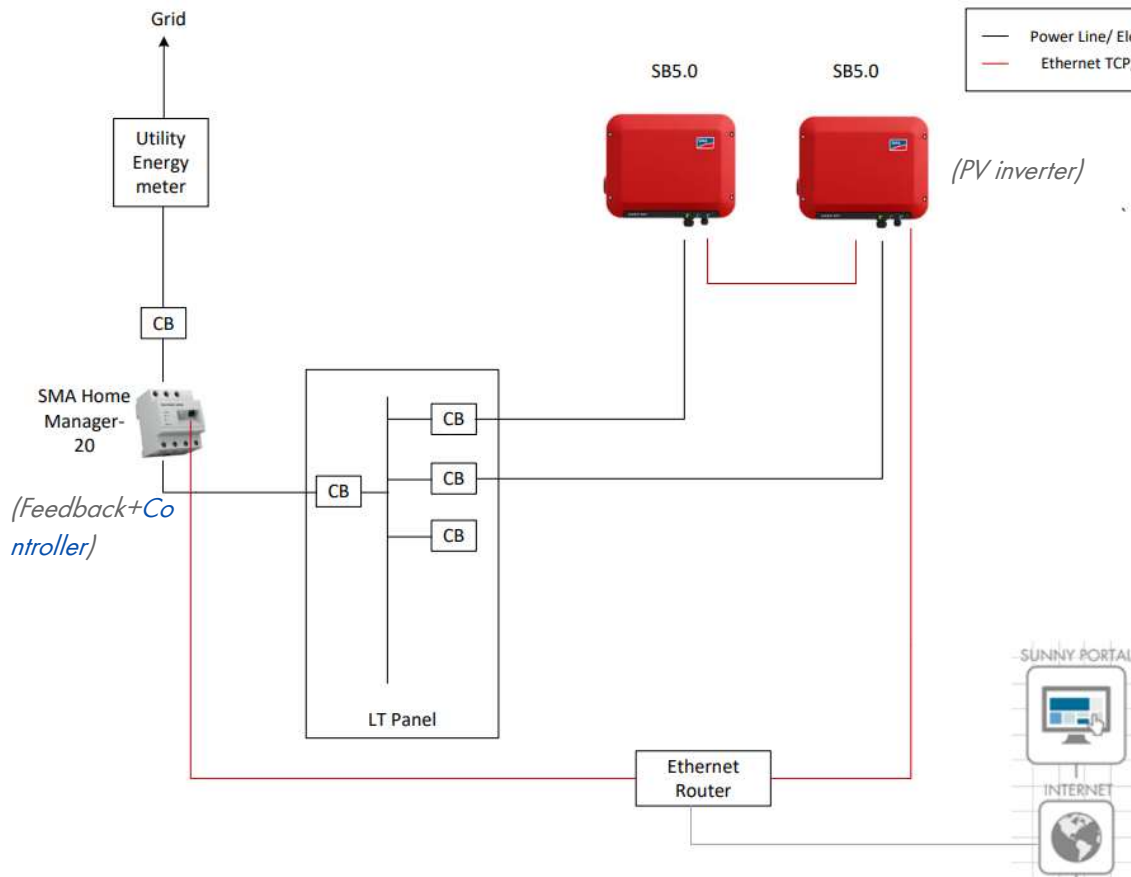
### Third Party

- Ethernet router





# Single Phase Zero Export Systems with Multiple Inverter system



## System Components :

### SMA

- PV Inverter : 2 or more Single Phase Sunny Boy Inverters
  - SB1.5/2.0/2.5-1VL-40
  - SB3.0/3.6/4.0/5.0/6.0-1AV-41
- Feedback: SMA Sunny Home Manager 2.0

### Third Party

- Ethernet router

# Three Phase Zero Export Systems (up to 300kW or 12 inverters)



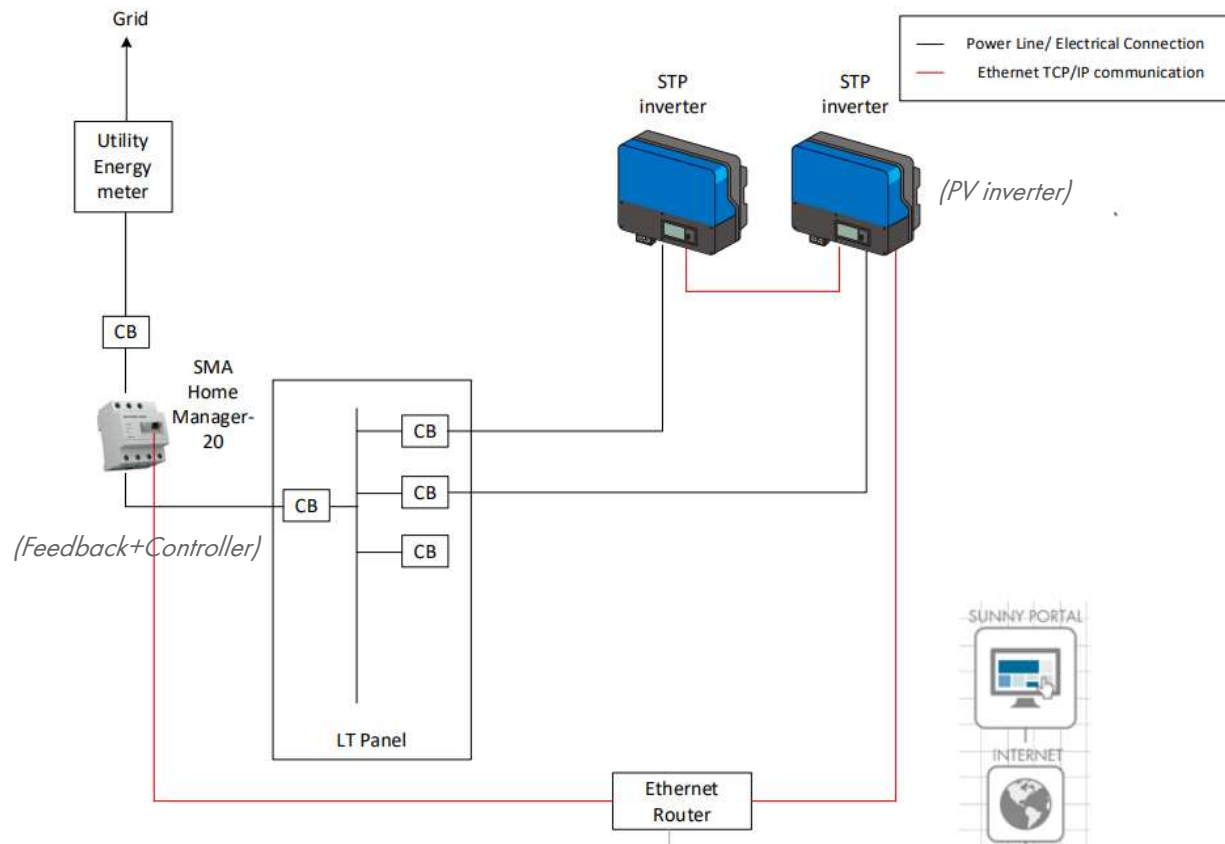
## System Components :

### SMA

- PV Inverter : Three Phase Sunny Tripower Inverters
  - STP3.0/4.0/5.0/6.0-1AV-40
  - STP8.0/10.0-1AV-40
  - STP15000/20000/25000TL-30
  - STP50-40, STP50-41
- Feedback: SMA Sunny Home Manager 2.0

### Third Party

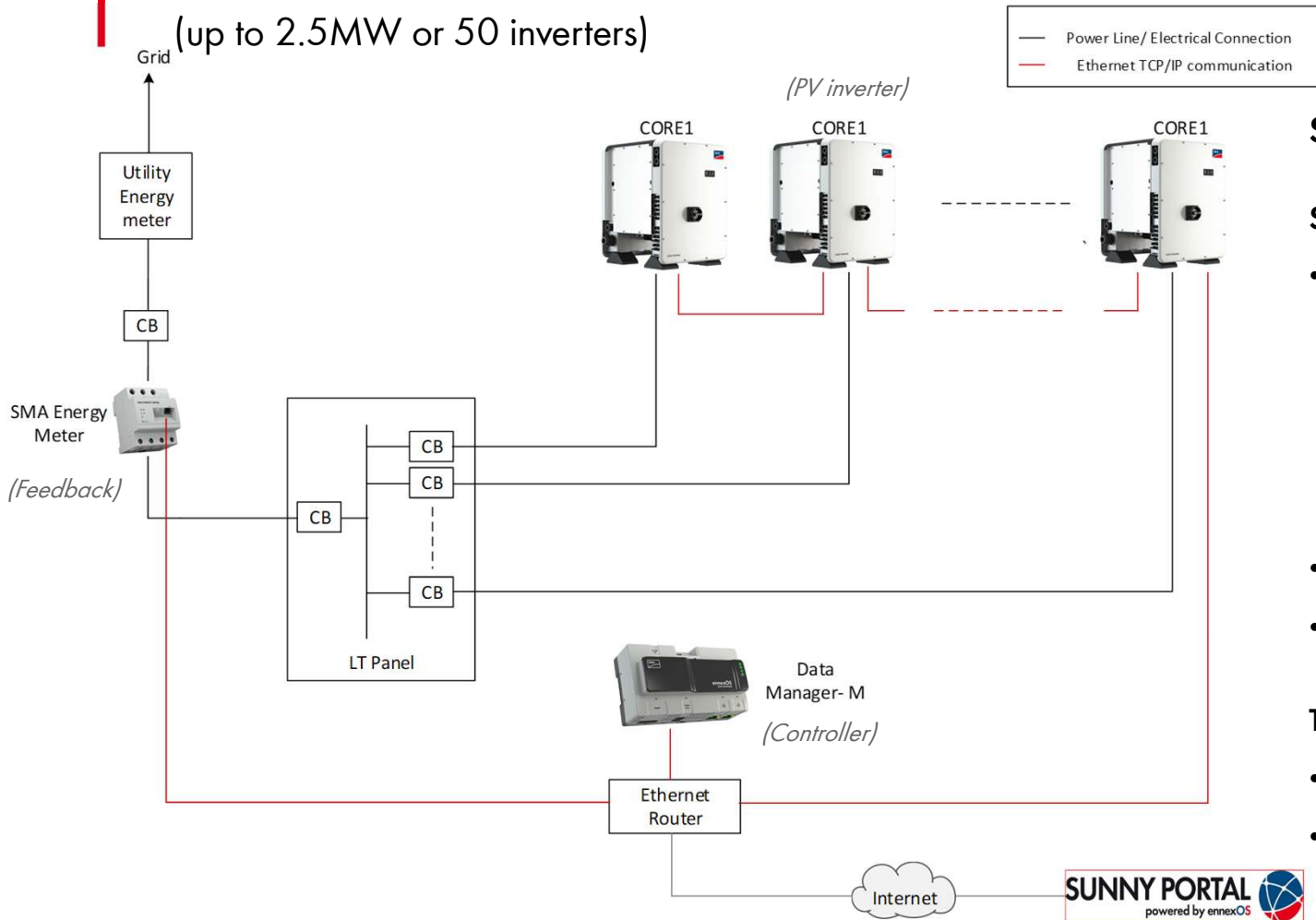
- Ethernet router



# Three Phase Zero Export Systems – LV Connection



(up to 2.5MW or 50 inverters)



## System Components :

### SMA

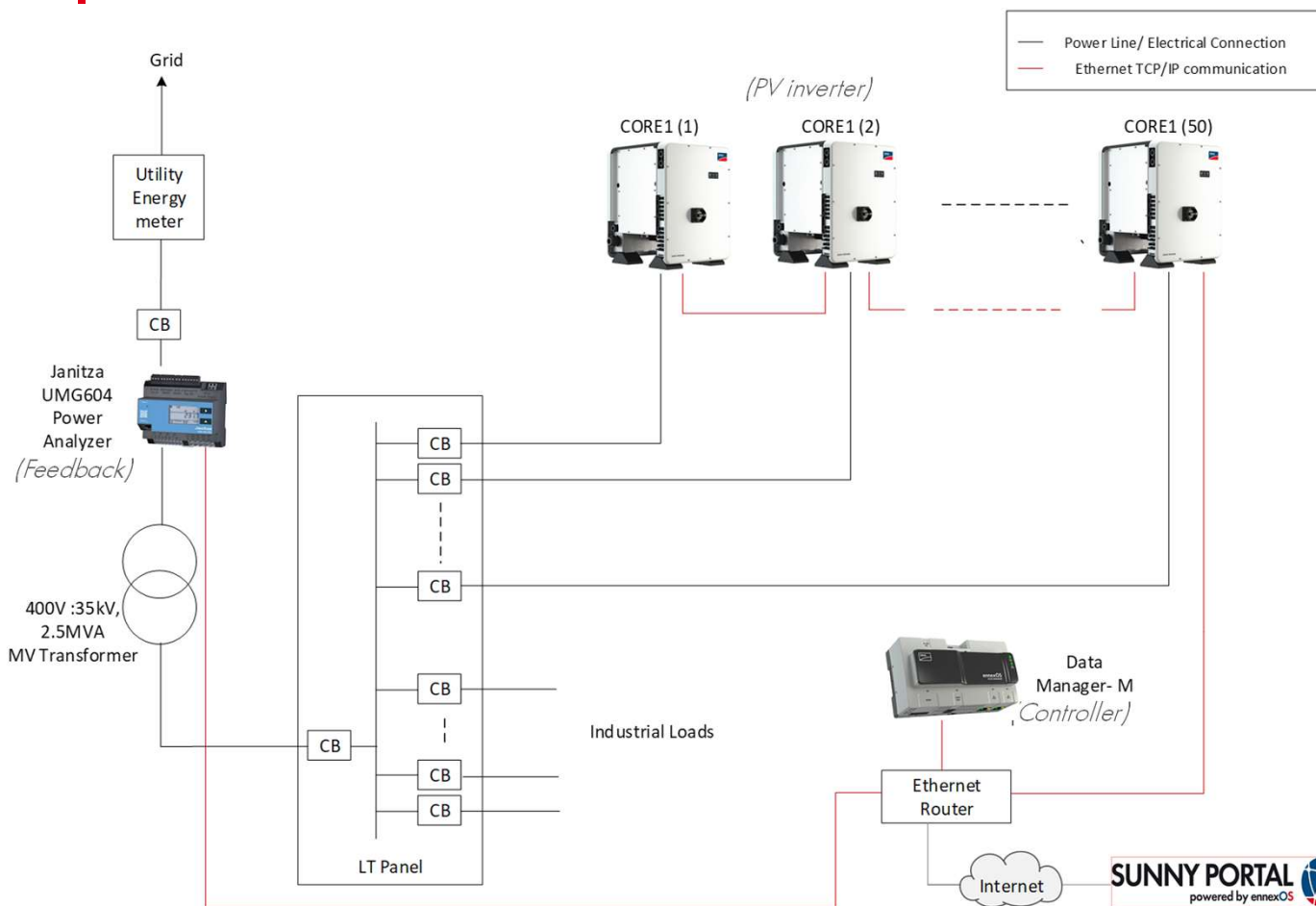
- PV Inverter : Three Phase Sunny Tripower Inverters
  - STP15000/20000/25000TL-30
  - STP50-40, STP50-41
  - STP110-60 (20 devices per EDMM)
- Controller: SMA Data Manager-M
- Feedback: SMA Energy Meter

### Third Party

- Ethernet router
- Ethernet Cables



# Three Phase Zero Export Systems – MV or HV connection (up to 2.5MW or 50 inverters)



## System Components :

### SMA

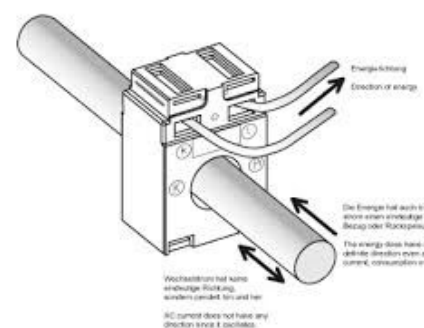
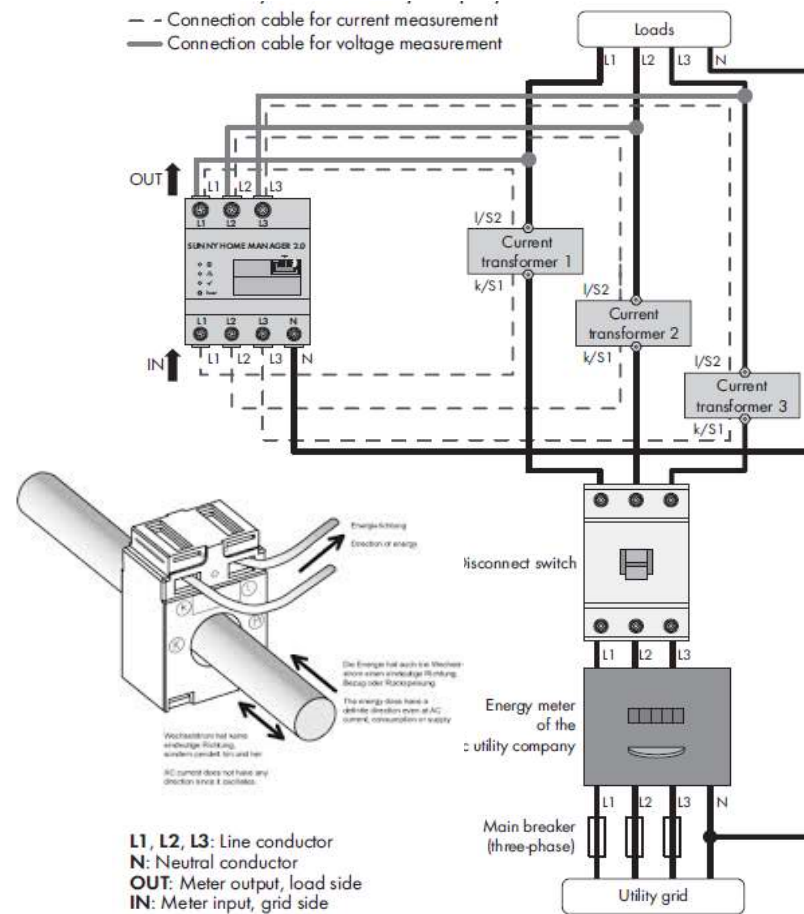
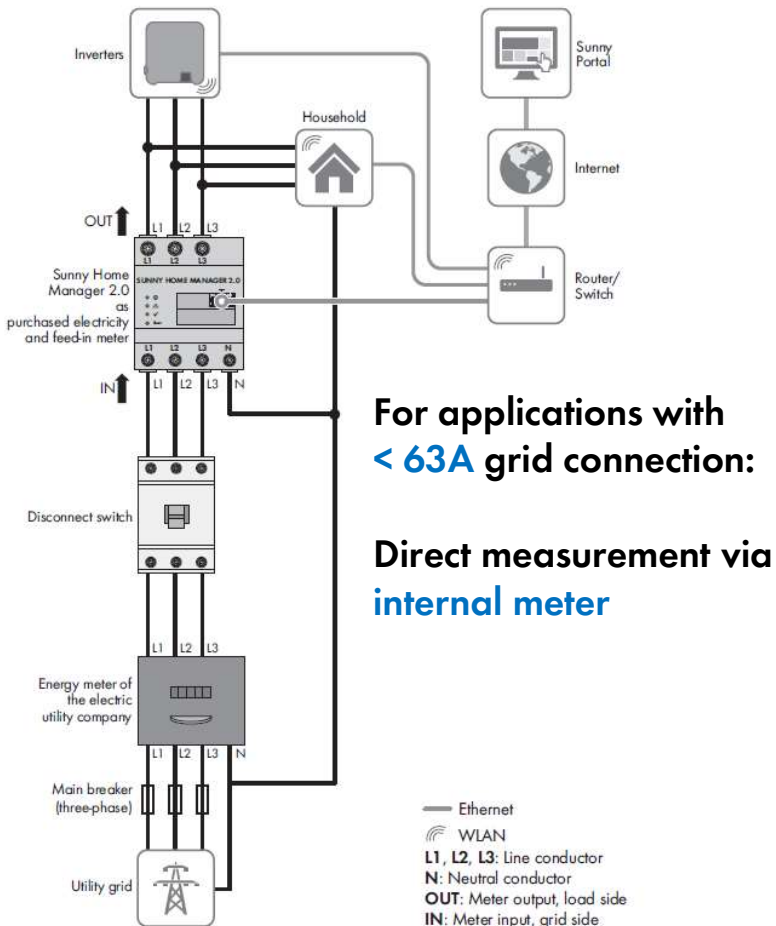
- PV Inverter : Three Phase Sunny Tripower & Sunny Highpower Inverters
  - STP15000/20000/25000TL-30
  - STP50-40, STP50-41
  - STP110-60 (20 devices per EDMM)
  - SHP100/150- 20
- Controller: SMA Data Manager-M
- Feedback: Janitza UMG 604

### Third Party

- Ethernet router
- Ethernet Cables



# Sunny Home Manager 2.0 and SMA Energy meter connection



For applications with > 63A grid connection:  
→ "External current transformer"

# Configuration in Data Manager M



The screenshot shows the SMA Data Manager M configuration interface. The left sidebar contains a 'CONFIGURATION' menu with the following items: 'IGULD Plant PV system', 'PV system properties', 'Device registration', 'Device administration', 'Meter configuration', 'Grid management service' (highlighted with a red box), 'Sensor assignment', 'Parameters', and 'Device parameter adjustment'. The main content area displays the 'CONFIGURATION ENERGY METER' settings under the 'Electrical' section. It includes a table with columns for Position, Device, and Channel.

Position	Device	Channel
Purchased electricity	SMA Energy Meter 1900211903	Grid reference counter
Grid feed-in	SMA Energy Meter 1900206773	Grid feed-in counter
PV generation	All PV inverters	PV generation

The screenshot shows the SMA Data Manager M configuration interface with a dialog box for 'Grid management service'. The dialog box has a progress bar with five steps: 1. STEP, 2. STEP, 3. STEP (selected), 4. STEP, and 5. STEP. The 'Setting of the signal sources' section is active, showing 'MANUAL CONTROL' and 'CONSTANT SETPOINT' options. The 'Active power setpoint\*' field is set to 0%.

# Thank You

## SMA Vietnam Sales

Contact No. +84 939 123 199  
[phuong.do@sma.de](mailto:phuong.do@sma.de)

## SMA Service

Contact No +91 22 6171 3888  
<https://my.SMA-Service.com>  
[sma-vietnam@infraso.com.vn](mailto:sma-vietnam@infraso.com.vn)