

Communication Logic of C&I LUNA

One SACU or SmartLogger manages multiple ESSs, PCSs, and SUN2000s, one IMD, and one meter to form an array. Intra-array:

- The SUN2000s communicate with the SACU or SmartLogger, the IMD communicates with the SACU or SmartLogger, and the meter communicates with the SACU or SmartLogger over **RS485**.
- The ESSs communicate with the SACU or SmartLogger over **FE** in star or **Fiber** Ring topology.
- The PCSs communicate with the SACU or SmartLogger over **FE** in star or ring topology.

****Maximum communication distance of the SACU or SmartLogger:**

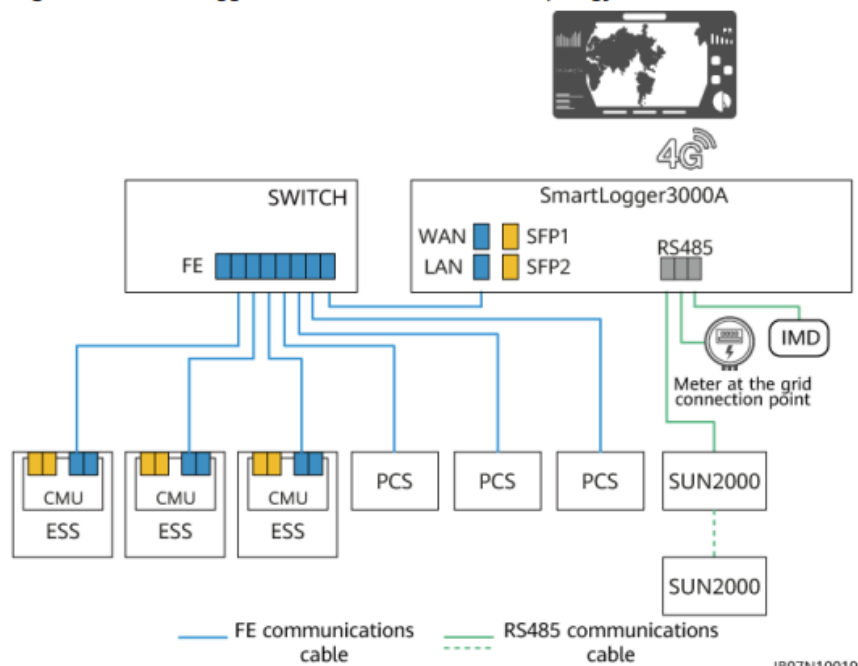
- **RS485: 1000 m**
- **FE: 100 m**

Select either of the following topologies based on the quantities of ESSs and PCSs in the array as well as the deployment of optical fibers.

Typical Scenario 1: SmartLogger + ESS FE Star + PCS FE Star Topology

In this scenario, the SmartLogger3000A is configured, and the customer needs to prepare at least one switch (in this scenario the quantity of 10M/100M auto-sensing Ethernet ports ≥ 8). **The quantities of switches and Ethernet ports are configured based on the quantities of ESSs and PCSs connected to the array.**

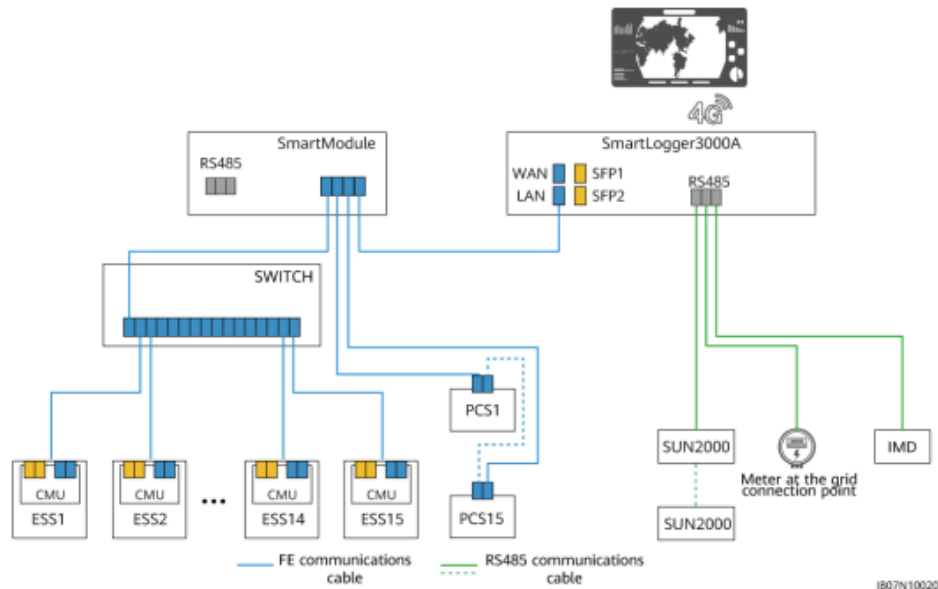
Figure 1-3 SmartLogger+ESS FE star+PCS FE star topology



Typical Scenario 2: SmartLogger + ESS FE Star + PCS FE Ring Topology

In this scenario, the SmartLogger3000A is configured, and the customer needs to prepare at least one switch (10M/100M). The quantities of switches and Ethernet ports are configured based on the quantities of ESSs and PCSs connected to the array. **In the PCS FE ring topology, a single FE ring network supports a maximum of 15 PCSs.**

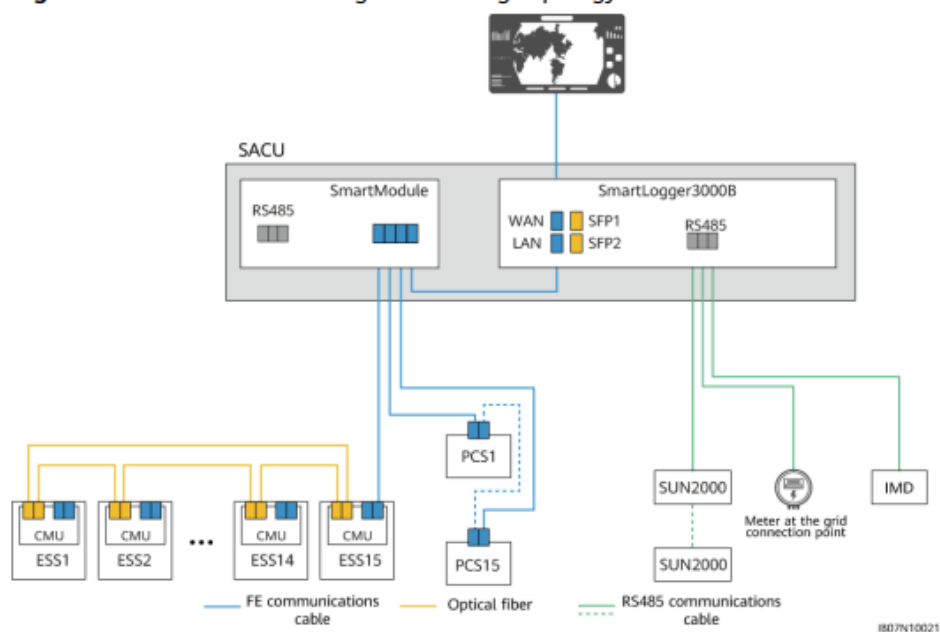
Figure 1-4 SmartLogger+ESS FE star+PCS FE ring topology



Typical Scenario 3: SACU + ESS Fiber Ring + PCS FE Ring Topology

In this scenario, the SmartACU2000D-D-00 is configured, and the SmartModule needs to be configured in the SACU (Check SACU datasheet). The SACU communicates with the first ESS through FE, and ESSs communicate with each other through SFP optical fiber cascading. In the ESS fiber ring topology, a single fiber ring network supports a maximum of 15 ESSs.

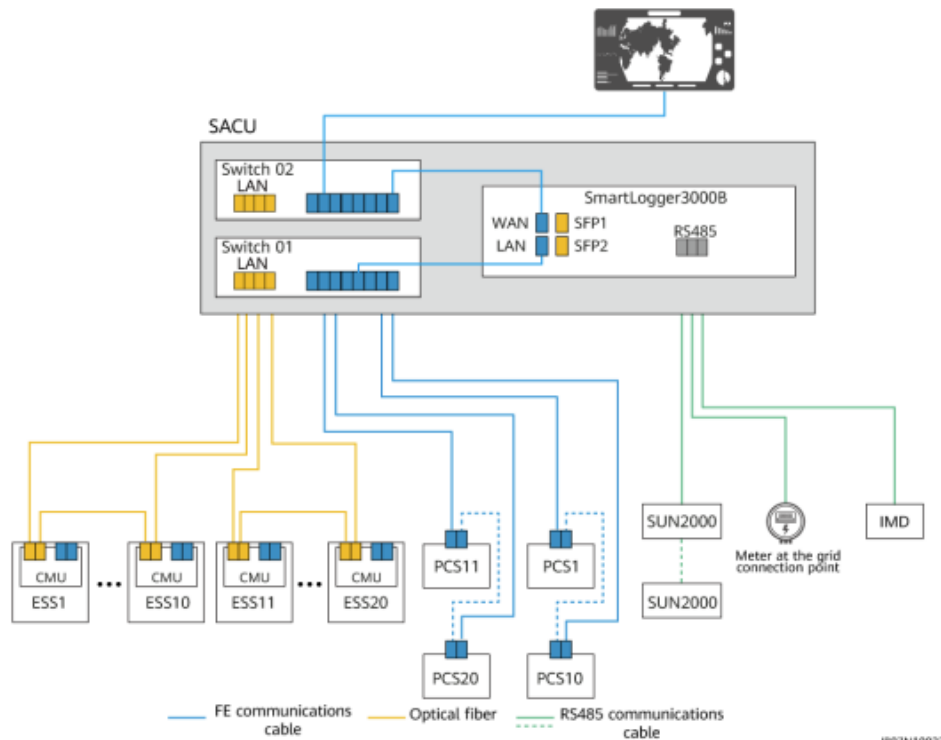
Figure 1-5 SACU+ESS fiber ring+PCS FE ring topology



Typical Scenario 4: SACU + ESS Fiber Ring + PCS FE Ring Topology

In this scenario, the SmartACU2000D-D-06 is configured and the SmartModule needs to be configured in the SACU. This topology is recommended when the quantity of ESSs ranges from 16 to 20.

Figure 1-6 SACU+ESS fiber ring+PCS FE ring topology



Depending on which topology the installer/customer chooses to use to connect the ESS, PCS, inverters, power meter & IMD. The port number should be considered to be enough for the connecting devices.

If more than 3 X RS485 loops are configured then a SmartModule has to be considered in this case.

Reference Document:

<https://support.huawei.com/enterprise/en/doc/EDOC1100345267?idPath=9452479|21439560|254830179|255160303|255740921>

<https://support.huawei.com/enterprise/en/doc/EDOC1100312095?idPath=9452479|21439560|254830179|255160303|255740921>