Technical Information

Remote Service for SUNNY CENTRAL UP

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1   What does Remote Service offer?

For the length of the warranty period, the "Remote Service" option makes it possible to update the inverter firmware via remote access for the following inverters:

- Sunny Central UP
- Sunny Central UP-US
- Sunny Central Storage UP(-XT)
- Sunny Central Storage UP(-XT)-US

Without the need for on-site service calls and associated costs you are able to operate the inverters of your PV system with the current firmware and to perform, for example, important updates of cyber security functions.

This also uploads the operating data of the inverters into the Field Data Management System from SMA. Thus, SMA can continue to drive forward the improvement of firmware and hardware of the inverters and monitor the performance of the existing inverters. Thereby, forward-looking maintenance can be established through which downtimes and maintenance costs can be reduced.

In order to allow the remote access, the PV system must be equipped with 1 SMA Data Manager L each for up to 200 central inverters as central communication unit. The Data Manger can be integrated into the inverter or into the SMA Power Plant Manager.

Via the Data Manager the system data can be visualized by means of the internal portal Sunny Portal powered by ennexOS (https://ennexOS.sunnyportal.com).

To retrofit existing systems and inverters of the product series Sunny Central-EV with a Data Manager and thus to be able to use the "Remote Service" option, please contact us.

2   Safety of the Infrastructure
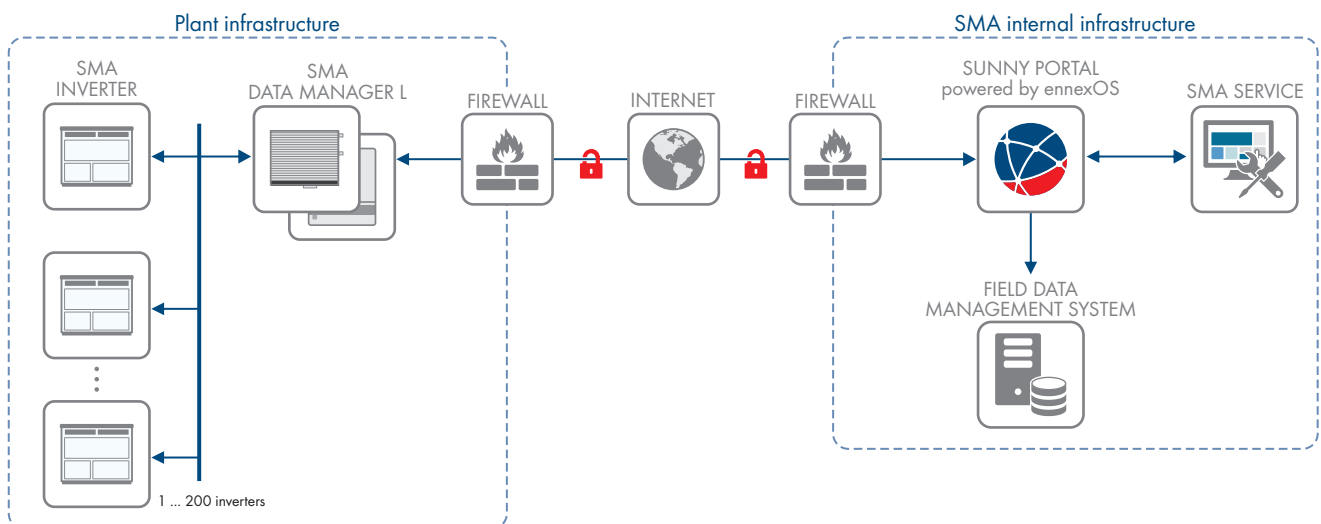
2.1   Infrastructure Overview

Figure 1: Infrastructure of the system network

2.2 System-Internal Network

The Data Manager has 2 separate network interfaces and can therefore be in 2 separate networks, e.g. in the inverter network and in the SCADA network. In addition, each of these two networks can be logically segmented.
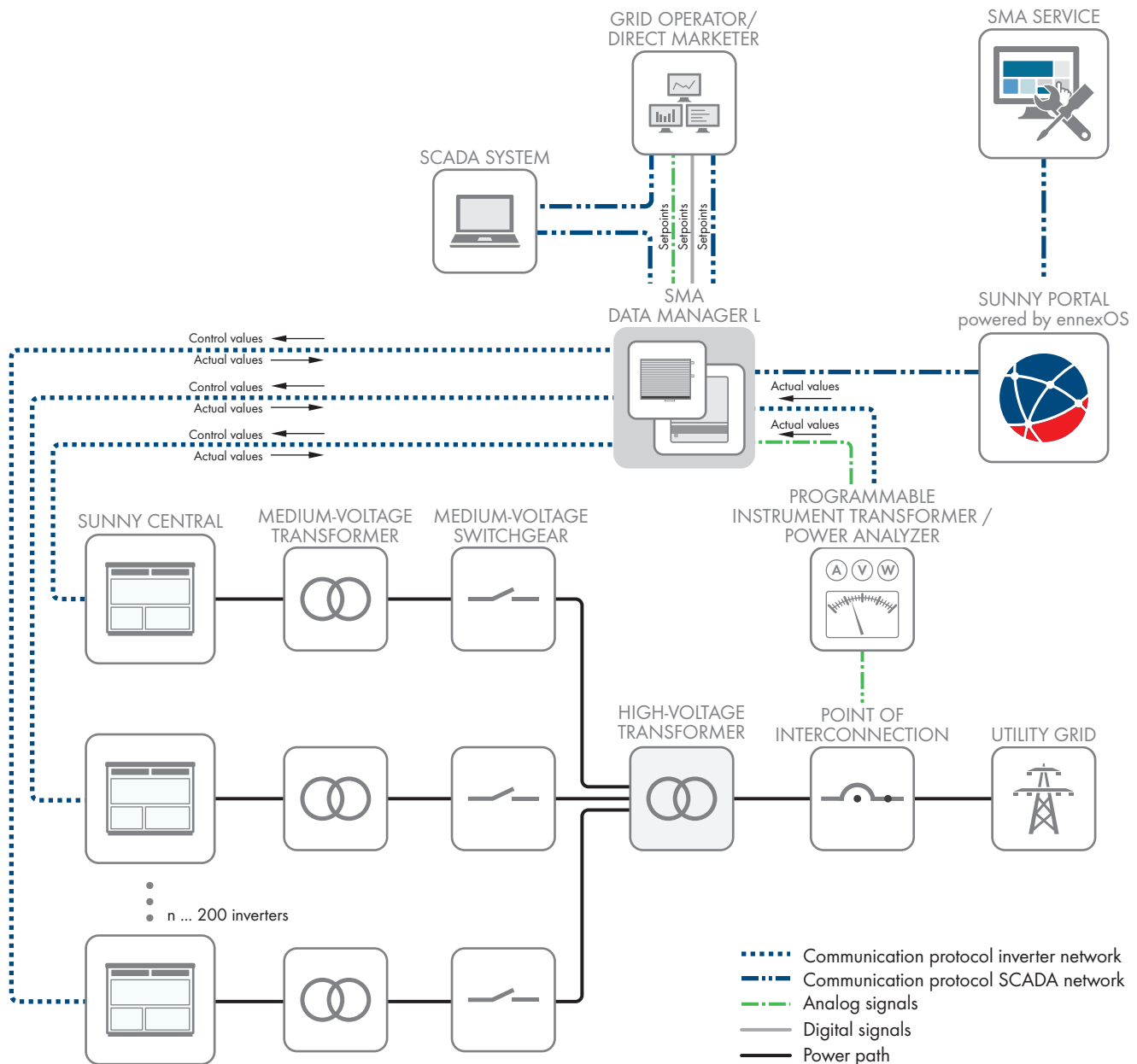

Figure 2: System-internal network with Power Plant Manager

2.3 Integrating the Data Manager into the System Network

Upon delivery of the inverter, the Data Manager is mounted in the inverter and the terminal in the inverter to the communication and the supply voltage is installed.

If the system is being equipped with a Power Plant Manager, the Data Manager is located in the Power Plant Manager. All internal installations are part of the scope of delivery.

The Data Manager is being integrated into the system-internal network during commissioning.

2.4 Data Exchange with SMA Service

Communication between the Data Manager and the Sunny Portal is encrypted and authenticated. The data are encrypted by means of the globally used and recognized TLS standard and transferred via HTTPS.

2.5   Data Transfer and Data Storage

The following data are transferred by the Data Manager:

- **Data to the Sunny Portal**

  Data relevant for the visualization (e.g. power, energy, events) are sent to Sunny Portal every 5 minutes. The transferred data volume depends on the number of stored events on that day. The daily data volumes can be up to 1 MB per inverter. This corresponds to a volume of 3.5 kB per inverter.

- **Data to the Field Data Management System**

  High-resolution data required by SMA for the improvement of the firmware and hardware of the inverters, are transferred once a day between 2:00 and 4:00 a.m. (maximal 10 MB per inverter) to the Field Data Management System.

The transferred data are stored by SMA for analytical purposes for at least 5 years even after the warranty period has expired. The data are used to drive forward the improvement of firmware and hardware of the inverters and also of the service offered. Naturally, the customer has the right to have the stored data deleted at any time. In this case, please contact us at datenschutz@SMA.de.

3   Cyber Security Measures

Measures provided by SMA

SMA regularly evaluates the cyber security of all its products and services according to a standardized procedure in order to ensure the security of devices and data exchange. If security gaps are identified in this context, appropriate countermeasures are taken immediately. This also includes the creation of new firmware versions for troubleshooting. The basis for this procedure is an SMA-internal cyber security directive that is based, among other things, on the international cyber security standard IEC 62443 and is updated twice a year to offer the highest security standard at all times.

In order to achieve this highest possible security level, our products are specifically targeted by external service providers and examined for vulnerabilities.

The data exchange between the PV system and the Sunny Portal occurs on the basis of the HTTP(S) protocol and is encrypted and authenticated based on TLS according to the latest technology.

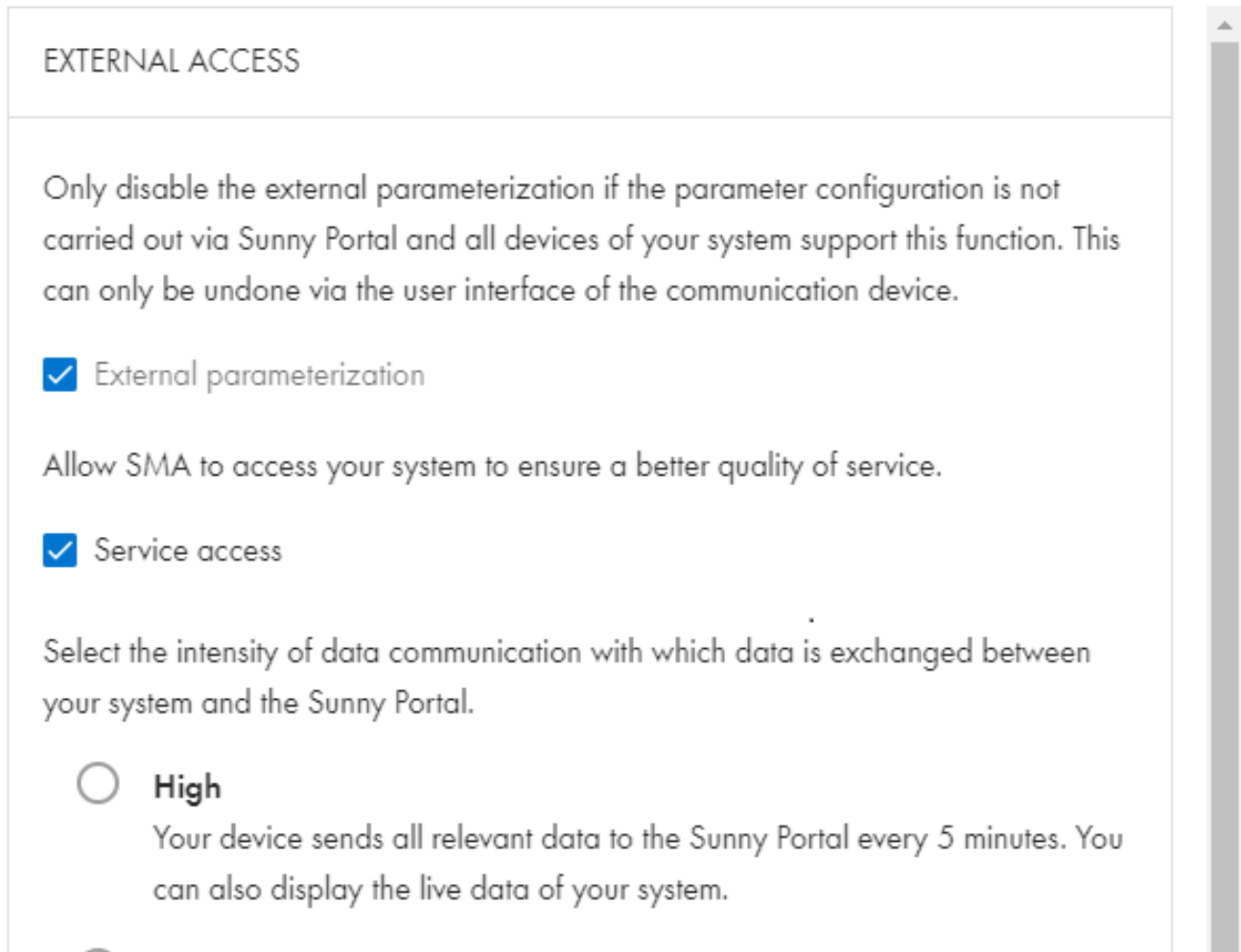### Measures provided by the customer

If the requirements of the current directives (e.g. NIS directive and NIST cyber security framework) for cyber security for the protection of networks and systems are observed, no further measures for the protection of the Remote Service must be taken. For further information on the subject of cyber security, see the Technical Information "PUBLIC CYBER SECURITY - Guidelines for a Secure PV System Communication" atwww.SMA-Solar.com.

4   How is the Firmware Update Executed?

As soon as a new version of the firmware is available, SMA informs about it via a Product Change Information (PCI). You can then contact SMA Service to arrange an appointment for the update and the update procedure. You can define the order and timing of the update on the individual inverters.

The update data are synchronized to the Data Manager. For this, the options **External parameterization** and **Service access** must be enabled in Sunny Portal. Transferring the update does not result in the automatic implementation of the update on the inverters.

Edit external access

EXTERNAL ACCESS

Only disable the external parameterization if the parameter configuration is not carried out via Sunny Portal and all devices of your system support this function. This can only be undone via the user interface of the communication device.

☑ External parameterization

Allow SMA to access your system to ensure a better quality of service.

☑ Service access

Select the intensity of data communication with which data is exchanged between your system and the Sunny Portal.

○ **High**
Your device sends all relevant data to the Sunny Portal every 5 minutes. You can also display the live data of your system.

Figure 3: Settings for remote access

Prior to the actual update, the system-specific settings are backed up through SMA Service and automatically updated following the update.

According to the selected procedure, SMA Service performs the update during the business hours of the local SMA subsidiary. This ensures that both parties are available if any questions come up. Upon completion of each software update, a status report is made available by SMA Service.

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