

"Add USBTMC Sensor"

Adds a detected R&S NRP sensor connected at the USB interface to the list of sensors, including its device ID or name and its serial number.

Remote command:

[:SLIST:SCAN:USENSor](#) on page 320

4.3.6.2 NRP Power Viewer

The R&S SMB features the power viewer function for measuring or monitoring either the RF output power, or a freely selectable signal source with R&S NRP power sensors.

The instrument can perform up to 4 power measurements simultaneously.

To connect the sensors you have the following options:

- connect the sensor directly at a [USB] interface.

Requires the following cables, depending on the used sensor type:

 - R&S NRP-ZKU (USB interface cable) for R&S NRPxx power sensors
 - R&S NRP-Z3 or R&S NRP-Z4 (USB adapter cables) for sensors of the R&S NRP-Zxx family
- connect the sensor indirectly via [USB] using the R&S NRP-Z5 USB sensor hub. The R&S NRP-Z5 USB sensor hub (high-speed USB 2.0) can host up to 4 R&S NRP sensors. It provides simultaneous internal and external triggering of all connected sensors.

Requires additional cables, depending on the used output connector of the hub. Choose one of the following:

 - Short extension cable R&S NRP-Z2 for connection to the sensor connector. This six-pole connection provides the external trigger capability.
 - Standard USB cable (USB type A to USB type B) to any USB type A connector of the R&S SMB. This connection does not support external triggering.
- connection the sensor indirectly via USB hub with external power supply unit

Requires the following cables, depending on the used sensor type:

 - R&S NRP-ZKU (USB interface cable) for R&S NRPxx power sensors
 - R&S NRP-Z3
or R&S NRP-Z4 (USB adapter cables) for sensors of the R&S NRP-Zxx family
- connect an R&S NRPxxN power sensors via LAN

Using the Ethernet interface requires PoE (Power over Ethernet) to provide the electrical power.

To establish the connection, you can use:

 - A PoE Ethernet switch, e.g. R&S NRP-ZAP1 and an RJ-45 Ethernet cable.
 - A PoE injector and an RJ-45 Ethernet cable.

See also:

- [Chapter 3.2, "Instrument Tour", on page 48](#) for the assignment to the available connectors

- Getting Started manual of the R&S NRP Series Power Sensors
- The Rohde & Schwarz website <http://www.rohde-schwarz.com>, section "Power Meters & Voltmeters" for information on the sensor hub and the available accessories.

Detection and mapping

The R&S SMB automatically detects a connected R&S NRP power sensor and indicates it in the dialogs "NRP Power Viewer" [NRP Power Viewer Settings](#) and [NRP Sensor Mapping](#) dialogs. By default, sensors 1 to 4 are assigned to the sensors at the USB connectors, according to their sequence of connection. In the "Sensor Mapping dialog", you can change the mapping.

For device specific information on the connected sensor, see [Chapter 4.2.3.4, "NRP Info/Update"](#), on page 101. For information on the scope of your power sensor refer to the manual of your R&S NRP power sensor.



On connection, the R&S SMB immediately starts the measurement of a detected R&S NRP power sensor. If you perform an instrument preset ([Preset] key or *RST), the R&S SMB stops the measurements. The connection and the mapping of the power sensors remain, the measurements must be restarted.

A sensor continuously measures the average signal power of the selected source, such as an external signal, or the output signal of the signal generator with the RF level used as reference value. The R&S SMB shows the result in the [NRP Power Viewer Settings](#) settings dialog, but you can also permanently display the readings in the block diagram.



Further functions of the R&S SMB related to R&S NRP power sensors are:

- Acquisition of level correction data, see [Chapter 4.3.5.6, "User Correction"](#), on page 159.
The acquired level correction data is used to create and activate lists in which level correction values predefined by the user are freely assigned to RF frequencies. Correction is performed by the user-defined table values being added to the output level for the respective RF frequency.
- NRP Level Control, see [Chapter 4.3.5.5, "NRP Level Control"](#), on page 155.
Note that "NRP Power Viewer" automatically disables "NRP Level Control", and vice versa.
- The software version of the connected power sensor can be retrieved by means of the remote control command `SENSe<ch>[:POWer]:TYPE?` on page 329.
Use the [Chapter 4.2.3.4, "NRP Info/Update"](#), on page 101 dialog to update the sensor software.



"NRP Power Viewer" automatically disables [NRP Level Control](#), and vice versa.