R&S® TSME6
Ultracompact Drive Test Scanner
Getting Started
This manual applies to the following R&S®TSME6 models and options:

- R&S®TSME6 (4900.0004.02)
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1 Safety and Regulatory Information

The product documentation helps you use the R&S TSME6 safely and efficiently. Follow the instructions provided here and in the printed "Basic Safety Instructions". Keep the product documentation nearby and offer it to other users.

Intended use

The R&S TSME6 is intended for the development, production and verification of electronic components and devices in industrial, administrative, and laboratory environments. Use the R&S TSME6 only for its designated purpose. Observe the operating conditions and performance limits stated in the data sheet.

Where do I find safety information?

Safety information is part of the product documentation. It warns you about the potential dangers and gives instructions how to prevent personal injuries or damage caused by dangerous situations. Safety information is provided as follows:

- The printed "Basic Safety Instructions" provide safety information in many languages and are delivered with the R&S TSME6.
- Throughout the documentation, safety instructions are provided when you need to take care during setup or operation.

1.1 Korea Certification Class B

이 기기는 가정용(B급) 전자파 적합기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.
2 Documentation Overview

This section provides an overview of the R&S TSME6 user documentation. Unless specified otherwise, you find the documents on the R&S TSME6 product page at:

www.rohde-schwarz.com/manual/tsme6

2.1 Getting Started Manual

Introduces the R&S TSME6 and describes how to set up and start working with the product. Includes basic operations, typical measurement examples, and general information, e.g. safety instructions, etc. A printed version is delivered with the instrument.

2.2 User Manuals and Help

Contains the description of all instrument modes and functions. It also provides information on maintenance, instrument interfaces and error messages. Includes the contents of the getting started manual.

2.3 Tutorials

Tutorials offer guided examples and demonstrations on operating the R&S TSME6. They are provided on the internet page of the product.

2.4 Basic Safety Instructions

Contains safety instructions, operating conditions and further important information. The printed document is delivered with the instrument.
2.5 Brochures

The brochure provides an overview of the instrument and deals with the specific characteristics and contains the technical specifications of the R&S TSME6. It also lists the firmware applications and their order numbers, and optional accessories.

See www.rohde-schwarz.com/brochure-datasheet/tsmx

2.6 Application Notes, Application Cards, White Papers, etc.

These documents deal with special applications or background information on particular topics.

See www.rohde-schwarz.com/application/tsmx
3 Key Features

The R&S TSME6 sets standards in RF performance and usability. Outstanding key features are:

- Simultaneous measurements with no limitations in 3GPP frequency bands and technologies with SIB/L3 decoding support up to 6GHz
- More than ten technologies simultaneously in one scanner
- Future-proof for upcoming 5G related measurements
- Compact and lightweight design with customized mechanical concept for cascading
- Low power consumption
- Up- and downward compatibility for maximum degree of freedom (e.g. R&S TSME)
- Easy software and hardware upgrades for new features support

For a detailed specification refer to the data sheet.
4 Preparing for Use

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4.1 Putting into Operation

This section describes the basic steps to be taken when setting up the R&S TSME6 for the first time.

⚠️ WARNING

Risk of injury due to disregarding safety information

Observe the information on appropriate operating conditions provided in the data sheet to prevent personal injury or damage to the instrument. Read and observe the basic safety instructions provided with the instrument, in addition to the safety instructions in the following sections. In particular:

- Do not use an isolating transformer to connect the instrument to the AC power supply.
- Do not open the instrument casing.

⚠️ NOTICE

Risk of instrument damage due to inappropriate operating conditions

Specific operating conditions are required to ensure accurate measurements and to avoid damage to the instrument. Observe the information on appropriate operating conditions provided in the basic safety instructions and the instrument's data sheet.
Instrument damage caused by electrostatic discharge

Electrostatic discharge (ESD) can damage the electronic components of the instrument and the device under test (DUT). Electrostatic discharge is most likely to occur when you connect or disconnect a DUT or test fixture to the instrument’s test ports. To prevent electrostatic discharge, use a wrist strap and cord and connect yourself to the ground, or use a conductive floor mat and heel strap combination.

Risk of instrument damage during operation

An unsuitable operating site or test setup can cause damage to the instrument and to connected devices. Ensure the following operating conditions before you switch on the instrument:

- The instrument is dry and shows no sign of condensation.
- The instrument is positioned as described in the following sections.
- Signal levels at the input connectors are all within the specified ranges.

EMI Suppression

Electromagnetic interference (EMI) may affect the measurement results. To suppress generated electromagnetic interference (EMI):

- Use only double shielded cables for RF and GPS connection when not using the standard accessory.
- Always terminate open cable ends.
- DC-based lab networks are not allowed to be used for power supply.
- LAN cable length to the next PC or switch must be < 30m.
- Note the EMC classification in the data sheet.
4.1.1 Unpacking and Checking the Instrument

Check the equipment for completeness using the delivery note and the accessory lists for the various items. Check the instrument for any damage. If there is damage, immediately contact the carrier who delivered the instrument. Make sure not to discard the box and packing material.

Packing material
Retain the original packing material. If the instrument needs to be transported or shipped later, you can use the material to protect the control elements and connectors.

4.1.2 Accessory List

The instrument comes with the following accessories:
- Printed Getting Started manual
- LAN cable
- GPS antenna
- 12 V DC power supply cable (cigarette lighter cable)
- 4 connecting screws

4.1.3 Cascading R&S TSME6s

Rackmounting
The R&S TSME6 can be installed in a 19 inch rack using a rack adapter kit for one to four R&S TSME6s (option R&S TSME6-Z2, R&S no. 4900.1030.02). The installation instructions are part of the adapter kit.
Figure 4-1: Rackmounting of 2 R&S TSME6s

Figure 4-2: Rackmounting of 2 R&S TSME6s (reverse orientation of R&S TSME6s)
**Figure 4-3: Rackmounting of 4 R&S TSME6s**

**Figure 4-4: Rackmounting of 4 R&S TSME6s (reverse orientation of R&S TSME6s)**
**NOTICE**

**Risk of instrument damage due to overheating**

An insufficient airflow can cause the instrument to overheat, which may disturb the operation and even cause damage. Make sure that all fan openings are unobstructed and that the airflow perforations are unimpeded, particularly when the instrument is installed in a rack or packed in a backpack. The R&S TSME6 draws in fresh air from the front pane and warm air flows out at its panes. Thus, if no active cooling is installed, ensure that the following surrounding spaces to the instrument are kept clear:

- Front pane: minimum 2 cm
- Left/right panes: minimum 1 cm

**Other mounting options**

To connect two R&S TSME6 devices directly, perform the following steps.

1. Screw the connecting elements (R&S No. 4900.0804.00) on the top of the R&S TSME6.
   - Torque: 0.66 Nm ± 0.05 Nm
   - Secure with liquid plastic

   ![Figure 4-5: Connecting elements](image)

   1 = Connecting elements (R&S No.4900.0804.00)

2. Align the connecting elements with the holes on the bottom of a second R&S TSME6 and press the R&S TSME6 down.
Figure 4-6: Aligning R&S TSME6s

1 = 1st R&S TSME6  
2 = Connecting screws  
3 = 2nd R&S TSME6  
4 = Holes on the bottom pane of R&S TSME6

3. Push the 1st R&S TSME6 to the front until the mechanism locks.

To disconnect the R&S TSME6, lift the release button on the pane of the upper R&S TSME6 and slide it until the device is released.
4.1.4 Connecting the DC Power Supply

The DC power supply connector is on the rear panel of the unit. Voltages from 10 V to 28 V are supported. There is no need to set the used voltage manually.

Possible power cable connections

The R&S TSME6 can work with the following DC power supplies:

- Cigarette lighter power supply (for example in a vehicle) using the supplied DC power cable
- Optional AC power supply and power cable R&S TSME6-Z1 (see )
- Proprietary power supply with an adapted power cable

Using the supplied cigarette lighter power supply cable

To use the power supply from a cigarette lighter, connect the supplied power cable from the R&S TSME6 to the cigarette lighter.
Connecting a proprietary power supply

To use a proprietary DC supply with the R&S TSME6 power cable, demount the cigarette lighter adapter from the supplied power cable and connect the open ends of the cable to the proprietary power supply. Be sure to respect the correct polarity (see Figure 4-8).

![Figure 4-8: Supplied power cable with cigarette lighter adapter](image_url)
**Danger of shock!**

To avoid a shock hazard and instrument damage, note the following:

- After moisture condensation, allow the instrument to dry before switching on.
- The instrument is still power-supplied while it is in standby mode, that is, with the power button switched off, but still connected with the DC power supply.
- After connecting the power supply, the instrument is immediately under power.
- The supplied DC connector is intended for disconnection.
- If any DC supply other than R&S TSME6-Z1 is used:
  - The DC supply must be in accordance with IEC / EN / UL / CSA 60950-1 or IEC / EN / UL / CSA EN EN61010-1.
  - Use only Safety Extra Low Voltage (SELV) power supplies
  - Observe the DC input range of 10 V to 27 V with maximum of 1.8 A (inrush current)
  - The 12 V vehicle cigarette lighter socket must be fused

### 4.1.5 Setting Up the LAN Connection to the Host PC

To control and run measurements with the R&S TSME6, a host PC or notebook with LAN interface is required.

The R&S TSME6 is equipped with a network interface and can be connected to an Ethernet LAN (local area network). The interface can be used to connect the R&S TSME6 to a host PC.

How to connect multiple R&S TSME6s to a single host PC (for example for LTE MIMO setups) is described in the R&S TSME6 User Manual.

The following scenarios are possible.

- Connection between PC and R&S TSME6(s) using static IP addresses.
- Connection between PC and R&S TSME6(s) using dynamically generated IP addresses (**Auto-IP**).
Operating Modes

● "Full auto-IP" operating mode
   IP addresses are automatically generated on PC and R&S TSME6(s) if the following conditions are met:
   – PC network interface is configured to obtain an IP address automatically
   – IP address stored in R&S TSME6(s) is not in range 169.254.0.1 – 169.254.255.254 (inclusive).
   Note: This is the IP address set by the R&S TSME Device Manager.

● "Partial auto-IP" operating mode
   IP address is automatically generated on PC and a static IP address is used on R&S TSME6 if the following conditions are met:
   – PC network interface is configured to obtain an IP address automatically
   – IP address stored in R&S TSME6 is in range 169.254.0.1 – 169.254.255.254 (inclusive).
   Note: This is the IP address set by the R&S TSME Device Manager.

● "Static IP" operating mode
   IP address is manually set on PC and a static IP used on R&S TSME6 if the following conditions are met:
   – PC LAN interface is configured to use a user-defined IP address, not in range 169.254.0.1 – 169.254.255.254 (inclusive).

Recommendations/Limitations of Operating Modes

● "Full auto-IP" operating mode
   – Only 1 PC and 1 or more R&S TSME6 devices per LAN interface, either connected directly or via a L2 switch. (This operating mode shall not be used when more than 1 PC is physically connected to the same subnet-work, e.g. via the switch.)
   – PC’s LAN interface shall not receive an IP from a DHCP server. (The IP address generated for PC shall be matching following pattern: 169.254.x.y.)
   – All R&S TSME6 devices on the same LAN interface shall be configured with stored IP addresses not in the range 169.254.1.0 – 169.254.254.255 (inclusive) to prevent conflicts.
   Note: R&S TSME6 devices with stored IP addresses in ranges 169.254.0.1 – 169.254.0.255 (inclusive) or 169.254.255.0 – 169.254.255.254 (inclusive) are effectively operating in "partial auto-IP" operating mode.
Depending on software accessing the R&S TSME6 devices, it may be mandatory to configure the stored IP addresses in all R&S TSME6 devices to be unique.

**Example:** R&S TSME Device Manager does not have this requirement, R&S ROMES / R&S Nestor may have such requirements depending on the use made internally of the stored IP address as unique identifier.

- **"Partial auto-IP" operating mode**
  This mode shall only be used for specific cases, "full auto-IP" or "static IP" operating modes shall be preferred.
  - 1 or more PCs and 1 or more R&S TSME6 devices per LAN interface, either connected directly or via a L2 switch.
  - Each of the PC’s LAN interface physically connected to the sub network shall not receive an IP from a DHCP server. (The IP address generated for PC shall be matching following pattern: 169.254.X.Y.)
  - All R&S TSME6 devices on the same LAN interface shall be configured with stored IP addresses in the ranges 169.254.0.1 – 169.254.0.255 (inclusive) or 169.254.255.0 – 169.254.255.254 (inclusive), and use unique IP addresses.
    These ranges are important to prevent conflicts with IP addresses dynamically generated for the PC LAN interfaces.
    **Note:** If a R&S TSME6 is shared with 2 or more PCs, and its stored IP address is not in the defined range above, this may lead in rare cases to IP conflicts. It is therefore recommended to respect this rule.

- **"Static IP" operating mode**
  - 1 or more PCs and 1 or more R&S TSME6(s), either connected directly or via a L2 switch.
  - Other network devices are permitted, as long as all IP addresses used are unique.

This section describes how to configure the LAN interface for a single R&S TSME6. It includes the following topics:

- Configuring the LAN Interface on the Host PC
- Firewall Configuration
- Connecting the R&S TSME6 to the Host PC
4.1.5.1 Configuring the LAN Interface on the Host PC

Each R&S TSME6 has the default IP address 192.168.0.2. It is recommended that you define the fixed IP address 192.168.0.1 to the host PC or configure the host PC to obtain an IP address automatically ("Auto-IP").

To control the R&S TSME6 from the host PC, the LAN interface of the host PC must be configured as follows:

1. Press the "Windows" key or the [CTRL + ESC] key combination on your keyboard to access the Windows "Start" menu.
2. Type "Control Panel" and select this application.
3. Select "Control Panel > Network and Internet > Network and Sharing Center".
4. Select "Change adapter settings".
5. Double-click the LAN interface with which the R&S TSME6 is connected.
   The items used by the LAN connection are displayed.
6. Select the entry named "Internet Protocol Version 4 (TCP/IPv4)".
7. Select the "Properties" button.

8. Configure the following TCP/IP settings:
   a) Use any "Auto-IP" operating mode. Select "Obtain an IP address automatically".
b) Use "Static IP" operating mode.
   - Select "Use the following IP address" (fixed IP, no dynamic range)
   - IP address: 192.168.0.1 (recommended)
   - Subnet mask: 255.255.255.0
   - No Default Gateway

9. Enable the use of 9-kB-jumbo frames:
   a) Return to the "Local Area Connection Properties" dialog box.
   b) Select the entry for the LAN adapter and then "Properties".
c) Switch to the "Advanced" tab.

d) Select the "Jumbo Frames" property and the "Value":"9014 Bytes".  
   **Note:** this setting may cause problems in Windows, but it is an important prerequisite for correct operation of the R&S TSME6.  

10. Close the Control Panel, reboot the host PC and check if the connection can be established successfully (see R&S TSME6 User Manual, chapter Troubleshooting for help.).

If your firewall is active, make sure that it is configured as described in Chapter 4.1.5.2, "Firewall Configuration", on page 24.

4.1.5.2 Firewall Configuration

The firewall can be turned off on the LAN interface or on with all the mandatory configurations.

If your firewall is active, make sure that your program is allowed to communicate through the firewall. Following ports should be available:

- RxPort (TSME6->PC): Port 17476
- TxPort (PC->TSME6): Port 5140 and 16962
Also, the following parameters must be configured to decide if a specific program is allowed to pass the firewall.

- Multicast IP address for TSME: 224.17.4.76
- Multicast Address for TSME6: 239.192.1.7
- IP-Address of TSME6 has to be allowed as well: 192.168.0.2 (example)

**Note:** In "full auto-IP" operating mode, the IP address generated for the R&S TSME6 has to be allowed.

- Allow UDP Protocol
- Allow Multicast Protocol
- Allow executed application (ROMES, NESTOR, TsmeDeviceManager for examples)
- Allow Network-Interface TSME(s) are connected to
- Allow Network-Profile active on Network-IF TSME is connected to

Even if all these parameters are set properly, this rule can be overwritten in Windows Firewall by a blocking rule. Furthermore on first execution of a program, windows ask the user to decide on which network profiles communication through the firewall shall be allowed. If it is set correct by user, the firewall is in a good state.

### 4.1.5.3 Connecting the R&S TSME6 to the Host PC

The R&S TSME6 has a built-in 1000BASE-T (802.3ab), 1 Gbit/s Ethernet interface. The host PC must have a separate 1 Gbit network interface card with an independent LAN connection.
Dedicated LAN adapter and IP address for host PC

It is important for the host PC to have its own dedicated LAN adapter for the connection to one or more R&S TSME6s (or a switch), rather than being integrated in a regular office network. If multiple R&S TSME6s are connected to one host PC, following rules are valid.

- Using "static IP" or "partial auto-IP" operating mode, it is important to define unique IP addresses for each instrument using the R&S TSME6 Device Manager (see R&S TSME6 User Manual, chapter Configuring the R&S TSME6).
- Using "full auto-IP" operating mode, it is recommended to define unique IP addresses for each instrument, but depending on software run, it may not be mandatory.

► Connect the supplied LAN cable to the LAN connector on the rear panel of the R&S TSME6, and to the host PC.

Windows 10 automatically detects the network connection and all devices in the same subnet when the R&S TSME6 is switched on.

4.1.6 Connecting External Devices

The SMA connector is sensitive to mechanical stress. Use the following handling precautions.

- Always use a torque wrench and mount the cable end with 60 Ncm.
- Do not stack adapters directly at the SMA connector. If you need to use adapters (e.g: SMA to N), then always use a specific adapter cable (R&S no. 4900.1700.00).

The following external devices are required for standard operation):

- Connect the instrument to the power supply as described in Chapter 4.1.4, "Connecting the DC Power Supply", on page 16.
- Connect the PC or notebook LAN port to the LAN port of the R&S TSME6 as described in Chapter 4.1.5, "Setting Up the LAN Connection to the Host PC", on page 18.
● Connect the (optional) antenna's SMA-connector to the RF IN connector.
● Connect the GPS antenna to the GPS ANT connector of the instrument for time synchronization to a GPS signal (3 V, max. 25 mA for active antenna). To ensure time synchronization of the R&S TSME6, it is required to have a GPS antenna connected. A missing GPS antenna will lead over time to the point that signals cannot be detected anymore.
● Connect the R&S TSME30DC / R&S TSME44DC according to the measurement setup description in R&S®TSME30DC / R&S® TSME44DC Ultracompact Downconverters Getting Started.

**NOTICE**

**Risk of instrument damage**

Do not overload the input power at the RF input connector, otherwise the input stage could be severely damaged. For maximum allowed values, see the data sheet.

### 4.1.7 Connecting a Kensington Lock

The R&S TSME6 provides a connector for a Kensington lock, which can be used to secure a mobile device against theft. The connector is on the side panel of the instrument.
4.1.8 Enabling Untethered Dead Reckoning

The following steps are necessary to enable untethered dead reckoning with the integrated receiver (see "GPS antenna connector" on page 33) of the R&S TSME6.

1. Mount the R&S TSME6 device fixed to the frame of a car.
2. Power on the R&S TSME6 device.
3. Activate "Dead Reckoning" in the used software (for details, refer to R&S ROMES, R&S NESTOR or R&S ViCom documentation).
4. Wait until the used software reports a "3D fix" (time may vary depending on the configured GNSS).
5. To calibrate the instrument, the following driving procedures have to be performed in a safe environment.
   a) 720 degrees right turn.
   b) 720 degrees left turn.
   c) Drive a straight line with a velocity exceeding 40 km/h.

Note: Whenever the device is switched off, the calibration procedure must be repeated for the next usage of dead reckoning.
After finishing the calibration, the used software should report a fix state "GPS +DR" or "3D+DR", in case satellite reception is lost the fix state will change to "DR only".

If using "DR only", the accuracy of the reported position will decrease over time, if it falls below a certain threshold the receiver will report the state "No Fix".

4.2 Switching the Instrument On and Off

To switch on the instrument
1. Use the supplied power cable to connect the power supply to the instrument.
2. After the power cable is connected, the R&S TSME6 is powered on.

After booting, the instrument switches to the idle mode and is ready to be accessed by an application.

Switching off the instrument
When you press the On/Off key on the rear panel of the R&S TSME6 to switch it off, the instrument changes to standby mode. In standby mode, the program execution on the instrument is stopped immediately, but the instrument is still under power connection.

**NOTICE**

Do not switch off during connection process
Do not switch off the instrument while a connection to the application software is being established, otherwise the application might not be able to close properly.
As a result, the software could crash and must be shut down from the Windows Task Manager.
Removing the power supply

If you remove the power supply and reconnect it later, the instrument automatically boots when power returns.
5 Instrument Tour

5.1 Front Panel View

The front panel of the R&S TSME6 does not provide any connectors or control elements for operation.

Behind the right side of the rear panel (with the ventilation openings), 4 status LEDs are located. These LEDs display the following states:

- LEDs ON: R&S TSME6 ready for operation, RF-PLLs initialized correctly
- LEDs OFF: R&S TSME6 is off or RF-PLLs initialized not correctly

If the fans are off (temperature on the controller board < 60° C), the LEDs are partially covered by the fan blades.

Figure 5-1: R&S TSME6 - front panel
NOTICE

Instrument damage caused by cleaning agents

Cleaning agents contain substances such as solvents (thinners, acetone, etc.), acids, bases, or other substances. Solvents can damage the front panel labeling, plastic parts, or screens, for example. Never use cleaning agents to clean the outside of the instrument. Use a soft, dry, lint-free dust cloth instead.

5.2 Rear Panel View

This figure shows the rear panel view of the R&S TSME6. The individual elements are described in more detail in the subsequent sections.

Figure 5-2: R&S TSME6 - rear panel

1 = Power ON/OFF
2 = GPS antenna connector
3 = AUX connector
4 = LAN connector with LEDs
5 = DC IN connector
6 = RF IN connector (50 Ω)
7 = Pwr./State LEDs
Power ON/OFF

The On/Off key switches the device on and off if power is supplied via the DC IN connector. For details, see Chapter 4.2, "Switching the Instrument On and Off", on page 29.

GPS antenna connector

An SMA connector is provided for the supplied external active GPS antenna (antenna power: 3 V, max. 25 mA).

The integrated multi-GNSS (GPS / BeiDou / Galileo / GLONASS) receiver allows to use three satellite systems in parallel. This offers an accuracy improvement of 30 % to 50 % by using a second constellation of satellites.

Following combinations are allowed:

- GPS only
- GPS / GLONASS / Galileo
- GPS / BeiDou

The R&S TSME6 can perform untethered dead reckoning in tunnels to provide position information even if no satellites are available. The untethered dead reckoning is performed in the device itself by built-in electronic gyroscopes.

For enabling untethered dead reckoning, see Chapter 4.1.8, "Enabling Untethered Dead Reckoning ", on page 28.

Depending on the intended use, the respective valid regulations regarding lightning protection of the antennas and regarding vehicle installation must be observed during installation.

AUX connector

The AUX connector can be used to connect additional devices, such as a signal generator that provides an external reference frequency for the R&S TSME6, or a synchronization cable for multiple R&S TSME6 connected to one host PC.

LAN connector with LEDs

The LAN connector provides a high-speed Gigabit Ethernet interface with an RJ 45 connector using IPv4. It is required to connect the R&S TSME6 to a host PC.
The LEDs on the LAN connector indicate the status of the connection to the host PC. LED 1 is on the left side of the connector, LED 2 is on the right.

**Table 5-1: LAN LED 1 states and their meaning**

<table>
<thead>
<tr>
<th>LED state</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>green</td>
<td>Connection established</td>
</tr>
<tr>
<td>green, blinking</td>
<td>LAN sending or receiving, or identifying connected device</td>
</tr>
</tbody>
</table>

**Table 5-2: LAN LED 2 states and their meaning**

<table>
<thead>
<tr>
<th>LED state</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>off</td>
<td>No connection</td>
</tr>
<tr>
<td>yellow</td>
<td>Physical connection established</td>
</tr>
<tr>
<td>yellow, blinking</td>
<td>Identifying connected device</td>
</tr>
</tbody>
</table>

**DC IN connector**

The DC IN connector is required for the DC power supply (10-28 V, max. 1.8 A). For details, see Chapter 4.1.4, "Connecting the DC Power Supply", on page 16.

**RF IN connector (50 Ω)**

The optional multi-band RF antenna (700 MHz to 2.6 GHz) or the device providing the RF signal is connected to the instrument's RF INPUT via a cable equipped with an appropriate connector (SMA female, 50 Ω input impedance, VSWR type 2.0).

**NOTICE**

**Risk of instrument damage**

Do not overload the maximum allowed input of 20 dBm. Non-compliance will destroy the input mixer.

Depending on the intended use, the respective valid regulations regarding lightning protection of the antennas and regarding vehicle installation must be observed during installation.
Pwr./State LEDs

Table 5-3: POWER and STATE LED states and their meaning

<table>
<thead>
<tr>
<th>STATE LED</th>
<th>POWER LED</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| off       | off       | no power supply connected at DC IN  
|           |           | power supply off  
|           |           | power supply < 10 V |
| off       | yellow    | standby |
| off       | green, blinking (2 Hz) | FGPA configuration in progress |
| red       | green     | FPGA configuration finished, preparing for start  
| (up to 5 seconds during startup) | | |
| off       | green     | R&S TSME6 ready, not connected |
| green     | green     | connected |
| green, blinking rapidly | green | measuring |
| green, blinking 2 Hz | green | Instrument is identified by the software |
| red, blinking 2 Hz | green | temperature warning (controller board temperature = 75°C ... 80°C) |
| red (continuous) | green | temperature error (controller board temperature above 80°C) |

*The fans are temperature-controlled and below a temperature of 60°C on the controller board, the fans are in status OFF.
6 Contacting Customer Support

Technical support – where and when you need it

For quick, expert help with any Rohde & Schwarz product, contact our customer support center. A team of highly qualified engineers provides support and works with you to find a solution to your query on any aspect of the operation, programming or applications of Rohde & Schwarz products.

Contact information

Contact our customer support center at www.rohde-schwarz.com/support, or follow this QR code:

Figure 6-1: QR code to the Rohde & Schwarz support page
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