ROHDE&SCHWARZ

**Test and Measurement
Division**

Release Notes
Revision: 02

Firmware

R&S® TSMU/TSMU-H/TSMQ/TSML-x
Radio Network Analyzer

Firmware Release 12.72

These Release Notes describe the following models and options of the R&S® Radio Network Analyzer:

- R&S®TSMU, order no. 1153.6000.02
- R&S®TSMU-H, order no. 1153.6000.03
- R&S®TSML-W, order no. 1153.6000.11
- R&S®TSML-C, order no. 1153.6000.12
- R&S®TSML-G, order no. 1153.6000.13
- R&S®TSML-CW, order no. 1153.6000.15
- R&S®TSML-GW, order no. 1153.6000.20
- R&S®TSMQ, order no. 1153.6000.50

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Important Notes

General

In this document, the R&S product series R&S TSMU, R&S TSMU-H, R&S TSML-x and R&S TSMQ are generally abbreviated as TSMx. Unless explicitly noted, the abbreviation TSMx is valid for all models in this series.

IEEE1394 TSMx Driver v 11.0.0.6

TSMx IEEE1394 driver version v11.0.0.6 **mandatory** for interfacing scanner model TSML-GW (Var 20) with **ViCom** and **ROMES** software or with TSMx utilities (**TSMxFirmwareInstall** and **TSMxOptionkeyInstaller**).

See "How to Check Installed TSMx 1394 Driver Version" for details how to verify the installed TSMx 1394 device driver version.

TSMx Firmware Update to v12.72

FW v12.72 supports new scanner model TSML-GW (Var 20). Firmware update from v12.37 **not** mandatory but recommended for all other TSMx scanner models.

Refer to section "OptionKeyInstaller Utility" how the check the firmware version.

See "Upgrading the Instrument Firmware" for instructions how to upgrade the instrument firmware.

Instruments with Firmware Version 10.xx

Attention: TSMx scanners with installed firmware version 10.xx on require special upgrade procedure.
Please carefully follow the instructions in the "Upgrading TSMx Instruments with Firmware Version 10.xx" section.

Release Notes for R&S ViCom Users

For all ViCom (TSMx OEM programming interface) related issues please refer to the separate ViCom release notes. The notes could be downloaded from from the internet under: http://www.rohde-schwarz.com. Select "DOWNLOAD" and search for R&S TSMU/TSMQ/TSML within the category SOFTWARE.

Release Notes for R&S®ROMES Users

As the TSMx functionality and performance of ROMES options are directly related to the installed version of the R&S® ROMES software, please refer to the corresponding ROMES release notes too.

Upgrading the Instrument Firmware

The tool "**TsmxFirmwareInstall**" is used to update the instrument firmware. This tool is interactive and guides you through the process of updating the instrument firmware.

Program Requirements

The "TsmxFirmwareInstall" program has the following requirements:

➢ PC/notebook with IEEE1394 interface and TSMx connected.

➢ PC/notebook with RS232 interface (COM1) and TSMx connected via a null-modem cable

➢ Terminal Session started
   (Terminal Settings: Baudr. 115200, Data 8bit, no Parity, Stop 1bit, no HW handshake).

➢ R&S TSMx IEEE1394 driver from **V11.00.0.4** installed (see "How to Check Installed TSMx 1394 Driver Version").

➢ TSMx powered up and **Power On** sequence passed (see the manual for details)
   (PROCESS STATE and RUN LED stable off for at least 10 sec).

Program Sources / Program Installation

There are various sources for this tool.
The latest version could be downloaded from the internet under: http://www.rohde-schwarz.com as a zip-file. Select "DOWNLOAD" and search for R&S TSMU/TSMQ/TSML within the category FIRMWARE. Unpack this zip-files into a local directory on the hard disc drive and proceed with the **Program Start** section.

This tool is also provided with the **ROMES CD-ROM**
   -> ..\Firmware & Drivers\R&S RF Receivers\TSMx\TSMxFirmwareInstall

and with the **TSMx CD-ROM** respectively **"TSMx Option File" CD ROM**
   -> ..\TSMxFirmwareInstall

The firmware install program could be started directly from the CD-ROM drive by running the executable file.
-> see **Program Start** section

Program Start

Assure that no other program interfaces the TSMx at the same time. Close all the other applications, which are interfacing the instrument.

Reset the instrument and execute the **TsmxFirmwareInstall.exe** file from the program directory and a dialog box according to dialog 1 comes up. Enter the serial number of the instrument (1) (the label could be found on the rear panel) and select the appropriate firmware version (2).
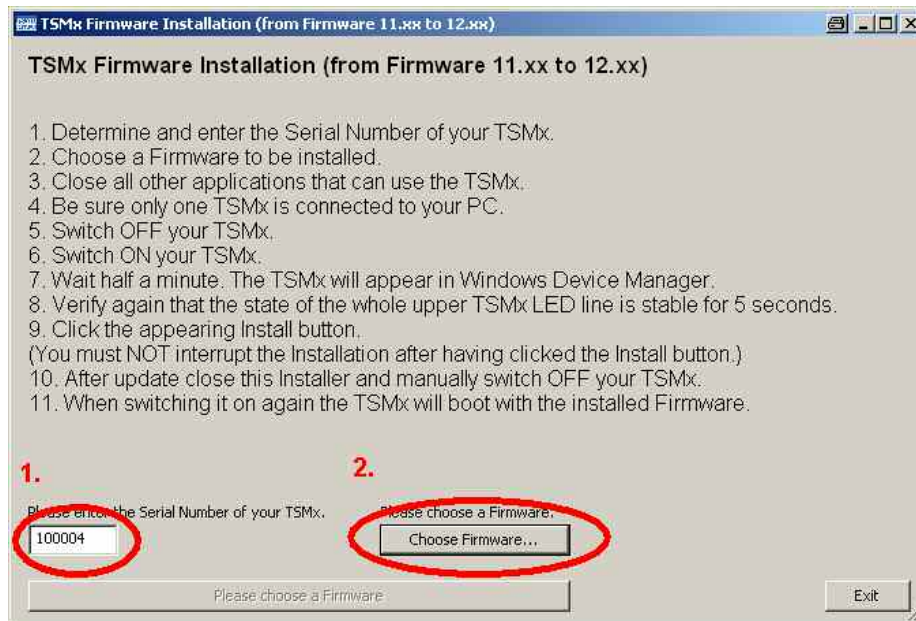
Dialog 1   Firmware Update Dialog Window

After entering the serial number and choosing the firmware version to install the "**Install Firmware ….**" button at the bottom of the dialog becomes active. Pressing this button launches the update procedure.

Important Note: Please assure that you entered the get 6-digit number after the abbreviation "**Ser.**" correctly before pressing the install button.

Serial Number Check

The serial number input is being checked, if it matches the serial number stored in the instrument itself. In cases of a serial number mismatch, a dialog comes up which indicates this failure. The user can stop the update procedure at this point.

Please contact the R&S support in cases of a serial number mismatch!

Firmware File Download

If the serial number check is passed successfully, the update routine proceeds automatically with downloading the firmware file.
A list box in the program dialog outputs each single step of the update procedure. The download process is displayed with a bar at the bottom of the dialog.

Important Note: Please do not interrupt this process with any user interaction respectively do not interrupt the TSMx power supply at this point.

After completion, the successful firmware update is confirmed in a dialog box.

Program Exit

Press the button "exit" to end the update program. The instrument reboots after program exit.

Ensure to end this program before interfacing the TSMx with any other TSMx utility or R&S®ROMES software!

OptionKeyInstaller Utility

General

The TSMxOptionKeyInstaller utility is a program to recall the TSMx device setup and to install TSMx firmware options.

Program Requirements

- ➢ R&S TSMx IEEE1394 device driver on the host PC from version 11.00.0.4 installed, see "How to Check Installed TSMx 1394 Driver Version".

- ➢ Host PC and TSMx connected via the IEEE1394 cable.

- ➢ RS232 interface of host PC and TSMx connected via a null-modem cable.

- ➢ Terminal program started.
  (Terminal Settings: Baudr. 115200, Data 8bit, no Parity, Stop 1bit, no HW handshake).

- ➢ TSMx powered up.

    Important Note: For instruments with firmware versions **10.xx** see "Upgrading TSMx Instruments with Firmware Version 10.xx" for details.

Program Sources / Program Installation

There are various sources for this tool.
The latest version of the TSMxOptionKeyInstaller utility could be downloaded from the internet under: http://www.rohde-schwarz.com. Select "DOWNLOAD" and search for R&S TSMU/TSMQ/TSML within the category SOFTWARE. Unpack this zip-files into a local directory on the hard disc drive and proceed with the **Program Start** section.

This tool is also provided with the **ROMES CD-ROM** respectively **"Tsmx Option File" CD-ROM**
     -> ..\Firmware & Drivers\R&S RF Receivers\TSMx\TSMxOptionKeyInstaller

and on the **TSMx CD-ROM** respectively **"TSMx Option File" CD ROM**
     -> ..\TSMxOptonKeyInstaller

The TSMxOptionKeyInstaller program could be started directly from the CD-ROM drive by running the executable file.
-> see **Program Start** section

Program Start

Assure that no other program interfaces the TSMx at the same time. Close all the other applications, which are interfacing the instrument.
Reset the instrument and start the **TsmxOptionKeyInstaller.exe** in the program directory.

Auto-Detection of Connected TSMx Devices

After start the utility will automatically detect any connected TSMx device. This process could be monitored on the Log Messages box at the bottom of the dialog window.
The **Select TSMx** list box on top of the dialog window will list all the detected TSMx device(s) with its individual model variant and serial number.

In configurations where more than one TSMx instrument are connected, select the appropriate instrument from the list box.
In cases where no instrument is being detected automatically the connection could be initiated manually by pressing "Connect TSMx" button.

No TSMx device is being detected
If the manual connection fails even a TSMx device is connected, the wiring and the power supply should be verified. Reset the instrument (via Reset button on the front panel or by removing the power plug on the rear panel) and try to connect again.
If this problem persists, please proceed with the trouble shouting section in the user manual.

Implicit Firmware Upgrade while Auto-Detection

While detecting connected TSMx devices the program checks whether the firmware needs to be updated.
Only for instruments with older firmware revisions, the tool automatically offers the firmware upgrade. For the others this step will be passed without any user interaction.

Even if it's not recommended, the firmware update can be neglected. The successful firmware upgrade will be acknowledged.

TSMx System Information

Initially after connecting to the instrument, the utility displays the TSMx Info property page. This page gives an overview of the system information of the selected instrument. The following items are being displayed:
- Hardware revision of assembled PCB's (1)
- Device serial numbers (2)
- Firmware version (3)
- Calibration date (4)
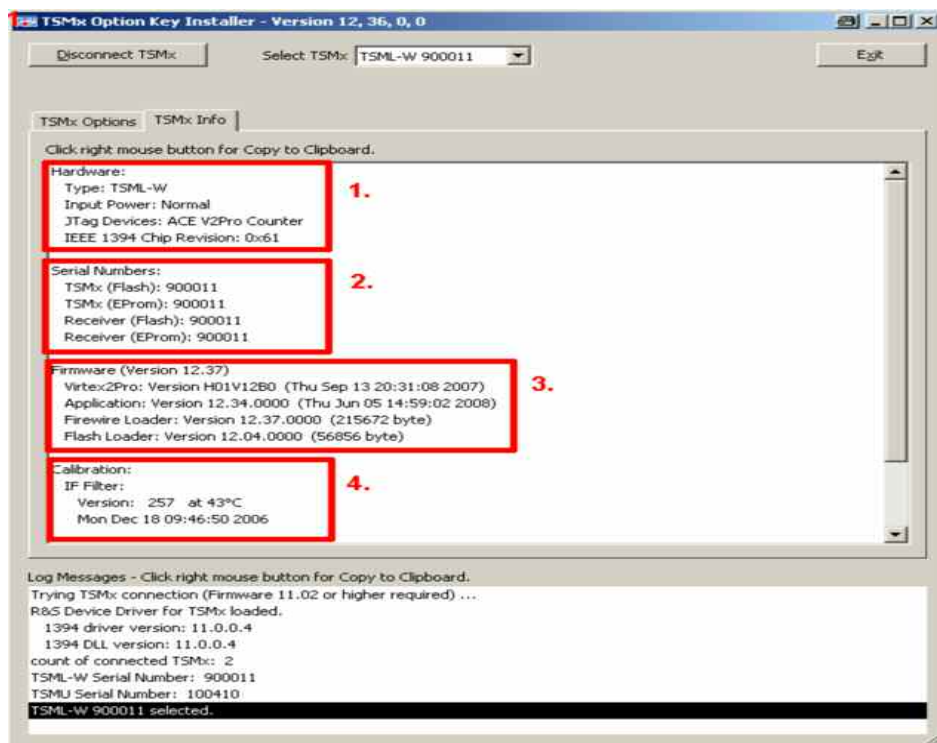
Dialog 2   "TSMx Info" Property Page

TSMx Option Information

Pressing the "TSMx Options" tab lists all the enabled firmware options within the "Available Options" tab (2) and indicates if a valid Device Key (1) is installed on that instrument (see dialog 3).
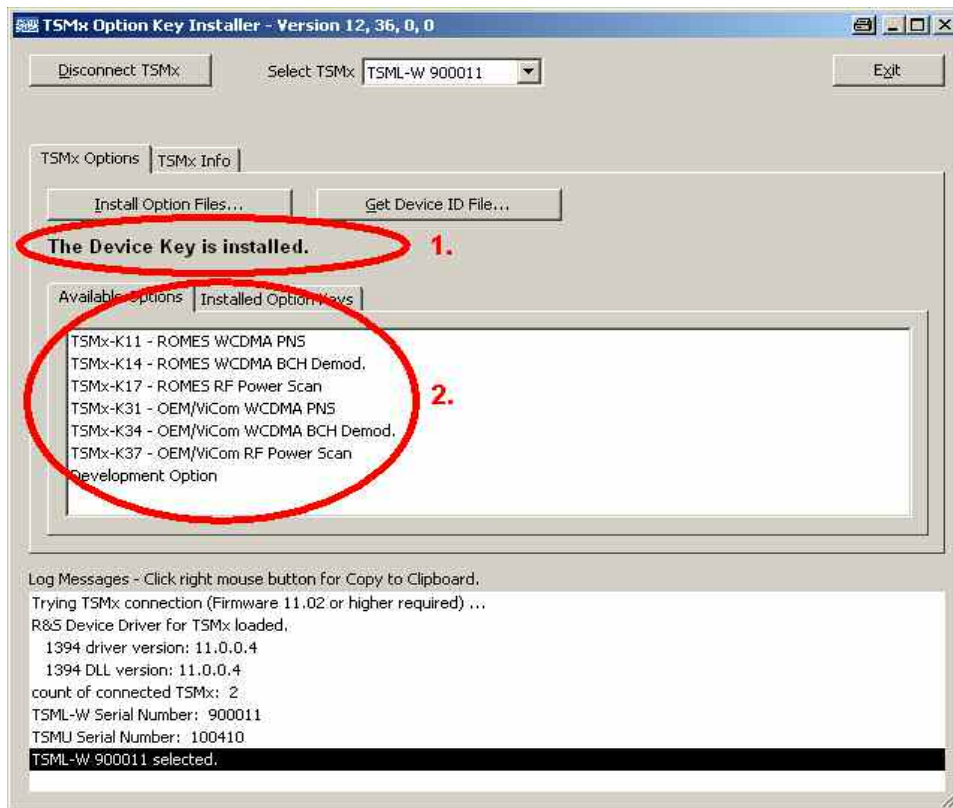Selecting the "Installed Option Keys" tab shows all the installed option keys for that instrument. Time limited keys are listed with its expiration date.

Dialog 3   "TSMx Options" Property Page

Missing Device Key Installation

The utility displays the current state of the device key installation. The highlighted text "**No Device Key has been found**" in dialog 4 comes only up, if no valid Device Key is installed on a instrument. A valid Device Key is a precondition for installing Option Keys properly and is normally installed at factory site. Only for 1st generation instruments had been shipped without a installed Device Key.

Please contact your local R&S service representative if no Device Key has been found on a instrument.
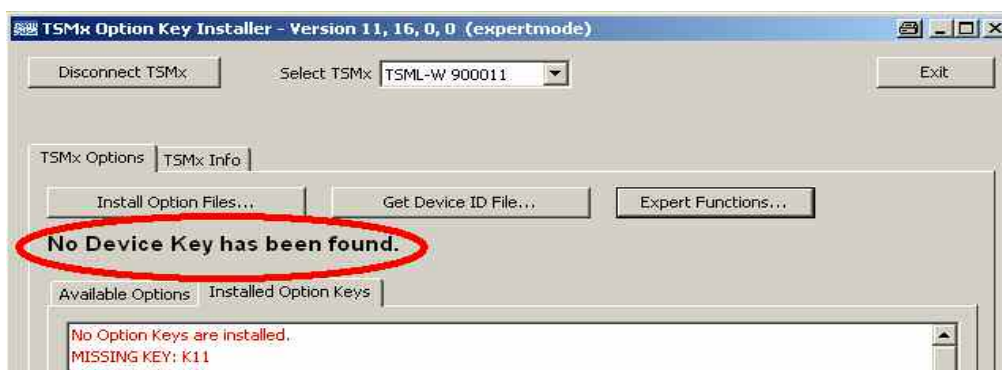
Dialog 4   Missing Device Key Installation

Read Out the Device ID File

TSMx firmware options are based on the instrument specific Device ID File. The ID File is unique for every instrument and has to be submitted, if the customer places a reorder for a specific TSMx firmware option.

Use the "**Get Device ID File…**" button in the TSMx Options property page to download the Device ID File and to copy it into a local directory on the PC. The file name contents the serial number and model type and the file extension is "hex".

E.g. **DevId_TSML-W_100011.hex**

This file needs to be attached with the TSMx option order.

Installing TSMx Firmware Options

Reordered TSMx firmware options are shipped on a CD-ROM "**TSMx Option File**". The included TSMx Option Keys need to be installed on the instrument to enable the firmware option(s). Select the "TSMx Option" property page and click on "**Install Option Files…**".

Select in the upcoming file dialog the storage location of the Option-Key(s). The keys are located in the CD-ROM directory **..\OptionKeys.** Select any *.xml file in this directory and the tool will automatically install all the included and valid Option Keys of this directory.

The "Available Options" page shows all the enabled TSMx options on a single instrument and will be updated with the new option if the key could be installed successfully.

Program Exit / Disconnect

Press the Exit button to disconnect from any connected receiver and to end the TSMxOptionKeyInstaller utility.

Press the "Disconnect TSMx" button to disconnect from connected TSMx instruments and to free them for connection with another utility respectively software application without ending the TSMxOptionKeyInstaller utility.

Troubleshooting / Log Messages Window

In cases where the connection to the instrument fails or there are troubles to install Option Keys, the Log Messages window is a valuable tool for service and customer support to localize a problem. This window outputs text messages and offers the possibility, like the other text boxes too, to post its contents via context menu into to Clipboard or into a text file and to provide this with the problem report.
Simply right click on the mouse in the Log Messages Area or any other list box and select where you want to copy the text.

Modifications in Current Version and History

Instrument Firmware related

Version 12.72
New: TSML-GW support

Version 12.37
New: IEEE1394 connection stability

Version 12.04
New: RS232 support
New: RS232 silent mode
New: PPS edge configurable

Bugfix: Rare TSMx hangup after about 36 minutes standby

Version 11.11
New: Only minor changes for production, performance and behavior equal with version 11.04

Version 11.04
New: Mandatory for Windows compatible device driver V11.00.0.4 or higher

Version 10.63
Bugfix: BIOS boot bug in some notebooks which require a 1394 configuration ROM on each device

Version 10.24
New: Mandatory for ROMES 3.52 and newer
New: Released with ROMES V3.51 Rev 1
New: Instrument returns extended version info
New: Enlarged memory for application programs
New: Improved Performance Test

Bugfix: Noise radiation via antenna in Stand-By Mode eliminated

Version 10.00
New: Mandatory for ROMES 3.50 and higher
New: Additional I/Q Demodulator implemented
New: Support for ROMES software option AS6 (Inband Power Measurement)
New: Support for ROMES software option GS3 (Network Scanner)
New: Support for ROMES BCH Decoder

Bugfix: Boot problem with newer FPGA lots

Version 08.00
New: Customer options available TSMU-K5, K6, K7, K8, K9…

Host PC Software related (ROMES and TSMx Utilities)

In brackets version of distributed TSMx_Application.elf File

ROMES 4.30 SP 1 (v12.71)
New: Devicekey installation mandatory for instruments
New: TSML-GW support
New: Improved internal frequency synchronization
New: TSMxOptionKeyInstaller utility v12.72 -> mandatory for TSML-GW scanners
New: TSMxFirmwareInstall utility v12.72 -> for instrument upgrade to v12.72
        FW v12.72 **not** necessary for scanner types: TSMU, TSMQ, TSML-G, TSML-W, TSMU-H,
                                     TSML-CW, TSML-C

ROMES 4.11 SP 2 (v12.61)
Bugfix: TSMU-K15(CW) The raw data might contain stair artifacts up to -98 dBm if the
        input level was higher than -50 dBm.
Bugfix: TSMU-K15 (CW) Single Channel Measurements: meas values with detektor average are
        false if measurement time is 1s
Bugfix: TSMU-K15 (CW) Frequencies at 650 – 750 MHz may lead to false measurement results
        due to PLL settings

ROMES 4.11 SP 1 (v12.55)

ROMES 4.10 SP 1 (v12.37)
New: IEEE1394 connection stability
New: TSMxOptionkeyInstaller: updated options check
New: EVDO support (TSMU-K12)

ROMES 3NG Rev1 SP 6 (v12.34)
New: IEEE1394 connection stability

Bugfix: ST 1, 2, 4 Demodulation for GSM

ROMES 3NG Rev1 SP 5 (v12.21)
New: Configurable PPS edge for GPS synchronization

Bugfix: TSMx hang-up after 36 minutes STB
Bugfix: TSMU-K15 – attenuator decrement after one second
Bugfix: GSM Demodulator stops for requested Sys Type demodulation
Bugfix: UMTS Demodulator deltes BTS at channel failed

ROMES 3NG Rev 1 SP 4 (v12.09)
New: RS232 Tunneling
New: RS232 Silent Mode

Bugfix: Halt of GSM Sync while measurements

ROMES 3NG Rev 1 SP 3 (v12.03)
New: First version of GSM Demodulator
New: First version of C2K Demodulator

ROMES 3NG Rev 1 SP 2 (v11.22)
New: OptionkeyInstaller: Warning if keys are missing

Bugfix: Option handling RF Power Scan (TSMU-K17)

Bugfix: Demodulator tasks with maximum attenuation

ROMES 3NG Rev. 1 (v11.04)
New: Support for Windows compliant TSMx device driver V 11.00.0.4 or higher
New: ROMES option handling via TSML-x
New: Release of TSMQ
New: TSMU-K17/K37 (RF Power Scan)

Bugfix: Improved software stability after connection lost situations to the TSMx receiver. ROMES
TSMx measurement can now be stopped ordinary and restarted in such situations.
Bugfix: WCDMA measurements: synchronization problems for code groups 8, 46, 59, 63 in High
Speed mode removed

ROMES 3.60 SP 4 (v10.72)
New: Support for TSML-CW receiver   (up to 6GHz)
New: First version of TSML-W ViCom

ROMES 3.60 SP 2 (v10.68)
New: Support for TSML receiver types   TSML-W (UMTS PN Scanner)
                                            TSML-G (GSM Network Scanner)
                                            TSML-C (CDMA2000 Scanner)
Bugfix: UMTS PN Scanner: Improved Suppression of intermodulation due to sophisticated
PreAmp control.
Bugfix: UMTS PN Scanner: Removed error in drift calculations after long measurements

ROMES 3.60 SP 1 (v10.56)
New: R&S_OHCI1394_InstallationTool

- TSMxOptionKeyInstaller V10.63 with new "Installed Option Key" tab displays the
  expiration date for time limited options.
- TsmxFirmwareInstall with new firmware version 10.63
- R&S_OHCI1394_InstallationTool with OHCI1394.sys V10.53.0.3

Bugfix: TsmuWorker.dll V10.60 in combination with OHCI1394.sys V10.53.0.3 eliminates host PC
freezing under certain circumstances
Bugfix: Cdma2000.dll: bugfix in crc demodulation

ROMES 3.60 (v10.56)
New: External Trigger for CW measurements (TSMU-K15)
New: TSMx option CDMA 2000 PN Scanner (TSMU-K12)
New: Accelerator Files generally created once a time at start of measurement
(Accelerator**xxx**.hex)
New: Updated TSMx utility tools for TSML launch

- TSMxOptionKeyInstaller
- TsmxFirmwareInstall
- R&S_OHCI1394_InstallationTool

New: Additional synchronization info stored in R&S ROMES measurement file *.cmd
New: TSMx related version info in R&S ROMES help menu (Help->TSMx Installation)
New: Application files renamed   TSMU_UMTS_PNS.elf -> TsmxApplication.elf
                                      TSMU_BS1.elf   -> TsmxBootWare.elf

Bugfix: in OHCI1394.sys driver concerning long term stability in multicore and multithreading
environments.
(->..\Firmware&Drivers\R&S RF Receivers\TSMx\TsmxIeee1394DriverV10_53_0_2.zip)
Bugfix: GSM synchronisation

Host PC Software related - ViCom

Version 12.77

12.10.2009
- Fixed in GSM Network Scanner: missing TSMx unload
- Fixed in CDMA2000 interface (EVDO): Fixed problem in the protocol decoder
  with Connection Layer Format A packets. These are now handled properly.
  This was seen to be a problem with SLP-F fragments that use
  Format B packets.

Version 12.76

05.10.2009
- Fixed: occational crashes (access violations) on heavy start/stop conditions
- New: device variant TSML-GW enabled
- New in GSM Network Scanner:
    - Carrier to Interference measurement (C/I)

Version 12.67

02.06.2009
- Fixed in WCDMA Scanner:
    - wrong MCC-MNC decoding
- Fixed in GSM Network Scanner:
    - wrong MNC decoding for 3 digit MNC

Version 12.64

15.05.2009
- Fixed in ViCom RF Power Scan:
    - crash on interface release after lost connection or bad cable connection
- New in CDMA2000 interface:
    - 1xEvdo BCH Demodulator Release
      - Complete demodulation and decode of synchronous control channel.
      - Following Protocol messages supported:
      - Sync Message
      - Quick Config Message
      - Sector Parameters Message
      - Access Parameters Message
      - Binary bits for message result return to host.
      - Protocol Type provide for each messag result.
      - SLP-F fragmentation supported.
    - support for EVDO Layer 3 decoding
- New in CW:
    - support for device variants TSML-G, TSML-C, TSML-W
- changed in GSM Network Scanner:
    - Layer 3 decoder output format has been changed
- changed in WCDMA Scanner:
    - Layer 3 decoder output format has been changed

Version 12.55

12.01.2009
- Fixed: occasional crash on interface release
- Fixed in CW:
    - occasional hang up of TSMx on measurement restart
    - rare hang up of TSMx during measurements
    - Single Channel Measurements: meas values with detektor average are false if meastime is
      1s
    - rarely the meas values of noise are significant smaller than the expected noise
    - Frequencies at 650 - 750MHz may lead to false meas results due to PLL settings
- Fixed: error handling when trying EV-DO demodulation
- New in CW:

- IF overflow detection
  CViComCWInterfaceData::SMeasResult::SPowerResult::bAdcOverflow must be evaluated.
- optional fix attenuation
- optional external trigger
- New: multi instance interfaces for
  - CDMA2000
  - GSMNWS
  - UMTSPNS

Version 12.52
06.11.2008
- Fixed: Support for crash report.
  If PhylisCrashReport.dll is available a file RuSModulePool_dd-mm-yyyy_hh-mm-ss.zip
  is generated in the LogFiles directory when the application crashes.
- Fixed: occasional crash while loading an interface
- Fixed: occasional crash on interface release
- Fixed: occasional TSMx connection loss on the start of a measurement while other measurement types
  are still running
- Fixed: Somtimes the receiver was disabled and measurements have been delayed for up to 40sec.
- Fixed in WCDMA Scanner, GSM Network Scanner, CDMA2000 Scanner:
  occasional crash on the start of measurement of multiple interfaces at the same time
- Fixed in CDMA2000 Scanner:
  - occasional crash on interface release
  - Report of inband power corrected. This was somtimes invalid when no CIR was measured.
  - PN-Code shifted for 15 PN chips. --> less standarddeviation for RSCP and Ec/Io
- New: interface for CW measurement
- New: TCXO synchronisation improved.
  PPS synchronisation will be used earlier when GSM Sync gives changing values.
- New in CDMA2000 Scanner:
  supported channel count is extended from 18 to 32 (CDMA2000 and EVDO)
- New in WCDMA Scanner:
  supported channel count is extended from 12 to 32

Version 12.41
25.07.2008
- Fixed in the CDMA2000 Scanner:
  all frequencies with odd kHz number have been interpreted as EVDO Frequencies with 1 kHz offset
  (was workaround for EVDO Tests)

Version 12.39
30.06.2008
- Fixed for TSMx Driver Installation: Windows XP SP3 was not supported
- Fixed with TSMx Firmware 12.37: IEEE1394 connection stability issues
- Fixed in GSM NWS: crash of measurements with TCH on Pentium III.
- New in the GSM Network Scanner interface:
  - bTotalPowerOffsetInDB10
  - Demodulation of GSM System Information messages can now be requested
    for types
    1, 2, 2bis, 2quater, 2ter, 2n, 3, 4, 5, 5bis, 5ter, 6, 7, 8, 9,
    13, 13alt, 15, 16, 17, 18, 19, 20.
    The messages are delivered as byte stream. An additional new function
    can decode the messages into text form.
- New in the CDMA2000 Scanner interface:
  - BCH demodulation
  - Layer 3 Decoding
  - EVDO Scanning

   - for TSMU and TSMM: maximum number of channels extended from 12 to 18
  - New: user defined message handling (described in manual, chapter "Debugging and Error Handling")

Notes for R&S TSMx Users

TSMx Firmware Options

Option Key Licensing

Starting with **R&S®ROMES V3.52,** enabling TSMx firmware options requires the installation of dedicated option keys on the instrument. The licensing via the TSMx application file (*.elf) had been stopped.
Reordered licenses for TSMx firmware options are shipped on a CD-ROM "**TSMx Option File**" and the customer needs to install the xml-based option key(s) using the TSMxOptionKeyInstaller utility.

Note:
Please keep in mind, that enabling TSMx firmware options (**TSMU-K1x**) for R&S®ROMES software requires the appropriate license option file on the ROMES software too. Please contact your local R&S sales representative for questions on this matter.

TSMx OEM Programming Interface ViCom

The ViCom programming interface could be used to integrate the R&S TSMx scanner models into a customer software application. ViCom is a host PC software packet which enables the control of the TSMx receiver in a customer application.
Dedicated TSMU-K**3**x option keys need to be installed on the instrument to enable this feature. Please refer to the internet under: http://www.rohde-schwarz.com and search for available OEM options of your TSMx receiver model.

The current version of the ViCom host PC software interface could be downloaded from the internet under: http://www.rohde-schwarz.com. Select "DOWNLOAD" and search for R&S TSMU/TSMQ/TSML within the category SOFTWARE.

Upgrading TSMx Instruments with Firmware Version 10.xx

> **Not** applicable for instruments from version **11.xx**!
>
> With the release of this document all TSMx receivers are shipped with firmware version 12.37 so you can neglect this section.

TSMx devices with firmware version 10.xx **cannot** be upgraded **directly** to firmware version 12.xx. These instruments have to be brought to version 11.11 first and then in a second step to the final 12.xx version.

TSMx 1394 device driver version **10.53.0.3** has to be installed on the host PC temporarily to execute the upgrade to intermediate firmware version **11.11.**

The upgrade needs to be done in the following oder:

Step 1.   **Downgrade IEEE 1394 driver version on the host PC to version (V10.53.0.3) using the R&S_OHCI1394_InstallationTool.exe**

This tool could be downloaded from the internet under: http://www.rohde-schwarz.com. Select "DOWNLOAD" and search for R&S TSMU/TSMQ/TSML within the category DRIVERS.

Step 2. **Upgrade TSMx firmware V10.xx to V11.11 with the appropriate firmware installer to version 11.11**
This tool could be downloaded from the internet under: http://www.rohde-schwarz.com. Select "DOWNLOAD" and search for R&S TSMU/TSMQ/TSML within the category FIRMWARE.

Step 3. **Upgrade IEEE 1394 driver version on the host to version (11.00.0.4) with the appropriate TSMxDriverInstall.exe**
This tool could be downloaded from the internet under: http://www.rohde-schwarz.com. Select "DOWNLOAD" and search for R&S TSMU/TSMQ/TSML within the category DRIVERS.

Wait for the TSMx device driver dialog (Connecting a TSMx Receiver to Host PC after TSMx Device Driver Installation) for a certain instrument before you proceed with Step 4.

Step 4. **Upgrade TSMx firmware V11.11 to V12.37 using the appropriate firmware installer to version 12_37.**
This tool could be downloaded from the internet under: http://www.rohde-schwarz.com. Select "DOWNLOAD" and search for R&S TSMU/TSMQ/TSML within the category FIRMWARE.

Connecting a TSMx Receiver to Host PC after TSMx Device Driver Installation

After installing TSMx 1394 device driver version 11.xx on the host PC and connecting a TSMx receiver for the first time to the IEEE1394 port the Windows "New Hardware Wizard" comes up and asks to connect to Windows Update for a pleasant software driver for the new hardware (see dialog 5). Neglect this dialog by checking the box "No, not this time".
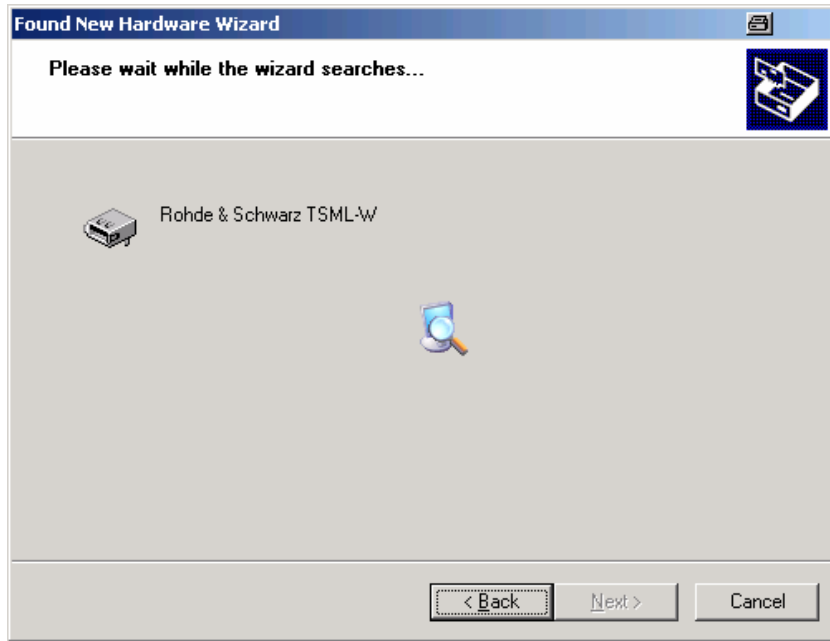

Dialog 5   Windows New Hardware Wizard Step I

Then a second dialog comes up (see dialog 6). Confirm to update the software automatically. Windows now installs the TSMx device driver for the connected TSMx. The successful completion of the installation will be acknowledged.
The Windows Hardware Wizard once comes up for every new TSMx device connected to the IEEE1394 port or anytime you have installed the TSMx 1394 device driver before.

Dialog 6   Windows New Hardware Wizard Step II

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Dialog 7   Windows New Hardware Wizard Step III

Dialog 8   Windows New Hardware Wizard Step IV

How to Reorder TSMx Firmware Options

1. Search in the internet under: http://www.rohde-schwarz.com for a specific TSMx model and check under "Options" the available options for a certain TSMx model.
2. Download the device specific Device ID File from the instrument using the OptionKeyInstaller utility and submit this file with the TSMx option order (see Read Out the Device ID File).
3. In return you will get a TSMx Option File CD-ROM with the necessary option keys. This option key file(s) needs to be installed on that instrument by using the TSMxOpitonKeyInstaller utility (Installing TSMx Firmware Options).

How to Check Installed TSMx 1394 Driver Version

In any case a valid driver version **11.xx** of the TSMx 1394 device driver is installed on the host PC you can find an entry in the Control Panel of Windows and you can read out the version (see dialog 9, version 11.00.0.4 in this example).

Link for the TSMx Device Driver Entry:

Start->Settings->Control Panel-> Add or Remove Programs
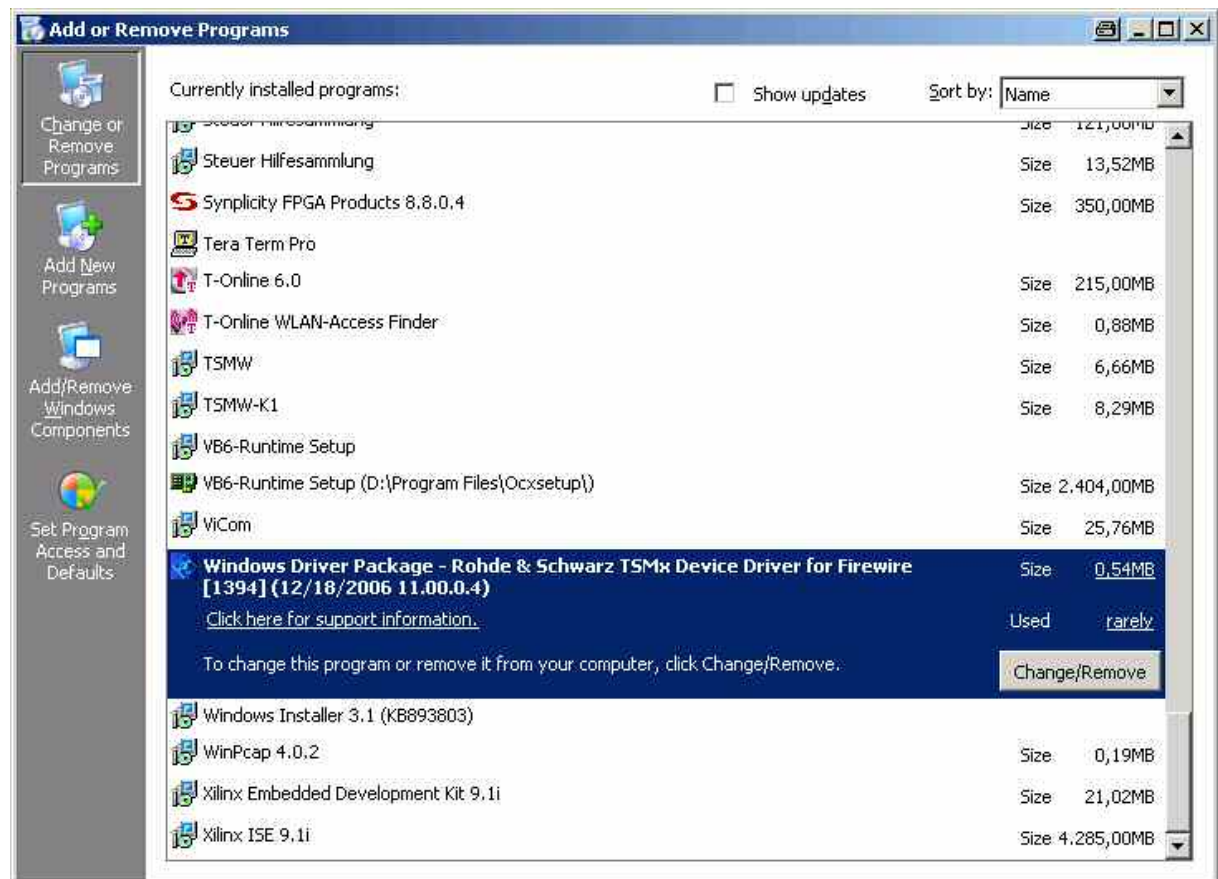
Dialog 9

Only in cases where you don't have the "**TSMx Device Driver for Firewire**" entry in the control panel an older version **10.xx** is installed on the host PC.

The **TSMx_Firewire_x.pdf** document provides a general overview of the TSMx 1394 interface and how to migrate between the different versions.
Please refer to this documentation for details.
This document could be downloaded from the internet under: http://www.rohde-schwarz.com.
Select "DOWNLOAD" and search for R&S TSMU/TSMQ/TSML within the category MANUAL.

Problems after Firmware Update

Problem: The instrument doesn't come up after firmware update and indicates "Flash Card Error" most of the time the reason is a discrepancy between the hardware version of the Controller PCB inside the unit and the activated configuration directory on the TSMx Compact Flash Card.

In such a case, it is possible to correct this mismatch in the configuration directory manually on a PC with Compact Flash card slot respectively Compact Flash card reader.

Solve the configuration problem manually:
For that purpose, remove the Flash Card from the instrument (cf. Operating Manual for details) and insert the card into the PC Card reader or PCMCIA slot of a PC/notebook.
Open the xilinx.sys file in the root of Flash Card with an editor and change the "dir" variable according to the following table:

Content before Modification		Content after Modification
dir = H01V10B0;	→	dir = *H00V10B0;*
dir = H00V10B0;	→	dir = *H01V10B0;*

The unit should come up after insertion of the reedited Flash Card. If it doesn't come up, please contact the R&S support.

Background: There are two configuration directories stored on the Flash Card of each instrument (H01V10B0 and H00V10B0) and the xilinx.sys file defines which one is currently active. Two Different configuration directories are necessary, because the Controller PCB inside the TSMx has been manufactured in two different revisions and each revsion utilizes its own configuration.
Under certain circumstances it is possible that xilinx.sys file enables the wrong configuration directory. As a consequence, the unit doesn't come up.