R&S®SFC / SFC-U / VT-B600 Compact Modulator / USB Compact Modulator / Broadcast TX Modulator
Release Notes
Firmware Version 02.96

The following abbreviations are used throughout this document: R&S®SFC / SFC-U / VT-B600 is abbreviated as R&S SFC / SFC-U / VT-B600.

ROHDE & SCHWARZ

Contents

1 Information on the Current Version and History

1.1 Version 02.96

- Released: July 2017

Fixed Issues

- Starting SFC application by remote operation, the instrument starts in service mode and no options are available.

1.2 Version 02.94

- Released: May 2017

New Functionality

- DVB-C2 Coder (R&S® SFx-K17): Combination of constellation 4096QAM and code rate 4/5 is permitted

Fixed Issues

- Frequency error with modulated signals for Rf = 205.296MHz - all TX standards affected

- ISDB-T Coder (R&S SFx-K6):
  SCPI command 'ISDB:TIME:xxx' does not work for parameters 1,2,4

- DVB-C2 Coder (R&S SFx-K17):
  - Invalid spectrum at channel bandwidth 6 MHz and windowing
  - Rf offset is not included in calculation of DVB-C2 frequencies

- AM/FM Modulator (R&S SFx-K170):
  Spurious emmissions N*380kHz next to Carrier

- TSGEN: TRP-Player PTS/PCR is not constant

- ISDB-T Streams (R&S LIB-K54-SFU-K224): TRP_C files cannot be played

- VT-B600 only: TSGEN rejects TDMB/DAB Streams (R&S LIB-K51-SFU-K221) and DAB+ Streams (R&S LIB-K53-SFU-K223)

1.3 Version 02.92

- Released: December 2015

New Functionality

- HEVC Stream Library (R&S LIB-K78) is supported

- SFC-U software supports Windows 8

Fixed Issues

- TSGen: TRP Player causes PCR errors

- TSGen shows wrong orig. loop time after preset

- T-DMB/DAB (R&S SFC-K11): 64 sub-channels are supported

- DVB-C2 Coder (R&S SFC-K17): Pressing 'Adjust RF Frequency' modifies 'Start Frequency' and 'Calc. Center Frequency' by mistake

- AM/FM RDS (R&S SFC-K170): Radiotext via SCPI, first character code is decremented by one

- ATV (R&S SFC-K190 ... K195): Progress bar does not disappear

1.4 Version 02.90

- Released: November 2014

New Functionality

- ISDB-T (R&S SFx-K6): EEW (earthquake early warning) supported

- ISDB-T (R&S SFx-K6): Error message for BTS <> 32,507937 MBit/s

- ISDB-Tmm (R&S SFx-K106) is supported

- DVB-C (R&S SFx-K2): Lower limit of Symbolrate is changed to 0.75MS/s

- DVB-T2 (R&S SFU-K16): New FIR coefficients with improved S/N added

- AUDIO BC (R&S SFU-K170): AUDIO PLAYER is available as baseband source

- AWGN Gen. (R&S SFU-K40): Minimum receiver bandwidth changed to 1kHz

- Ext. I/Q Input (R&S SFx-K80): Info Interface supports relative AGC

- Frequency sweep function is available with RF Board change index higher than 07.05

- R&S LIB-K74...K77 supported

- SFC-U: RS Smartcard Service supports Windows 8

Fixed Issues

- R&S SFC-U: The serial number and customer options get sporadically lost

- Reference frequency adjustment improved

- ISDB-T (R&S SFx-K6): TEST TS PACKETS with SYNC/ 187 PAYLOAD are having an error floor

● T-DMB/DAB (R&S SFC-K11): Remote script stops working of device

● DVB-T2 (R&S SFU-K16): L1 Post Scrambled malfunction, if (NumPLP > 2)

● DVB-T2 (R&S SFU-K16): Nonfunctional remote command for FEF payload type

● DVB-T2 (R&S SFU-K16): Showing false value at GUI for (FFT Size = 16K Ext) during T2-Lite transmission

● DVB-T2 (R&S SFU-K16): TIME_IL_TYPE = 1 via T2MI-Interface with NumPLP = 1 not yet supported

● DVB-T2 (R&S SFx-K16): False NorDig configuration SCPI script files

● DVB-T2 (R&S SFx-K16): Malfunction at 1.7 MHz channel bandwidth, if T2MI interface is used.

● DVB-T2 (R&S SFx-K16): Malfunction for some Single PLP setups, if (time interleaving = off) is used

● DVB-T2 (R&S SFC-K16): Malfunction of BBFrame header parser and L1 signal processing

● DVB-T2 (R&S SFC-K16): Missing P1-FEF symbol, if FEF length is small

● DVB-T2 (R&S SFC-K16): MultiPLP time interleaver malfunction if NumBlocks value is large for one PLP

● DVB-C2 (R&S SFx-K17): Notch width greater than 255 not working correctly

● DVB-C2 (R&S SFx-K17): RF spectrum with windowing at two channels bandwidth shows aliases

● DVB-C2 (R&S SFx-K17): Short FEC Frame, 4096QAM, CR 5/6 and Data Slice Type 1 combination not working correctly.

● ATSC-MH (R&S SFC-K18): In some rare cases TS data rate warning occurs

● Ext. I/Q Input (R&S SFx-K80): No connection after restart of device

● SFC: TsGen (R&S SFx-K20/22) doesn't start properly if TX standard is switched to DTMB.

● TRP Player (R&S SFx-K22) Diver.trp has not an Integer Number of Frames

● TsGen (R&S SFx-K20/22): Data rate calculation if TS contains PCR wraparound

● TsGen (R&S SFx-K22): Sporadic "INTERRUPT TIMEOUT ERROR IN GTS MODE" messages

● TsGen (R&S SFx-K22): Switch to Transmission Standard DTMB aborts sometimes the TRP player.

● Valid DVB-T2 save recall file does not set SFC in a state which generates DVB-T2 signal reliable

1.5 Version 02.84

● Released: October 2013

New Functionality

- DVB-T2 MI streams (R&S SFU-K227): Missing DTG test cases added

- TsGen (R&S SFC-K22): ATSC file included in installation process

- TsGen (R&S SFC-K22): File manager is available

- TX: RF OFFSET and LEVEL OFFSET available

Fixed Issues

- ATV realtime has wrong subcarrier frequency 2 at std. M/N sound modulation Korea Dual

- Baseband oscillator is sometimes not controlled correctly

- Output frequency sporadically out of tolerance

- Remote control: Sporadically timeouts

- DIRECTV (R&S SFC-K9): Incorrect configuration of Test TS Packet

- DVB-T2 (R&S SFC-K16): Showing false value at GUI for (FFT Size = 16K Ext) during T2-Lite transmission

- DVB-T2 (R&S SFC-K16): Extended message "Invalid T2-MI setup (not DVB-T2 compliant)" added

- DVB-T2 (R&S SFC-K16): Nonfunctional remote command for FEF payload type

- DVB-T2 (R&S BTC-K516): False coding and modulation check removed from T2-MI Analyzer

- RF: Adjustment All sporadically fails

- TsGen (R&S SFC-K22): Diver.GTS excluded from installation

Known Issues

- DVB-C2 (R&S SFC-K17): Short FEC Frame, 4096QAM, CR 5/6 and data slice type 1 combination not working correctly

- DVB-C2 (R&S SFC-K17): Notch width greater than 255 not working correctly

- R&S SFC-U: The serial number and customer options get sporadically lost

- DVB-T2 (R&S SFC-K16): L1 Post Scrambled malfunction, if (NumPLP > 2)

- DVB-T2 (R&S SFC-K16): Malfunction at 1.7 MHz channel bandwidth, if T2MI interface is used.

- DVB-T2 (R&S SFC-K16): Malfunction for some single PLP setups, if (time interleaving = off) is used

- DVB-T2 (R&S SFC-K16): Malfunction of BBFrame header parser and L1 signal processing

- DVB-T2 (R&S SFC-K16): Missing P1-FEF symbol, if FEF length is small

- DVB-T2 (R&S SFC-K16): MultiPLP time interleaver malfunction, if NumBlocks value is large for one PLP

- DVB-T2 (R&S BTC-K516): 10MHz channel bandwidth supported

- DVB-C2 (R&S SFx-K17): Malfunction of ISSY feature at Data Slice Type 1

- DVB-C2 (R&S SFx-K17): PN15 is not working correctly

1.6 Version 02.80

- Released: December 2012

New Functionality

- DVB-T2 (R&S SFC-K16): Absolute timestamps for SFN operation supported

- DVB-T2 (R&S SFC-K16): CCM/ACM signaling check implemented

- DVB-T2 (R&S SFC-K16): DVB-T2 specification v1.3.1 (T2-Base) supported

- DVB-T2 (R&S SFC-K16): DVB-T2 specification v1.3.1 annex I (T2-Lite) supported

- DVB-T2 (R&S SFC-K16): Future Extension Frames (FEF) supported

- DVB-T2 (R&S SFC-K16): Integer number of OFDM cells check implemented

- DVB-T2 (R&S SFC-K16): Process delay determination for SFN operation improved

- DVB-T2 (R&S SFC-K16): Script Files for RUN SCPI SCRIPT enhanced

- DVB-C2 (R&S SFC-K17): New menu item "CALC CENTER FREQ"

- DVB-C2 (R&S SFC-K17): Push button solution for setting RF frequency to valid C2 frequency

- DVB-C2 (R&S SFC-K17): Multiple Data Slices and Data Slice Type 1 supported

- DVB-C2 (R&S SFC-K17): Script Files for RUN SCPI SCRIPT available

- DVB-C2 (R&S SFC-K17): All PLPs can be fed with real transport stream

- DVB-C2 (R&S SFC-K17): Bandwidth extension supported

- DVB-C2 (R&S SFC-K17): Multiple Data Slices are supported

- DVB-C2 (R&S SFC-K17): ISSY and NPD feature supported

- DVB-C2 (R&S SFC-K17): Notches are supported

- DVB-T (R&S SFC-K1): Parameter DIGITAL TV: SETTINGS: CONTROL removed

- High Temperature Warning (LED) implemented

- SFC/-U EXT Board diagnosis voltages implemented

- SFC-U Link under Start -> All Programs available

- SW-Distributor: OS (XP/7, 32/64bit) detected automatically

- TsGen (R&S SFC-K20/22): Data rate calculated automatically when loading a T2MI file

- TsGen (R&S SFC-K22): Play out of BTS files for ISDB-Tmm supported

- TRP Player (R&S SFC-K22): Default value of seamless loop parameters set to ON

Fixed Issues

- DVB-T2 (R&S SFC-K16): Malfunction for some Single PLP setups

- Noise signal (R&S SFC-K40) is faulty after switching from DVB-T2 to DAB

- RF: Frequency dependend carrier frequency error

- T-DMB/DAB (R&S SFC-K11): Type of ETI input signal (NI/NA) is not displayed correctly

- TsGen (R&S SFC-K22): ISDB-T streams (R&S SFU-K224): Repetition rate MPEG-2 tables not according to standard

- TsGen (R&S SFC-K22): MediaFLO streams (R&S SFU-K222) not decrypted correctly

Known Issues

- DVB-T2 (R&S SFC-K16): Time interleaving at Single-PLP via T2MI-Interface limited functionality

- DVB-T2 (R&S SFC-K16): Malfunction at 1.7 MHz channel bandwidth, if T2MI interface is used.

- DVB-T2 (R&S SFC-K16): Malfunction for some Single PLP setups, if (time interleaving = off) is used

- DVB-T2 (R&S SFC-K16): TIME_IL_TYPE = 1 via T2MI-Interface with NumPLP = 1 not yet supported

- DVB-C2 (R&S SFC-K17): Short FEC Frame, 4096QAM, CR 5/6 and Data Slice Type 1 combination not working correctly

- DVB-C2 (R&S SFC-K17): Notch width greater than 255 not working correctly

1.7 Version 02.00

- Released: June 2012

New Functionality

- SFC-U supported

- DVB-C2 (R&S SFE-K17): Multi-PLP/Single D-Slice is supported

- Digital IQ (R&S SFx-K80): Info interface is available

- Audio BC (R&S SFx-K170): FM RDS: 0x0D terminating character missing

- Audio BC (R&S SFx-K170): FM RDS: Editor accept extended keyboard entries

- Audio BC (SFC-K170): AM radio removed from SFC / SFC-U GUI

- DMB Streams France (R&S SFU-K229) supported

- DVB-S (R&S SFU-K2): Additional roll off factor 0.20 for DIRECTV application added

- DVB-S2 (R&S SFx-K8): Symbol rate extended to meet NORDIG standard

- DVB-T2 (R&S SFx-K16): Additional SCPI scripts available

- DVB-T2 (R&S SFx-K16): MISO/SFN supported

- ISDB-T (R&S SFx-K6): Default value of AC Data corrected (now ALL1)

- ISDB-Tmm waveforms (R&S SFU-K365) supported

- New software update process established

- Remote: Zeroconf and mDNS to ease the direct network connection is supported

- TsGen: TS libraries LIB-K70, K71, K72 and K73 supported

- RF: Frequency adjustment process improved

- Display of Device ID supported

Fixed Issues

- DVB-T2 (R&S SFE-K16): Maximum number of PLP is limited to 6

- DVB-T2 with T2MI=ON: Channel Bandwidth = 6, 7 MHz is not working correctly

- "TX RECALL: OPTION MISSING" is shown after installing new option and switching to new option

- Audio BC (R&S SFx-K170): Preemphasis calculation af frequency below 1kHz is missing

- Audio BC (R&S SFx-K170): RDS: Open Format: Some groups are not accepted by clicking APPLY

- EMC Test streams (R&S SFU-K228): Audio isn't seamless

- DVB-T2 (R&S SFE-K16): T2MI=ON: Channel Bandwidth = 6, 7 MHz is not working correctly

- Remote: Command error at READ:IQC:TDMB:PROT:PROF and LEV

- SETUP: ADJUSTMENT ALL does not work without SFC-K83 (extended frequency range)

- T-DMB/DAB (R&S SFU-K11): Wrong Null symbol in transmission mode 3

Known Issues

- SFC-U: Remote Desktop with Windows XP not yet supported

- SFC TsGen doesn't start properly if TX standard is switched to DTMB. TsGen needs to be stopped and restarted.

- ATSC-MH (R&S SFC-K18): In some rare cases the following warning occurs even if the data rate is correct: DATARATE OUT OF RANGE, DATARATE TOO LOW, DATARATE TOO HIGH

1.8 Version 01.00

● Released: June 2011

New Functionality

● Initial Version

Known Issues

● DVB-T2 (R&S SFE-K16): Maximum number of PLP is limited to 6.

● DVB-T2 with T2MI=ON: Channel Bandwidth = 6, 7 MHz is not working correctly.

2 Modifications to the Documentation

The current documentation is up-to-date.

3 Firmware Update and Installation

Your instrument is delivered with the latest firmware version available. Firmware updates are provided on the Rohde & Schwarz Home Page (http://www.rohde-schwarz.com/downloads/firmware/sfc.html), by Rohde & Schwarz service centers or sales offices.

You can install the new firmware version by using either the USB or the LAN interface:

● For an update using the USB interface, store the downloaded update files on a memory stick.

● For an update using the LAN interface (due to speed recommended), store the downloaded update files on a network directory.

Further information

● Installing software options
See User Manual, chapter "Basic Instrument Configurations".

● Connecting the instrument to a network (LAN)
See the User Manual, chapter "Operating the R&S SFC in a LAN".

● Sharing and accessing instrument drives
See the User Manual, chapter "Operating the R&S SFC in a LAN".

● R&S SFC only: Making a backup before installing new firmware
See the User Manual, chapter "Installed Software".

3.1 Firmware Update

The firmware update consists of the following files. The version numbers in the file names vary with each update (symbolized by placeholder x).

● Firmware:

– For R&S SFC: *Sfc_xx.xx.xx.xx(Release).exe*

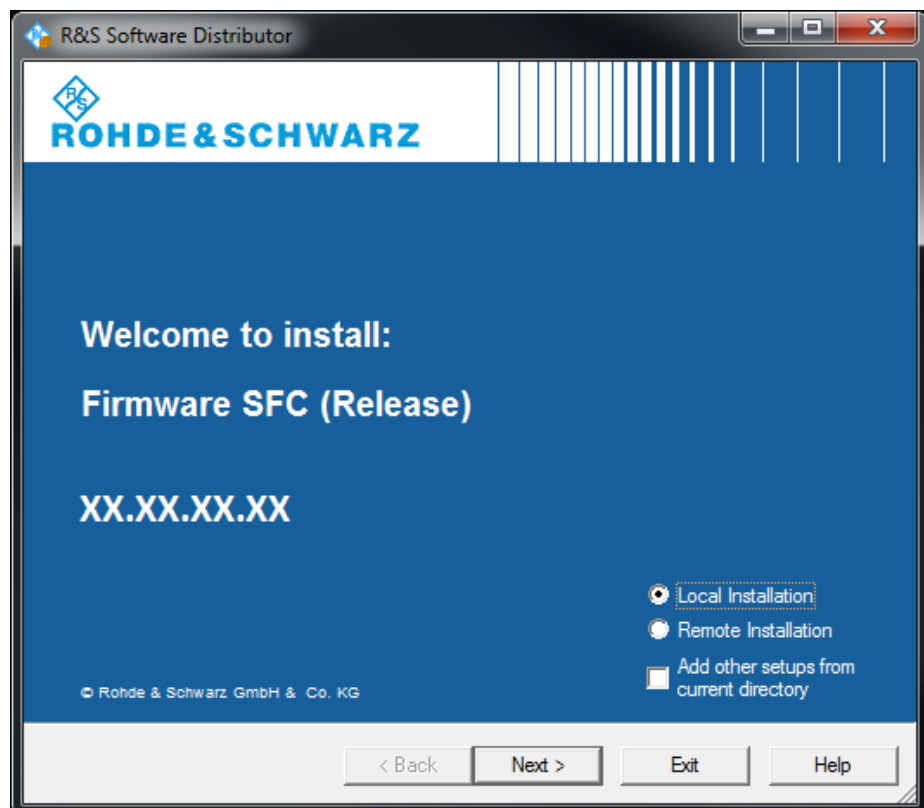– For R&S SFC-U: *Sfcu_xx.xx.xx.xx(Release).exe*

If Analog Realtime Modulations (ATV) are used, the following file is necessary too:

● Video signals: *AtvVideoBasic_02.10.00.00.msi*

The update is performed under control of the Windows XP Embedded operating system. Windows XP can only be accessed if a mouse and optional an external keyboard is connected.

3.1.1   Updating the Firmware on the R&S SFC

1. Switch off the R&S SFC.

2. Connect monitor, mouse and/or external keyboard to the USB interface.

3. Switch on the R&S SFC.

4. If the monitor switches off automatically during the boot process: Press
    ALT+CTRL+F4 to switch it on again.

5. Wait until the R&S SFC firmware has booted and the application has started.

6. Access the Windows XP Embedded desktop.

    –   Operation with mouse: Click the "Close" button of the R&S SFC application.

    –   Operation with keyboard: Press ALT+F4 to close the application.

    The Windows XP Embedded desktop is displayed.

7. Copy the update files.

    –   Using the Windows Explorer, open the folder with the update files.

    –   Delete all files in *D:\SFC\Installations*.

    –   Copy the update files to *D:\SFC\Installations*.

8. Execute *Sfc_xx.xx.xx.xx(Release).exe*.
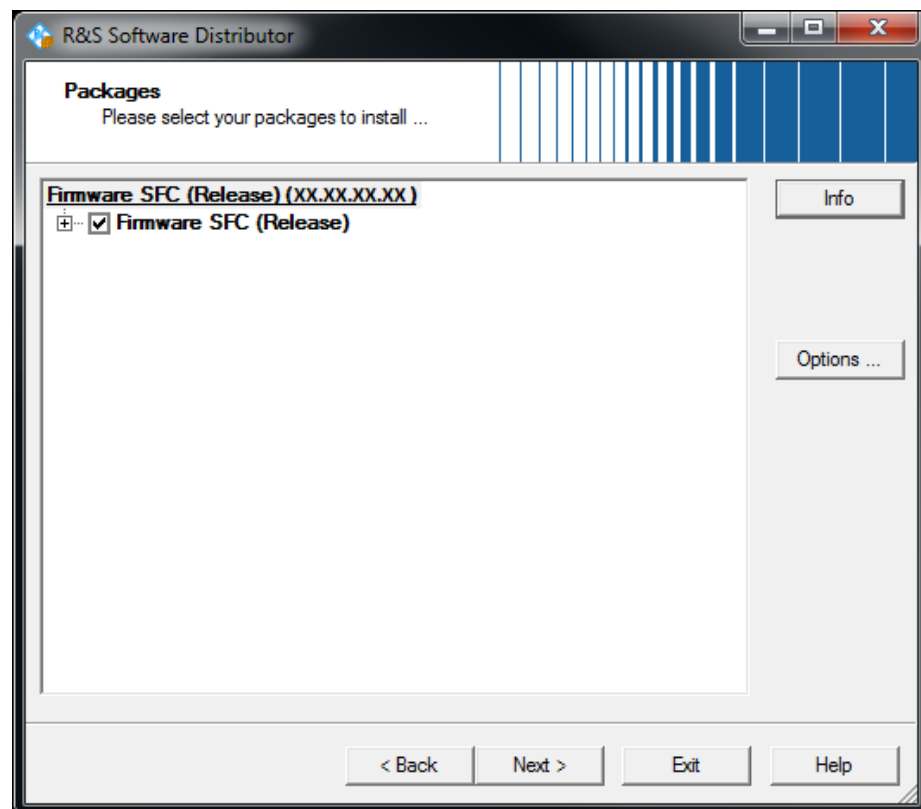   The R&S Software Distributor is displayed.

9. Select the installation type:

   "Local Installation": If you start your setup file from the R&S SFC hard disk or an external storage medium (USB memory stick, CD-ROM with external drive) connected to the R&S SFC.

   "Remote Installation": If your setup files are on an external host computer that is connected to your R&S SFC.
   Note: A remote installation allows you to update R&S SFCs simultaneously. To use this feature, the previously installed firmware version must be at least V02.60.
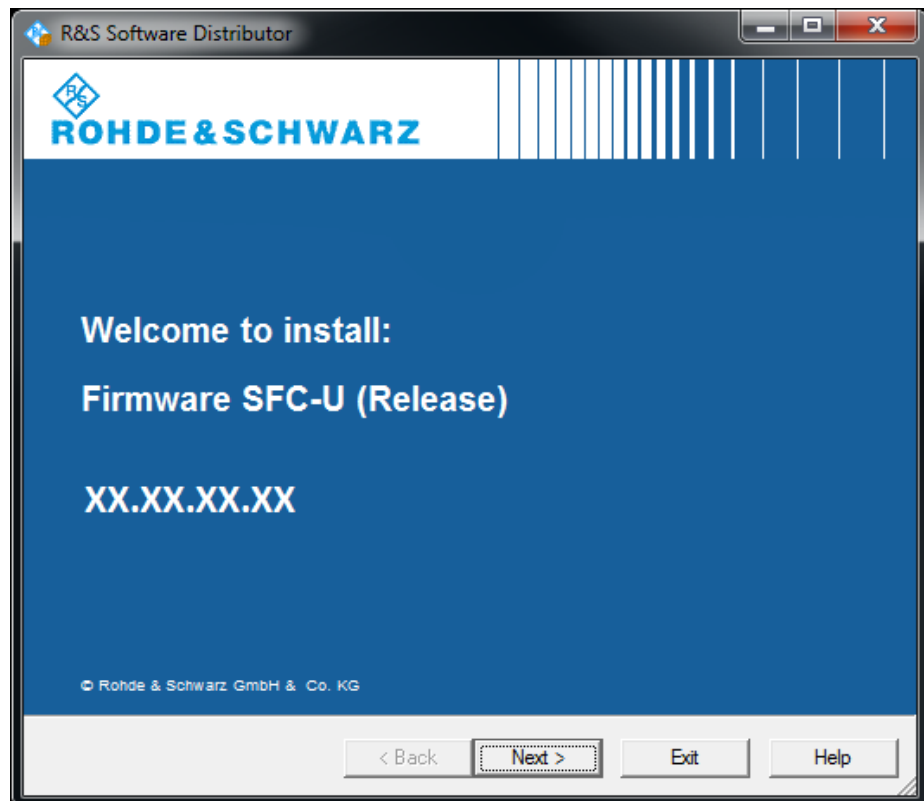
10. Click "Next>".

All packages that you need to install are already selected.
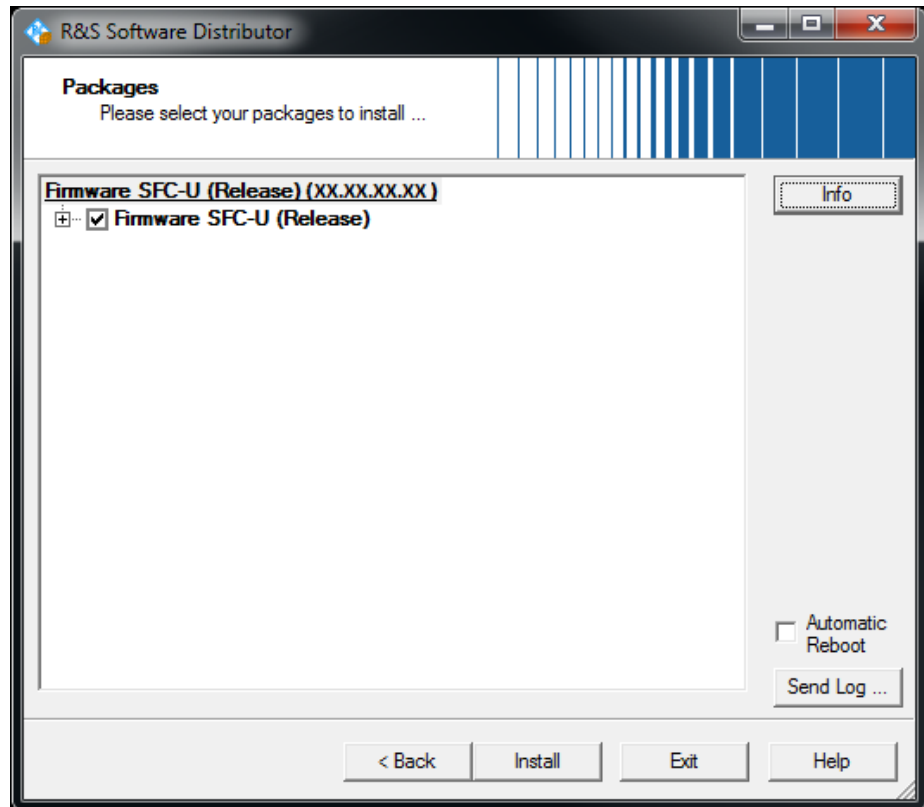
11. Click "Install".
    The installation process itself is self-explanatory.

12. After the installation, click the "Exit" button.

13. For Analog Realtime Modulations (ATV) only:
    Execute *AtvVideoBasic_02.10.00.00.msi* to install the new video signals (if available).

3.1.2 Updating the Firmware for the R&S SFC-U

1. Close the R&S SFC-U application.

2. Execute *Sfcu_xx.xx.xx.xx(Release).exe.*
    The R&S Software Distributor is displayed.

3. Click "Next>".

All packages that you need to install are already selected.

4. Click "Install".
    The installation process itself is self-explanatory.

5. After the installation, click the "Exit" button.

6. For Analog Realtime Modulations (ATV) only:
    Execute *AtvVideoBasic_02.10.00.00.msi* to install the new video signals
    (if available).

3.2 Firmware Installation

On the instrument R&S SFC-U, the firmware is already installed, and you only need to
perform updates.

3.2.1 Installing the R&S SFC-U Firmware

You can install the R&S SFC-U firmware on any computer that meets the following
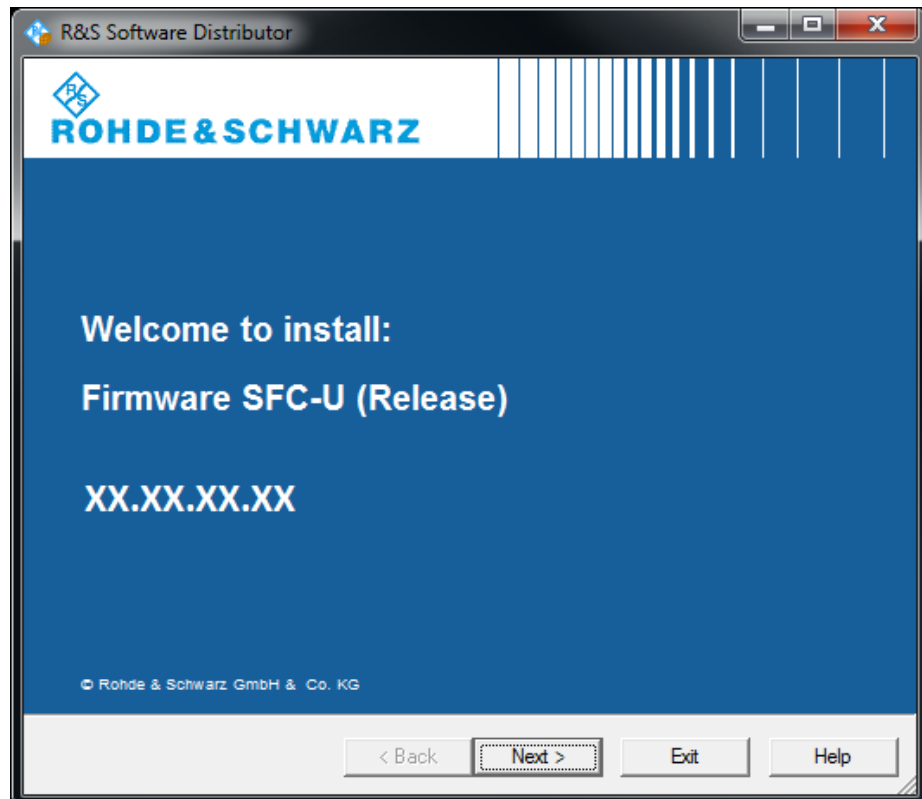requirements.

System requirements

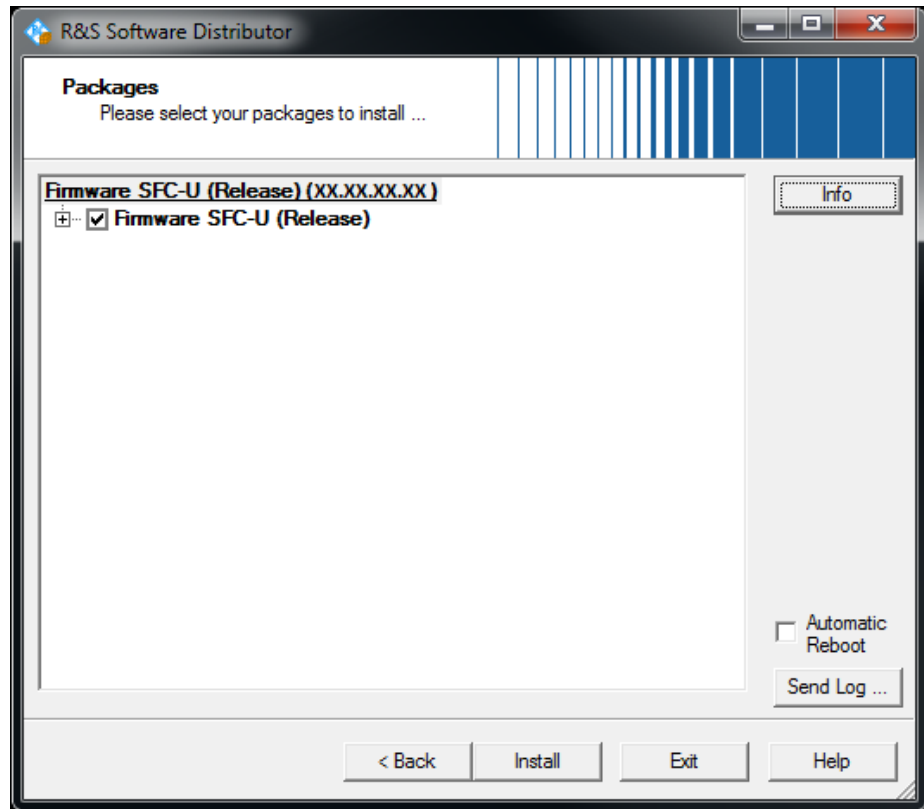● Windows© XP SP3 / 7 / 8.1 / 10 operating system (32 bit / 64 bit)

- Administrator rights (for installation)

- 130 Mbyte free hard disk space,
  plus a minimum of 500 Mbyte for recording (USB drive can also be used)

- Minimum screen resolution VGA (640 x 480), 256 colors

To install the R&S SFC-U firmware

1. Execute *Sfcu_xx.xx.xx.xx(Release).exe*.
   The R&S Software Distributor is displayed.

2.   Click "Next>".

All packages that you need to install are already selected.

3.   Click "Install".
     The installation process itself is self-explanatory.

4.   After the installation, click the "Exit" button.

5.   For Analog Realtime Modulations (ATV) only:
     Execute *AtvVideoBasic_02.10.00.00.msi* to install the new video signals
     (if available).

3.2.2   Uninstalling the R&S SFC-U Firmware

To uninstall the R&S SFC-U software, perform the following procedure:

1.   In the "Start" menu, select "Control Panel" > "Software" >
     "Add or Remove Programs".

2.   Select "SFC".

3.   Click "Remove".

4.   Select "R&S USB driver for SFC-U".

5.   Click "Remove".

6.   Select "USB Smart Card Service".

7.   Click "Remove".

8.   Select "USB SmartCard Minidriver".

9.   Click "Remove".

3.3 Firmware Interaction

The firmware installation adds the installation directory "…\Rohde&Schwarz\..." to the PATH variable. The string is enclosed by quotation marks to fulfill the requirement of the operating system.

In some rare cases other programs could have problems with quotation marks in the PATH variable.

Older versions of R&S WinIQSIM™ installed on the same computer as the R&S SFC-U firmware will cause an incorrect function of SFC-U application.

4 Customer Support

Technical support – where and when you need it

For quick, expert help with any Rohde & Schwarz equipment, contact one of our Customer Support Centers. A team of highly qualified engineers provides telephone support and will work with you to find a solution to your query on any aspect of the operation, programming or applications of Rohde & Schwarz equipment.

Up-to-date information and upgrades

To keep your instrument up-to-date and to be informed about new application notes related to your instrument, please send an e-mail to the Customer Support Center stating your instrument and your wish. We will take care that you will get the right information.

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