

Application Note

GENERIC DRIVERS

How to configure generic devices in R&S®ELEKTRA

Products:

- ▶ R&S®ELEKTRA
- ▶ R&S®ELEM-DRV

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<http://www.rohde-schwarz.com/appnote/1SL398>

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1 Overview

R&S@ELEKTRA is able to communicate with many devices. Still, it is impossible to integrate drivers for all devices. Hence, R&S@ELEKTRA offers the possibility to integrate any device by configuring a generic driver.

The configuration file contains commands that translate the language of the device for R&S@ELEKTRA and vice versa.



Press F1 to open the help window with relevant information.



For more video tutorials please visit the [ELEKTRA knowledge center](#) on our website.

2 Availability of generic devices

The device list contains pre-configured R&S and third-party devices. Apart from that, third-party devices can be used by adding generic devices. Generic devices require generic drivers. Table 1 shows the availability of generic drivers for the different device types.

Table 1: Generic drivers in R&S@ELEKTRA for the different device types

Common devices with no (or minimum) remote control	Generic driver available without ELEM-DRV license	Generic driver only with license ELEM-DRV enabled	No generic driver available
Antenna	Field Probe	Amplifier	Network Analyzer
LISN	Interlock Monitoring	Generator	Radio Communication Tester
Signal Path	IO Device	Oscilloscope (requires also ELEM-SCP)	Receiver
System Control	Monitoring	Power Meter	Audio Analyzer
TEM Waveguide	Positioner		
Transducer	Remote Action		
Triple Loop	Switch Unit		
	Generic Inserter		
	Turntable		
	Slidebar		
	Antenna Tower		

3 How to configure a generic device

To configure a generic device, you can either follow the steps (1) – (3) or (if available) upload an .xml configuration file according to step (4).

(1) Add a generic device

Generic devices can be added in the device list. Go to “add a new device” on the top right and add a generic device in the respecting device type (Figure 1).

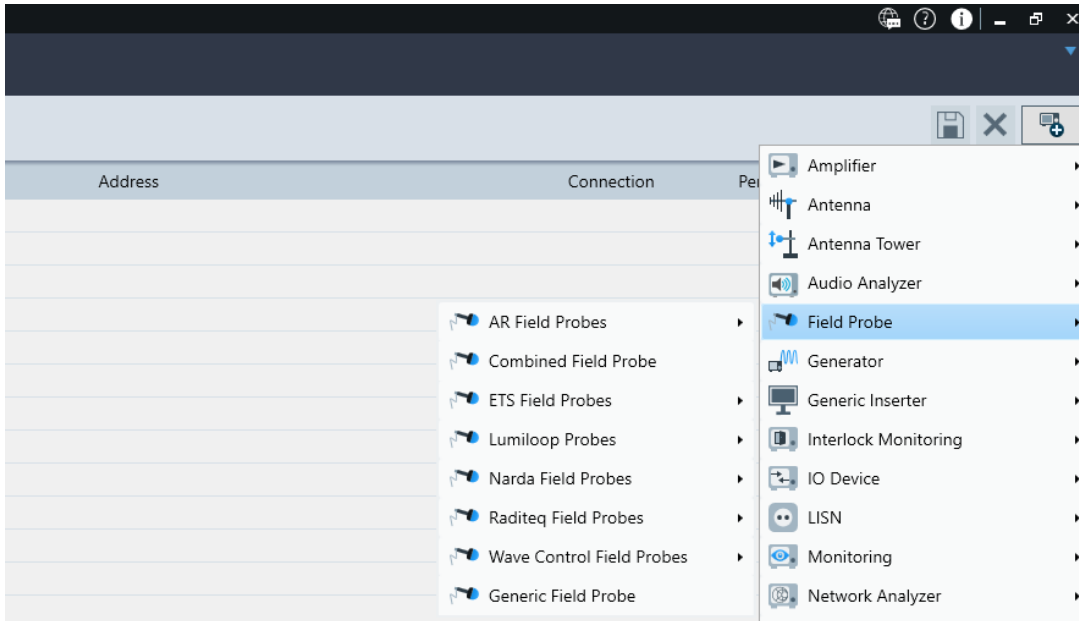


Figure 1: Add a generic device to the device list

(2) Enter generic commands

In comparison to pre-configured devices, an additional “configuration” tab appears (Figure 2) to configure a SCPI compliant instrument. A list in the "Generic Commands" dialog comprises all generic commands that the software requires for correct communication with the device. To give R&S ELEKTRA sufficient remote control of the selected device during measurements, each generic command should have an equivalent SCPI command as its counterpart. You will find more information about the SCPI command strings in the manual of the device you want to connect.



ELEKTRA quickly executes commands. It is recommended to include delays, especially in write-only mode.

Example: Include a 500 ms (d500) (see Figure 3) delay after a reset command to give the device enough time to reset before receiving the following commands. Slightly reduce the delay step by step to optimize the performance of the driver.

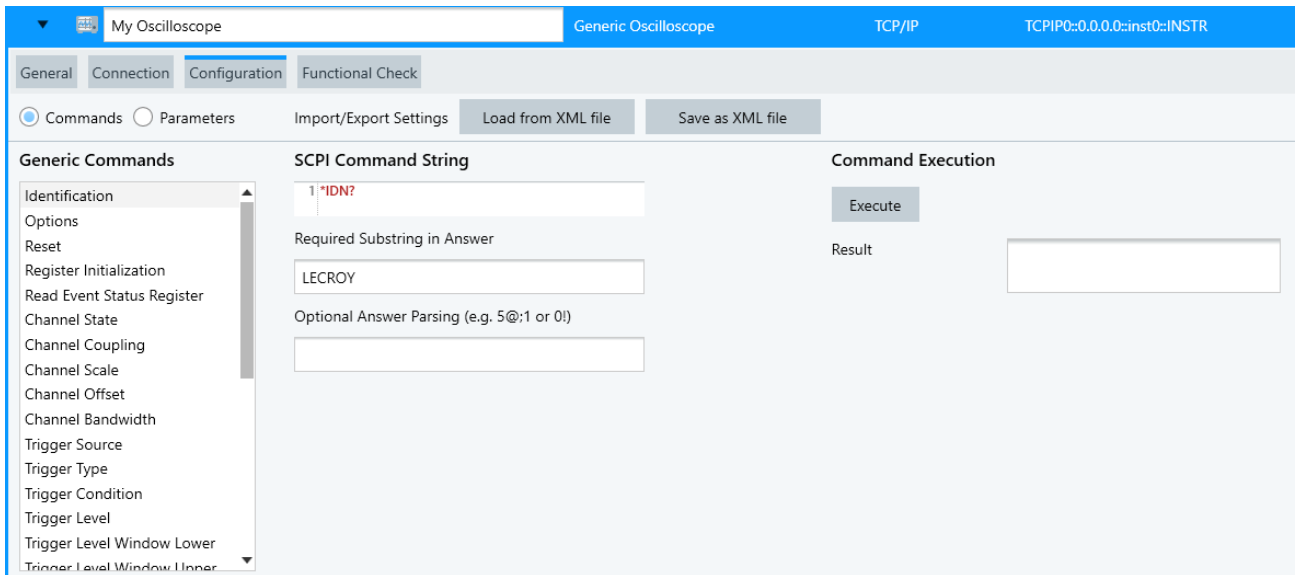


Figure 2: Configuration commands

You can typically find a list of remote commands and examples in the manual of the instrument

If you already use the instrument with a remote control SW, try to record and view a SCPI logfile to identify the required commands and the sequence of commands.

(3) Use EMC32 generic drivers

If you have already configured the device in EMC32, you can simply use this generic driver as a guideline. You will find the relevant information in the Device Configuration files [devicename.DeviceConfiguration]. The following example shows a comparison of the generic drivers in R&S®EMC32 and R&S®ELEKTRA for the same generator (Figure 3).

There are 3 different types of commands: write-only, write OPC, and write-and-read. Please choose as supported by the remote device.

- ▶ Write-only: The software only sends a command.
- ▶ Write OPC: add *OPC to a command, for example `INITIATE;*OPC`. The software waits for the operation of the device to be completed and the OPC message to be returned. This type of command is used for operations that take a long time, e. g. a 20 s calibration.
- ▶ Write-and-read: The software waits for the device to confirm the command it has received.

R&S®EMC32:

```
[Initialize]
;fix mode
Mode=1
Count=1
GpibLine1=@500@*RST;:AM1:STAT OFF;:AM2:STAT OFF;:FM1:STAT OFF;:FM2:STAT OFF;:PM1:STAT
OFF;:PM2:STAT OFF;:BURS:STAT OFF
```

R&S®ELEKTRA:

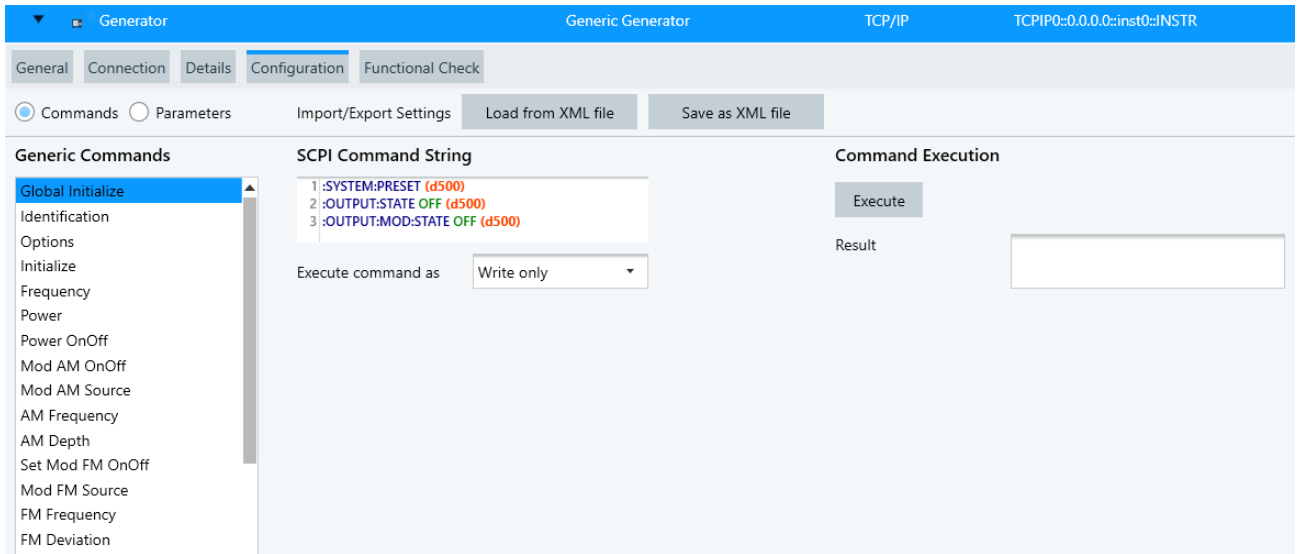


Figure 3: Example: Command "Global Initialize"

R&S®EMC32:

```
[Frequency]
;fix mode
Mode=3
Unit=Hz
Range=250e3; 6E9; 10E3
Default=200E6
GpibLine=:FREQ %f HZ;
```

R&S®ELEKTRA:

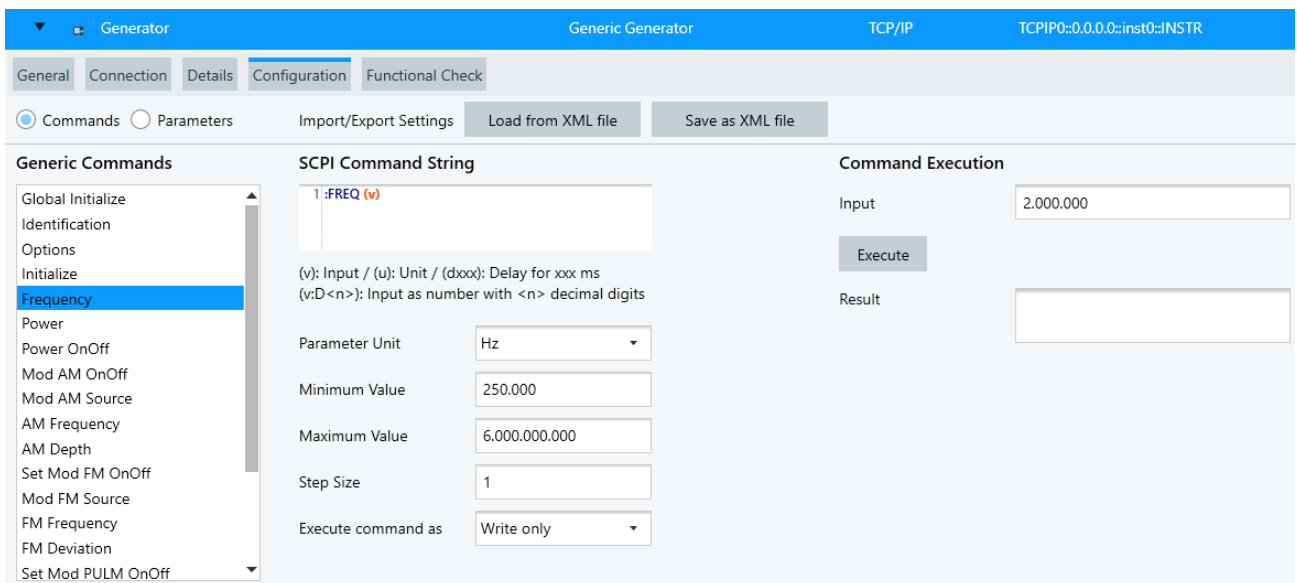


Figure 4: Example: Command "Frequency"

R&S®EMC32:

```
[Level]
;fix mode
Mode=3
Unit=dBm
Range=-140; 8; 0.1
Default=-60
GpibLine=:POW %f DBM;
```

R&S®ELEKTRA:

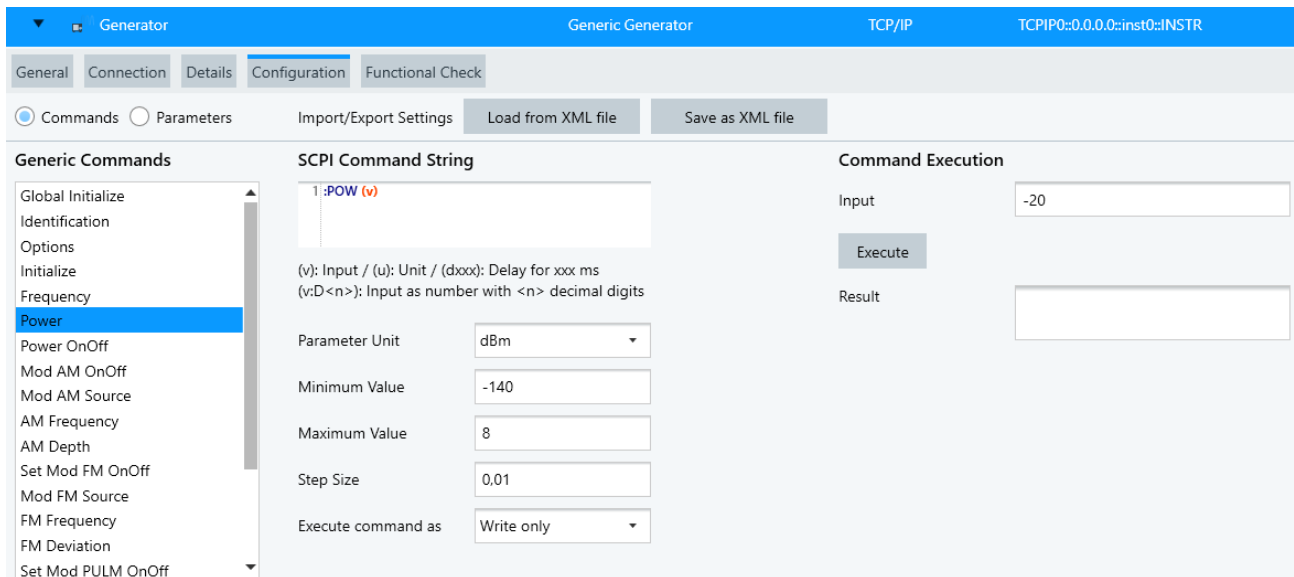


Figure 5: Example: Command "Power"

(4) Import/ Export of XML files

The easiest way to configure a generic device is importing an existing .xml configuration file containing the required commands for the device you want to connect. Import the file by clicking on "Load XML file" on the "Configuration" tab. You can still adapt the commands and the parameters.

After having finished the configuration, you can export a .xml file for further use on other R&S®ELEKTRA installations.

4 Ordering information

Type	Order No.
R&S®ELEM-DRV	5601.0230.02

For more information about all available R&S®ELEKTRA products, visit our [website](#).

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The Rohde & Schwarz electronics group offers innovative solutions in the following business fields: test and measurement, broadcast and media, secure communications, cybersecurity, monitoring and network testing. Founded more than 80 years ago, the independent company which is headquartered in Munich, Germany, has an extensive sales and service network with locations in more than 70 countries.

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