

[www.rosenberger.com](http://www.rosenberger.com)

**Rosenberger**

# USB Remote Commands

Passive Intermodulation Analyzer

*Documentation of USB Commands*

*Firmware: v6.14 – v8.x*

www.rosenberger.com

# Rosenberger

## Settings of virtual COM Port

Bits per Second: 9600  
 Databits: 8  
 Parity: no  
 Stopbits: 1  
 Handshake: no

## USB Commands

Every command begins with a hash (#) character and is terminated with a carriage return <CR> (0x0D / 13d). Every command is acknowledged by an echo of the command itself after it is processed, but without the leading # sign. If a command cannot be processed the echo contains the actual value (which was not modified). To check if a command was processed correctly you have to compare string\_SentCommand with string\_ReceivedEcho.

### Table of Commands

Command	Format xxxx	Range	Description	Example
#SR			Remote operation (disables Frontpanel keys)	#SR
#SL			Local operation (enables Frontpanel keys)	#SL
#SFAxxxxx	Frequency in 100 kHz, always 5-digit	Limits of actual Band	Frequency f1	#SFA08255 (= 825.5 MHz)
#SFBxxxxx			Frequency f2	#SFB33450 (= 3345.0 MHz)
#SSAxxxxx			Startfrequency f1	#SSA08250
#SSBxxxxx			Startfrequency f2	#SSB08350
#STAxxxxx			Stopfrequency f1	#STA08900
#STBxxxxx			Stopfrequency f2	#STB08950
#SWAxxxxx			0.1 – 9.9 MHz	Stepsize
#SABx	Band Number, 1 or 2-digit	0 – max. Bands	Switch to an available Frequency Band	#SAB1
#SPWAxxxxx	Power in 0.1 dBm, always 5-digit	Limits of Model	Power f1	#SPWA00402 (= 40.2 dBm)
#SPWBxxxxx			Power f2	#SPWB00395 (= 39.5 dBm)
#SPAx	1=On, 0=Off	0 / 1	Amplifier f1 on/off	#SPA1
#SPBx			Amplifier f2 on/off	#SPB0
#SMIM			Mode PIM-Measurement	
#SMREF			Reflected PIM Measurement	
#SMTRA			Transmitted PIM Measurement	
#M2Tx	1=On, 0=Off	0 / 1	2-Ton Measurement on/off	#M2T1
#2TTIM,xx	Time in Seconds, 1 or 2-digit	1-30 s	Duration of 2-Tone Meas. (Firmware >v7.78)	#2TTIM,15
#MDNLx	1=On, 0=Off	0 / 1	Switch Downsweep Relay (only IM-0722-BB with –C Filters)	#MDNL1
#USEIDx	x=IM-Order, 1 or 2-digit	3, 5, 7, 9, 11, ...	Use internal Receiver; select IM-Order x	#USEID3 (= IM3 Measurement)
#SWEEP			Start Sweep Measurement; Results shown immediately	
#FSWEEP			Fast sweep via USB, no LCD (Firmware >v8.13)	#FSWEEP
#RBSALxxxxx	ALC Voltage in mV, always 5-digit	0-4095	Set ALC voltage manually for both Synthesizers	#RBSAL03500 (= 3500 mV)
#BDTx	1=Disable, 0=Enable	0 / 1	Disable Band select button	#BDT1 (= Button disabled)
#SWTx	1=Disable, 0=Enable	0 / 1	Disable Sweep button	#SWT1
#RECUTx	1=dBm, 0=dBc	0 / 1	Unit of internal Receiver	#RECUT1 (= dBm)
#FWUPD			Activates Bootloader (Firmware >v7.2)	#FWUPD
#RESx	1=On, 0=Off	0 / 1	Reserved switching Output (Firmware >v6.32 / >v7.71)	#RES1
#SETBD,x	3=57600, 2=38400, 1=19200, 0=9600	0, 1, 2, 3	Baudrate Setting Default 9600 after Boot (Firmware >v7.5)	#SETBD,1

www.rosenberger.com

**Rosenberger**

#DET <sub>x</sub>	P=Peak, A=Average	A, P	Set Detector Mode (A=Default) (Firmware >v7.7 and new RX)	#DETP
-------------------	-------------------	------	--	-------

**Table of Parameter to read**

Command	Format	Description	Example
#IDN?	Device Identifier, Manufacturer, Firmware Version <i>FW v6.2 and above:</i> Manufacturer, Device Identifier Serial Number, Firmware Version	Requests Identification of Instrument	<i>Firmware v6.1x:</i> IM-0710,Rosenberger HF-Technik GmbH & Co. KG, Firmware v6.14 [2012-04-30]  <i>Firmware above v6.2x &amp; v7.x:</i> Rosenberger HF-Technik GmbH & Co. KG, IM-21P-BB 010IM-A1234, Firmware v7.53 [2015-03-31]  <i>Firmware above v8.00 A/B:</i> Rosenberger HF-Technik GmbH & Co. KG, IM-2526-BB Serial No. 010IM-1234, Firmware v8.14A [2018-01-31]
#SFA?	SFAxxxxx	Frequency f1	SFA08255
#SFB?	SFBxxxxx	Frequency f2	SFB33450
#SSA?	SSAxxxxx	Startfrequency f1	SSA08250
#SSB?	SSBxxxxx	Startfrequency f2	SSB08350
#STA?	STAxxxxx	Stopfrequency f1	STA08900
#STB?	STBxxxxx	Stopfrequency f2	STB08950
#SWA?	SWAxxxxx	Stepsize	SWA00013
#SST?	SSTx X = 1 Byte binary Bit 7: 0 Bit 6: IM (1) / VSWR (0) Bit 5: Refl. (1) / Transmis. (0) Bit 4: Sweepmeas. active Bit 3: 2-Tone Meas. active Bit 2: Remote (1) / Local (0) Bit 1: Amplifier f2 on/off Bit 0: Amplifier f1 on/off	Status of Equipment	SSTg g = 103d = 0x67 Bit 7: 0 Bit 6: 1 (IM) Bit 5: 1 (Reflected Meas.) Bit 4: 0 (idle) Bit 3: 0 (idle) Bit 2: 1 (Remote operation) Bit 1: 1 (Amplifier f2 on) Bit 0: 1 (Amplifier f1 on)
#SAB?	SABx	Band	SAB12
#SPWA?	SPWAxxxxx	Power f1	SPWA00402
#SPWB?	SPWBxxxxx	Power f2	SPWB00395
#SPA?	SPAx	Amplifier f1 on/off	SPA1
#SPB?	SPBx	Amplifier f2 on/off	SPB1
#IMP?	IMPx-yyy.yydBm/dBc x=IM-Order (3, 5, 7, 9, 11, ...) y=IM-Level in dBm/dBc	IM-Order and Receiver Level	IMP3-085.73dBm or IMP11-085.73dBc
#ADC?	ADCxxxxx xxxxx = Voltage in 100µV	ADC Voltage of Receiver	ADC04005 (= 400.5 mV)

**Error Messages**

Error Message	Description
ERR0 – SYNTAX ERROR	Command not received correctly
ERR1 – OUT OF RANGE	Parameter out of range
ERR2 – PLL NOT LOCKED	PLL of Synthesizer/Receiver not locked
ERR3 – ALC NOT LOCKED	ALC Error of PA/Synthesizer

[www.rosenberger.com](http://www.rosenberger.com)

# Rosenberger

## Supported Band Overview

New bands will be appended as needed without notice.

Equipment	Band #	Band name	
IM-xxP(-BB) IM-0710-BB	0	AMPS	
	1	EGSM	
	2	LTE700	
	3	DigDiv	
	4	LTE700L	
	5	LTE700U	
	6	FR0710	
IM-xxP(-BB) IM-1822-BB	0	DCS	
	1	PCS	
	2	UMTS	
	3	TD-SCDMA A	
	4	TD-SCDMA F	
IM-0722-BB	0	LTE700	
	1	DigDiv	
	2	AMPS	
	3	EGSM	
	4	DCS	
	5	PCS	
	6	TD-SCDMA A	
	7	UMTS	
	8	LTE700L	
	9	LTE700U	
	10	TD-SCDMA F	
	11	FR0722	
	12	APT700	
13	LTE1400		
IM-0310-BB	0	LTE700	
	1	DigDiv	
	2	AMPS	
	3	EGSM	
	4	TETRA390	
	5	TETRA392	
	6	TETRA422	
	7	TETRA462	
	8	LTE700L	
	9	LTE700U	
	10	FR0310	
11	APT700		
IM-2127-BB	0	LTE2600	
	1	WiFi2400	
	2	TD-SCDMA E	
	3 @v6.x	FR2127	
	4 @v6.x	UMTS	
	3 @v7.x	WCS2350	
	4 @v7.x	FR2127	