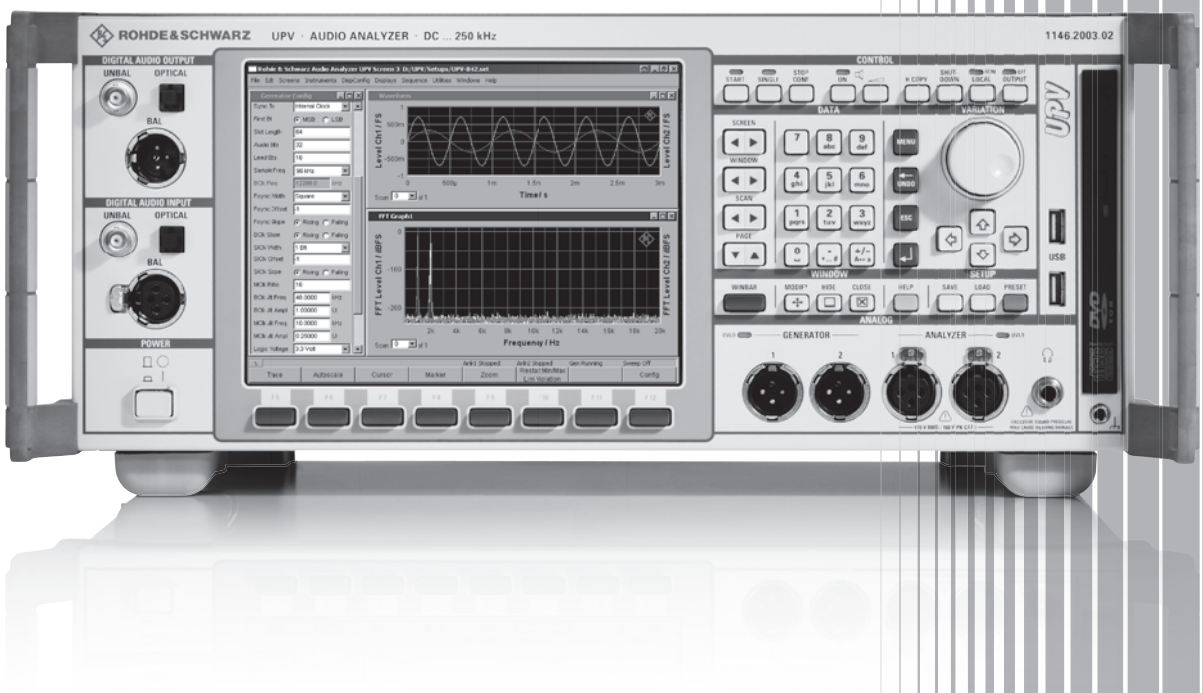
R&S®UPV-B42
Universal Serial Interface
Specifications



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Specifications

Specifications apply under the following conditions: 60 minutes warm-up time at ambient temperature, specified environmental conditions met, calibration cycle adhered to, and all internal automatic adjustments performed. "Typical values" are designated with the abbreviation "typ." These values are verified during the final test but are not assured by Rohde & Schwarz. "Nominal values" are design parameters that are not assured by Rohde & Schwarz. These values are verified during product development but are not specifically tested during production.

Rohde & Schwarz equipment is designed for reliable operation up to an altitude of 2000 m above sea level, and for transport up to an altitude of 4500 m above sea level.

Data without tolerance limits is not binding.

Universal serial interface analyzer

Interface format

Connector		26-pin connector strip 2.54 mm (female)
Input data lines		4
Data routing		any input data line to any measurement channel
Input measurement channels	dual-channel analyzer mode	1 or 2
	eight-channel analyzer mode	1 to 8
Samples per frame	single-sample format	1
	multi-sample format	2 to 32
Number of slots	single-sample format	1 to 256
	multi-sample format	up to 32
Slot length		8 to 256 bits
Frame length	slot length × number of slots	8 to 2048 bits
Lead bits		0 to (slot length – audio bits)
Audio bits		8 to 32
Audio bit order		MSB or LSB first
Audio bit decoding mode		linear PCM, A-law, µ-law
Clock mode		continuous clock, gated clock
Synchronization	internal	internal clock source
	external	frame sync, frame sync and bit clock, master clock

Clocks

Sampling frequency		0.84375 kHz to 400 kHz
Mixed sampling frequencies ratio	with multi-sample format only	2, 3, 4, 5, 6
Frame sync	frequency	0.84375 kHz to 400 kHz
	width	1 to (slot length × number of slots) – 1
	slope	rising, falling
	offset (relative to frame)	–(number of slots × slot length) to (number of slots × slot length) – 1
Bit clock	frequency	6.75 kHz to 55.296 MHz
	slope	rising, falling
Master clock	frequency	13.5 kHz to 110.592 MHz
	ratio to frame sync	16 to 768

Timing

Sampling delay	sync mode: frame sync and bit clock	–9 ns to +8 ns
	other sync modes	–12 ns to +5 ns
Data and frame sync to bit clock (relative to bit clock)	setup time	–1.3 ns
	hold time	4.6 ns

Measurement functions

Measurement functions	dual-channel analyzer mode	same as analog analyzer
	eight-channel analyzer mode	RMS wideband, RMS selective, Peak, S/N, DC, FFT, THD, THD+N, Mod Dist, DFD, DIM, Polarity

Outputs

Logic voltage	CMOS	0.9 V, 1.2 V, 1.5 V, 1.8 V, 2.5 V
	LVTTL	3.3 V
Impedance	short-circuit-proof	50 Ω
Maximum reverse voltage		–3 V to selected logic voltage + 3 V

Inputs

Logic voltage	CMOS	0.9 V, 1.2 V, 1.5 V, 1.8 V, 2.5 V
	LVTTL	3.3 V
Impedance	–0.3 V to selected logic voltage + 0.3 V	10 kΩ
	–4 V to –0.3 V or selected logic voltage + 0.3 V to selected logic voltage + 4 V	100 Ω
Maximum input voltage		–4 V to selected logic voltage + 4 V

Clock I/O configuration

Synchronization	Internal clock	Ext. master clock	Ext. frame sync	Ext. frame sync (audio monitor)	Ext. frame sync and bit clock
Master clock output	X		X		
Master clock input		X			
Bit clock output	X	X	X	X	
Bit clock input					X
Frame sync output	X	X	X	X	
Frame sync input			X	X	X

Unused outputs are tri-stated.

Universal serial interface generator

Interface format

Connector		26-pin connector strip 2.54 mm (female)
Output data lines		4
Data routing	to any slot in any data line	signal from generator channel 1 or 2, zero, tri-state
Samples per frame	single-sample format	1
	multi-sample format	up to 32
Number of slots	single-sample format	1 to 256
	multi-sample format	2 to 32
Slot length		8 to 256 bits
Frame length		8 to 2048 bits (slot length × number of slots)
Lead bits		0 to (slot length – audio bits)
Audio bits		8 to 32
Audio bit order		MSB or LSB first
Audio bit coding mode		linear PCM, A-law, µ-law
Clock mode		continuous clock, gated clock
Synchronization	internal	internal clock source
	external	frame sync, frame sync and bit clock, master clock

Clocks

Sampling frequency		0.84375 kHz to 400 kHz
Mixed sampling frequencies ratio	with multi-sample format only	2, 3, 4, 5, 6
Frame sync	frequency	0.84375 kHz to 400 kHz
	width	1 to (slot length × number of slots) – 1
	slope	rising, falling
	offset (relative to frame)	–(number of slots × slot length) to (number of slots × slot length) – 1
Bit clock	frequency	6.75 kHz to 55.296 MHz
	slope	rising, falling
	jitter frequency (depending on amplitude)	0 to 110 MHz
	jitter amplitude (depending on frequency)	0 to 2.5 UI
Master clock	frequency	13.5 kHz to 110.592 MHz
	ratio to frame sync	16 to 768
	jitter frequency (depending on amplitude)	0 to 110 MHz
	jitter amplitude (depending on frequency)	0 to 2.5 UI
Slot clock	frequency	0.84375 kHz to 400 kHz
	width	1 to slot length – 1
	slope	rising, falling
	offset (relative to frame)	–(slot length – 1) to (slot length – 1)

Timing

Skew (relative to bit clock)	data line 1/2/3/4	–0.5 ns/–0.7 ns/–0.2 ns/–0.5 ns
	frame sync	–0.3 ns
	slot clock	–0.1 ns
TCO (slave mode)	data line 1/2/3/4	7.3 ns/7.1 ns/7.6 ns/7.3 ns
	frame sync	7.7 ns
	slot clock	7.8 ns

Outputs

Logic voltage	CMOS	0.9 V, 1.2 V, 1.5 V, 1.8 V, 2.5 V
	LVTTL	3.3 V
Impedance	short-circuit-proof	50 Ω
Maximum reverse voltage		–3 V to selected logic voltage + 3 V

Inputs

Logic voltage	CMOS	0.9 V, 1.2 V, 1.5 V, 1.8 V, 2.5 V
	LVTTL	3.3 V
Impedance	–0.3 V to selected logic voltage + 0.3 V	10 kΩ
	–4 V to –0.3 V or selected logic voltage + 0.3 V to selected logic voltage + 4 V	100 Ω
Maximum input voltage		–4 V to selected logic voltage + 4 V

Clock I/O configuration

Synchronization	Internal clock	Ext. master clock	Ext. frame sync	Ext. frame sync (audio monitor)	Ext. frame sync and bit clock	Ext. frame sync and bit clock (gated)
Master clock output	X		X		X	
Master clock input		X				
Bit clock output	X	X	X	X		
Bit clock input					X	X
Frame sync output	X	X	X	X		
Frame sync input			X	X	X	X
Slot clock output	X	X	X	X	X	X

Unused outputs are tri-stated.

General data

EMC		in line with EN 55011, class A [1]
Other data		same as R&S®UPV

Ordering information

Designation	Type	Order No.
Universal Serial Interface	R&S®UPV-B42	1146.5802.02

[1] If the R&S®UPV is operated with the R&S®UPV-B42 option, the instrument complies with the emission requirements stipulated by EN 55011 class A. This means that the instrument is suitable for use in industrial environments. In line with EN 61000-6-4, operation in residential, commercial and business areas or small-size companies is not covered. Thus, the instrument may not be operated in residential, commercial and business areas or in small-size companies, unless additional measures are taken to ensure that EN 61000-6-3 is complied with.

Depending on the application, different sensors and/or test lines are used in conjunction with the test or measurement instrument. They are often connected to test points in instruments which have their covers removed and which may have been partially disassembled to access internal test points. In specific cases, connected test lines can increase disturbance and/or reduce the immunity to disturbance.

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About Rohde&Schwarz

Rohde&Schwarz is an independent group of companies specializing in electronics. It is a leading supplier of solutions in the fields of test and measurement, broadcasting, radiomonitoring and radiolocation, as well as secure communications. Established 75 years ago, Rohde&Schwarz has a global presence and a dedicated service network in over 70 countries. Company headquarters are in Munich, Germany.

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Certified Quality System
ISO 9001
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For product brochure,
see PD 0758.1306.12
and www.rohde-schwarz.com

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Subject to change

*0.14 €/min within German wireline network; rates may vary in other networks (wireline and mobile) and countries.