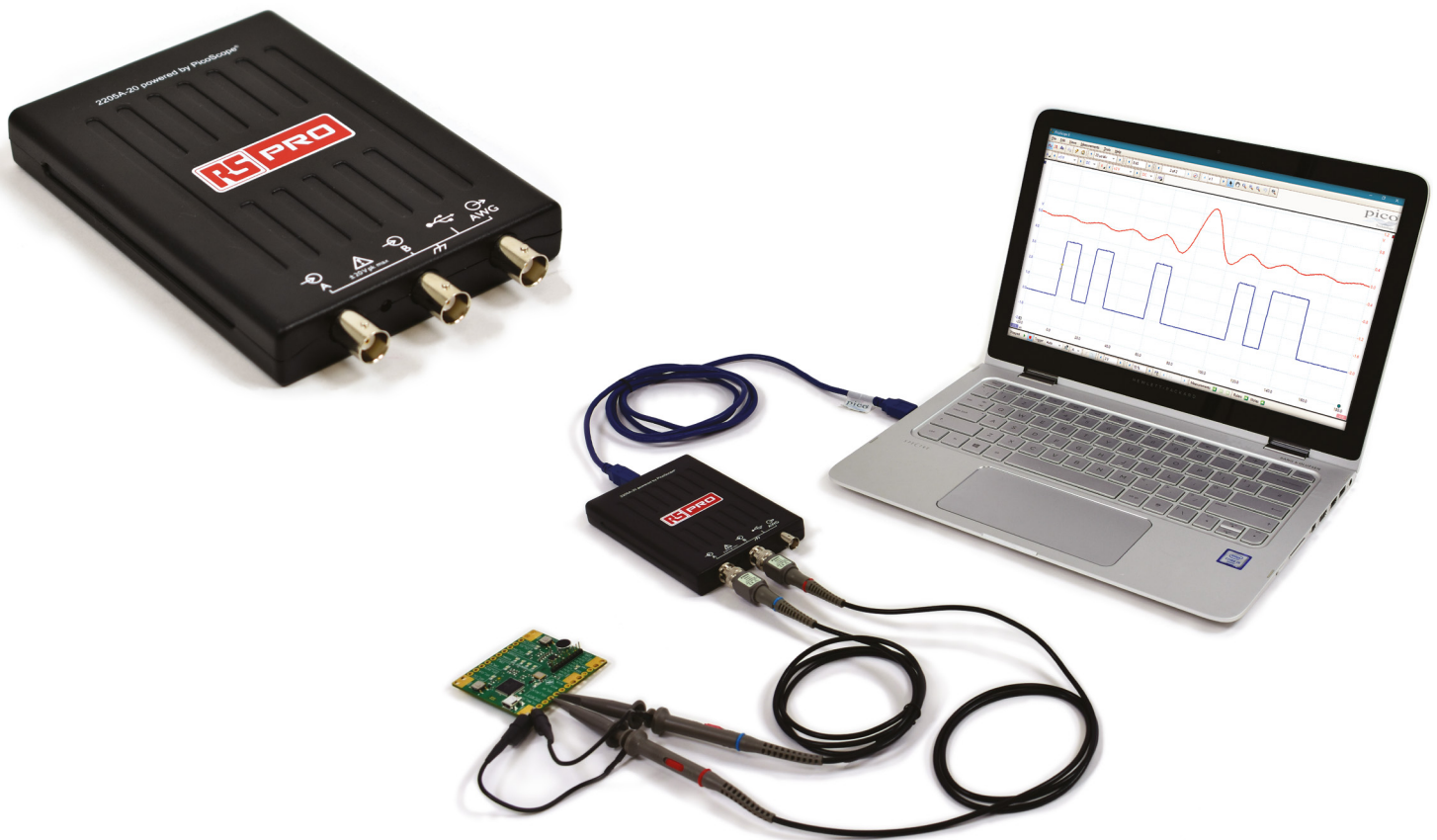# Datasheet

RS Pro 2205A-20
Ultra-compact USB oscilloscope

Stock No.: 163-2719

Powered by PicoScope®

KEY FEATURES:

- 20 MHz bandwidth, 2 input channels
- 200 MS/s real-time & 4 GS/s equivalent-time sampling rate
- 16 kS capture memory
- Ultra-compact design
- USB-connected and powered
- Serial protocol decoding
- Mask limit testing
- Math channels and filters, including frequency and duty cycle
- Advanced digital triggering
- Persistence display mode
- Spectrum analyser with magnitude, average and peak hold modes
- Function generator and arbitrary waveform generator

The RS Pro 2205A-20 offers a small, light, modern alternative to bulky benchtop devices. Literally pocket-sized (142 x 92 x 18.8 mm), this USB PC oscilloscope is perfect for engineers on the move, and ideal for education, hobby and field service use, with a screen size limited only by the size of your computer display.

The RS Pro 2205A-20 features 20 MHz bandwidth and 16 kS capture memory and can capture up to 2000 waveforms per second. It has 8-bit vertical resolution and a maximum sampling rate of 200 MS/s, addressing a wide range of analogue and digital electronic and embedded system applications. Printing, copying, saving and sharing data are quick and easy thanks to its USB connection.

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Its small form factor is not the only benefit of this PC-based scope. It uses the PicoScope 6 software, which includes the following features as standard:

- Large display size
- Advanced digital triggering
- Reference waveforms
- Display up to eight waveforms in a single view, including reference waveforms and math channels

- Automatic measurements
- Amplitude, time, frequency and phase rulers
- Capture up to 10 000 waveforms in one buffer
- Analyse time- and frequency-domain data simultaneously with multiple views

Advanced digital triggering

The RS Pro 2205A-20 utilises full digital triggering using the actual digitised data. This eliminates trigger errors and allows the scope to trigger on the smallest signals. It also results in a threshold resolution equal to the digitising resolution, with programmable hysteresis and optimal waveform stability.

The RS Pro 2205A-20 offers one of the best selections of advanced triggers available, including pulse width, window and dropout triggers to help you find and capture your signal quickly.
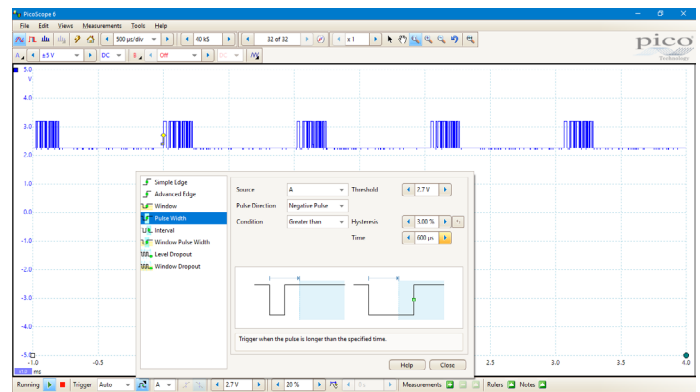

Serial decoding

The RS Pro 2205A-20 comes with serial decoding as standard. Display the data in the graph, in a table, or in both at once:

In the graph: show the decoded data alongside the waveform. The data packets are broken down into colour-coded fields, making it easy to locate and identify problem signals.
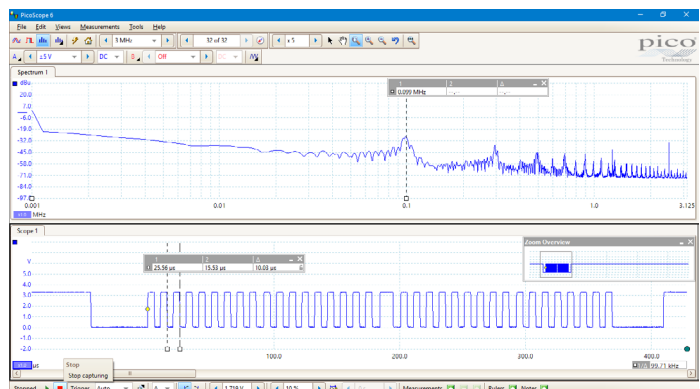
In a table: list the decoded frames, including the data and all flags and identifiers. Use the table to filter and search your data.
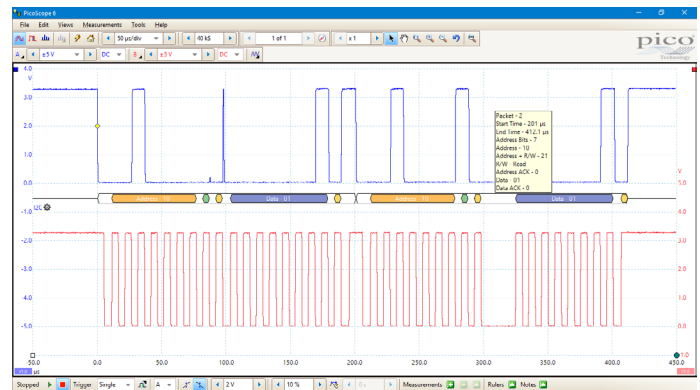
Multiple views

The free PicoScope software makes the best possible use of the display area. The waveform view is much bigger and higher resolution than a typical benchtop scope.

You can add additional time-domain scope and XY views and frequency-domain spectrum views, whether you are using the oscilloscope in scope or spectrum mode. Display the views in automatic or custom layouts.

SPECIFICATIONS

		RS Pro 2205A-20
VERTICAL	Channels	2
	Bandwidth	20 MHz
	Rise Time (calculated)	17.5 ns
	Input Ranges	±50 mV to ±20 V (1-2-5 increments)
	Input Sensitivity	10 mV/div to 4 V/div (10 vertical divisions)
	DC Accuracy	±3% of full scale ±200 μV
	Input Coupling	AC / DC
	Input Characteristics	1 MΩ ± 1%, 15 pF ± 2 pF
TRIGGER	Sources	Ch A, Ch B
	Trigger Modes	None, Auto, Repeat, Single
	Trigger Types	Edge, Window, Pulse Width, Window Pulse Width, Dropout, Window Dropout, Interval, Logic
	Trigger Sensitivity	Digital triggering provides 1 LSB accuracy up to full bandwidth
HORIZONTAL	Range	5 ns/div to 5000 s/div (1-2-5 increments)
	Initial Timebase Accuracy	±100 ppm
	Pre-Trigger	Up to 100% of capture size
	Post-Trigger	Up to 4 billion samples
SIGNAL ACQUISITION	Real-Time Sample Rate 1 ch. 2 ch.	200 MS/s (Ch. A) 100 MS/s
	Equivalent-Time Sample Rate	4 GS/s
	USB Streaming Sample Rate	Up to 1 MS/s
	Vertical Resolution	8 bits
	Enhanced Vertical Resolution	Up to 12 bits
	Capture Memory (Block Mode)	16 kS (shared between active channels)
	Capture Memory (USB Streaming)	100 MS (shared between active channels)
	Max. waveforms in buffer	10 000
	Capture Modes	Scope, Spectrum, Persistence
	Persistence Modes	Digital colour, analogue intensity, custom, fast or none
SPECTRUM ANALYSER	Frequency Range	DC to analogue bandwidth of oscilloscope
	Display Modes	Magnitude, average, peak hold
	Windowing Functions	Rectangular, Gaussian, triangular, Blackman, Blackman-Harris, Hamming, Hann, flat-top
	Number of FFT Points	Selectable from 128 to half available capture memory in powers of 2
SIGNAL GENERATOR	Operates As	Function generator, arbitrary waveform generator (AWG)
	Output Signals	Sine, square, triangle, DC voltage, ramp, sinc, Gaussian, half-sine, arbitrary
	Standard Signal Frequency	DC to 100 kHz
	Sweep Modes	Up, down, dual with selectable start/stop frequencies and increments
	Output Frequency Accuracy	Oscilloscope timebase accuracy ± output frequency resolution
	Output Frequency Resolution	< 0.02 Hz
	Output Voltage Range	±2 V
	Output Adjustments	Any amplitude and offset within ±2 V range
	AWG Update Rate	1.548 MHz
	AWG Buffer Size	4 kS
	AWG Resolution	12 bits
	AWG Bandwidth	> 100 kHz
	AWG Rise Time (10% to 90%)	< 2 μs
SERIAL DECODING	Protocols	1-Wire, ARINC 429, DCC, DMX512, I²C, LIN, Modbus ASCII, Modbus RTU, PS/2, SPI, SENT, UART/RS-232, USB 1.1
MATH CHANNELS	Functions	−x, x+y, x−y, x*y, x/y, x^y, sqrt, exp, ln, log, abs, norm, sign, sin, cos, tan, arcsin, arccos, arctan, sinh, cosh, tanh, freq, derivative, integral, min, max, average, peak, delay, duty, highpass, lowpass, bandpass, bandstop
	Operands	A, B (input channels), T (time), reference waveforms, constants, pi

SPECIFICATIONS

		RS Pro 2205A-20
RULERS AND MEASUREMENT	**Scope Measurements**	AC RMS, true RMS, frequency, cycle time, duty cycle, DC average, falling rate, rising rate, low pulse width, high pulse width, fall time, rise time, minimum, maximum, peak to peak, edge count, falling edge count, rising edge count
	Spectrum Measurements	Frequency at peak, amplitude at peak, THD dB, SNR, SINAD, SFDR, total power, average amplitude at peak, THD %, THD+N, IMD
	Statistics	Minimum, maximum, average and standard deviation, capture count, span
	Mask Limit Testing Statistics	Pass/fail, failure count
	Ruler Measurements	Amplitude rulers, time rulers, frequency rulers, phase rulers
INTERFACE	**PC connectivity**	USB 2.0 (USB 3.0 compatible). USB cable included.
	Power requirements	Powered from USB port
ENVIRONMENTAL	**Temperature range, operating**	0 °C to 50 °C
	Temperature range, operating, for stated accuracy	15 °C to 30 °C
	Temperature range, storage	–20 °C to +60 °C
	Humidity range, operating	5% to 80% RH non-condensing
	Humidity range, storage	5% to 95% RH non-condensing
	Altitude Range	Up to 2000 m
	Pollution Degree	2
	Safety approvals	Designed to EN 61010-1:2010
	Environmental approvals	RoHS, WEEE
	EMC approvals	Tested to meet EN61326-1:2013 and FCC Part 15 Subpart B
GENERAL	**Free Software Available for Download**	PicoScope 6 for Microsoft Windows 7, 8 and 10; 32-bit and 64-bit
	Languages Supported	Simplified Chinese, Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Romanian, Russian, Spanish, Swedish, Turkish
	Dimensions	142(D) x 92(W) x 18.8(H) mm including connectors and feet
	Weight	< 0.2 kg

ORDERING INFORMATION

RS Pro 2205A-20   20 MHz, 2-channel USB PC oscilloscope

ACCESSORIES INCLUDED

Quick Start Guide ×1, Data Sheet ×1, USB 2.0 cable ×1

TA208 set of two 60 MHz (10:1/1:1) passive probes

FREE DOWNLOAD

PC Software	PicoScope 6 software
Documentation	Quick Start Guide
	Data Sheet

DO302-1