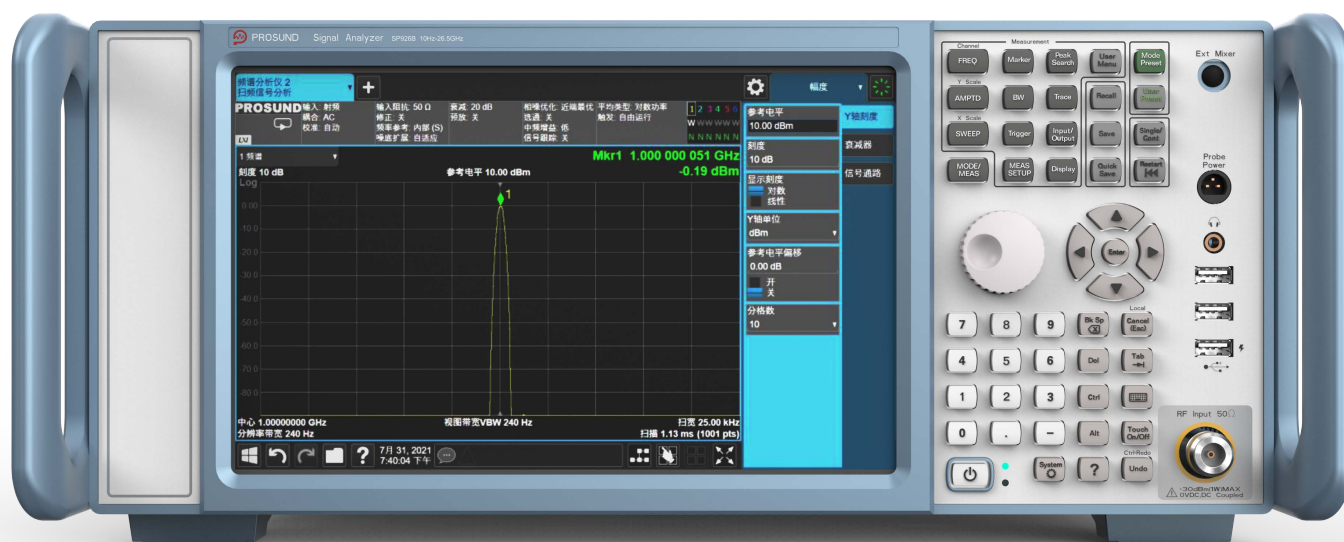


SP900B Series Signal Analyzers

Configuration Guide



Included in Base Product

Standard options and accessories come with the MXA base model at no additional charge and do not need to be ordered. They include:

- Spectrum analyzer measurement application
- Eight-core, high-performance processor, 8 GB RAM, Removable solid-state drive
- Frequency reference
- Mechanical attenuator
- 25 MHz analysis bandwidth
- Microsoft Windows 10 operating system
- Real-time link for real-time IQ data streaming up to 40 MHz
- Benchtop configuration
- User guide
- Power cord

Configure your Signal Analyzer

This step-by-step process will help you configure your new Prosund SP900B Series signal analyzer. Tailor the performance to meet your requirements.

Step 1. Select maximum frequency range (required option)

Description	Option number	Additional information
Frequency range, 10 Hz to 3.6 GHz	SP900B-503	
Frequency range, 10 Hz to 13.6 GHz	SP900B-513	
Frequency range, 10 Hz to 26.5 GHz	SP900B-526	
Frequency range, 10 Hz to 50 GHz	SP900B-550	

Step 2. Add a preamplifier

Preamplifiers improve the noise floor for low-level signal detection

Description	Option number	Additional information
Preamplifier, 100 kHz to 3.6 GHz	SP900-P03	Compatible with frequency range options: SP900B-503
Preamplifier, 100 kHz to 13.6 GHz	SP900-P13	Compatible with frequency range options: SP900B-513
Preamplifier, 100 kHz to 26.5 GHz	SP900-P26	Compatible with frequency range options: SP900B-526
Preamplifier, 100 kHz to 50 GHz	SP900-P50	Compatible with frequency range options: SP900B-550

Step 3. Choose frequency reference

Description	Option number	Additional information
Frequency reference	Standard	Aging rate: $\pm 1 \times 10^{-6}$ /year
Precision frequency reference	SP900-002	Reduces frequency drift for more accurate measurements Aging rate: $\pm 1 \times 10^{-7}$ /year

Step 4. Choose an attenuator

Description	Option number	Additional information
Mechanical attenuator	Standard	2 dB steps, 0 to 70 dB
Electronic attenuator up to 3.6 GHz	SP900-003	In addition to the mechanical attenuator; 1dB steps, 0 to 24dB

Step 5. Choose analysis bandwidth

Description	Option number	Additional information
25 MHz analysis bandwidth	Standard	Useful for most cellular communications, wireless connectivity, and audio/video broadcasting measurement applications; licensed as SP900-B25
40 MHz analysis bandwidth	SP900-B40	Extends the analysis bandwidth to 40 MHz (Option SP900-004 required for measurements at frequency > 3.6 GHz); included in B1A, or B1X; also enables fast sweep capability licensed as SP900-026 and SP900-027
85 MHz analysis bandwidth	SP900-B85	Extends the analysis bandwidth from 25 to 85 MHz (Option SP900-004 required for measurements > 3.6 GHz); included in B1A, or B1X; also enables fast sweep capability licensed as SP900-026 and SP900-027
160 MHz analysis bandwidth	SP900-B1X	Extends the analysis bandwidth to 160 MHz (Require Option SP900-B1Y and Option SP900-004 required for measurements > 3.6 GHz); also enables fast sweep capability licensed as SP900-026 and SP900-027
Microwave preselector bypass	SP900-004	Required for wide analysis bandwidth measurements with Option B40, B1A, or B1X at frequency > 3.6 GHz; also enables fast sweep capability licensed as SP900-026 and SP900-027

Step 6. Choose performance options

Description	Option number	Additional information
Digital processor with 2 GB capture memory	SP900-005	Comes standard with Option B40, B1A, or B1X; also enables fast sweep capability licensed as SP900-026 and SP900-027
Digital processor with 4 GB capture memory	SP900-033	Comes standard with Option B1A, or B1X in instrument ; also enables fast sweep capability licensed as SP900-026 and SP900-027
I/Q baseband inputs, analog	SP900-BBA	Single-ended/differential, 50 Q/1 MQ impedance; not compatible with Option B1A, B1X, SP900B-550
External mixing	SP900-EXM	Connects with Prosund and third-party mixers to extend frequency coverage up to 1.1 THz: single port for LO out and IF in (SMA female)
Noise floor extension	SP900-008	Improves analyzer's DANL performance (instrument alignment-based processes)

Step 7. Add real-time spectrum analysis

Description	Option number	Additional information
Real-time analysis up to maximum available BW, Basic Detection	SP900-011	Includes frequency mask trigger (FMT) and time qualified trigger (TQT); minimum 17.3 μ s signal duration for 100% probability of intercept (POI); requires Option B1X , which determines maximum real-time bandwidth
Real-time analysis up to maximum available BW, Optimum Detection	SP900-012	Includes frequency mask trigger (FMT) and time qualified trigger (TQT); minimum 3.6 μ s signal duration for 100% probability of intercept (POI); requires Option B1X , which determines maximum real-time bandwidth
Frequency mask trigger, basic detection	SP900-015	Enables frequency mask triggering with SP967EM0E pulse application and SP1000 VSA software to detect signals as short as 17.3 μ s duration; included in SP900-011; requires bandwidth options B1X
Frequency mask trigger, optimum detection	SP900-016	Enables frequency mask triggering with SP967EM0E pulse application and SP1000 VSA software to detect signals as short as 3.6 μ s duration; included in SP900-012; requires bandwidth options B1X

Step 8. Add optional features

Description	Option number	Additional information
Enhanced display package	SP900-017	Includes spectrogram, trace zoom, and zone span
Basic EMI pre-compliance	SP900-018	Perform basic EMI pre-compliance measurements with detectors and bandwidths; tune and listen, and measure at marker are also available
Time domain scan	SP900-009	Improves scan speed for EMC pre-compliance tests; requires SP941EM0E EMC pre-compliance measurement application and SP900-005 or B40 (or wider bandwidth option)
External source control	SP900-019	External source control for selected Prosund SP200 Series signal generators; supports external mixing; includes 3 BNC cables and 1 cross-over LAN cable
Fast power up to available maximum analysis bandwidth	SP900-007	Accelerates power measurements such as ACPR; requires Option B40,B1X
Resolution bandwidth extended	SP900-010	Extends the maximum RBW in Zero Span; requires option B1X

Step 9. Add security features

Description	Option number	Additional information
Exclude launch program	SP900-023	Prevents the launching of Windows programs from the instrument application
Prohibit saving results	SP900-024	Prevents the saving/recall of measurement results or user configurations to/from instrument's data storage

Step 10. Add rear panel output utilities

Description	Option number	Additional information
Second IF output	SP900-020	Wideband IF out; center frequency depends on IF path; output on Aux IF connector at rear panel
Arbitrary IF output	SP900-021	IF out 10 to 75 MHz (in 500 kHz steps); output on Aux IF connector at rear panel
Y-axis screen video output	SP900-022	Screen video (0-1 volt open circuit) on rear panel analog out
Real-time link	Standard when B40 or SP900-005 is ordered	The LVDS connector allows MXA to connect to X-COM data recorder for data streaming (up to 40 MHz BW), and to the baseband generator and channel emulator; requires Option B40 or SP900-005; licensed as SP900-040

Step 11. Choose measurement application or software and license type

Note: Prosund offers Node-locked license types for the measurement applications and instrument features, in 2 license terms: Perpetual or Subscription.

License types:

- **Node-locked:** Allows you to use the license on one instrument/computer at a time

License terms:

- **Perpetual:** License can be used in perpetuity. For perpetual license holders, a separate support contract is required to access Prosund electronic support and software updates
- **Subscription:** License is time limited to a defined period, such as 12-months. A valid support contract is included in the pricing for Subscription licenses.

Description	Option number	Additional information
General purpose		
Spectrum analyzer and IQ analyzer	Standard	Traditional spectrum analysis plus many new and enhanced functions
Power suite	SP9EMPSMB	Power measurements based on industry specifications
Analog demodulation	SP963EM0E	Adds one-button measurement for AM/FM/PM demodulation with metrics, tune and listen, and AF spectrum; supports audio output (output voltage proportional to frequency deviation). FM Stereo and RDS are included
Phase noise	SP968EM0E	Adds one-button measurements for analyzing phase noise in frequency domain (log plot) and time domain (spot frequency), supports external mixing
Noise figure	SP969EM0E (requires preamplifier)	Adds one-button measurements for noise figure, gain, and related metrics; requires preamplifier to meet specifications; works with U1831C USB noise source, N400xA Series smart noise sources and 346 Series noise sources; supports U7227 USB external preamplifiers Includes the advanced NF measurement features including external LO control over GPIB/LAN/USB, multi-stage converter tests with system LO, and manual mode to simulate the legacy NF meter

Description	Option number	Additional information
Vector modulation analysis Digital Demodulation	SP954EM0E	Performs one-button flexible modulation analysis measurements with FSK, PSK, QAM, MSK, ASK, APSK, VSB etc. and popular format preset
Vector modulation analysis Custom OFDM	SP954EM1E	Performs one-button custom OFDM modulation analysis measurement with user-defined settings or recalling SP1000 VSA or Signal Studio output files
Channel Quality	SP956EM0E	Makes repeatable channel response measurements as group delay and other characteristics with multi-tone signals for wideband component testing
Pulse analysis	SP967EM0E	Characterize pulsed RF signals in the time domain, with phase, frequency and statistical analysis of large pulse sets; enables fixed and variable length gated acquisition for capturing pulses of varying pulse width and PRI (requires 4 GB capture memory Option SP900-033)
EMI	SP941EM0E	Performs pre-compliance conducted and radiated emission measurements
Remote language compatibility	SP961EM0E	Adds capability to emulate HP/Agilent 8566/68 and 856xE/EC spectrum analyzers
SCPI command language compatibility	SP962EM0E	Adds capability to emulate the R&S FSP/FSU/FSL/FSV/FSW spectrum analyzers or ESU EMI receiver
Cellular communications		
GSM/EDGE/Evo	SP971EM0E	Standard-based, one-button GSM/EDGE/EDGE Evolution measurements
	SP971EMXE	Adds single acquisition combined measurement, a SCPI-command based measurement optimized for high-volume, high-throughput manufacturing; requires SP971EM0E; not compatible with Options 005, B40, B85, B1X or 004
W-CDMA/HSPA+	SP973EM0E	Standard-based, one-button W-CDMA, HSPA and HSPA+ measurements; supports analog baseband analysis with Option BBA (BBIQ inputs)
	SP973EMXE	Adds single acquisition combined measurement, a SCPI-command based measurement optimized for high-volume, high-throughput manufacturing; requires SP973EM0E; not compatible with Options 005, B40, B85, B1X or 004
LTE/LTE-Advanced FDD	SP980EM0E	Standard-based, one-button LTE/LTE-Advanced FDD measurements
NB-IoT & eMTC FDD	SP980EM3E	Standard-based, one-button NB-IoT/eMTC measurements
LTE V2X	SP980EM4E	Standard-based, one-button LTE-V2X transmitter measurements

Description	Option number	Additional information
LTE/LTE-Advanced TDD	SP982EM0E	Standard-based, one-button LTE/LTE-Advanced TDD measurements
Multi-standard radio	SP983EM0E	Standard -based, one-button MSR measurements on any combination of LTE-FDD, LTE-TDD, W-CDMA/HSPA/HSPA+, GSM/EDGE/EDGE Evo, cdma2000, 1xEV-DO and TD-SCDMA signals
5G NR (New Radio)	SP985EM0E	Standard-based, one-button 5G NR (New Radio) downlink and uplink measurements; Requires option B1X
Wireless connectivity		
WLAN 802.11 a/b/g/j/p/n/ af/ah	SP977EM0E	Standard-based, one-button 802.11 a/b/g/j/p/n/af/ah measurement
WLAN 802.11 ac/ax	SP977EM1E	Standard-based, one-button 802.11 ac/ax measurement
<i>Bluetooth®</i>	SP981EM0E	Standard-based, one-button Bluetooth measurements
Short range comm and IoT	SP984EM0E	Standard-based, one-button LoRa CSS measurement, 802.15.4 for ZigBee measurement and G.9959 for Z-Wave measurement



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