

N5531X Microwave Measuring Receiver

Innovations on inherited technology excellence for metrology applications

This N5531X X-Series Microwave Measuring Receiver (MMR) configuration guide will help you determine which options, measurement applications, accessories, and services to include with your new N5531X measuring receiver.



N5531X
(Alternative
configuration)

N5531X
(Preliminary
configuration)

Configure Your Keysight Technologies N5531X Microwave Measuring Receiver

The Keysight new-generation N5531X microwave measuring receiver is based on a high-performance X-Series signal analyzer- N9030B PXA, as its core component. The N5531X supports two configurations: (1) Primary configuration which consists of a PXA with the N9091EM0E measuring receiver app and a U5532C USB power sensor offering a true “one-box” solution; and (2) Alternative configuration which consists of a PXA with the N9091EM0E, a power meter, and an N5532B power sensor module.

This step-by-step process will help you configure your new N5531X measuring receiver.

Step 1. Choose the top model number: N5531X (required)

Description	Model number	Additional information
Microwave measuring receiver	N5531X	

Step 2. Choose a PXA signal analyzer and mandated PXA options (required)

Description	Model/Opt. number	Additional information
PXA signal analyzer (multi-touch UI)	N9030B	A frequency option must be selected from the list below
Frequency range, 2 Hz to 3.6 GHz	N9030B-503	
Frequency range, 2 Hz to 8.4 GHz	N9030B-508	
Frequency range, 2 Hz to 13.6 GHz	N9030B-513	
Frequency range, 2 Hz to 26.5 GHz	N9030B-526	
Frequency range, 2 Hz to 44 GHz	N9030B-544	
Frequency range, 2 Hz to 50 GHz	N9030B-550	
Preamplifier, 100 kHz to 3.6 GHz	N9030B-P03	Required for Option 503
Preamplifier, 100 kHz to 8.4 GHz	N9030B-P08	Required for Option 508
Preamplifier, 100 kHz to 13.6 GHz	N9030B-P13	Required for Option 513
Preamplifier, 100 kHz to 26.5 GHz	N9030B-P26	Required for Option 526
Preamplifier, 100 kHz to 44 GHz	N9030B-P44	Required for Option 544
Preamplifier, 100 kHz to 50 GHz	N9030B-P50	Required for Option 550
Microwave preselector bypass	N9030B-MPB	Required for Option 508, 513, 526, 544, or 550
APC 3.5 mm RF input connector	N9030B-C35	Required for Option 526

Step 3. Add other PXA options (optional)

Description	Option number	Additional information
Audio input and digitizer	N9030B-107 ¹	Required for audio analysis
External source control	N90EMESCB	External source control for Keysight EXG, MXG, and PSG signal generators; supports external mixing; includes 3 BNC cables and 1 crossover LAN cable
Enhanced phase noise	N9030B-EP0	Improves phase noise with DDS LO (requires Option MPB or LNP; Not compatible with frequency range Option 503 or bandwidth Option B85 or B1X)
25 MHz analysis bandwidth	Standard	Licensed as Option N9030B-B25
40 MHz analysis bandwidth	N9030B-B40	
85 MHz analysis bandwidth	N9030B-B85	
160 MHz analysis bandwidth	N9030B-B1X	
255 MHz analysis bandwidth	N9030B-B2X ²	Requires Option EP0; Not compatible with frequency range Option 503
510 MHz analysis bandwidth	N9030B-B5X ²	Requires Option EP0; Not compatible with frequency range Option 503 or audio input Option 107
Additional solid-state drive (SSD)	N9030B-SS1	Provides a fully-imaged, removable SSD in addition to the one installed in instruments, with Windows 10 operating system
Exclude launch program	N9030B-SF1	Prevents the launching of Windows programs from the instrument application
Prohibit saving results	N9030B-SF2	Prevents instrument application from saving/recalling of measurement results or user configurations to/from the instrument's data storage
To add more PXA options, please refer to the N9030B PXA Configuration Guide (5992-1318EN) for further details.		

¹ N9030B-BBA (I/Q baseband inputs, analog) is NOT allowed, if Option N9030B-107 is added.

² Under "Measuring Receiver" Mode, the bandwidth that B2X or B5x offers is limited to 160 MHz maximum.

Step 4. Add the measuring receiver application (required)

Description	Model/Opt. number	Additional information
Measuring receiver application	N9091EM0E	A licensing scheme option must be selected from the list below
	N9091EM0E-1FP	Node lock perpetual license
	N9091EM0E-1TP	Transportable perpetual license

Step 5. Choose other X-Series measurement applications and software (optional)

Description	Model/Opt. number	Additional information
Avionics measurements	N9092EM0E	Adds avionics measurement capability to the PXA which includes VHF Omni-directional Range (VOR), Instrument Landing System (ILS), marker beacons, for both RF and audio input. Option N9030B-107 is required for the avionics measurements through audio path.
Phase noise	N9068EM0E	Adds one-button measurements for analyzing phase noise in frequency domain (log plot) and time domain (spot frequency), supports external mixing
Noise figure	N9069EM0E	Adds one-button measurements for noise figure, gain, and related metrics
Pulse	N9067EM0E	Characterize pulsed RF signals in the time domain, with phase, frequency and statistical analysis of large pulse sets
PathWave VSA (89600 VSA) software	89601B	Industry-leading measurement software for evaluating and troubleshooting signals in R&D; PC-based software supporting more than 30 measurement platforms, plus more than 75 signal standards and modulation types including MIMO analysis; www.keysight.com/find/89600_VSA
To add more X-Series measurement applications and software, please refer to the N9030B PXA Configuration Guide (5992-1318EN) for further details		

Step 6. Add measuring receiver related accessories (optional)

Description	Model/Opt. number	Additional information
Accessories kit, 26.5 GHz MMR	N9030B-033	Provides a set of metrology-grade coaxial connector adapters and accessories for 26.5 GHz MMR, including quantity 2 of each: type-N (f) to 3.5 mm (f), APC-7 to APC-3.5 (f), 3.5 mm (f) to 3.5 mm (f), 3.5 mm (m) to 3.5 mm (f); and a 3.5 mm (m-f) RF cable assembly.
Accessories kit, 50 GHz MMR	N9030B-034	Provides a set of metrology-grade coaxial connector adapters and accessories for 50 GHz MMR, including quantity 2 of each: type-N (f) to 2.4 mm (f), APC-7 to 2.4 mm (f), 2.4 mm (f) to 3.5 mm (f), 2.4 mm (f) to 2.4 mm (f), 2.4 mm (f) to 3.5 mm (m); and a 2.4 mm (m-f) 50 GHz cable assembly.
USB DVD-ROM/CD-R/RW drive ³	1DVR001A	Required for loading the legacy N5532B power sensor calibration factors to PXA.
To add more PXA accessories, please refer to the N9030B PXA Configuration Guide (5992-1318EN) for further details		

³ U5532C USB power sensors have built-in calibration factors which can be automatically fed to PXA via USB connection. Therefore, no DVD drive is required for U5532C.

Step 7. Add PXA calibration services (optional)

Description	Model/Opt. number	Additional information
Commercial calibration certificate with test data	N9030B-UK6	Calibration certificate only available at with test data time of instrument purchase; only provides measurement results
Keysight Calibration + Uncertainties + Guardbanding (accredited cal)	N9030B-AMG	Provides ISO 17025A accredited calibration from factory
ANSI Z540-1-1994 Calibration	N9030B-A6J	Provides ANSI Z540 compliant calibration from factory
Calibration Assurance Plan, Return-to-Keysight, 3 years	R-50C-011-3	Keysight tests your instrument against its original specifications and automatically makes adjustments if outside of specified parameters; pre- and post-adjustment measurement data reports also provided
Calibration Assurance Plan, Return-to-Keysight, 5 years	R-50C-011-5	
Calibration Assurance Plan, Return-to-Keysight, 7 years	R-50C-011-7	
Calibration Assurance Plan, Return-to-Keysight, 10 years	R-50C-011-10	

Step 8. Choose a USB power sensor module (for the primary configuration only; for the alternative configuration, skip to Step 9)

Description	Model/Opt. number	Additional information
USB power sensor module	U5532C	Select a frequency option listed below
Frequency 100 kHz to 4.2 GHz	U5532C-504	Type-N(m) single input connector; 3.5 mm(m) RF output connector
Frequency 10 MHz to 18 GHz	U5532C-518	Type-N(m) single input connector; 3.5 mm(m) RF output connector
Frequency 10 MHz to 26.5 GHz	U5532C-526	APC 3.5(m) single input connector; 3.5 mm(m) RF output connector
Frequency 30 MHz to 50 GHz	U5532C-550	2.4 mm(m) single input connector; 2.4 mm(m) RF output connector
ANSI Z540-1-1994 calibration	U5532C-A6J	Provided by factory for a new product
ISO 17025A Calibration + Uncertainties + Guardbanding	U5532C-1A7	Provides by factory for a new product (not accredited)

Step 9. Choose a power meter ⁴ (optional, for the alternative configuration only)

Description	Model number	Additional information
EPM Series single-channel power meter	N1913A	
EPM Series dual-channel power meter	N1914A	
P-Series single-channel power meter	N1911A	
P-Series dual-channel power meter	N1912A	
To add more power meter options, please refer to the EPM/EPM-P power meter Configuration Guide (5990-4173EN) or P-Series power meter Configuration Guide (5989-1252EN) for further details		

⁴ The Keysight legacy E4416A/17A/18B/19B power meters are also supported by the N5531X. If you own one of these power meters which is within its calibration cycle, you may use it in the N5531X measuring receiver.

Step 10. Choose a legacy power sensor module⁵ (optional, for the alternative configuration only)

Description	Model/Opt. number	Additional information
Legacy power sensor module	N5532B	Select a frequency option listed below
Frequency 100 kHz to 4.2 GHz	N5532B-504	Type-N(m) single input connector; 3.5 mm(m) RF output connector
Frequency 10 MHz to 18 GHz	N5532B-518	Type-N(m) single input connector; 3.5 mm(m) RF output connector
Frequency 30 MHz to 26.5 GHz	N5532B-526	APC 3.5(m) single input connector; 3.5 mm(m) RF output connector
Frequency 30 MHz to 50 GHz	N5532B-550	2.4 mm(m) single input connector; 2.4 mm(m) RF output connector
Output adapter for P-Series power meter	N5532B-019	Required for the N1911A/12A P-Series power meter
ANSI Z540-1-1994 calibration	N5532B-A6J	Provided by factory for a new product
ISO 17025A Calibration + Uncertainties + Guardbanding	N5532B-1A7	Provides by factory for a new product (not accredited)

⁵ If you own an N5532B or N5532A power sensor module which is within its calibration cycle, you may use it in the N5531X measuring receiver.

Learn more at: www.keysight.com

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