UXG Agile Signal Generator

N5193A and N5191A[1]

1. The N5191A is a modified version of the N5193A, which doesn't require an export license. It is only compatible with the N5192A UXG Vector Adatper, Modified Version

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Configure Your New UXG

This step-by-step process will help you configure your N5193A or N5191A UXG agile signal generator. Tailor the performance to meet your requirements.

Included in base product

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

– 10 kHz frequency resolution
– 100 us switching speed (N5193A)
– 100 us switching speed up to 31.6 GHz, 500 us to 40 GHz (N5191A)
– Amplitude range of +10 to -10 dBm
– Phase noise of -117 dBc/Hz (typ) at 20 kHz offset for a 10 GHz carrier frequency
– One day of on-site startup assistance

Step 1. Select frequency range (required option; frequency range not upgradeable)		
Description	**Option number**	**Additional information**
Frequency range from 10 MHz to 20 GHz	N5193A-520 N5191A-52E	Not compatible with Option 540 Not compatible with Option 54E Both options include standard adapter 3.5mm$_{(f)}$ to 3.5 mm$_{(f)}$
Frequency range from 10 MHz to 40 GHz	N5193A-540 N5191A-54E	Not compatible with Option 520 Not compatible with Option 52E Both options include standard adapters 2.4mm$_{(f)}$ to 2.4 mm$_{(f)}$ and 2.4mm$_{(f)}$ to 2.9 mm$_{(f)}$

Step 2. Choose frequency resolution		
Description	**Option number**	**Additional information**
Frequency resolution 10 kHz	Standard	
Frequency resolution 0.001 Hz	N5193A-FR1 N5191A-FR1	

Step 3. Choose switching speed options		
Description	**Option number**	**Additional information**
Switching speed 100 µs	Standard	N5193A: List update rate 100us N5191A: List update rate 100us up to 31.6 GHz, 500 us to 40 GHz
Switching speed 1 µs	N5193A-SS1	List update rate 1 µs; not compatible with Option SS4
Switching speed 180 ns	N5193A-SS4	List update rate < 180 ns; latency of 370 ns applies in fast CW mode; not compatible with Option SS1
Switching speed 180 ns (N5191A)	N5191A-SS3	List update rate < 180ns up to 6.89 GHz; latency of 370 ns applies in fast CW mode up to 6.89 GHz

Step 4. Choose amplitude range		
Description	**Option number**	**Additional information**
Amplitude range +10 to -10 dBm	Standard	
Mechanical and solid-state attenuator	N5193A-AT2 N5191A-AT2	80 dB agile range and 120 dB overall range

Step 5. Choose modulation options

Description	Option number	Additional information
Standard phase noise	Standard	-117 dBc/Hz (typ) at 20 kHz offset for a 10 GHz carrier frequency
Enhanced phase noise	N5193A-EP1	-126 dBc/Hz (typ) at 10 kHz offset for a 10 GHz carrier frequency

Step 6. Choose modulation options

Description	Option number	Additional information
AM, FM, phase modulation, narrowband chirp, and LF output	N5193A-UNT N5191A- UT1	Chirped pulse is settable in List mode or through SCPI commands only. FMCW chirp is settable through fast control port (FCP) in Normal mode only.
Wideband chirp (min 10%)	N5193A-WC1 N5191A-WC2	Wideband chirp is settable in List and Streaming modes, via the FCP connector, or through SCPI commands. N5193A requires UNT. N5191A requires UT1
Pulse modulation	N5191A-PM2 N5191A-PM2	

Step 7. Choose connector configuration

Description	Option number	Additional information
Move all connectors to rear panel	N5193A-1EM N5191A-1EM	Not upgradable
Type-N (f) RF output connector	N5193A-1ED N5191A-1ED	Only available on 520/52E units Both options include standard adapter Type-N male to 3.5 mm female
100-pin LVDS I/O interface	N5193A-CC1 N5191A-CC1	Must select CC1, CC2 or CC3
50-pin BCD I/O interface	N5193A-CC2 N5191A-CC2	Must select CC1, CC2 or CC3
10 GB Ethernet I/O interface	N5193A-CC3 N5191A-CC3	Must select CC1, CC2 or CC3

Step 8. Choose signal creation software

Description	Option number	Additional information
Signal Studio for multi-emitter scenario generation (MESG)	N7660C	Only compatible with N5193A. See 5992-0405EN Technical Overview for configuration guidance

Step 9. Choose accessories

Description	Option number
Additional LVDS I/O interface	N5193AU-CC1 N5191AU-CC1
Additional BCD I/O interface	N5193AU-CC2 N5191AU-CC2
Additional 10 GB Ethernet I/O interface	N5193AU-CC3 N5191AU-CC3
Additional removable 512 GByte solid-state drive	N5193AU-SSD N5191AU-SSD
Front handle kit	1CN007A
Rack mount flange kit	1CM104A
Rack mount flange kit with front handles	1CP008A
Hard transit case	N5193A-AXT N5191A-AXT

Step 9. Choose accessories (continued)

Description	Option/Model number
Microwave coaxial cables	
Coax cable assembly, 3.5 mm$_{(m)}$ to 3.5 mm$_{(f)}$, 16 inch (406 mm) length	1CC102A
Coax cable assembly, 3.5 mm$_{(m)}$ to 3.5 mm$_{(f)}$, 18 inch (457 mm) length	1CC103A
Coax cable assembly, 3.5 mm$_{(m)}$ to 3.5 mm$_{(f)}$, 48 inch (1219 mm) length	1CC105A
Triggering cables and adapters	
Coax cable assembly, BNC$_{(f)}$ to SMB$_{(f)}$, 3 inch (76 mm) length	1CC110A
Coax cable assembly, SMA$_{(m)}$ to SMB$_{(f)}$, 18 inch (457 mm) length	1CC111A
Coax cable assembly, SMA$_{(m)}$ to SMB$_{(f)}$, 48 inch (1219 mm) length	1CC113A
Coax cable assembly, BNC$_{(m)}$ to BNC$_{(m)}$, 12 inch (305 mm) length	1CC114A
Coax cable assembly, BNC$_{(m)}$ to BNC$_{(m)}$, 24 inch (610 mm) length	1CC115A
Coax cable assembly, BNC$_{(m)}$ to BNC$_{(m)}$, 48 inch (1219 mm) length	1CC116A
SMB(f)-SMA(f) coax adapter	1CC118A
BNC(m) to SMA(f) coax adapter	1CC119A
RF coaxial cables	
Coax cable assembly, SMA$_{(m)}$ to SMA$_{(m)}$, 12 inch (305 mm) length	1CC120A
Coax cable assembly, SMA$_{(m)}$ to SMA$_{(m)}$, 18 inch (457 mm) length	1CC121A
Coax cable assembly, SMA$_{(m)}$ to SMA$_{(m)}$, 36 inch (914 mm) length	1CC122A
Coax cable assembly, SMA$_{(m)}$ to SMA$_{(m)}$, 48 inch (1219 mm) length	1CC123A
Power splitters and accessories	
USB cable (Type A-B), 6 foot (1.8 m) length	1CC130A
LVDS cable, 1.5 m length	1CC131A
BCD cable, 1.5 m length	1CC132A
10 Gigabit fiber optic cable, 2 m length, and two SFP+ transceivers	1CC133A
Power splitters and accessories	
Four-way power splitter, 5.4 GHz to 6.8 GHz, SMA(f) connectors	1CC140A
50 Ω coax termination, SMA(m) connector	1CC149A
Hybrid power divider, 0.5 GHz to 26.5 GHz, 3.5 mm(f) connectors	87302C

Step 10. Choose Calibration Options

Description	Option number
Commercial calibration certificate with test data	N5193A-UK6 N5191A-UK6
UXG Keysight calibration + uncertainties + guardbanding (compliant calibration)	N5193A-1A7 N5191A-1A7
UXG ANSI Z540-1-1994 calibration	N5193-A6J N5191A-A6J

Step 11. Choose startup assistance service options

Description	Option number
Remote scheduled assistance 1- 999 hours	PS-S10
Startup assistance (one-day included standard)	PS-S20-UXG
Signal generator and source basics; half-day, maximum of eight students on site	PS-T10-ASG
Custom services to be qualified by Keysight	PS-X10

Upgrade Your Existing UXG

Fast license-key upgrades for options that do not require additional hardware:

1. Place an order for the upgrade with Keysight and request to receive the software entitlement certificate through email
2. Redeem the certificate through the Web by following the instructions on the certificate
3. Install the license file using Keysight License Manager
4. Begin using the new capability

Installation, calibration, and verification information is available at:

www.keysight.com/find/N5191A-upgrades
www.keysight.com/find/N5193A-upgrades

You Can Upgrade!

Options can be added after your initial purchase. Most UXG options are license-key upgradeable.

Description	Upgrade number	Requirements	Additional information
Upgrade from standard speed to SS1 switching speed (N5193A)	N5193AU-SS1	None	Customer installable – software, license key
Upgrade from standard speed to SS4 switching speed (N5193A)	N5193AU-SS4	Opt 520: all S/N's Opt 540: S/N ≥ 5646xxxx	Customer installable – software, license key
Upgrade from standard speed to SS4 switching speed (N5193A)	N5193AU-1S4	Opt 540: S/N < 5646xxxx	Return to service center, hardware, license key
Upgrade from SS1 speed to SS4 switching speed (N5193A)	N5193AU-2S4	SS1, 520: all S/N's 540: S/N ≥ 5646xxxx	Customer installable - software, license key
Upgrade from SS1 speed to SS4 switching speed (N5193A)	N5193AU-3S4	SS1, 540: S/N < 5646xxxx	Return to service center, hardware, license key
Upgrade from SS2 speed to SS4 switching speed (N5193A)	N5193AU-4S4	SS2, 540: S/N < 5646xxxx	Return to service center, hardware, license key
Upgrade from standard speed to SS3 switching speed (N5191A)	N5191AU-SS3	None	Customer installable - software, license key
Frequency resolution 0.001 Hz	N5193AU-FR1 N5191AU-FR1	None	Customer installable – software, license key
Commercial calibration certificate with test data	N5193AU-UK6 N5191AU-UK6	None	
AM, FM, phase modulation, narrowband chirp, and LF output	N5193AU-UNT N5191AU-UT1	None	Customer installable – software, license key
Add wideband chirp	N5193AU-WC1 N5191AU-WC2	UNT	Customer-installable - software, license key
Pulse modulation	N5193AU-PM1 N5191AU-PM2	None	Customer installable – software, license key
Add mechanical and solid-state attenuator	N5193AU-AT2 N5191AU-AT2	None	Customer installable – software, license key
Add enhanced phase noise	N5193AU-EP1	None	Customer installable – software, license key
Add core instrument firmware enhancements	N5193AU-R2C N5191AU-R2C	None	Customer installable – software, license key

Additional Information

www.keysight.com/find/ew
www.keysight.com/find/N5191A
www.keysight.com/find/N5193A
www.keysight.com/find/N5194A
www.keysight.com/find/N5192A
Signal Studio for Multi-emitter Scenario Generation, 5992-0405EN

Learn more at: www.keysight.com

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

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