PX Series

NX Series

SA Series

SPECTRUM ANALYZER
QUICK START GUIDE

SPECTRUM ANALYZER QUICK START GUIDE

Real-time Spectrum Analyzer up to 40 GHz

V1.4

04/09/2026

AROGIC

CONTENTS

1. Version Management

Version Update Description Table

Version	Content	Date
V1.4	1. Added: PXN-45 / PXN-60 /PXN-90 Interface Description 2. Added: All-New Series LED light Description	**03/17/2026**
V1.3	1. Added: Include a chapter on Using the Accompanying Trigger Board 2. Added: 10 MHz Reference Clock Input/Output Section 3. Added: External Interface Description section for the All-New SAN Series Instruments 4. Added: GNSS Usage Section for the All-New SAN Series Instruments 5. Added: GPIO Usage Instructions Section	**02/05/2026**
V1.2	1. Modified: Renamed MUXIO to AUXIO 2. Modified: Description modification	**11/10/2025**
V1.1	1. Added: Added a GNSS version description section, distinguishing the connection steps for the old and new GNSS modules 2. Added: Added a section on outputting and Viewing the Intermediate Frequency Signal 3. Added: Added: a section on OTG Connection	**09/04/2025**
V1.0	1. Initial Version	**07/30/2025**

2. System requirements

SA/NX series are core instruments, and their spectrum analysis software must be installed on a host computer. The recommended host system requirements are listed in the table below:

The table provides only basic recommended configurations. For systems below these specifications, please verify with actual test results.

Table 1 System Requirements

Operating System	Windows 11/10/8/7, (requires VS2019 C++ redistributables) Ubuntu 22.04/20.04/18.04, Debian 12/11/10, Raspberry Pi OS 64bit
Architecture	Windows: x64, AArch64 (NX instruments only) Linux: x64, AArch64
Processor	Windows: Intel i3 or higher; AArch64 tested only on Snapdragon 8CX Gen2 Linux: Tested on Raspberry Pi 4B, PK3399, PK3588, etc.
Memory	4 GB or higher
Storage	For IQ signal recording: Ensure sustained write speeds exceed 400 MBytes/s
Data Interface	USB 2.0 or USB 3.0 (USB 3.0 recommended) IQ recording bandwidth and duration are limited by interface bandwidth
Display	Minimum resolution: 1280 × 768 pixels
Other Notes	Some antivirus software may cause system instability

3. SA Series Quick Start Guide

This chapter is a quick start guide to the SA Series, featuring safety instruction, using instruments, running the software and external interface description.

3.1 Safety Instruction

3.1.1 Power Adapter Selection

1. Adapter Selection: Prefer the original manufacturer-provided power adapter. Alternative: Select a compatible adapter according to the product manual.
2. DC Power Supply Requirements:
   - Voltage: 5 V ± 0.25 V (i.e., 4.75 V - 5.25 V)
   - Current: ≥ 3 A for new SAN series; ≥ 2 A for other models
   - Ripple: < 200 mVpp

Note: Failure to comply with these specifications may result in device damage. Please strictly follow the product manual requirements.

3.1.2 RF Input

For maximum damage input power (CW) and maximum DC voltage, please refer to the product manual, and strictly prohibit exceeding the limits to avoid irreversible damage to the instrument.

3.2 Using SA Series Instruments

3.2.1 Connecting the Device

1. Connect the instrument's power port to the power adapter using the Type-C cable and plug it into the socket;
2. Connect the instrument's data port to a computer or embedded device using a Type-C cable, USB 3.0 is recommended for best performance.

Note: It requires for 3 seconds for SA Series instruments operating normally after power-on.

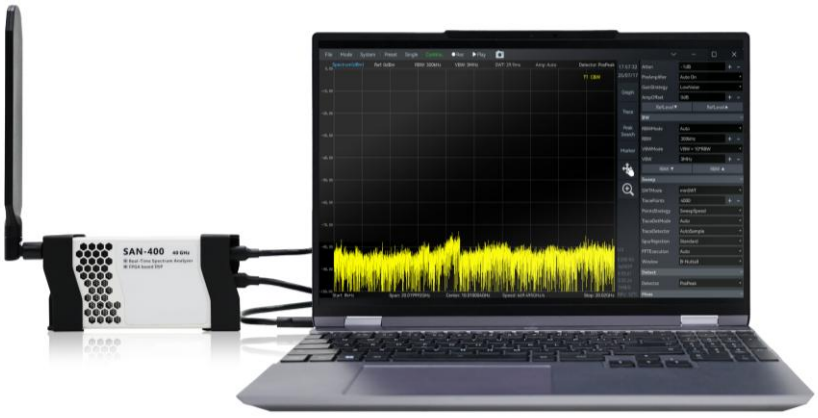


Figure 1 SA series connection diagram

3.2.2 Driver Installation (Windows)

The following part presents the instructions for driver installation using Windows 10 x64 as an example. Note: Windows 11 is compatible with Windows 10 drivers.

1. Check the computer system information, confirm the system version and number of bits;
2. Open the "Windows\HTRA_Driver\Win10_x64" folder in the supplied USB flash;
3. Right-click the "Install_Driver.bat" file and select "Run as administrator" from the pop-up menu to initiate driver installation;

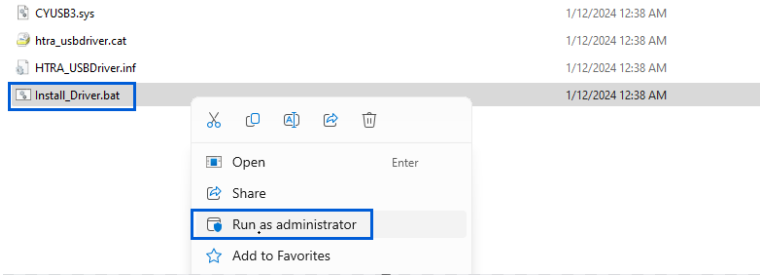


Figure 2 Installation of driver

4. The terminal appears "USB Driver Installation Succeeded" prompt, it means that the driver installation success.

3.2.3 Driver Installation (Linux)

The following will be an example of installing the driver in Ubuntu 18.04.

1. Copy the "Linux" folder from the supplied USB flash to the system;
2. Right-click on the "Linux/Install_HTRA_SDK" folder and select "Open in Terminal" to open the terminal;
3. In the terminal type *sudo sh install_htraapi_lib.sh* and enter, according to the prompts to enter the current user password, and then enter again to confirm the installation;
4. After connecting the instrument, type *lsusb* in the terminal, such as ID:6430, ID:04b5 or ID:367f, it means the driver installation is successful.

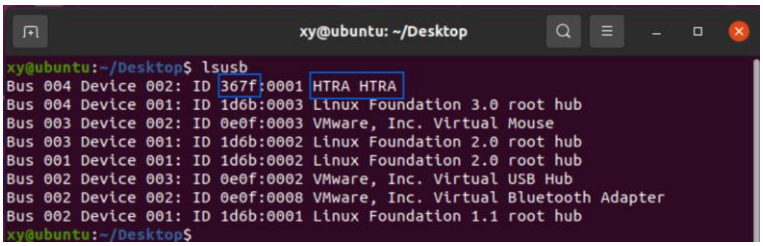


Figure 3 Checking Whether the Instrument Is Properly Connected in Linux

3.3 Running the Software

3.3.1 Windows System

By default, the instrument is properly connected and the driver is installed.

1. Copy the software folder in the "Windows" directory of the supplied USB flash drive to the desktop or other directories of your computer;
2. Enter the "\bin" folder in the software directory, run the executable program, and the spectrum display interface will be as follows.

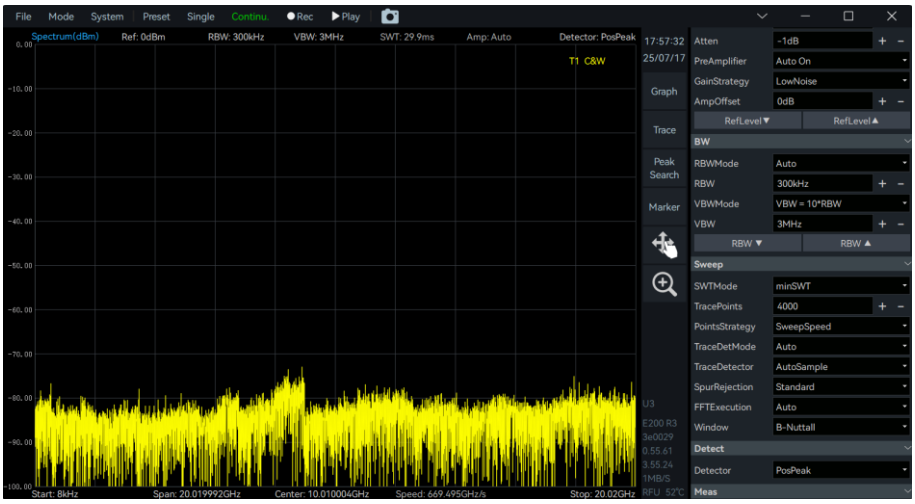


Figure 4 Initial software display

3.3.2 Linux System

By default, the instrument is properly connected and the driver is installed. GCC version 4.8 or above. GLIBC version 2.17 or above.

Software download link: https://www.harogic.com/software-for-harogic-sa-nx-series-spectrum-analyzer/

1. Copy the compressed package of the software for the corresponding architecture from the supplied USB flash drive to the Linux system and extract it;
2. Navigate to the directory containing the software installation package, right-click on a blank area of the folder, and select “Open in Terminal”;
3. In the terminal, run "sudo sh ./install.sh", then enter the password as prompted to complete the installation;
4. After installation is complete, double-click the desktop software icon or enter "./app.sh" in the terminal to launch the software.

3.4 External Interface Description

3.4.1 SAN Series and SAM Series

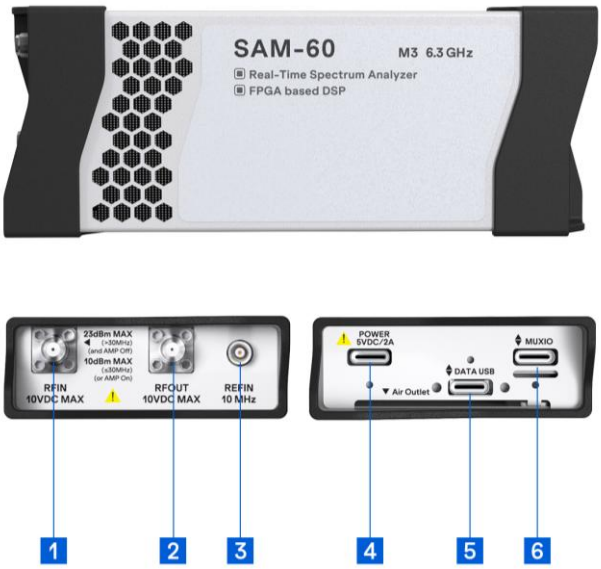


Figure 5 SAN and SAM Series Instrument Interface Description

Table 2 SAN Series and SAM Series Interface Description

Pin	Interface Name	Description
1	**RF Input**	SMA (F), Input Impedance 50 Ω
2	**RF Output**	SMA (F), Output Impedance 50 Ω (Available with "Built-in Signal Source" option)
3	**Reference Clock Input**	MCX (F), Amplitude ≥ 1.5 Vpp, Input Impedance 330 Ω. Supports Sine, Square, Peak Clipping Sine
4	**Power Port**	Instrument Charging Port, Type-C 5 V 2 A
5	**Data Port**	Type-C, USB 3.0 Recommended (USB 2.0 compatible, but bandwidth limited)
6	**Multifunctional AUXIO**	For detailed description, please refer to the table below.

Table 3 Description of Multi-function AUXIO PIN Interface of Port 6 (Illustration direction from left to right)

Pin	Name	Direction	Level Standard	Meaning
A1	**GND**	/	/	Ground
A2	**NC**	/	/	/
A3	**EXT_TRG-IO1_F**	I	3.3 V	External trigger input, up to 500 times/s.
A4	**VEXT**	O	/	Power Output, 5 V
A5	**GND**	/	/	Ground

A6	**USART6_TX_F**	/	/	/
A7	**USART6_RX_F**	/	/	/
A8	**NC**	/	/	/
A9	**VEXT**	O	/	Power Output, 5 V
A10	**EXT_TRG-IO2_F**	O	3.3 V	External trigger output
A11	**USART6_IT_F**	/	/	Reserved
A12	**GND**	/	/	Ground

3.4.2 SAE Series and SAN-400 Series

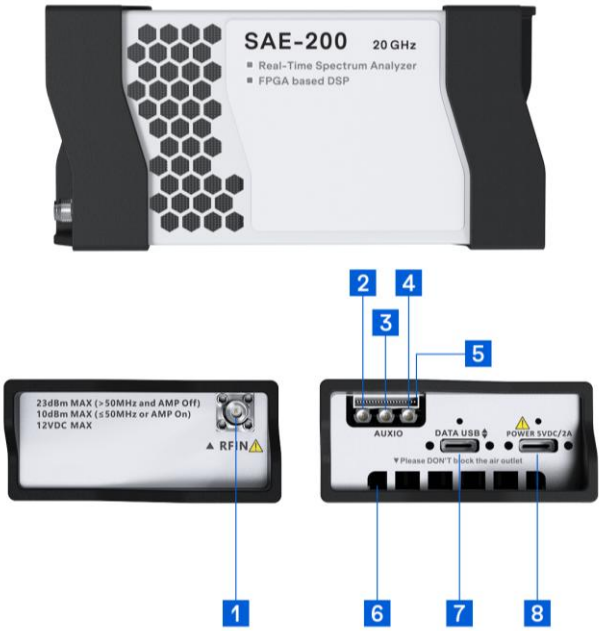


Figure 6 SAE and SAN-400 series instrument interface description

Table 4 SAE Series and SAN-400 Interface Description

Pin	Interface Name	Description
1	**RF Signal Input**	SAE-90 series instruments: SMA (F), input impedance 50 Ω SAE-200/SAN-400 series instruments: 2.92 mm (F), input impedance 50 Ω
2	**Analog IF output**	MMCX (F), maximum output power -25 dBm, output impedance 50 Ω
3	**Reserved interface**	/
4	**Reference Clock Input**	MMCX (F), Amplitude ≥ 1.5 Vpp, Input Impedance 330 Ω Supports Sine, Square, Peak Clipping Sine
5	**Multifunctional AUXIO**	For detailed description, please refer to the table below.

6	**Heat dissipation vent**	/
7	**Data port**	Type-C, USB 3.0 Recommended (USB 2.0 compatible, but bandwidth limited)
8	**Power port**	Instrument Charging Port, Type-C 5 V 2 A

Table 5 Description of Multifunctional AUXIO PIN Interface of Port 5 (Illustration direction from left to right)

Pin	Name	Direction	Level Standard	Meaning
1	**EXT_TRG_IO1**	I	3.3 V	Trigger input, up to 500 times/s
2	**EXT_TRG_IO2**	/	/	Reserved
3	**EXT_TRG_IO3**	O	3.3 V	Trigger output
4	**GND**	/	/	Ground
5	**LFADC_INA**	I	/	Low Frequency ADC Input
6	**3V3D**	O	/	Power output, 3.3 V Output
7	**USART9_RX**	/	/	/
8	**GND**	/	/	Ground
9	**USART_TX**	/	/	/
10	**NC**	/	/	/
11	**NC**	/	/	/
12	**NC**	/	/	/
13	**GND**	/	/	Ground
14	**REFCLK_OUT**	O	/	Reference clock output, can output 10 MHz standard clock signal

3.4.3 All-New SAN Series

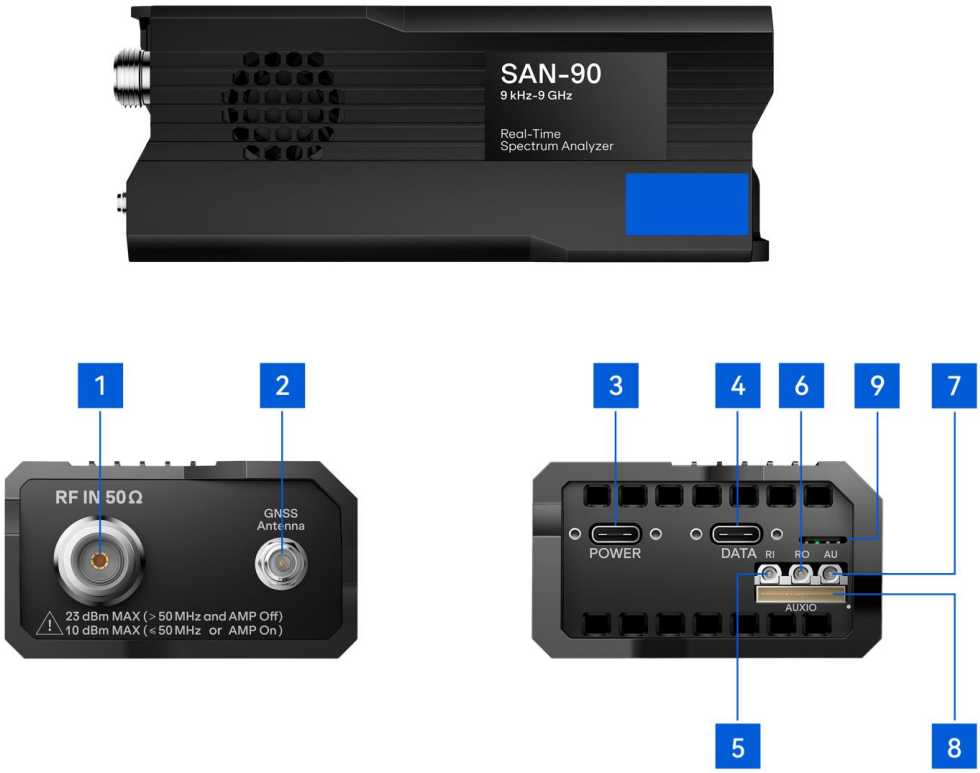


Figure 7 All-New SAN series instrument interface description

Table 6 All-New SAN Interface Description

Pin	Interface Name	Description
1	RF Signal Input	N (F), impedance 50 Ω
2	GNSS Antenna Input	SMA (F)
3	Power Port	Instrument Charging Port, Type-C 5 V 3 A
4	Data Port	Type-C, USB 3.0 Recommended (USB 2.0 compatible, but bandwidth limited)
5	Reference Clock Input	MMCX (F), 10 MHz, Amplitude ≥ 1.5 Vpp, Impedance 330 Ω, Supports Sine, Square, Peak Clipping Sine
6	Reference Clock Output	MMCX (F), 100 MHz, Amplitude ≥ 0.3 Vpp, programmable on / off
7	Analog IF output	MMCX (F), maximum output power -25 dBm, output impedance 50 Ω, frequency 312.5 MHz ± 50 MHz
8	Multifunctional AUXIO	For detailed description, please refer to the table below.
9	LED Indicator	Green: Normal operation Red: Abnormal status Yellow: Remote update failed

Table 7 Description of Multifunctional AUXIO PIN Interface of Port 8 (Illustration direction from left to right)

Pin	Name	Direction	Level Standard	Meaning
1	TRG IN	I	3.3 V	Trigger input, maximum frequency response 500 times/s.
2	TRG OUT	O	3.3 V	Trigger output
3	Reserved	/	/	Reserved
4	GND	/	/	Ground
5	PPS OUT	O	3.3 V	XPPS output
6	3.3V	O	3.3 V	Power output, 3.3 V output
7	USRAT RX	/	3.3 V	/
8	GND	/	/	Ground
9	USART TX	O	3.3 V	/
10	Reserved	/	/	Reserved
11	Reserved	/	/	Reserved
12	Reserved	/	/	Reserved
13	GND	/	/	Reserved
14	Reserved	/	/	Reserved

4. NX Series Quick Start Guide

This chapter is a quick start guide to the NX Series, featuring safety instructions, instrument use, runtime software and external interface descriptions.

4.1 Safety Instructions

4.1.1 Power Adapter Selection

1. Primary Option: Always use the original manufacturer-provided power adapter. Alternative: If unavailable, select a compatible adapter with specifications matching those outlined in the product manual.
2. DC power supply requirements: voltage: 12 V (9 V to 12 V), current: minimum 2 A; peak ripple maximum 200 mVpp.

Note: Violation of specifications may result in damage to the instrument, follow the product manual strictly.

4.1.2 RF Input

For maximum damage input power (CW) and maximum DC voltage, please refer to the product manual, and strictly prohibit exceeding the limits to avoid irreversible damage to the instrument.

4.2 Using the NX Series Device

4.2.1 Connecting the Device

1. Connect the instrument's power port to the power adapter using the Type-C cable and plug it into the socket.
2. Use a network cable to connect the Gigabit network port (LAN2) of the instrument to the network port of the computer or embedded device for optimal performance (100 Mbps for LAN1 and 1 Gbps for LAN2).

Note: NX series instruments need about 40 s to complete the self-start after power on, please wait patiently. Long press the power button for more than 5 seconds to switch off the instrument.

Figure 8 NX series connection diagram

4.2.2 Configuring the Network

NX Series Instrument Network Configuration Instructions:

- IPv4 address: "192.168.1.100" (not modifiable), "192.168.3.100" (modifiable)
- Subnet mask: "255.255.255.0"
- Bridge mode: enabled (LAN1/LAN2 logical interworking)
- Network access: via LAN1 (100 Mbps) or LAN2 (1 Gbps)

The host computer needs to set the IP of the same network segment as the NX instrument (e.g. "192.168.1.X" or "192.168.3.X") in order to be used normally, and the IP address of the host computer can be configured as follows:

1. Open "Settings" -> select "Network & Internet" -> select "Ethernet";
2. Enter Ethernet, find the IP section and click "Edit";
3. Select "Manual" mode and enable "IPv4", set the IP to "192.168.1.2" and the subnet mask to "255.255.255.0". Set the IP to "192.168.1.2" and subnet mask to "255.255.255.0";
4. Open the command prompt (Win + R -> enter "cmd"), the implementation of the command "ping 192.168.1.100", if you receive the following reply, it means that the network connection is successful.

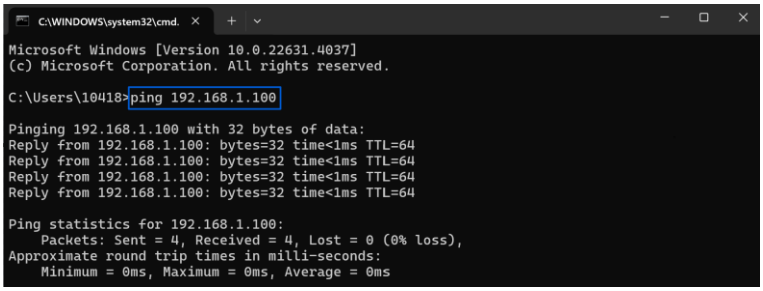


Figure 9 Test instrument network connectivity (ping command)

4.3 Running the Software

Please refer to the Running the software section in SA Series Quick Start Guide chapter.

4.4 External Interface Description

4.4.1 NXN and NXM Series

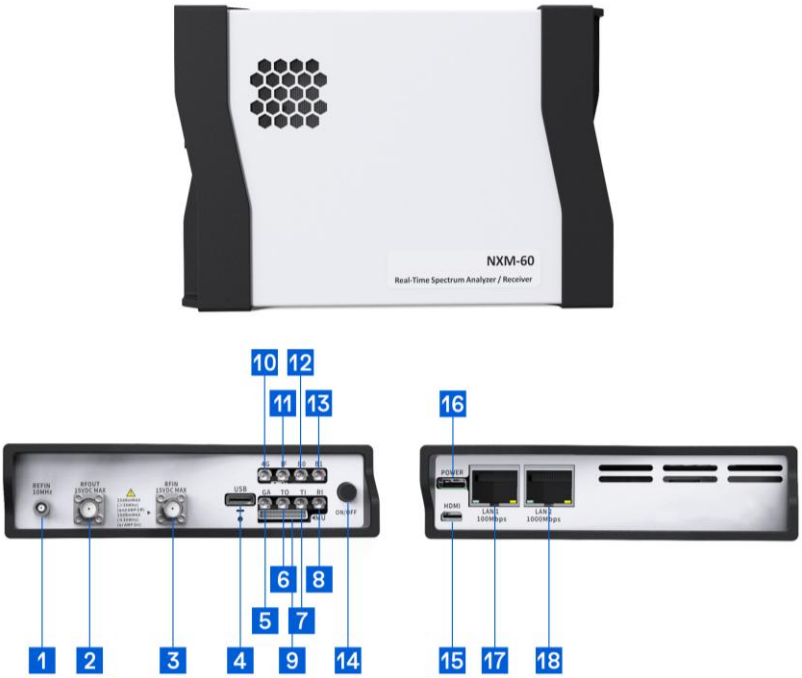


Figure 10 NXN and NXM Series Instrument Interface Description

Table 8 NXN Series and NXM Series Interface Description

Pin	Interface Name	Description
1	**Reference Clock Input**	MCX (F), Amplitude ≥ 1.5 Vpp, Input Impedance 330 Ω. Supports Sine, Square, Peak Clipping Sine
2	**RF Output**	SMA (F), Output Impedance 50 Ω (Available with "Built-in Signal Source" option)
3	**RF Input**	SMA (F), input impedance 50 Ω
4	**USB**	Type-C, USB 2.0
5	**GNSS antenna input**	MMCX (F)
6	**Trigger output**	MMCX (F), 3.3V CMOS
7	**Trigger input**	MMCX (F), 3.3V CMOS, high-impedance input, max trigger rate 500 times/s
8	**Reference Clock Output**	Provides high quality 10 MHz clock signal when equipped with internal DOCXO
11 12 13	**Reserved Interface**	/
9	**Multifunctional AUXIO**	For a detailed description, please refer to Table below.

10	**4G Antenna Input**	MMCX (F)
14	**Instrument Switch**	Switch the instrument on/off. The instrument starts up automatically on first power-up, eliminating the need to manually press the switch. During power-up, the instrument can be switched off and on again with a switch.
15	**Reserved Interface**	/
16	**Power Port**	Type-C PD3.0 12 V 2 A/9 V 2 A
17	**LAN1**	Fast Ethernet Port (100 Mbps)
18	**LAN2**	Fast Ethernet Port (1 Gbps)

Table 9 Description of Multifunctional AUXIO PIN Interface of Port 9 (Illustration direction from right to left)

Pin	Name	Direction	Level Standard	Meaning
1	**GPIO0**	/	/	Reserved
2	**TRG IO2**	/	/	Reserved
3	**GPIO1**	/	/	Reserved
4	**GND**	/	/	Ground
5	**GPIO2**	/	/	Reserved
6	**3V3/5VIN**	O	/	Power output, 5 V output
7	**GPIO3**	/	/	Reserved
8	**GND**	/	/	Ground
9	**USART_TX_FP**	/	/	Reserved
10 11 12	**NC**	/	/	/
13	**GND**	/	/	Ground
14	**REFCLK_OUT_FP**	O	/	Reference Clock Output, Outputs 10 MHz std. clock

4.4.2 NXE Series and NXN-400

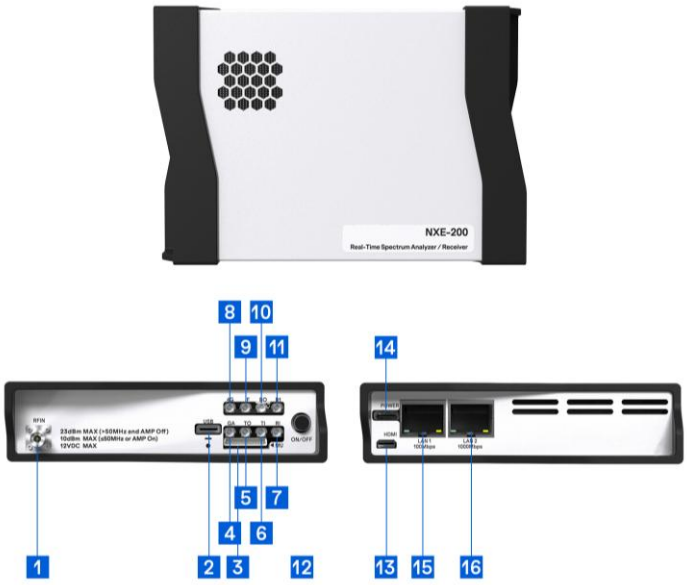


Figure 11 NXE and NXN-400 series instrument interface description

Table 10 NXE and NXN-400 Series Interface Description

Pin	Interface Name	Description
1	**RF Input**	NXE-90 series instruments: SMA (F), input impedance 50 Ω NXE-200/NXN-400 series instruments: 2.92 mm (F), input impedance 50 Ω
2	**USB**	Type-C, USB 2.0
3	**Multifunctional AUXIO**	For detailed description, please refer to the table below.
4	**GNSS Antenna Input**	MMCX (F)
5	**Trigger Output**	MMCX (F), 3.3V CMOS
6	**Trigger Input**	MMCX (F), 3.3V CMOS, high-impedance input, max trigger rate 500 times/s
7	**Reference Clock Input**	MMCX (F), Amplitude ≥ 1.5 Vpp, Input Impedance 330 Ω. Supports Sine, Square, Peak Clipping Sine
8	**4G Antenna Input**	MMCX (F)
9	**Analog IF Output**	MMCX (F), Max Output Power -25 dBm, Output Impedance 50 Ω
10, 11	**Reserved Interface**	/
12	**Instrument Power Switch**	Switch the instrument on/off. The instrument starts up automatically on first power-up, eliminating the need to manually press the switch. During power-up, the instrument can be switched off and on again with a switch.
13	**Reserved Interface**	/

14	**Power Port**	Type-C PD 3.0 12 V 2 A/9 V 2 A
15	**LAN1**	Fast Ethernet Port (100 Mbps)
16	**LAN2**	Fast Ethernet Port (1 Gbps)

Table 11 Pin 3 Multi-function AUXIO Pin out Description (Pins ordered right-to-left in diagram)

Pin	Name	Direction	Level Standard	Meaning
1	**GPIO0**	/	/	Reserved
2	**TRG IO2**	/	/	Reserved
3	**GPIO1**	/	/	Reserved
4	**GND**	/	/	Ground
5	**GPIO2**	/	/	Reserved
6	**3V3/5VIN**	O	/	Power Output, 3.3V Output
7	**GPIO3**	/	/	Reserved
8	**GND**	/	/	Ground
9	**USART_TX_FP**	/	/	Reserved
10	**SYNC_RXRFLO**	/	/	Reserved
11	**SYNC_ADCCLK**	/	/	Reserved
12	**SYNC_RXIFLO**	/	/	Reserved
13	**GND**	/	/	Ground
14	**REFCLK_OUT_FP**	O	/	Reference Clock Output, Outputs 10 MHz std. clock

5. PX Series Quick Start Guide

This chapter is a quick start guide to the PX Series, featuring safety instructions, instrument use and external interface descriptions.

5.1 Safety Instruction

5.1.1 Safety Rules

- Appearance check: make sure that the instrument is in good condition and free from damages
- Accessory check: no damage to power cord, adapter
- Ventilation check: fan vents are kept clear
- Environment check: the instrument is dry and free of moisture and condensation, and the ambient temperature meets the requirements of the product specification
- Operation monitoring: Ensure that the fan is working properly and that the working temperature and humidity are in accordance with the product specifications
- Connection specification: all external interfaces are correctly connected and the RF input signal level meets the requirements of the product specification
- Power management: maintains battery at >5% of capacity
- Storage requirements: the instrument is completely switched off, and the temperature and humidity of the storage environment meets the requirements of the product specification

Note: Abnormal handling: Any damage or malfunction is found, please contact the official after-sales service in a timely manner

Note: Safety warning: It is strictly forbidden to open the shell of the instrument (to prevent electric shock)

5.1.2 Power Adapter Selection

Adapter Selection: Prefer the original matching power adapter. Alternative: Refer to the product manual to select the adapter with matching specifications.

Note: PXZ instruments must use the original factory-mounted power adapter; third-party alternatives are not supported.

Note: Violation of specifications may result in damage to the instrument, follow the product manual strictly.

5.1.3 RF Input

For maximum damage input power (CW) and maximum DC voltage, please refer to the product manual, and strictly prohibit exceeding the limits to avoid irreversible damage to the instrument.

5.1.4 Replacing the Power Adapter

PX series instruments support the replacement of batteries, if you need to replace, please contact the official after-sales service channel to deal with, do not disassemble the instrument.

5.2 First Use of the Instrument

The instrument has been transported over a long distance, the battery power may be below 5%, it is recommended to connect the supplied power adapter before the first use, and then switch on the instrument.

5.2.1 Switching the Instrument On and Off

The instrument is switched on/off by the power button on the top of the instrument. When the instrument is switched on, the power indicator light is on; when it is switched off, the power indicator light is off.

5.2.2 Charging Indicator

When the instrument is connected to the power adapter, the charging status light flashes green to indicate that it is charging. When the battery is fully charged, the charging indicator light will change to a green constant light.

5.2.3 Running the Software

Press the power button, the instrument will enter the desktop environment after powering on and start the software automatically.

5.3 External Interface Description

5.3.1 PX Series

For ease of user operation, all interfaces of the instrument are integrated on the top panel. Please refer to the table below for detailed descriptions of each interface.

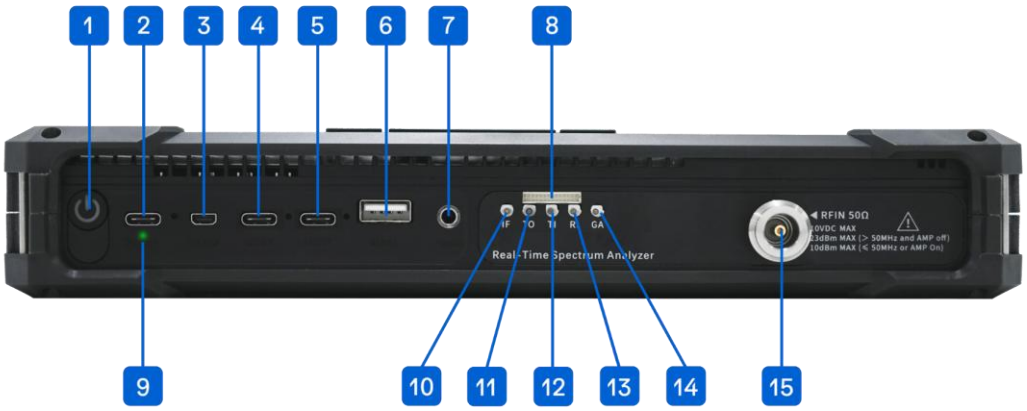


Figure 12 PX series instruments upper board interface description

Table 12 PX Series Interface Description

No	Interface Name	Description
1	Power Button	On/Off instrument
2	Charging port	Instrument charging port, USB PD3.0 20 V 3.25 A, please connect the power supply according to the instrument's required operating voltage
3	Micro HDMI	For extended display
4	USB3	USB interface: USB3 is USB 3.0 interface, USB1 and USB2 are USB 2.0 interface. This interface connects to external storage devices, USB keyboards, or mice. It can also be used to connect a driver-free Hub with an Ethernet port, allowing the instrument to be remotely controlled by a PC via network cable
5	USB2	
6	USB1	
7	Audio Output	3.5mm headphone jack. Volume can be adjusted via the menu: "System" -> "Device" -> "Volume."
8	Multifunctional AUXIO	For detailed description, please refer to the table below.
9	Charging Indicator	Green flashing means charging, green always on means full.
10	Analog IF output	MMCX (F), max. output power -25 dBm, output impedance 50 Ω
11	Trigger Output	3.3V CMOS

12	Trigger Input	MMCX (F), 3.3V CMOS, high-impedance input, max trigger rate 500 times/s
13	Reference Clock Input	MMCX (F), Amplitude ≥ 1.5 Vpp, Input Impedance 330 Ω. Supports Sine, Square, Peak Clipping Sine
14	GNSS Antenna	MMCX (F), amplitude 1.5Vpp, input impedance 330 Ω
15	RF Signal Input	PXE-200: N (F), input impedance 50 Ω PXN-400: 2.4mm (M), input impedance 50 Ω

Table 13 Pin description for AUXIO interface 8 (from left to right)

Pin	Name	Direction	Level Standard	Meaning
1	GPIO0	/	/	Reserved
2	TRG IO2	/	/	Reserved
3	GPIO1	/	/	Reserved
4	GND	/	/	Ground
5	GPIO2	/	/	Reserved
6	3V3/5VIN	O	/	Power Output, PXN-400 and PXE Series 5 V Output
7	GPIO3	/	/	Reserved
8	GND	/	/	Ground
9	USART_TX_FP	/	/	Reserved
10	SYNC_RXRFLO	I	3.3V	RF LO synchronization
11	SYNC_ADCCLK	I	3.3V	ADC clock synchronization
12	SYNC_RXIFLO	I	3.3V	IF LO synchronization
13	GND	/	/	Ground
14	REFCLK_OUT_FP	O	/	Reference clock output for 10 MHz standard clock signals

5.3.2 All-New PXN Series Interface Description

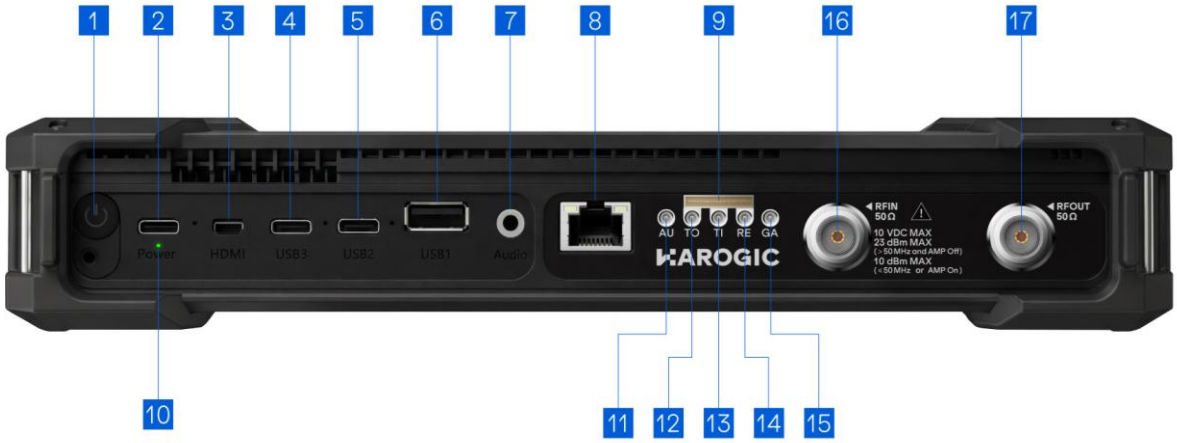


Figure 13 All-New PXN series instruments upper board interface description

Table 14 All-New PXN Series Interface Description

No	Interface Name	Description
1	**Power Button**	On/Off instrument
2	**Charging Port**	Instrument charging port, USB PD3.0 20 V 3.25 A, please connect the power supply according to the instrument's required operating voltage
3	**Micro HDMI**	For extended display
4	**USB3**	USB interface: USB3 is USB 3.0 interface, USB1 and USB2 are USB 2.0 interface. This interface connects to external storage devices, USB keyboards, or mice. It can also be used to connect a driver-free Hub with an Ethernet port, allowing the instrument to be remotely
5	**USB2**	
6	**USB1**	
7	**Audio Output**	3.5mm headphone jack. Volume can be adjusted via the menu: "System" -> "Device" -> "Volume."
8	**Ethernet Port**	Gigabit ethernet port
9	**Multifunctional AUXIO**	For detailed description, please refer to the table below.
10	**Chargin Indicator**	Green blinking means charging, green solid means fully charged
11	**Analog IF Output**	MMCX (F), max. output power -25 dBm, output impedance 50 Ω
12	**Trigger Output**	3.3V CMOS
13	**Trigger Input**	3.3V CMOS, high-impedance input, max trigger rate 500 times/s

14	**Reference Clock Input / Output**	Input: MMCX (F), Amplitude ≥ 1.5 Vpp, Input Impedance 330 Ω. Supports Sine, Square, Peak Clipping Sine Output: Reference clock output, output 100 MHz standard clock signal
15	**GNSS Antenna**	MMCX (F), amplitude ≥1.5 Vpp, input impedance 330 Ω
16	**RF Signal Input**	N (F), input impedance 50 Ω
17	**RF Signal Output**	N (F), output impedance 50 Ω

Table 15 Pin description for AUXIO interface 8 (from left to right)

Pin	Name	Direction	Level Standard	Meaning
1	**TRG_EXTIN**	I	3.3 V	External Trigger Input
2	**REM_TRG_OUT**	/	/	Reserved
3	**RFM_TRG_IO3**	O	/	Trigger Output
4	**GND**	/	/	Ground
5	**RFM_TRG_IO4**	O	3.3 V	1PPS Output
6	**3V3D**	O	/	Power Output, 3.3 V Output
7	**USART1_RX**	/	/	Reserved
8	**GND**	/	/	Ground
9	**USART1_TX**	/	/	Reserved
10	**GPIO3**	O	3.3V CMOS	Programmable GPIO Output
11	**GPIO2**	O	3.3V CMOS	Programmable GPIO Output
12	**GPIO1**	O	3.3V CMOS	Programmable GPIO Output
13	**GND**	/	/	Ground
14	**GPIO0**	O	3.3V CMOS	Programmable GPIO Output

5.3.3 PXZ Series

Please refer to the following table for detailed information on each interface12.

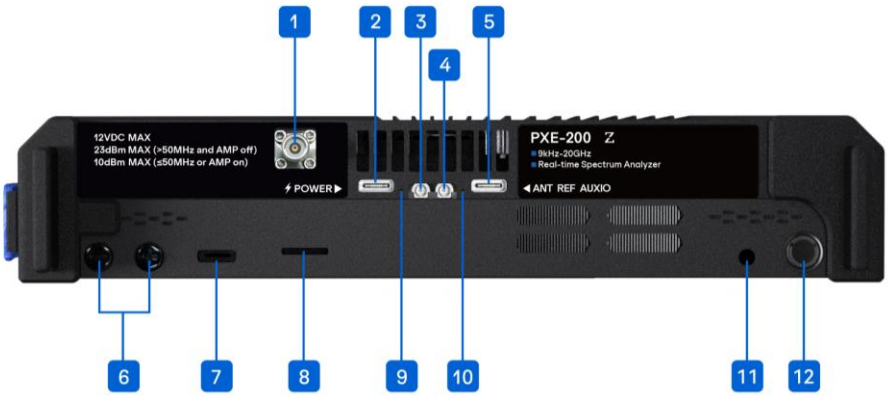


Figure 14 PXZ series instruments upper board interface description

Table 16 PXZ Series Interface Description

No	Interface Name	Description
1	**RF Signal Input**	PXE-200 Z: 2.92mm (M), input impedance 50 Ω PXN-400 Z: 2.4mm (M), input impedance 50 Ω
2	**Charging port**	Instrument charging port, USB PD (100W)
3	**External Antenna Input**	MMCX (F), amplitude ⩾ 1.5 Vpp, input impedance 330 Ω
4	**Reference Clock Input**	MMCX (F), Amplitude ≥ 1.5 Vpp, Input Impedance 330 Ω. Supports Sine, Square, Peak Clipping Sine
5	**Multifunctional AUXIO**	For detailed description, please refer to the table below.
6	**loudness**	Increase/decrease instrument volume
7	**USB**	USB3.0 interface. Through this interface to connect the external expansion memory and USB keyboard, mouse; or connect the driver-free Hub with network port, through the network cable to connect to the PC, the PC to the instrument for remote control
8	**SD Card Slot**	Supports microSD, microSDHC or microSDXC memory cards for transferring data between the card and the instrument
9	**Charging Indicator**	Green flashing means charging, green always on means full.
10	**GNSS Indicator**	Blue indicates GNSS locked
11	**Audio Output**	3.5mm headphone jack. Volume can be adjusted via the menu: "System" -> "Device" -> "Volume."
12	**Power Button**	Switching the instrument on/off

Table 17 Port 5 Multi-function AUXIO PIN Connector Description (A1-A12 shown from left to right B1-B12 shown from right to left)

Pin	Name	Direction	Level Standard	Meaning
A1/A12	GND	/	/	Ground
A2 to A3 A5 to A8 A10 to A11	/	/	/	Reserved
A4/A9	VBUS OUT	O	/	Power supply 5 V output
B1/B12	GND	/	/	Ground
B2	REFCLK_OUT	O	/	Reference clock output for 10 MHz standard clock signals
B3	TRG_IO2	O	3.3 V	Trigger output, 3.3V CMOS
B4/B9	VBUS OUT	O	/	Power supply 5 V output
B10 B5-B8	/	/	/	Reserved
B11	EXT_TRGIN	I	3.3 V	External trigger input, 3.3V CMOS input impedance is high resistance, maximum frequency response 500 times/s.

6. GNSS Application Instructions

This chapter describes how to identify the version of the accompanying GNSS module and how to obtain real-time positioning data using either the internal or an external GNSS module.

6.1 Internal GNSS Option

6.1.1 Version Information

The internal GNSS module refers to the company's in-house developed GNSS module, which is available in two versions: Version A and Version B. Version A is the earlier version, while Version B is the newer one. The two versions are functionally identical and differ only in their power supply methods. Please identify the module version in use according to the appearance diagrams below, and strictly follow the corresponding section for connection and operation to ensure stable operation of the GNSS module.

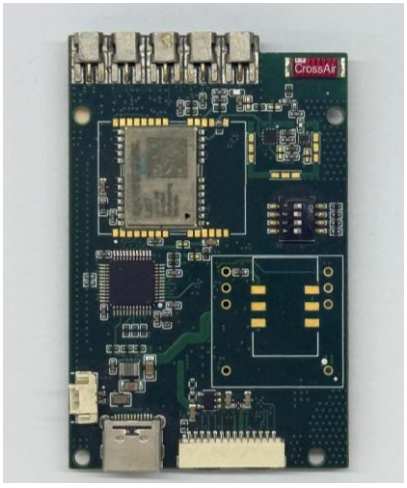


Figure 15 GNSS module version A appearance

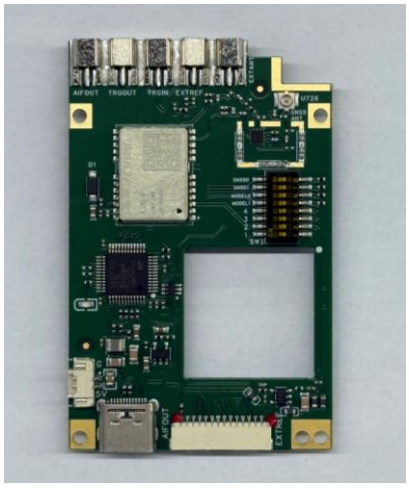
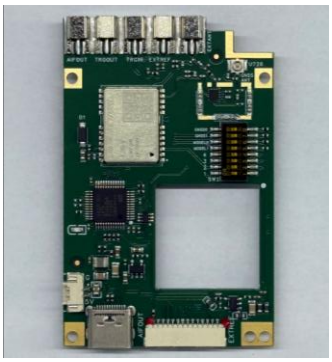
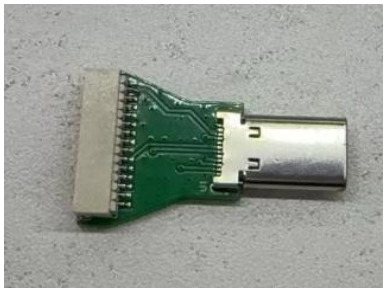


Figure 16 GNSS module version B appearance

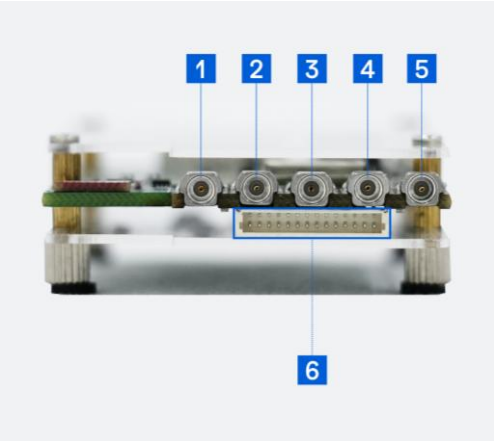
6.1.2 Description of GNSS Options

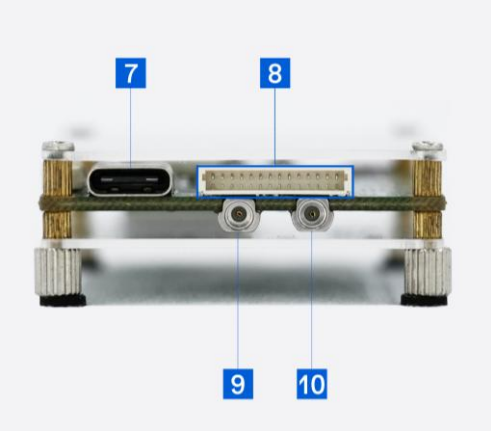
The following accessories are for SA series instruments. NX/PX/SAN series instruments have built-in GNSS modules, so to use the GNSS function, you only need to connect the antenna, and do not need to connect the accessories listed below.

Note: 1PPS and 10MHz clock signal outputs from GNSS are not recommended when the GNSS module is unlocked.

 Version A standard GNSS module	 Version A high-precision GNSS module	 Version A high-quality GNSS module
 Version B standard GNSS module	 Version B high-precision GNSS module	 Version B high-quality GNSS module
 Ribbon Cable (Connection of external GNSS modules and SA series instruments)	 MMCX-to-SMA Cable (Connection of antenna and GNSS module)	 AUXIO Multi-Function to Type-C Adapter (Connection of SAM/SAN series and rows of wires)
 MCX-to-MMCX Cable (Connection of the reference input of the SAM/SAN instrument and the reference output of the GNSS module)		 MMCX Cable (Connection of the reference input of the SAE/SAN-400 instrument and the reference output of the GNSS module)

6.1.3 Interface Description





1	External GNSS Antenna Interface	**6**	Reserved Interface
2	External Reference Input Interface	**7**	Auxiliary Power Supply Type-C Interface (only applicable to high-quality GNSS modules)
3	External Trigger Input Interface	**8**	AUXIO Multi-Function Interface (Trigger Input/Output)
4	Trigger Output Interface	**9**	Analog Intermediate Frequency (IF) Input Interface (for SAE/SAN-400 devices)
5	Analog Intermediate Frequency (IF) Output Interface (for SAE/SAN-400 devices)	**10**	10MHz Reference Clock Output for High-Quality GNSS Modules

6.2 External GNSS Module

An external GNSS module refers to a GNSS module produced by a third-party manufacturer that supports serial communication. Users can connect the serial output of the module to the instrument PC via a USB-to-serial cable. After the connection is established, the module communicates with the PC, is recognized by the system as a virtual serial port, and the GNSS data stream is parsed. Once a successful lock is achieved, GNSS information can be viewed in the software.

6.3 Connection of Internal GNSS Module

6.3.1 SAE/SAN-400 Series

The operating steps for connecting Version A GNSS option to the SAE/SAN-400 series instrument are as follows:

1. Instrument connection: Instrument No. 5 AUXIO interface -> GNSS module No. 8 AUXIO interface (with the ribbon cable), GNSS module indicator light blinking that is connected successfully.
2. External GNSS antenna connection: antenna -> GNSS module No. 1 interface (with MMCX to SMA cable), antenna receiving surface towards the unobstructed sky.
3. GNSS external power supply (high-quality modules only): use a Type-C cable to connect the GNSS module's No. 7 interface to the power adapter and plug it into an outlet.
4. Reference clock connection (high-quality module only): MMCX connector No. 4 of the instrument -> MMCX connector No. 10 of the GNSS module (with dual-head MMCX cable).

Figure 17 SAE/SAN-400 module connection with version A GNSS module diagram

The operating steps for connecting Version B GNSS option to the SAE/SAN-400 series instrument are as follows:

1. Complete the instrument connection and external GNSS antenna connection following Steps 1 and 2 of Version A;
2. GNSS External Power Supply: Use a Type-C cable to connect the GNSS module's Interface 7 to the power adapter, and plug it into the socket;

3. Reference Clock Connection (for High-Quality Modules Only): Instrument MMXC Interface 4 -> GNSS Module MMCX Inteface 10 (using a dual-head MMCX cable).

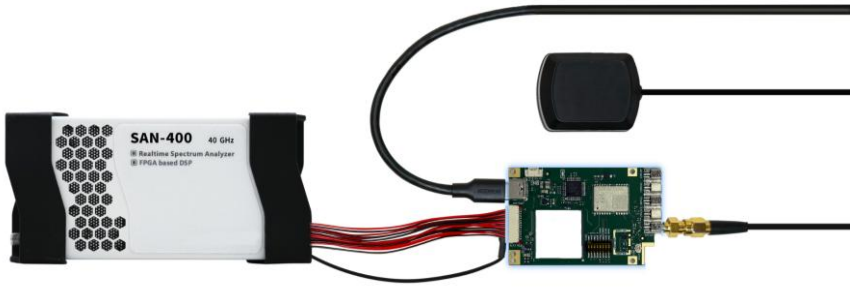


Figure 18 SAE/SEN-400 Module Connection Diagram for Version B GNSS Module

6.3.2 SAM/SAN Series

The operating steps for connecting Version A GNSS option to the SAM/SAN series instrument are as follows:

1. Instrument Connection: Instrument No.6 AUXIO interface -> GNSS module No.8 AUXIO interface (with AUXIO to Type-C and Ribbon Cable), GNSS module indicator light blinks that the connection is successful.
2. External GNSS antenna connection: antenna -> GNSS module 1 interface (with MMCX to SMA cable), antenna receiving surface towards the unobstructed sky.
3. GNSS external power supply (high-quality module only): Use a Type-C cable to connect the GNSS module's No. 7 connector to the power adapter and plug it into an outlet.
4. Reference clock connection (high quality module only): MCX connector No. 4 of the instrument -> MMCX connector No. 10 of the GNSS module (with MCX to MMCX cable).

Figure 19 SAN/SAM module connection with version A GNSS module diagram

The operating steps for connecting Version B GNSS option to the SAN/SAM series instrument are as follows:

1. Complete the instrument connection and external GNSS antenna connection following Steps 1 and 2 of version A;
2. GNSS External Power Supply: Use a Type-C cable to connect the GNSS module's Interface 7 to the power adapter, and plug it into the socket;
3. Reference Clock Connection (for High-Quality Modules Only): Instrument MCX Interface 3 -> GNSS Module MMCX Inteface 10 (using an MCX-to-MMCX cable).

Figure 20 SAN/SAM Module Connection Diagram for Version B GNSS Module

6.3.3 All-New SAN Series

The all-new SAN series instruments are equipped with a built-in GNSS module. During use, an external GNSS antenna (with the receiving surface facing an unobstructed sky) should be connected to interface 2 of the instrument.

6.3.4 NX Series

The NX series instruments have built-in GNSS modules. To use them, you only need to connect the antenna, and the receiving side of the antenna is facing to the unobstructed sky. The procedure is as follows:

1. NXE/NXN-400 series: Antenna -> Instrument 4 GA interface (with MMCX to SMA cable).
2. NXM/NXN series: Antenna -> Instrument 5 GA interface (with MMCX to SMA cable).

6.3.5 PX Series

1. PXE-90/PXE-200/PXN-400: Instruments have built-in GNSS modules. To use them, you need to connect an external GNSS antenna (with the receiving side facing the unobstructed sky) to the instrument's No. 14 GA interface.
2. PXN-45/PXN-60/PXN-90: Instruments have built-in GNSS modules. To use them, you need to connect an external GNSS antenna (with the receiving side facing the unobstructed sky) to the instrument's No. 14 GA interface.

6.3.6 PXZ Series

PXZ series instruments have built-in GNSS module, when using the external GNSS antenna (receiving side towards the unobstructed sky) through the MMCX to SMA cable connected to the instrument's No. 3 ANT port.

6.4 Connection of External GNSS Module

6.4.1 SA / NX Series

Connect the instrument to the PC via the USB 3.0 interface, and connect the external GNSS module to the PC's USB interface using a USB-to-serial cable.

6.4.2 PX Series

External GNSS module -> Instrument Interface 4 (using a USB-to-serial cable).

6.4.3 PXN Series

External GNSS module -> Instrument Interface 5 (using a USB-to-serial cable).

6.4.4 PXZ Series

External GNSS module -> Instrument Interface 7 (using a USB-to-serial cable).

7. Using the Accompanying Trigger Board

This chapter explains how to connect and use the accompanying trigger board on SA, NX, and PX series instruments, including trigger input/output and 10MHz reference clock output functions.

7.1 Interface Overview

7.1.1 Introduction to the Trigger Board for SA/NX/PX Series

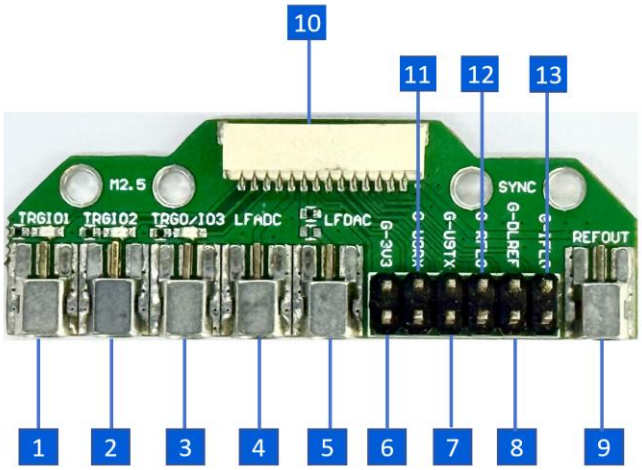


Figure 21 SA/NX/PX Series Accompanying Trigger Board Interface Diagram

Table 18 SA/NX/PX Series Interface Description

Pin	Name	Direction	Level Standard	Meaning
1	TRGIO1	I	3.3V	Trigger Input
2	TRGIO2	/	/	Reserved
3	TRGO/IO3	O	3.3V	Trigger Out
4	LFADC	/	/	Reserved
5	LFADC	/	/	Reserved
6	G-3V3	O	/	Power Output, 3.3V
7	G-U9TX	/	/	Reserved
8	G-DLREF	/	/	Reserved
9	REFOUT	O	/	Reference clock output for 10 MHz standard clock signals
10	AUXIO	/	/	Multi-Function Port

11	G-U9RX	/	/	Reserved
12	G-RFLO	/	/	Reserved
13	G-IFLO	/	/	Reserved

7.1.2 Introduction to the Trigger Board Interfaces for the PXZ Series

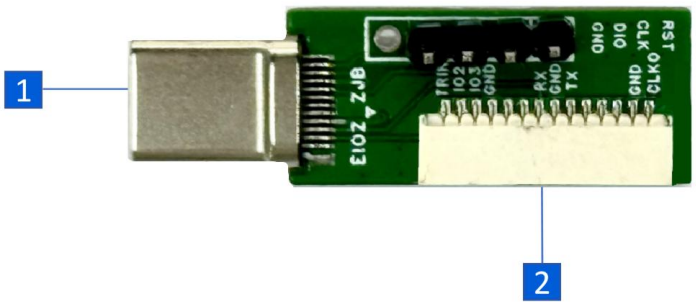


Figure 22 Description of the Trigger Board Interfaces for the PXZ Series

Table 19 Description of the Trigger Board Interfaces for the PXZ Series

Pin	Interface Name	Description
1	Type-C multifunction port	Connected to the multifunction AUXIO port of the PXZ Series.
2	14-pin multifunction port	For a detailed description, please refer to Table below.

Table 20 Description of the 14-pin Multifunction Port (Orientation from Left to Right)

Pin	Name	Direction	Level Standard	Meaning
1	TRG_IO1	I	3.3V	External Trigger Input
2	TRG_IO2	/	/	Reserved
3	TRGO/IO3	O	3.3V	Trigger Output
4	GND	/	/	Ground
5	UART_IT	/	/	Reserved
6	3V3DIN	O	/	Power Output, 3.3V
7	UART_RX	/	/	Reserved
8	GND	/	/	Ground
9	UART_TX	/	/	Reserved
10	NC	/	/	Reserved
11	NC	/	/	Reserved
12	NC	/	/	Reserved

13	GND	/	/	Ground
14	REFOUT	O	/	Reference clock output for 10 MHz standard clock signals

7.2 Connection Diagram

7.2.1 SAE/SAN-400 Series

1. Connect the ribbon cable: Instrument AUXIO interface No.5 -> 14-pin ribbon cable.
2. Connect the trigger board: 14-pin ribbon cable -> Trigger board multifunction port No.10.

Figure 23 SAE and SAN-400 Series Instruments Connection to External Trigger Module

7.2.2 SAN/SAM Series

1. Connect AXUIO multifunction to Type-C: Instrument AUXIO interface No.6 -> AUXIO to Type-C adapter;
2. Connect the ribbon cable: AUXIO to Type-C adapter -> 14-pin ribbon cable;
3. Connect the trigger board: 14-pin ribbon cable -> Trigger board multifunction port No.10.

Figure 24 SAN/SAM Series Instruments Connection to External Trigger

7.2.3 All-New SAN Series

1. Connect the ribbon cable: Instrument AUXIO Interface 8 -> 14-pin ribbon cable
2. Connect the trigger board: 14-pin ribbon cable -> Trigger Board multifunction Port 10

Figure 25 Connection Diagram of SAN Series with the Companion Trigger Board

7.2.4 NX Series

The trigger input/output interface of NX series instruments is located at the MMCX (F) port on the instrument and is not integrated into the AUXIO port. The 10MHz reference clock can be output via the multifunction AUXIO port with the trigger board. The specific connection method is as follows:

1. **NXE/NXN-400 series**: Instrument AUXIO interface No.3 -> 14-pin ribbon cable -> Trigger board multifunction port No.10;
2. **NXM/NXN series: Instrument** AUXIO interface No.9 -> 14-pin ribbon cable -> Trigger board multifunction port No.10.

7.2.5 PX Series

The trigger input/output of PX series instruments is located at the MMCX (F) port on the instrument and is not integrated into the AUXIO port. The 10MHz reference clock can be output via the multifunction AUXIO port with the trigger board. The connection is as follows:

Instrument AUXIO interface No.8 -> 14-pin ribbon cable -> Trigger board multifunction port No.10.

7.2.6 All-New PXN Series

The new PXN series instruments can output a 100 MHz reference clock via the multifunction AUXIO port when connected to a trigger board. The specific connection is as follows:

Instrument AUXIO interface No.9 -> 14-pin ribbon cable -> Trigger board multifunction port No.10.

7.2.7 PXZ Series

Connect AUXIO multi-function to Type-C: Instrument AUXIO Interface 5 -> Trigger Board multifunction Port 1.

8. Reference Clock Input and Output

This chapter describes how to use the reference clock input and output function on SA, NX, and PX series instruments.

8.1 Reference Clock Input

8.1.1Hardware Connection

1. SAN/SAM Series: Reference clock source -> Instrument MCX (F) Interface 3.
2. SAE/SAN-400 Series: Reference clock source -> Instrument MMCX (F) Interface 4.
3. All-New SAN Series: Reference clock source -> Instrument MMCX (F) Interface 5.
4. NXN/NXM Series: Reference clock source -> Instrument MCX (F) Interface 1.
5. NXE/NXN-400 Series: Reference clock source -> Instrument MMCX (F) Interface 7.
6. PX Series: Reference clock source -> Instrument MMCX (F) Interface 13.
7. All-New PXN Series: Reference clock source -> Instrument MMCX (F) Interface 14.
8. PXZ Series: Reference clock source -> Instrument MMCX (F) Interface 4.

8.1.2 Software Operation

In the main settings area of the software, click "System" -> "RefCLKSource", select "External", and set the "RefCLKFreq" to 10 MHz.

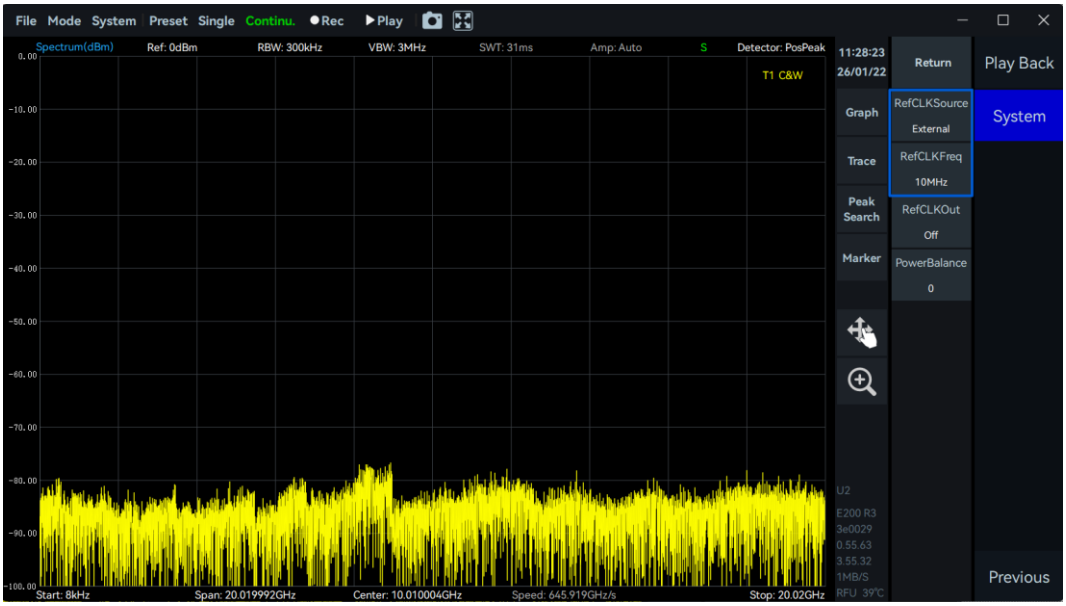


Figure 26 Setting the External Reference Clock Source

8.2 Reference Clock Output

8.2.1 Hardware Connection

1. SAN/SAM Series: No reference clock output function.
2. SAE/SAN-400 Series: Connect the instrument to the companion trigger board; Trigger Board MMCX (F) Interface 9 -> Instrument requiring the reference clock.
3. All-New SAN Series: Instrument MMCX (F) Interface 6 -> Instrument requiring the reference clock.
4. NX Series: Connect the instrument to the companion trigger board; Trigger Board MMCX (F) Interface 9 -> Instrument requiring the reference clock.
5. PX Series: Connect the instrument to the companion trigger board; Trigger Board MMCX (F) Interface 9 -> Instrument requiring the reference clock.
6. All-New PXN Series: Connect the instrument to the companion trigger board; Trigger Board MMCX (F) Interface 14 -> Instrument requiring the reference clock.
7. PXZ Series: Connect the instrument to the companion trigger board; Trigger Board 14-pin Multi-function Interface 2 -> Other series companion trigger board (via 14-pin ribbon cable); Other series companion trigger board MMCX(F) Interface 9 -> Instrument requiring the reference clock.

8.2.2 Software Operation

In the main settings area of the software, click "System" and enable "RefCLKOut".

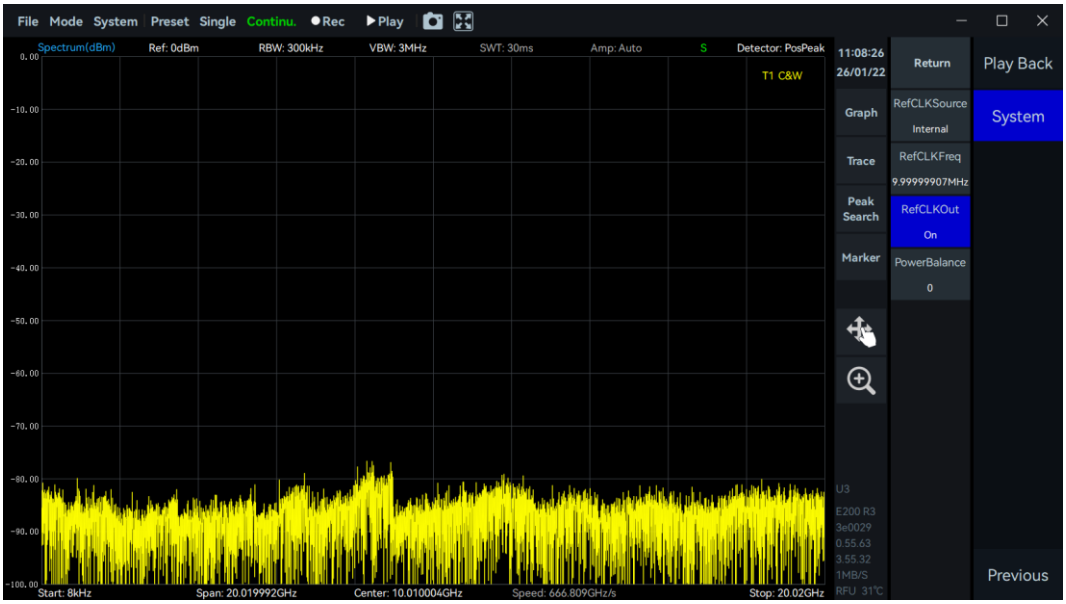


Figure 27 Setting the Reference Clock Output

9. Analog IF output

9.1 Output Intermediate Frequency Signal

1. Connect the signal generator to the instrument's RF input interface, with the signal generator outputting a 1 GHz, 0 dBm signal;
2. Switch the software to Receiver/IQ Stream mode, ensuring that the instrument outputs a stable intermediate frequency (IF) signal;
3. Output the IF signal generated by the instrument to other measuring instruments for viewing through the following interface.
   - SAE/SAN-400 Series: Interface 2
   - All-New SAN Series: Interface 7
   - NXE/NXN-400 Series: Interface 9
   - PX Series: Interface 10
   - All-New PXN Series: Interface 11

9.2 Viewing the IF Signal

1. The frequency of the simulated intermediate frequency output signal is between about 307.2 MHz ± 50 MHz, with a maximum output power of -25 dBm and an output impedance of 50 Ω. The center frequency of the simulated IF output for each instrument can be found in the IF calibration file within the "/bin/CalFile" folder of the instrument's software directory;

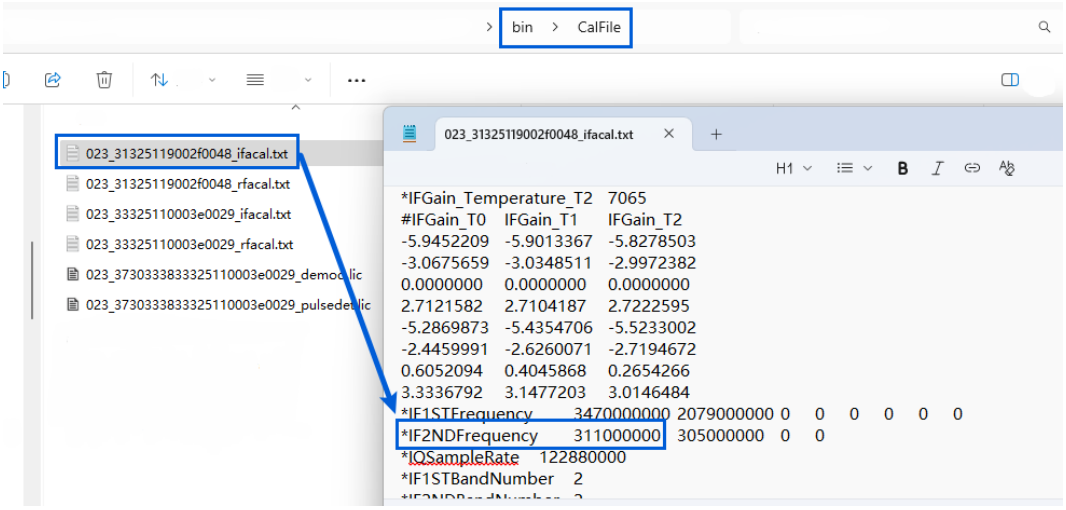


Figure 28 View the simulated intermediate frequency output frequency points

2. Set the "Center Frequency" of the measuring instrument to 311 MHz (refer to the corresponding calibration file for the specific value), and keep the other parameters at their default settings. Then, view the intermediate frequency output.

Figure 29 View the intermediate frequency output signal.

10. GPIO Usage Instructions

This chapter describes how to connect the EIO expansion board to the all-new SAN series and all-new PXN series instruments and control the output levels of the various GPIO interfaces.

10.1 EIO Expansion Board Interface Description

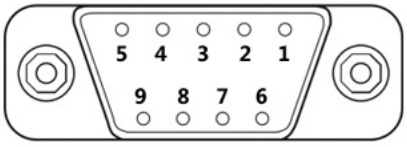


Figure 30 EIO Expansion Board Interface Description

Table 21 Pin Description of the EIO Expansion Board Interface

Pin	Description
1	GPIO0
2	GPIO2
3	GPIO4
4	GPIO6
5	GND
6	GPIO1
7	GPIO3
8	GPIO5
9	GPIO7

10.2 EIO Expansion Board Connection

All-New SAN Series Instrument: EIO Expansion Board 14-pin Interface -> All-New SAN Series Instrument AUXIO Interface 8. After connection, click "System" -> "GPIO" in the software menu bar to control the output levels of the different GPIO interfaces.

All-New PXN Series Instrument: EIO Expansion Board 14-pin Interface -> All-New SAN Series Instrument AUXIO Interface 9. After connection, click "System" -> "GPIO" in the software menu bar to control the output levels of the different GPIO interfaces.

11. Modify the IP address of the NX-Series instrument

Go to the official website of HAROGIC (https://www.harogic.com/setdeviceipaddr-2/) to download and extract the "SetDeviceIPaddr.zip "folder to your desktop or other directory.

11.1 Obtaining NX-Series Instrument IP Addresses

1. Default IP address: "192.168.1.100" (not modifiable), "192.168.3.100" (modifiable).
2. Instruments through the direct connection or access to the router, to ensure that and the host computer in the same network segment.
3. Run "SetDeviceIPaddr\SetDeviceIPaddr.exe" to check the IP address of the instrument.

11.2 Modifying NX-Series Instrument IP Addresses

11.2.1 Notes on IP modification

1. To ensure that the IP of the receiver network card and the host computer other non-physical connection of the network card's IP address is in a different network segment, in order to avoid network conflicts.
2. IP address cannot end with ".0", ".1" or ".255", these addresses have a special purpose in the network (such as network address, broadcast address or gateway address), the use of them may lead to communication anomaly), and their use may lead to communication anomalies.

11.2.2 IP Modification Procedure

Run "SetDeviceIPaddr\SetDeviceIPaddr.exe".

1. Single instrument
   - Enter the IP address (in standard format, e.g., 192.168.3.101)
   - Enter the subnet mask (CIDR format, e.g. 255.255.255.0)
   - Press the Enter key to execute the modification, and the prompt "Change ip address successfully" indicates success

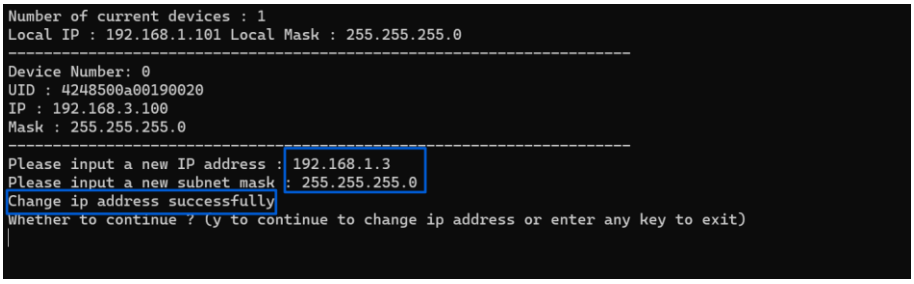


Figure 31 Single NX Instrument Modification IP

2. Multiple instruments
   - Enter the instrument numbers in sequence (each instrument corresponds to a unique Device Number, take the instrument with UID 33325110003e0029 as an example)
   - Enter the IP address and subnet mask (in the same format as above)
   - Press the Enter key to execute the modification, and the prompt "Change ip address successfully" indicates success

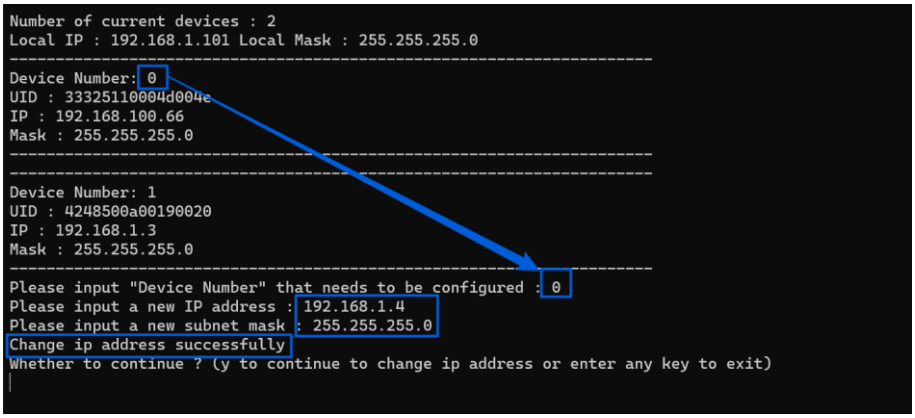


Figure 32 IP modification for multiple NX instruments

12. PX Remote Control Guide

12.1 Network port direct connection

1. Connect the driverless docking station with network port to the USB 3.0 interface (USB3) on the upper panel of the instrument, and connect it to the network port of the computer or embedded instrument via a network cable. Note: USB1 and USB2 are USB 2.0 interfaces, it is recommended to use the USB3 interface in preference for better performance.

Figure 33 External drive-free docking station with network port

2. Exit the current host computer software, enter the PC "Settings -> Network and Internet -> Properties", manually configure the IPv4 address (such as "192.168.1.2") and subnet mask ("255.255.255.0"), ensure that the same network segment as the instrument IP ("192.168.1.100"), and the instrument IP ("192.168.1.100"). "255.255.255.0"), make sure that it is in the same network segment as the instrument IP ("192.168.1.100").

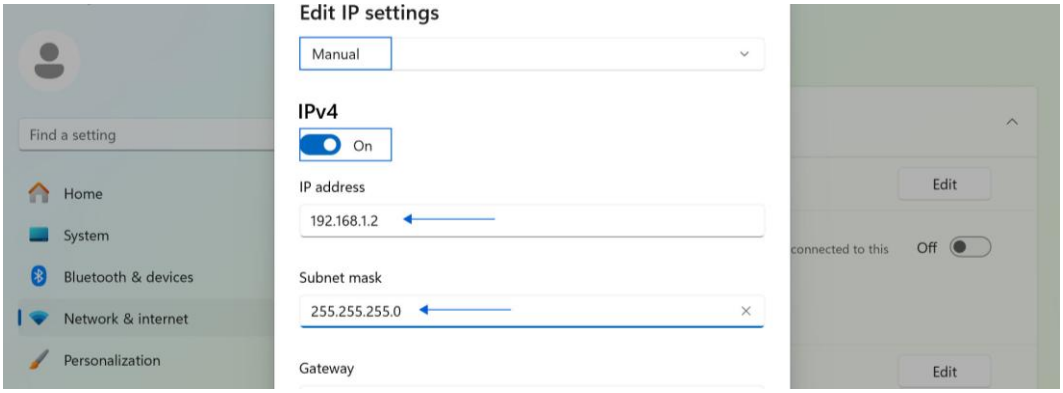


Figure 34 Configuring IP Addresses and Subnet Masks

3. Through the cmd execution "ping 192.168.1.100" to verify network connectivity.

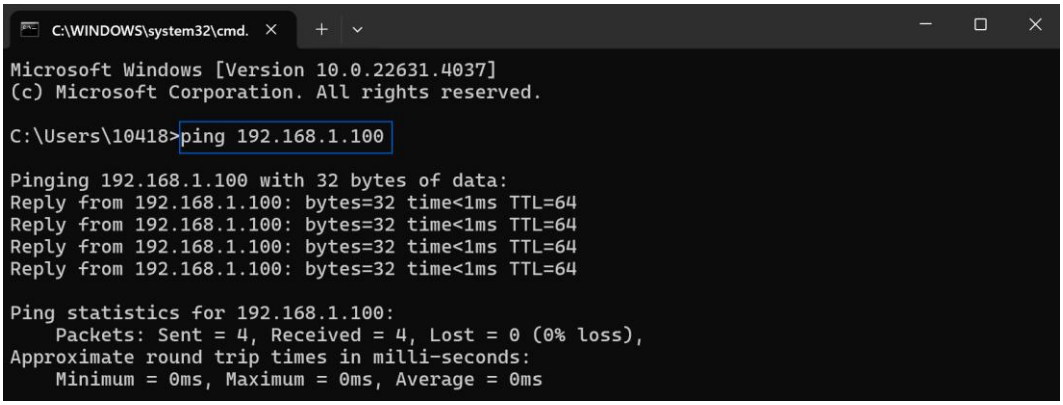


Figure 35 Test instrument network connectivity (ping command)

4. Double-click to open the PC host software directory "configuration\Settings.ini" file, set Interface = ETH;
5. From the userdata folder on the desktop of the instrument, enter the "/bin/CalFile" path of the software to get the calibration file and save it to the "\bin/CalFile" directory of the corresponding software on the PC.

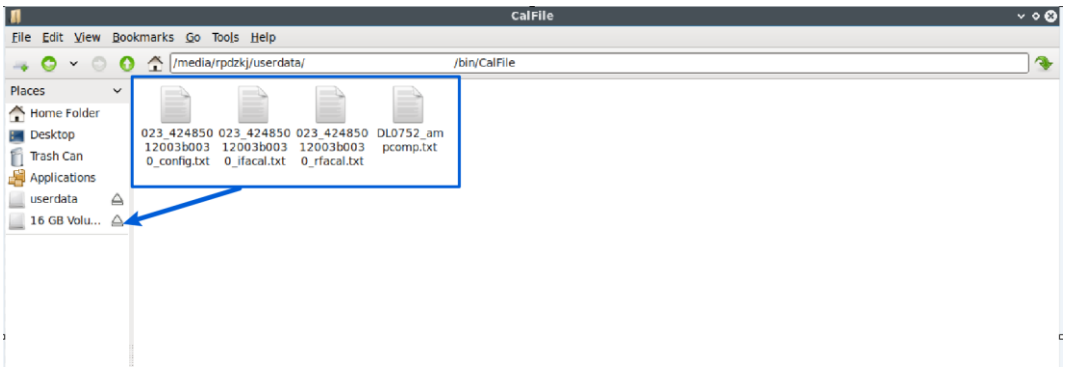


Figure 36 Obtaining Instrument Calibration Documentation

6. Start the executable programme in the "/bin" folder in the software directory of the PC to achieve remote control of the PX series instruments.

⚠ Note: The instrument and the PC software cannot be switched on at the same time.

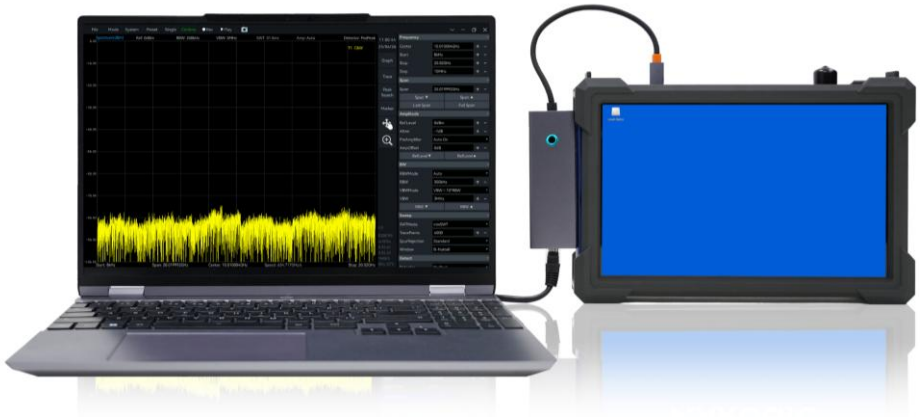


Figure 37 Direct Ethernet Connection for Remote Control of PX Instruments

12.2 LAN connectivity

1. Connect the driver-free docking station with network port to the USB 3.0 interface (USB3) on the upper panel of the instrument, and connect it to the network port of the router through the network cable. Note: USB1 and USB2 are USB 2.0 ports, it is recommended to use the USB3 port in preference for better performance;

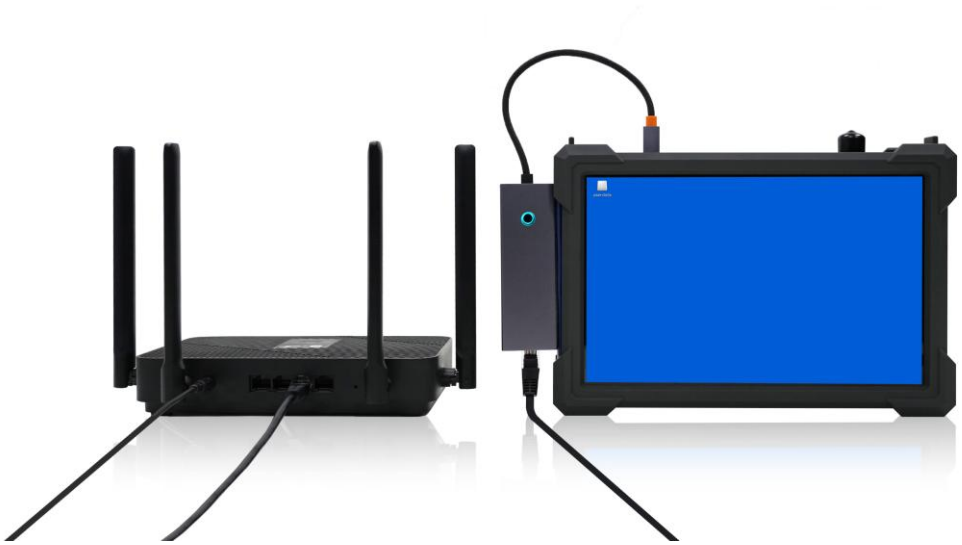


Figure 38 Connecting the Router to the Instrument

2. Click the menu bar "File" -> "Exit", exit the software interface in the instrument;
3. Click "userdata" -> "Tools" -> "Open Current Folder in Terminal";

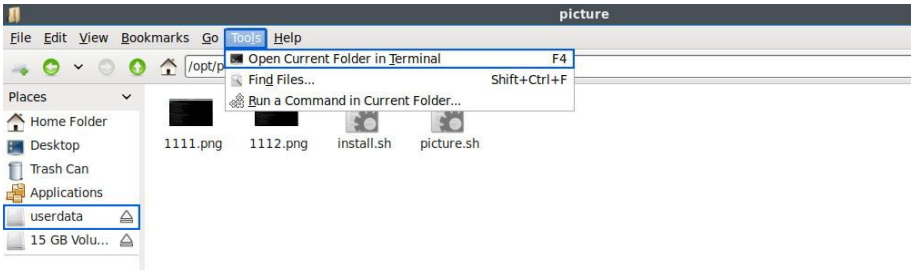


Figure 39 Open terminal

4. In the terminal, type "ifconfig" query the current router to the IP address assigned to the instrument, in this case, the IP address is "192.168.31.55";

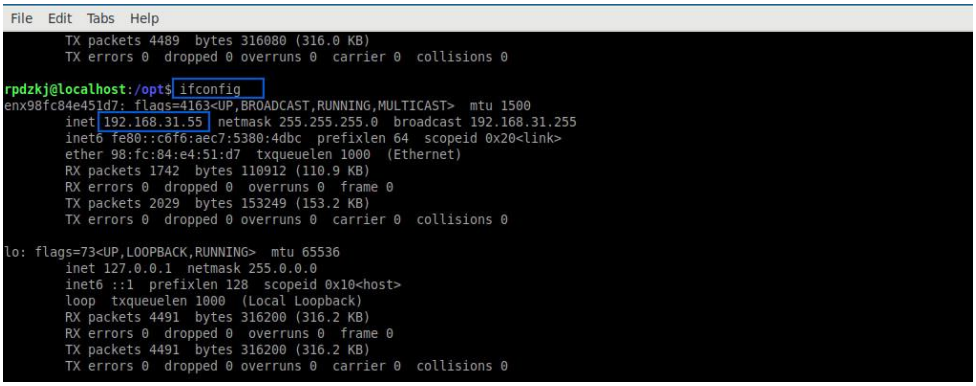


Figure 40 Query the dynamic IP acquired by the instrument

5. Connect the PC to the same router via Wi-Fi to ensure that it is on the same LAN as the instrument. Double-click to open the "configuration\Settings.ini" file in the directory of the PC host software, set Interface = ETH, Address = "192.168.31.55 "
6. For the next steps, please refer to step 5 to step 6 of the chapter on the Network port direct connection.

Figure 41 Remote control of PX instruments by LAN

12.3 OTG Connection

1. Connect the instrument's USB 3.0 interface (USB3) to the host computer's USB port using a USB cable;
2. Click "File" -> "Exit" in the menu bar to return to the instrument's desktop. Click the "OTG" icon on the desktop, and after the window pops up, observe the content of the window:

- If the window displays "OTG is enabled," manually restart the instrument
- If "OTG is disabled" appears, close the pop-up window, click the "OTG" icon again, and then manually restart the instrument

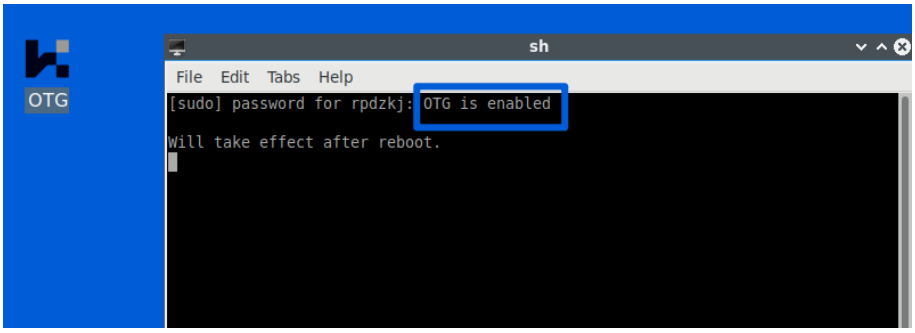


Figure 42 Check the OTG startup status

3. Refer to Steps 2 to 6 in the Network port direct connection section to configure the network and remotely control the instrument.

www.harogic.com
info@harogic.com
+65-8299 8857