Module Analyzer
5 Steps to Measure BER

Step 0 – Hardware Configuration to Power On

1

Connect Ethernet cable
from control PC
to RJ45 port on the rear of chassis

2

Connect the cables on front panel
a. Flat Flexible Cable for Control Interface
b. Short Power Cord for Module Board

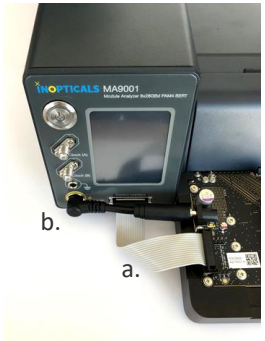
3

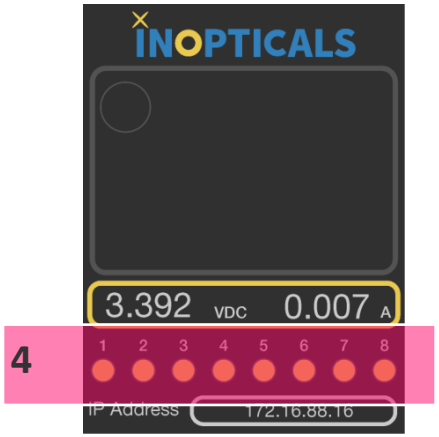
Push power button on the front panel

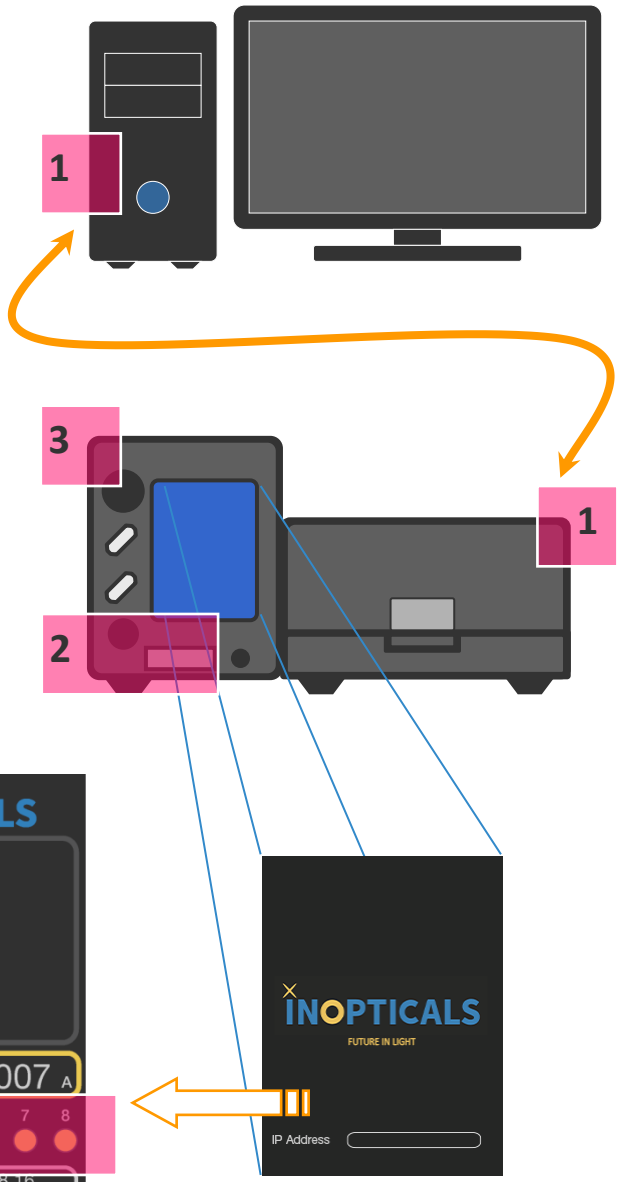
4

Wait for initialization.

Initialization is done when IP appears on chassis screen & the 8 LEDs turn yellow.







*If IP address does not appear after 5 min, it means the instrument is not connected to an Ethernet device yet. Please check the Ethernet cable and RJ45 port on PC.

Step 1 – Link to Module Analyzer

1

Input IP address of Module Analyzer into GUI* ex: 172.16.88.16

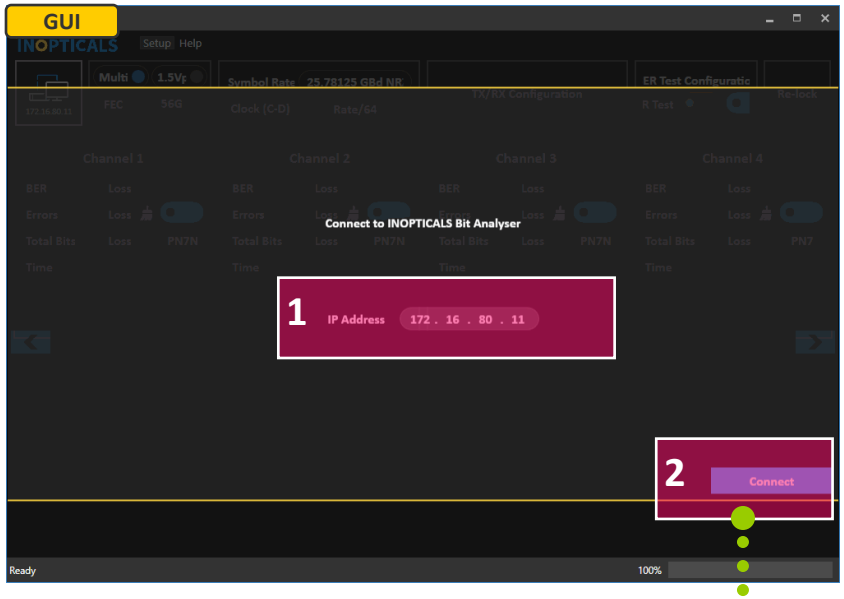
ⓘ The IP is shown on chassis screen when initialization is completed.

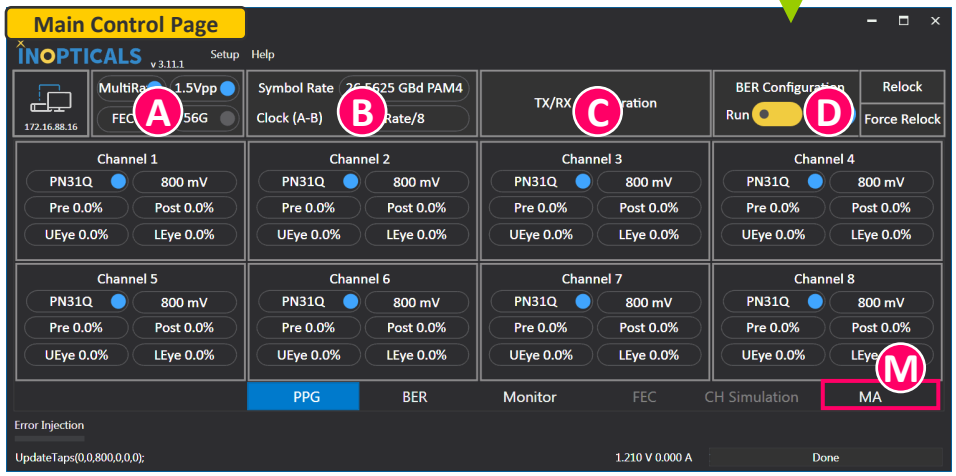
2

Press [Connect] button to enter main control page

There are 4 main areas plus 1 page to give you the whole control of MA:

- A – Function Mode
- B – Modulation & Symbol Rate
- C – TX/RX Configuration
- D – BER Test Method
- M – Module Test Board (optional)





*Example of IP of control PC = 172.16.1.10, and subnet mask = 255.255.0.0

Step 2 – Main Control Page

1

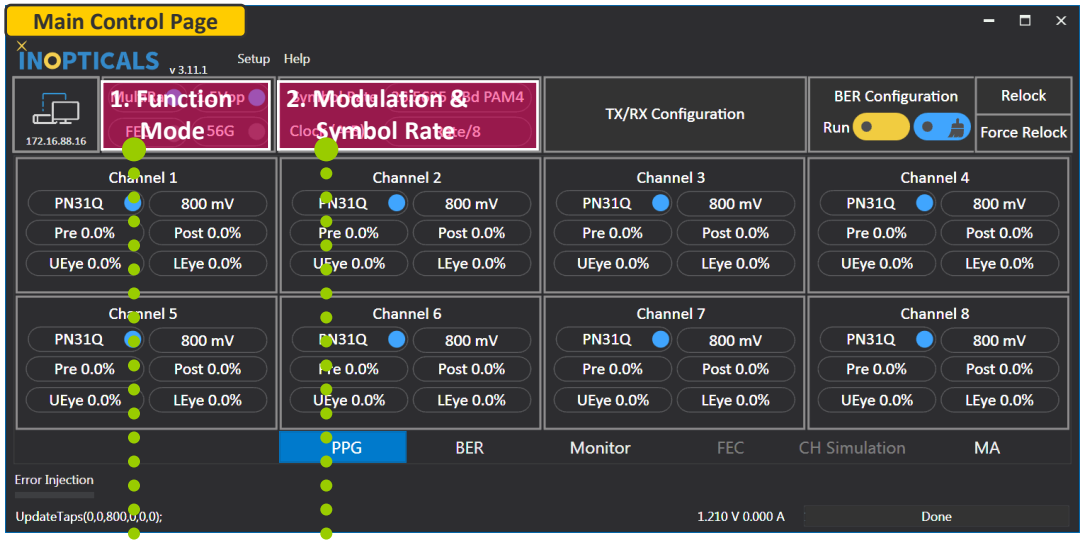
Click [area A] to select Function Mode according to options purchased

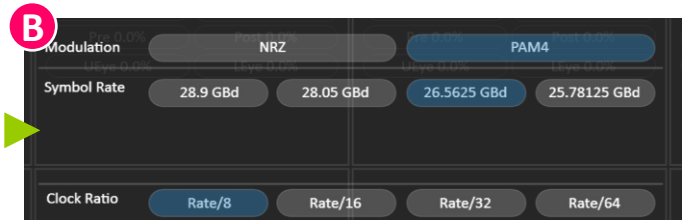
- **MultiRate** (default mode)
- **1.5Vpp** (default mode)
- **FEC** (option, enable FEC simulator)

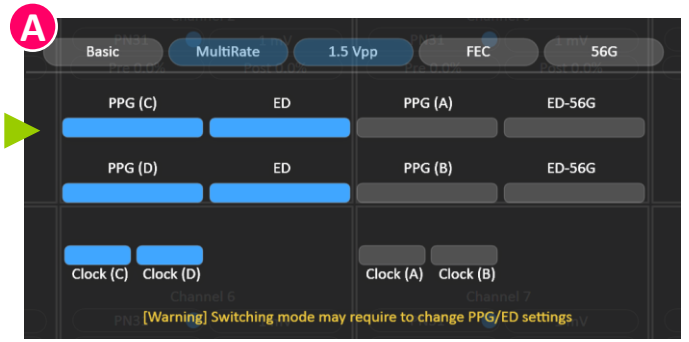
2

Click [area B] to set the following items

- **Modulation** ex: PAM4
- **Symbol Rate** ex: 26.5625 GBd
- **Clock Ratio***







* When selecting Rate/8 and symbol rate 26.5625GBd, output clock freq is 3.32GHz.

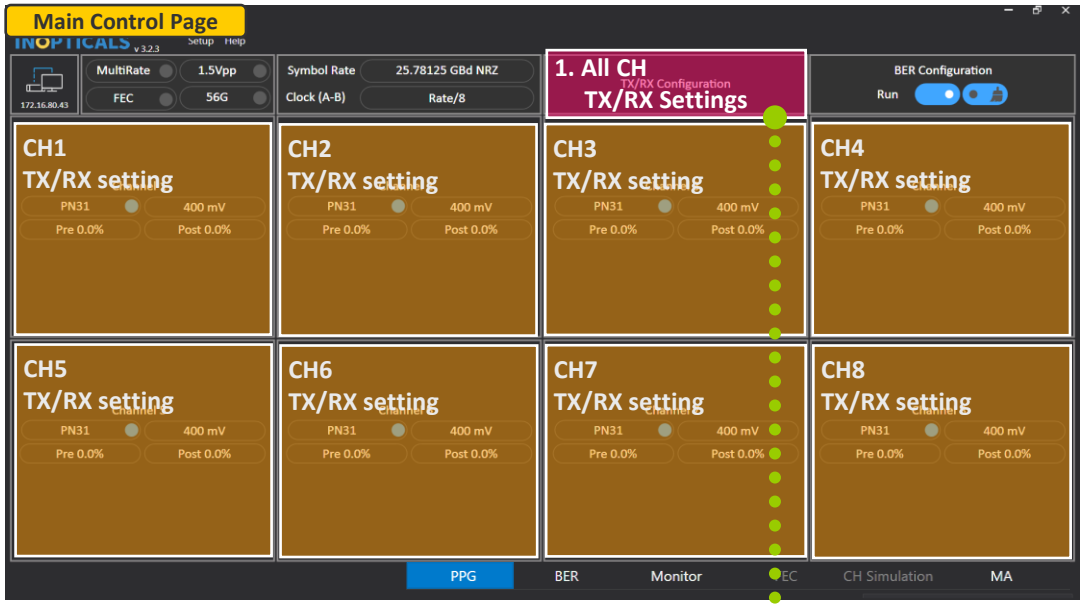
Step 3 – TX/RX Settings

1

Click [area C] to set TX/RX configuration of <u>all channels</u>

- Pattern
- Amplitude
- Pre-Cursor & Post-Cursor
- Upper Eye & Lower Eye (PAM4 only)
- RX Polarity
- RX Sensitivity
- CTLE

ⓘ Click each brown area to pop up individual channel setting window.



Step 4 – Module Test Board Settings

1

Click the page [MA]* to set configurations of module test board

2

Set [Power Supply] voltage for TRX module and turn it ON ex: 3.3V

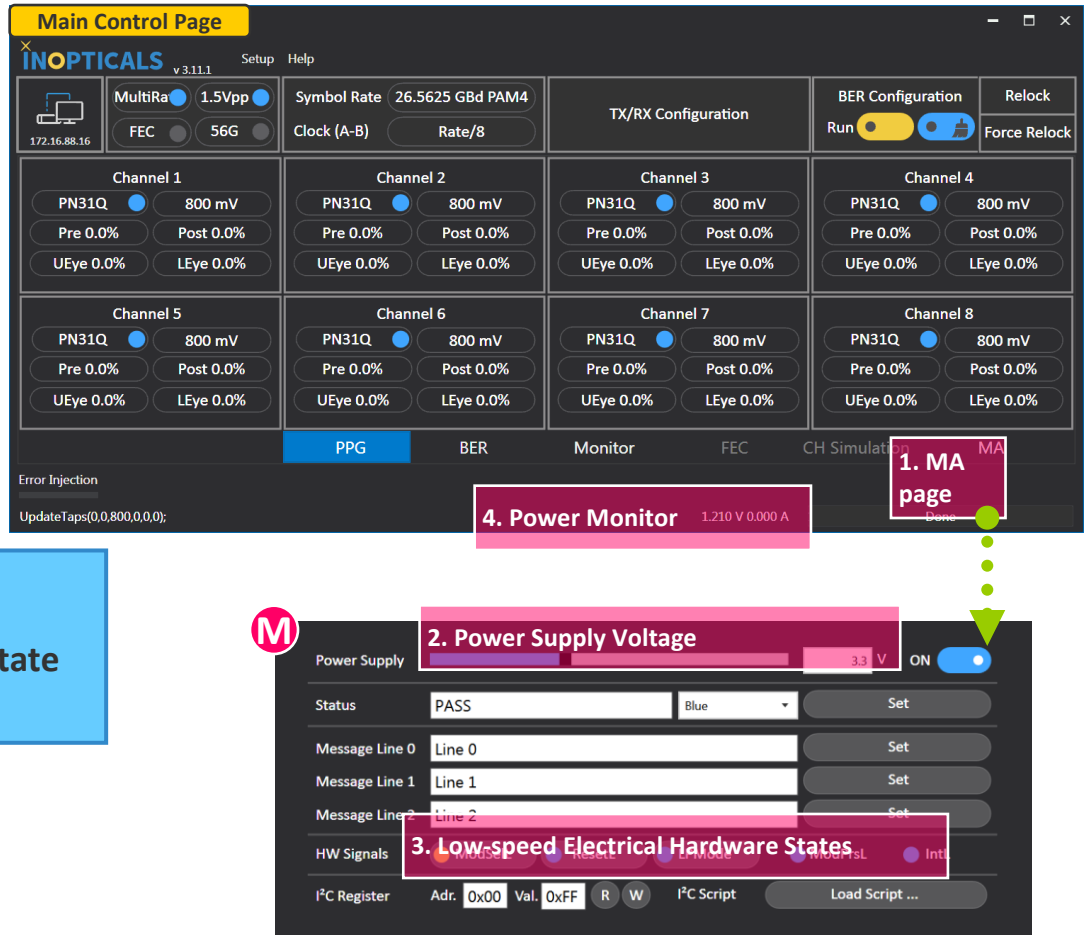
3

Click [HW Signals] buttons to switch High/Low state

ex: ModSelL ResetL LPMode

4

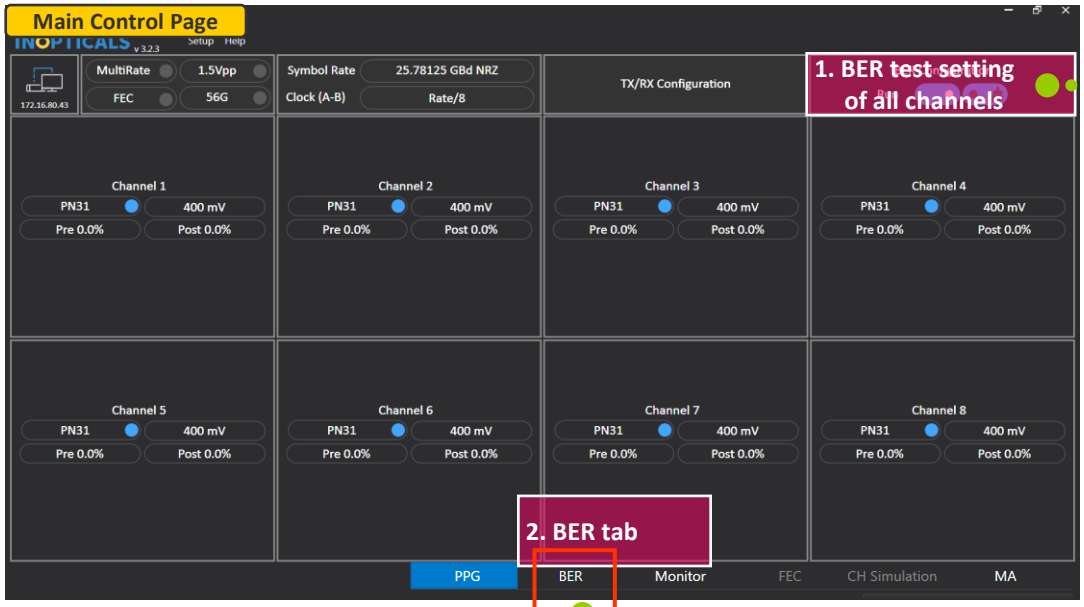
1. Plug TRX into module test board
2. Read the voltage & current from power monitor bar to check the true values on TRX

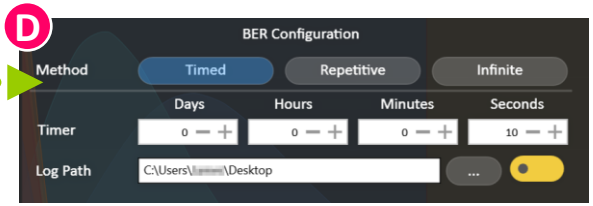


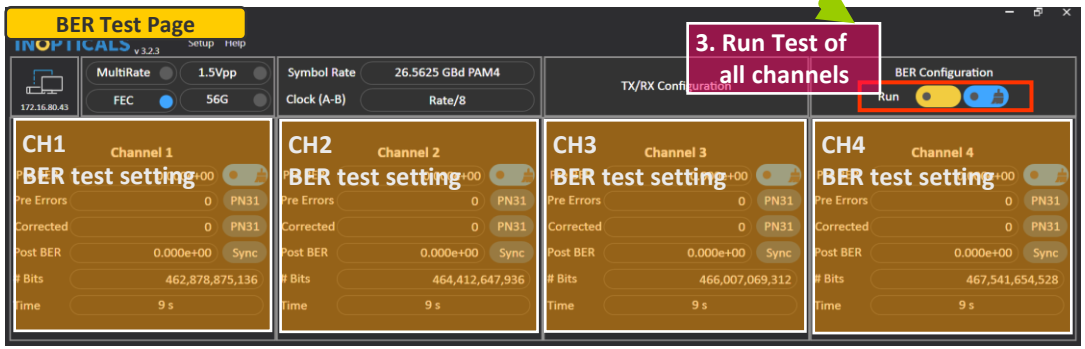
*ⓘ The MA page is valid, when the following cables are connected.

- Board Power cable
- Control Interface cable

Step 5 – BER Test Page







1

Click [area D] to set how to test BER of all channels

2

Click [BER tab] to show BER Test Page

3

Switch on [BER Test] to run test

ⓘ Click each brown area to pop up individual channel setting window.

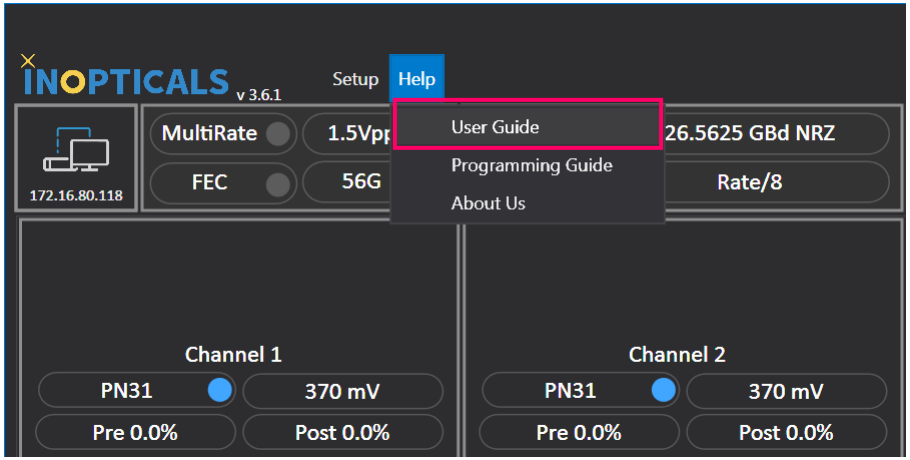
Information Page

INOPTICALS

For further details,
please check the user guide integrated in GUI.

0 Connect the instrument

1 Click [User Guide] @ Help Menu



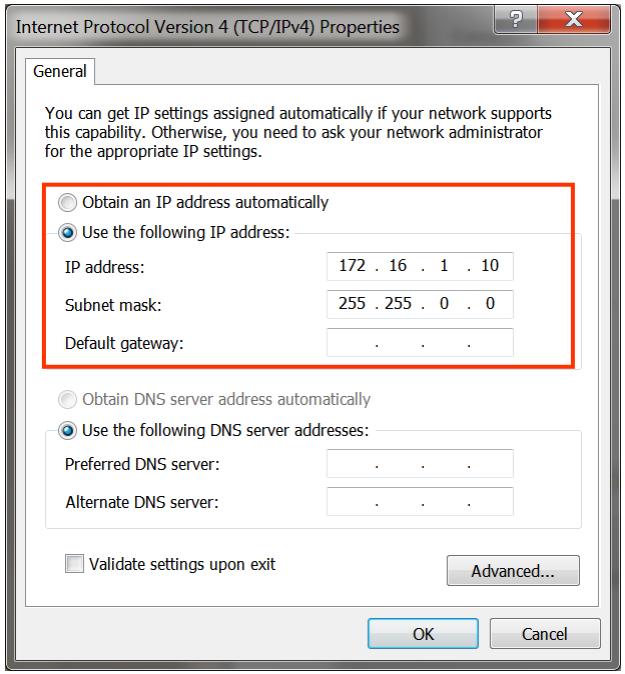
To configure IP address,
the following appendix will help.

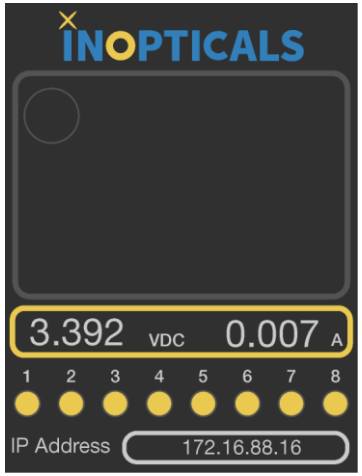
Appendix– Set IP on Control PC

Quick Guide to Set IP Address

The IP address of instrument is 172.16.88.xxx (ex: 172.16.88.16)
Therefore, we set the IP Address of control PC as 172.16.yyy.zzz (ex: 172.16.1.10) and set the Subnet Mask as 255.255.0.0

1. Open TCP/IPv4 Properties of connected Ethernet Device
2. Select [Use the following IP address]
3. Type [IP address] as 172.16.1.10
4. Type [Subnet mask] as 255.255.0.0

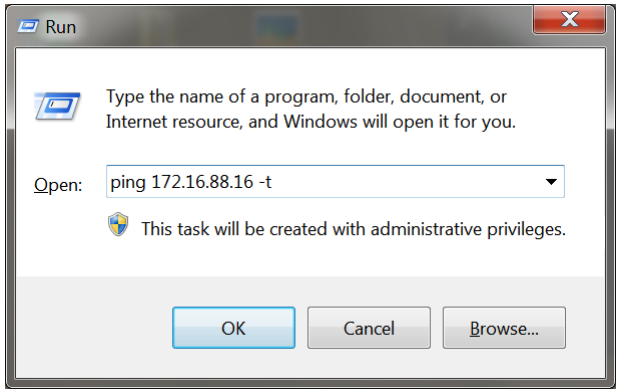




How to Ping Instrument

When users want to check IP settings is correct or not, can ***ping*** the instrument.
If getting reply less than 3 ms, the connection is correct.
If NOT, there must be something wrong.

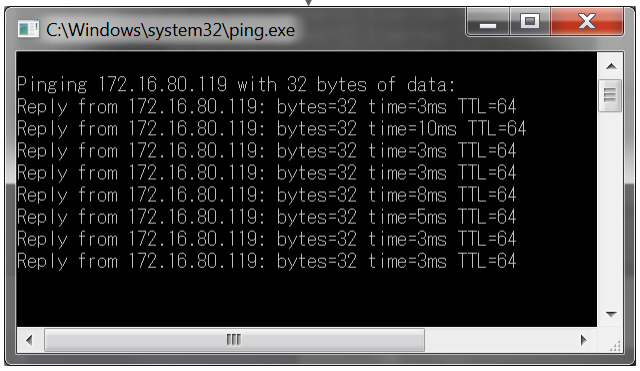
1. Press keyboard [Win] + [R] to open [Command Prompt]



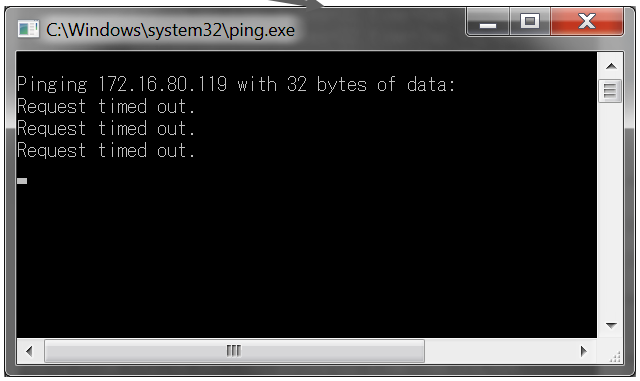
2. Type the command below
   ping 172.16.88.16 -t

3. Click [OK]

well connected



disconnected

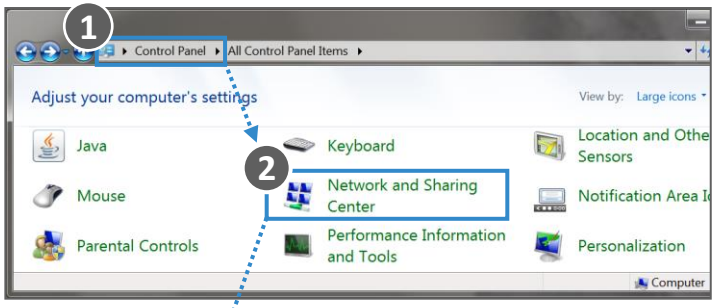


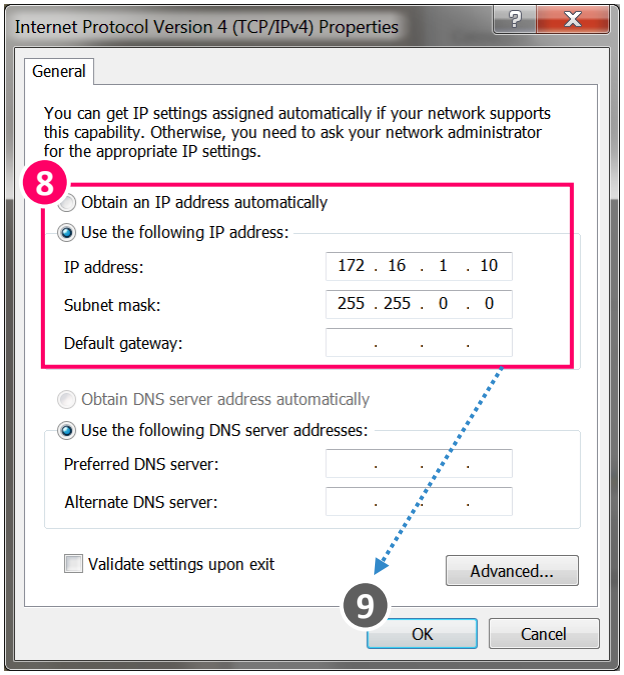
Procedure to Set IP Address on Windows 7

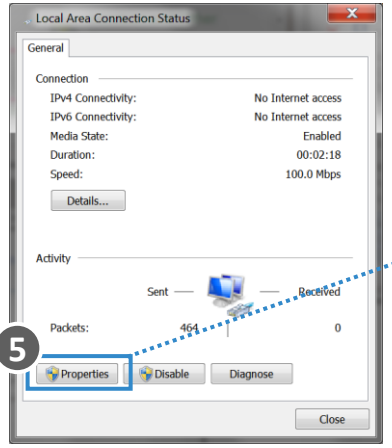
INOPTICALS

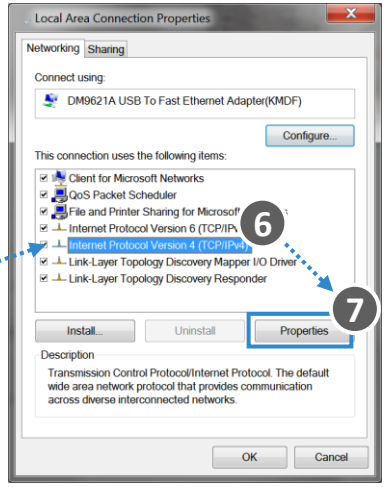
1. Open [Control Panel]
2. Enter [Network and Sharing Center]
3. Click [Change adapter settings]
4. Select Ethernet Device linked to Instrument already
5. Click [Properties]
6. Select [IPv4]
7. Click [Properties]
8. Setup IP address
9. Click [OK]

Select [Use the following IP address]
IP address = 172.16.1.10
Subnet mask = 255.255.0.0









Procedure to Set IP Address on Windows 10

INOPTICALS

1. Open [Control Panel]

The procedure is the same as Windows 7 on the previous slide

2. Enter [Network and Sharing Center]
3. Click [Change adapter settings]
4. Select Ethernet Device linked to Instrument already
5. Click [Properties]
6. Select [IPv4]
7. Click [Properties]
8. Setup IP address

Select [Use the following IP address]
IP address = 172.16.1.10
Subnet mask = 255.255.0.0

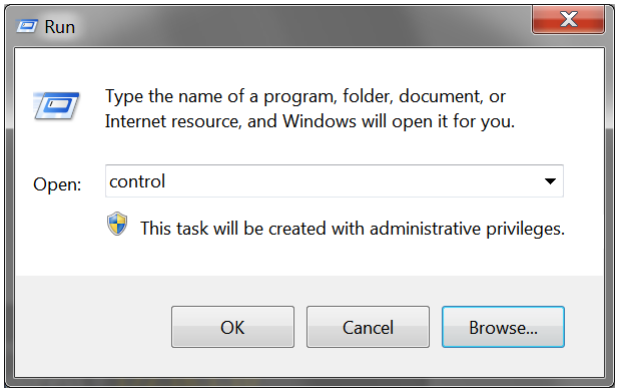
9. Click [OK]

How to Open Control Panel

INOPTICALS

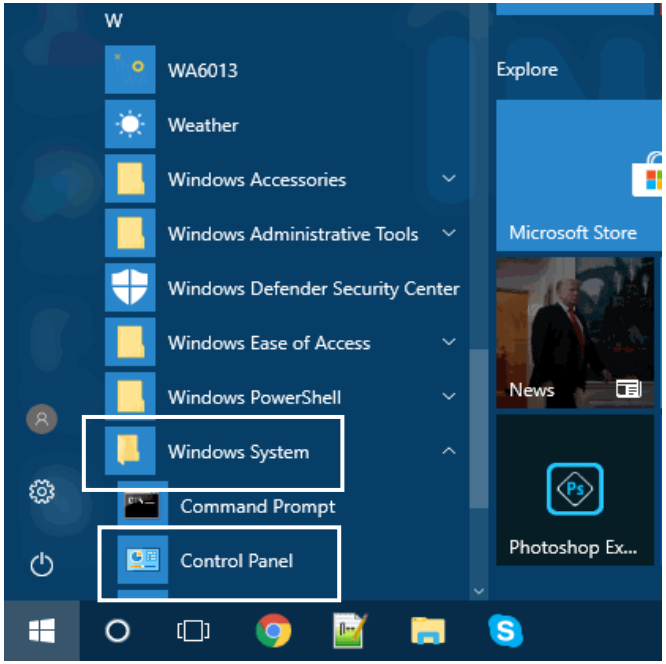
Windows 7
Windows 10

1. Press keyboard [Win] + [R] to open [Command Prompt]
2. Type the name below *control*
3. Click [OK]



Windows 10

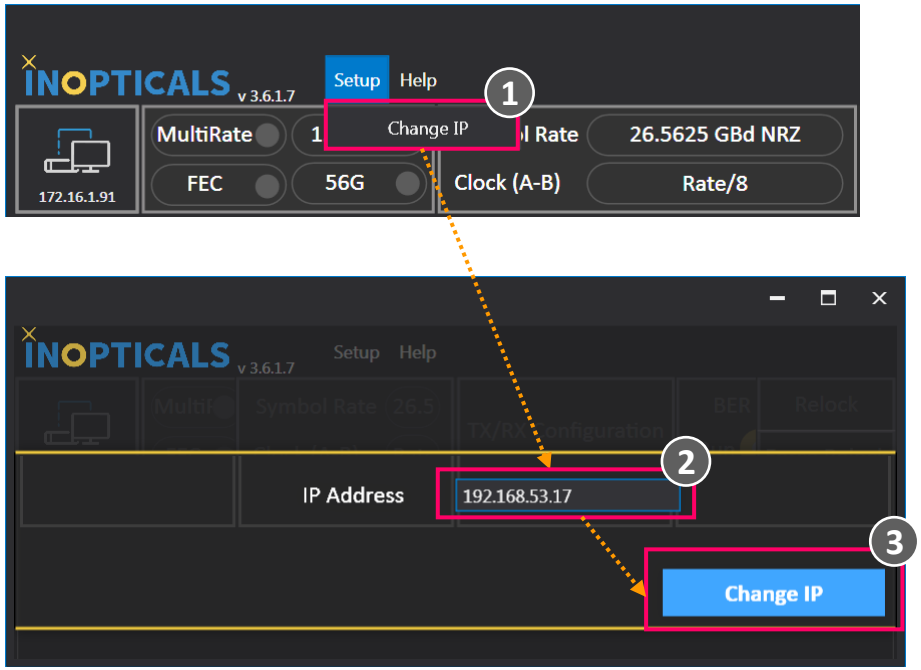
1. Expand [Start Menu]
2. Select [Windows System] folder
3. Select [Control Panel]



Change IP Address

The tool of changing instrument's IP address is already integrated in GUI.

0. Connect the instrument
1. Click [Change IP] @ Setup Menu
2. Input desired IP Address
3. Click [Change IP] button
4. Wait 10 seconds
5. Reboot the instrument (IP is already changed)



When users want to check IP is changed or not, can *ping* the instrument.
If getting reply, the IP is changed.
If NOT, IP is not changed successfully.

Appendix – Firmware Upgrade

Process of Auto Firmware Upgrade