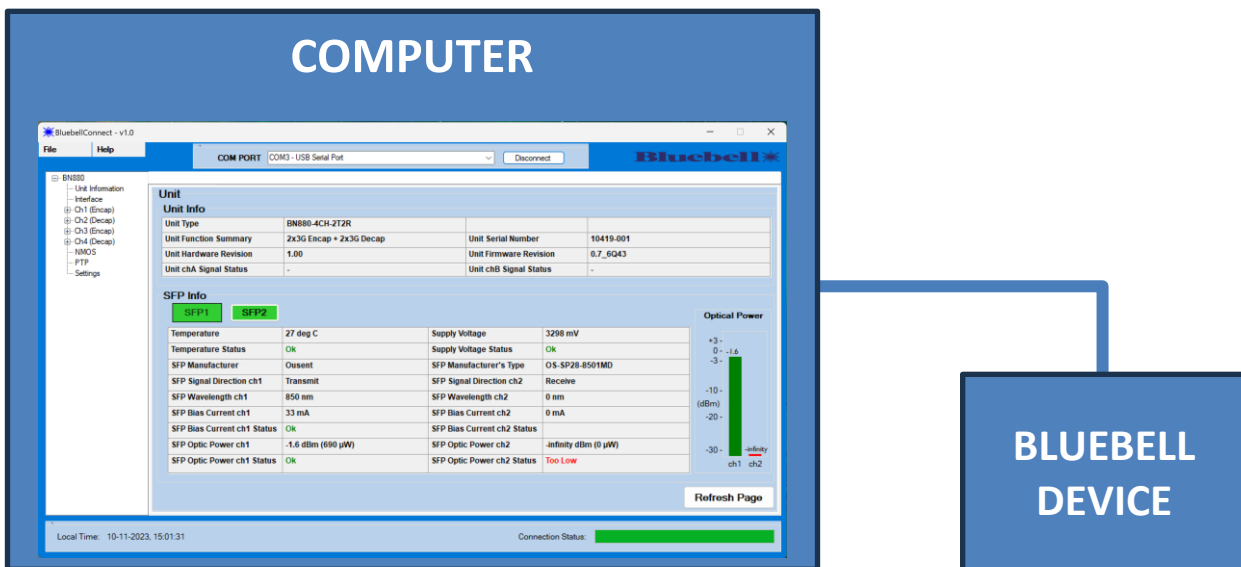


BluebellConnect



Thank you for your interest in Bluebell Opticom, a leading company in professional broadcast equipment. The BluebellConnect user interface is quick and simple to run on any Windows Platform. This User Guide should provide sufficient information to get you up and running in the vast majority of cases.

User Guide

Contents

BluebellConnect.....	1
User Guide	1
Contents	2
1. Overview:.....	3
2. BluebellConnect Walkthrough.....	3
2.1. Hardware connection:	3
2.2. Opening BluebellConnect	4
2.3. Connecting to a device	4
2.4. Unit Information Page	5
2.5. BN880 Example.....	6
2.5.1. Interface Page.....	6
2.5.2. ENCAP Settings	6
2.5.2.1. Video Page:	6
2.5.2.2. Audio Page:.....	7
2.5.2.3. Audio Mapping.....	7
2.5.2.4. Ancillary Page:.....	8
2.5.3. DECAP Settings	8
2.5.3.1. Video Page:	8
2.5.3.1.1. Colour Bar Generator	8
2.5.3.2. Audio Page:	9
2.5.3.3. Audio Mapping.....	10
2.5.3.4. Ancillary Page:.....	10
2.5.4. NMOS Page	11
2.5.5. PTP Page.....	11
2.5.6. Settings Page	12
3. Contact details:.....	12

1. Overview:

Many of Bluebell Opticom's products are plug-and-play where no configuration is needed, however some units can be configuration beforehand to work with the user's system.

The intended use of BluebellConnect is not to configure the device during live production, but to help set-up and pre-configure the device before connecting to a network.

BluebellConnect is a user interface that runs on Windows which is used to monitor/configure the Bluebell products. The software runs by opening an executable (.exe) file and there is no need for any installation on the user's PC.

With some of our products being versatile in their use, users can configure them through BluebellConnect rather than changing parts of their system, such as network settings, to configure our products.

2. BluebellConnect Walkthrough

In this walkthrough, we will connect to a BN880 unit which is one of our ST2110 Encapsulator/Decapsulator solutions.

To connect a unit to BluebellConnect, simply:

1. Power the Unit
2. Connect a USB from the type-C connector at the rear of the unit to a PC.
3. Open BluebellConnect.exe
4. Once the Bx880's LEDs have stopped toggling green/red, it is ready for a connection.
5. Select the correct COM port for your device, and click "Connect"

2.1. Hardware connection:

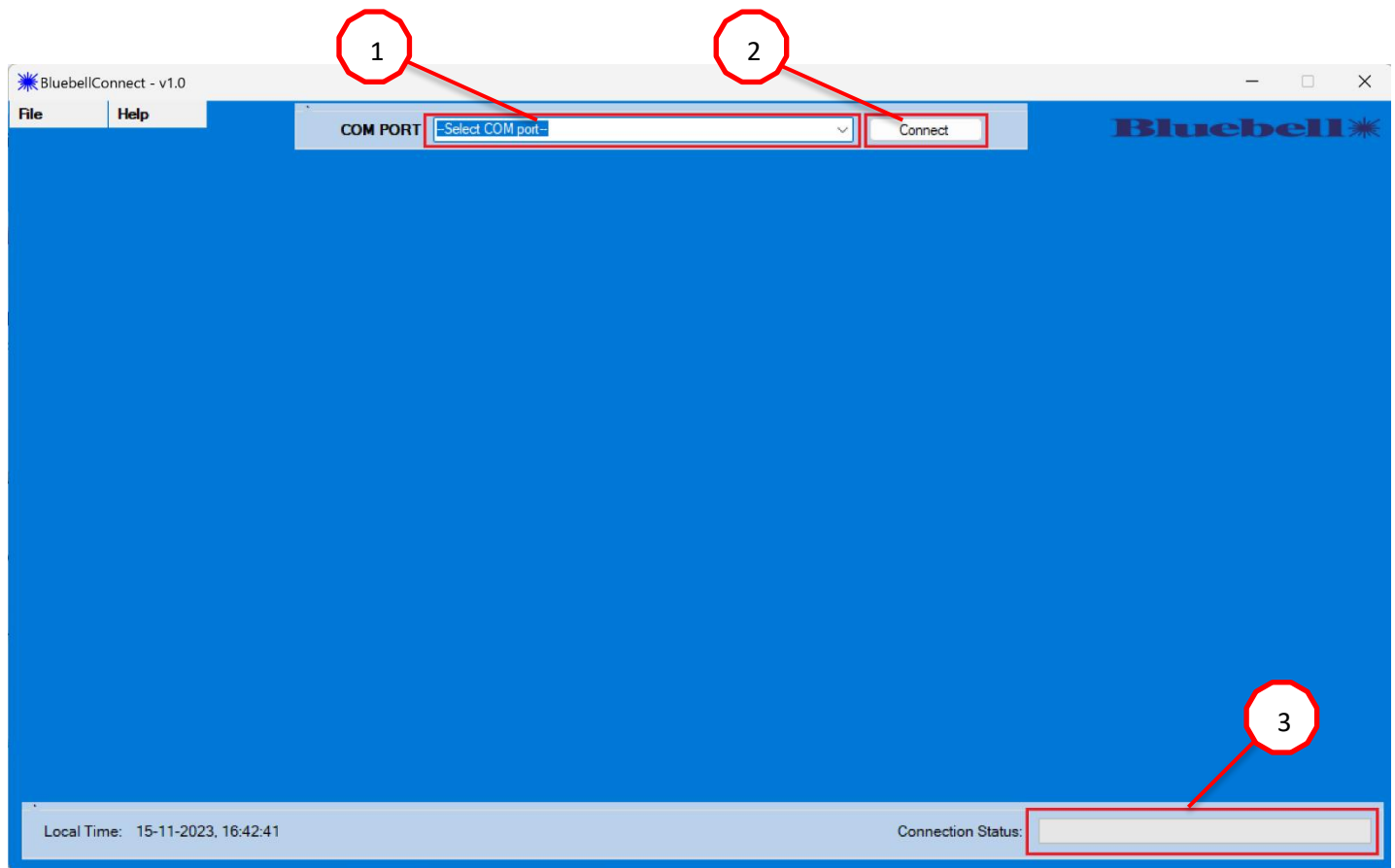
Power up the unit, connect the unit's USB port to the PC's COM port. The COM number does not need to be known, as BluebellConnect scans through all the active COM ports on the PC and will display them for selection.



The unit's LEDs may flash to indicate it is not ready for serial communication. Once the flashing has stopped and is stable, you can connect to the device on BluebellConnect.

2.2. Opening BluebellConnect

Run BluebellConnect.exe to open user interface.

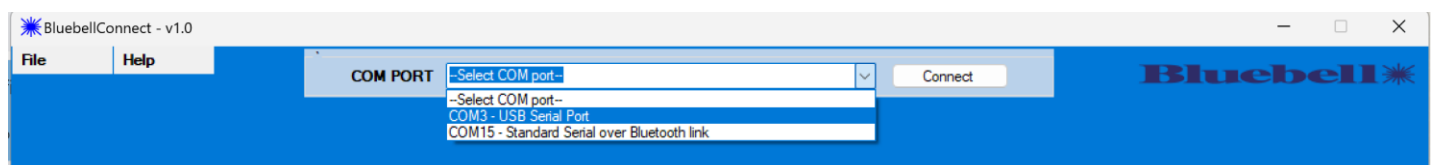


1. Detected COM Ports (auto refreshes at dropdown)
2. Connect/disconnect button
3. Connection status bar

2.3. Connecting to a device

Ensure the LED on the unit has stopped toggling green-red.

Click on the dropdown menu to view the COM ports currently occupied on the PC.



Select the device, in this case it is COM3 – USB Serial Port and click “Connect”.

2.4. Unit Information Page

Unit Information page is the first page to open once a valid connection is established.

BluebellConnect - v1.0

File Help

COM PORT: COM3 - USB Serial Port Disconnect

Bluebell

BN880

- Unit Information
- Interface
 - Ch1 (Encap)
 - Ch2 (Decap)
 - Ch3 (Encap)
 - Ch4 (Decap)
- NMOS
- PTP
- Settings

Unit

Unit Info

Unit Type	BN880-4CH-2T2R		
Unit Function Summary	2x3G Encap + 2x3G Decap	Unit Serial Number	98765-432
Unit Hardware Revision	1.00	Unit Firmware Revision	1.0_6Q43
Unit chA Signal Status	-	Unit chB Signal Status	-

SFP Info

SFP1 SFP2

Temperature	48 deg C	Supply Voltage	3300 mV
Temperature Status	Ok	Supply Voltage Status	Ok
SFP Manufacturer	Ousent	SFP Manufacturer's Type	OS-SP28-8501MD
SFP Signal Direction ch1	Transmit	SFP Signal Direction ch2	Receive
SFP Wavelength ch1	850 nm	SFP Wavelength ch2	0 nm
SFP Bias Current ch1	31 mA	SFP Bias Current ch2	0 mA
SFP Bias Current ch1 Status	Ok	SFP Bias Current ch2 Status	
SFP Optic Power ch1	-1.6 dBm (688 μW)	SFP Optic Power ch2	-infinity dBm (0 μW)
SFP Optic Power ch1 Status	Ok	SFP Optic Power ch2 Status	Too Low

Optical Power

+3 -
0 -
-3 -
-10 -
-20 -
-30 -
-infinity

ch1 ch2

Refresh Page

Local Time: 15-11-2023, 17:04:19

Connection Status: █

The first table (Unit Info) has the basic information of the device such as type, serial number, hardware, and firmware revisions.

The second table (SFP Info) shows the diagnostic parameters of the SFP. If a device has no SFP slot, this section will not show. If a device has SFP slots but no SFPs are present, the SFP# button will be red.

The optical power bar graph represents the optical light level emitted/detected by the SFP and is displayed in dBm.

Note: The parameters are static and only updated once the “Refresh Page” button (bottom right) or “Unit Information” node on the tree (left) is pressed.

2.5. BN880 Example

The following section is an example of one of our BN880 units. Other units may have different parameters to control. Please refer to the user guides for each unit for further information.

2.5.1. Interface Page

Interface (25G)

Host Name: **bx880-a1-b1-62**

Primary Interface

IP Address: **192.168.16.248** MAC Address: **40:A3:6B:A1:B1:62**
Subnet Mask: **255.0.0.0** DHCP: **Disable**
Gateway: **192.168.16.2** FEC Scheme: **None**
Link Status: **Link Down**

NOTE: For configuration to be valid, IP and Gateway must be in the same network
Changes will issue a reset and can take up to 20 seconds to re-connect **Save Changes**

Secondary Interface

IP Address: **172.16.16.2** MAC Address: **40:A3:6B:A1:B1:63**
Subnet Mask: **255.255.255.0** DHCP: **Enable**
Gateway: **172.16.16.1** FEC Scheme: **None**
Link Status: **Link Down**

NOTE: For configuration to be valid, IP and Gateway must be in the same network
Changes will issue a reset and can take up to 20 seconds to re-connect **Save Changes**

Unit Info

Temperature: +40 degC
Protocol: NMOS

Device Log:

Max Recorded Temp.: +41 degC
Unit Run Time: 0d 4h 34m **Reset**

Licenses:

UHD License
Frame Sync License
Clean Switch License
Blackburst License

Refresh Page

The interface page can be used to change the network settings on the BN880. This is helpful to configure the network settings before connecting the units to the network. The primary and secondary interfaces have separate “Save” buttons and causes the units to reset, it can take up to 15 seconds to reboot.

Note: The parameters are static and only updated once the “Refresh Page” button (bottom right) or “Interface” node on the tree (left) is pressed.

2.5.2. ENCAP Settings

2.5.2.1. Video Page:

Channel 1

Primary Interface Secondary Interface

Primary Video Flow

Flow Enabled: Tx Packet Count: 118784926
Flow Name: **F: 0- 0- 0**
Dest. MAC: **01:00:5E:00:01:02**
Source IP: **192.168.0.1** **10000**
Destination IP: **239.0.1.2** **20000**

SDI Status (Valid)

Bit Rate: 12G
Scan Mode: **Progressive** Bit Depth: **10 bits**
Video Format: **3840x2160** Colorimetry: **BT2020**
Frame Rate: **59.94** Dynamic Range: **SDR**
Sampling Format: **422 YCbCr** ICIcp: **Inactive**

Set Parameters **Refresh Page**

For encoding a video flow, the SDI video settings are automatically detected by the unit and displayed.

The SDI status parameters is only updated once a valid signal is detected. If an invalid signal is detected, the last valid SDI parameters will be displayed instead.

2.5.2.2. Audio Page:

Channel 1 - Audio 1

Primary Audio Flow

Flow Enabled:

Flow Name: F: 0- 1- 0

Dest. MAC: 01:00:5E:00:01:04

Source IP: 192.168.0.1 10000

Destination IP: 239.0.1.4 20000

Audio Settings

Sampling Rate: 48000

RTP Payload: 97

Format: Uncompressed

Packet Time: 1 ms

Secondary Audio Flow

Flow Enabled:

Flow Name: F: 0- 1- 1

Dest. MAC: 01:00:5E:00:01:05

Source IP: 192.168.0.1 10000

Destination IP: 239.0.1.5 20000

Audio Settings

Sampling Rate: 48000

RTP Payload: 97

Format: Uncompressed

Packet Time: 1 ms

Set Parameters Refresh Page

2.5.2.3. Audio Mapping

Channel 1

Audio Mapping (Encap)

Channel Selection

Audio Channel:

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16

Mapping

Audio IP Flow: 1 2 3 4

Nbr. of Audio Channels: 16

Select Channel:

ch1	ch2	ch3	ch4	ch5	ch6	ch7	ch8
ch9	ch10	ch11	ch12	ch13	ch14	ch15	ch16

Note: Green = Audio Channel is Active
Red = Audio Channel is Mute

Overview

Active/Unmute?

- ch1 --> 1
- ch2 --> 2
- ch3 --> 3
- ch4 --> 4
- ch5 --> 5
- ch6 --> 6
- ch7 --> 7
- ch8 --> 8
- ch9 --> 1
- ch10 --> 1
- ch11 --> 1
- ch12 --> 1
- ch13 --> 1
- ch14 --> 1
- ch15 --> 1
- ch16 --> 1

Steps to map audio channel:

1. Select The Audio IP Flow (1-4)
2. Select the number of audio channels to embed in flow (chN)
3. Select the channel in the flow (ch1-chN)
4. Select which SDI audio channel to embed in selected flow channel
5. Optional: mute/unmute channel
6. Confirm in Overview section

2.5.2.4. Ancillary Page:

By default, all flows are disabled. To enable a video/audio/ancillary flow, go to the correct page and tick the **Flow Enabled** button and Set Parameters.

2.5.3. DECAP Settings

2.5.3.1. Video Page:

For decoding a video flow, the settings must be manually set to match the encoded video's settings.

2.5.3.1.1. Colour Bar Generator

The decap channel has the capability to generate a colour bar at any of the following video formats:

- 4096x2160
- 3840x2160
- 1920x1080 (ST 274)

Any frame rate can be selected. Video flow must be enabled. The Loss of Input must either be put to either *Freeze*, *Black* or *Blue* and the *Colour Bar* must have *Enable* selected.

SDI Status (Invalid)

Bit Rate: 12G
 Scan Mode: Progressive
 Video Format: 3840x2160
 Frame Rate: 60
 Sampling Format: 422 YCbCr

Bit Depth: 10 bits
 Colorimetry: BT2020
 Dynamic Range: SDR
 ICIp: Inactive

Composite Disposition: Single Flow

SDI Output Features

Loss of Input: Freeze Black Blue Off
 Colour Bar: Disable Enable
 NOTE: Colour bar will not show if Loss of Input is set to "Off"

Set Parameters Refresh Page

Analyser - CRC Analysis Analysis time: 4m 30s
 Input fail count: 0

	Sub 1	Sub 2	Sub 3	Sub 4
C-CRC-Err	0	0	0	0
Y-CRC-Err	0	0	0	0
ANC-CS-Err	0	0	0	0
Rate (%)	0.000	0.000	0.000	0.000
OK Time	4m 30s	4m 30s	4m 30s	4m 30s
Active Picture Changes	0	0	0	0
Active Picture CRC	135E 021A	135E 021A	135E 021A	135E 021A

Analyser - Video Standard Using SMPTE ST 352

Input Payload Identifiers (SMPTE ST 352)

SDI A (12G)
 Sub Image 1: Y-pos: 3840x2160p60 YCbCr:422:10 12G 2-SI Link 1 Rec:2020
 Sub Image 2: C-pos: 3840x2160p60 YCbCr:422:10 12G 2-SI Link 1 Rec:2020
 Sub Image 3: Y-pos: 3840x2160p60 YCbCr:422:10 12G 2-SI Link 1 Rec:2020

SDI B (No Signal)
 SDI C (No Signal)
 SDI D (No Signal)

Standard: 3840x2160p60 YCbCr:422:10 12G 2-SI Rec:2020

2.5.3.2. Audio Page:

BN880

- Unit Information
- Interface
 - Ch1 (Encap)
 - Video
 - Audio 1
 - Audio 2
 - Audio 3
 - Audio 4
 - Ancillary
 - Ch2 (Decap)
 - Video
 - Audio 1
 - Audio 2
 - Audio 3
 - Audio 4
 - Ancillary
 - Ch3 (Encap)
 - NMOS
 - PTP
 - Settings
 - Ch4 (Decap)

Channel 2 - Audio 1

Primary Audio Flow

Flow Enabled:

Flow Name: F: 1- 1- 0
 Dest. MAC: 01:00:5E:01:01:04
 Source IP: 192.168.1.1 10000
 Destination IP: 239.1.1.4 20000

Audio Settings

Sampling Rate: 48000
 RTP Payload: 0
 Format: Uncompressed
 Packet Time: 1 ms

Packet Filtering

Source IP
 Source UDP Port
 Destination IP
 Destination UDP Port
 Destination MAC
 VLAN

Secondary Audio Flow

Flow Enabled:

Flow Name: F: 1- 1- 1
 Dest. MAC: 01:00:5E:01:01:05
 Source IP: 192.168.1.1 10000
 Destination IP: 239.1.1.5 20000

Audio Settings

Sampling Rate: 48000
 RTP Payload: 0
 Format: Uncompressed
 Packet Time: 1 ms

Packet Filtering

Source IP
 Source UDP Port
 Destination IP
 Destination UDP Port
 Destination MAC
 VLAN

Set Parameters Refresh Page

2.5.3.3. Audio Mapping

Channel 2
Audio Mapping (Decap)

Channel Selection
Audio IP Flow: 1 2 3 4
Nbr. of Audio Channels: 16

Mapping
Select SDI Audio Channel:
ch1 ch2 ch3 ch4 ch5 ch6 ch7 ch8
ch9 ch10 ch11 ch12 ch13 ch14 ch15 ch16
Note: Green = Audio Channel is Active
Red = Audio Channel is Mute

Overview
Active/
Unmute?
 ch1 --> flow 1 - 1
 ch2 --> flow 1 - 2
 ch3 --> flow 1 - 3
 ch4 --> flow 1 - 4
 ch5 --> flow 1 - 5
 ch6 --> flow 1 - 6
 ch7 --> flow 1 - 7
 ch8 --> flow 1 - 8
 ch9 --> Not assigned
 ch10 --> Not assigned
 ch11 --> Not assigned
 ch12 --> Not assigned
 ch13 --> Not assigned
 ch14 --> Not assigned
 ch15 --> Not assigned
 ch16 --> Not assigned

Steps to map audio channel:
1. Select The Audio IP Flow (1-4)
2. Select the number of audio channels to de-embed in flow (chN)
3. Select the SDI out audio channel to map (ch1-chN)
4. Select the audio channel (1-16) from IP flow to map to channel
5. Optional: mute/unmute channel
6. Confirm in Overview section

2.5.3.4. Ancillary Page:

Channel 2
Primary Ancillary Flow
Flow Enabled:
Flow Name: F: 1-5-0
Dest. MAC: 01:00:5E:01:01:14
Source IP: 192.168.1.1 10000
Destination IP: 239.1.1.20 20000

Packet Filtering
 Source IP
 Source UDP Port
 Destination IP
 Destination UDP Port
 Destination MAC
 VLAN

Secondary Ancillary Flow
Flow Enabled:
Flow Name: F: 1-5-1
Dest. MAC: 01:00:5E:01:01:15
Source IP: 192.168.1.1 10000
Destination IP: 239.1.1.21 20000

Packet Filtering
 Source IP
 Source UDP Port
 Destination IP
 Destination UDP Port
 Destination MAC
 VLAN

Set Parameters Refresh Page

By default, all flows are disabled. To enable a video/audio/ancillary flow, go to the correct page and tick the **Flow Enabled** button and Set Parameters.

2.5.4. NMOS Page

NMOS

Status: DISCOVERING

Registry Address:

Uptime:

Connection Count:

Registry Mode: Auto Manual

DNS Registry Service:

MDNS:

DNS Server Address:

Manual DNS Server Address:

NOTE: When changing the MDNS settings, the unit will reboot itself and it can take up to 15 seconds to show the correct parameters.

2.5.5. PTP Page

PTP

PTP Mode: Multicast Unicast

PTP Source: Auto Manual Source Selection: Source 1 Source 2

Source 1		Source 2	
Version:	<input type="text" value="0"/>	Version:	<input type="text" value="0"/>
Presence:	Not Present	Presence:	Not Present
Domain Number:	<input type="text" value="127"/>	Domain Number:	<input type="text" value="127"/>
Vlan ID:	<input type="text" value="0"/>	Vlan ID:	<input type="text" value="0"/>
DSCP:	<input type="text" value="46"/>	DSCP:	<input type="text" value="46"/>
Grand Master ID:	<input type="text" value="08-AF-61-FE-FF-91-05-9C"/>	Grand Master ID:	<input type="text" value="08-F9-9A-FE-FF-4B-6B-50"/>
Clock ID:	-	Clock ID:	-

2.5.6. Settings Page

Advanced Control

Reset the Device's Configuration:

Configuration Reset: **Device reboot**
 Flow configuration reset
 Application configuration reset

Device reboot: Reboots the unit.
Flow configuration reset: Resets all vid, aud, and flows to default
Application configuration reset: Resets all the application-specific settings

Note: The device will immediately apply the selected configuration and reboot. This can take up to 15 seconds reboot.

Execute

NOTE: When resetting any of the device configuration, it will initiate a device reboot can take up to 20 seconds for the unit to be fully functional again.

NOTE: For any technical issues not covered in this User Guide, please contact Bluebell Opticom.

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE

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