This document provides additional assistance with wiring your Extron IP Link Pro Control Processor to your device. Different components may require a different wiring scheme than those listed below.

For complete operating instructions, refer to the user's manual for the specific IP Link Pro Control Processor or the documentation supplied by the manufacturer of the controlled device.

For more information on using Global Scripter Modules, refer to the "Guide to Using Scripter Modules" document.

Device Specifications

Device Type: Video Projector
Manufacturer: NEC
Firmware Version: N/A
Model(s): NP-PA803UL, NP-PA653UL

Tested on the Following Software and Firmware Versions

IP Link Pro Control Processor Firmware	Global Scripter Version
3.06.0001-b002	2.3.1

Version History

Module Version	Date	Notes
1_1_1_0	4/30/2020	Added Lens Control command. Updated required polling rate from 10s to 60s based on customer feedback. Device Status • Removed Pump Error • Added Ballast Communication Error, Iris Calibration Error, Lens Not Properly Installed, and Multiple Errors Input Renamed PC → Computer
1_0_1_0	11/13/2018	Initial Version

Module Notes

- Unidirectional variable must be set to 'True' if status is not required. Default value is 'False'.
  `Example: InterfaceName.Unidirectional = 'True'`

- connectionCounter variable must be set to the number of queries that will be sent to the device before displaying 'Disconnected' if no response is received. Default value is 15.
  `Example: InterfaceName.connectionCounter = 5`

- To prevent the device from potentially locking up, send Update commands at least 10 seconds apart, as per manufacturer's requirements.

Supported Classes and Examples

SerialClass
`InterfaceName = ModuleName.SerialClass(ProcessorName, 'COM1', Model='NP-PA803UL')`
SerialOverEthernetClass
`InterfaceName = ModuleName.SerialOverEthernetClass('192.168.254.254', 2001, Model='NP-PA803UL')`
EthernetClass
`InterfaceName = ModuleName.EthernetClass('192.168.254.254', 7142, Model='NP-PA803UL')`

Update Loop Sample Code

This sample code accounts for the 10 second wait needed between Update commands as manufacturer specified.
One Update command will go out every ten seconds, cycling through the list of commands specified. To stop the loop at any time use .Cancel() and .Restart() to continued.

```
from extronlib.system import Clock, MESet, Timer, Wait
from itertools import cycle

UpdateList = ['Power','Input','Volume','VideoMute']
cycleUpdateList = cycle(UpdateList)

def cycleUpdateFunc():
    cmdName = next(cycleUpdateList)
    InterfaceName.Update(cmdName)
    TenSecTimer.Restart()

TenSecTimer = Wait(10, cycleUpdateFunc)
TenSecTimer.Cancel()

def Initialize():
    TenSecTimer.Restart()
```

Example to Stop the loop: TenSecTimer.Cancel()
Example to Restart the loop: TenSecTimer.Restart()

Control Commands

Format with Qualifier:

```
InterfaceName.Set(Command, Value, {'Qualifier Key': 'Qualifier Value'})
```

Format without Qualifier:

```
InterfaceName.Set(Command, Value)
```

Command **AspectRatio**	Value '4:3' 'Full' '16:10' [1] 'Auto'	Value 'Letterbox' [2] 'Zoom' [2] '15:9' [1] 'Normal'	Value '16:9' [3] '5:4' [1] 'Native' [1]
`# AspectRatio example` `InterfaceName.Set('AspectRatio', '4:3')`			
Command **AudioMute**	Value 'On'	Value 'Off'	
`# AudioMute example` `InterfaceName.Set('AudioMute', 'On')`			
Command **AutoImage**	Value None		
`# AutoImage example` `InterfaceName.Set('AutoImage', None)`			
Command **Freeze**	Value 'On'	Value 'Off'	
`# Freeze example` `InterfaceName.Set('Freeze', 'On')`			
Command **Input**	Value 'HDMI 1' 'Computer'	Value 'HDMI 2' 'HDBaseT'	Value 'DisplayPort'
`# Input example` `InterfaceName.Set('Input', 'HDMI 1')`			
Command **LampMode**	Value 'Normal' 'Long Life'	Value 'Eco 1'	Value 'Eco 2'
`# LampMode example` `InterfaceName.Set('LampMode', 'Normal')`			
Command **LensControl**	Value 'Plus'	Value 'Minus'	Value 'Stop'
Qualifier Key **'Type'**	Qualifier Value 'Zoom' 'Lens Shift (V)'	Qualifier Value 'Focus'	Qualifier Value 'Lens Shift (H)'
`# LensControl example` `InterfaceName.Set('LensControl', 'Plus', {'Type': 'Zoom'})`			
Command **LensProfile**	Value '1' – '2'		
`# LensProfile example` `InterfaceName.Set('LensProfile', '1')`			
Command **LensProfileControl** [4]	Value 'Move'	Value 'Store'	Value 'Reset'
`# LensProfileControl example` `InterfaceName.Set('LensProfileControl', 'Move')`			
Command	Value	Value	Value

MenuNavigation	'Up' 'Right' 'Menu'	'Down' 'Enter'	'Left' 'Exit'
`# MenuNavigation example` `InterfaceName.Set('MenuNavigation', 'Up')`			
Command **OnScreenDisplay**	Value 'On'	Value 'Off'	
`# OnScreenDisplay example` `InterfaceName.Set('OnScreenDisplay', 'On')`			
Command **Power**	Value 'On'	Value 'Off'	
`# Power example` `InterfaceName.Set('Power', 'On')`			
Command **Shutter** [5]	Value 'Open'	Value 'Close'	
`# Shutter example` `InterfaceName.Set('Shutter', 'Open')`			
Command **VideoMute**	Value 'On'	Value 'Off'	
`# VideoMute example` `InterfaceName.Set('VideoMute', 'On')`			
Command **Volume**	Value 0 to 31 in steps of 1		
`# Volume example` `InterfaceName.Set('Volume', 31)`			

[1] Not supported for HDTV/SDTV signals

[2] Not supported for Computer signals

[3] Corresponds to Wide Screen for HDTV/SDTV signals

[4] Lens Profile must be set before sending this command.

[5] Only available on NP-PA803UL.

Status Available

For all commands, call Update to receive the latest status. ConnectionStatus does not support the Update function. ConnectionStatus is triggered by the device providing a successful response to other Update function calls.

Format with Qualifier:

```
InterfaceName.Update(Command, {'Qualifier Key': 'Qualifier Value'})
Value = InterfaceName.ReadStatus(Command, {'Qualifier Key': 'Qualifier Value'})
InterfaceName.SubscribeStatus(Command, {'Qualifier Key': 'Qualifier Value'},
FeedbackHandler)
FeedbackHandler will be called only when the specified qualifier gets a new status.
```

Format without Qualifier:

```
InterfaceName.Update(Command)
Value = InterfaceName.ReadStatus(Command)
InterfaceName.SubscribeStatus(Command, None, FeedbackHandler)
FeedbackHandler will be called when any qualifier gets a new status.
```

Command	Value	Value	Value
AudioMute [1]	'On'	'Off'	

`# AudioMute example`
`InterfaceName.Update('AudioMute')`
`Value = InterfaceName.ReadStatus('AudioMute')`
`InterfaceName.SubscribeStatus('AudioMute', None, FeedbackHandler)`			

Command	Value	Value	
ConnectionStatus	'Connected'	'Disconnected'	

`# ConnectionStatus example`
`Value = InterfaceName.ReadStatus('ConnectionStatus')`
`InterfaceName.SubscribeStatus('ConnectionStatus', None, FeedbackHandler)`			

Command	Value	Value	Value
DeviceStatus	'Normal' 'Fan Failure' 'Lamp Life Expired' 'FPGA Error' 'Lamp Data Error' 'Sensor Error' 'Lens Not Properly Installed'	'Lamp Cover Error' 'Power Error' 'Lamp Beyond Limit' 'Temp Sensor Failure' 'Mirror Cover Error' 'Ballast Communication Error' 'Multiple Errors'	'Temperature Error' 'Lamp Error' 'Format Error' 'Lamp Housing Error' 'High Temperature' 'Iris Calibration Error'

`# DeviceStatus example`
`InterfaceName.Update('DeviceStatus')`
`Value = InterfaceName.ReadStatus('DeviceStatus')`
`InterfaceName.SubscribeStatus('DeviceStatus', None, FeedbackHandler)`			

Command	Value		
FilterUsage	Hours		

`# FilterUsage example`
`InterfaceName.Update('FilterUsage')`
`Value = InterfaceName.ReadStatus('FilterUsage')`
`InterfaceName.SubscribeStatus('FilterUsage', None, FeedbackHandler)`			

Command	Value	Value	
Freeze [1]	'On'	'Off'	

`# Freeze example`
`InterfaceName.Update('Freeze')`
`Value = InterfaceName.ReadStatus('Freeze')`
`InterfaceName.SubscribeStatus('Freeze', None, FeedbackHandler)`			

Command	Value	Value	Value
Input [1]	'HDMI 1' 'Computer'	'HDMI 2' 'HDBaseT'	'DisplayPort'

```
# Input example
InterfaceName.Update('Input')
Value = InterfaceName.ReadStatus('Input')
InterfaceName.SubscribeStatus('Input', None, FeedbackHandler)
```

Command	Value	Value	Value
LampMode	'Normal' 'Long Life'	'Eco 1'	'Eco 2'

```
# LampMode example
InterfaceName.Update('LampMode')
Value = InterfaceName.ReadStatus('LampMode')
InterfaceName.SubscribeStatus('LampMode', None, FeedbackHandler)
```

Command	Value
LampUsage	Hours

```
# LampUsage example
InterfaceName.Update('LampUsage')
Value = InterfaceName.ReadStatus('LampUsage')
InterfaceName.SubscribeStatus('LampUsage', None, FeedbackHandler)
```

Command	Value
LensProfile	'1' – '2'

```
# LensProfile example
InterfaceName.Update('LensProfile')
Value = InterfaceName.ReadStatus('LensProfile')
InterfaceName.SubscribeStatus('LensProfile', None, FeedbackHandler)
```

Command	Value	Value
OnScreenDisplay [1]	'On'	'Off'

```
# OnScreenDisplay example
InterfaceName.Update('OnScreenDisplay')
Value = InterfaceName.ReadStatus('OnScreenDisplay')
InterfaceName.SubscribeStatus('OnScreenDisplay', None, FeedbackHandler)
```

Command	Value	Value	Value
Power [1]	'On' 'Cooling Down'	'Off'	'Warming Up'

```
# Power example
InterfaceName.Update('Power')
Value = InterfaceName.ReadStatus('Power')
InterfaceName.SubscribeStatus('Power', None, FeedbackHandler)
```

Command	Value	Value
VideoMute [1]	'On'	'Off'

```
# VideoMute example
InterfaceName.Update('VideoMute')
Value = InterfaceName.ReadStatus('VideoMute')
InterfaceName.SubscribeStatus('VideoMute', None, FeedbackHandler)
```

Command	Value
Volume	0 to 31 in steps of 1

```
# Volume example
InterfaceName.Update('Volume')
Value = InterfaceName.ReadStatus('Volume')
InterfaceName.SubscribeStatus('Volume', None, FeedbackHandler)
```

[1] These commands share the same Update command string. One Udpate will return status for all of them.

Cable and Adapter Requirements

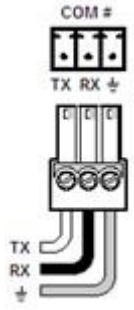
Captive Screw to Female DB9 RS-232 Serial Cable

Notes for the Device

Serial communication

Port Type:	RS-232	**Parity:**	None
Baud Rate:	38400	**Stop Bits:**	One
Data Bits:	8	**Flow Control:**	None

Pin Assignments Diagram



Signal	Main Cable	Pin	Signal
TxD	→	2	RxD
RxD	←	3	TxD
GND	—	5	GND

Network communication

When configuring the Ethernet module, be sure device settings match those of the Global Scripter ethernet interface.

Port Type:	Ethernet
Default Port:	7142
Logon Credentials Supported:	No
Multi-Connection Capabilities:	Undetermined
Port Changeability:	No

Ethernet Module Configuration Description

Please refer to user manual for settings and changes to the network communication

Notes for the Device

Appendix A. Set Commands

Aspect Ratio 15:9	\x03\x10\x00\x00\x05\x18\x00\x00\x0D\x00=
Aspect Ratio 16:10	\x03\x10\x00\x00\x05\x18\x00\x00\x0C\x00<
Aspect Ratio 16:9	\x03\x10\x00\x00\x05\x18\x00\x00\x02\x002
Aspect Ratio 4:3	\x03\x10\x00\x00\x05\x18\x00\x00\x00\x000
Aspect Ratio 5:4	\x03\x10\x00\x00\x05\x18\x00\x00\x0B\x00;
Aspect Ratio Auto	\x03\x10\x00\x00\x05\x18\x00\x00\x0F\x00?
Aspect Ratio Full	\x03\x10\x00\x00\x05\x18\x00\x00\x06\x006
Aspect Ratio Letterbox	\x03\x10\x00\x00\x05\x18\x00\x00\x01\x001
Aspect Ratio Native	\x03\x10\x00\x00\x05\x18\x00\x00\x0E\x00>
Aspect Ratio Normal	\x03\x10\x00\x00\x05\x18\x00\x00\x10\x00@
Aspect Ratio Zoom	\x03\x10\x00\x00\x05\x18\x00\x00\x07\x007
Audio Mute Off	\x02\x13\x00\x00\x00\x15
Audio Mute On	\x02\x12\x00\x00\x00\x14
Auto Image None	\x02\x0F\x00\x00\x02\x05\x00\x18
Freeze Off	\x01\x98\x00\x00\x01\x02\x9C
Freeze On	\x01\x98\x00\x00\x01\x01\x9B
Input Computer	\x02\x03\x00\x00\x02\x01\x01\x09
Input DisplayPort	\x02\x03\x00\x00\x02\x01\xA6\xAE
Input HDBaseT	\x02\x03\x00\x00\x02\x01\xBF\xC7
Input HDMI 1	\x02\x03\x00\x00\x02\x01\xA1\xA9
Input HDMI 2	\x02\x03\x00\x00\x02\x01\xA2\xAA
Lamp Mode Eco 1	\x03\xB1\x00\x00\x02\x07\x02\xBF
Lamp Mode Eco 2	\x03\xB1\x00\x00\x02\x07\x03\xC0
Lamp Mode Long Life	\x03\xB1\x00\x00\x02\x07\x04\xC1
Lamp Mode Normal	\x03\xB1\x00\x00\x02\x07\x00\xBD
Lens Control Minus Type Focus	\x02\x18\x00\x00\x02\x01\x81\x9E
Lens Control Minus Type Lens Shift (H)	\x02\x18\x00\x00\x02\x02\x81\x9F
Lens Control Minus Type Lens Shift (V)	\x02\x18\x00\x00\x02\x03\x81\xA0
Lens Control Minus Type Zoom	\x02\x18\x00\x00\x02\x00\x81\x9D
Lens Control Plus Type Focus	\x02\x18\x00\x00\x02\x01\x7F\x9C
Lens Control Plus Type Lens Shift (H)	\x02\x18\x00\x00\x02\x02\x7F\x9D
Lens Control Plus Type Lens Shift (V)	\x02\x18\x00\x00\x02\x03\x7F\x9E
Lens Control Plus Type Zoom	\x02\x18\x00\x00\x02\x00\x7F\x9B
Lens Control Stop Type Focus	\x02\x18\x00\x00\x02\x01\x00\x1D
Lens Control Stop Type Lens Shift (H)	\x02\x18\x00\x00\x02\x02\x00\x1E
Lens Control Stop Type Lens Shift (V)	\x02\x18\x00\x00\x02\x03\x00\x1F
Lens Control Stop Type Zoom	\x02\x18\x00\x00\x02\x00\x00\x1C
Lens Profile 1	\x02'\x00\x00\x01\x00*
Lens Profile 2	\x02'\x00\x00\x01\x01+
Lens Profile Control Move	\x02\x1F\x00\x00\x01\x00"
Lens Profile Control Reset	\x02\x1F\x00\x00\x01\x02$
Lens Profile Control Store	\x02\x1F\x00\x00\x01\x01#

Menu Navigation Down	\x02\x0F\x00\x00\x02\x08\x00\x1B
Menu Navigation Enter	\x02\x0F\x00\x00\x02\x0B\x00\x1E
Menu Navigation Exit	\x02\x0F\x00\x00\x02\x0C\x00\x1F
Menu Navigation Left	\x02\x0F\x00\x00\x02\x0A\x00\x1D
Menu Navigation Menu	\x02\x0F\x00\x00\x02\x06\x00\x19
Menu Navigation Right	\x02\x0F\x00\x00\x02\x09\x00\x1C
Menu Navigation Up	\x02\x0F\x00\x00\x02\x07\x00\x1A
On Screen Display Off	\x02\x14\x00\x00\x00\x16
On Screen Display On	\x02\x15\x00\x00\x00\x17
Power Off	\x02\x01\x00\x00\x00\x03
Power On	\x02\x00\x00\x00\x00\x02
Shutter Close	\x02\x16\x00\x00\x00\x18
Shutter Open	\x02\x17\x00\x00\x00\x19
Video Mute Off	\x02\x11\x00\x00\x00\x13
Video Mute On	\x02\x10\x00\x00\x00\x12
Volume 0	\x03\x10\x00\x00\x05\x05\x00\x00\x00\x00\x1D
Volume 31	\x03\x10\x00\x00\x05\x05\x00\x00\x1F\x00<

Appendix B. Update Commands

Power	\x00\xBF\x00\x00\x01\x02\xC2