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-PA653U, NP-PA803U, NP-PA853W, NP-PA903X, NP-PA703W, NP-PA723U

Tested on the Following Software and Firmware Versions

IP Link Pro Control Processor Firmware	Global Scripter Version
2.08.0002-b001	1.4.2

Version History

Module Version	Date	Notes
1_0_5_0	8/22/2018	Added Reference Lens Memory Control command. Updated Script command delimiters.
1_0_4_0	7/5/2018	Added Lens Profile command/status
1_0_3_0	7/17/2017	Added notes to comm sheet regarding polling for device status.
1_0_2_0	3/22/2017	Added NP-PA703W and NP-PA723U models. Added Full, Native, Auto, and Normal states to Aspect Ratio command and Warming Up to Power command. Fixed Lamp Mode and On Screen Display commands. Changed Multi-Connection to Yes. Renamed module file.

1_0_1_0	2/9/2017	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`

- Device cannot receive more than one Update command within 10 seconds. Device Updates must be sent out at least 10 seconds apart from each other.

Supported Classes and Examples

SerialClass
`InterfaceName = ModuleName.SerialClass(ProcessorName, 'COM1', Model='NP-PA653U')`
SerialOverEthernetClass
`InterfaceName = ModuleName.SerialOverEthernetClass('192.168.254.254', 2001, Model='NP-PA653U')`
EthernetClass
`InterfaceName = ModuleName.EthernetClass('192.168.254.254', 7142, Model='NP-PA653U')`

Control Commands

Format with Qualifier:

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

Format without Qualifier:

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

Command	Value	Value	Value
AspectRatio	'4:3'	'Letterbox' [2]	'16:9' [2, 3]
	'Full'	'Zoom' [2]	'5:4' [1]
	'16:10'	'15:9' [1]	'Native' [1]
	'Auto'	'Normal'	

```
# AspectRatio example
InterfaceName.Set('AspectRatio', '4:3')
```

Command	Value	Value
AudioMute	'On'	'Off'

```
# AudioMute example
InterfaceName.Set('AudioMute', 'On')
```

Command	
AutoImage	

```
# AutoImage example
InterfaceName.Set('AutoImage', 'On')
```

Command	Value	Value
Freeze	'On'	'Off'

```
# Freeze example
InterfaceName.Set('Freeze', 'On')
```

Command	Value	Value	Value
Input	'HDMI 1'	'HDMI 2'	'DisplayPort'
	'PC'	'HDBaseT'	

```
# Input example
InterfaceName.Set('Input', 'HDMI 1')
```

Command	Value	Value
LampMode	'Normal'	'Eco'

```
# LampMode example
InterfaceName.Set('LampMode', 'Normal')
```

Command	Value
LensProfile	'1' – '2'

```
# LensProfile example
InterfaceName.Set('LensProfile', '1')
```

Command	Value	Value	Value
MenuNavigation	'Up'	'Down'	'Left'

	'Right' 'Menu'	'Enter'	'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 **ReferenceLensMemoryControl**	Value 'Move'	Value 'Store'	Value 'Reset'
`# ReferenceLensMemoryControl example` `InterfaceName.Set('ReferenceLensMemoryControl', 'Move')`			
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

Status Available

For all commands, call Update to receive the latest status. ConnectionStatus, and VideoMute do not support the Update function and 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	'On'	'Off'	

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

Command	Value	Value
ConnectionStatus	'Connected'	'Disconnected'

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

Command	Value	Value	Value
DeviceStatus	'Normal'	'Lamp Cover Error'	'Temperature Error'
	'Fan Failure'	'Power Error'	'Lamp Error'
	'Lamp Life Expired'	'Lamp Beyond Limit'	'Format Error'
	'FPGA Error'	'Temp Sensor Failure'	'Lamp Housing Error'
	'Lamp Data Error'	'Mirror Cover Error'	'High Temperature'
	'Sensor Error'	'Pump Error'	

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

Command	Value
FilterUsage	0 –

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

Command	Value	Value	
Freeze	'On'	'Off'	

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

Command	Value	Value	Value
Input	'HDMI 1'	'HDMI 2'	'DisplayPort'
	'PC'	'HDBaseT'	

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

Command	Value	Value	
LampMode	'Normal'	'Eco'	

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

Command	Value		
LampUsage	0 –		

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

Command	Value		
LensProfile	'1' – '2'		

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

Command	Value	Value	
OnScreenDisplay	'On'	'Off'	

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

Command	Value	Value	Value
Power	'On'	'Off'	'Warming Up'
	'Cooling Down'		

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

Command	Value	Value	
VideoMute	'On'	'Off'	

```
# VideoMute examples
Value = InterfaceName.ReadStatus('VideoMute')
```

```
InterfaceName.SubscribeStatus('VideoMute', None, FeedbackHandler)
```

Command	Value
Volume	0 to 31 in steps of 1

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

Cable and Adapter Requirements

Captive Screw to Female DB9 RS-232 Serial Cable

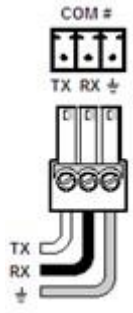
Notes for the Device

According to the manufacturer, pins 7 and 8 (CTS and RTS respectively) may need to be tied together to ensure proper operation.

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:	Undetermined

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 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
Input PC	\x02\x03\x00\x00\x02\x01\x01\x09
Lamp Mode Eco	\x03\xB1\x00\x00\x02\x07\x01\xBE
Lamp Mode Normal	\x03\xB1\x00\x00\x02\x07\x00\xBD
Lens Profile 1	\x02'\x00\x00\x01\x00*
Lens Profile 2	\x02'\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
ReferenceLensMemoryControl Move	\x02\x1F\x00\x00\x01\x01\x23
ReferenceLensMemoryControl Store	\x02\x1F\x00\x00\x01\x00\x22

ReferenceLensMemoryControl Reset	\x02\x1F\x00\x00\x01\x02\x24
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

Freeze	\x00\xBF\x00\x00\x01\x02\xC2
Input	\x00\xBF\x00\x00\x01\x02\xC2
Lamp Mode	\x03\xB0\x00\x00\x01\x07\xBB
Lamp Usage	\x03\x96\x00\x00\x02\x00\x01\x9C
Lens Profile	\x02\x28\x00\x00\x00\x2A
On Screen Display	\x00\xBF\x00\x00\x01\x02\xC2
Power	\x00\xBF\x00\x00\x01\x02\xC2
Video Mute	\x00\xBF\x00\x00\x01\x02\xC2