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: Display
Manufacturer: LG Electronics
Firmware Version: N/A
Model(s):   86UR640S9UD, 75UR640S9UD, 65UR640S9UD, 50UR640S9UD, 43UR640S9UD, 55UR640S9UD

Tested on the Following Software and Firmware Versions

IP Link Pro Control Processor Firmware	Global Scripter Version
3.15.0000-b004	2.14.0

Version History

Module Version	Date	Notes
1_0_0_0	5/9/2022	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
  ```

- DeviceID variable must be set accordingly. Default value is '1'. DeviceID ranges from '1' to '99', and 'Broadcast'. For serial, if DeviceID is set to 'Broadcast', status is unavailable.
  ```
  Example: InterfaceName.DeviceID = '1'
  ```

- Status and Power On command for Ethernet control are not supported because the Power command does not work when the display is off. In order to power on the display, please use the display's remote control. Users can also try the WakeonLAN function, **BUT THE WAKE ON LAN FUNCTION IS NOT GUARANTEED TO POWER ON THE DEVICE IF IT GETS POWERED OFF.**

- To enable Wake on LAN, please set Menu → General → Power → Wake on LAN → On.

Supported Classes and Examples

SerialClass
`InterfaceName = ModuleName.SerialClass(ProcessorName, 'COM1', Model='86UR640S9UD')`
SerialOverEthernetClass
`InterfaceName = ModuleName.SerialOverEthernetClass('192.168.254.254', 2001, Model='86UR640S9UD')`
EthernetClass
`InterfaceName = ModuleName.EthernetClass('192.168.254.254', 9761, Model='86UR640S9UD')`

Control Commands (Serial)

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'	'16:9'	'Original'
	'Just Scan'		

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

AudioMute	'On'	'Off'	

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

Channel	'Up'	'Down'	

# Channel example 	
InterfaceName.Set('Channel', 'Up')			

ClosedCaption	None		

# ClosedCaption example 	
InterfaceName.Set('ClosedCaption', None)			

ExecutiveMode	'On'	'Off'	

# ExecutiveMode example 	
InterfaceName.Set('ExecutiveMode', 'On')			

Input	'HDMI 1'	'HDMI 2'	'HDMI 3'
	'DTV'	'ATV'	'CADTV'
	'CATV'		

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

Keypad	'0' – '9'	'-'	

# Keypad example 	
InterfaceName.Set('Keypad', '0')			

MenuNavigation	'Up'	'Down'	'Left'
	'Right'	'Menu'	'OK'
	'Exit'	'Back'	

# MenuNavigation example 	
InterfaceName.Set('MenuNavigation', 'Up')			

OnScreenDisplay	'On'	'Off'	

# OnScreenDisplay example 	
InterfaceName.Set('OnScreenDisplay', 'On')			

Power	'On'	'Off'	

# Power example 	
InterfaceName.Set('Power', 'On')			

Command	Value	Value	Value

VideoMute [1]	'On'	'Off'	'On (With OSD)'

# VideoMute example 	
InterfaceName.Set('VideoMute', 'On')			

Command **Volume**	Value 0 to 100 in steps of 1		

# Volume example 	
InterfaceName.Set('Volume', 100)			

[1] On hides both the On Screen Display and video, whereas On (With OSD) only hides the video.

Status Available (Serial)

For all commands, call Update to receive the latest status. ConnectionStatus does 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
AspectRatio	'4:3'	'16:9'	'Original'
	'Just Scan'		

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

AudioMute	'On'	'Off'	

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

ConnectionStatus	'Connected'	'Disconnected'	

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

ExecutiveMode	'On'	'Off'	

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

Input	'HDMI 1'	'HDMI 2'	'HDMI 3'
	'DTV'	'ATV'	'CADTV'
	'CATV'		

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

OnScreenDisplay	'On'	'Off'	

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

Command	Value	Value	

**Global Scripter Module
Communication Sheet**

Power	'On'	'Off'	

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

Command **VideoMute** [1]	Value 'On'	Value 'Off'	Value 'On (With OSD)'

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

Command **Volume**	Value 0 to 100 in steps of 1		

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

[1] On hides both the On Screen Display and video, whereas On (With OSD) only hides the video.

Control Commands (Ethernet)

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'	'16:9'	'Original'
	'Just Scan'		

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

AudioMute	'On'	'Off'	

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

Channel	'Up'	'Down'	

# Channel example 	
InterfaceName.Set('Channel', 'Up')			

ClosedCaption	None		

# ClosedCaption example 	
InterfaceName.Set('ClosedCaption', None)			

ExecutiveMode	'On'	'Off'	

# ExecutiveMode example 	
InterfaceName.Set('ExecutiveMode', 'On')			

Input	'HDMI 1'	'HDMI 2'	'HDMI 3'
	'DTV'	'ATV'	'CADTV'
	'CATV'		

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

Keypad	'0' – '9'	'-'	

# Keypad example 	
InterfaceName.Set('Keypad', '0')			

MenuNavigation	'Up'	'Down'	'Left'
	'Right'	'Menu'	'OK'
	'Exit'	'Back'	

# MenuNavigation example 	
InterfaceName.Set('MenuNavigation', 'Up')			

OnScreenDisplay	'On'	'Off'	

# OnScreenDisplay example 	
InterfaceName.Set('OnScreenDisplay', 'On')			

PowerOff	None		

# PowerOff example 	
InterfaceName.Set('PowerOff', None)			

Command	Value	Value	Value

VideoMute [1]	'On'	'Off'	'On (With OSD)'

# VideoMute example 	
InterfaceName.Set('VideoMute', 'On')			

Command **Volume**	Value 0 to 100 in steps of 1		

# Volume example 	
InterfaceName.Set('Volume', 100)			

[1] On hides both the On Screen Display and video, whereas On (With OSD) only hides the video.

Cable and Adapter Requirements

Captive Screw to 3.5mm TRS Connector

Notes for the Device

Serial communication

Port Type:	RS-232		**Parity:**	None
Baud Rate:	9600		**Stop Bits:**	One
Data Bits:	8		**Flow Control:**	None

Pin Assignments Diagram
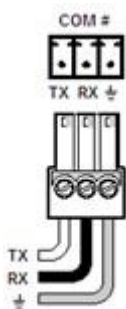
Signal	Main Cable	Pin	Signal
RXD	←	R	TXD
TXD	→	T	RXD
GND	——	S	GND

RS232 Tip, Ring
and Sleeve
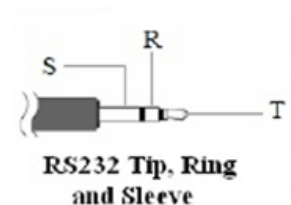
Network communication

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

Port Type:	Ethernet (TCP)
Default Port:	9761
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

**Global Scripter Module
Communication Sheet**

Appendix A. Set Commands(Serial)

Aspect Ratio 16:9	`kc 01 02\x0D`
Aspect Ratio 4:3	`kc 01 01\x0D`
Aspect Ratio Just Scan	`kc 01 09\x0D`
Aspect Ratio Original	`kc 01 06\x0D`
Audio Mute Off	`ke 01 01\x0D`
Audio Mute On	`ke 01 00\x0D`
Channel Down	`mc 01 01\x0D`
Channel Up	`mc 01 00\x0D`
Closed Caption None	`mc 01 39\x0D`
Executive Mode Off	`km 01 00\x0D`
Executive Mode On	`km 01 01\x0D`
Input ATV	`xb 01 10\x0D`
Input CADTV	`xb 01 01\x0D`
Input CATV	`xb 01 11\x0D`
Input DTV	`xb 01 00\x0D`
Input HDMI 1	`xb 01 90\x0D`
Input HDMI 2	`xb 01 91\x0D`
Input HDMI 3	`xb 01 92\x0D`
Keypad -	`mc 01 4C\x0D`
Keypad 0	`mc 01 10\x0D`
Keypad 9	`mc 01 19\x0D`
Menu Navigation Back	`mc 01 28\x0D`
Menu Navigation Down	`mc 01 41\x0D`
Menu Navigation Exit	`mc 01 5B\x0D`
Menu Navigation Left	`mc 01 07\x0D`
Menu Navigation Menu	`mc 01 43\x0D`
Menu Navigation OK	`mc 01 44\x0D`
Menu Navigation Right	`mc 01 06\x0D`
Menu Navigation Up	`mc 01 40\x0D`
On Screen Display Off	`kl 01 00\x0D`
On Screen Display On	`kl 01 01\x0D`
Power Off	`ka 01 00\x0D`
Power On	`ka 01 01\x0D`
Video Mute Off	`kd 01 00\x0D`
Video Mute On	`kd 01 01\x0D`
Video Mute On (With OSD)	`kd 01 10\x0D`
Volume 0	`kf 01 00\x0D`
Volume 100	`kf 01 64\x0D`

Appendix B. Update Commands(Serial)

Aspect Ratio	`kc 01 FF\x0D`
Audio Mute	`ke 01 FF\x0D`
Executive Mode	`km 01 FF\x0D`
Input	`xb 01 FF\x0D`
On Screen Display	`kl 01 FF\x0D`
Power	`ka 01 FF\x0D`
Video Mute	`kd 01 FF\x0D`
Volume	`kf 01 FF\x0D`

Appendix C. Set Commands(Ethernet)

Aspect Ratio 16:9	`kc 01 02\x0D`
Aspect Ratio 4:3	`kc 01 01\x0D`
Aspect Ratio Just Scan	`kc 01 09\x0D`
Aspect Ratio Original	`kc 01 06\x0D`
Audio Mute Off	`ke 01 01\x0D`
Audio Mute On	`ke 01 00\x0D`
Channel Down	`mc 01 01\x0D`
Channel Up	`mc 01 00\x0D`
Closed Caption None	`mc 01 39\x0D`
Executive Mode Off	`km 01 00\x0D`
Executive Mode On	`km 01 01\x0D`
Input ATV	`xb 01 10\x0D`
Input CADTV	`xb 01 01\x0D`
Input CATV	`xb 01 11\x0D`
Input DTV	`xb 01 00\x0D`
Input HDMI 1	`xb 01 90\x0D`
Input HDMI 2	`xb 01 91\x0D`
Input HDMI 3	`xb 01 92\x0D`
Keypad -	`mc 01 4C\x0D`
Keypad 0	`mc 01 10\x0D`
Keypad 9	`mc 01 19\x0D`
Menu Navigation Back	`mc 01 28\x0D`
Menu Navigation Down	`mc 01 41\x0D`
Menu Navigation Exit	`mc 01 5B\x0D`
Menu Navigation Left	`mc 01 07\x0D`
Menu Navigation Menu	`mc 01 43\x0D`
Menu Navigation OK	`mc 01 44\x0D`
Menu Navigation Right	`mc 01 06\x0D`
Menu Navigation Up	`mc 01 40\x0D`
On Screen Display Off	`kl 01 00\x0D`
On Screen Display On	`kl 01 01\x0D`
Power Off None	`ka 01 00\x0D`
Video Mute Off	`kd 01 00\x0D`
Video Mute On	`kd 01 01\x0D`
Video Mute On (With OSD)	`kd 01 10\x0D`
Volume 0	`kf 01 00\x0D`
Volume 100	`kf 01 64\x0D`