

UNCLASSIFIED

# KVM Extenders



Extended data flow for Video/KVM solutions in both secure and commercial environments.

HLT28285 Rev. E

 **HighSecLabs**  
Highest Security Solutions

# KVM EXTENDERS HIGHLIGHTS

- **Extra Long Range**

Use either Fiber (10km) or Copper (100m) to connect between source and display.

- **DP/HDMI Combo Connector**

Connect both types of cables – Display Port and HDMI, including format conversion.

- **POE & POC Support**

Power Extender RX via POE using 48V connected to TX unit, or POC using 12V connected to TX or RX unit, depending on the model.

- **High Performance**

Using zero latency HDBaseT and SDVoE technology

- **Made in the USA, BAA and TAA Compliant.**

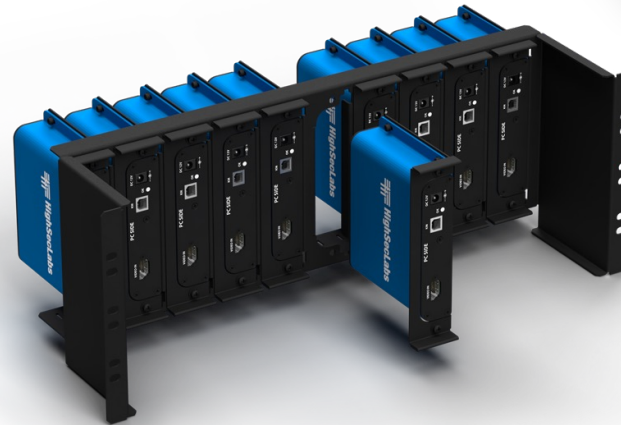
# EXTENDERS FAMILY OVERVIEW

## Device Types:

- Secure Extended Isolators
- Commercial Extenders

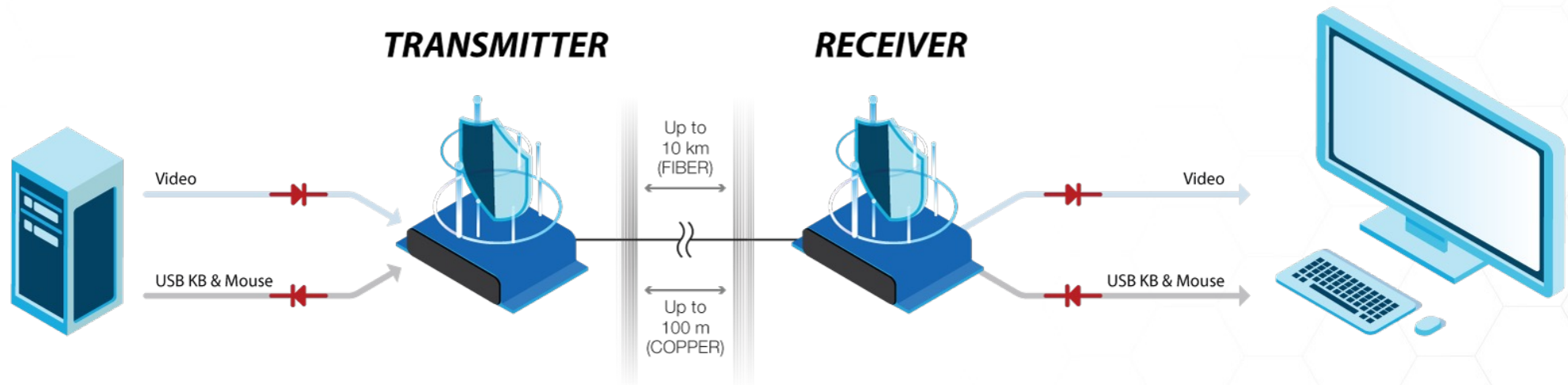
## Accessories:

- Rack Mount Kit
- Power Distribution Unit (PDU) for Isolators and Extenders



# SECURE EXTENDED ISOLATOR

**HSL's Secure, NIAP PP4.0 Compatible Extended Isolators** enable secure unidirectional and filtered long-distance extension of computer video and keyboard/mouse signals, while preventing vulnerable peripherals from compromising network security.

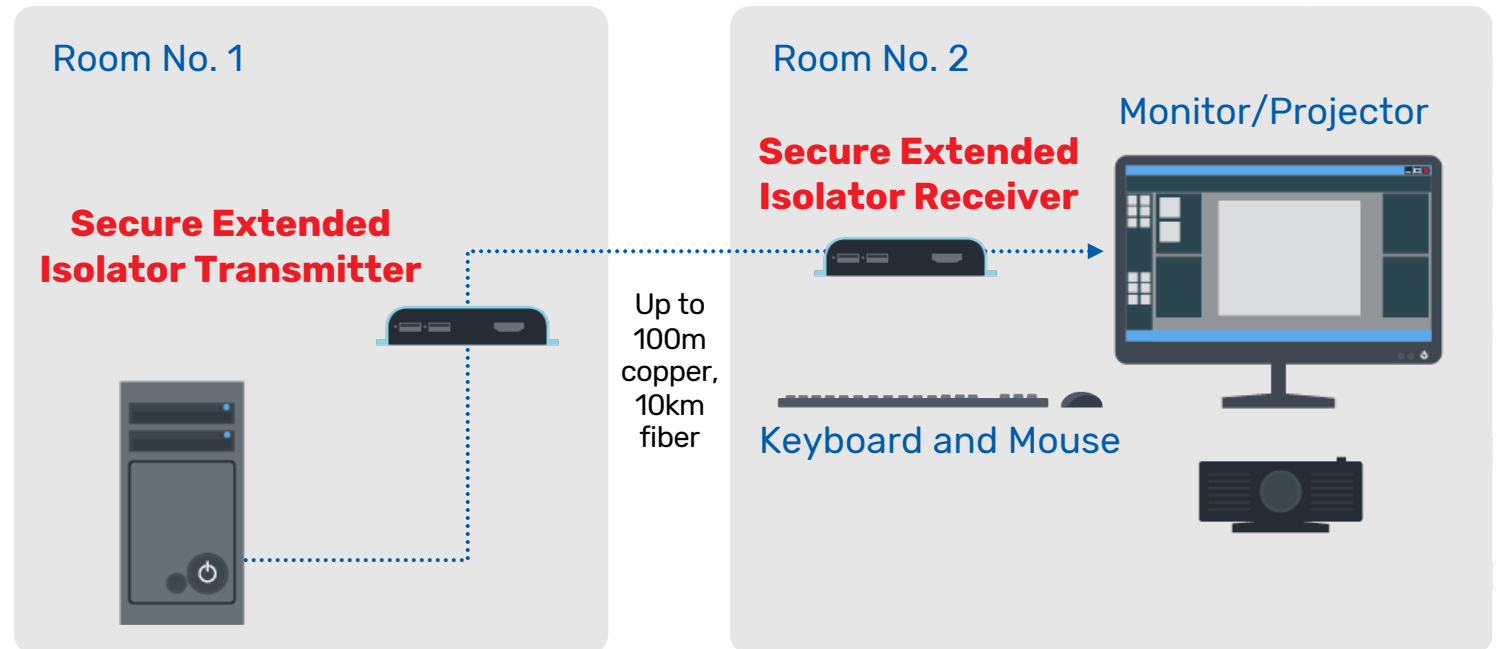


# HSL SECURE EXTENDED ISOLATOR USE CASES

## Use Case #1 – Remote PC

**Remotely project to monitor or projector:** The protected PC projects video to a remotely located room via an Extender.

HSL's Secure Isolated Extender ensures the security and protection of the connected PC.



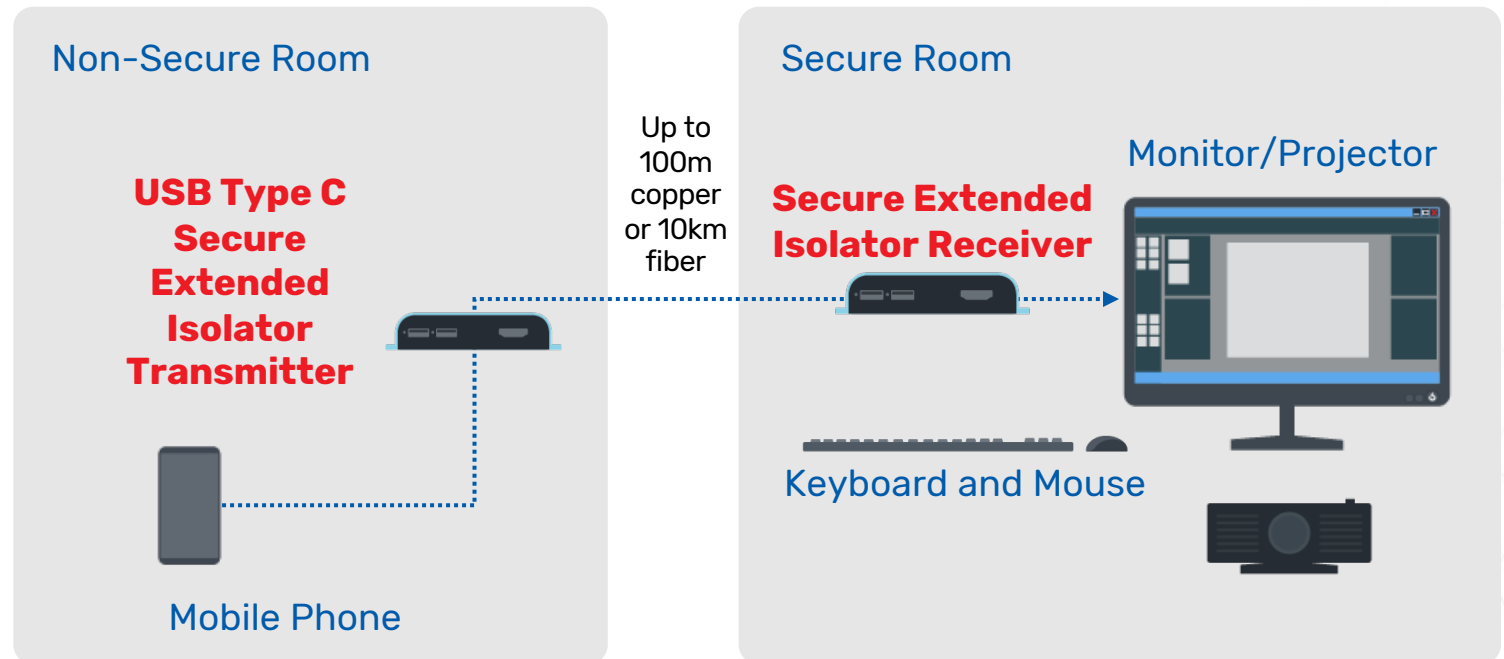
The HSL Secure Extended Isolators remotely transfer not only video and audio, but also the keyboard and mouse. The remote PC can be securely operated from the monitor/projector side. The Keyboard/Mouse USBs are unidirectional, filtered and secure.

# HSL SECURE EXTENDED USB TYPE-C ISOLATOR USE CASES

## Use Case #2 – Remote Mobile Devices

Remotely use a smartphone through the Extended Isolator.

Often in secure environments mobile devices are not allowed inside the facility.

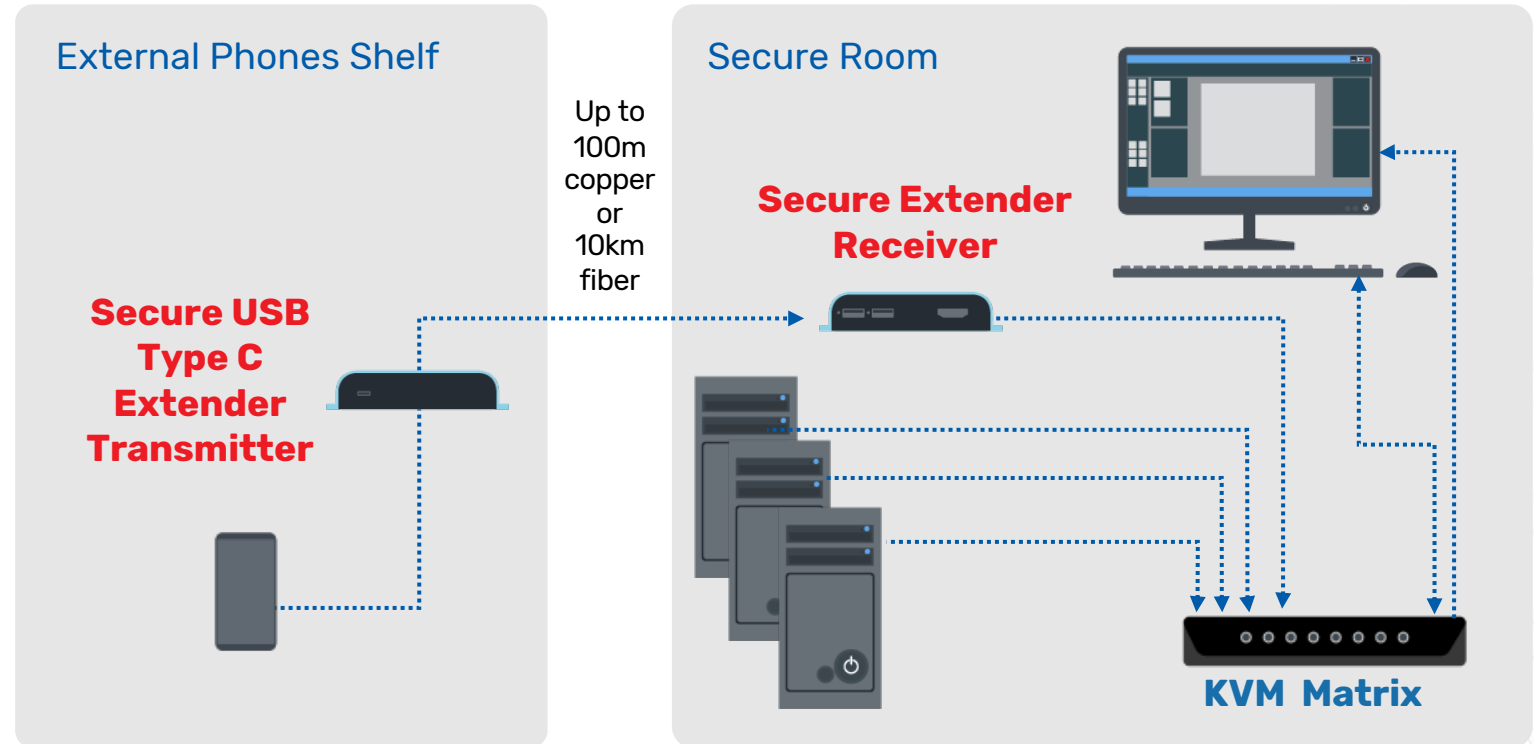


The Secure Extended Isolator with a USB Type-C port provides a secure connection to the phone that is left outside the secure room, without compromising the security of other devices in the secure room.

# HSL SECURE EXTENDED ISOLATOR USE CASES

## Use Case #3 – Remote Mobile to a Secure Room with KVM Matrix

The mobile phone can also be connected through the Secure Extender to the KVM Matrix in the secure room and be operated from there with the same set of display, KB & mouse. The devices and computers in the room will be fully isolated from the smartphone that is connected to a non-secure network.



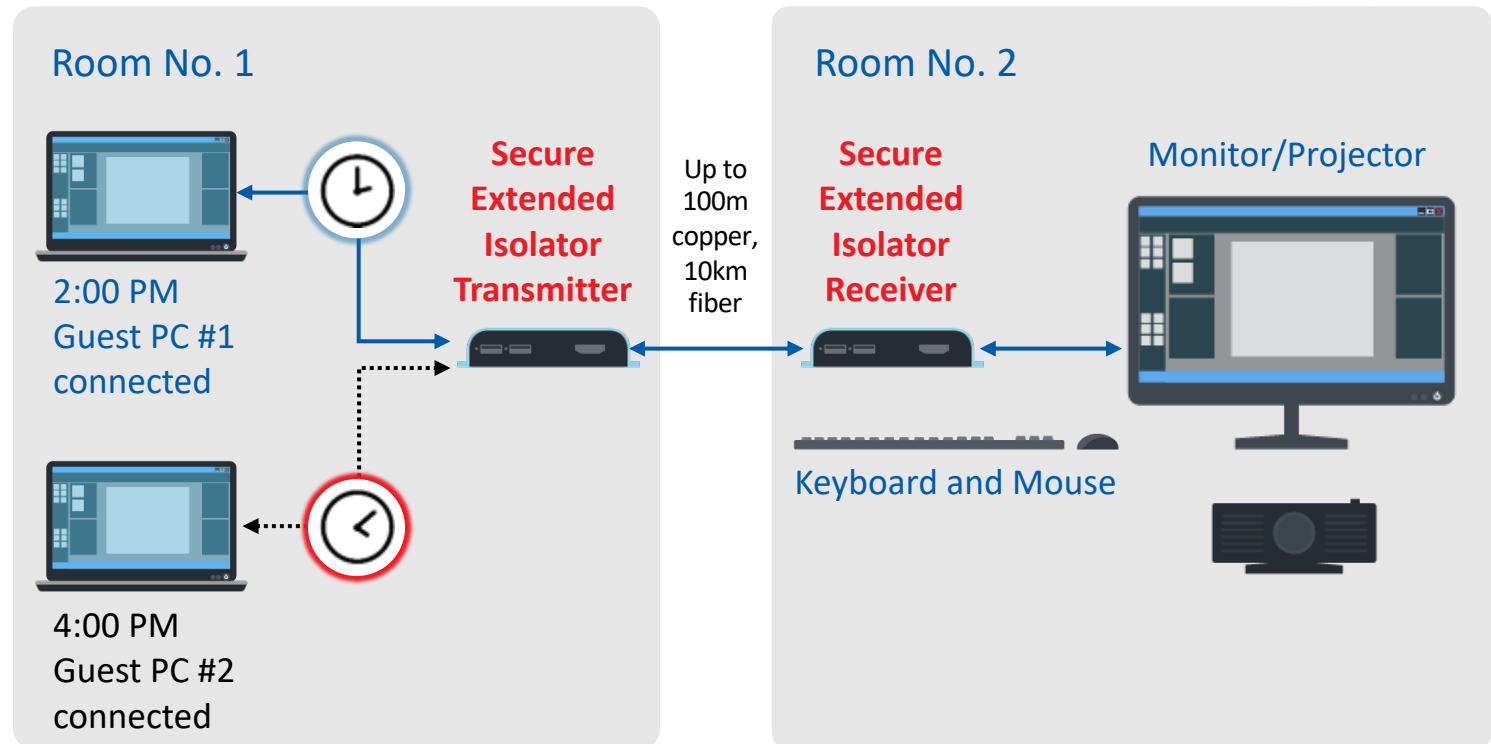
# HSL SECURE EXTENDED ISOLATOR USE CASES

## Use Case #4 – Meeting Room

PCs being connected at different times are vulnerable to different attacks, using the peripheral as an intermediary:

- EDID
- Fake control (VESA MCCS)
- Image upgrade
- Asset Management

**Data can leak between the PCs even when not connected simultaneously**



Problem solved (above) by connecting an isolator between the computer and the display/KBD/mouse, preventing data leakage between the computers.

# SECURE EXTENDED ISOLATOR – DEVICE FEATURES

- Fiber or copper cable connecting options, enable a connection of up to 10km between the source and the console
- Uses high performance HDBaseT technology for zero-latency between transmitter and receiver units
- High quality video support @ 4K 30Hz resolution
- DP/HDMI combo connector  
Connect both type of cables – Display Port and HDMI with auto-format conversion as required.

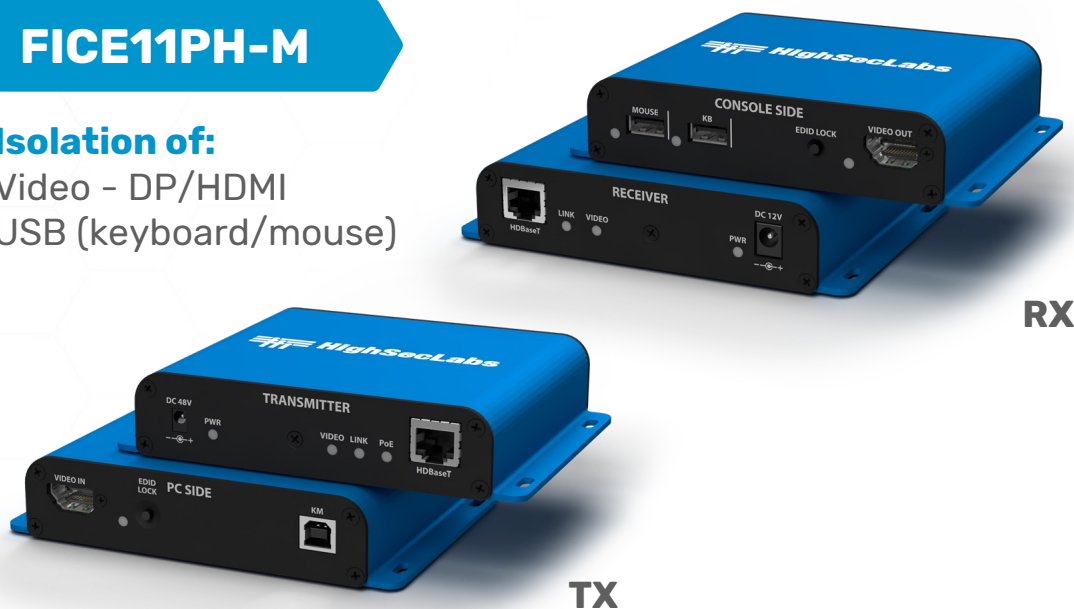


# SECURE EXTENDED ISOLATOR – **COPPER** MODELS

## FICE11PH-M

### Isolation of:

Video - DP/HDMI  
USB (keyboard/mouse)



## FVCE11PH-M

### Isolation of:

Video - DP/HDMI



- Single PC source, single output display
- Resolutions - Up to 4K Ultra HD resolutions (3840 X 2160 pixels) @30Hz.

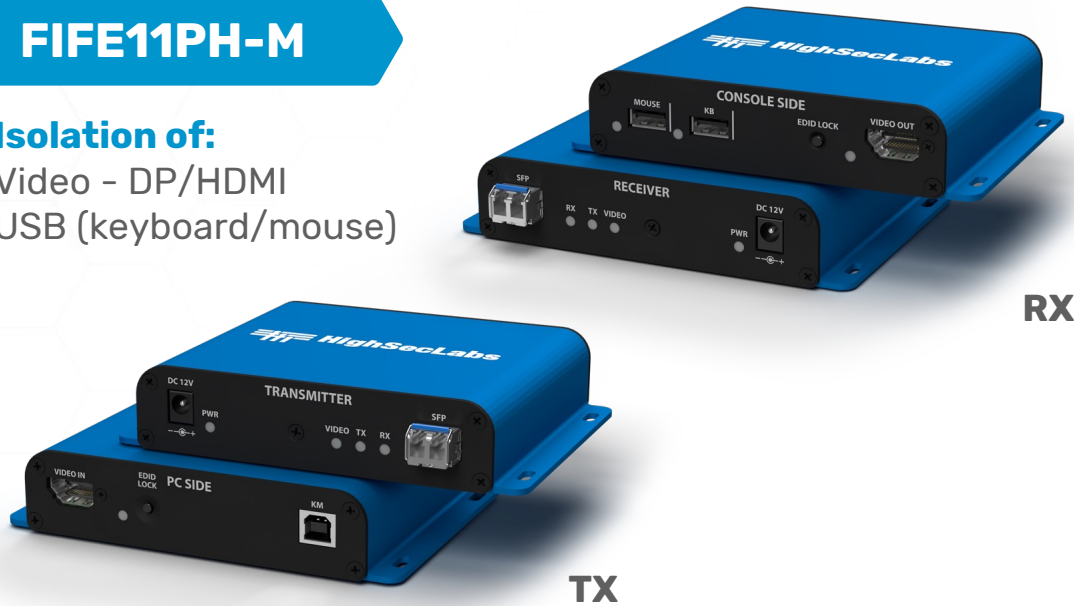
# SECURE EXTENDED ISOLATOR

## FIBER MODELS

### FIFE11PH-M

#### Isolation of:

Video - DP/HDMI  
USB (keyboard/mouse)



### FVFE11PH-M

#### Isolation of:

Video - DP/HDMI



#### All Fiber Extender models:

- Single PC source, single output display
- Resolutions - Up to 4K Ultra HD resolutions (3840 X 2160 pixels) @30Hz, up to 10km (depending on GBIC type)

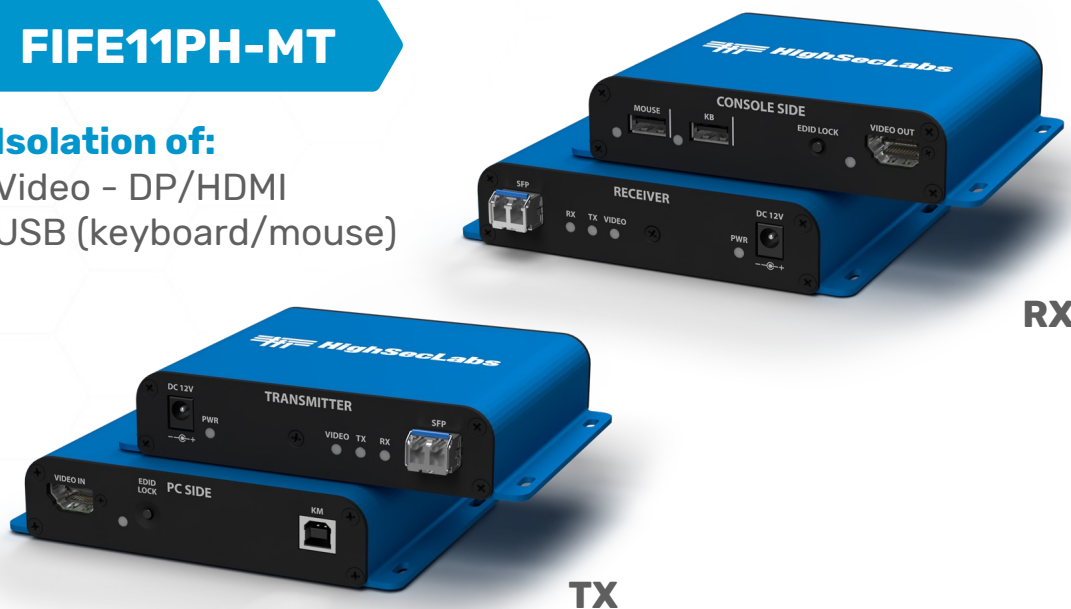
# SECURE EXTENDED ISOLATOR

## TEMPEST MODELS

### FIFE11PH-MT

#### Isolation of:

Video - DP/HDMI  
USB (keyboard/mouse)



#### TEMPEST Extender models:

- Single PC source, single output display
- Resolutions - Up to 4K Ultra HD resolutions (3840 X 2160 pixels) 30Hz, up to 10km (depending on GBIC type)

### FVFE11PH-MT

#### Isolation of:

Video - DP/HDMI



- TEMPEST Level B Compliant
- NIAP PP4.0 PSD Compliant

# EXTENDERS – COPPER & FIBER

## RUGGED MODELS

### FKFE11PH60-NTR

#### Extension of:

Video, KBD/Mouse  
Fiber – 10Km range



### FKCE11PH60-NTR

#### Extension of:

Video, KBD/Mouse  
Copper – 100m range

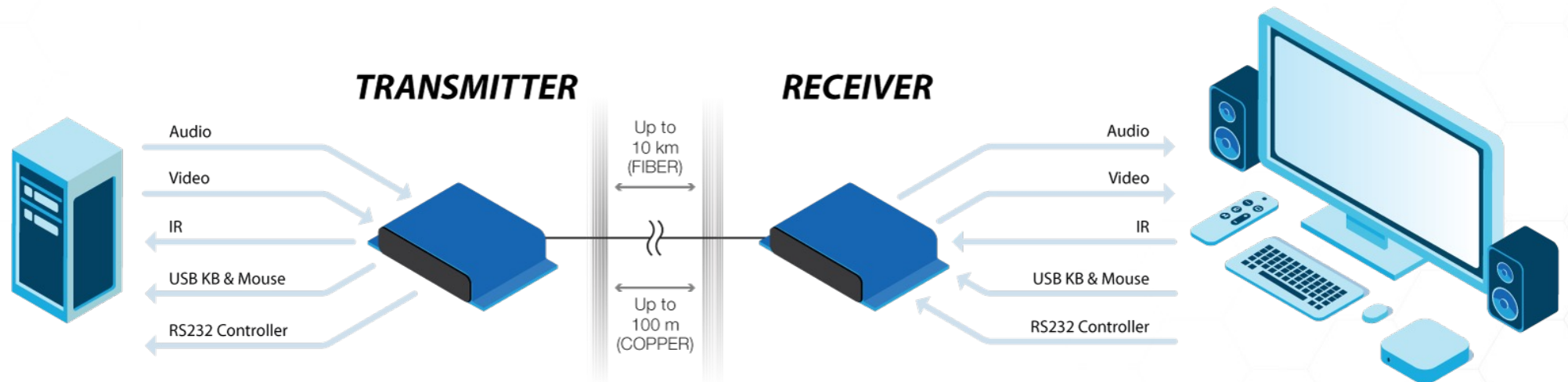


#### Rugged Extender models:

- 1 X DP/HDMI signal extension
- Up to 4K Ultra HD resolutions (3840 X 2160 pixels) @60Hz
- TEMPEST Level A Compliant
- 2 x HID USB; 1 x USB 2.0
- Audio
- IR Remote
- RS-232
- NIAP PP4.0 PSD Compliant
- MIL Spec: 810G, 461, 1275 and more

# COMMERCIAL EXTENDERS

**HSL's Commercial Extenders** enable long-distance extension of computer video, audio, keyboard/mouse, and IR remote signals, using high performance HDBaseT technology.



The commercial Extender units support:

- Analog audio
- IR remote port
- Up to 4K, 60Hz video resolution

# COMMERCIAL EXTENDER MODELS (1)

## Copper KVM Extender

### FKCE11PH-N

**Extension:** Copper (100m)

**Interfaces:** Video -  
DP/HDMI, Analog Audio,  
USB, IR remote, RS-232,  
PoE support



## Fiber KVM Extender

### FKFE11PH-N

**Extension:** Fiber (SFP  
module, up to 10km)

**Interfaces:** Video -  
DP/HDMI, Analog  
Audio, USB, IR remote,  
RS-232



# COMMERCIAL EXTENDER MODELS (2)

## Copper KVM Extender

### FKCE11PH60-N

**Extension:** Copper (100m)

**Interfaces:** Video - DP/HDMI, Analog Audio, USB, IR remote, RS-232 PoE support, 4K@60Hz



RX



TX

## Copper KVM Economy Extender

### FKCE11PHEC-N

**Extension:** Copper (70m)

**Interfaces:** Video - DP/HDMI, USB, IR remote, RS-232, PoC support, 4K@30Hz



RX



TX

# COMMERCIAL EXTENDER MODELS (3)

## Copper USB Keyboard/Mouse Extender

### FMCE10N-N

**Extension:** Copper (up to 100m)

**Interfaces:** USB only

**Features:** Single PC source,  
single output



## Copper USB Extender

### UMCE10N-N

**Extension:** Copper (up to 100m)

**Interfaces:** USB 2.0

**Features:** Single PC source,  
single output



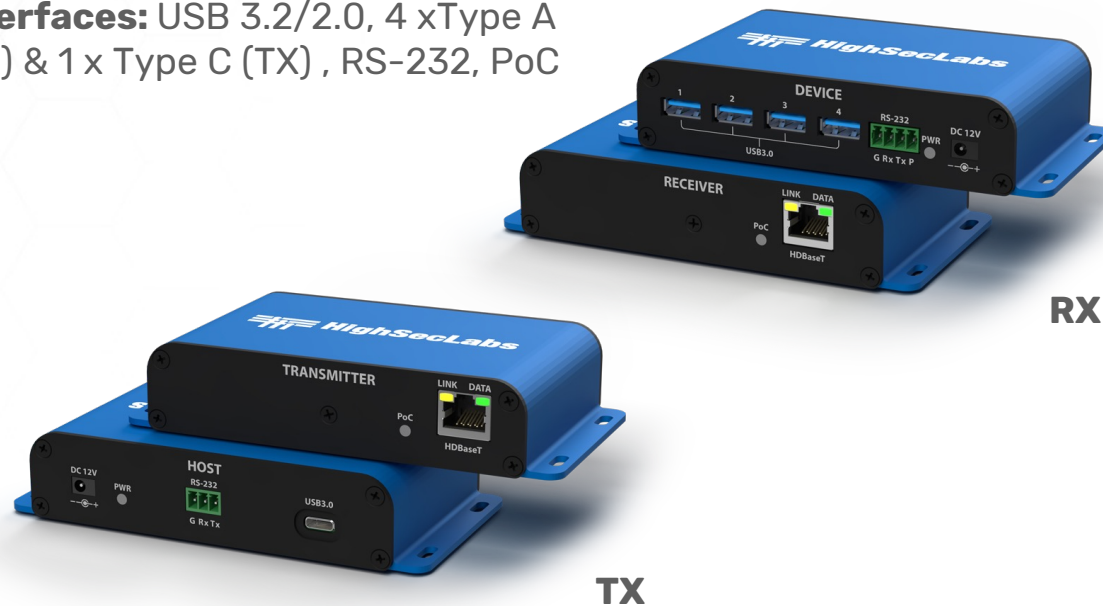
# COMMERCIAL EXTENDER MODELS (4)

*USB 3.2 Extension with USB-C and USB-A Interfaces*

## UMCE10C-N

**Extension:** Copper (Up to 90m)

**Interfaces:** USB 3.2/2.0, 4 xType A (RX) & 1 x Type C (TX) , RS-232, PoC



# COMMERCIAL EXTENDER MODELS (5)

## Fiber High Performance SDVoE KVM Extender

### FKFE11PHU60-N

**Extension:** Fiber (SFP module, up to 10km)

**Interfaces:** Video - DP/HDMI, Analog Audio, USB, IR remote, RS-232, 4K@60Hz, zero-latency



RX



TX

## Fiber KVM Extender

### FKFE11P-N

**Extension:** Fiber (Up to 10km)

**Interfaces:** Video - DP, Analog Audio, USB, IR remote, RS-232, PoE support



RX



TX

# POWER DISTRIBUTION UNIT FOR ISOLATORS AND EXTENDERS – PDUI

## **Connect multiple Isolators and Extenders to computers in a rack.**

Saves space and power outlets in a network cabinet by using an external central redundant Power Distribution Unit for Isolators (PDUI):

- Only one connection to an external power source; no need for a dedicated supply outlet for each adaptor
- A 10 outlet hub with built-in transformer capability – instead of a separate power adaptor for each Extender.

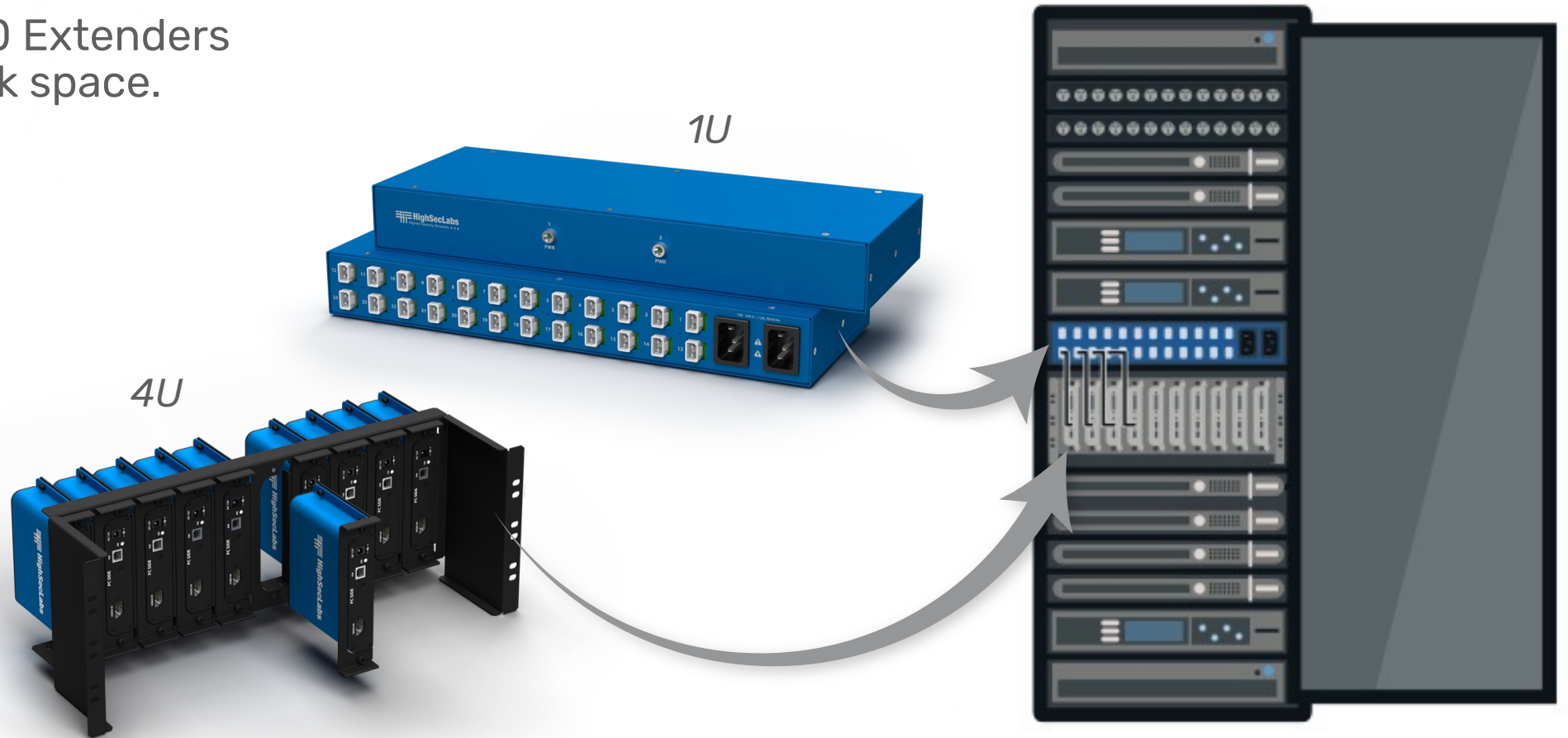
## **Optional models:**

- 10 outlets, 12V hub
- 10 outlets, 48V hub – specially for PoE copper extenders.
- 1U Size



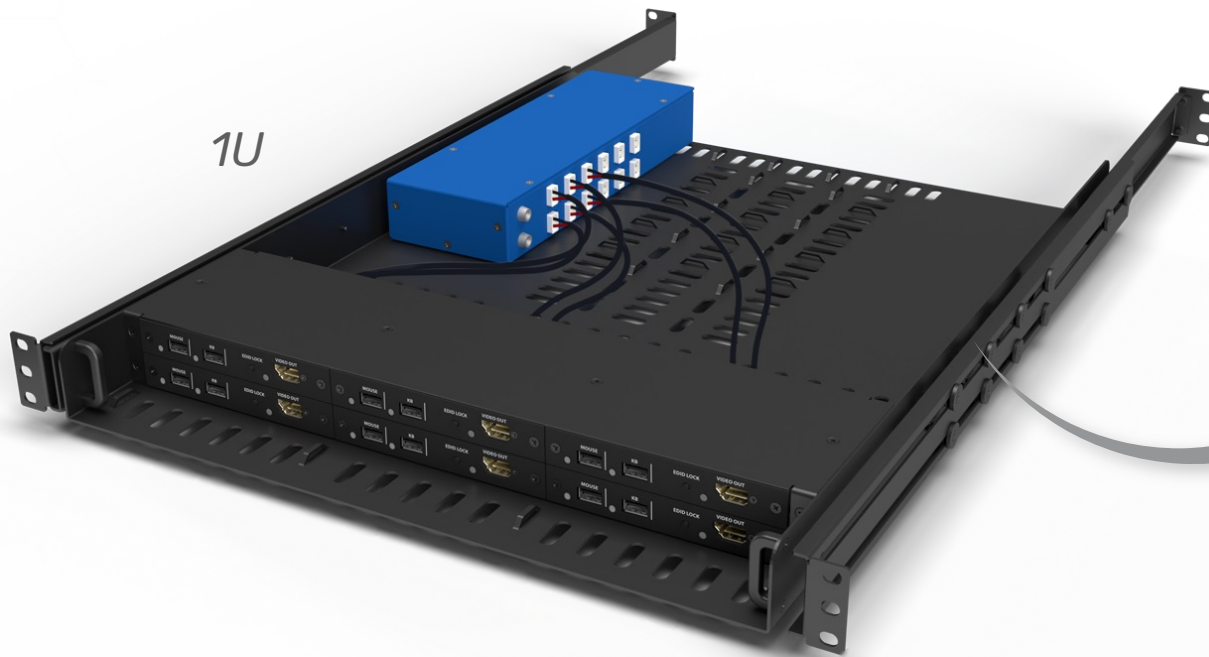
# ACCESSORIES – RACK MOUNT KIT

Mount up to 10 Extenders in a 19" 4U rack space.



# ACCESSORIES – RACK MOUNT KIT

Mount up to 6 Extenders, with redundant power supplies, all in a 19" 1U tray.



# HSL EXTENDERS MODELS SUMMARY

MODEL	DESCRIPTION
<b>SECURE EXTENDER ISOLATORS</b>	
FICE11PH-M	DP/HDMI Secure Copper Extended KVM Isolator up to 100 meters 4K 30Hz
FVCE11PH-M	DP/HDMI Secure Copper Extended Video Isolator up to 100 meters 4K 30Hz
FICE11CH-M	USB C to HDMI Secure Copper extended KVM isolator up to 100 meters 4K 30Hz
FIFE11PH-M	DP/HDMI Secure Fiber Extended KVM Isolator up to 10km 4K 30Hz
FVFE11PH-M	DP/HDMI Secure Fiber Extended Video Isolator up to 10km 4K 30Hz
FIFE11PH-MT	DP/HDMI Secure TEMPEST Level B Fiber Extended KVM Isolator up to 10km 4K 30Hz
FVFE11PH-MT	DP/HDMI Secure TEMPEST Level B Fiber Extended Video Isolator up to 10km 4K 30Hz
<b>RUGGED EXTENDERS</b>	
FKFE11PH60-NTR	DP/HDMI signal rugged TEMPEST Level A compliant Fiber KVM Extender up to 10Km, 4K 60Hz
FKCE11PH60-NTR	DP/HDMI signal rugged TEMPEST Level A compliant Fiber KVM Extender up to 100m, 4K 60Hz
<b>COMMERCIAL EXTENDERS</b>	
FKCE11PH-N	DP/HDMI Copper Extender KVM up to 100 meters 4K 30Hz
FKFE11PH-N	DP/HDMI Fiber Extender KVM up to 10km 4K 30Hz
FKFE11P-N	DP Fiber Extender KVM up to 10km, 4K 30Hz
FKCE11PHEC-N	DP/HDMI Copper Extender KVM up to 100 meters 4K 30Hz, economy model
SKFE11PH60-N	DP/HDMI Fiber Extender KVM up to 10km, 4K 60Hz, zero latency (Coming Soon)
FMCE10N-N	USB Copper Extender KM up to 100 meters
UMCE10N-N	USB 2.0 Copper Extender up to 100 meters
<b>ACCESSORIES</b>	
PDUI10	10 Port 12v DC Junction box
RK-4U-HKS-10	Rack Mount KIT 4U
RK-1U6-FI11X-M	6 Isolators Metal Chassis Tray Packing Kit

# Thank You

For more info:



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