

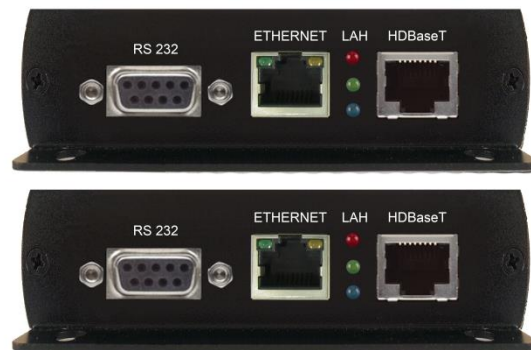


HTR Owner's Manual

HDMI, RS-232, IR, ARC & Ethernet
Extender over HDBaseT with 3D, 4K Support



HTR Tx



HTR Rx

PureLink™

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Package Contents

Please make sure all of the following items are included in the package:

- 1 x HTR Transmitter Module
- 1 x HTR Receiver Module
- 2 x Power adapter
- 1 x User Manual

Description

The PureLink HTR is a transmitter and receiver set for long distance extension of HDMI video and embedded audio with bi-directional control signals (RS-232 and IR) over single CAT 5/6/7- type cable. It is designed on HDBaseT technology which allows full 3D support with up to 330ft (100m) at 4K2K (UHD) resolution. A compact and low profile enclosure makes the HTR ideal for extending HDMI video, embedded multi-channel audio, bi-directional control signal, and Ethernet to limited space environment such as behind a flat-panel display.

PureLink HTR is HDCP compliant and it enables the reliable, long distance extension of HDMI signals, supporting Deep Color and full 3D and embedded HD lossless audio formats. In addition, EDID and HDCP communication is being maintained between a source and display. Also, the HTR includes an RS-232 and IR insertion port, allowing bi-directional control of an AV device.

Features

- **Zero loss & Zero noise delivery** of digital high definition video and audio signal using UTP connection, HTR delivers HD signals over CAT5/6/7-type cables without loss or digital interference maintaining the clarity and colors. Noise cancellation and error correction logic enhances HDMI video and audio signals over long distance.
- **Compact and Robust enclosure design** allows for discreet installation behind a flat-panel display.
- **Designed based on HDBaseT Technology**, supporting support Deep Color and full 3D support plus DTS-HD and Dolby TrueHD over a single low cost CATx interface with up to 330ft (100m) at Ultra HD (4K) or 1920x1200 resolution.
- Uncompressed high definition video up to 4K2K@30Hz@48bits and 3D.
- Controls signals including bi-directional RS-232 and IR function.

- Bi-Directional RS232 interface – commands and data can flow in both directions via RS232, allowing status requests and control of the destination unit.
- Max. Data Rate- 10.2 Gbps.
- HDCP (High-bandwidth Digital Content Protection) Support.
- HDMI version 1.4 Support.
- Audio transmission support LPCM 7.1@192KHz, Dolby TrueHD, DTS-HD MA.
- Support 10/100Mbps network, allow to connect the network TV or another internet devices.
- ARC (Audio Return Channel) Support to send audio data “upstream” to an A/V receiver or surround audio controller.

Product application note

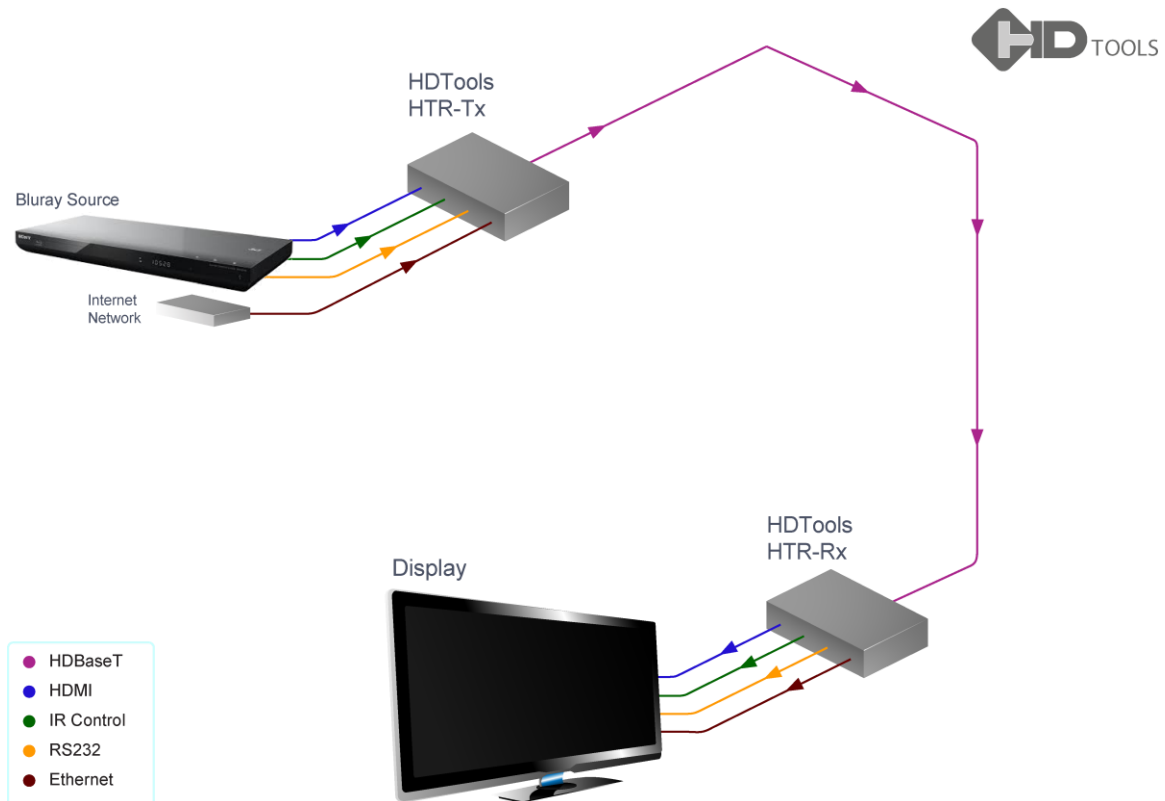


Figure 1 – Schematic Connection Diagram of HTR Tx/Rx

Application note for ARC feature

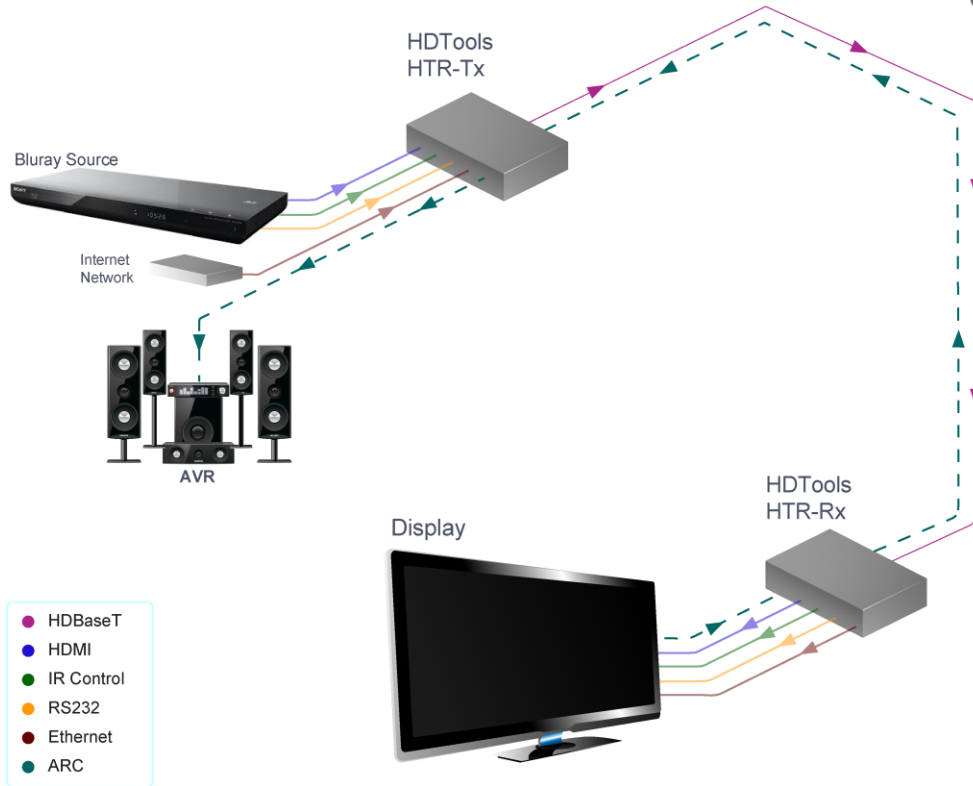


Figure 2 – Schematic Connection Diagram of HTR Tx/Rx's ARC Feature

Product Specification Transmitter

Model	HTR Tx
Input type	HDMI, 1 port IR, 1 port RS232, 1 port (bi-direction) Ethernet, 1 port (bi-direction)
Output type	Toslink optical out, 1 port IR, 1 port CATx (HDBaseT), 1 port
Supporting Display Resolutions	VGA ~ WUXGA (up to 1920 x 1200 @ 60Hz), 480i ~ 1080p, Ultra HD (4K) @ 30Hz

Max. Distance	1920x1200 @ 60Hz or Ultra HD (4K) @30Hz: 330ft (100m)
Connector Type	DC Power Jack HDMI 19 Pin Female (Type A) RJ-45 IR Serial Toslink
Conformations	HDMI version 1.4 With HDCP
Power Rating	DC 5V , 2A
Dimension (WxDxH)	Tx: 3.5'' x 4.7'' x 1.2'' (88 x 120 x 30 mm) Rx: 3.5'' x 4.7'' x 1.2'' (88 x 135 x 30 mm)
Weight	0.57 lbs (0.26 kg)

Receiver

Model	HTR Rx
Input type	CATx (HDBaseT), 1 port IR, 1 port Toslink optical in, 1 port
Output type	HDMI, 1 port IR, 1 port RS232, 1 port (bi-direction) Ethernet, 1 port (bi-direction)
Supporting Display Resolutions	VGA ~ WUXGA (up to 1920 x 1200 @ 60Hz), 480i ~ 1080p, Ultra HD (4K) @ 30Hz
Max. Distance	1920x1200 @ 60Hz or Ultra HD (4K) @30Hz: 330ft (100m)
Connector Type	DC Power Jack HDMI 19 Pin Female (Type A) RJ-45 IR Serial Toslink
Conformations	HDMI version 1.4 With HDCP
Power Rating	DC 5V , 2A

Dimension (WxDxH)	3.5" x 4.7" x 1.2" (88 x 120 x 30 mm)
Weight	0.62 lbs (0.28 kg)

***Please use CAT6a/CAT7 cable for maximum distance transmission.**

* Travel Range Specification

Cable Type	Range	Pixel clock rate	Video Data Rate	Supported Video
CAT5e/CAT6	100 m	<= 225 MHz	<= 5.3 Gbps (HD Video)	Up to 1080p, 60Hz, 36bpp (Data rates lower than 5.3 Gbps or below 225 MHz TMDS clock)
	70 m	> 225 MHz	> 5.3 Gbps (Ultra HD Video)	1080p 60Hz 48bpp, 1080p60Hz 3D, and Ultra HD (4K) @ 30Hz
CAT6a/CAT7	100 m	> 225 MHz	> 5.3 Gbps (Ultra HD Video)	1080p 60Hz 48bpp, 1080p60Hz 3D, and Ultra HD (4K) @ 30Hz

Operation and Reliability Specification

1. Operating Environment

Temperature	: 32F ~ 131F (0°C~ 55°C)
Humidity	: 10% ~ 80%
Altitude	: 3,000m Max.

2. Transit Environment

Temperature	: -13F ~ 140F (-25°C~ 60°C)
Humidity	: 5% ~ 95%
Altitude	: 15,000m Max.

3. Storage Environment

Temperature	: -4F ~ 185F (-20°C~ 85°C)
Humidity	: 5% ~ 95%
Altitude	: 3,000m Max.

4. Reliability

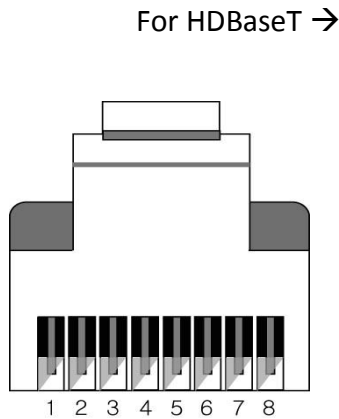
- MTBF: 90% at over 50,000 hours aging test
- In compliance with LCD Monitor reliability test standard

Installation and Connection Instructions

1. Turn off both the video source and the display before connecting any cables.
2. Connect CATx cable between the HTR transmitter and the HTR receiver.
3. Connect HDMI cable between the source and the HTR transmitter AND the HTR receiver and the display.
4. Connect the power supply unit to HTR transmitter and HTR receiver module.
5. Turn on Display.
6. Turn on Video Source.

How to terminate CATx cable

HTR was designed to conform to TIA/EIA-568-B standard. Please ensure that each PIN layout of HTR transmitter and HTR receiver are corresponding with the picture below before connecting the cable. Please note that CAT5e or above level cable enables to deliver better video quality and longer distance.



Pin	TIA/EIA-568B	Digital RGB
	Wire color	
1	Orange/ White	DATA0 +
2	Orange	DATA0 -
3	Green/ White	DATA1
4	Blue	DATA2 +
5	Blue/ White	DATA2
6	Green	DATA1 -
7	Brown/ White	DATA3
8	Brown	DATA3 -

For 10/100Mbps Ethernet →

Pin	TIA/EIA-568B	Digital RGB
	Wire color	
1	Orange/ White	RX +
2	Orange	RX -
3	Green/ White	TX +
4	Blue	N/C
5	Blue/ White	N/C
6	Green	TX -
7	Brown/ White	N/C
8	Brown	N/C

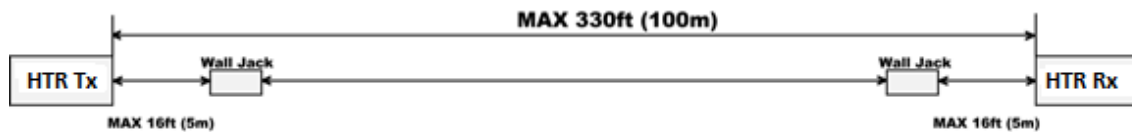
CATx cable

Link cable recommend use high quality CAT5, CAT5e, CAT6, CAT6a, CAT7 UTP / STP or FTP cable.

Transmission Distance

The maximum transmission distance up to 100meters, use lower resolution won't extend longer distance

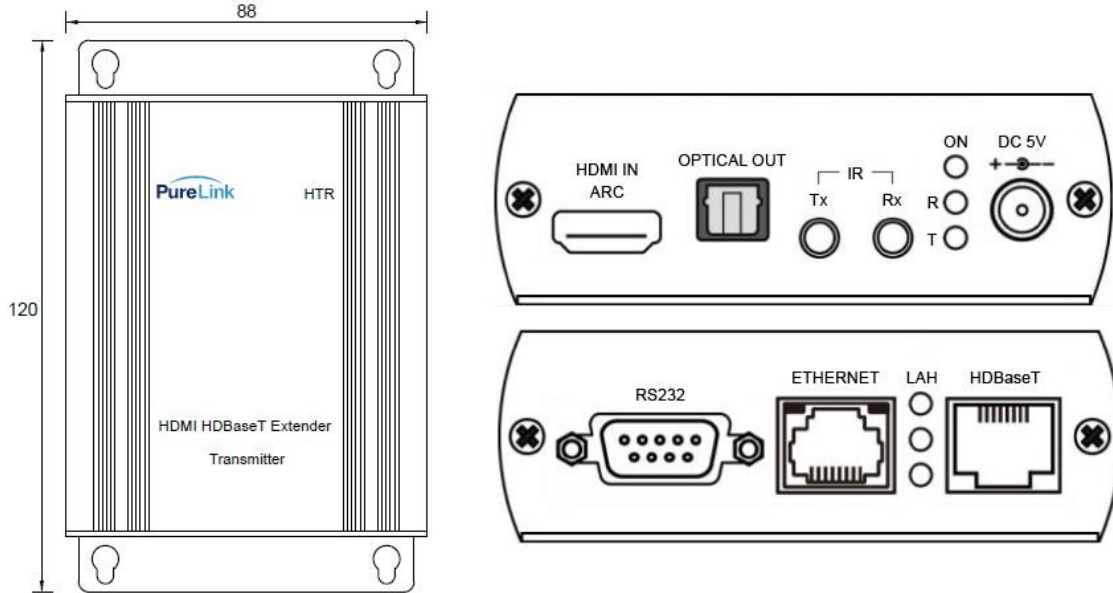
If connection through the wall socket, the cable length must less 5 meters between HDMI extender and wall jack, as below drawing:



HTR Transmitter Specification

Transmitter Module Dimensions (W x D x H): 3.5" x 4.7" x 1.2" (88 x 120 x 30 mm)

Transmitter Module Weight : 0.57 lbs (0.26 kg)



Connection Ports:

HDMI IN: HDMI input

Green LED: Power On/Off Indication

Blue LED: IR receive

Red LED: IR transmit

IR Tx : IR output

IR Rx : IR input

RS232 : Bi-directional serial communication port

DC 5V :Power supply unit Input

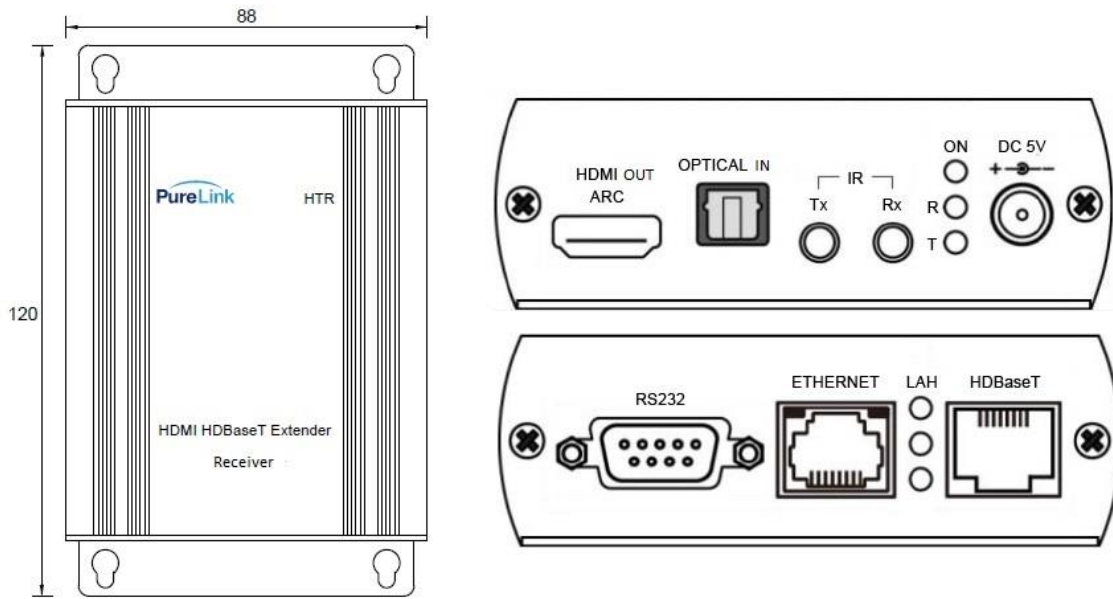
RJ-45(CATx) : 1 x Ethernet

1 x HDBaseT output

HTR Receiver Specification

Receiver Module Dimensions (W x D x H): 3.5" x 4.7" x 1.2" (88 x 120 x 30 mm)

Receiver Module Weight : 0.62 lbs (0.28 kg)



Connection Ports:

- HDMI OUT: HDMI output
- Green LED: Power On/Off Indication
- Blue LED: IR receive
- Red LED: IR transmit
- IR Tx : IR output
- IR Rx : IR input
- RS232 : Bi-directional serial communication port
- DC 5V :Power supply unit Input
- RJ-45(CATx) : 1 x Ethernet
1 x HDBaseT output

LED Indication:

DC Jack Port:

Color	LED Function	HTR Tx	HTR Rx
GREEN	Power	On: power on	
BLUE	IR Receive	On: IR received signal	
RED	IR Emit	On: IR emitting	

HTBaseT Port:

Color	LED Function	HTR Tx	HTR Rx
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GREEN	HDBaseT Linking	On: HDBaseT linking
BLUE	Reserve	No Function
RED	HDMI	On: with HDCP / Flash: Without HDCP / Dark: HDMI Unlink

10/100 Ethernet Port:

Color	LED Function	HTR Tx	HTR Rx
GREEN	Ethernet linking	On: Linking /Flash: data transmission	
YELLOW	Reserve	No Function	

Low Power Mode:

When there is no HDMI video signal input, or display is not connected or power off, HTR will enter a low-power mode to save power consumption. When it is on a low power mode, it still provides Ethernet, RS-232, IR, digital optical audio and CEC signal transmission.

Caution:

- The CATx wiring must be away from any electromagnetic wave equipment, i.e : mobile phone, microwave, radio, fluorescent lamp, high voltage power lines.
- Do not place IR transmitter near from IR receiver to avoid mutual interference

Technical Specification

Data transfer rate:	10.2 Gbps
Supporting Resolutions:	Up to 1080p / 60Hz / 48 bit Up to Ultra HD (4K) / 30Hz Up to 1920x1200 / 60Hz
I/O Signal Standard:	HDMI 1.4
Max Distance:	Max 330ft (100m) at 4K2K@30Hz / 1920x1200@60Hz
RS-232 Connector:	Transmitter: DB9 Female Receiver: DB9 male
RS-232 Baud Rate:	Up to 115200 bps / Full Duplex
IR Carrier:	38Khz / $\pm 10^\circ$ / 5M / 2 Way
UTP Cable specification:	CAT5/5e/6/6a/7
Ethernet Connector:	RJ-45 with 2 LED
Ethernet Data Rate:	10 / 100Mbps
Ethernet Distance:	Max 330ft (100m)
Input Ports:	HDMI Female 19P (Type A) / RJ-45
Output Ports:	HDMI Female 19P (Type A) / RJ-45
Power Consumption:	Min Total 5W, Max Total 10W
Power Rating:	5V DC / 2A
Weight:	Transmitter – 0.57 lbs (0.26 kg) Receiver – 0.62 lbs (0.28 kg)

Chapter 3. Additional Information

3.1 Manufacturer's Warranty (2-Year)

PureLink warrants this HTR HDBaseT extender to be free from defects in workmanship and materials, under normal use and service, for a period of two (2) year from the date of purchase from PureLink or its authorized resellers.

If the product does not operate as warranted during the applicable warranty period, PureLink shall, at its option and expense, execute one of the following as necessary:

1. Repair the defective product or part
2. Deliver to customer and equivalent product or part to replace the defective item
3. Refund to customer the purchase price paid for the defective product

All products that are replaced become the property of PureLink. Replacement products may be new or reconditioned. Repaired or replacement products or parts come with a 90-day warranty or the remainder of the warranty period. PureLink shall not be responsible for any software, firmware, information, or memory data loss of contained in, stored on, or integrated with any products returned to PureLink for repair under warranty.

3.2 Customer Service

Any customer service inquiries can be submitted electronically through the Q&A form on our website (www.purelinkav.com).

For immediate assistance please contact us at (201) 488-3232 to reach our customer care or tech support team.

FCC/CE Statement

This device complies with part 15 of FCC Rules and EN 55022/55024/61000-3 for CE certification. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must not accept any interference received, including interference that may cause undesired operation. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 and 2 of FCC Rules and EN 55022/55024/61000-3 for CE certification. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction guide, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult a service representative for help.

Properly shielded and grounded cables and connectors must be used in order to comply with FCC/CE emission limits. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

