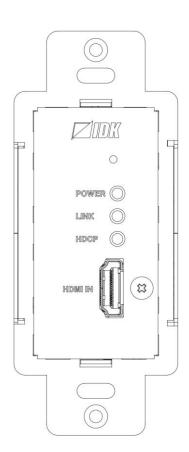


4K@60 and HDCP2.2 supported HDBaseT HDMI Wall-Plate transmitter

HDC-TH100WP

<User Guide>

Ver.1.2.0



- Thank you for choosing our product.
- To ensure the best performance of this product, please read this user guide fully and carefully before using it and keep this manual together with the product for future reference as needed.

Trademarks

- HDBaseT™ and the HDBaseT Alliance Logo are trademarks of the HDBaseT Alliance.
- The terms HDMI and HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc. in the United States and other countries.
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Before reading this manual

- All rights reserved.
- Some information contained in this User guide such as exact product appearance, diagrams, menu operations, and so on may differ depending on the product version.
- This User guide is subject to change without notice. You can download the latest version from IDK's website at: www.idkav.com
- Third-party products mentioned in this manual are for reference only and are not intended to force use.

FCC STATEMENT

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

(Class A)

Supplier's Declaration of Conformity 47 CFR § 2.1077 Compliance Information

Unique Identifier

Type of Equipment: Cat Tx for HDMI®

Model Name: HDC-TH100WP

Responsible Party - U.S. Contact Information

Company Name: IDK America Inc.

Address: 72 Grays Bridge Road Suite 1-C, Brookfield, CT 06804

Telephone number: +1-203-204-2445

URL: www.idkav.com

FCC Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

(FCC SDoC)

CE MARKING

This equipment complies with the essential requirements of the relevant European health, safety and environmental protection legislation.

WEEE MARKING



Waste Electrical and Electronic Equipment (WEEE), Directive 2002/96/EC (This directive is only valid in the EU.)

This equipment complies with the WEEE Directive (2002/96/EC) marking requirement. The left marking indicates that you must not discard this electrical/electronic equipment in domestic household waste.

Safety Instructions

Read all safety and operating instructions before using this product. Follow instructions and heed warnings/cautions.

Instructions and warnings/cautions for all products are provided. Some of them may not be applicable to your product.



<u> Narning</u>



Caution

Indicates the presence of a hazard that may result in death or serious personal injury if the warning is ignored or the product is handled incorrectly.

Indicates the presence of a hazard that may cause minor personal injury or property damage if the caution is ignored or the product is handled incorrectly.

Symbol	Description	Example
Caution	This symbol is intended to alert the user. (Warning and caution)	Hot surfaces Caution
Prohibited	This symbol is intended to prohibit the user from specified actions.	Do not disassemble
Instruction	This symbol is intended to instruct the user.	Unplug



For lifting heavy products:



• Lifting must be done by two or more personnel.

To avoid injury: When lifting the product, bend your knees, keep your back straight and get close to it with two or more persons.

For installing and connecting products:



• Do not place the product in unstable place.

Install the product in a horizontal and stable place, as this may fall or tip over and cause injury.

• Secure the product if installing in the locations with vibration.

Vibration may move or tip over the product unexpectedly, resulting in injury.



Installation work must be performed by professionals.

The product is intended to be installed by skilled technicians. For installation, please contact a system integrator or IDK. Improper installation may lead to the risk of fire, electric shock, injury, or property damage.

Insert the power plug into an outlet that is unobstructed.

Unobstructed access to the plug enables unplugging the product in case of any extraordinary failure, abnormal situation or for easy disconnection during extended periods of non-use.

• Insert the power plug into an appropriate outlet completely.



If the plug is partially inserted, arching may cause the connection to overheat, increasing the risk of electric shock or fire. Do not use a damaged plug or connect to a loose outlet.

Unplug the product from an AC power source during installation or service.

When connecting peripheral devices to this product, unplug all involved devices from outlets. Ground potential differences may cause fire or other difficulties.

• The product must be electrically earthed/grounded.

To reduce the risk of electric shock, ensure the product is connected to a mains socket outlet with a protective earthing connection.

• For PoE/PoH, use category cables meeting IEEE802.3af/at.

Otherwise, it may cause problems or a fire.

For operating products:

• Keep out any foreign objects.

To avoid fire or electric shock, do not permit foreign objects, such as metal and paper, to enter the product from vent holes or other apertures.



For power cable/plug and Category cable,

- · Do not scratch, heat, or modify, including splicing or lengthening them.
- · Do not pull, place heavy objects on them, or pinch them.
- \cdot $\,$ Do not bend, twist, tie or clamp them together forcefully.

Misuse of the power cable and plug may cause fire or electric shock. If power cables/plugs become damaged, contact your IDK representative.



Do not

• Do not repair, modify or disassemble.

Since the product includes circuitry that uses potentially lethal, high voltage levels, disassembly by unauthorized personnel may lead to the risk of fire or electric shock. For internal inspection or repair, contact your IDK representative.



Do not touch

• Do not touch the product and connected cables during electric storms.

Contact may cause electric shock.



Instruction

• Clean the power plug regularly.

If the plug is covered in dust, it may increase the risk of fire.

If the following problem occurs:



- Unplug immediately if the product smokes, makes unusual noise, or produces a burning odor.
- Unplug immediately if the product is damaged by falling or having been dropped.
- Unplug immediately if water or other objects are directed inside.

If you continue to use the product under these conditions, it may increase the risk of electric shock or fire. For maintenance and repair, contact your IDK representative.



For installing and connecting products:

• Do not place the product in a location where it will be subjected to high temperatures.

If the product is subjected to direct sunlight or high temperatures while under operation, it may affect the product's performance and reliability and may increase the risk of fire.

• Do not store or operate the product in dusty, oil smoke filled, or humid place.

Placing the product in such environment may increase the risk of fire or electric shock.

Prohibited

Do not block the vent holes.

If ventilation slots are blocked, it may cause the product to overheat, affecting performance and reliability and may increase the risk of fire.

• Do not place or stack heavy items on the product.

Failure to observe this precaution may result in damage to the product itself as well as other property and may lead to the risk of personal injury.

Do not exceed ratings of outlet and wiring devices.

Exceeding the rating of an outlet may increase the risk of fire and electric shock.

No wet

hands

• Do not handle power plug with wet hands.

Failure to observe this precaution may increase the risk of electric shock.

• Use and store the product within the specified temperature/humidity range.

If the product is used outside the specified range of temperature and humidity continuously, it may increase the risk of fire or electric shock.

• Do not place the product at elevations of 1.24 mi. (2,000 m) or higher above sea level. Failure to do so may shorten the life of the internal parts and result in malfunctions.



• When mounting the product into the rack, provide sufficient cooling space.

Mount the product in a rack meeting EIA standards, and maintain spaces above and below for air circulation. For your safety as required, attach an L-shaped bracket in addition to the panel mount bracket kit to improve mechanical stability.

• Never insert screws without the rubber feet into the threaded holes on the bottom of the product.

Never insert screws alone into the threaded holes on the bottom of the product. Doing so may lead to damage when the screws contact electric circuitry or components inside the product.

Reinstall the originally supplied rubber feet using the originally supplied screws only.

For operating products:



Caution

For products with the hot surfaces caution label only:

• Do not touch the product's hot surface.

If the product is installed without enough space, it may cause malfunction of other products.

If you touch product's hot surface, it may cause burns.



• Use only the supplied power cable and AC adapter.

• Do not use the supplied power cable and AC adapter with other products.

If non-compliant adapter or power cables are used, it may increase the risk of fire or electric shock.



• If the product won't be used for an extended period of time, unplug it.

Failure to observe this precaution may increase the risk of fire.

Unplug the product before cleaning.

To prevent electric shock.



• Do not prevent heat release.

If cooling fan stops, power off the product and contact IDK.

Failure to do so may raise internal temperature and increase the risk of malfunction, fire, or electric shock.



Keep vents clear of dust.

If the vent holes near the cooling fan or near the fan are covered with dust, internal temperatures increase and may increase the risk of malfunction. Clean the vent holes and near the fan as needed.

If dust accumulates inside of the product, it may increase the risk of fire or electric shock. Periodic internal cleaning, especially before humid rainy season, is recommended. For internal cleaning, contact your IDK representative.

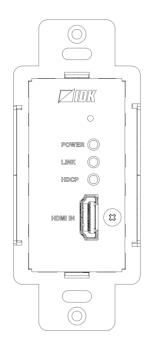
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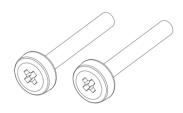
1 Included Items

Ensure all items below are included in the package.

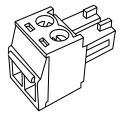
If any items are missing or damaged, please contact IDK.



One (1) HDC-TH100WP







One (1) 2-pin terminal block

[Fig. 1.1] Included items

2 Product outline

The HDC-TH100WP (hereafter referred to as "HDC") is a HDMI wallplate transmitter designed for a long-haul transmission over a twisted pair cable.

Input video signal is converted to HDBaseT signal and transmitted up to 328 ft. (100 m).

The HDC supports 4K @60 and transmits input signals without compression or process so that these signals can keep the quality.

The HDC also supports PoH (Power over HDBaseT). Connecting to a receiver supporting PoH power supply (PSE) function eliminates the need for a local power supply.

3 Features

- Video
- 4K@60
- HDCP 1.4/2.2 (pass through)

Extension: up to 328 ft. (100 m) (4K@60) using Cat6/Cat5e STP cables

up to 328 ft. (100 m) feet using Cat6 UTP cables*1

up to 492 ft. (150 m) over Cat6 cable (Long reach mode)*2

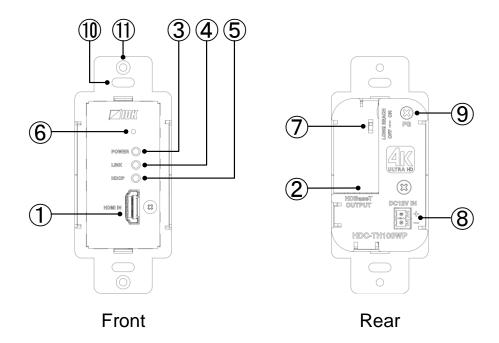
- Transmission using Cat5e UTP cables is also available.*3
- No substantive transmission delay (10 µsec or less per 328 ft. ((100 m))
- Others
- CEC (pass through)
- PoH PD (Powered device)

^{*1} For 70 m/229.65 feet or longer 4K formats, Cat6 STP cable and Cat5e STP cable are recommended.

^{*2} For Long reach mode, up to 1080p (24 bit) resolutions are supported. Use IDK's HDBaseT products supporting 328 ft. (100 m).

^{*3} For 50 m/164.04 feet or longer, Cat6 UTP cable is recommended.

4 Panels



[Fig. 4.1] HDC-TH100WP drawing

[Table 4.1] Name and description

(1/2)

#	Name	Description		
1	HDMI input connector	Input connector for HDMI signals		
		Connect to source devices such as Blu-ray disk players.		
2	HDBaseT output	Output connector for HDBaseT signal		
	connector	Connects to a receiver over a twisted pair cable.		
		When using DC 12V power supply, do not be powered by PoH.		
		[See: 6.1 Power supply]		
3	POWER LED	Shows the power status:		
		Illuminates in green: Powered		
		Does not illuminate: Not powered		
4	LINK LED	Shows the connection status between the HDC and HDBaseT receiver.		
		Illuminates in green: The receiver is connected.		
		Blinks in green (0.5-second interval): The receiver is in standby state.		
		Does not illuminate: No connection.		
⑤	HDCP LED	Shows the HDCP status.		
		Illuminates in green: HDCP compliant.		
		Blinks in green: HDCP incompliant		
		Does not illuminate: No video signal.		

[Table 4.2] Name and description (Cont'd)

#	Name	Description		
6	RESET button	Resets the HDC and then re-establish the connection to HDBaseT		
		receiver.		
7	LONG REACH switch	Enables / disables long reach mode of HDBaseT output for up to 1080p		
		(24 bit) or dot clock 148 MHz.		
		ON: Enables long reach mode (Up to 492 ft. ((150 m))		
		OFF: Disable long reach mode (Up to 328 ft. ((100 m))		
8	DC 12V IN (power input)	Connector for DC 12 V power supply.		
	connector	When using PoH, do not use DC 12V power supply.		
		【See: 6.1 Power supply】		
9	Frame ground	Use for bonding chassis to local ground. An M4 screw is used.		
10	Screw hole	Hole for installing the HDC to a switch box or the like. Use the supplied		
		screws.		
11)	Screw hole	Hole for attaching a Decora plate.		

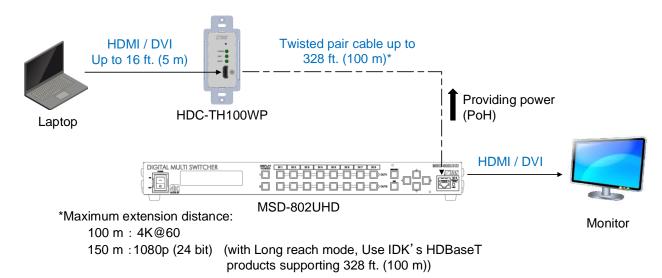
Note:

For Long reach mode, up to 1080p (24 bit) resolutions are supported when using IDK's HDBaseT products supporting 328 ft. (100 m).

5 System configuration example

Example: Powered by PoH

Power is provided by the MSD-802UHD. Video of the laptop is output to the monitor.



[Fig. 5.1] System configuration with PoH powered

Tip:

If using the PoH powering function of the MSD-802UHD, set "HDBaseT input power supply" to "ON". Refer to the MSD-701UHD / 702UHD / 801UHD/ 802UHD User Guide for details.

Note:

If transmitting DVI signal with HDCP from a source device, video may not be output to the sink device depending on connected devices. Contact us before transmitting DVI signal with HDCP.

6 Precautions

6.1 Power supply

The HDC can be powered by either of:

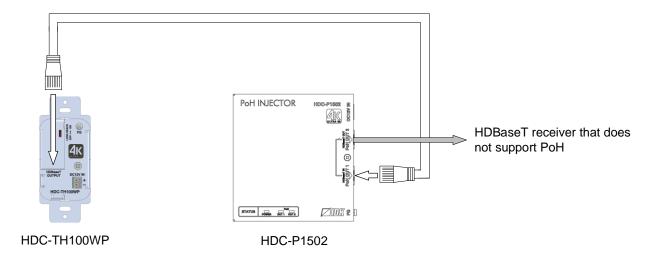
- From a device supporting PoH PSE (IEEE 802.3af) or
- From DC 12 V power supply

Note:

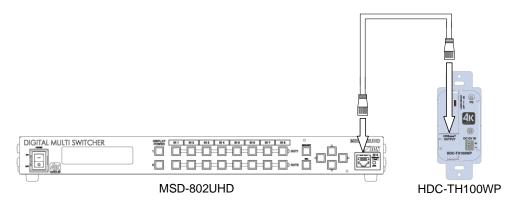
When using PoH, do not use the DC 12V power supply.

■ Powered from a device supporting PoH (PSE)

Power is provided from a device supporting PoH over a twisted pair cable that is connected to an HDBaseT output connector. Turn all devices off when connecting to the twisted pair cable.



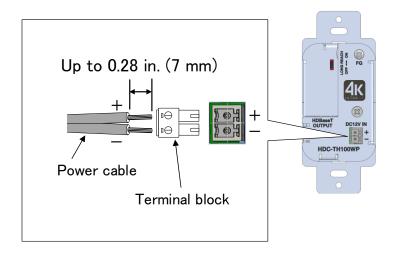
[Fig. 6.1] Powered from HDC-P1502



[Fig. 6.2] Powered from MSD-802UHD

■ From DC 12 V power supply:

Insert the power cable into the terminal block and connect the terminal block to the DC 12V IN connector. AWG28 to AWG16 conductor gauge is recommended. The recommended wire strip length is 0.28 in. (7 mm).



[Fig. 6.3] Connecting DC 12 V power cable

Note:

Ensure the polarity is correct when inserting the power cable to the terminal block. Otherwise, it may cause problems or a fire.

6.2 Cable

6.2.1 Twisted pair cable for extension

To ensure the best performance of twisted pair cables, select a correct twisted pair cable and connect it correctly.

- Cat5e UTP/STP and Cat6 UTP/STP can be used, but we recommend CAT.5E HDC cable* for optimal performance.
- If using an STP cable, connect the FG connector to a ground source. Otherwise, the shielding feature does not work correctly. When using a UTP cable, we still recommend using the ground connector.
- The shielded STP cables are less affected by interference or external noise than UTP cables.
- Connectors for long-haul extension are the same as that of eight-core modular connector used for Ethernet, but the transmission system is not the same so that it cannot be connected to Ethernet.
- The maximum extension distance of a twisted pair cables is the shorter distance of the maximum extension distances of transmitter/receiver/sink device connected to the HDC.
- · Pin assignments: T568A or T568B straight
- Do not pull the cable hard. The allowable tension of the twisted pair cable is 110 N.
- Do not bend the connection cable at a sharp angle. Keep the bend radius four times of the cable diameter or larger.
- Do not tie the cable tightly; leave a space allowing the cable to move slightly.
- If you use multiple twisted pair cables, we recommended keeping a distance between the cables or not to place the cables closely in parallel.
- Keep the twisted pair cable as straight as you can. If you coil the cable, it is easily affected by noise.
- Do not place the cable in an electrically noisy environment, since high-speed signals are transmitted. Particularly when you use a high-output radio around the HDC, video or audio may be interrupted.
- If the total extension distance from the transmitter to receiver is 328 ft. (100 m) or less, up to two cable joints can be used. Products supporting Cat6A (10GBase-T) are recommended. However, the extension distance of high-resolution transmission, such as 4K, may be shortened about 10%.
- · Use AWG 24 or ticker cable for PoH.
- The table below shows supported extension distance for each twisted pair cable category. Note that the
 distance may shorten depending on the actual environment.

Noise influence	Ca	tegory	Extension distance	TMDS clock	Remarks
Easily affected	UTP	Cat5e	164 ft. (50 m)	≦ 225 MHz	For 164 ft. (50 m) or longer, Cat5e STP, Cat6 UTP / STP,
		Cat6	328 ft. (100 m)		CAT.5E HDC* are recommended.
			230 ft. (70 m)	> 225 MHz (4K format)	For 4K format 230 ft. (70 m) or longer, Cat5e STP, Cat6 STP,
Less affected	STP	Cat5e* Cat6	328 ft. (100 m)		CAT.5E HDC* are recommended.
			492 ft. (150 m)	Long reach mode ≤ 148 MHz (1080p 24 bit or less)	Cat5e STP, Cat6 STP, CAT.5E HDC cable

^{*} The CAT.5E HDC cable is a double-shielded twisted pair cable that optimizes video signal transmission. It is certified to 500 MHz bandwidth at distance up to 330 feet (100 m) and verified to meet requirements specified by HDBaseT Alliance. The double-shielded structure protects video signal from outside interference.

Note:

If there is a problem in the transmission path, video or audio may be interrupted. Check the precautions above. If the problem still cannot be solved, shortening the twisted pair cable may remedy the problem.

6.2.2 Cabling

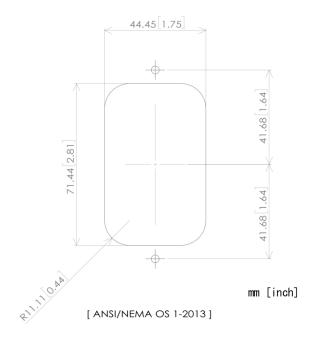
When connecting the HDC to external devices, please observe the following precautions.

- Read manuals for the external devices.
- Before you connecting cables to the HDC or an external device, dissipate static electricity by touching
 grounded metal such as racks before handling signal cables. Failure to observe this precaution may result
 in ESD (electrostatic discharge) damage.
- · Power all units off before connecting cables.
- Be sure to fully seat all plugs and connections and dress cables to reduce stress on connectors.

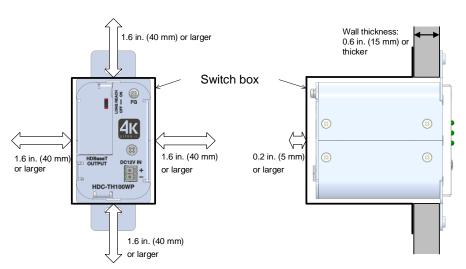
7 Installation

When installing the HDC, observe the following precautions:

- · Wall thickness: 0.6 in. (15 mm) or thicker
- When the HDC needs to be installed in an enclosed space or switch box, maintain the following sufficient clearances to provide adequate ventilation: 1.6 in. (40 mm) or more around the HDC or switch box; 0.2 in. (5 mm) or more for depth
- For hole sizes, see the figure below.



[Fig. 7.1] Hole sizes

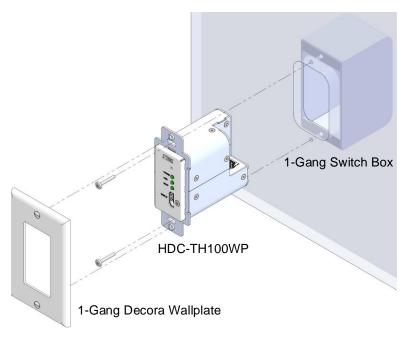


[Fig. 7.2] Space for heat dissipation

7.1 Switch box, bracket, and wallplate

IDK has confirmed that the following switch box, bracket, and wallplate can be mounted to the HDC.

- Eaton's Crouse-Hinds TP218 1-Gang Steel Switch Box, 2-1/2 in. Deep
- Eaton's Crouse-Hinds TP252 1-Gang Steel Switch Box, 3-1/2 in. Deep
- Arlington Industries LV1 Low Voltage Mounting Bracket
- Leviton Manufacturing 80401-W 1-Gang Decora Wallplate



[Fig. 7.3] Example: Switch box is used

Note:

For the depth and wall thickness, 3 in. (76 mm) or larger space in total is necessary. For example, the wall thickness needs to be 0.5 in. (13 mm) or thicker for a switch box 2.5 in. (64 mm) in depth.

8 Product specification

Item		Description			
Input		1 input HDMI (*1) / DVI 1.0 TMDS signal link HDCP 1.4 / 2.2 (Pass through) (*2) CEC (Pass through) Connector: Female HDMI Type A (19-pin) (*3)			
Output		1 output HDBaseT PoH power supplied (PD) (equivalent to IEEE802.3af) Connector: RJ-45			
Format		VGA to 4K (*4) 480i / 480p / 576i / 576p / 720p / 1080i / 1080p / 4K (*4)			
Color depth		24 bit, 30 bit, 36 bit Deep Color (*5)			
Dot clock		25 MHz to 600 MHz			
TMDS clock		25 MHz to 340 MHz			
TMDS data ra	ate	0.75 Gbps to 10.2 Gbps			
Plug & Play		Pass through			
Digital audio i	input / output	Up to 8 multi-channel LPCM Sampling frequency: 32 kHz to 192 kHz, Sample size: 16 bit to 24 bit			
Cable for	Cable (*6)	CAT.5E HDC, Cat5e UTP / STP, Cat6 UTP / STP cable			
extension	Maximum extension distance (*7)	328 ft. (100 m) (For 4K format, CAT.5E HDC, Cat5e STP, or Cat6 STP cable is used) 492 ft. (150 m) (Long reach mode is used)			
	Power	PoH power supplied (PD) (equivalent to IEEE 802.3af) (*8), Connector: RJ-45 or DC 12 V 0.2 A, Connector: 2-pin terminal block (*9)			
	Power consumption	PoH power supplied (PD): About 4 Watts DC 12 V power supplied: About 3 Watts			
	Dimensions	1.7 (W) x 4.2 (H) x 3.1 (D)" (43.2 (W) x 106.8 (H) x 78.9 (D) mm) (Excluding connectors and the like)			
General	Weight	0.4 lbs. (0.2 kg)			
	Temperature	Operating: 32°F to 104°F (0°C to +40°C) Storage: -4°F to +176°F (-20°C to +80°C)			
	Humidity	Operating / Storage: 20% to 90% (Non Condensing)			
	Switch Box	Eaton's Crouse-Hinds TP218 1-Gang Steel Switch Box, 2-1/2 in. Deep (*10) Eaton's Crouse-Hinds TP252 1-Gang Steel Switch Box, 3-1/2 in. Deep			
	Mounting Bracket	Arlington Industries LV1 Low Voltage Mounting Bracket			
	Wallplate	Leviton Manufacturing 80401-W 1-Gang Decora Wallplate			

- *1 *2 ARC and HEC are not supported.
- To transmit those signals, use an IDK's twisted pair cable extender supporting DVI signals.

 If DVI signals with HDCP is sent from the source device, video may not be output to the sink device, please check the operation beforehand.
- *3 Use 16 ft. (5 m) or shorter HDMI cables.
- Use 16 ft. (5 m) or shorter HDMI cables.

 For 4K format, use an 18-Gbps high speed cable.

 For 4K format, 24 Hz / 25 Hz / 30 Hz / 50 Hz (4:2:0) / 60 Hz (4:2:0) are supported.

 For 4K format, the following color depths are supported.

 24 Hz / 25 Hz / 30 Hz : 24 bit (RGB, YCbCr 4:4:4)

 : 24 bit, 30 bit, 36 bit (YCbCr 4:2:2)
- 50 Hz / 59.94 Hz / 60 Hz: 24 bit (YCbCr 4:2:0)

 T568A or T568B straight. The CAT.5E HDC cable is developed by IDK and recommended by HDBaseT alliance.
- The maximum extension distance was obtained when IDK's CAT.5E HDC cable was used. The distance may not be extended with some device combinations, cabling method, or other manufacturer's cable. Video may be disturbed or may not be output even if signals are within the range mentioned above. Operations may not be stable with some LCD
- devices; please check the operation beforehand or contact us.

 The maximum extension distance is the shorter distance of connected HDBaseT product or sink device's maximum extension distance.

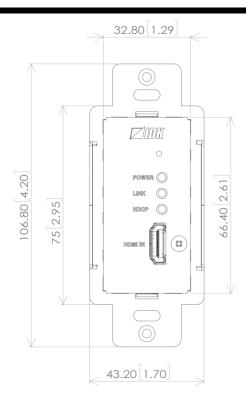
 For Long reach mode, use IDK's twisted pair cable products that supports 328 ft. (100 m), and up to resolutions 1080p (24 bit) or less are supported.

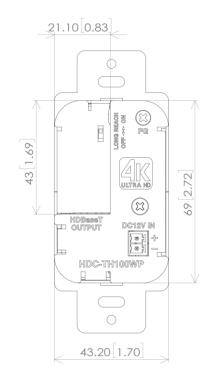
 For receiving power, please use a twisted pair cable receiver that supports PoH power supply (IEEE 802.3af) or PoH injector. For providing power, use an AWG 24 or thicker twisted pair cable.

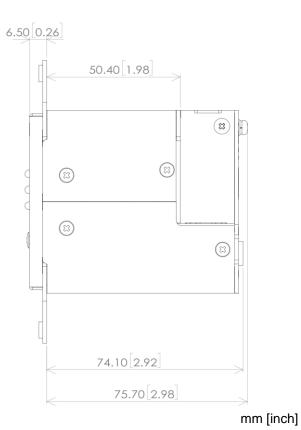
 *9 PoH (powered) cannot be used together with DC 12 V power supply.

 *10 Wall: 0.5 in. (1.27 cm) or thicker

8.1 Dimensions







[Fig. 8.1] Dimensions

9 Troubleshooting

In case the HDC does not work correctly, please check the following items first. Also, refer to instruction manuals of devices connected to the HDC.

- · Are the HDC and all devices plugged in and powered on normally?
- · Are cables connected correctly?
- · Are there no loose connections?
- · Are correct cables supported by devices being used?
- · Are specifications of connected devices matched to each other?
- · Are settings of the sink devices correct?
- · Are there any nearby objects that may cause noise?
- •Connect the devices using genuine cables without connecting the HDC. The problem still cannot be solved?

If additional assistance is required, please perform the following tests and then contact us.

User Guide of HDC-TH100WP

Ver.1.2.0

Issued on: 8 August 2023



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