

User Manual

VIVOLINK®
PROFESSIONAL AV SOLUTIONS

VLUSBCEXT2X2

**USB3.2 Gen 1 Extender 100m
with Dual USB-C in & Video out**



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Version: VLUSBCEXT2X2_2025V1.0

Preface

Read this user manual carefully before using the product. Pictures shown in this manual are for reference only. Different models and specifications are subject to real product.

This manual is only for operation instruction, please contact the local distributor for maintenance assistance. In the constant effort to improve the product, we reserve the right to make functions or parameters changes without notice or obligation. Please refer to the dealers for the latest details.

FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference.

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.



SAFETY PRECAUTIONS

To ensure the best performance from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment.
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheat.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.

Elektro- und Elektronikgeräte

Informationen für private Haushalte

Das Elektro- und Elektronikgerätegesetz (ElektroG) enthält eine Vielzahl von Anforderungen an den Umgang mit Elektro- und Elektronikgeräten. Die wichtigsten sind hier zusammengestellt.

1. Getrennte Erfassung von Altgeräten

Elektro- und Elektronikgeräte, die zu Abfall geworden sind, werden als Altgeräte bezeichnet. Besitzer von Altgeräten haben diese einer vom unsortierten Siedlungsabfall getrennten Erfassung zuzuführen. Altgeräte gehören insbesondere nicht in den Hausmüll, sondern in spezielle Sammel- und Rückgabesysteme.

2. Batterien und Akkus sowie Lampen

Besitzer von Altgeräten haben Altbatterien und Altakkumulatoren, die nicht vom Altgerät umschlossen sind, sowie Lampen, die zerstörungsfrei aus dem Altgerät entnommen werden können, im Regelfall vor der Abgabe an einer Erfassungsstelle vom Altgerät zu trennen. Dies gilt nicht, soweit Altgeräte einer Vorbereitung zur Wiederverwendung unter Beteiligung eines öffentlich-rechtlichen Entsorgungsträgers zugeführt werden.

3. Möglichkeiten der Rückgabe von Altgeräten

Besitzer von Altgeräten aus privaten Haushalten können diese bei den Sammelstellen der öffentlich-rechtlichen Entsorgungsträger oder bei den von Herstellern oder Vertreibern im Sinne des ElektroG eingerichteten Rücknahmestellen unentgeltlich abgeben. Rücknahmepflichtig sind Geschäfte mit einer Verkaufsfläche von mindestens 400 m² für Elektro- und Elektronikgeräte sowie diejenigen Lebensmittelgeschäfte mit einer Gesamtverkaufsfläche von mindestens 800 m², die mehrmals pro Jahr oder dauerhaft Elektro- und Elektronikgeräte anbieten und auf dem Markt bereitstellen. Dies gilt auch bei Vertrieb unter Verwendung von Fernkommunikationsmitteln, wenn die Lager- und Versandflächen für Elektro- und Elektronikgeräte mindestens 400 m² betragen oder die gesamten Lager- und Versandflächen mindestens 800 m² betragen. Vertreter haben die Rücknahme grundsätzlich durch geeignete Rückgabemöglichkeiten in zumutbarer Entfernung zum jeweiligen Endnutzer zu gewährleisten. Die Möglichkeit der unentgeltlichen Rückgabe eines Altgerätes besteht

bei rücknahmepflichtigen Vertreibern unter anderem dann, wenn ein neues gleichartiges Gerät, das im Wesentlichen die gleichen Funktionen erfüllt, an einen Endnutzer abgegeben wird. Wenn ein neues Gerät an einen privaten Haushalt ausgeliefert wird, kann das gleichartige Altgerät auch dort zur unentgeltlichen Abholung übergeben werden; dies gilt bei einem Vertrieb unter Verwendung von Fernkommunikationsmitteln für Geräte der Kategorien 1, 2 oder 4 gemäß § 2 Abs. 1 ElektroG, nämlich „Wärmeüberträger“, „Bildschirmgeräte“ oder „Großgeräte“ (letztere mit mindestens einer äußeren Abmessung über 50 Zentimeter). Zu einer entsprechenden Rückgabe-Absicht werden Endnutzer beim Abschluss eines Kaufvertrages befragt. Außerdem besteht die Möglichkeit der unentgeltlichen Rückgabe bei Sammelstellen der Vertreter unabhängig vom Kauf eines neuen Gerätes für solche Altgeräte, die in keiner äußeren Abmessung größer als 25 Zentimeter sind, und zwar beschränkt auf drei Altgeräte pro Geräteart.

4. Datenschutz-Hinweis

Altgeräte enthalten häufig sensible personenbezogene Daten. Dies gilt insbesondere für Geräte der Informations- und Telekommunikationstechnik wie Computer und Smartphones. Bitte beachten Sie in Ihrem eigenen Interesse, dass für die Löschung der Daten auf den zu entsorgenden Altgeräten jeder Endnutzer selbst verantwortlich ist.

5. Bedeutung des Symbols „durchgestrichene Mülltonne“

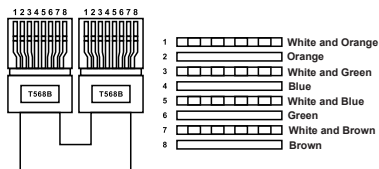
Das auf Elektro- und Elektronikgeräten regelmäßig abgebildete Symbol einer durchgestrichenen Mülltonne weist darauf hin, dass das jeweilige Gerät am Ende seiner Lebensdauer getrennt vom unsortierten Siedlungsabfall zu erfassen ist.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lighting strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

Caution

The network cable connection method required for this product is direct connection. Please do not cross connect.



Direct Interconnection Method

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1. Introduction

This USB Extender can extend USB 3.2 Gen 1 5Gbps signal to a distance up to 100m/ 328ft via a single CAT6a cable. The transmitter features two USB-C selectable host ports with charging, one USB-C and two USB-A device ports. The receiver features one USB-C and two USB-A device ports, and two HDMI output ports. This extender supports auto and manual switching for the two host ports. Bi-directional 24V PoC (Power over Cable) allows user only to provide power supply to the transmitter side or the receiver side.

It can be widely used for long distance USB and video signal transmission between USB sources and devices like webcams, PTZ cameras, keyboards, mouse devices, USB microphones, flash sticks, printers, scanners, touch panel displays and other USB devices.

2. Features

- ☆ Extension of USB 3.2 Gen 1 up to 100m/328ft via CAT6a cable
 - ☆ USB 3.2 Gen 1 connectivity with data transfer rate up to 5Gbps
 - ☆ Backwards compatible with USB 2.0 and 1.1
 - ☆ Hardware acceleration for isochronous and bulk transfer
 - ☆ TX USB-C input ports sharing up to 100W charging (1x100W or 2x50W)
 - ☆ TX supports auto and manual switching for the two up-stream host ports, via switch button or API commands
 - ☆ RX supports audio de-embedding to balanced/unbalanced audio output
 - ☆ Dual HDMI outputs, with resolution up to 4K@60Hz
 - ☆ RS-232 pass-through and API control
 - ☆ Firmware upgrade via USB-C service port
 - ☆ FSYNC GPIO pass-through for industry camera use
 - ☆ Bi-directional 24V PoC (power over cable), when TX or RX gets power, the other end does not need an external power supply
- Note: USB-C charging is supported only when TX gets power supply.
- ☆ Compatible with macOS, Windows, Android, Chrome OS, Ubuntu

3. Package Contents

- ① 1× USB 3.2 Gen 1 Extender (TX)
- ② 1× USB 3.2 Gen 1 Extender (RX)
- ③ 1× 24V/7.5A Locking Power Supply
- ④ 2× 4pin-3.5mm Phoenix Connector (Male)
- ⑤ 1× 5pin-3.5mm Phoenix Connector (Male)
- ⑥ 4× Mounting Ear
- ⑦ 8× Machine Screw (KM3*4)
- ⑧ 1× User Manual

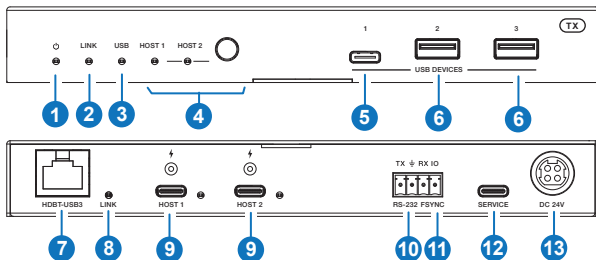
4. Specifications

Technical	
USB Protocol	USB 3.2 Gen 1
Transmission Rate	Up to 5Gbps
HDMI™ Compliance	HDMI™ 2.0b
HDMI™ Video Bandwidth	18Gbps
HDMI™ Video Resolution	Up to 4K@60Hz
Color Depth	8/10/12-bit
Color Space	RGB, YCbCr_4:4:4, YCbCr_4:2:2, YCbCr_4:2:0
Transmission Distance	100m/328ft via CAT6a (F/FTP) cable 1.5m/4.9ft via USB cable 3m/9.8ft via HDMI™ passive cable
ESD Protection	IEC 61000-4-2: ±8kV (Air-gap discharge), ±4kV (Contact discharge)

Connections	
Transmitter	Input: 2× USB-C HOST [USB Type C, 24-pin female] Output: 2× USB-A DEVICE [USB Type A, 9-pin female] 1× USB-C DEVICE [USB Type C, 24-pin female] 1× HDBT-USB3 [RJ45 connector, 24V PoC] Control: 1× RS-232 [3pin-3.5mm phoenix connector] 1× FSYNC [1pin-3.5mm phoenix connector] 1× SERVICE [USB Type C, firmware update port]
Receiver	Input: 1× HDBT-USB3 [RJ45 connector, 24V PoC] Output: 2× USB-A DEVICE [USB Type A, 9-pin female] 1× USB-C DEVICE [USB Type C, 24-pin female] 2× HDMI™ OUT [Type A, 19-pin female] 1× AUDIO OUT [5pin-3.5mm phoenix connector] Control: 1× RS-232 [3pin-3.5mm phoenix connector] 1× FSYNC [1pin-3.5mm phoenix connector] 1× SERVICE [USB Type C, firmware update port]
Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions	Transmitter: 180mm [W] × 95mm [D] × 23mm [H] Receiver: 180mm [W] × 95mm [D] × 23mm [H]
Weight	Transmitter: 482g; Receiver: 486g
Power Supply	Input: AC 100~240V 50/60Hz; Output: DC 24V/7.5A (US/EU standards, CE/FCC/UL certified)
Power Consumption	Transmitter: 120W (Including PD 100W, Max); Receiver: 19.44W (Max)
Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F
Storage Temperature	-20°C ~ 60°C / -4°F ~ 140°F
Operating Humidity	20%~80% relative humidity, non-condensing
Storage Humidity	10%~90% relative humidity, non-condensing

5. Operation Controls and Functions

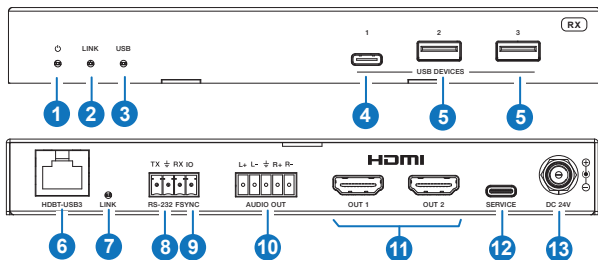
5.1 Transmitter Panel



No.	Name	Function Description
1	Power LED	The red LED will be on when the transmitter is powered on.
2	LINK LED	Connection signal indicator. ▪ On: Transmitter and Receiver are connected and linked. ▪ Off: Transmitter and Receiver are not connected.
3	USB LED	USB signal indicator. ▪ On: USB 3.0 signal is detected. ▪ Blinking: USB 2.0 signal is detected. ▪ Off: USB signal is not detected.
4	HOST switch button & LED	The button is used to switch between HOST 1 and HOST 2. When HOST 1/2 is selected, the corresponding LED will be on.
5	USB-C DEVICE	Downstream USB-C port, with output power up to 5V/1A. Connects to USB device such as U disk or hard disk.
6	USB-A DEVICE	Downstream USB-A ports, with output power up to 5V/1.5A. Connect to USB devices such as U disk or hard disk.
7	HDBT-USB3	Connects to the HDBT-USB3 port on RX with CAT6a cable. It can also be used for 24V PoC power supply.
8	LINK LED	Connection signal indicator. ▪ On: Transmitter and Receiver are connected and linked. ▪ Off: Transmitter and Receiver are not connected.

9	USB-C HOST ports & LEDs (1/2)	Upstream USB-C ports, connected to PC or host. Support up to PD100W charging. Note: If the two hosts are charging at the same time, the power output of each host is up to 50W. When HOST 1/2 is selected as input channel, the corresponding LED will be on.
10	RS-232	3pin phoenix connector, connected to a PC or control system for RS-232 command pass-through.
11	FSYNC	FSYNC port, the level pass through from Transmitter to Receiver, to synchronize the external devices. Default level range is 0~5V.
12	SERVICE	USB 2.0 port, used for firmware upgrade.
13	DC 24V	DC 24V/7.5A power input port.

5.2 Receiver Panel



No.	Name	Function Description
1	Power LED	The red LED will be on when the receiver is powered on.
2	LINK LED	Connection signal indicator. ▪ On: Transmitter and Receiver are connected and linked. ▪ Off: Transmitter and Receiver are not connected.
3	USB LED	USB signal indicator. ▪ On: USB 3.0 signal is detected. ▪ Blinking: USB 2.0 signal is detected. ▪ Off: USB signal is not detected.

4	USB-C DEVICE	Downstream USB-C port, with output power up to 5V/1A. Connects to USB device such as U disk or hard disk.
5	USB-A DEVICE	Downstream USB-A ports, with output power up to 5V/1.5A. Connect to USB devices such as U disk or hard disk.
6	HDBT-USB3	Connects to the HDBT-USB3 port on TX with CAT6a cable. It can also be used for 24V PoC power supply.
7	LINK LED	Connection signal indicator. ▪ On: Transmitter and Receiver are connected and linked. ▪ Off: Transmitter and Receiver are not connected.
8	RS-232	3pin phoenix connector, connected to a PC or control system for RS-232 command pass-through.
9	FSYNC	FSYNC port, the level pass through from TX to RX, to synchronize the external devices. Default level range is 0~5V.
10	AUDIO OUT	Analog audio output port, supporting balanced audio output (with a maximum support of 2Vrms) and unbalanced audio output (with a maximum support of 1Vrms). Balanced connection method: L+, L-, $\frac{L}{2}$, R+, R- Unbalanced connection method: L+, $\frac{L}{2}$, R+
11	HDMI OUT	HDMI output ports, connected to HDMI display devices such as TV or monitor. Note: Please install the latest version of the driver, otherwise, there will be something wrong with the HDMI signal output. Download URL: http://www.synaptics.com/products/displaylink-graphics/downloads
12	SERVICE	USB 2.0 port, used for firmware upgrade.
13	DC 24V	DC 24V/7.5A power input port.

6. DisplayLink Introduction

DisplayLink is a graphics - transport technology that enables easy connection of monitors to computers via USB. It acts as a virtual graphics card, compressing video data and sending it to the display device over USB, which then decodes and shows the image. It features wide compatibility, high - resolution support and multi - monitor expansion, and is widely used in office, home and multimedia scenarios.

DisplayLink drivers download URL:

Go to <https://www.synaptics.com/products/displaylink-graphics/downloads/windows> download and install the latest DisplayLink driver.

Windows

macOS

Android

Chrome OS

Ubuntu

Corporate Installers for Windows

Windows Driver Downloads

Here you can download drivers for DisplayLink® USB graphics chipsets incorporated in your dock, adapter or monitor. We recommend to update to the latest driver to address any potential security issue, fix bugs, improve performance and add new features.

Notes:

1. Your Original Equipment Manufacturer (OEM) may also provide software for your specific monitor, dock or adapter that differs from the DisplayLink releases. Please check their website for details.
2. Windows 10 S products using DisplayLink technology will get their device drivers either from OEM pre-installation or from Windows Update.

Latest Official Drivers

DisplayLink USB Graphics Software for Windows

Download

[Release Notes](#)

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DOWNLOAD DISPLAYLINK MANAGER

DisplayLink Manager is a native Windows app that offers quick and easy access to display and audio setting adjustment controls. Download it today from the Microsoft Store.

7. API Commands

The product supports API commands control. Connect the RS-232 port of the product to a PC, then open a Serial Command tool on PC to send API commands to control the product. The API commands list is shown below.

ASCII Commands				
1. Service port (USB-C virtual RS-232) communication protocol (Internal debug) Baud rate: 115200 (fixed), Data bit: 8, Stop bit: 1, Parity bit: none The end mark of command is "<CR><LF>" 2. Phoenix RS-232 port communication protocol (Connect to control system) Baud rate: 4800~115200 (configurable), Data bit: 8, Stop bit: 1, Parity bit: none The end mark of command is "<CR><LF>"				
Command	Function	Example	Feedback	Default
?	Get the list of all commands	?		
help	Get the list of all commands	help		
get fw version	Get firmware version	get fw version	TX FW 1.0.0 RX FW 1.0.0	
set reboot	Reboot the device	set reboot	Reboot... System Initializing... Initialization Finished! TX FW 1.0.0	
set reset	Reset to factory defaults	set reset	Sure to RESET to default settings? Type "Yes" after next prompt to confirm...	
get status	Get system status	get status	Please refer to the note at the end of the list.	
set key on/off	Set front panel key on/off	set key on set key off	Set key on Set key off	on
get key	Get front panel key on/off status	get key	Key on	
set baud x	Set RS-232 baud rate to x bps x=1: 4800 x=2: 9600 x=3: 19200 x=4: 38400 x=5: 57600 x=6: 115200	set baud 6	Set baud rate 115200	115200

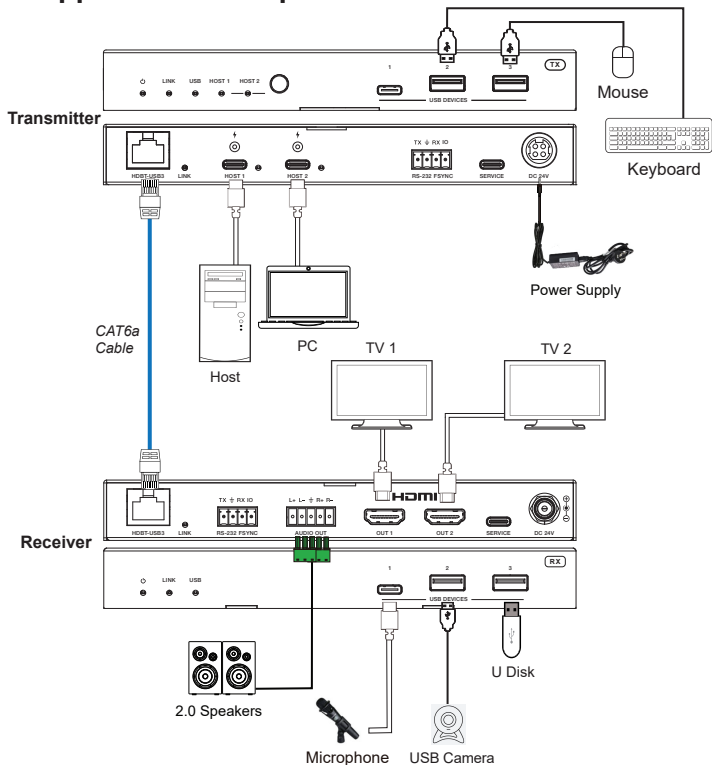
get baud	Get RS-232 baud rate	get baud	Baud rate 115200	
get usb5v x	Get USB host input port 5V (x=0~2) x=0: all USB host inputs x=1: USB host 1 (USBC) x=2: USB host 2 (USBC)	get usb5v 0	USB host 1: 5V USB host 2: none	
set autoswitch x	Set auto-switching on/off (USB 5V detection) x=On, Off	set autoswitch on	Set autoswitch on	on
get autoswitch	Get auto-switching status	get autoswitch	Autoswitch on	
set tx usbd x power y	Set TX USB device ports (x=0~3) power to (y=0~2) x=0: TX all USB device ports x=1: TX USB device 1 (USBC) x=2: TX USB device 2 (USBA) x=3: TX USB device 3 (USBA) y=0: Force power off y=1: Follow USB host power y=2: Force power on	set tx usbd 0 power 1	Set TX all USB device ports power follow USB host power	1
get tx usbd x power	Get TX USB device ports (x=0~3) power status x=0: TX all USB device ports x=1: TX USB device 1 (USBC) x=2: TX USB device 2 (USBA) x=3: TX USB device 3 (USBA)	get tx usbd 0 power	TX all USB device ports power follow USB host power	
set rx usbd x power y	Set RX USB device ports (x=0~3) power to (y=0~2) x=0: RX all USB device ports x=1: RX USB device 1 (USBC) x=2: RX USB device 2 (USBA) x=3: RX USB device 3 (USBA) y=0: Force power off y=1: Follow USB host power y=2: Force power on	set rx usbd 0 power 1	Set RX all USB device ports power follow USB host power	1
get rx usbd x power	Get RX USB device ports (x=0~3) power status x=0: RX all USB device ports x=1: RX USB device 1 (USBC) x=2: RX USB device 2 (USBA) x=3: RX USB device 3 (USBA)	get rx usbd 0 power	RX all USB device ports power follow USB host power	

set hdbt update	Set service port to HDBT UART for FW update	set hdbt update	HDBT update	
set input x	Set USB host input port (x=1~2) x=1: USB host 1 (USBC) x=2: USB host 2 (USBC)	set input 1	Set input USB host 1	1
get input	Get USB host input port	get input	Input USB host 1	

Note: The feedback of the command of "get status" is as follow.

```
=====
Status Info 2-Port USB 3.2 Gen 1 Extender
TX_FW 1.0.0 RX_FW 1.0.0
Source   Key       Baud       Autoswitch
01       On        115200     On
Input    USB_Power
01       5V
02       None
Output    USB_Power
TX_01    Follow_Input
TX_02    Follow_Input
TX_03    Follow_Input
RX_01    Follow_Input
RX_02    Follow_Input
RX_03    Force_On
=====
```

8. Application Example



9. Customer Service

The return of a product to our Customer Service implies the full agreement of the terms and conditions hereinafter. There terms and conditions may be changed without prior notice.

1) Warranty

The limited warranty period of the product is fixed three years.

2) Scope

These terms and conditions of Customer Service apply to the customer service provided for the products or any other items sold by authorized distributor only.

3) Warranty Exclusion:

- Warranty expiration.
- Factory applied serial number has been altered or removed from the Product.
- Damage, deterioration or malfunction caused by:
 - ✓ Normal wear and tear.
 - ✓ Use of supplies or parts not meeting our specifications.
 - ✓ No certificate or invoice as the proof of warranty.
 - ✓ The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
 - ✓ Damage caused by force majeure.
 - ✓ Servicing not authorized by distributor.
 - ✓ Any other causes which does not relate to a product defect.
- Shipping fees, installation or labor charges for installation or setup of the product.

4) Documentation:

Customer Service will accept defective product(s) in the scope of warranty coverage at the sole condition that the defeat has been clearly defined, and upon reception of the documents or copy of invoice, indicating the date of purchase, the type of product, the serial number, and the name of distributor.

Remarks: Please contact your local distributor for further assistance or solutions.