

**SAMSUNG**

# Perfect Control Solution



## UTP TRANSMITTER & RECEIVER SUT-80/SUR-10 USER'S MANUAL

Thank you for choosing this Samsung UTP TRANSMITTER & RECEIVER product.

Before attempting to connect or operate this product, please read the instructions contained in this manual carefully.

Please save this instruction manual for future reference.

ENGLISH



Samsung Techwin cares for the environment at all product manufacturing stages, and is taking measures to provide customers with more environmentally friendly products.

The Eco mark represents Samsung Techwin's devotion to creating environmentally friendly products, and indicates that the product satisfies the EU RoHS Directive.

## Cautions/Warnings for Installation

Before installing this product, please read the following cautions and warnings carefully.  
Do not install the product in the following locations.

- **Places under extremely high or low temperature conditions**
  - Use this product under temperature conditions only between -15°C and +40°C to prevent low performance and product malfunctions.
- **Places exposed to rain, snow, or high humidity**
  - Avoid water and moisture leakage into the product; it may cause the product to malfunction.
- **Places containing or exposed to oil and gas**
  - Oil, moisture, and gas leakage into the product may cause product malfunctions.
- **Places exposed to vibration and shock**
  - Vibration and shock may cause product malfunctions.
- **Places under direct sunlight or exposed to outdoor weather conditions**
  - Direct sunlight and severe weather conditions may cause product malfunctions.
- **Places exposed to radio waves (RF) or near power cables**
  - Radio communication devices and electromagnetic waves from power lines may cause product malfunctions.

## Cautions/Warnings for Use

- **Do not disassemble the product or insert foreign objects.**
  - Disassembly of the product or insertion of foreign objects such as metal may cause break or damage the unit.
- **Make sure to turn off the product prior to installation.**
  - Before installing your product, please check its voltage rating and then turn on the power.
- **Do not subject the product to physical shock or exert excessive force to operate the product.**
  - Shocks and excessive force on the components such as circuits may break or seriously damage the unit.

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# 1. Product Introduction

## 1-1. Overview

The UTP Video Transmitter & Receiver (SUT-80, SUR-10) converts the imbalance differential signals of CCTV cameras to balanced differential signals and transmit them via twisted pair cable (UTP, FTP, STP), enabling long-distance signaling without the interference of differential noise. Our UTP video transmitter & receivers are also capable of supplying power to connected cameras and transmitting camera control data using an extra cable.

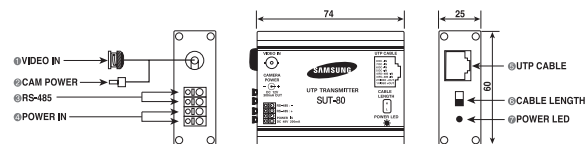
## 1-2. Product Features

- Provides differential signaling for video, power, and data transmission using 1 UTP cable
- Minimizes the interference of various transmission noises
- Provides BNC harness for the user's convenience
- 2-level distance adjustment switch (Low: ~600m, High: 600~2.4km)
- Max B/W via UTP cable: 2.4km, Max color: Differential video signaling up to 1.5Km when set to High)
- Provides AMP & FEQ gain adjustments for optimal video quality
- Double duty power options: AC 24V 300mA & DC 12V 500mA (SUT-80: DC48V only)
- Convenient wiring options using RJ-45 Connector
- Compatible with the older models of CVBS out cameras CVBS in DVRs, monitors, and dividers
- Compatible with most UTP cameras and DVRs
- Light, compact size perfectly fit into housings
- When used with the SUJ-800, supplies power to a connected camera within 1km (Output current: DC 12V MAX 300mA; only DC-voltage cameras are compatible)

# 2. Product Parts and Peripheral Device Connection

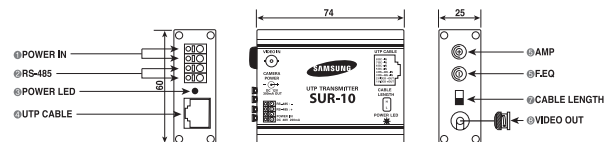
## 2-1. Part Names and Functions

### 2-1-1. SUT-80



- 1 VIDEO IN :** Connect the video output terminal of a camera.
- 2 CAM POWER :** The power output terminal for a camera.  
Do not connect a camera that uses a different power supply. (In case a different power supply is used, please connect the enclosed load resistor.)
- 3 RS-485 :** RS-485 data terminal. Caution: Polarity sensitive.
- 4 POWER IN :** Connect an extra adapter.  
Do not use if the receiver and junction box are used for the supply power.
- 5 UTP CABLE :** Connect a UTP cable attached with an RJ-45 plug.
- 6 CABLE LENGTH :** Adjust the software according to the length of the UTP cable.  
Max Distance Low (L): ~600m / (H): 600~2.4km
- 7 POWER LED :** A red light turns on when the SUT-10 is powered on.

### 2-1-2. SUR-10

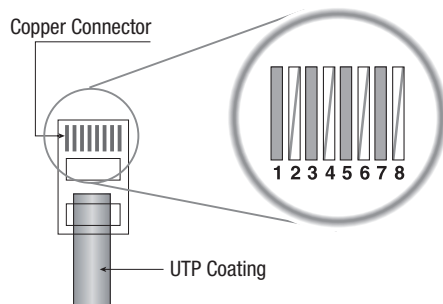


- 1 POWER IN :** The adapter terminal.

## 2. Product Parts and Peripheral Device Connection

- ② RS-485 : RS-485 data terminal. Caution. Polarity sensitive.
- ③ POWER LED : A red light turns on when the SUR-10 is powered on.
- ④ UTP CABLE : Connect a UTP cable attached with an RJ-45 plug.
- ⑤ AMP : Enables adjusting video levels.
- ⑥ F.EQ : Enables adjusting video details.
- ⑦ CABLE LENGTH : Adjust the software according to the length of the UTP cable.  
Max Distance Low (L): ~600m/ (H): 600~2.4km
- ⑧ VIDEO OUT : Connect the video input terminal of a DVR, monitor, or divider.

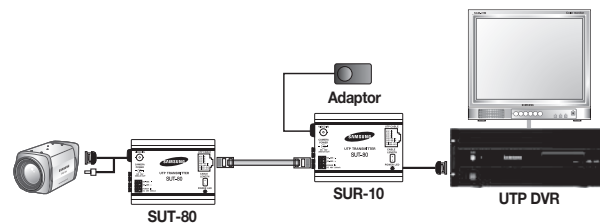
### 2-2. Connecting UTP Cable



| No. | Color          | Function |
|-----|----------------|----------|
| 1   | Orange         | VIDEO +  |
| 2   | Orange + White | VIDEO -  |
| 3   | Green          | DATA +   |
| 4   | Green + White  | DATA -   |
| 5   | Blue           | POWER +  |
| 6   | Blue + White   | POWER +  |
| 7   | Brown          | POWER -  |
| 8   | Brown + White  | POWER -  |

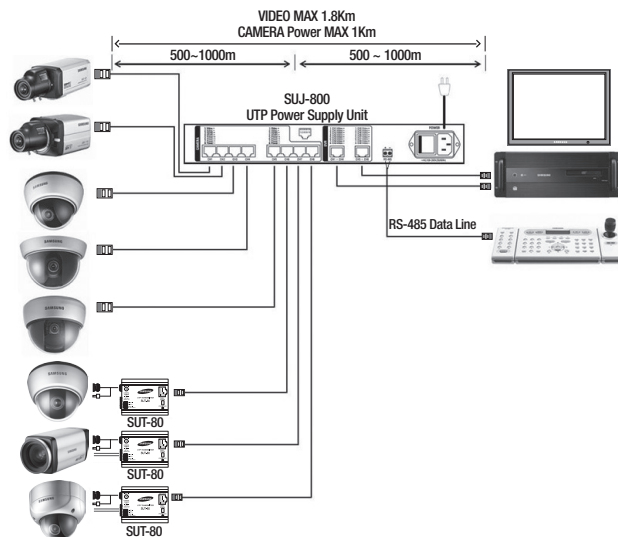
### 2-3. Peripheral Device Connection

#### 2-3-1. SUT-80, SUR-10 Configuration Example



## 2. Product Parts and Peripheral Device Connection

### 2-3-2. SUT-80, SUJ-800 Configuration Example



[When Configured with the UTP Cameras and SUT-80]

## 3. Cautions/Warnings

### 3-1. Cautions for Installation & Use

- Make sure to turn the product off prior to installation.
- When installing the product, allow for smooth air circulation and avoid extremely high temperatures and humidity as well as extremely low temperatures.
- Keep this product away from magnetic objects.
- Some components in this product may create a risk of electric shock. Please use extra caution for electric shock while using the product.
- Do not connect devices with voltage ratings higher than the product's standard voltage; there is a risk of fire and product malfunctions.
- The operating temperature of this product is between  $-15^{\circ}\text{C}$  and  $45^{\circ}\text{C}$ . Do not expose the product to higher or lower temperatures by installing it in an outdoor location.
- While installing or using the product, do not subject the product to extreme vibration or shock; it may cause product malfunctions.
- When installing the product, make sure to wire the product and peripheral devices properly. Do not switch the lines.
- Before turning on the product, make sure that control cables connected from all external devices are properly insulated.

## 3. Cautions/Warnings

### 3-2. Troubleshooting

| Symptom                                                                                      | Checkpoint                                                                          | Countermeasure                                                                                                                          |
|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| I can't turn on the product.                                                                 | Please make sure that the adapter is turned on.                                     | If the adapter is turned on and the product does not operate, replace the adapter.                                                      |
| The receiver is supplying power to a camera (Power LED on), but the camera does not operate. | Please make sure that the Rx and Tx are within 1km of each other.                   | If the distance between the Rx and Tx is farther than 100m, install an extra adapter on the Tx.                                         |
| I want to connect a DC-voltage camera.                                                       | Please check the input current of the Rx: AC or DC.                                 | Change the RX voltage to DC. (Make sure to check the input current.)                                                                    |
| The video colors look different on the monitor.                                              | Please check the FEQ gain adjustment.                                               | Adjust the color details using the FEQ adjustment option.                                                                               |
| The video level looks different on the monitor.                                              | Please check the AMP adjustment.                                                    | Adjust the video level using the AMP adjustment option.                                                                                 |
| I can't transfer video data from the camera.                                                 | Please check the UTP cable terminal and pin alignment.                              | If the RJ-45 UTP cable is connected improperly or the cable pins are not aligned properly, remove and reconnect the RJ-45 modular jack. |
| 485 connection error                                                                         | Please check the 485 communication cable.                                           | Make sure that the 485 communication cable is connected with the proper polarity relationship and the cable pins are aligned correctly. |
| Video looks distorted on the monitor.                                                        | Please adjust the UTP cable length according to the distance between the Rx and Tx. | If the distance is farther than 600m, adjust the cable length to High and to Low if it is shorter than 600m.                            |

## 4. Specifications

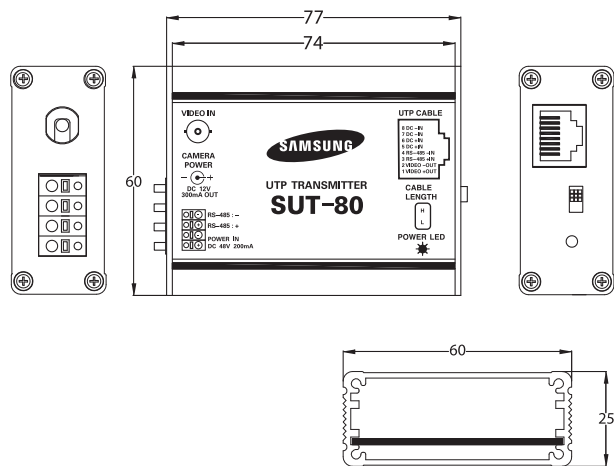
| MODEL                             |              | SUT-80 (1-Channel Transmitter)                       | SUR-10 (1-Channel Transmitter)                       |
|-----------------------------------|--------------|------------------------------------------------------|------------------------------------------------------|
| Video Input Signal                |              | CVBS 1.0Vp-p, 75Ω terminal                           | Distance Adjustment: Low 51Ω 1Vp-p, High 51Ω 2.5Vp-p |
| Video Output Signal               |              | Distance Adjustment: Low 51Ω 1Vp-p, High 51Ω 2.5Vp-p | CVBS 1.0Vp-p, 75Ω terminal                           |
| POWER                             | INPUT        | DC 48V 200mA                                         | W/ Adapter: DC 12V 500mA / AC 24V 300mA              |
|                                   | OUTPUT       | DC 12V 300mA                                         | Loop Through                                         |
| Bandwidth                         |              | 550MHz                                               | 550MHz                                               |
| Max Transmission Distance (CAT 5) |              | 2-level distance adjustment switch                   | 2-level distance adjustment switch                   |
| Connection Port                   | Video Input  | DC-F & BNC Harness                                   | RJ-45                                                |
|                                   | Video Output | RJ-45                                                | BNC Harness(45Cm)                                    |
|                                   | DATA         | DATA : 4P Terminal Block (1~2: DATA/ 3~4: POWER)     | DATA : 4P Terminal Block (1~2: POWER/ 3~4: DATA)     |
| Operating Temperature/ Humidity   |              | -15°C ~ +40°C / 0 ~ 80%                              | -15°C ~ 40°C / 0 ~ 80%                               |
| Material/Weight                   |              | Aluminum/122g                                        | Aluminum/120g                                        |
| Dimensions                        |              | 75(W) x 60(H) x 25(D)mm                              | 75(W) x 60(H) x 25(D)mm                              |

### ■ Recommended Distance

| Type                      | Video  |       | Camera Power Supply | Communication |
|---------------------------|--------|-------|---------------------|---------------|
|                           | Color  | B/W   | SUT-80              |               |
| Max Transmission Distance | 1.5Km  | 2.4Km | 1Km                 | 1.2Km         |
| Recommended Distance      | ~1.2km | 1.5km | 800m                | ~1.2km        |

● These figures are recommended distances for normal operation; there may be some variance depending on the operational environment of the product.

## 5. Dimension



MEMO

**MEMO**

**MEMO**



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The Samsung logo, consisting of the word "SAMSUNG" in a bold, sans-serif font, enclosed within a black, horizontally-oriented oval.

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