

## Operational Instructions

### CAT5 8 x 8 Switch

Video, Stereo Audio, Infrared and RS232

UXGA, Component HD, RGB, S-Video and Composite

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Dear customer...

Thank you for purchasing this product which has been designed to give you many years of trouble-free service.

You may already be familiar with using similar product, but do please take time to read these instructions – they are written to ensure you get the very best from your purchase.

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### Safety is Important

To ensure your safety and the safety of others, please read the safety instructions before you operate this product.

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## Safety Instructions

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**WARNING!** Ensure that you read all of the safety instructions before using your PRO-9000 switch.

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### Power Source

- The PRO-9000 requires a 100 > 230V AC mains supply. Do not use any other supply.

### Safety Considerations

- Position the power cable and other connected cables so they are not likely to be walked on, pinched or where items can be placed on them.
- Do not use the switch in humid or damp conditions. Do not allow the switch to get wet, i.e. dripping or splashing. Do not place water filled items, such as a vase, on top of the switch.
- Do not place naked flame sources, such as candles on top of the switch.

### Ventilation

- Do not place or position the Switch close to other equipment that may get hot, as this may cause the switch to overheat. Providing good ventilation will prolong the life of you product.

### Servicing

- There are no servicable parts in your switch, when servicing refer to qualified service personnel.
- Consult your dealer if you are ever in doubt about the installation, operation, or safety of your switch.

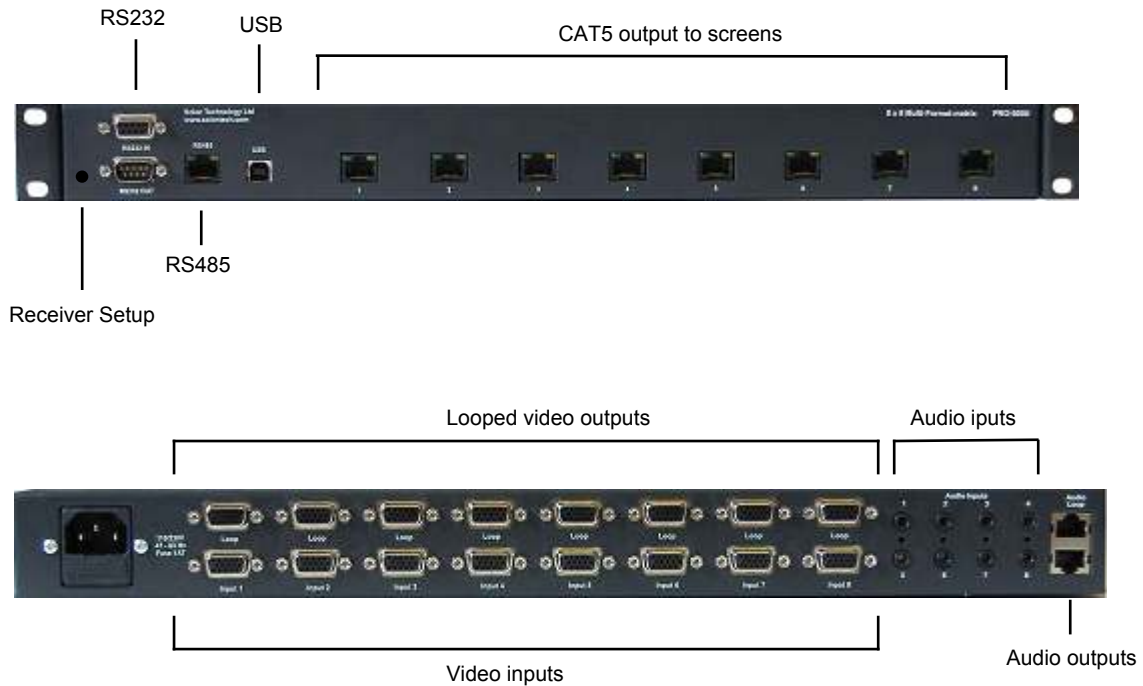
**1.0 PRO-9000 8 x 8 Multi-Format Matrix**

**1.1 General**

Housed in a 1RU x 19” chassis and powered by an internal switch mode power supply, the PRO-9000 will cater for all your video, Stereo Audio and RS232 switching applications. Its unique video circuit design accepts inputs of all video standards including PAL, Secam, NTSC and UXGA. All video and stereo audio inputs have local or loop through connectors enabling chassis to be stacked increasing the number of users in blocks of eight.

The 9000 series includes various receiver options making this system flexible and cost effective for all your media installations. Using internal video test patterns, the receiver has the ability to self equalize for distances up to 225m and provide the appropriate delay (skew) to video signals improving signal quality significantly. Dual video and audio outputs are also provided for installations where displays are mounted back to back and RJ45 in/out connectors allow each receiver to transmit to another (daisy chain). This type of installation can drive up to 10 in-line taps (PRO-9703).

**1.2 PRO-9000 8 x 8 Multi-Format Matrix (Fig. 01)**



Each RJ45 connector has two LED’s, amber and green. The green LED indicates power at the port and the orange indicates video transmission.

**1.3 Local RS232 Control**

RS232 control is presented on the front panel and Scion switching protocols are provided with the unit. Like all Scion matrix systems the RS232 has a loop facility for stacking chassis together. When this facility is used the protocols or software provided will automatically recognize additional chassis connected and display the new users in blocks of eight.

The system also has an RS485 port for use with the Scion PRO-4002 transmitter. This enables extended distances of RS232 in applications where the server PC or control system is located at a distance greater than 30m. The PRO-4000 series product converts RS232 to RS485. See PRO-4000 brochure for further details.

**1.4 Remote RS232 Control**

The PRO-9000 RS232 connection is full duplex to each receiver. This data transmission provides all the functionality you need to communicate with the screens attached to each receiver. For example, if video input (1) is RGB and input (2) is S-Video, the PRO-9000 software can send a command to the display when switching is made between 1 & 2 telling the display to change it's input, matching that of the source selected. Connectivity from the receiver is made for all signals provided at the matrix end. See PRO-9001 receiver for types of connectors provided.

Each port can be addressed individually enabling a single PC RS232 connection to multiple display devices. This function is very useful when addressing display devices over a local or wide area network.

**1.5 USB**

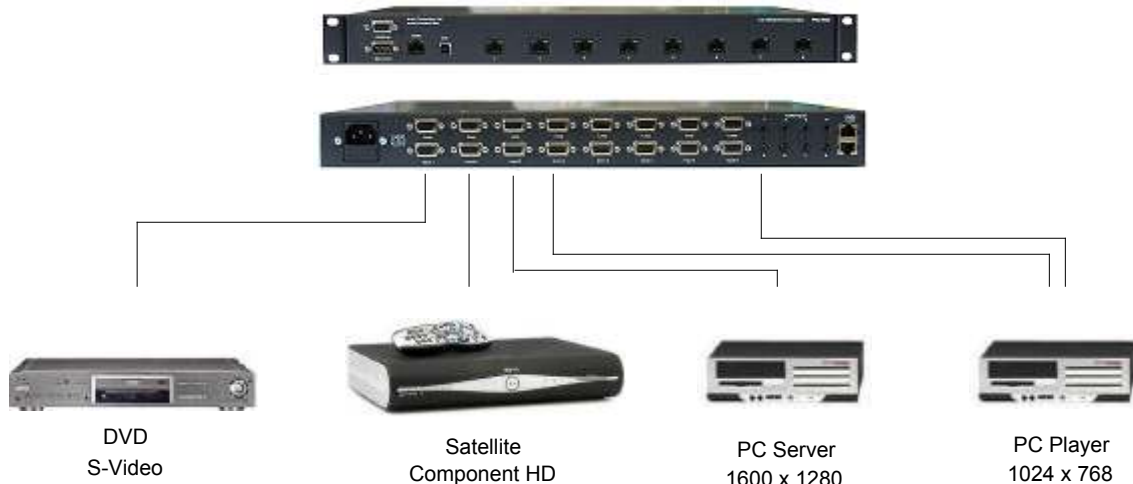
A USB port is provided for initial setting up of the system and for maintaining software upgrades when applicable.

**1.6 CAT5 Ports**

Eight RJ45 ports are presented on the front panel and each port can distribute the selected input up to 300m from the matrix system. LED's are provided for indicating power and data transmission.

**1.7 PRO-9000 Chassis Features**

- ☑ 1RU x 19" Light Weight Chassis
- ☑ Integral Switch Mode Power Supply
- ☑ 8 x Multi-Format Video Inputs
- ☑ 8 x Stereo Audio Inputs
- ☑ RS232 Control + Loop
- ☑ RS232 Full Duplex to Each Receiver
- ☑ RS485 Control (longer distance)
- ☑ USB
- ☑ On-Board Test Pattern Generator for Auto EQ and Skew setup for all receivers



**2.0 PRO-9001 Receiver Module**

**2.1 General**

Housed in a small aluminum box, the PRO-9001 presents the display with all the video formats selected and distributed by the PRO-9000 chassis. Each transmission circuit (RGB) has automatic video gain and skew adjustment. The accuracy of this adjustment is achieved by measuring each video waveform and checking it against an embedded video test pattern. Each video format has it's own standard connector type for connection to the display.

**2.2 RS232 Interface**

Full duplex RS232 is provided for display control and input selection. Presented by a DB9 socket and wired to industry standards, the PRO-9001 receiver will provide all the interconnection you need for transmitting and receiving RS232 data to your display device. Transmission to and from the PRO-9000 chassis is achieved by converting RS232 to RS485 and therefore eliminates the problem of long cable runs.

**2.3 Video Interface**

The three-video signals are received as balanced signals via an RJ45 data socket. Each signal is then un-balanced and automatically equalized for cable length. After EQ, each signal is analysed and the appropriate delay is applied for maximum signal quality. These three signals can be used as RGB or just a single run of composite video. Three connectors are offered for interfacing the video outputs to the display device. These are High Density 15pin 'D' Socket for (VGA + RGB + RGB,S or Component), 4-pin DIN for S-Video and RCA Phono for composite video and Composite Sync. If your system includes all or any of these video formats, the PRO-9001 can electronically tell your display which input mode it should be in, according to the source selected.

**2.4 Stereo Audio Interface**

Stereo audio signals are received as balanced signals, digitized by the PRO-9000 before being unbalanced and converted back to it's analogue format. The signals are presented on RCA Phono sockets.

**2.5 Multi-Format Receiver (Fig. 02)**



**2.6 Infrared Control**

IR control is provided for selecting the inputs to the PRO-9000 switch. A small IR detector is provided (PRO-6003) for connection to the receiver. The Scion PRO-0201 IR handset can then be used for your selection.

### 3.0 PRO-9701 Receiver Module

#### 3.1 General

Housed in a small aluminium box and weighing just 200g, the PRO-9701 provides dual screen and stereo audio outputs.

#### 3.2 Video Interface

The video signals are received as balanced signals via an RJ45 data socket. Video signals are adjusted by increasing or decreasing the gain and phase switches. These three signals can be used as RGBHV, Component, S-Video or just a single run of composite video. Two HD15 sockets are provided for dual screen.

#### 3.3 Stereo Audio Interface

Stereo audio signals are received as digital balanced signals before being unbalanced and converted back to it's analogue format. The signals are presented on two 3.5mm stereo jack sockets.

#### 3.4 RJ45 Transmitter Port

The Line input connector [RJ45] has two LED's encased. The green indicates powers and the amber indicates video transmission.

#### 3.5 Dual Port Receiver Module (Fig. 03)



#### 4.0 PRO-9703 In-Line Tap

##### 4.1 General

Housed in a small aluminum box and weighing just 0.2Kg, the PRO-9703 provides dual screen and stereo audio outputs.

##### 4.2 Video Interface

The video signals are received as balanced signals via an RJ45 data socket. Each signal is un-balanced and equalised manually by two rotary switches. These three signals can be used as RGBHV, Component, S-Video or just a single run of composite video. Two HD15 sockets are provided for dual screen .

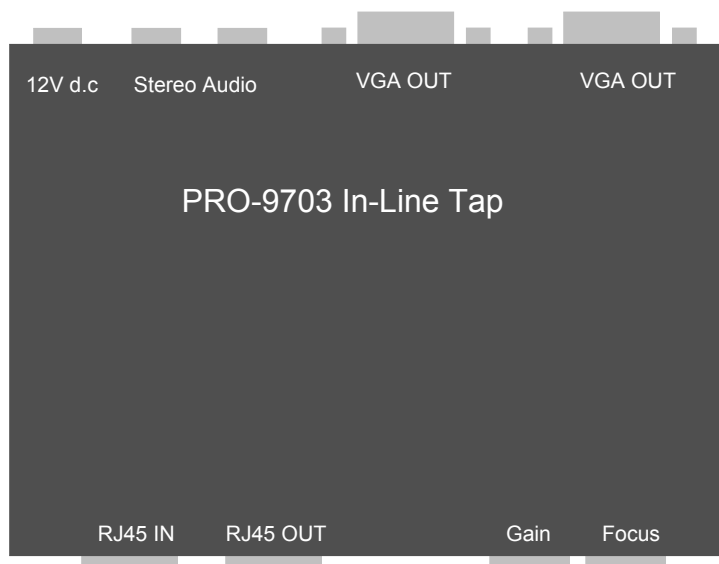
##### 4.3 Stereo Audio Interface

Stereo audio signals are received as digital balanced signals before being unbalanced and converted back to it's analogue format. The signals are presented on two 3.5mm stereo jack sockets.

##### 4.4 RJ45 Transmitter Port

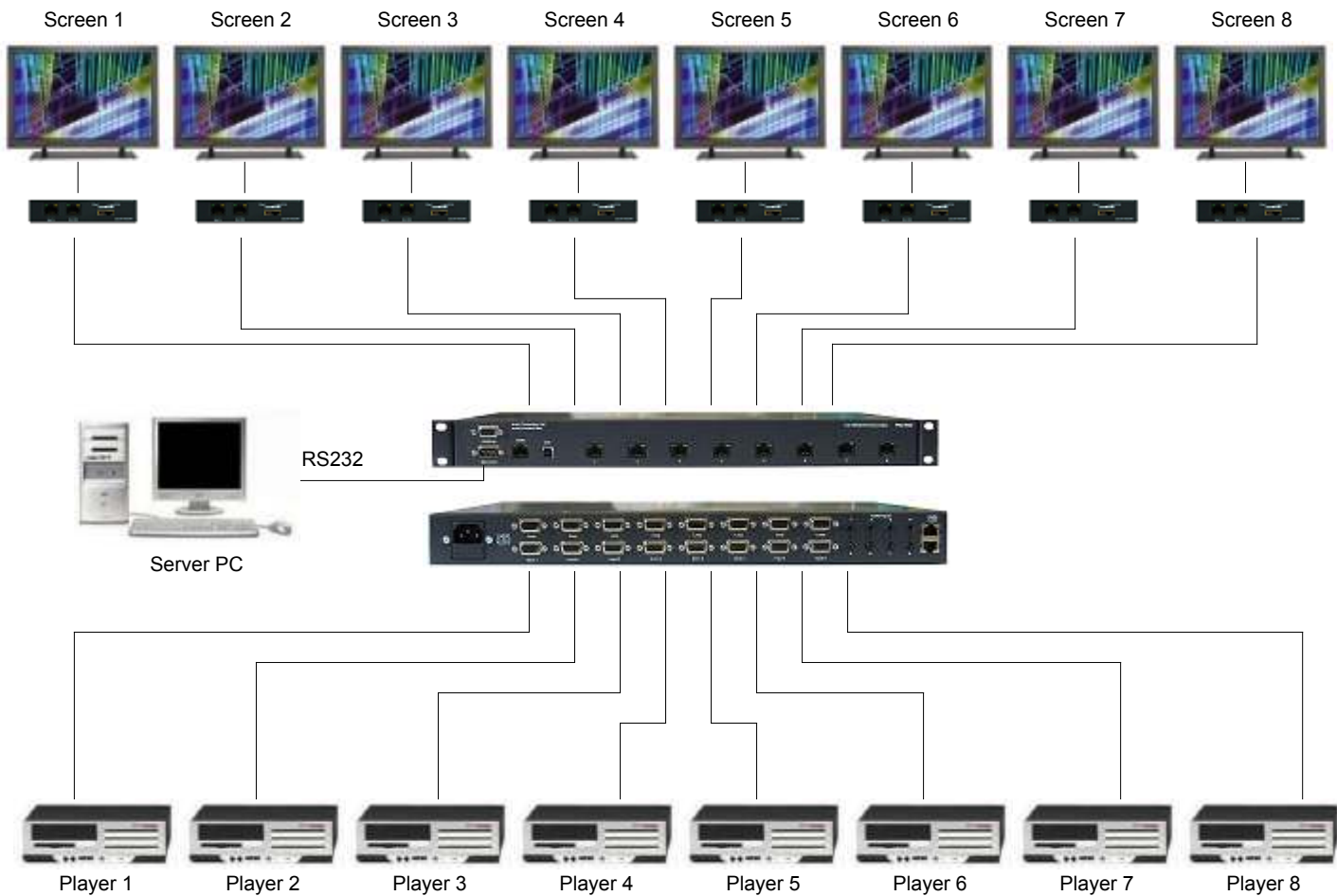
The Line input connector [ RJ45 ] has two LED's encased. The green indicates powers and the amber indicates video transmission. The Line output transmits the signal to the next in-line tap or receiver.

##### 4.5 Dual Port Receiver Module (Fig. 03)



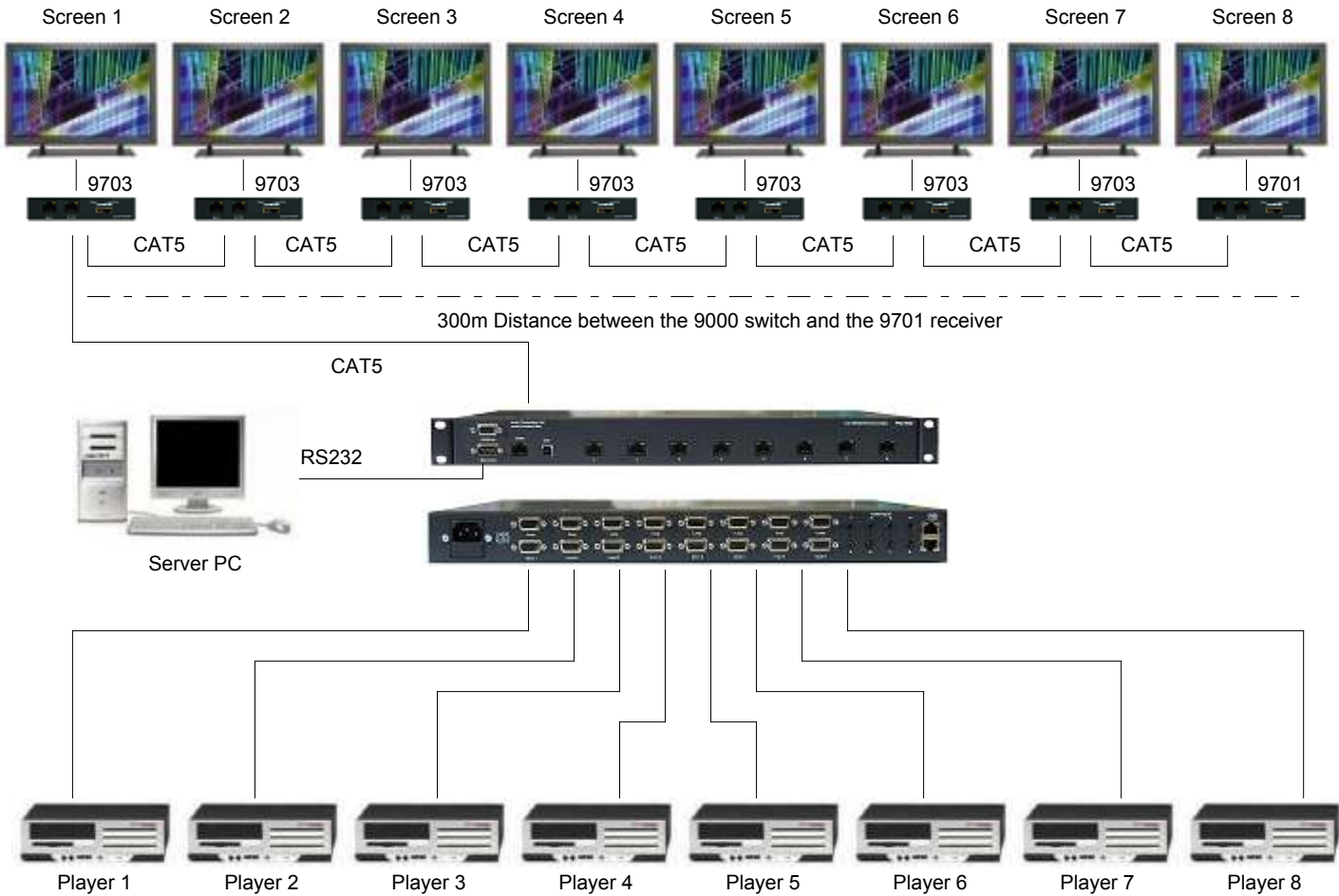
## 5.0 System Installation Diagrams

### 5.1 PRO-9000 using PRO-9001 Receivers



This illustration shows a typical digital signage installation, where eight media players are switched to eight displays. The PRO-9000 used in this method can provide high quality UXGA and stereo audio signals to each screen. It will also transmit and receive RS232 data for managing the screens remotely.

5.2 PRO-9000 using PRO-9701 Receiver and PRO-9703 In-line Taps



This illustration shows a typical digital signage installation, where eight screens are receiving high quality UXGA and stereo audio signals using just one port of the PRO-9000. This can be repeated for all eight ports making the system capable of driving 64 screens.

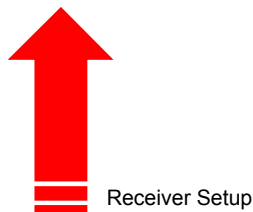
## 6.0 Setting up Receivers

### 6.1 PRO-9001 Video Setup

The PRO-9001 receiver requires no manual adjustment for video or audio signals. Once the receivers have installed, you can press the “Rx Setup” button on the front of the PRO-9000 chassis. This will initiate the setup procedure on all eight receivers. Please be patient as this may take a few seconds. During this procedure the PRO-9001 receiver will compare the video signal arriving with an onboard test pattern. Should there be any reduction in video level and or delay in the signal, the onboard processor will make the necessary adjustments.

The auto setup of the PRO-9001 receivers is only possible if the CAT5 cable distance is less than 200m. Should any of the eight positions be over this distance, the receiver has an internal setup program, which can be activated by doing the following.

- Press and hold for 7 seconds the “receiver setup” button on the front of the PRO-9000. This will turn on the test pattern. The test pattern will be displayed on all eight screens. This option is very useful when installing the system, as it provides a constant pattern that can be seen until turned off.
- Press the button on the PRO-9001 receiver and the unit will start its self adjust procedure.
- When you have finished adjusting all the necessary receivers, press the “receiver setup” button on the front of the PRO-9000 switch. This will turn off the test pattern.
- All eight screens will revert to the original switched input.



### 6.2 PRO-9701 and PRO-9703 Video Setup

The PRO-9701 & PRO-9703 units have the same manual setup procedure. Should your installation include the use of in-line taps and receivers, each tap and finally the receiver will require local adjustments. Adjusting any of the in-line taps will not effect either the tap before or after this position.

There are two rotary switches located on the front of the units. One adjusts the video gain and the other adjusts focus. The switches start at zero [0] (5m cable length) and increase to a maximum of 300m from the PRO-9000 and the PRO-9701 Receiver. The in-line taps can be located at any distance along the 300m cable run, however it is recommended that your first tap be over 10m to prevent over amplification.

## 7.0 Specifications

PRO-9000 8 x 8 Multi-Format Switch	
<i>Video</i>	
Bandwidth	350MHz
Signal Level	1v p-p in to 75ohm
Format	VGA, SVGA, XGA, RGBs, YUV, S-Video, CVBS
Connector (Input)	8 x HD15 Sockets
Connector (Output) Local/Loop	8 x HD15 Sockets
<i>Audio</i>	
Signal	20KHz 0dB Un-Balanced
Impedance	100ohm
Connector (Input)	8 x 3.5mm Stereo Jack Socket
Connector (Output) Local/Loop	2 x RJ45 Sockets
<i>Control</i>	
RS232 IN	9 Way D Socket
RS232 OUT (Loop)	9 Way D Plug
USB	USB Socket Type B (USB H)
RS485 (PRO-4000 Rx)	RJ45 Socket
<i>Power</i>	
Voltage	110 - 230V 50/60Hz IEC Socket
Rating	1amp 12 Watts
<i>Dimensions</i>	
H x W x D	1RU x 19" x 300m
Weight	2.5Kg

PRO-9001 Multi-Format Receiver	
<i>Video</i>	
Bandwidth	350MHz
Signal Level	1 Volt
Format	VGA, SVGA, XGA, RGBs, YUV, S-Video, CVBS
Connector	See Diagram Fig. 02
<i>Audio</i>	
Signal	20KHz 0dB Un-Balanced
Impedance	100ohm
Connector	2 x RCA Phono Sockets
<i>Control</i>	
RS232	9 Way D Socket
<i>Power</i>	
Voltage	12 volt d.c.
Rating	50mA
<i>Dimensions</i>	
H x W x D	25 x 68 x 112mm
Weight	0.2Kg

PRO-9701/3 Dual Receiver & In-Line Tap	
<i>Video</i>	
Bandwidth	350MHz
Signal Level	1 Volt
Format	VGA, SVGA, XGA, RGBs, YUV, S-Video, CVBS
Connector	2 x HD15 Socket
<i>Audio</i>	
Signal	20KHz 0dB Un-Balanced
Impedance	100ohm
Connector	2 x 3.5mm Stereo Jack Socket
<i>Power</i>	
Voltage	12 volt d.c.
Rating	50mA
<i>Dimensions</i>	
H x W x D	25 x 68 x 112mm
Weight	0.2Kg