picoLink Series

Test Pattern Generator

TPG-171p

Guide to Installation
and Operation

M664-9900-100

TPG-171p

Warranty

Miranda Technologies warranty on its products may be examined at the Miranda website. Go to www.miranda.com and click on *Support*

**Radio Frequency Interference and Immunity**

This unit generates, uses, and can radiate radio frequency energy. If the unit is not properly installed and used in accordance with this guide, it may cause interference with radio communications. Operation with non-certified peripheral devices is likely to result in interference with radio and television reception. This equipment has been tested and complies with the limits in accordance with the specifications in:

FCC Part 15, Subpart B
CE EN50081- 1: 1992
CE EN50082- 1: 1992.

TPG-171p
Test Pattern Generator

The TPG-171p Test Pattern Generator (TPG) provides a 10 bits-resolution serial 4:2:2 video output in 525-line or 625-line formats. An error detection (EDH) signal is inserted in the ancillary data area and 45 test patterns can be generated. An audio tone is embedded in the serial digital output to test downstream video equipment that handles embedded audio. The output can be genlocked to a composite black reference or be free running. All of the principal controls are accessible on the top of the device. The TPG-171p is a full-featured professional signal generator in a compact, low-power-consumption configuration.
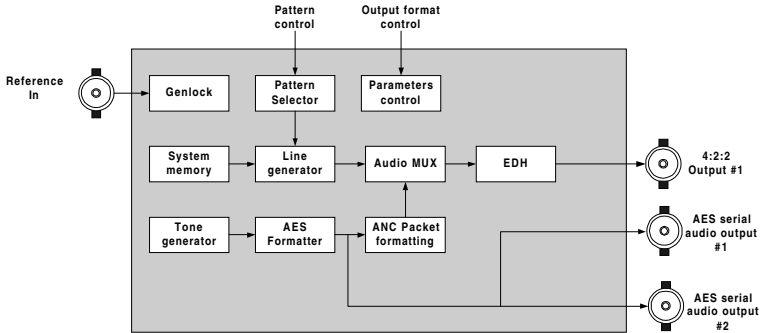
Installation

Connect the Power connector to the power supply. The TPG-171p turns ON automatically when power is connected.

Connect the Reference signal to the REFERENCE IN connector..

Connect the digital video and audio outputs to their destination equipment.

Status LED

The Status LED is located on the end panel of the TPG-171p beside the video output connector (see the drawing on page 3). It monitors the status of the incoming reference signal, and the presence of errors on the output.

LED Color	Significance
Green	Reference is present
Yellow	Reference mismatch
Red	No reference or system error

User Controls

Pattern Selecion
**ROTARY SWITCHES**

The two rotary switches allow the user to select among the available video test patterns. The pointers on the switch knobs indicate the selection

The rotary switch labelled GROUP selects one of ten possible groups of patterns. The switch labelled PATTERN selects one of ten possible patterns within the group. All patterns are generated for both 525 or 625 output formats, but some are specifically intended for only one of the formats (e.g. the 60Hz mod pulse is for 525-line applications). The table below indicates the applicability of each test pattern.

Selecting a GROUP/PATTERN combination which is undefined will force the video output to full-field black.

Power Connector

Pattern   *Group*
Rotary Switches

Status LED
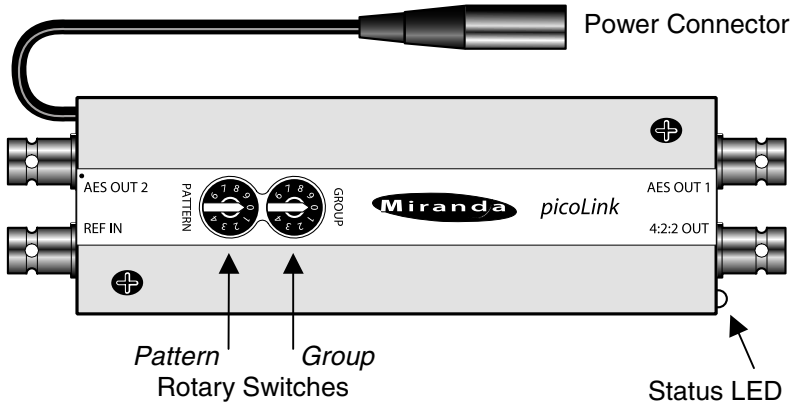
The available Groups and Patterns are summarized in the following table, along with the switch settings to select them, and the formats for which each pattern is applicable:

Groups	Patterns	525	625
0 Color Bar	**0** 100% color bar with level ref	X	X
	1 75% color bar with level ref	X	X
	2 100% color bar	X	X
	3 75% color bar	X	X
	4 Reverse bar matrix	X	X
	5 Complement color bar	X	
	6 100%Color bar in VBI	X	X
1 Step	**0** 5 steps	X	X
	1 10 steps	X	X
2 Ramps	**0** Ramp	X	X
	1 Limit ramp	X	X
	2 Y ramp	X	X
	3 B-Y ramp	X	X
	4 R-Y ramp	X	X
	5 Yellow ramp	X	X
	6 Yellow blue ramp	X	X
3 Shallow	**0** Green shallow ramp	X	X
	1 Shallow ramp matrix		X
	2 Blue shallow ramp by step of 1		X

(continued)

Groups	Patterns	525	625
4 Pulses	**0** 2T 4T 10T pulses & bar	X	X
	1 Field square wave	X	X
	2 60Hz mod pulse	X	
	3 Component / 50Hz mod pulse	X	X
5 Multi Burst	**0** Multipulse	X	X
	1 Multiburst	X	X
6 Sweeps	**0** 100% line sweep	X	X
	1 60% line sweep	X	X
	2 Multiburst	X	X
	3 (sin x)/x	X	X
7 Timings	**0** Co-siting pulse	X	X
	1 500KHz bowtie	X	X
	2 2.5MHz bowtie	X	X
	3 60Hz blanking marker	X	
	4 50Hz blanking marker		X
8 Flats	**0** Flat field	X	X
	1 Field ID	X	X
	2 Black	X	X
	3 SuperBlack	X	X
	4 Narrow blanking 100% white	X	X
9 Others	**0** Light blue ramp	X	X
	1 Digital Gray 50%	X	X
	2 Measurement matrix	X	
	3 Serial pathological EQ	X	X
	4 Serial pathological PLL	X	X
	5 Serial pathological matrix	X	X

Output Configuration
DIP SWITCHES

The eight DIP switches allow the user to configure the output format of the TPG-171p. Each switch either allows a choice between the two options shown on the label, or turns the single indicated function ON or OFF. The switch functionality is given in the following table.

DIP Switches
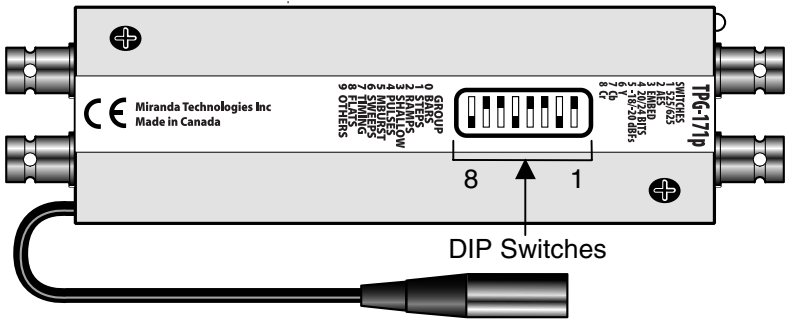
SWITCH NAME	FUNCTION
1) 525 / 625	(525 / 625) Select the video format of the 4:2:2 serial digital output
2) AES	(ON / OFF) Enable or disable the AES digital audio outputs
3) EMBED	(ON / OFF) Enable or disable audio embedding in the digital video output
4) 20/24 BITS	(20 bits / 24 bits) Select the resolution of the audio signals
5) -18 / -20 dBfs	(-18 / -20 dBfs) Select the level of the audio tone
6) Y	(ON/OFF) Enable or disable the luma component of the video output signal
7) Cb	(ON/OFF) Enable or disable the chroma (blue) component of the video output signal
8) Cr	(ON/OFF) Enable or disable the chroma (red) component of the video output signal

Technical Specifications

Reference Input

SIGNAL	SMPTE 170M/PAL ITU-R BT.470-6 or 2Vpp/4 Vpp composite sync
RETURN LOSS	> 35 dB up to 5.75 MHz

Output 4:2:2

SIGNAL	4:2:2 SMPTE 259M-C (270 Mbps)
RETURN LOSS	> 15 dB up 270 MHz
JITTER	< 0.2 UI (0.74 ns) p-p

AES Outputs

SIGNAL	AES-3id (SMPTE 276M)
LEVEL	1.0 Vp-p ±10%
IMPEDANCE	75Ω unbalanced

Processing Performance (4:2:2)

SIGNAL PATH	10 bits
EMBEDDED AUDIO	20 and 24 bits
POWER	Approx. 1.5 Watt