

PM5645

Teletext test generator

The Teletext Calibrated Distortion Unit is designed to enable tests to be made on teletext equipment to agreed standards (see Ref. 1). The data eye-height can be reduced by accurately controlled amounts using the "Added Echo" principle (see Ref. 2). In addition, noise and simulated co-channel interference can be added so that equipment performance may be rapidly and accurately assessed.

The instrument is self contained, requiring no video input. It provides its own Cross-Hatch waveform plus a number of pages of degradable teletext, with the eyeheight being shown on a Liquid Crystal Display.

The primary applications are:

- a. Performance checking of data bridges, regenerators, PTT links and transmitters.
- b. Development of teletext decoders and receivers.
- c. Production testing of teletext decoders and receivers.
- d. Calibrating eye height measuring equipment.

In addition, three adjustable interference sources are provided. These are:

- a. Data eyeheight, by the addition of controlled reflections.
- b. White noise.
- c. Simulated Co-channel interference.

The instrument also incorporates:

- a. Adjustable video and data output levels.
- b. "Eye" display outputs.
- c. Four pages of text.
- d. "Push button" control of eye height.
- e. Presetable eye heights.
- f. The selected teletext page can be transmitted with 1, 10 or 100 page numbers (0,0-9,0-99).
- g. Any magazine number from 1 to 8 (625 line).
- h. Cross hatch pattern during "picture" part of field.
- i. Full composite video output, 70/30 ratio.

Ref. 1. "Methods of Measurement on Teletext Receivers and Decoders" by B.J.Rogers, Proc., I.E.E., December 1979, Vol. 126, No. 12, Page 1404.

Ref. 2. "Delphi-A precision adjustable eye-height source" by A.G.Mason, I.B.A. Technical Review No. 15.

Note: All figures are quoted for an output signal of 1Vpp unless otherwise stated.

Safety characteristics

This apparatus has been designed and tested in accordance with Safety Class 1 requirements of IEC Publication 348 (Safety Requirements for Electronic Measuring Apparatus), and has been supplied in a safe condition. This manual contains information and warnings which must be followed by the user to ensure safe operation and to retain the apparatus in a safe condition.

Performance characteristics

Properties expressed in numerical values with stated tolerances are guaranteed by N.V. Philips Gloeilampenfabrieken. Specified numerical values without tolerances, indicate those that could be nominally expected from the mean of a range of identical instruments.

A. Video output

: 1V or 2.5Vpp (Front panel selectable)
Composite video with interlaced sync to
broadcast standard.

70/30 picture/sync ratio.

Output Return loss ratio : Better than 40dB at 6MHz.
Better than 30dB at 12MHz.

Output impedance : 75ohms.

Connector : 75ohm BNC. (On the rear panel).

B. Distortions available

EYE HEIGHT

0% to Max. (Note 1) +/-0.5%.

Adjustable in 0.1% increments. (Note 3).

WHITE NOISE

Variable over the range -60dB to -14dB.

Bandwidth : 10kHz-5MHz +/-1dB.

Cal. : Position set to -28dB.
(May be reset anywhere in the range -60dB
to -14dB).

SIMULATED CO-CHANNEL INTERFERENCE

Unlocked sine wave of 5/3 or 10/3 line frequency. (Front panel selectable).

: LOW 26.042kHz +/-1%.
HIGH 52.083kHz +/-1%.

Variable over the range -60dB to -14dB.

Cal. : Position set to -28dB.
(May be reset anywhere in the range -60dB to -14dB).

DATA LEVEL

Variable over the range 312mV to 612mV.

Cal. : Position set to 462mV.
(May be reset anywhere in the range 312mV to 612mV).

C. Data lines

The number of data lines to be output may be set internally, between 0 and 16. Data may be output on TV lines 7 to 22 and 320 to 335, respectively.

D. Outputs for eye display

X OUTPUT : A sinewave of frequency: 1.734375MHz
+/-0.01%.
: 5Vpp nominal into 75ohms.
Connector : 75ohm BNC.
Z OUTPUT : An unblanking signal coincident with data lines.
: 5Vpp nominal into 75ohms.
Connector : 75ohm BNC.
Polarity : Normally positive.
: (May be set either negative or positive internally).

E. Cross hatch output

During the "picture" part of the field, a cross hatch pattern may be displayed. It is selected by a front panel push button. (C-H).
The amplitude of the cross hatch signal is 700mV. The vertical components of the cross hatch have the same duration and shape as a single teletext pulse.

Note: Due to the characteristics of the data shaping filter, the horizontal bars are not the same amplitude as the vertical bars.

F. Auxillary outputs (Front panel)

Data	: TTL level 2mm socket.
Data lines (DA-LI)	: TTL level 2mm socket.
Gated clock (G-CL)	: TTL level 2mm socket.
Sync	: TTL level 2mm socket.
Video blanking (BLANK)	: TTL level 2mm socket.
Logic ground (0V)	: 2mm socket.

G. Auxillary input (Rear panel)

An inverting input to the final mixer that accepts externally generated signals. A 1V signal will give a 1V output (or 2.5V if selected) at the main video output.

Input level	: 1Vpp max.
Input impedance	: 75ohms.
Connector	: 75ohm BNC (on the rear panel).
For 1Vpp input	: Output flat DC-8MHz +/-0.1dB -3dB at 14MHz.
For a 1Vpp input and the output level set to 2.5Vpp	: Output flat DC-6MHz +/-0.1dB -3dB at 12MHz.
Return loss ratio	: Better than 40dB at 6MHz. : Better than 30dB at 12MHz.

H. Power requirements

198-264Vac 48-65Hz 40W nominal.
99-132Vac 48-65Hz 40W nominal.

Supply fuse (front panel)	: 198-264V range.....500mA. 99-132V range.....1.0A.
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J. Environmental conditions

Temperature range	: 5-40 Deg C Operating
	: -40-+70 Deg C Storage & Transport.

VENTILATION

The slots in the top and bottom covers must not be obstructed.

If the instrument is to be rack mounted adequate ventilation must be provided.

K. Mechanical

Free standing or rack mountable instrument case.

WIDTH	: 482mm
DEPTH	: 440mm
HEIGHT	: 88mm
WEIGHT	: 9.5kg

NOTES:

1. The maximum eye-height value depends upon the data shaping filter and line standard. Normally 98.5%.
2. Eye-height reduction is achieved by the addition of one negative echo followed by one positive echo, delayed by 7 and 14 data clock periods respectively. Other delay times can be set internally. (Delphi patent used under licence from the I.B.A.).
3. Bandwidth of generated signal is in excess of 7MHz. If measurement of generated eye-height is attempted with a reduced bandwidth instrument, appropriate corrections must be made to ensure accuracy.

4. Accessories

Rack mounting kit
4 75ohm BNC free plugs
2 2mm free plugs
1 BNC "U" link
1 Mains lead
1 Manual