Multichannel HD/SD Video Meter

PRODUCT CODE: PT0760M

DK - Technologies

The PT0760M has been designed to meet the increasingly complex demands being placed on the broadcasters of today. In order to reduce space requirements we have introduced the ability to have up to four waveform monitors in a single chassis while keeping each input independent and providing auto formatting and sensing on each channel.

Each of the inputs is completely independent of the other and is able to automatically recognise and adjust to the incoming signal without affecting the other input channels. With this it is possible to either measure High Definition or Standard Definition video on any channel in any of the formats listed.

Available in the meter is the capability to display Waveform of the constituent parts of the image, R, G, B, C_b and C_r plus luminance (Y). We have also provided the facility to measure the incoming signals against an external reference through the **STA - Smart Timing Analysis** - which can display timing differences between the external reference, Black Burst or Tri-Level as well as multiple formats.

In order to be able to understand and see any problems the PT0760M employs **SVLC - Smart Video Landscaping Compressor** - which provides highlighting of the detail within the signals. This makes any errors easier to see and improves the user experience.

The PT0760M provides user adjustable Colour Gamut Alarms which are displayed on the screen in a highly visible Red Flash.

The PT0760M is able to display up to 4 video channels on the internal screen and also show up to 16 audio channels which are related to any of the video signals and controlled by the internal matrix.

The embedded audio from each of the 4 input channels can be de-embedded (maximum 16 channels). These audio signals can be routed to the audio metering and to an output card for audio monitoring on an external device. Using the inbuilt DK-Technologies audio matrix, a stereo downmix can be easily achieved removing the requirement for external matrixes or mixer.

The meter has been equipped with Dolby E decoding to allow checking of the Dolby encoded signal on the audio meters.

Features...

- Up to 4 Independent Video Inputs
- Each Input Auto Sensing HD/SD
- Up to 4 HD/SD Outputs
- Waveform Monitor
- Vectorscope
- Colour Gamut Alarms
- **STA - Smart Timing Analysis**
- **SVLC - Smart Video Landscape Compressor** for detail highlighting
- Independent External Reference Input
- Full HD/SD Audio De-embedding
- Dolby E Decoder
- **StarFish™** & **JellyFish™**
- 5.1/6.1/7.1 Metering
- Simultaneous Audio & Video display
- Surround Sound Downmix capability
- Independent Video & Audio controls
- Multi-user Control Panel (Optional)
- Assignable DVI Output
- Capable of displaying 3 separate images (Waveform / StarFish™ / Vector / Timing) using internal and external screens.

The Next Generation

Multichannel HD/SD Video Meter

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The PT0760M Audio/Video Meter features...

- 19" Rack mount (3U high half-rack unit), short depth for compact installations
- 6.5" high contrast LCD display, Softkey buttons, rotary control, and preset select buttons
- Up to 4 individual multi format SDI video inputs (SD/HD) plus up to 4 optional individual multi format SDI video outputs (SD/HD)
- An audio matrix for audio assignment for up to 16 audio input channels (AES/analogue) and up to 16 audio output channels (AES/analogue)

Options...

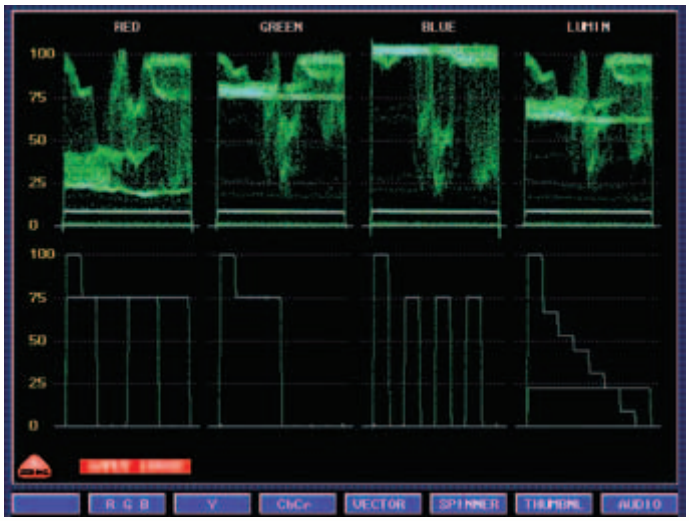
- 1, 2 or 4 Channel Input
- 1, 2 or 4 Channel SDI outputs
- External Reference Input Module including Loop-Through (Black Burst, Tri-Level)
- Dolby E Decoder
- StarFish™ & JellyFish™ for 5.1/6.1/7.1 Surround Sound
- Table top stand
- 19" x 3u rack mount frame
- Second screen (Winter 2009)

Solutions in Audio & Video

The PT0760M is available equipped with 1, 2 or 4 independent auto sensing HD/SD input channels and has 7 expansion slots on the rear to accommodate additional facilities such as external reference input, digital and analogue audio inputs, analogue and digital audio outputs, Dolby E decoder.

The full DK-Technologies audio metering is available as an option where the world renowned JellyFish™ & StarFish™ are available. These features are fully supported by other DK metering options found within the MSD range of products including BLITS Ident Tones for 5.1 Surround, ITU Loudness scales, LEQA & LEQM, Spectrum Analysis (1/3rd Octave and FFT).

VIDEO WAVEFORM



The screen of the PT0760M/2 showing Live video on channels 1 and test signal generator on channel 2. The picture also displays the Gamut Error indicator.

The traditional video waveform display is used to show various aspects of the video components. Available video components are R, G, B, Y, C_b and C_r. The horizontal time base on the waveform display is selectable between line, field and frame and the vertical scale shows the signal level. Horizontal as well as vertical zooming is possible.

VIDEO WAVEFORM - PARADE DISPLAY

The parade display is a typical display mode in a monitoring situation. The video components are displayed side by side and amplitude errors are easily detected. In one view, many parameters of the video signal can be monitored to check and optimize the picture quality, e.g. gamut margin, dynamic range, exposure, black level, etc. In parade mode the levels of the different video components can easily be compared - e.g. for checking the white balance. There are three different parade modes which are Y C_bC_r, RGB and RGBY.

EXTERNAL REFERENCE

This facility permits the user to individually measure the timing difference between the incoming video signals, 1-4, against an external reference. This reference can be Black Burst or Tri-Level. The timing reference measurement has a resolution of 13 nanoseconds, which is the smallest jump between two measurements.

AUDIO METERING

StarFish™ with phase correlation display, timecode and full 5.1, stereo & mono peak metering.

The PT0760 will display simple audio bargraph metering on the same screen as the waveform. The channels displayed can be selected through the DK Matrix built into the meter. The matrix is accessible via the PT0760M controls or externally on a PC where programming can be achieved offline and downloaded to the meter when convenient.

Allocation of the bargraphs and the phase meter can be for up to 16 incoming audio channels, irrespective of source, video inputs 1, 2, 3 & 4 and external audio input modules fitted to the rear of the PT0760M. Audio can be de-embedded from the video channels.

The full audio metering option provides all the features known from DK's Audio Meters, such as Peak Programme Meter, Audio Matrix, Star-Fish™, Jelly-Fish™ Vectorscope, Phase Correlation Meter, 1/3rd Octave & FFT Spectrum Analysers.

It is possible to have the bargraph meters displayed on the same page as the video waveform monitor allowing the user to see peak levels of up to 16 channels of audio and phase correlation of any two channels. This facility is selected via the matrix from both the embedded audio on the HD/SD video signals and also from the analogue or digital input modules fitted to the rear of the meter. Channels monitored are selected by the user and are independent of each other.

Dolby can be decoded from the embedded audio or from external AES3 input signals via the optional digital audio input module. The source for the Dolby E decoder is controlled via the matrix within the meter. Decoding will be to Dolby E & D standards.

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DOLBY E DECODING

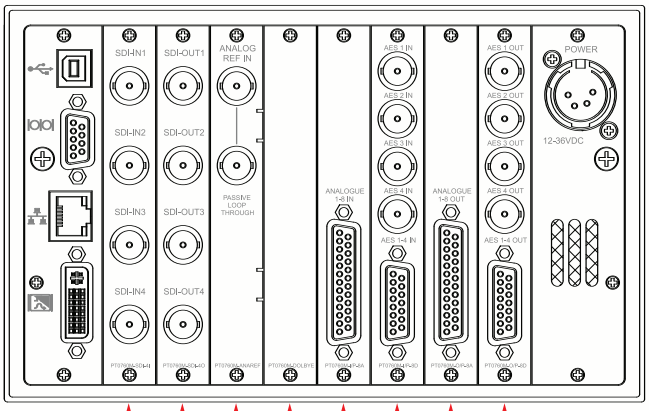
Dolby E encodes up to 8 channels of audio plus consumer and professional metadata information and carries it within a video channel or on a single AES3 audio channel. The PT0760M will be able to de-embed the Dolby E or D encoded signal, decode that signal back to its constituent parts and then provide full audio metering of the signal and provide an output.

The PT0760M will also be able to provide an audio downmix of the de-embedded and decoded signals in order to provide a health check as well quality checking.

DOLBY DIGITAL

INPUT/OUTPUT & PROCESSING MODULES

Rear View



A B C D E F G H

A) PT0760M-SDI-4I .... 4 Auto sensing HD/SD Inputs.
B) PT0760M-SDI-4O ... 4 Assignable HD/SD Outputs.
C) PT0760M-ANAREF .. Analogue reference input including loop-through.
D) PT0760M-DOLBYE .. Dolby E decoder.
E) PT0760M-I/P-8A .... 8 Channel analogue audio input.
F) PT0760M-I/P-8D .... 4 AES3 (8 Channel) audio input.
G) PT0760M-O/P-8A ... 8 Channel analogue audio output.
H) PT0760M-O/P-8D ... 4 AES3 (8 Channel) audio output.

ORDERING INFORMATION

PT0760M/12
1 HD/SD Channel input, 2 HD/SD Outputs WFM inc Analogue Reference Input, Vectorscope, Audio De-embedding, Simple bargraph metering (16 Ch) & DVI/VGA O/P

PT0760M/22
2 HD/SD Channels input, 2 HD/SD Outputs WFM inc Analogue Reference Input, Vectorscope, Audio De-embedding, Simple bargraph metering (16 Ch) & DVI/VGA O/P

PT0760M/42
4 HD/SD Channels input, 2 HD/SD Outputs WFM inc Analogue Reference Input, Vectorscope, Audio De-embedding, Simple bargraph metering (16 Ch) & DVI/VGA O/P

PT0760M/44
4 HD/SD Channels input, 4 HD/SD Outputs WFM inc Analogue Reference Input, Vectorscope, Audio De-embedding, Simple bargraph metering (16 Ch) & DVI/VGA O/P

PT0760M/12A
1 HD/SD Channel input, 2 HD/SD Outputs WFM inc Analogue Reference Input, Vectorscope, Audio De-embedding, Simple bargraph metering (16 Ch), DVI/VGA O/P & Full 5.1 metering (StarFish™)

PT0760M/22A
2 HD/SD Channels input, 2 HD/SD Outputs WFM inc Analogue Reference Input, Vectorscope, Audio De-embedding, Simple bargraph metering (16 Ch), DVI/VGA O/P & Full 5.1 metering (StarFish™)

PT0760M/42A
4 HD/SD Channels input, 2 HD/SD Outputs WFM inc Analogue Reference Input, Vectorscope, Audio De-embedding, Simple bargraph metering (16 Ch), DVI/VGA O/P & Full 5.1 metering (StarFish™)

PT0760M/44A
4 HD/SD Channels input, 4 HD/SD Outputs WFM inc Analogue Reference Input, Vectorscope, Audio De-embedding, Simple bargraph metering (16 Ch), DVI/VGA O/P & Full 5.1 metering (StarFish™)

AUDIO ONLY

PT0760M/00A
1 HD/SD Channel input, 0 HD/SD Outputs, Audio De-embedding, Simple bargraph metering (16 Ch), DVI/VGA O/P & Full 5.1 metering (StarFish™)

ACCESSORIES/OPTIONS

PT0760M-ANAREF
External Analogue Black Burst/Tri-Level reference with loop-through

PT0760M-SDI-2I
2 Channel HD/SD Input Module

PT0760M-SDI-4I
4 Channel HD/SD Input Module

PT0760M-SDI-2-4IU
Upgrade from 2-4 Channel HD/SD Video Input Module

PT0760M-SDI-2O
2 Channel HD/SD Video Output Module

PT0760M-SDI-4O
4 Channel HD/SD Video Output Module

PT0760M-SDI-2-4OU
Upgrade from 2-4 Channel HD/SD Video Output Module

PT0760M-O/P-8A
8 Channel Analogue Audio Output Module

PT0760M-O/P-8D
4 Channel Digital Audio Output Module (AES3)

PT0760M-I/P-8A
8 Channel Analogue Audio Input Module

PT0760M-I/P-8D
4 Channel Digital Audio Input Module (AES3)

PT0760M-DOLBYE
Dolby E/D (AC3) Decoder Module

PT0760M-DT/STAND
Desktop Stand for PT0760M

PT0760M-RM/KIT
19" 3RU Rack cabinet to house 2xPT0760M

PT0760M-RM/BLANK
Blank Panel for PT0760M-RM/KIT

PT0760M-AUDIOU
Upgrade to StarFish™

HD 1080p	HD 720p
1080p/30	720p/60
1080p/29.97	720p/59.94
1080p/25	720p/50
1080p/24	720p/30
1080p/23.98	720p/29.97
	720p/25
	720p/24
	720p/23.98
HD 1080i	**SD**
1080i/30	576i/25 (625)
1080i/29.97	487i/29.97 (525)
1080i/25	

Multichannel HD/SD Video Meter

PT0760M - HARDWARE SPECIFICATIONS

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HD/SD VIDEO

PT0760M-SDI-4I
SDI input specifications:

SMPTE-Formats:	259M, 292M
Connector:	BNC, 75Ω (Internally Terminated)
Return Loss:	>15dB (5MHz - 1.5GHz)
Input Level:	800mVp-p, ±10% (0m Cable)
Equalization Range: (Belden 8281 cable type):	259M: 0-280m 292M: 0-100m

PT0760M-SDI-4O
SDI output specifications:

SMPTE-Formats:	259M, 292M
Connector:	BNC, 75Ω (Internally Terminated)
Nominal Output Resistance:	75Ω,
Return Loss:	>15dB (5MHz - 1.5GHz)
Output Level:	800mVp-p, ±10%

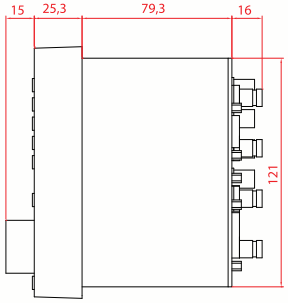
PT0760M-ANAREF
External Analogue Video reference:

Connector:	BNC, 75Ω (Not internally terminated)
Return Loss:	>35dB (5MHz to 30MHz)
Input Level:	1Vp-p typical, 2Vp-p (Maximum)

Supports video standards:

SDTV:	SMPTE 125M SMPTE 267M ITU-R BT .601 (480I, 576I)
HDTV:	SMPTE 296M(720P) SMPTE 274M(1080I/P) SMPTE RP 211 (1080PsF)

Side View



ANALOGUE & DIGITAL AUDIO

PT0760M-O/P-8A
8 Channel Analogue Audio Output Module:

Connector:	25 pin Female D-Sub.
Sample Rate with internal Sync:	48kHz
Max. Output Level at 600Ω:	+18dB (VCC=12V) +24dB (VCC >20V)
Bit Resolution:	24 bits.
Frequency Range:	30Hz to 20kHz ±0.3dB
Sample rate range with external sync:	32 kHz to 50 kHz
Group delay:	<0.21 msec
Dynamic range A-weighted:	>101 dB
Crosstalk at 1 kHz:	< –96 dB
Signal-to-noise ratio:	93 dB (typical)
Nominal output impedance:	< 5 ohm

PT0760M-O/P-8D
4 Channel Digital Output Module (AES3):

Connectors:	15 pin Female D-Sub (AES3-2003) & 4 x BNC (AES3-id2001)
Sample rate with internal Sync:	48kHz
Output Level (BNC), 75Ω:	1V
Output Level (D-Sub), 110Ω:	5V (balanced)
Bit Resolution:	24 bits.

PT0760M-I/P-8A
8 Channel Analogue Audio Input Module (balanced):

Connector:	25 pin Female D-Sub.
Sample Rate with internal Sync:	48kHz
Max. input Level:	+24dB
Bit Resolution:	24 bits
Frequency Range:	30Hz to 20kHz ±0.3dB
Nominal input impedance:	> 20kΩ
Group delay:	<0.82 msec
Dynamic range, A-weighted:	>103 dB
Crosstalk at 1 kHz:	< –96 dB
Signal-to-noise ratio:	93 dB (typical)

PT0760M-I/P-8D
4 Channel Digital Input Module (AES3):

Connectors:	15 pin Female D-Sub (AES3-2003) & 4 BNC (AES3-id-2001)
Sample rate internal:	48kHz
Sample rate for input module:	8kHz - 108kHz
Input Level:	>500mV
Bit Resolution:	24 bits
Input impedance:	110Ω
Group delay:	1.75 msec (Max.)
THD & Noise:	–103 dB @ 1 kHz (typical)
Dynamic range:	>120 dB

GENERAL SPECIFICATIONS

General Connectivity:

External Display:	DVI-I (DVI or VGA) 640x480p60 1280x720p60 24 bit color Monitor, Control & Update RS232 / USB (-A) / (RJ45)

Power Supply:

Power input Connector:	XLR4-male
Input Voltage:	12-36VDC
Power Usage:	15-40W

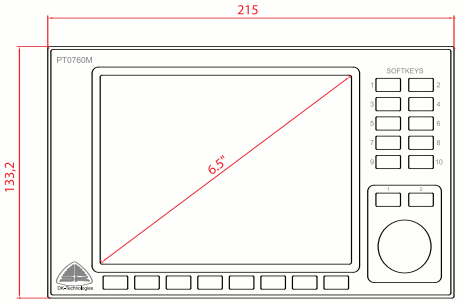
Physical Characteristics:

Height:	133.4 mm
Width:	215.2 mm
Depth:	145 mm Max.
Weight:	2,5kg (typical)

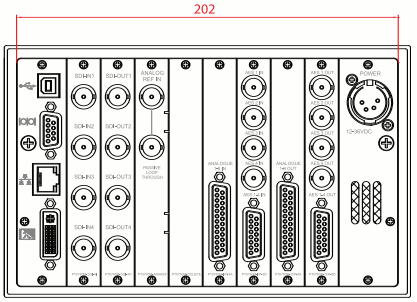
Environmental Conditions:

Storage temperature:	-20° to +70°C
Operating temperature:	+5° to +45°C
Humidity:	Non-condensing (IEC 721)

Front View



Rear View



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