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Program QoS Monitor

PQM300



Features & Benefits

Efficiently Manage Your Available Bandwidth

Quickly Detect Picture Defects Before They Become Customer Complaints
- MPEG Blocking
- Repeated Frames
- Uncorrelated Gaussian Noise

Aids in Detecting Frozen Frames and Loss of Service

Guarantee Consistent Levels of Performance at Any Point Within Your Network

Applications

Monitor Quality of Service for:
- DBS
- CATV
- Broadcast TV
- Other Transmission Networks

COMPUTING
TELECOM
VIDEO

From the Undisputed Leader of Picture Quality Measurements

The PQM300 Program Quality of Service (QoS) Monitor is a multi-channel solution for monitoring the quality of compressed video. From the pioneer in picture quality measurement technology, which brought you the world's first objective picture quality analysis tool, comes a natural extension of this capability designed for those engaged in the delivery of compressed video.

Manage Your Bandwidth Objectively

Bandwidth means money and the PQM300 can help you better manage it. Using the Picture Defect Index (PDI) scale, you can objectively allocate bandwidth on an individual program basis, using it where you need it most without wasting it on a single program. The PQM300 PDI scale is derived from the industry-standard Picture Quality Rating (PQR) scale made popular by the Tektronix PQA200 Picture Quality Analysis System. This ensures confidence that the displayed QoS results will approximate the experience of human viewers.

Let Customers See You in the Best Light

The PQM300 enables you to quickly identify the most annoying MPEG picture defects before they become customer complaints. This dependable single-ended (no reference) solution provides an instantaneous view of the most annoying MPEG compression-related artifacts, such as blockiness. The PQM300 also aids in detecting uncorrelated Gaussian noise, frozen frames and loss of service. Unlike limited devices that can only scan one program at a time, the PQM300 is designed to simultaneously monitor all of your programs in real time so that no picture defects go undetected.

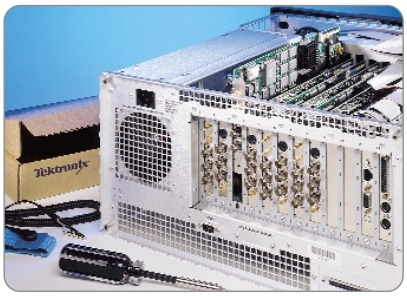
Tektronix

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Tektronix – The Name You Can Trust for Quality

The predominance of MPEG compression requires a unique solution for maintaining and assuring reliable and uninterrupted program quality. With the introduction of the PQA200 in 1997, Tektronix pioneered a breakthrough measurement solution for researchers, equipment developers and those needing to analyze the performance of compression systems for professional broadcast use. True reference-based systems, like the PQA200, continue to provide the industry's most accurate and comprehensive objective picture quality measurements. Building on this measurement expertise, Tektronix has extended its range of offerings with the PQM300.

Keeps Pace with Your Changing Needs



Built with Tomorrow in Mind

The PQM300's modular mainframe is designed for multi-channel monitoring. You can quickly add additional channels and measurement capability to the instrument right on-site. Up to eight program monitoring cards can be installed in the PQM300. Two channels come standard with each PQM300.

The PQM300 is designed to simultaneously and continuously monitor all of your programs in real time so that no picture defects go undetected.

The PQM300 provides an immediate solution for monitoring standard definition picture defects and provides an extensible architecture for future additions to these capabilities.



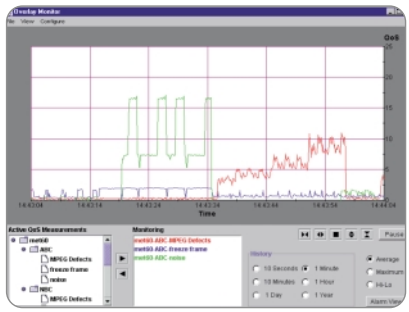
Unlike restrictive devices based solely on SSCQE, the PQM300 assures you the flexibility you require for performing both real-time quality monitoring and measuring. In addition, because of the powerful mainframe and processing cards, you can anticipate an easy upgrade via CD-ROM.

Keeping an Eye on Your Quality

The PQM300 automatically monitors all of your programs in real time, looking for picture defects you specify for each program. For example, you might choose to monitor for noise on an analog input to your system while monitoring MPEG blocking and freeze frames on digital channels.

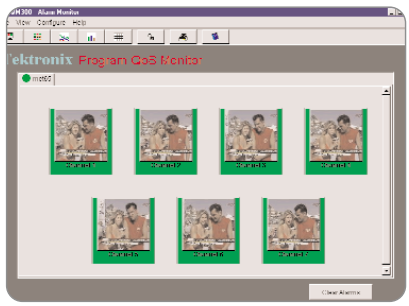
A live graph of the monitoring results for all of the selected defects is displayed for easy viewing in either line graph or bar chart formats. Flexible window viewing options are provided. A 10-second viewing window provides the monitoring results at maximum resolution for the display. You can also view the results over several other selectable time periods.

Monitoring results are displayed against either a 5-point quality scale or the Tektronix Quality of Service (PDI) scale. Because the PQM300 PDI scale is derived from the Picture Quality Rating (PQR) scale, you can be confident that the displayed QoS results indicate what a viewer may experience.



View Your Entire Operation at a Glance

The PQM300 provides an intuitive icon-based alarm display for an at-a-glance view of all programs including a small near real-time display of the video content. By purchasing Option FRB, customers can use alarms to control up to 16 relays, implementing alternative alarm mechanisms in addition to the alarm display.



Multiple PQM300s can be networked together to provide QoS monitoring of as many program channels as needed. Alarm conditions are indicated by three colors – green for normal operation, red to indicate an existing alarm condition and amber to indicate a historical alarm condition (one that was present but has ceased). Each program channel is controlled through individually selectable parameters and alarm levels.

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By maintaining program quality history and defect logs, the PQM300 provides you with invaluable QoS information. The defects log stores the alarm record of every monitored channel so you can check how many times an alarm condition exceeded a threshold. Immediate review of recent alarm conditions is available on-screen. The data export function allows for in-depth analysis of alarm conditions and historical data.

Ensure that You're Well-connected

PQM300 supports modern networking capabilities such as TCP/IP (Ethernet) and SNMP (Simple Network Management Protocol). These powerful communication protocols allow you to place PQM300 monitors at strategic locations within your system. By centralizing the data collected from PQM300s, decisions regarding service management, billing, quality assurance and comprehensive maintenance can be made quickly and accurately. Locally, multiple PQM300s can be networked together to provide QoS monitoring of as many program channels as needed using your Local Area Network (LAN). You can easily view all of the program channels in your system from one monitoring position.

In addition, the PQM300 supports SNMP for consolidated network monitoring of all devices within your facility. A central SNMP controller captures alarm conditions or traps from the PQM300s, as well as from other equipment throughout your facility.

Each PQM300 in your network can be accessed via Internet browser software (Netscape® Communicator or Microsoft® Internet Explorer). To view QoS conditions from anywhere in the world, simply enter the IP address of the PQM300 you wish to access.

For local display of monitoring results, customers can use the optional LCD display integrated into the rackmountable mainframe or can utilize their own VGA/SVGA monitor.

Monitoring Scenario

The PQM300 Program QoS Monitor can be placed at strategic locations throughout your system. Access at one point may be via an MPEG Transport Stream (which requires an external decoder) or direct from video in either SDI or PAL/NTSC composite format.

▶ Characteristics

Serial Digital Video Channels

Input Signal Format – 270 Mb/s serial component digital video. Complies with ITU-R BT.601, BT.656 and SMPTE 259M.

Video Inputs – Active loop-through, 75 Ω terminating, BNC connector (channel 1), SMB connector (channel 2).

Video Output – 75 Ω terminating, BNC connector.

Channel Synchronization – The two inputs are asynchronous.

Return Loss – At least 15 dB (1 MHz to 270 MHz), with power on.

Serial Receiver Equalization Range – Proper operation with coaxial cable up to 14.5 dB loss at 135 MHz. Typical operation; to 300 meters with Belden 8281 coaxial cable.

Output Signal Format – 270 Mb/s serial component digital signal. Complies with ITU-R BT.601, BT.656 and SMPTE 259M. Exception: Output frequency accuracy only specified when not referenced to an external input signal.

PAL/NTSC Decoder Channel (Opt. PQM3F01)

Input Signal Format – Analog composite baseband NTCS/PAL or S-Video.

Video Inputs – Passive loop-through, 75 Ω, compensated, BNC connector and standard S-Video connector.

Return Loss – 40 dB up to 6 MHz on composite video.

Loop-through Insertion Loss – 0.6 dB Max to 6 MHz for composite video.

Output Signal Format – 270 Mb/s serial component digital. Complies with ITU-R BT.601, BT.656 and SMPTE 259M.

Video Outputs – Serial component digital 601, one BNC connector and one SMB connector. Identical signals on both output connectors.

Programmable Relay Board (Opt. PQM3FRB)

Relay Board – 16-channel isolated PCI-relay board.

System Components

Mainframe – Tektronix manufactured, rack-mountable in standard 19 in. rack. LCD monitor for local display and mouse and keyboard for UI control are optional.

Processor – Two 400 MHz Pentium II processors.

System Memory – 256 MB.

Real Time Clock – Real time clock/calendar with a resolution of 1 second or less.

BIOS – Phoenix BIOS, Y2K compliant, field upgradeable.

Bus – 32-Bit PCI.

Expansion Slots – 8 PCI slots.

Graphics – 1024 x 768 SVGA resolution with 32 k colors minimum.

Display (optional) – LCD, 800 x 600.

Non-volatile Storage –
Floppy Disk Drive: Standard 3.5 in. PC compatible floppy disk drive; 1.44 MB high-density double sided (2HD).
CD-ROM Drive: PC compatible half-height IDE CD-ROM drive, 8X.
Hard Disk Drives: Standard PC compatible Small Computer Systems Interface (SCSI) HDD. Two drives of 9.1 GB capacity each.

Mainframe Interfaces –
One loop-through Ethernet port.
One bi-directional RS-232/RS-422/RS-485 port.
One parallel port (printer).
One hot-pluggable keyboard port (on the rear panel).
One hot-pluggable mouse port (on the rear panel).

Remote Access Via Web Browser

Pentium III based system with 64 MB RAM recommended. Requires minimum Netscape® Communicator version 4.5 or Microsoft® Internet Explorer version 4.0.

Environmental

Source Voltage – 100/240 V, 50/100 Hz.

Temperature – +5 to +40°C.

Relative Humidity – 80% up to 31°C.

Altitude – 2000 meters.

Regulatory

Safety – UL 3111-1 CAN/CSA C22.2 No. 1010.1.
Low Voltage – EN 61010-1:-1/A2 Under the Low Voltage Directive 73/23/EEC.

EMC

EC Declaration of Conformity – Meets EN 55103-1/2:1996; Electromagnetic Environment E2 under the EMC Directive 89/336/EEC.

Australia Declaration of Conformity – Meets AS/NZS 3548.

FCC Compliance – Meets FCC CFR Title 47, Part 15, Subpart B, Class A.

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▶ Ordering Information

PQM300

PQM300 Program QoS Monitor.

Program quality monitor mainframe with two Rec. 601 serial digital input channels.

Add Opt. 88 to the order to ensure that your PQM300 comes assembled as a ready to use package.

PQM300 Options

PQM3F01 – Analog PAL/NTSC Decoder Module.

PQM3F03 – Additional Rec. 601 SDI Input Channel Module.

PQM3FLC – Display, touchscreen, keypad, keyboard and mouse.

PQM3FRB – 16-channel isolated PCI relay board.

Opt. 88 – Add Opt. 88 to each optional item (F01 or F03) ordered to ensure that your PQM300 comes assembled as a ready to use package. Opt. 88 is not required when ordering an individual module to add to an existing PQM300 in the field.

International Power Plug Options

Opt. A1 – Universal Euro power cord.

Opt. A2 – United Kingdom power cord.

Opt. A3 – Australia power cord.

Opt. A5 – Swiss power cord.

Opt. A6 – Japan power cord.

Contact Tektronix:

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