

# Video Quality Monitors

## Sentry Edge II Datasheet



Sentry Edge II™ is the high-performance, high-density RF monitoring solution from Tektronix. The product detects transport stream and RF modulation errors generated by equipment errors or failures, and provides reporting and alerting capabilities for services in the RF and TS domains. Sentry Edge II delivers high quality RF measurements at scale for 24/7 video monitoring environments economically.

### Key features

- High-density solution: 2 RF inputs with 8 parallel QAM tuners or 1 RF input with 4 tuners
- Analyzer-quality QAM RF measuring capability. RF measurements include:
  - RF lock indication (including LED on rear panel)
  - Input signal level (channel power)
  - EVM
  - MER
  - CNR
  - Pre-RS BER
  - Post-FEC uncorrectable TS packet count
  - Carrier offset
- Constellation diagram provided for diagnostics
- Monitors RF signals up to 1 GHz
- QAM A/B/C support

- Remote management of RF measurement collection
- Proactively detect RF issues before they impact subscribers
- Full range of Transport Stream monitoring capabilities
- 1RU footprint minimizes rack space and power costs
- Highly scalable solution where multiple units can be managed by the Medius Application Manager
- Additional service monitoring capabilities available for QAM channels in the clear: audio/video QoE, Ad Verification, EBIF, tru2way™, MHP, and DSM-CC carousel analysis

### Applications

- RF measurements post-QAM at the hub and at headends where QAM is used
- Two RF inputs enable simultaneous monitoring from different sources on 8-tuner unit
- High quality MER measurements for quick detection when signal quality is inadequate to be tuned by set-top box
- Comprehensive RF reporting and graphing for targeted, rapid problem isolation
- Cost-effective, high-density solution enables more effective monitoring of the network edge
- Remote management of RF measurement collection saves time and money for providers now collecting data in the field

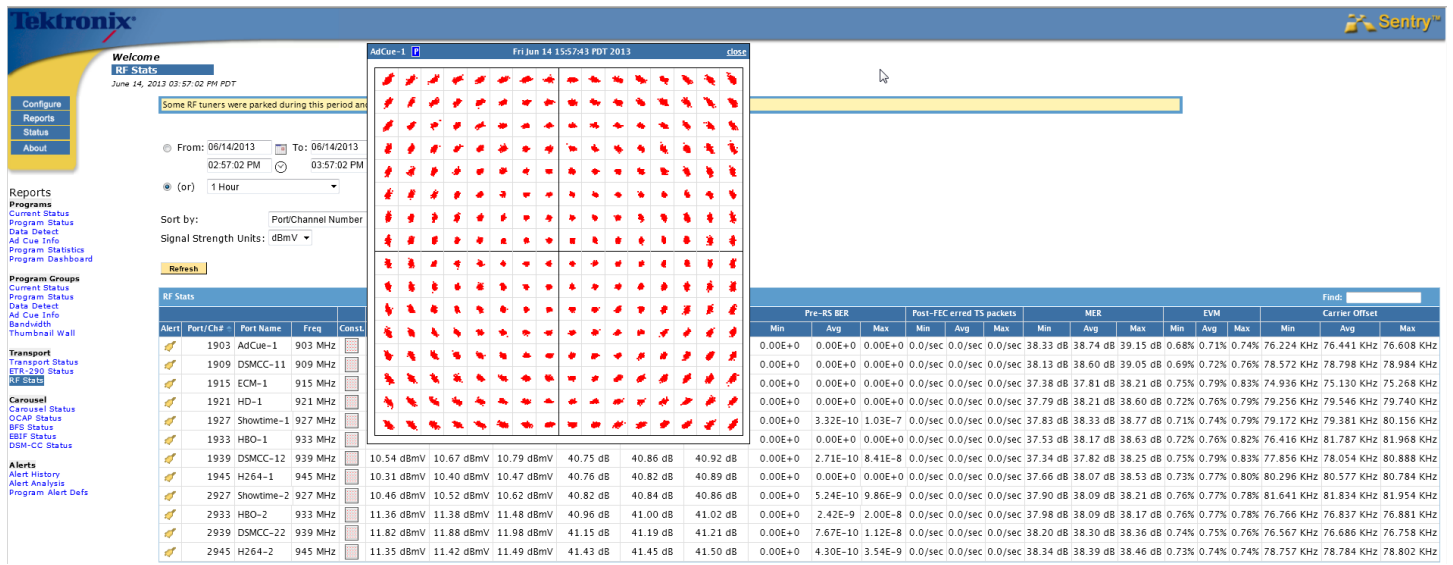
### Video quality monitoring with Sentry Edge II

Sentry Edge II takes RF monitoring to the next level with monitoring density of 4 or 8 tuners per unit. More tuners per unit reduce the time to round robin, so RF issues can be identified sooner. Customers can round robin or park on any of the tuners, or chose any combination of these options.

Excellent MER performance across the entire frequency range lets service providers detect a drop in signal quality before there is impact to subscribers.

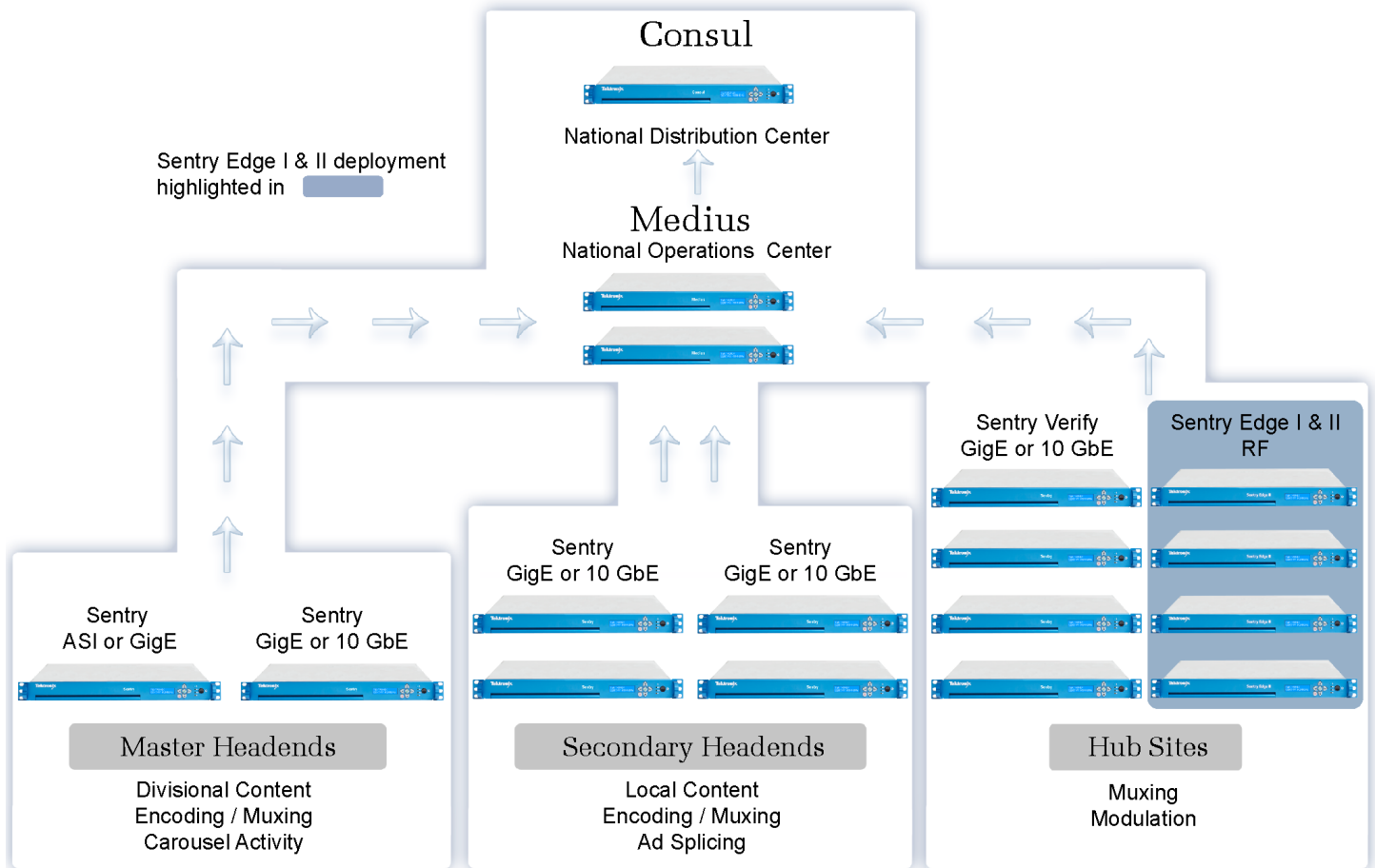
Sentry Edge II is designed to deliver precision measurements at scale in fast-paced video network environments. The product provides comprehensive, highly accurate RF measurements to speed problem isolation.

The Sentry family of video quality monitoring products comprise a S2E (Source-to-Edge) monitoring solution. This solution is a comprehensive 24/7 real-time monitoring system with a 60-day historical database, executive reports, and trending analysis. Multiple Sentry Edge II units can be managed using the Medius Application Manager.



Constellation diagram

# Sentry Series Monitoring Network Diagram



Sentry Edge II monitors the edge of the video network just before content is sent to subscriber homes. It can also be used at headends for QAM HFC distribution monitoring

## RF measurements and specifications

### QAM demodulator

<b>Modulation format</b>	
<b>QAM A</b>	16QAM, 64QAM, 256QAM Compliant with ITU J-83 Annex A and DVB-C ETS 300 429
<b>QAM B</b>	64QAM, 256QAM compliant with ITU J-83 Annex B, SCTE07 Compliant
<b>QAM C</b>	16QAM, 64QAM, 256QAM Compliant with ITU J-83 Annex C

<b>Modulation rate</b>	
<b>QAM A</b>	5 Mbaud/s min to 6.952 Mbaud/s max
<b>QAM B</b>	5.057 Mbaud/s, 5.360 Mbaud/s
<b>QAM C</b>	5 Mbaud/s min to 5.5 Mbaud/s max

<b>Input signal level</b>	-50 dBm to -15 dBm
---------------------------	--------------------

### RF measurements

<b>RF lock</b>	LED on back of unit and indication on UI
----------------	--

<b>Frequency range</b>	
<b>Min.</b>	44 MHz
<b>Max.</b>	1 GHz

<b>Input signal strength (channel power)</b>	
<b>Range</b>	-55 dBm to -15 dBm
<b>Resolution</b>	0.1 dBm

<b>Error Vector Magnitude (EVM)</b>	
<b>Range, 64QAM</b>	0.6% to 5% RMS
<b>Range, 256QAM</b>	0.6% to 2.5% RMS
<b>Resolution</b>	0.1%

<b>Modulation Error Ratio (MER)</b>	
<b>Range</b>	22 dB to 41 dB
<b>Resolution</b>	0.1 dB

<b>Carrier to Noise Ratio (CNR)</b>	
<b>Range</b>	22 dB to 41 dB
<b>Resolution</b>	1 dB

<b>Pre-RS BER</b>	Pre-RS BER displayed
-------------------	----------------------

<b>Post-FEC Uncorrectable TS packet rate</b>	Post-FEC Uncorrectable TS packet rate displayed
--	---

<b>Carrier offset</b>	Carrier offset displayed
<b>Resolution</b>	1 Hz

<b>I/Q Constellation</b>	I/Q Constellation displayed
--------------------------	-----------------------------

## Characteristics

### Platform characteristics

Browser support	Firefox, Safari, and Internet Explorer
Management port	1000BASE-T Ethernet interface

### Supported protocols

For broadcasters and others monitoring in the clear who have purchased QoE software modules for Sentry Edge II, the following protocols are supported: HD/SD programs, SPTS or MPTS, multicast (IGMP v3) and unicast MPEG-PSI, DVB-SI, ATSC-PSIP table support, SNMP trap and MIB support.

Video	MPEG-2, H.264, H.265 (HEVC), VC-1
Audio	Dolby AC-3 (5.1 Surround) MPEG-1 Layer II (Mono, Stereo) AAC, HE-AAC, and HE-AAC v2
Carousel	tru2way™, BFS MHP / DSM-CC
Program insertion	SCTE-35 (local ads)

### Physical characteristics

Dimensions	
Height	50.8 mm (2 in.)
Width	432 mm (17 in.)
Depth	381 mm (15 in.)
Weight (net)	9.2 kg (20.2 lb.)
Power supply	100-240 V AC, 50-60 Hz

### Environmental characteristics

Max storage temperature	70 °C
Max operating temperature	35 °C
Max humidity	85%

## Ordering information

### Models

Sentry Edge II                      Video Quality Monitor

### Options

4QA	QAM-A with 4 tuners
8QA	QAM-A with 8 tuners
4QBC	QAM-BC with 4 tuners
8QBC	QAM-BC with 8 tuners



Tektronix is registered to ISO 9001 and ISO 14001 by SRI Quality System Registrar.

**ASEAN / Australasia** (65) 6356 3900  
**Belgium** 00800 2255 4835\*  
**Central East Europe and the Baltics** +41 52 675 3777  
**Finland** +41 52 675 3777  
**Hong Kong** 400 820 5835  
**Japan** 81 (3) 6714 3010  
**Middle East, Asia, and North Africa** +41 52 675 3777  
**People's Republic of China** 400 820 5835  
**Republic of Korea** +822 6917 5084, 822 6917 5080  
**Spain** 00800 2255 4835\*  
**Taiwan** 886 (2) 2656 6688

**Austria** 00800 2255 4835\*  
**Brazil** +55 (11) 3759 7627  
**Central Europe & Greece** +41 52 675 3777  
**France** 00800 2255 4835\*  
**India** 000 800 650 1835  
**Luxembourg** +41 52 675 3777  
**The Netherlands** 00800 2255 4835\*  
**Poland** +41 52 675 3777  
**Russia & CIS** +7 (495) 6647564  
**Sweden** 00800 2255 4835\*  
**United Kingdom & Ireland** 00800 2255 4835\*

**Balkans, Israel, South Africa and other ISE Countries** +41 52 675 3777  
**Canada** 1 800 833 9200  
**Denmark** +45 80 88 1401  
**Germany** 00800 2255 4835\*  
**Italy** 00800 2255 4835\*  
**Mexico, Central/South America & Caribbean** 52 (55) 56 04 50 90  
**Norway** 800 16098  
**Portugal** 80 08 12370  
**South Africa** +41 52 675 3777  
**Switzerland** 00800 2255 4835\*  
**USA** 1 800 833 9200

\* European toll-free number. If not accessible, call: +41 52 675 3777

**For Further Information.** Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit [www.tek.com](http://www.tek.com).

Copyright © Tektronix, Inc. All rights reserved. Tektronix products are covered by U.S. and foreign patents, issued and pending. Information in this publication supersedes that in all previously published material. Specification and price change privileges reserved. TEKTRONIX and TEK are registered trademarks of Tektronix, Inc. All other trade names referenced are the service marks, trademarks, or registered trademarks of their respective companies.



25 Jan 2016    2CW-28254-4

