Key Benefits

- Portable, high-performance spectrum analyzer with up to 3 GHz range
- Enables user to quickly repair and troubleshoot problems by identifying impairments
- Detect interference from sources such as microwaves, phones, satellite and wifi to maintain HFC network at optimal performance
- Remotely configure and perform tests from anywhere, anytime through Ethernet or SCPI
- Verify terrestrial digital tv (air) channels with 8VSB-ATSC modulation
- One-button automated, analog and digital FCC proof-of-performance test
- Convenient data storage and instrument upgrade through USB
- Validate components with tracking generator

Key Features

CATV Analysis:
- Level, HUM, Depth of Modulation, C/N, CSO/CTB, Cross Modulation, In-Channel Frequency Response Differential Phase/Gain, Chrominance to Luminance Delay Inequality, etc.

DVB-C Analysis:
- Constellation, Power Level, MER, Pre & Post BER, EVM, EVS, MER/Ber Statistical Analysis, etc.

Spectrum Analysis:
- Real-time Sweep, Fine adjustable RBW/VBW, High Accuracy, etc.

The DS8853Q/8831Q is a versatile portable QAM/Spectrum analyzer series, featuring extensive analog and digital RF signal analysis capabilities, necessary on today’s modern HFC networks. With the migration towards fully digital CATV plants and the constant challenges of new services potentially interfering with HFC networks, the modern CATV maintenance technician requires easy-to-use, high performance test equipment allowing him to keep the network running at optimal performance. The DS8853Q/8831Q series provides a familiar, intuitive user interface allowing the technician to actually troubleshoot and run tests, rather than figuring out how to run the instrument.

<table>
<thead>
<tr>
<th>Model</th>
<th>DS8853Q 3G</th>
<th>DS8831Q</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spectrum Analysis</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Workbench-PC Management Software</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>CATV</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>DVB-C</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>ASI Output</td>
<td>●</td>
<td>✖</td>
</tr>
<tr>
<td>8VSB</td>
<td>○</td>
<td>✖</td>
</tr>
<tr>
<td>Tracking Generator-3 GHz</td>
<td>○</td>
<td>✖</td>
</tr>
<tr>
<td>Tracking Generator-1 GHz</td>
<td>✖</td>
<td>○</td>
</tr>
<tr>
<td>30/100/300 Hz RBW</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Spectrum Monitoring</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

● standard configuration  ✖ not available  ○ optional
DS8831Q/DS8853Q Spectrum Analyzer Series

DVB-C Analysis

- Power Level
- MER/Ber/Constellation Analysis
- BER Statistic Analysis
- MER/Ber Statistic Analysis
- EVS (Find Interference under QAM Mask)
- Equalizer

CATV Analysis

- Level
- C/N
- HUM
- CSO/CTB
- Channel Sweep
- Chrominance to Luminance Delay Inequality
- FM Demodulation
- Cross-Modulation

Spectrum Analysis

- 8 Marks
- Two-windows Mode
- Frequency Counter (Up to 1Hz)
- Trace Analysis
"Workbench" PC Management Software

- Workbench is a data management application used to establish network communication between a PC or laptop computer and with the DS8853Q/8831Q series. Easily manage all data, tests applications and test data results.
- It performs the following tasks:
  - Communication and remote control of the DS8853Q/8831Q series via Ethernet
  - Create, edit, upload and download Channel Plan
  - Download and review the screen captures
  - Transfer and save
## Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>DS8831Q</th>
<th>DS8853Q</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency Range</td>
<td>1 MHz to 1 GHz</td>
<td>500 kHz to 3 GHz</td>
</tr>
<tr>
<td>Frequency Stability</td>
<td>+/- 2 ppm</td>
<td>+/- 2 ppm</td>
</tr>
<tr>
<td>Frequency Resolution</td>
<td>10 Hz</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Counter Resolution</td>
<td>1 Hz</td>
<td>1 Hz</td>
</tr>
<tr>
<td>Sweep range</td>
<td>0 Hz (0 span), 1 kHz, 1000 MHz</td>
<td>0 Hz (0 span), 1 kHz, 3000 MHz</td>
</tr>
<tr>
<td>Sweep range</td>
<td>20 ms to 500 sec. (span &gt; 0 Hz), 20 us to 500 sec. (span = 0 span)</td>
<td>20 ms to 250 sec. (span &gt; 0 Hz), 20 us to 500 sec. (span = 0 span)</td>
</tr>
<tr>
<td>RBW</td>
<td>1 kHz to 3 MHz (1-3 Step)</td>
<td>1 kHz to 3 MHz (1-3 Step)</td>
</tr>
<tr>
<td>VBW</td>
<td>30 Hz to 1 MHz (1-3 Step)</td>
<td>30 Hz to 1 MHz (1-3 Step)</td>
</tr>
<tr>
<td>Phase Noise Stability</td>
<td>&lt; -120 dBc/Hz @ 100 kHz offset from CW signal</td>
<td>&lt; -100 dBc/Hz @ 10 kHz offset from CW signal</td>
</tr>
<tr>
<td>Phase Noise Stability</td>
<td>&lt; -95 dBc/Hz @ 10 kHz offset from CW signal</td>
<td>&lt; -100 dBc/Hz @ 10 kHz offset from CW signal</td>
</tr>
<tr>
<td><strong>Amplitude</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measurement Range</td>
<td>Displayed Average Noise Level to Maximum Safe Input Level</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>±1 dB @ +25°C ±5°C</td>
<td>±1 dB @ +25°C ±5°C</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.1 dB</td>
<td>0.1 dB</td>
</tr>
<tr>
<td>Amplifier Frequency Range</td>
<td>0 dB to 55 dB, 5 dB Step</td>
<td>0 dB to 50 dB, 5 dB Step</td>
</tr>
<tr>
<td>Range</td>
<td>1 MHz to 1000 MHz</td>
<td>500 kHz to 3000 MHz</td>
</tr>
<tr>
<td>Amplifier Gain</td>
<td>20 dB</td>
<td>15 dB</td>
</tr>
<tr>
<td>Amplifier Noise Figure</td>
<td>4 dB</td>
<td>4 dB</td>
</tr>
<tr>
<td>Max Safe Input</td>
<td>+68 dBmV, 100 V DC</td>
<td>+78 dBmV, 100 V DC</td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Logarithm Scale</td>
<td>0.1 to 1 dB/div in 0.1 dB step to 40 dB/div in 1 dB step</td>
<td></td>
</tr>
<tr>
<td>Linear Scale</td>
<td>10 divisions</td>
<td></td>
</tr>
<tr>
<td>Vertical Scale Unit of Measure</td>
<td>dBm, dBmV, dBµV, mV</td>
<td></td>
</tr>
<tr>
<td>Marker Readout Resolution</td>
<td>0.03 dB for log scale; 0.03% of ref level for linear scale</td>
<td></td>
</tr>
<tr>
<td>Trace Detector</td>
<td>Normal, Average, Sample, Positive-Peak, Negative-Peak</td>
<td></td>
</tr>
<tr>
<td>Reference Level</td>
<td>-98 dBmV to +29 dBmV</td>
<td></td>
</tr>
<tr>
<td>Resolution Bandwidth Tolerance</td>
<td>&lt; ±0.1 dB</td>
<td></td>
</tr>
<tr>
<td>Input Attenuator Tolerance</td>
<td>&lt; ±0.3 dB (typical)</td>
<td></td>
</tr>
<tr>
<td>Amplitude Flatness</td>
<td>±1.0 dB</td>
<td></td>
</tr>
<tr>
<td>Amplitude Range</td>
<td>40 dBmV to +65 dBmV, ±1.0 dB @ ±25°C, ±5°C (S/N &gt; 30 dB)</td>
<td></td>
</tr>
<tr>
<td><strong>HUM/LFI</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>1% to 20%</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.5% from 1% to 5%, ±1% from 5% to 20%</td>
<td></td>
</tr>
<tr>
<td><strong>Depth of Modulation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>40% to 95%</td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td>0.1%</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>±1.5% (C/N &gt; 40 dB)</td>
<td></td>
</tr>
<tr>
<td><strong>CC/N</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optimum Input Level</td>
<td>32 dBmV to 37 dBmV 0 dB Attenuation, Amplifier Off, 12 dBmV to 17 dBmV 0 dB Attenuation, Amplifier On</td>
<td></td>
</tr>
<tr>
<td>Maximum</td>
<td>60 dB with ±1 dB Accuracy; 65 dB with ±3 dB Accuracy</td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td>0.1 dB</td>
<td></td>
</tr>
<tr>
<td><strong>CTB/CSO</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optimum Input Level</td>
<td>22 dBmV to 27 dBmV 0 dB Attenuation w/ Amplifier Off, 2 dBmV to 7 dBmV 0 dB Attenuation w/ Amplifier On</td>
<td></td>
</tr>
<tr>
<td>Maximum Range</td>
<td>63 dB ±1.5 dB Accuracy (78 channels), 70 dB ±4.0 dB Accuracy (78 channels)</td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td>0.1 dB</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>-45 dB to -45 dB</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>± 2.0 dB for Cross Modulation @ &lt; 55 dB, CCN &gt; 40 dB, ± 4.5 dB for Cross Modulation @ &lt; 60 dB, CCN &gt; 40 dB</td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td>0.1 dB</td>
<td></td>
</tr>
<tr>
<td><strong>In Chn. Freq Resp</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>±12 dB</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.2 dB</td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td>0.1 dB</td>
<td></td>
</tr>
<tr>
<td>Differential Phase Accuracy</td>
<td>±2%</td>
<td></td>
</tr>
<tr>
<td>Differential Gain Accuracy</td>
<td>±3 °</td>
<td></td>
</tr>
<tr>
<td>Chrominance to Luminance Delay Accuracy</td>
<td>±40 ns</td>
<td></td>
</tr>
<tr>
<td>Specifications (continued)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Model</strong></td>
<td>DS8831Q</td>
<td>DS8853Q</td>
</tr>
<tr>
<td>QAM/DVB-C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modulation Types</td>
<td>16/32/64/128/256 QAM, QPSK (ITU-T J.83 Annex A/B/C)</td>
<td></td>
</tr>
<tr>
<td>Interleaving</td>
<td>Up to 128 × 4 in Annex B, 12 × 17 in Annex A/C</td>
<td></td>
</tr>
<tr>
<td>Constellation Display</td>
<td>QPSK, 16/32/64/128/256 QAM with Zoom capability</td>
<td></td>
</tr>
<tr>
<td>Adaptive Equalizer Display</td>
<td>8 FFE taps, 24 DFE taps</td>
<td></td>
</tr>
<tr>
<td>Digital Chn. Power</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amplitude Range</td>
<td>-30 dBmV to +60 dBmV</td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td>0.1 dB</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>±1.0 dB @ (25°C ±5°C, C/N &gt; 20 dB) Typical</td>
<td></td>
</tr>
<tr>
<td>Measurement Bandwidth</td>
<td>200 kHz to 999 MHz</td>
<td></td>
</tr>
<tr>
<td>MER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>&gt;43 dB</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.5 dB (22 to 30 dB); ±1.0 dB (30 to 35 dB); ±1.8 dB (35 to 43 dB)</td>
<td></td>
</tr>
<tr>
<td>BER</td>
<td>2 × 10E-3 to 1 × 10E-12</td>
<td></td>
</tr>
<tr>
<td>Error Vector Magnitude</td>
<td>&lt; 0.6%</td>
<td></td>
</tr>
<tr>
<td>Statistical Mode</td>
<td>1 to 4320 Minutes</td>
<td></td>
</tr>
<tr>
<td>Symbol Rate</td>
<td>1 to 7 Ms/Sec</td>
<td></td>
</tr>
<tr>
<td>Power Supply</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery Type</td>
<td>14.8 V / 6 Ah Rechargeable Lithium-Ion</td>
<td>14.8 V / 8 Ah Rechargeable Lithium-Ion</td>
</tr>
<tr>
<td>External AC Adapter</td>
<td>19 VDC / 3.42 A</td>
<td></td>
</tr>
<tr>
<td>Charge Time</td>
<td>5 Hours</td>
<td>6 Hours</td>
</tr>
<tr>
<td>Operational Time</td>
<td>&gt;3 Hours; &gt;2.5 Hours (Including Optional Tracking Generator)</td>
<td></td>
</tr>
<tr>
<td>General</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0 to 50 °C (32 to 122 °F)</td>
<td></td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-20 to +55 °C (-4 to 131 °F)</td>
<td></td>
</tr>
<tr>
<td>Dimension (W×H×L)</td>
<td>360 mm × 180 mm × 350 mm</td>
<td>360 mm × 180 mm × 360 mm</td>
</tr>
<tr>
<td>Weight (With Battery)</td>
<td>9 kg</td>
<td>10 kg</td>
</tr>
<tr>
<td>Display</td>
<td>16 cm (6.4 inches) TFT Color LCD</td>
<td>19 cm (7.5 inches) TFT Color LCD</td>
</tr>
<tr>
<td>Display Resolution</td>
<td>640 X 480 Pixels</td>
<td></td>
</tr>
</tbody>
</table>

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