Model Three

Distribution Signal Level Meter

- 5 MHz to 1 GHz Standard Frequency Coverage
- Full Scan, Single Channel, and Spectrum Modes
- Data Logging
- Digital Signal Measurements: Power, MER, Pre- and Post-FEC BER (Including Deep Interleave)
- Optional Constellation Display
- Rugged, Simple to Use, and Cost Effective

Overview

The Model Three™ signal level meter is ideal for CATV installations - featuring a wide range of tests for analog and digital channel measurements. This rugged instrument can be customized, streamlining tests and making your installations and troubleshooting more efficient.

With the press of a single key, the meter performs a complete test of all channels in the selected user channel plan to specified limits. It can also be set to automatically perform Level, Spectrum, Tilt (Favorite), Hum, QAM, and Limit tests at programmed intervals, unattended.

Carrier amplitudes are displayed individually, grouped with up to 12 “favorites”, or in scan mode with five levels of magnification or full channel plan scan. This meter features a single-channel spectrum mode which displays interfering beats in addition to the carrier amplitudes. The meter also tests QAM channels, performs Hum measurements, provides data logging, includes a voltmeter, and much more.

LEARNED CHANNEL PLANS

The Model Three conveniently stores up to four user-defined channel plans customizing the meter for contractors that work in several systems with different channel lineups. Plans can be automatically learned (from eight base plans) at a cable drop, or downloaded from PC files using the optional ToolBox™ software. The operator can select favorite channels in each user plan to be included in a Tilt/Favorite channel plan.

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DIGITAL CHANNEL MEASUREMENT

The Model Three can measure the channel power of QPSK and QAM channels when testing or troubleshooting your digital transmission system. This function also measures MER and pre- and post-BER for QAM channels (including deep interleave).

The Constellation display (optional) allows the operator to quickly analyze 64 and 256 QAM downstream channels verifying quality or identifying impairments. This feature is field-installable and can be added at the operator's convenience.

WIDE CHANNEL SCANS

The Model Three can display up to 126 channels in a single view or a total of 170 channels can be displayed in overlapping views. The settings for the active measurement mode can be accessed at the press of a single key, without going through nested menus. This allows the operator to quickly make changes in the settings and return to measurement mode saving valuable time.

LEVEL MEASUREMENT

As an aid to troubleshooting, the operator can choose LIVE, MAX, or Δ P-P (variation) signal level displays.

SPECTRUM MEASUREMENT

In Spectrum mode the full spectrum or frequency spans from 2.5 MHz to 62.5 MHz can be displayed. The Δ MARKER function is included in Spectrum and Single-Channel Spectrum modes. MAX HOLD captures transient events. The Model Three also has an Average display function for Spectrum.

HUM

The Hum measurement function is used to troubleshoot interference that may result from a defective power supply or faulty or overloaded power inserters. This mode includes 60 Hz and 120 Hz (or 50 Hz and 100 Hz) and low pass (1 to 400 Hz) measurements.

VOLTMETER

The Model Three is equipped with a built-in voltmeter function that can be used for troubleshooting power supplies or power drops. The measurement is displayed as a bar graph with a numerical readout and can accommodate AC or DC voltages up to 100 Volts.

USER-DEFINED TESTS

A significant time and cost savings feature of the Model Three is the capability to group tests into automatic tests that can be executed with a single keystroke. Several Auto-Tests can be stored in the meter and recalled as needed. These may include Level, Tilt, Spectrum, QAM, Hum, and Limit tests. Limit test data allows for test uniformity and flexible field storage, and may be automatically scored against specified limits and assembled into reports.

AUTOMATED PROOF OF PERFORMANCE

At the press of a key, the Model Three performs FCC Part 76 level-related tests including: Visual Carrier Levels, Δ V/A, Max Δ Visual Carrier Levels, and Δ Adjacent Visual Carrier Levels. Measurements can be executed immediately or programmed to occur at timed intervals, unattended, as an FCC 24-hour variation test. The test results can then be compared against FCC limits, or limits set by the user.

FLEXIBLE DATA STORAGE

The operator can select and save the test data of the Level, Tilt, Spectrum, Scan, QAM, Hum, Limit, and Auto-Test measurements and recall them as needed. Scan, Spectrum, and Limit files can be viewed graphically. Any combination of up to 30 Level, Tilt, Spectrum, Hum, QAM, or scans, or up to 22 Limit test measurement files may be saved on the Model Three. These data records may be uploaded to a PC through the optional ToolBox software for reports, analysis, and printing.

EXTENDED BATTERY LIFE, FAST CHARGING

The Model Three's battery provides five hours or more of continuous use between charges. One hour of fast charging from AC or vehicle power provides nearly two hours of extended operation.

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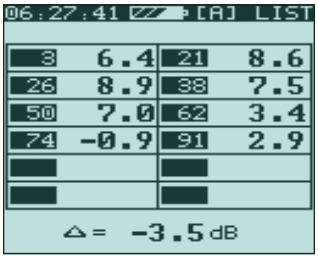
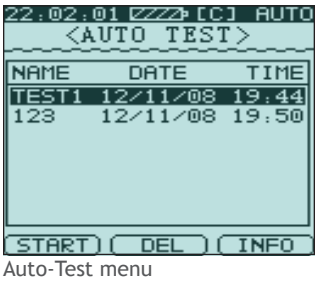
Model Three

(Standard Feature Set) P/N 2011346010
(With Constellation) P/N 2011346110

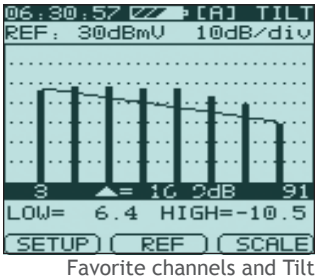
File list



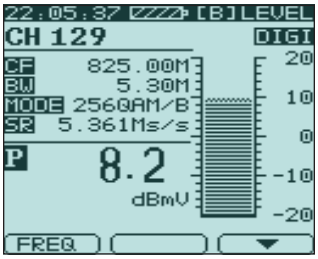
Favorite channel and Tilt display



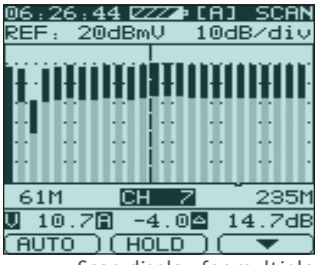
Auto-Test menu



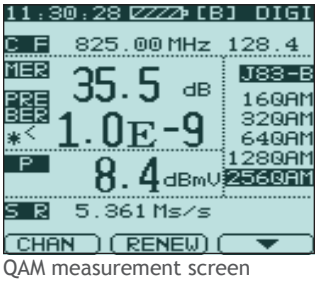
Favorite channels and Tilt displayed as a graph



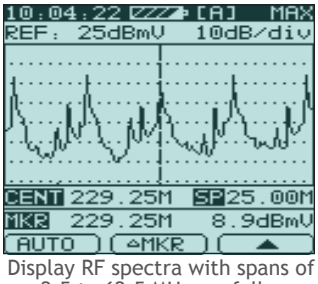
Level screen for digital channels



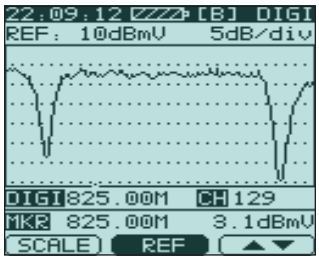
Scan display for multiple channels with 5 levels of magnification or full plan



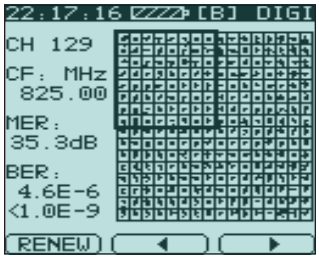
QAM measurement screen



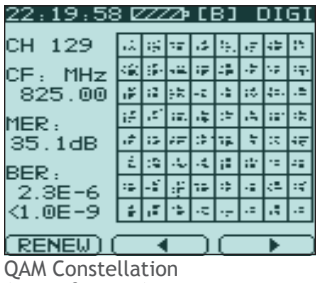
Display RF spectra with spans of 2.5 to 62.5 MHz, or full-span



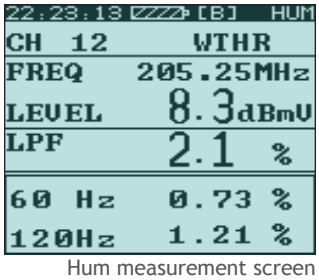
QAM Spectrum screen



QAM Constellation screen (optional)



QAM Constellation (magnification) (optional)



Hum measurement screen

THE MODEL THREE SIGNAL LEVEL METER SUPPORTS A VARIETY OF FUNCTIONS, INCLUDING:

- Level measurement
- Tilt/Favorite group display
- Single-Channel display
- Scan display
- Spectrum display
- Digital channel measurements
- Data logging
- Limit test
- Auto-Test
- Voltmeter function
- Hum measurement
- Saves measurement files for viewing or uploading to optional ToolBox software

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Specifications

Frequency	**Range:** 5 MHz to 1 GHz **Accuracy:** ±50 ppm @ 20° C ± 5° (68° F ± 9°) **Resolution:** 10 kHz
Channel Type	**Analog TV:** TV **Digital TV:** 16/32/64/128/256 QAM, QPSK, COFDM **FM channel:** single frequency
Analog Level Measurement	**Range:** 5 MHz to 65 MHz (-42 dBmV to +60 dBmV) 65 MHz to 1GHz (-35 to +60 dBmV) **Accuracy:** > -25 dBmV: ± 1.5 dB @ 10° to 30° C (50° to 86° F) ± 3.0 dB @ -10° to +40° C (14° to 104° F) **Resolution:** 0.1 dB **Input impedance:** 75 Ω (unbalanced, BNC or F-type connector)
Hum	**Range:** 2 to 5% LPF, BPF **Accuracy:** ±0.5% (BPF)
Channel Scan	**Number of channels:** 170 (max) **Scanning speed:** 3 channels per second **Scale:** 1, 2, 5, 10 dB/div **Zoom:** 1x, 2x, 3x, 4x, 5x; five levels of magnification or full channel plan scan
Frequency Spectrum	**Bandwidth:** 2.5 MHz, 6.25 MHz, 12.5 MHz, 25 MHz, 62.5 MHz, and full span **Scale:** 1, 2, 5, 10 dB/div
Digital Channel	**Demodulation type:** ITU-T J.83 Annex A/B/C standard **Support:** 16/32/64/128/256 QAM, QPSK, COFDM **Symbol rate:** 4 to 7 MS/sec **Bandwidth:** 0.28 TO 9.99 MHz **MER:** To 36 dB (QAM) **Accuracy:** ±2.0 dB **BER:** $1E^{-3}$ to $1E^{-9}$ before and after R-S decoding (QAM) **Power measurement type:** QAM, QPSK, COFDM
Digital Channel Power (Average)	**Level range:** -25 to +55 dBmV **Accuracy:** ±2.0 dB @ 10° to 30° C (50° to 86° F) ± 3.0 dB @ -10° to +40° C (14° to 104° F) **Resolution:** 0.1 dB
Constellation (Optional)	**Display size:** 64 and 256 QAM Constellation with zoom capability
Tilt Measurement	**Number of channels:** 4 to 12 **Resolution:** 0.1 dB
Trunk Voltage Measurement	**Input range:** 10 to 100 VAC or VDC **Accuracy:** ±2.0 V **Resolution:** 0.1 V
Limit Test Parameters	Any of the following may be enabled: **Min video:** 40 to 119 dBµV (-20 to +59 dBmV) **Max video:** 41 to 120 dBµV (-19 to +60 dBmV) **Max Δ video:** 2 to 30 dB **Min Δ V/A:** 0 to 15 dB **Max Δ V/A:** 5 to 30 dB **Max Δ ADJ:** 0 to 20 dB **24-hour video dev.:** 0 to 20 dB
Auto-Test	**Number of programs:** 7 (max) **Tests:** Level, Tilt, Spectrum, QAM, Hum, and Limit (any or all tests may be used in an Auto-Test program) **Time intervals:** 1 to 23 hours **Test times:** 1 to 10 times
Power	11.1 V / 1.4 AH Li-Ion battery Provides 5 hours of continuous operation **Charger:** 100 to 240 VAC, 50/60 Hz, 15 VDC, 2 A (max) **Charge time:** Less than 3 hours
Display	128 x 128 backlit LCD
Communication Port	RS-232C (Converts to USB with data cable)
Storage	32 Kb of memory Up to 30 complete scan files (170 channels, max) or 22 complete Limit test files (170 channels, max); less if other files (Level, Tilt, QAM, Hum, Spectrum) are saved
Weight	1.76 lbs (800 g)
Dimensions (H x W x D)	8.58" x 3.74" x 1.93" (218mm x 95mm x 49mm) (dimensions do not include belt clip)

ACCESSORIES:

CC-18 holster with belt loop
P/N 2130854000

CC-17 protective sleeve
P/N 2130856000

I/O-15 precision RF coaxial test cable
P/N 2071527048

ToolBox software (includes PC data cable)
P/N 0930149000

USB PC data cable
P/N 2072084000

INCLUDES THE FOLLOWING:

- Protective rubber bumper
- Carrying case
- Shoulder strap
- AC battery charger
- User's manual

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