Signal Level Meters

MS-1000, MS-1200D, MS-1300D, MS-1400

Key Features

- **Easy-to-use, icon-based interface for all instruments and multilingual firmware options available**
- **Efficient and automated testing, plus convenient proof-of-performance compliance testing with results viewable immediately on-screen or tests scheduled over time for printing later**
- **Fast, easy location of forward and reverse ingress and interference with an advanced ingress spectrum scan**
- **Complete digital measurement solution for DTV and cable modem signals including digiCheck™ average power measurement with auto limit check**
- **Extended battery life of the MS-1400 – approximately five hours, and faster charging times improve productivity**

System bandwidth expansion and digital service deployment have placed greater demands on CATV installers. Today's installers require a Signal Level Meter (SLM) that combines advanced measurement capability with the ruggedness needed for everyday field use. The family of JDSU Signal Level Meters offers comprehensive, reliable measurement performance to meet the needs of installers deploying services at every phase of the network cycle.

JDSU Signal Level Meters are designed to help installers perform their work effectively, faster, and more easily, to improve productivity and reduce costs. The same easy-to-use, icon-based interface for all instruments in the family, minimizes training requirements and downtime. All instruments are light, portable, durable and water-resistant. They are designed to meet the tough requirements of field use and like all JDSU instruments, they are built to last and to deliver sustained value.

The MS-1000 is ideal for installers responsible for activating broadcast CATV service. The six-channel scan and installation check provide the essential capability to ensure high-quality CATV installation.

The new digital SLMs, MS-1200D and MS-1300D, offer the advanced performance capability that digital installers need, at a cost that does not strain budgets. New standard features include digital average power measurement, with the patented digiCheck™ method and 5-890 MHz frequency range.

Additional standard features such as the reverse ingress scan of the MS-1300D, and customizable channel plans for the MS-1200D make JDSU Signal Level Meters the best priced performance field meters currently on the market.

The MS-1400 offers a complete set of analog and digital measurement capability, with the added benefits of forward ingress scan, an upgradeable platform, extended-life battery, and multilingual firmware options. The MS-1400 also can beupgraded to a JDSU CLI-1450 or CLI-1750 which adds more advanced capability including signal leakage detection.

Powerful features

Signal Level Meters are designed for the challenges of installing and maintaining the cable networks of today.

Features

– Single channel display and six-channel scan have PASS/FAIL indicators for quick performance

– Ingress Scan mode – allows users to find forward and reverse ingress problems from the tap to the drop

– digiCheck™ digital signal measurement measures DVB, digital TV, cable modem, Internet, and telephony on-cable services

Features	MS-1000	MS-1200D	MS-1300D	MS-1400
Icon Driven User Interface	•	•	•	•
6 Channel Scan	•	•	•	•
Installation Check	•	•	•	•
Configure by Channel or Frequency	•	•	•	•
Channel Video/Audio Level & Delta	•	•	•	•
FCC & CENELEC Limit Check	•	•	•	•
Tilt Mode	–	•	•	•
Cloning	–	–	•	•
Copy Remote Channel Plan	–	•	•	•
Prints Current Data	–	•	•	•
All Channel Scan/Full Scan	–	•	•	•
Ingress Scan in Reverse Band	–	–	•	•
Ingress Scan in Forward Band	–	–	–	•
Customized Channel Plans	–	•	•	•
Stores Measured Results/Screens	–	•	•	•
24 Hour – Auto Test	–	•	•	•
Prints Stored Results	–	•	•	•
Downloads to StealthWare	–	–	•	•
digiCheck™ - Digital Measurement	–	•	•	•
Analog Limits	–	•	•	•
Digital Limits	–	–	–	•
Multilingual LCD Screen	–	–	–	•
Standard 45-550 MHz Frequency Range	•	–	–	–
Optional 45-890 MHz Frequency Range	•	–	–	–
Standard 5-890 MHz Frequency Range	–	•	•	•

Upgradeable

To ▼	MS-1000	MS-1200	MS-1300	MS-1200D	MS-1300D	MS-1400
MS-1200	–	N/A	N/A	N/A	N/A	N/A
MS-1300	–	–	N/A	N/A	N/A	N/A
MS-1200D	•	–	N/A	N/A	N/A	N/A
MS-1300D	•	•	•	•	–	N/A
MS-1400	–	–	–	–	–	N/A
CLI-1450	–	–	–	–	–	•
CLI-1750	–	–	–	–	–	•

The results are displayed in a list indicating which parameters are out of tolerance. If all levels are within limits, a ✓ will show in the far right column. If any parameter is out of tolerance an X will be shown

Pressing the cycle soft key provides more detail by bringing up a list of all channels. Passing channels have a ✓ in the right hand column

Pressing the cycle soft key provides a detailed view of which specific error is on the specific channel

Level measurement

All instruments provide a comprehensive single-channel display and a multichannel display with pass/fail indicators. The multichannel display quickly and clearly indicates if all channels are being received at the subscriber's drop at appropriate system design levels.

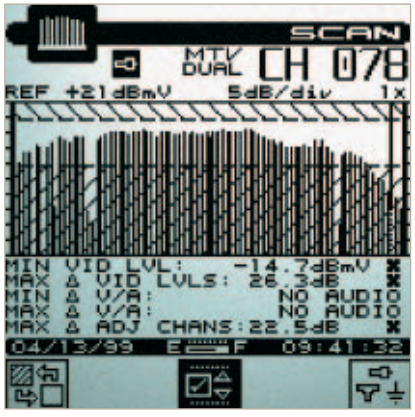
Installation check

Pressing ✓ key provides an installation status check, which allows technicians to verify that all levels are within user-defined limits. Up to four different limits can be configured: tap, ground block, subscriber drop, and custom. This feature can be used to determine if a subscriber connection meets cable network or government specifications.

These results can be printed, (MS-1200D, MS-1300D, MS-1400) or downloaded to the PC for report generation using JSDSU StealthWare™ Data Analysis Software (MS-1300D, MS-1400).

The single channel display shows the video and audio carrier levels and the difference between levels. Compatible with dual sound and NICAM

The six-channel scan shows six different user-defined video carriers, with PASS/FAIL indicator for user-defined limit



The full scan display shows all user-defined video carriers. The unique limit check feature quickly checks the results against user-defined analog (MS-1200D, MS-1300D and MS-1400D) and digital limits (MS-1400)

Tilt mode

Tilt measurement is a fast and effective method to balance line extenders and in-home amplifiers.

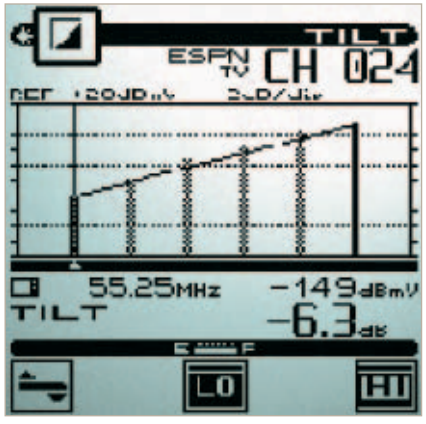
Customized channel plans

Channel plans can be built, stored, and edited. This is convenient if meters are used for more than one plant. It allows the user to quickly select the correct channel plan on which they are working. It is only necessary to build a channel plan once. A copying function makes it possible to transfer channel plans easily from one field instrument to the other (MS-1200D, MS-1300D and MS-1400).

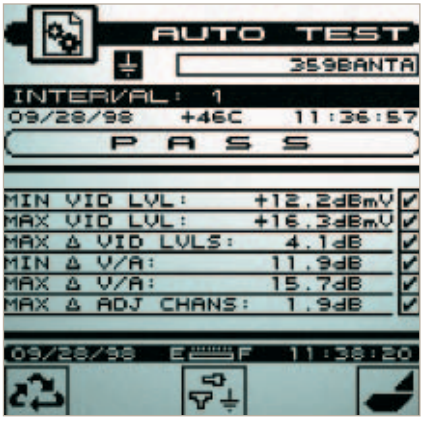
StealthWare™ makes it possible to upload and download channel plans from a PC to the meter (MS-1300D, MS-1400).

AutoTest

To certify that the network termination and home network are within the specifications, or for proof-of-performance compliance data, an AutoTest can be performed. Tests can be executed immediately or scheduled over a period of time. When configuring an AutoTest, information about the location at which the test is being performed can be recorded. Files can be created for commonly tested locations so that information only needs to be entered once. Users can print either a test report for each interval, or a comprehensive 24-hour report that summarizes data collected from up to four intervals.



The tilt display provides a display of up to six channels that updates in less than a second. (MS-1200D, MS-1300D, MS-1400)



AUTO TEST results are time, date and temperature stamped and can easily be stored, viewed, printed (MS-1200D, MS-1300D, MS-1400) or uploaded to StealthWare software (MS-1300, MS-1400)

Ingress scan

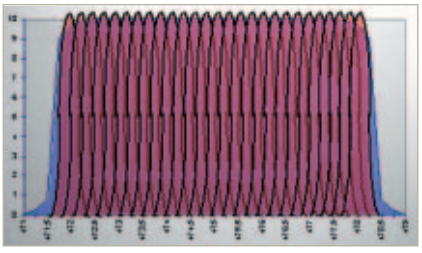
The innovative Ingress Scan mode finds forward (MS-1400) and reverse ingress (MS-1400 and MS-1300D) problems from the tap to the drop. Start/stop frequencies, resolution, and dwell-time are programmable in the setup menu. The operator can also set a limit threshold for simple identification of problem drops. To check for intermittent ingress, the meter can be adjusted to the Peak Hold mode to capture transient signals. Ingress scan displays can be saved for printing later or for uploading to StealthWare™ software (MS-1300D and MS-1400).

Testing the reverse path spectrum for sub-band signals being generated in the drop system improves the effectiveness of finding ingress sources and common path distortions.

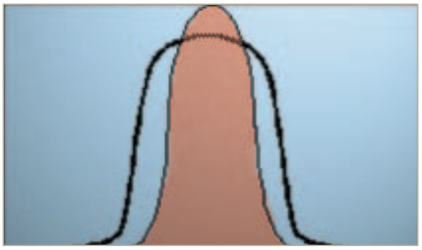
digiCheck™ digital signal measurement

Making accurate digital average power and performance measurements can be addressed with the digiCheck™ measurement function (MS-1200D, MS-1300D and MS-1400). The digiCheck™ takes small slices of the integrated RF-energy, summing them together to provide one total power reading. It takes into account the channel flatness of the digital carrier itself.

Small-band digital carriers, like cable telephony, require a different measurement technique. For that purpose, the digiCheck™ feature offers a time average as well. Even in this case, all level readings are fully compensated for by the correct occupied bandwidth.

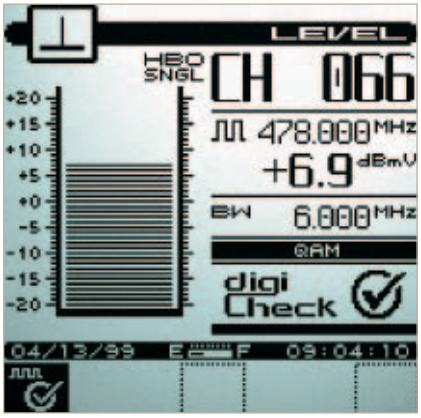


Digital TV and forward cable modem signal



Small-band digital signals are like cable telephone carriers

A display of the spectrum with clear preset limits allows the installer to easily identify ingress. Intermitent ingress is detected through flexible dwell-time setup (MS-1300D, MS-1400)



The digiCheck™ method of measuring the total integrated RF-power under the haystack is very reliable and accurate. All level readings are fully compensated for by the correct occupied bandwidth

Digital and analog limits

Cable networks have analog and digital carriers. The levels of analog and digital signal measurements differ according to standards and regulations. Digital signals are typically 6-14 dB below analog signals. Users can enter minimum and maximum digital channel level limits separately from analog limits in the MS-1400 only. Analog limits are available in the MS-1200D and MS-1300D. Scan mode, installation check, and AutoTest will measure both digital (MS-1400) and analog signals accurately. This allows easy identification of the PASS/FAIL condition of both channel limits sets.

StealthWare™ software

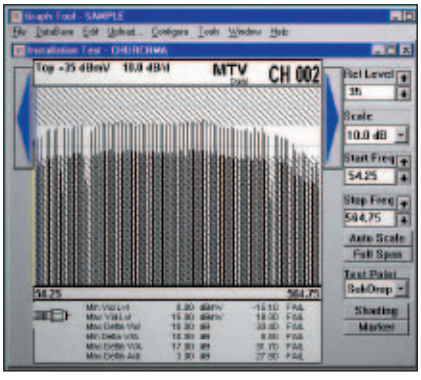
Signal level measurements can be uploaded for storing, viewing, and printing. StealthWare™ allows the building of channel plans and test locations that can be downloaded to the field meter (MS-1300D, MS-1400).

Multilingual LCD screen

The user interface is now fully converted for the language requested, allowing technicians to learn to use and read the meter in their own language: French, Portuguese, German, Spanish, and Italian (MS-1400).

Upgradeable to leakage meter

The MS-1400 can be factory-upgraded to a CLI-1450 to add leakage detection. They can also be upgraded to a CLI-1750, which when communicating with the LST-1700 transmitter, provides more installation test functionality such as minisweep and frequency domain reflectometry.



The MS-1400 has a limit set for analog channels and a limit set for digital channels. The MS-1200D and MS-1300D have a limit set for analog channels only

Product information

1010-00-0341	MS-1000
1010-00-0626	MS-1200D
1010-00-0627	MS-1300D
1010-00-0448	MS-1400

Options and accessories

MS-1000/1200D/1300D

Includes a battery cartridge, one charger/AC adapter, operating manual, and one spare connector. Soft Carrying Case and Quick Reference Card are standard only with the MS-1300D.

Part number	Name	Description
1013-00-0007	MS1000 Pack	Includes 45 to 890 MHz frequency extension and soft carrying case. MS-1000 only
1019-00-0466	Protective Bag Option	MS1000 Soft Carrying Case. Includes Quick Reference Card. Available for MS1000 only
1219-00-1223	Battery Assembly	Spare Battery Cartridge
1019-00-1375	120V Charger/Adapter Option	
1019-00-0473	Charger/Adapter 220VAC to 12VDC Option	European Charger/Adapter (CE Compliant)
1019-00-0533	Universal Charger Option	Universal Input Charger/Adapter 12VDC output
1019-00-0557	Cigarette Lighter Adapter Option	In-vehicle Charger
1019-00-0559	UHF, BNC option	
1019-00-0564	Non-UHF, BNC Option	MS-1000 Only
1019-00-1267	MBC-4 Four Bay Battery Charger	CE Approved

MS-1200D/1300D

Part number	Name	Description
1019-00-1461	Protective Bag Option	MS-1200D/MS-1300D Soft Carrying Case. Includes Quick Reference Card
1019-00-0553	P-MSCLI Option	P-Stealth Printer Portable Serial Fusion Printer Kit Includes all P-Stealth Printer items, and MicroStealth Serial Printer Cable (P-Stealth Printer Serial Cable not included)
1019-00-0468	MicroStealth Printer Cable – Standard	Generic Serial Printer Cable
1019-00-0469	MicroStealth to PC Option	RS232 Connection
1019-00-0470	Cloning Cable	MicroStealth to MicroStealth Cloning Cable

MS-1400

Part number	Name	Description
1019-00-1284	MS-1400 Soft Carrying Case	For DS-1 Docking Station
1019-00-1372	Extended Life Battery	
1019-00-1373	XBC-1 Charger	
1012-00-0145	Extended Life Battery Upgrade Pack	(Incl: one Extended Life Battery, one XBC-1 Charger, and one XBC-1 Charger Manual)
1019-00-1376	Charger/Adapter, 120 VAC to 12 VDC	
1019-00-0554	Charger/Adapter 220VAC to 12VDC Option	European Charger/Adapter (CE Compliant)
1019-00-0557	Cigarette Lighter Adapter	In-vehicle Charger
1019-00-0558	Universal Charger Option	
1019-00-0553	P-MSCLI Option	P-Stealth Printer Portable Serial Fusion Printer Kit Includes all P-Stealth Printer items, and MicroStealth Serial Printer Cable (P-Stealth Printer Serial Cable not included)
1019-00-0468	MicroStealth Printer Cable – Standard	Generic Serial Printer Cable
1019-00-0469	MicroStealth to PC Option	RS232 Connection
1019-00-0470	Cloning Cable	MicroStealth to MicroStealth Cloning Cable
1019-00-0559	MS/CLI BNC Option	
1019-00-0592	1GHz Type (F) Connector Option	
1019-00-1239	Portuguese Language Option	
1019-00-1240	Italian Language Option	
1019-00-1241	Spanish Language Option	
1019-00-1242	German Language Option	
1019-00-1243	French Language Option	

MS-1400 only

Battery Life	> 5 hrs continuous (backlight off)
Charge time with XBC-1 Charger	< 6-hr charge with unit turned off

	MS-1000	MS-1200D	MS-1300D	MS-1400
Frequency range	45-550 MHz	5-890 MHz	5-890 MHz	5-890 MHz
Option SUB	N/A	N/A	N/A	N/A
Option UHF	45-890 MHz	N/A	N/A	N/A
Accuracy	±10 kHz@25C	±10 kHz@25C	±10 kHz@25C	±10 kHz@25C
Tuning Resolution	25 kHz	25 kHz	25 kHz	25 kHz
Level measurement in dB				
Analog Range	–20 to +50 dBmV	–20 to +50 dBmV	–20 to +50 dBmV	–20 to +50 dBmV
Digital Range		–20 to +40 dBmV	–20 to +40 dBmV	–20 to +50 dBmV
Resolution	0.1 dB	0.1 dB	0.1 dB	0.1 dB
Accuracy				
Flatness	±0.75 dB Flatness	±0.75 dB Flatness	±0.75 dB Flatness	±0.75 dB Flatness
Linearity	±0.75 dB Flatness	±0.75 dB Flatness	±0.75 dB Flatness	±0.75 dB Flatness
digiCheck	N/A	±2dB Typical	±2dB Typical	±2dB Typical
Six channel mode				
Number of Channels	6	6	6	6
Scan Rate	< 1 second	< 1 second	< 1 second	< 1 second
Full scan mode				
Number of Channels	N/A	120	120	120
Scan Rate	N/A	Approx 6 carrier/second	Approx 6 carrier/second	Approx 6 carrier/second
General dimensions	4.25 in W x 10 in H x 2.5 in D	4.25 in W x 10 in H x 2.5 in D	4.25 in W x 10 in H x 2.5 in D	4.25 in W x 10 in H x 2.5 in D
Weight	0.8 kg (1.75 lb)	0.8 kg (1.75 lb)	0.8 kg (1.75 lb)	3.4 lb (1.54 kg)
Operating Temp Range	10 to 50°C (14 to 122°F)	10 to 50°C (14 to 122°F)	10 to 50°C (14 to 122°F)	10 to 50°C (14 to 122°F)
Water Resistant	Exceeds MIL-STD-810D	Exceeds MIL-STD-810D	Exceeds MIL-STD-810D	Exceeds MIL-STD-810D
Powering				
Battery Life	3 hrs/replacement battery	3 hrs/replacement battery	3 hrs/replacement battery	> 5 hrs continuous (backlight off)
Charge Time	13 hrs unit off 14 hrs slow charge (unit on)	13 hrs unit off 14 hrs slow charge (unit on)	13 hrs unit off 14 hrs slow charge (unit on)	30 hrs unit off
XBC-1 Charger	N/A	N/A	N/A	< 6 hrs

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