VIAVI

Digital Service Activation Meter Family

Home Certification and Network Service Meter

An essential tool for cable technicians, more cable technical personnel rely on the DSAM than any other meter. Its ever-expanding testing capabilities help the DSAM continually meet the needs of a technologically evolving marketplace with innovative measurement techniques for improved productivity. Its simple user interface helps users perform various tests quickly, verifying performance or quickly determining root causes of problems—from headend to outside plant to home network.

Providers can tailor the DSAM to meet the specific needs of each cable technician with models, features, and options to improve productivity at every level. New models build upon the powerful cornerstone unit features, including non-invasive forward and reverse sweep, SmartScan™, PathTrak™ Field View™, and more. Some of the latest features include:

DOCSIS® 3.0 Performance Testing — Quickly and efficiently test bonded channel performance, signal levels, modulation error ratio (MER, including headroom), bit error rate (BER), and throughput to full range with 8 downstream by 4 upstream channels.

Field View QAM — Shows an upstream carrier-impairments dashboard at field test points accelerating fault diagnosis and root cause analysis. Users can quickly verify fixes with a real-time view of headend signal quality transmitted from a field test point.

QAM Egress Option — Provides preset spectrum analysis with a QAM signal identifier that simplifies finding UHF-band leaks (and verifying fixes) identified by leakage monitoring systems. An optional directional antenna locates from a distance, and a near-field antenna enables close inspection and verification of repair work.

SmartID™ — Advanced coax probes enable fast, comprehensive home network qualification and troubleshooting, eliminating repeat truck rolls for affordable, effective troubleshooting.

WiFi — Verifies WiFi network strength and connectivity and communicates test data.

PLUS Support — PLUS Gold, Silver, and Bronze support plans streamline repair, calibration, and loaner processes for more predictable and cost-effective support costs, greatly alleviating administrative burdens. JDSU support plans offer peace of mind knowing that your hardware investment is well protected and that your equipment is available, functional, and up to date.

Key Benefits

- Improve workforce efficiency by enabling technicians to perform complete maintenance and quality verification tests on the spot—one person with one instrument
- Shorten troubleshooting time with unique, innovative features, options, and accessories that accelerate diagnosis and fault location
- Increase return on investment of test equipment by covering the widest range of cable-industry technologies with a single instrument
- Maximize uptime with dependable, high-quality, purpose-built JDSU instruments and services

Applications

- Full DOCSIS 3.0 performance testing, up to 8 downstream by 4 upstream bonded carriers
- QAM carrier-signal quality analysis and troubleshooting
- Return-path ingress troubleshooting
- Service-quality verification
- Simple Home Certification reporting
- Legacy testing — DOCSIS 1.X and 2.0
- Non-invasive forward and reverse sweeping
- Digital and analog video testing
- Customer Ethernet service testing

Features

DSAM Detailed Feature Matrix	Feature	Model			
		2000	2300	3300	6300
Analog and Digital Carrier Level Verification	Analog video and audio power levels	✓	✓	✓	✓
	Digital power level	✓	✓	✓	✓
	Tilt (1 to 12 channels)	✓	✓	✓	✓
	Mini-scan (1 to 12 channels)	✓	✓	✓	✓
	Full-scan (1 to 999 channels)	✓	✓	✓	✓
	Analog carrier-to-noise	✓	✓	✓	✓
	Hum	✓	✓	✓	✓
	SmartScan™	Opt	✓	✓	✓
	Spectrum analyzer with pre-amp	Opt	Opt	✓	✓
Digital Carrier Quality (QAM Carriers)	MER/EVM measurements	✓	✓	✓	✓
	Pre- and post-FEC BER (64, 128, 256)	✓	✓	✓	✓
	BER for deep interleave (128,4 or 128,5)	✓	✓	✓	✓
	Constellation (64, 128, 256)	Opt	Opt	✓	✓
	Digital Quality Index™ (DQI)	✓	✓	✓	✓
	AGC stress	✓	✓	✓	✓
	Errored/severely errored seconds	✓	✓	✓	✓
	Equalizer Stress, in-channel response, group delay			Opt	Opt
	QAM ingress	Opt	Opt	Opt	Opt
Upstream Physical Verification	Return loopback				✓
	Local upstream spectrum for ingress check	✓	✓	✓	✓
	Return QAM generator	Opt	Opt	✓	✓
	Spectrum analyzer with pre-amp	Opt	Opt	✓	✓
	Extended ingress scan frequency range to 110 MHz	✓	✓	✓	✓
	Field View of the PathTrak return spectrum	Opt	Opt	Opt	Opt
	Field View QAM of PathTrak MACTrack	Opt	Opt	Opt	Opt
DOCSIS/EuroDocsis Testing	DOCSIS 2.0/1.1/1.0 testing 1 downstream x 1 upstream	✓	✓	✓	✓
	DOCSIS 3.0 bonded carrier testing 8 downstream x 4 upstream	✓	✓	✓	✓
	Downstream MER/EVM, pre- and post-FEC BER	✓	✓	✓	✓
	Dynamic DOCSIS range and registration	✓	✓	✓	✓
	Cable modem configuration file verification	✓	✓	✓	✓
	Upstream channel selection	✓	✓	✓	✓
	Upstream transmit level and headroom	✓	✓	✓	✓
	Cable modem and CPE MAC cloning	✓	✓	✓	✓
	CableLabs-issued certificates	✓	✓	✓	✓
	IPv6 compatibility — cable modem	✓	✓	✓	✓
	Dual MAC/BPI+ certificates	✓	✓	✓	✓

Features

DSAM Detailed Feature Matrix	Feature	Model			
		2000	**2300**	**3300**	**6300**
DOCSIS/EuroDocsis Service Tests	Packet loss	Opt	✓	✓	✓
	Throughput — upstream and downstream (up to DOCSIS 3.0 rates)	Opt	✓	✓	✓
	Ping	Opt	✓	✓	✓
	VoIPCheck — voice over IP testing (MOS, packet loss, jitter, delay)	Opt	Opt	Opt	Opt
Ethernet Testing	Throughput — (DOCSIS 2.0 rates)	Opt	✓	✓	✓
	Packet loss	Opt	✓	✓	✓
	Ping	Opt	✓	✓	✓
	View CM diagnostics page	✓	✓	✓	✓
	Gig-E option throughput — (DOCSIS 3.0 rates) up to 400 Mbps down	Opt	Opt	✓	✓
RF Network Verification	Forward Sweepless Sweep™	Opt	Opt	Opt	✓
	Reverse alignment				✓
	Forward (downstream) sweep				Opt
	Reverse (upstream) sweep				Opt
	Return loopback				✓
HFC Network Verification	Scheduled autotest	✓	✓	✓	✓
	Proof test	✓	✓	✓	✓
Home Network Verification	IP tests via 10/100/1000 Ethernet jack	Opt	✓	✓	✓
	Ingress resistance test (IRT)	✓	✓	✓	✓
	Fault location using FDR feature in LST-1700 remote transmitter	✓	✓	✓	✓
	Test point compensation	✓	✓	✓	✓
	SmartID advanced coax probe support*	✓	✓	✓	✓
	WiFi support (USB)*	Opt	Opt	Opt	Opt
Autotest	Home certification	Opt	Opt	Opt	Opt
	Video autotest	✓	✓	✓	✓
	Cable modem autotest	✓	✓	✓	✓
	Combination autotest (video and cable modem)	✓	✓	✓	✓
	Proof of performance (scheduled autotest)	✓	✓	✓	✓
	Web browser	Opt	Opt	Opt	Opt
Miscellaneous	RF, WiFi, or Ethernet synchronization with TPP	✓	✓	✓	✓
	Secure Sync™ — RF Synchronization through firewalls	✓	✓	✓	✓
	Optical power meter support (USB) MP-60A and MP-80A*	✓	✓	✓	✓
	QAM egress	Opt	Opt	Opt	Opt
	StrataSync asset management — 1 year subscription	✓	✓	✓	✓

*This firmware option requires the purchase of a separate, additional hardware accessory.

Specifications

Analog-Level Measurement	
Signal types	CW, video, and audio (NTSC, PAL, and SECAM)
Frequency range	4 to 1,000 MHz
Accuracy	±10 ppm at 25°C (77°F) 10 kHz tuning resolution
Measurement range[1]	−40 to +60 dBmV (typical)
Resolution	0.1 dB
Resolution bandwidth	280 kHz
Accuracy[3]	±1.5 dB typical at 25°C (77°F)

Carrier-to-Noise	
30 to 45 dB ±2 dB	
45 to 48 dB ±3 dB	
Input at >0 dBmV (up to 750 MHz)	
Input at >6 dBmV (750 − 1,000 MHz)	

Hum	
Accuracy up to 5% hum	±0.8%
From 5 to 10%	±1.0%

Digital-Level Measurement	
Modulation types	QPSK, QAM (DVB/ACTS)
Range	−40 to +50 dBmV (typical)
Resolution	0.1 dB
Accuracy[3]	±2.0 dB typical at 25°C (77°F)

Downstream QAM Demodulation

Modulation type 64, 128, and 256 QAM, ITU-T J.83 (Annex A, B, or C selectable at time of order, factory installed hardware)

Input range (lock range)[4] −15 to +50 dBmV total integrated power from:
· 57 – 1,000 MHz (42 MHz diplexer 6 MHz channel spacing)
· 83 – 1,000 MHz (65 MHz diplexer 6 MHz channel spacing)
· 108 – 1,000 MHz (85 MHz diplexer 6 MHz channel spacing)
· 58 – 1,000 MHz (42 MHz diplexer 8 MHz channel spacing)
· 84 – 1,000 MHz (65 MHz diplexer 8 MHz channel spacing)
· 109 – 1,000 MHz (85 MHz diplexer 8 MHz channel spacing)
Specifications are QAM signal center frequencies.

50 kHz tuning resolution

BER pre and post FEC	10^{-4} to 10^{-9}

MER[2]

Range 64 QAM Accuracy	21 to 45 dB[4] ±2 dB (up to 40 dB typical)[2]
Range 128 QAM Accuracy	25 to 45 dB[4] ±2 dB (up to 40 dB typical)[2]
Range 256 QAM Accuracy	28 to 45 dB[4] ±2 dB (up to 40 dB typical)[2]

Symbol Rate

Annex A	5.057 to 6.952 Msps for 64, 128, and 256 QAM
Annex B	5.057 Msps for 64 QAM and 5.361 Msps for 256 QAM
Annex C	5.274 Msps for 64 QAM, and 5.361 Msps for 256 QAM

DOCSIS Testing
Support for operating in DOCSIS 1.0, 1.1, 2.0, or 3.0 modes
Compliant with CableLabs® specifications for DOCSIS 1.0, 1.1, 2.0, and 3.0
CableLabs-compliant BPI+ root-chained certificates pre-installed
EuroCableLabs® certificates available

Downstream Testing	
Support for channel bonding of 8 downstream carriers	
Throughput testing	up to 304 Mbps (6 MHz carriers) and 400 Mbps (8 MHz carriers)[5]

Upstream Testing	
Support for channel bonding of 4 upstream carriers	
Throughput testing	up to 120 Mbps[5]
Upstream transmit range and diplexer crossover (DOCSIS modes only)	

5 to 42 MHz, 42/88 MHz; min. downstream center frequency 91 MHz
5 to 65 MHz 65/96 MHz; min. downstream center frequency 100 MHz
5 to 85 MHz 85/111 MHz; min. downstream center frequency 111 MHz

Maximum output @25°C (77°F) (typical for a single channel; upstream modulation as instructed by CMTS)	+52 dBmV with 64 QAM, +55 dBmV with 16 QAM, and +58 dBmV with QPSK

Upstream Spectrum, Ingress Scan	
Spans	4 to 42 MHz, or 4 to 65 MHz, or 4 to 85 MHz, depending on diplexer configuration, and 4 to 110 MHz
Sweep rate	<2 s
Display scaling and range	1, 2, 5, and 10 dB/division; 6 vertical divisions
Resolution bandwidth	280 kHz
Sensitivity	−45 to +60 dBmV (typical)

Downstream Spectrum, Forward Scan (optional)	
Frequency range	4 to 1000 MHz
Sweep rate	<2.5 s (display)
Display scaling and range	1, 2, 5 and 10 dB/division; 6 vertical divisions
Resolution bandwidth	30 or 280 kHz
Span	10 or 50 MHz
Sensitivity	−45 to +60 dBmV (typical)
Reverse path sensitivity (with low-pass filter on; filter matches diplexer frequency)	−45 to +60 dBmV (typical)

QAM Egress (optional)	
Frequency range	600 to 900 MHz
Span	25 MHz
Resolution bandwidth	280 kHz
Sensitivity	−45 dBmV (typical)

Specifications

Constellation (optional)	
Modulation type	64, 128, and 256 QAM
Constellation points	2,000, 4,000, 8,000, 16,000, 32,000, or 64,000

Return QAM Generator	
Signal modulations	16 QAM, 64 QAM
Symbol rates (Msps)	1.28, 2.56, 5.12
Frequency range	5–42 MHz, 5–65 MHz, 5–85 MHz
Supported levels	8.0–58.0 dBmV

DSAM Sweep Specifications (optional)	

Forward Sweep

Requires SDA-5500 (SDA-compatible mode)

Reverse Sweep and Reverse Alignment

Requires SDA-5500 (single reverse) or
SDA-5510 (multiple reverse)
(SDA-compatible mode)

Sweep Modes	
Frequency range	5–1,000 MHz forward 5–65 MHz reverse[6]
Display span	User-definable
Display scale/range	6 vertical divisions 1, 2, 5, or 10 dB/division
Sweep pulse-occupied bandwidth	30 kHz
Stability (dependent upon stability of referenced carriers)	±0.5 dB, normalized
Sweep rate (78 channels, including scrambled and digital signal types)	~1 s

Return Loopback/Sweep/Alignment	
Frequency range	5–65 MHz
Transmit level	8–55 dBmV

Standards Compliance	
Shock and vibration	5 Gs at 2 Hz to 5 kHz
Transportation packaging I.S.T.A.	Procedures 1C and 1G
Drop	IEC 61010
Handle stress	IEC 61010
Water resistance	MIL-STD-810F
Safety emissions	EN 55022, CE, FCC
Safety immunity	EN 61000, CE, FCC

General	
Display	320 x 240 pixels, TFT color

Second-Language Options

Chinese, French, German, Hungarian, Japanese, Korean, Portuguese, Polish, or Spanish

Dimensions with battery (W x H x D)	12 x 25 x 10.8 cm (4.75 x 9.75 x 4.25 in)
Weight without battery	1.2 kg (2 lb, 10 oz)
Battery weight	0.6 kg (1 lb, 6 oz)
Storage and operating temperature range	−20 to +50°C (−4 to +122°F)

1. Total integrated power, detectable range.
2. MER Typical defined as identical QAM carriers at +5 dBmV with no adjacent analog carrier.
3. Accuracy for analog levels between −20 to +55 dBmV. Accuracy for digital levels between −20 to +50 dBmV. Additional uncertainty of ±1.0 dB from 4 to 15 MHz. Additional uncertainty of ±0.5 dB across −20 to +50°C.
4. MER Range declines as input levels decrease. Expected MER Range at MIN LOCK Level of −15 dBmV is >30 dB MER.
5. Stated throughput is the max theoretical capability. Actual performance may vary.
6. With 85 MHz diplexer, 5 – 85 MHz, port 2 only (port 1 remains 5 – 65 MHz).

Ordering Information

Description	Notes	Part Number
Pre-Configured Packages*		
Part numbers must be appended with the diplex filter needed. For example, DSAM-D3TECH1PKG-42 is D3TECH1PKG with a 42 MHz diplexer.		
Fulfillment Tech/Installer Package, DSAM 2000 with DOCSIS 3.0 and 42 MHz diplexer. Includes standard high-capacity battery, browser and VoIPCheck options, and StrataSync asset management 1 year subscription		DSAM-D3TECH1PKG-42 DSAM-D3TECH1PKG-65
Fulfillment Tech Package, DSAM 2300 with DOCSIS 3.0 and 42 MHz diplexer. Includes DQI, ES/SES, AGC stress, standard high-capacity battery, SmartScan, browser and VoIPCheck options, and StrataSync asset management 1 year subscription	Adds SmartScan™, basic Ethernet, DOCSIS Performance	DSAM-D3TECH2PKG-42 DSAM-D3TECH2PKG-65 DSAM-D3TECH2PKG-85
Service Tech Package, DSAM 3300 with DOCSIS 3.0 and 42 MHz diplexer. Includes DQI, ES/SES, AGC stress, SmartScan, and standard high-capacity battery, browser and VoIPCheck options, and StrataSync asset management 1 year subscription	Adds spectrum analyzer, GigE, and constellation	DSAM-D3TECH3PKG-42 DSAM-D3TECH3PKG-65 DSAM-D3TECH3PKG-85
Description	**Notes**	**Part Number**
Maintenance Tech Package, DSAM 3300 with DOCSIS 3.0 and 42 MHz diplexer. Includes DQI, ES/SES, AGC stress, SmartScan, and standard high-capacity battery, QAM Ingress (D3, frequency extension to 110 MHz), browser and VoIPCheck, and StrataSync asset management 1 year subscription	Adds QAM ingress	DSAM-D3TECH4PKG-42 DSAM-D3TECH4PKG-65 DSAM-D3TECH4PKG-85
Sweep Tech Package, DSAM-6300 with DOCSIS 3.0 and 42 MHz diplexer. Includes DQI ES/SES, AGC stress, SmartScan, return loopback, return alignment, standard Sweepless Sweep, forward sweep, reverse sweep, QAM ingress, browser and VoIPCheck, and StrataSync asset management 1 year subscription	Adds Sweepless Sweep, forward and reverse sweep, return loopback, and reverse alignment	DSAM-D3SWPPKG-42 DSAM-D3SWPPKG-65 DSAM-D3SWPPKG-85

*Additional hardware and software can be added to any of these packages. Viavi recommends that you work with your sales contact to build the DSAM for your needs. Packages have been created for convenience and savings to simplify the ordering process and to bundle multiple popular features. Additional options are available to add to the pre-configured packages. These packages have factory-configured hardware that cannot be substituted or modified.

Ordering Information

Description	Part Number
DSAM Mainframes	
Install/fulfillment technician DOCSIS and signal level meter	DSAM-2000
Service technician DOCSIS and signal level meter	DSAM-2300
Maintenance/service technician DOCSIS signal level meter	DSAM-3300
Sweep technician DOCSIS, sweep, and signal level meter	DSAM-6300
DOCSIS 3.0 and Return Path Diplexer (choose only one—mutually exclusive)	
42 MHz DOCSIS 3.0 diplexer[1]	DSAM-D3DIPLEX-42
65 MHz DOCSIS 3.0 diplexer[1]	DSAM-D3DIPLEX-65
85 MHz DOCSIS 3.0 diplexer[1]	DSAM-D3DIPLEX-85
DSAMobile	
DSAMobile Premises package, option and wireless adapter for new units	DSAMOBILE-PREM-PKG
DSAMobile Premises option—only for new units[2]	DSAMOBILE-PREM-OPT
DSAMobile Premises upgrade option, only for existing field units[2]	DSAMOBILE-PREM-UPG
P5000i Fiber Microscope	
Kit: FBP-P5000i digital probe, FiberChekPRO software, case, and tips (FBPT-SC, FBPT-LC, FBPT-U25M, FBPT-U12M)	FBP-SD101
Kit: P5000i and MP-60, FiberChekPRO software, case, tips, and adapters (FBPT-SC, FBPT-LC, FBPT-U25M, FBPT-U12M)	FIT-SD103
Kit: P5000i and MP-80, FiberChekPRO software, case, tips, and adapters (FBPT-SC, FBPT-LC, FBPT-U25M, FBPT-U12M)	FIT-SD113
Options	
DOCSIS Performance option—provides registration, throughput, packet loss, and ping through DOCSIS RF connection[3]	DSAM-DPERFOPT
Basic Ethernet option (10/100T) up to DOCSIS 2.0 speeds[3]	DSAM-BASICETHOPT
Gigabit Ethernet option (10/100/1000T)—enables Gig-E port with throughput beyond DOCSIS 3.0 speeds[4]	DSAM-D3GIGE-OPT
Integrated web browser[5]	1019-00-1491
VoIPCheck[5]	1019-00-1556
Field View with return signal generator[5]	1019-00-1495
DSAM Field View QAM option[5]	DSAM-FVQAM
Downstream spectrum analyzer[6]	DSAM-SA-OPT
Constellation[6]	DSAM-CONST-OPT
Downstream spectrum analyzer and Constellation package[6]	1019-00-1516

Description	Part Number
Options	
SmartScan™—channel deviation and tilt detection[3]	DSAM-SMARTSCANOPT
Home certification[5]	1019-00-1513
Return QAM generator (QPSK, QAM16, QAM64)[3]	1019-00-1599
QAM Ingress software option[7]	DSAM-QAM-INGRESS
Extended ingress scan frequency range, to 110 MHz	DSAM-IS-FREQ-EXT
Forward sweep[8]	1019-00-1567
Reverse sweep[8]	1019-00-1563
Sweepless sweep[9]	1019-00-1641
Substitute 75-ohm BNC connector	1019-00-1455
DSAM WiFi software option and compatible USB WiFi adapter[5]	DSAM-WIFI-PKG
USB optical power meter with accessories[10]	MP-60A
MP-80 - USB optical power meter - high power with accessories[10]	MP-80A
SmartID qty 1 - additional or replacement probe[11]	SMARTID_1PC
SmartID 2 pack and starter kit[12]	SMARTID_2PCS_STARTERKIT
SmartID 3 pack and starter kit[12]	SMARTID_3PCS_STARTERKIT
SmartID 4 pack and starter kit[12]	SMARTID_4PCS_STARTERKIT
SmartID 5 pack and starter kit[12]	SMARTID_5PCS_STARTERKIT
SmartID 6 pack and starter kit[12]	SMARTID_6PCS_STARTERKIT
SmartID accessory kit - SmartID carrying case and USB cable	SMARTID_ACC_KIT
SmartID to DSAM USB cable	SMARTID-USBCABLE
DSAM Equalizer Option	DSAM-EQUALIZER-OPT

1. Must choose one diplex frequency to match return path.
2. Feature requires using a DSAM-compatible WiFi adapter (DSAM-WIFI-ADAPTER). Existing meters currently equipped with a compatible WiFi adapter require only the upgrade option DSAMOBILE-PREM-UPG. If already ordering a compatible WiFi adapter for new units, customers need only order the DSAMOBILE-PREM-OPT to use with it. Customers can download the free DSAMobile Premises iPad app from the iTunes App store.
3. Optional on DSAM-2000; included on 2300, 3300, and 6300.
4. Optional on DSAM-2000 and 2300; requires purchase of basic Ethernet on DSAM-2000 and 2300 before adding DSAM-D3GIGE-OPT; included on DSAM 3300 and 6300.
5. Optional on all meters.
6. Optional on DSAM-2000 and 2300, included on 3300 and 6300.
7. Must also order QAM hardware option on DSAM-3300; included on 6300.
8. Optional on DSAM-6300 only.
9. Included on DSAM-6300; optional on all other models.
10. Available accessory for all meters.
11. Probes available for use with all meters; DSAM v4.0 and higher firmware required.
12. Available for use with all meters; DSAM v4.0 and higher firmware required.

Ordering Information

Description	Part Number
Options	
Bronze Support Plan for 2, 3, 5 years	SUPT-PLN-BRZ-2, SUPT-PLN-BRZ-3, SUPT-PLN-BRZ-5
Silver Support Plan for 2, 3, 5 years	SUPT-PLN-SLV-2, SUPT-PLN-SLV-3, SUPT-PLN-SLV-5
Gold Support Plan for 2, 3, 5 years	SUPT-PLN-GLD-2, SUPT-PLN-GLD-3, SUPT-PLN-GLD-5
QAM Egress option, DSAM software only	DSAM-QAM-EGRESS
QAM Egress option, DSAM software and near-field antenna	QAM-EGRESS-NF-PKG
QAM Egress option, DSAM software, near-field antenna and directional antenna	QAM-EGRESS-DIR-PKG
QAM Egress near-field antenna	DSAM-NEARFIELD-ANTENNA
QAM Egress directional antenna	DSAM-DIRECTIONAL-ANTENNA
Second-Language Options	
Second language — Japanese	DSAM3LANGJP
Second language — Polish	DSAM3LANGPOL
Second language — Korean	DSAM3LANGKOR
Second language — French	DSAM3LANGFRA
Second language — Spanish	DSAM3LANGSPAN
Second language — Chinese	DSAM3LANGCHN
Second language — German	DSAM3LANGGER
Second language — Hungarian	DSAM3LANGHUN
Second language — Portuguese	DSAM3LANGBRZPORG

Description	Part Number
Included Accessories	
EZ-charge high-capacity li-ion battery	
Universal power supply	
Power cord (choose one)	
One replaceable lens	
12V DC in-vehicle adapter	
Shoulder strap	
Protective case	
Power-Cord Options (choose one)	
Power cord — Continental Europe	6011-80-0002
Power cord — North America	6011-80-0006
Power cord — United Kingdom	6011-80-0009
Power cord — Italy	6011-80-0013
Power cord — Australia	6011-80-0014
Power cord — Switzerland	6011-80-0015
Power cord — India/South Africa	6011-80-0019
Power cord — Japan	6049-01-1000
Optional Accessories/Parts	
Spare/replacement EZ-charge high-capacity battery	1019-00-1564
Spare/replacement AC/DC universal power supply	DSAM_PWR_SUP
Stand hook w/nylon web straps	1019-00-1366
Set of 5 snap-in replaceable lenses	1019-00-1426
Large soft case for meter and accessories	1019-00-1520
DSAM 25-pack of F connectors	1019-00-1603

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