

THE MOST ADVANCED & ACCURATE INSTALLATION METER

mod. **HD LIGHT** STC



TFT 3,45"  
16:10




- **DVB-T2 & C2** opt.
- **FULL MPEG2 & 4 SD & HD**
- **4h LI-ION POL. BATTERIES**
- **LCN PROGRAM CODE**
- **MER VERSUS CARRIERS** opt.
- **ECHOES, MICROECHOES & PREECHOES** in REAL TIME
- **REAL TIME SPECTRUM** with **MAX HOLD**

**RIGHT SIDE**



1 = Power Supply input (12 V DC - 3A)  
2 = USB connector for SW upgrades

**LEFT SIDE**



3 = IF/RF Input connector, type "F" 75 Ω  
Interchangeable

# HD LIGHT MAIN FEATURES

DVB-S & S2/DVB-T/H (& T2 M-PLP opt.)/DVB-C (C2 opt.), Analog Radio TV & DOCSIS D.S.

**COMBINED HD PROFESSIONAL ANALYZER, 4-2.250 MHz, for SAT QPSK/8PSK - TV COFDM & CATV QAM signals, with MPEG-2/4 H264 decoder and Analog Pictures TV & Radio**

- MEASUREMENTS: MER, MER Versus CARRIER (opt.), PER, LDPC, BCH, aBER, bBER, EVM, ECHOES, Noise Margin, Level/Power, Real time spectrum analyzer and constellation visualization
- CATV MEASUREMENTS: DOCSIS downstream, INGRESS mode, LEAKAGE mode, BARS SCAN and TILT
- Optional: ATSC 8VSB for USA, or GB20600-2006 single and multicarriers for CHINA, or ISDB-T for JAPAN and BRAZIL, etc.
- **HW upgrades in factory: DVB-C2 (up to 31.12.2013)**
- Pre-memorized SAT transponder navigation, can be upgraded but not cancelled, all the main satellite and TV channel plans worldwide
- Assisted satellite dish pointing, double input (DUAL LNB) and sat finder functions
- All DiSEqC commands, SCR with automatic search, USALS motor protocol



## HD LIGHT MEASUREMENT EXAMPLES



DVB-T2 rotated Constellation 256 QAM mod., on the right relative modulation parameters & M-PLP



DVB-S2 multistream Constellation 8PSK mod., on the right relative modulation parameters & ISSY



ECHO MEASUREMENT in SFN networks, with impulse response in real time, green area shows the guard interval



MICROECHO MEASUREMENT in SFN networks, with impulse response in real time



Spectrum in real time, fast and super-fast with memory peak. **Detects and memorizes all the details for you.**



All the measurements, A/V PID, the picture and settings on one screen



Bars Scan TV & CATV function from 10 to 100 channels  
█ = analog █ = digital



MER Versus CARRIER  
 MER measurement for carriers (optional)

## HD LIGHT MAIN FUNCTIONS

For technical specifications see product cross reference table



- TV and CATV TUNER, extended band, 4-1000 MHz
- SAT TUNER, extended band, 930-2.250 MHz
- GSM extended band, 860-1.000 MHz for telephone repeater installation, see application note
- Exclusive patented **ROVER AUTODISCOVERY** system: automatically detects and selects analog and digital COFDM/QAM TV signals in both measurement and spectrum mode
- Spectrum in real time, fast and super fast with memory peak
- **Detects, measures and SHOWS pictures of MPEG 2 and 4 H264 HD High Definition programs**
- **All the measurements, program lists, A/V PIDs, NET ID, LCN, settings and pictures on one screen**
- **Automatic quality analysis: FAIL-MARG-PASS and ITU Q1/Q5 opt.**
- Automemory, Manual memory and Datalogger functions
- HELP function automatically identifies all the signals with any digital modulation SAT, TV and CATV
- MER versus CARRIER, MER measurement for DVB-T & T2 carriers
- **Barscan TV & CATV function from 10 to 100 channels on one screen**
- TV & IF SAT test ICT FENITEL Spain
- **Audio, AAC supplied, DOLBY opt.**
- 3,45" TFT display, high resolution
- Weighs only 1.6 kg, dim: H 8,0 x L 22,5 x D 16,5 cm
- **LI-ION-POLIMER 4A battery with 6 hour battery capacity**
- Battery test function, to regenerate and measure the batteries and calibrate the battery indicator
- Supplied with transport padded bag, accessories, mains and vehicle battery chargers
- Free basic SW upgradeable on-line

Code	HD LIGHT "HW" OPTIONS
HD DVB-C2	HW and SW for DVB-C2 for second generation Cable TV
HD ATSC USA	HW and SW for 8VSB USA *
HD GB20600 CHINA	HW and SW for CHINA Single and Multicarriers *
HD ISDB-T JAPAN BRASIL	HW and SW for Standards in Japan and Brazil *

\* Specify one standard when ordering, only one TV standard per country












Code	HD LIGHT "APP" (SW) OPTIONS
HD SATEXPERT FUNCTION	APP to point a satellite dish in 1 second
HD LIGHT DVB-T2	APP for DVB-T2 Demodulator for second generation Terrestrial TV
HD LIGHT MER versus CARRIER	APP for DVB-T&T2 MER versus CARRIER measurement
RIGHTS-SMART-1	APP for Authorization code for the SMART PRO. SW, PC management SW, to create plans & download measurements, etc.

		FEATURES FUNZIONI FUNKTIONEN FUNCIONES FONCTIONS	HD COMPACT <sup>STC</sup>	HD LIGHT <sup>STC</sup>		
EXCLUSIVE ROVER INSTRUM. FUNCTIONS		COMPLETE, SIMPLE, EASY-TO-USE (TOUCH)	•	•		
		16:10 LED TFT DISPLAY, HIGH BRIGHTNESS	4,3" HD	3,5" (4:3)		
		"LI-ION-POLIMER" BATTERIES from 10A, hours capacity	4,4 h	4,4 h		
		TOUCH &/or CLASSIC &/or COMBINED COMMANDS	MECHANICAL	MECHANICAL		
		MAXIMUM ERGONOMICS and OPERATING SAFETY	•	•		
		SIX SELECTABLE LANGUAGES: UK-IT-FR-ES-DE-PO	•	•		
		MULTI MEASUREMENTS: Spect, Meas, Picture, Echoes, Constell.	—	—		
		AUTODISCOVERY Analog./Digital and TV/CATV	•	•		
		AUTOQUALITY Fail-Marginal-Pass	•	•		
		AUTOMEMORY Automatic memorization TV and CATV	•	•		
		MANUMEMORY Mixed Memoriz., SAT-TV-CATV and RD	•	•		
		HELP FUNCTION with Auto lock in SAT, CATV and SPECTRUM	•	•		
		SAT-TV-CATV DIRECT SELECTION	•	•		
		TV & CATV SEPARATE CHANNEL PLANS	•	•		
		DVB-S/S2 AUTOMATIC SELECTION	•	•		
		DVB-T/T2 AUTOMATIC SELECTION	•	•		
		SEPARATE MENUS for EACH FUNCTION	•	•		
		DRIVE ALL LNB's & MULTISWITCHES DiSEqC & SCR	•	•		
		ALL MAIN WORLDWIDE SATELLITES & TRANSPONDERS PRE-STORED	•	•		
		SATEXPERT FUNCTION, SAT pointing in 1 sec.	opt.	opt.		
	ALPHANUMERICAL KEYBOARD for CH, TR, FREQ. selection	•	•			
	DISPLAY BACKGROUND COLOR SELECTION	•	•			
	SHOCK-PROOF & RAIN-PROOF HOUSING, supplied with transport bag	•	•			
BANDS		Extended SAT BAND - MHz	930 – 2.150	930 – 2.150		
		TV & RD BAND - MHz	41 – 887	41 – 887		
		CATV extended BAND & return path - MHz	4 – 1.000	4 – 1.000		
		GSM TELECOM BAND - MHz	860 – 1.000	860 – 1.000		
RF FILTERS		REJECTION FILTERS for "LTE" BAND - MHz	—	—		
CONNECT		INTERCHANGEABLE RF CONNECTOR	•	•		
OPTICS		OPTICAL INPUT, FC, ST, SC INTERCHANGEABLE CONNECTOR	—	—		
WORLD STANDARD S	SAT	DVB-S	•	•		
		DVB-S2	•	•		
		DVB-S2 MULTISTREAM	—	—		
	TV	DVB-T	•			
		DVB-T2	opt.	opt.		
		ATSC USA	on request	on request		
		GB20600 CHINA	on request	on request		
		ISDB-T JAPAN & BRAZIL	on request	on request		
	CATV	ANALOG TV WW STANDARD "CCIR" B-G-D-K-L-M-N	•	•		
		DVB-C & annex A	•	•		
DVB-C & annex B		•	•			
	DVB-C2	opt.	opt.			
VIDEO		MPEG 2 SD	•	•		
		MPEG 2 & 4 HD	•	•		
		HDMI OUTPUT				
		ANALOG VIDEO INPUT	•	•		
		ANALOG VIDEO OUTPUT				
AUDIO		"AAC" AUDIO	•	•		
		"DOLBY+" AUDIO	opt.	opt.		
		ANALOG AUDIO INPUT				
		ANALOG AUDIO OUTPUT				
TRANSP. STREAM		T.S. ASI INPUT				
		T.S. ASI OUTPUT (Decoded via C.I.)				
		T.S. READER/RECORDER via LAN/PC				
		INTERNAL T.S. ANALYZER				
GPS		C.I. DESCRAMBLER				
		GPS RECEIVER USB				
		10 MHz from GPS INPUT				
	1 PPS from GPS INPUT					
OTHERS		USB On The GO for MEMORY STICK				
		Free SW UPGRADES	•	•		
		LAN ETHERNET				
		BATTERY TEST FUNCTION	•	•		
		BATTERY SAVE FUNCTION	•	•		
	DiSEqC, SCR, USALS MOTOR	•	•			











	<b>MEASUREMENTS MISURE MASSNAHMEN MEDIDAS MESURES</b>	<b>HD COMPACT<sup>STC</sup></b> 	<b>HD LIGHT<sup>STC</sup></b> 		
<b>EXCLUSIVE ROVER INSTRUM. MEASUREM</b>	MAXIMUM MEASUREMENT SPEED & CHAN/FREQ. SELECTION	•	•		
	REAL TIME SPECTRUM with MAX MEMORY PEAK	•	•		
	MULTI MEASUREMENTS: Spect, Meas, Picture, Echoes, Constell				
	AUTOMATIC MEASUREMENTS: DIG. Power/ANALOG Level	•	•		
	NUMERICAL MEAS & LINEAR with BARS and with MEMORY PEAK	•	•		
	BARSCAN & TILT, LEVEL BAR CHART from 1 to 100 Channels	•	•		
	MAX READING CLARITY of MEASUREMENT PARAMETERS	•	•		
	ANALYSIS of LOSSES in DISTRIBUTION NETWORKS SAT-TV-CATV	•	•		
	PROFESSIONAL MEAS for BROADCASTERS & MANUFACTURERS				
	ECHOES-PREECHOES-MICROECHOES in real time	•	•		
	SUGGESTED MEASUREMENT VALUES printed on lightshield	•	•		
CATV MEASUREMENTS: LEAKAGE, INGRESS, RETURN PATH	•	•			
REFLECTOMETER MEAS. for COAX CABLES (Interruption Distance)	opt.	opt.			
DVB-S/S2	•	•			
<b>MER MEASUREM</b>	DVB-T/T2	T2 opt.	T2 opt.		
	DVB-C/C2	C2 opt.	C2 opt.		
	MER versus CARRIERS in DVB-T & T2	opt.	opt.		
	bBER (pre) - aBER MEASUREMENT (Post Error Correction)	•	•		
<b>DVB (S-T-C) MEASUREM</b>	CONTINUOUS ERROR COUNTER	•	•		
	NOISE MARGIN MEASUREMENT, SAT, TV & CATV	•	•		
	AUTOMATIC QUALITY MEASUREMENT (Fail, Marginal, Pass)	•	•		
	CONSTITUTION REPRESENTATION with ZOOM	•	•		
	ECHOES-PREECHOES-MICROECHOES REPRESENTATION in real time	•	•		
<b>NET ID, CID, NID, TSID &amp; LCN TABLES</b>	•	•			
<b>DVB-2 (S2-T2-C2) MEASUREM</b>	PER (packet error ratio)	•	•		
	LDPC (post error correction)	•	•		
	BCH (pre error correction)	•	•		
	CONTINUOUS ERROR COUNTER	•	•		
	AUTOMATIC QUALITY MEASUREMENT (Fail, Marginal, Pass)	AUTOQUALITY	AUTOQUALITY		
	CONSTITUTION REPRESENTATION with ZOOM & ROTATION	•	•		
	ECHOES-PREECHOES-MICROECHOES REPRESENTATION in real time	•	•		
	<b>NET ID, CID, NID, TSID &amp; LCN TABLES</b>	•	•		
MULTI PLP (T2) SELECTION	opt.	opt.			
<b>LEVEL- POWER MEASUREM</b>	LEVEL MEASUREMENT, Simultaneous with Picture & digital Meas	•	•		
	Average POWER MEASURE, Simultaneous with Picture & digital Meas	•	•		
<b>SPECT ANALYSIS</b>	REAL TIME SPECTRUM with MEMORY PEAK and AUTORANGING	•	•		
	SELECTABLE SPECTRUM SPEED (Sweep Rate)	•	•		
	POSSIBILITY of STORING SAT, TV & CATV SPECTRUMS	•	•		
	DYNAMIC RANGE TV SPECT 60 dB, SELECT. 1-2-5-10 dB/DIV.	•	•		
	SAT/TV/CATV SEPARATE SPAN VALUE	•	•		
<b>OPTIC MEASUR (opt.)</b>	SPECTRUM VIEW SELECTION: Full or Contours	•	•		
	SPECIAL FUNCTIONS Δ MRK & BW for Filter Calibration	•	•		
	OPTIC POWER MEASUREMENTS				
	OPTIC LOSS AUTOMATIC CALCULATION				
<b>TRANSPORT STREAM</b>	OPTIC/ELECTRIC CONVERTER for Spect & Meas, SAT & CATV				
	INTERNAL T.S. ANALYZER (FPGA)				
	INTERCHANGEABLE FC-ST-SC OPTICAL CONNECTOR				
<b>LCN</b>	T.S. ANALYZER/READER with ASI IN/OUT opt.				
	Video & Audio RATE				
	LCN program numbers list	•	•		



# "HD FAMILY" SAT-TV-CATV & OPTIC METER - Technical Specifications

		MAIN SPECIFICATIONS										
		SIZE (mm) H-L-D	115x245x180	115x245x180	115x245x180	115x245x180	225x130x65	165x225x80	165x225x80	165x225x80	165x225x80	165x225x80
		WEIGHT (Kg)	3	2.5	2.5	2.5	1.6	1.4	1.2	1.2	1.2	1.2
		Soft Bag Protection	●	●	●	●	●	●	●	●	●	●
		Battery Duration (hours)	6 hours	8 hours	8 hours	8/10 hours	6 hours	6 hours	4 hours	4 hours	4 hours	4 hours
		Graphics Display Multi-language	●	●	●	●	●	●	●	●	●	●
		TFT Color Display	10" Color 16:10 TOUCH SCREEN	7" Color 16:10 TOUCH SCREEN	7" Color 16:10 TOUCH SCREEN	7" Color 16:10	4,3" Color 16:10	3,5" Color 4:3				
MEMORY	Total Logger	99 ITC FENITEL APPROVED	99 ITC FENITEL APPROVED	99 ITC FENITEL APPROVED	99 ITC FENITEL APPROVED	99 ITC FENITEL APPROVED	99 ITC FENITEL APPROVED	99 ITC FENITEL APPROVED	99 ITC FENITEL APPROVED	99 ITC FENITEL APPROVED	99 ITC FENITEL APPROVED	99 ITC FENITEL APPROVED
	PROGS per PLAN	199	199	199	199	199	199	199	199	199	199	199
	Total PLANS	99	99	99	99	99	99	99	99	99	99	99
		Tuning System and NAVIGATION	Transp./ Ch./ Freq./ Prog. in Meas and Spect	Transp./ Ch./ Freq./ Prog. in Meas and Spect	Transp./ Ch./ Freq./ Prog. in Meas and Spect	Transp./ Ch./ Freq./ Prog. in Meas and Spect	Transp./ Ch./ Freq./ Prog. in Meas and Spect	Transp./ Ch./ Freq./ Prog. in Meas and Spect	Transp./ Ch./ Freq./ Prog. in Meas and Spect	Transp./ Ch./ Freq./ Prog. in Meas and Spect	Transp./ Ch./ Freq./ Prog. in Meas and Spect	Transp./ Ch./ Freq./ Prog. in Meas and Spect
		Level Accuracy (dB)	1.5 Typ. SAT 1.0 Typ. TV	1.5 Typ. SAT 1.0 Typ. TV	1.5 Typ. SAT 1.0 Typ. TV	1.5 Typ. SAT 1.0 Typ. TV	1.5 Typ. SAT 1.0 Typ. TV	1.5 Typ. SAT 1.0 Typ. TV	1.5 Typ. SAT 1.0 Typ. TV	1.5 Typ. SAT 1.0 Typ. TV	1.5 Typ. SAT 1.0 Typ. TV	1.5 Typ. SAT 1.0 Typ. TV
		Dynamic Range dBuV-(dBmV-dBm)	30 - 126 SAT 5 - 126 TV	30 - 126 SAT 5 - 126 TV	30 - 126 SAT 5 - 126 TV	30 - 126 SAT 5 - 126 TV	30 - 115 SAT 5 - 115 TV	30 - 115 SAT 5 - 115 TV	30 - 115 SAT 5 - 115 TV	30 - 115 SAT 5 - 115 TV	30 - 115 SAT 5 - 115 TV	30 - 115 SAT 5 - 115 TV
		USB & SW Upgrades via Internet	● USB2 O.T.G.	● USB2 O.T.G.	● USB2 O.T.G.	● USB2 O.T.G.	● USB2	● USB2	● USB2	● USB2	● USB2	● USB2
		NAVIGATION ENCODER & NUMERIC KEYPAD	●	●	●	●	●	●	●	●	●	●
		TRANSPONDER DIRECT NAVIGATION	●	●	●	●	●	●	●	●	●	●
		NETWORK DATA & PROGRAM. NAMES	●	●	●	●	●	●	●	●	●	●
		TV PROGRAMS AUTOMEMORY	●	●	●	●	●	●	●	●	●	●
		DRIVER for LNB S.C.R.	●	●	●	●	●	●	●	●	●	●
		DiSEqC a-b-c-d & USALS MOTOR	●	●	●	●	●	●	●	●	●	●
		Dual LNB SAT POINTER	●	●	●	●	●	●	●	●	●	●
		SAT EXPERT	● opt.	● opt.	● opt.	● opt.	● opt.	● opt.	● opt.	● opt.	● opt.	● opt.
		REMOTE POWER SUPPLY VOLTAGES	●	5V-12V-18V-24V	5V-12V-18V-24V	5V-12V-18V-24V	5V-12V-18V-24V	5V-12V-18V-24V	5V-12V-18V-24V	5V-12V-18V-24V	5V-12V-18V-24V	5V-12V-18V-24V
		BARSCAN and TILT	●	●	●	●	●	●	●	●	●	●
		INGRESS and LEAKAGE	●	●	●	●	●	●	●	●	●	●
		CVBS & HDMI	●	●	●	●	●	●	●	●	●	●
		DIRECT CONDIT. ACCESS SYSTEM	●	●	●	●	●	●	●	●	●	●
		AN. TV SOUND and RADIO	●	●	●	●	●	●	●	●	●	●
		ANALOG TV PICT	●	●	●	●	●	●	Network Id PROG & PID only	Network Id PROG & PID only	Network Id PROG & PID only	Network Id PROG & PID only
		MPEG2 & 4 HD DECODER	●	●	●	●	●	●	Network Id PROG & PID only	Network Id PROG & PID only	Network Id PROG & PID only	Network Id PROG & PID only
		MPEG2 DECODER	●	●	●	●	●	●	●	●	●	●
		SPECTRUM ANALYSIS with MEMORY PEAK	● REAL TIME	● REAL TIME	● REAL TIME	● REAL TIME	● REAL TIME	● REAL TIME	● REAL TIME	● REAL TIME	● REAL TIME	● REAL TIME
		DIGITAL QUALITY FAIL-MARG-PASS	●	●	●	●	●	●	●	●	●	●
		CONSTELLATION & REAL TIME ECHOS	●	●	●	●	●	●	● Constellation	●	●	●
MEASUREMENTS	DEMODULATED M.E.R.-B.E.R.-P.E.R.-SNR-EVM NOISE MARGIN	Optical IN & IPTV	● opt. Optic	● opt. Optic ● opt. IPTV	● opt. Optic	● opt. Optic						
		QAM	●	●	●	●	●	●	●	●	●	●
		COFDM	● T2 ON BOARD	● T2 ON BOARD	● T2 ON BOARD	● T2 opt.	● T2 opt.	● T2 opt.	● T2 opt.	● T2 opt.	● T2 opt.	● T2 opt.
		8PSK	●	●	●	●	●	●	●	●	●	●
		QPSK	●	●	●	●	●	●	●	●	●	●
		INPUT CONNECTOR	"N" 50 Ω	"N" 50 Ω	F - BNC - IEC	F - BNC - IEC	F - BNC - IEC	F - BNC - IEC	F - BNC - IEC	F - BNC - IEC	F - BNC - IEC	F - BNC - IEC
FREQUENCY RANGE	BAND	SAT	930-2.250 MHz	930-2.250 MHz	930-2.250 MHz	930-2.250 MHz	930-2.250 MHz	930-2.250 MHz	930-2.250 MHz	930-2.250 MHz		
		TV	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	40-1.000 MHz		40-1.000 MHz	40-1.000 MHz
		CATV	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz			4-1.000 MHz
		RADIO	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz				
 <b>MODEL</b>		 <b>HD TAB STCOI</b>	 <b>HD PRO STCOI</b>	 <b>HD TOUCH STCOI</b>	 <b>HD FLASH STCOI</b>	 <b>HD COMPACT STC</b>	 <b>HD LIGHT STC</b>	 <b>HD ONE STC</b>	 <b>HD SAT</b>	 <b>HD TV</b>	 <b>HD CABLE</b>	

# "STANDARD" SAT-TV-CATV & OPTIC METER - Technical Specifications

		MAIN SPECIFICATIONS										
		SIZE (mm) H-L-D	115x245x180	115x245x180	215x225x115	195x225x80	165x225x80	165x225x80	165x225x80	65 x 226 x 105	65 x 226 x 105	215 x 125 x 60
		WEIGHT (Kg)	2.5	2.5	2.2	1.4	1.2	1.2	1.1	1.1	1.1	1.3
		Soft Bag Protection	●	●	●	●	●	●	●	●	●	●
		Battery Duration (hours)	2 to 3 hours	2 to 3 hours	3 to 4 hours	4 hours	4 hours	4 hours	4.5 hours	2.5 hours	2.5 hours	4 hours
		Graphics Display Multi-language	64 x 128 high brightness				64 x 128 high brightness	64 x 128 high brightness	64 x 128 high brightness	64 x 128 high brightness	64 x 128 high brightness	
		TFT Color Display	4.5" Color	6.5" Color 16:9 TOUCH SCREEN	4,4" Color	3,1" LIGHT 3,5" LIGHT PLUS						3.5" Color
MEMORY	Total Logger	99 ITC FENITEL APPROVED	99 ITC FENITEL APPROVED	99 ITC FENITEL APPROVED	99 ITC FENITEL APPROVED	99 ITC FENITEL APPROVED	99 ITC FENITEL APPROVED	99 ITC FENITEL APPROVED	99 ITC FENITEL APPROVED	99	99	99
	PROGS per PLAN	199	199	199	199	199	199	199	199	1	199	199
	Total PLANS	99	99	99	99	99	99	99	99	9	99	99
		Tuning System and NAVIGATION	Transp./ Ch./ Freq./ Prog. in Meas and Spect	Transp./ Ch./ Freq./ Prog. in Meas and Spect	Transp./ Ch./ Freq./ Prog. in Meas and Spect	Transp./ Ch./ Freq./ Prog. in Meas and Spect	Transp./ Ch./ Freq./ Prog. in Meas and Spect	Transp./ Ch./ Freq./ Prog. in Meas and Spect	Chan./ Freq./ Prog. in Meas and Spect	Chan./ Freq./ Prog. in Meas and Spect	Chan./ Freq./ Prog. in Meas and Spect	Chan./ Freq./ Prog. in Meas and Spect
		Level Accuracy (dB)	1.5 Typ. SAT 1.0 Typ. TV	1.5 Typ. SAT 1.0 Typ. TV	1.5 Typ. SAT 1.0 Typ. TV	1.5 Typ. SAT 1.0 Typ. TV	1.5 Typ. SAT 1.0 Typ. TV	1.5 Typ. SAT 1.0 Typ. TV	1.0 Typ.	1.0 Typ.	1.0 Typ.	1.0 Typ.
		Dynamic Range dBuV-(dBmV-dBm)	30 - 126 SAT 5 - 126 TV	30 - 126 SAT 5 - 126 TV	30 - 126 SAT 5 - 126 TV	30 - 126 SAT 5 - 126 TV	30 - 126 SAT 5 - 110 TV	5-110 dBuV	5-110 dBuV	5-110 dBuV	0-126 dBuV	0-126 dBuV
		USB & SW Upgrades via Internet	● USB2	● USB2	● USB2	● USB2	● USB2	●	● USB2	●	● USB2	● USB2 O.T.G.
		NAVIGATION ENCODER & NUMERIC KEYPAD	●	●	●	●	●	●	●		Numeric KEYPAD	Numeric KEYPAD
		TRANSPONDER DIRECT NAVIGATION	●	●	●	●	●	●	●			
		NETWORK DATA & PROGRAM. NAMES	●	●	●	●	●	●	●			
		TV PROGRAMS AUTOMEMORY	●	●	●	●	●	●	●		●	●
		DRIVER for LNB S.C.R.	●	●	●	●	●	●	●			
		DiSeqC a-b-c-d & USALS MOTOR	●	●	●	●	●	●	●			
		Dual LNB SAT POINTER	●	●	●	●	●	●	●			
		SAT EXPERT	●	● opt.	● opt.	● opt.	● opt.	● opt.	● opt.			
		REMOTE POWER SUPPLY VOLTAGES	5V-12V-18V-24V	5V-12V-18V-24V	5V-12V-18V-24V	5V-12V-18V-24V	5V-12V-18V-24V	5V-12V-18V-24V	5-12V-18V-24V			
		BARSCAN and TILT	●	●	●	●	●	●	●	●	●	●
		INGRESS and LEAKAGE	●	●	●	●	●	●	●	●	●	●
		CVBS & HDMI	●	●								
		DIRECT CONDIT. ACCESS SYSTEM	●	●								
		AN. TV SOUND and RADIO	●	●	●	●	●		●	●	●	●
		ANALOG TV PICT	● SAT and TV Analog Picture	●	●	●	●					
		MPEG2 & 4 HD DECODER	●	● opt.			Network Iden. PROGS & PID only	Network Iden. PROGS & PID only	Network Iden. PROGS & PID only			
		MPEG2 DECODER	●	●	●	●	Network Iden. PROGS & PID only	Network Iden. PROGS & PID only	Network Iden. PROGS & PID only			
		SPECTRUM ANALYSIS with MEMORY PEAK	●	●	●	●	●	●	●	●	●	●
		DIGITAL QUALITY FAIL-MARG-PASS	●	●	●	●	●	●	●	●	●	●
		CONSTELLATION & REAL TIME ECHOS	●	●	●	●	●	●	●	●	●	●
		DEMODULATED M.E.R.-R.E.R.-PER-SNR-EVM NOISE MARGIN	Optical IN & IPTV	Optical IN & IPTV								● Optical IN
		QAM	●	●	●	●	●		●	●	● QAM & CABLE MODEM DOCSIS 2.0	● QAM & CABLE MODEM DOCSIS 3.0
		COFDM	● T2 opt.	● T2 opt.	● T2 opt.	● T2 opt.	●					
		8PSK	●	●	●	●	●		●			
		QPSK	●	●	●	●	●		●			
		INPUT CONNECTOR	F - BNC - IEC	F - BNC - IEC	F - BNC - IEC	F - BNC - IEC	F - BNC - IEC	F - BNC - IEC	F - BNC - IEC	F	F	F
FREQUENCY RANGE	BAND	SAT	930-2.250 MHz	930-2.250 MHz	930-2.250 MHz	930-2.250 MHz	930-2.250 MHz	930-2.250 MHz				
		TV	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	47-1.000 MHz	4-1000 MHz	4-1000 MHz	4-1000 MHz
		CATV	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1000 MHz	4-1000 MHz	4-1000 MHz
		RADIO	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz		4-1.000 MHz	4-1000 MHz	4-1000 MHz
			ATOM HD STC0L 	DIGICUBE STC 	ATOM POWER STC 	ATOM LIGHT/+ STC 	MASTER STC 	MASTER SAT 2 	MASTER CABLE 	FAST-C 	OMNIA-7 DOCSIS 2.0 	OMNIA-10 DOCSIS 3.0 