

**BROADCAST TABLET ANALYZER**

mod. **HD PRO TAB STCOI**



TFT  
10,2"  
16:10

T2

S2M

LCN

DOLBY APPROVED



& Easy-to-Use

Automatic, Fast

- DUAL COMMANDS:
- Mechanical
  - Touch (excludable)

- DVB-T2 with Multi-PLP
- **DVB-S2 MULTISTREAM**
- 2 RF Inputs: "N" 50 Ω & "F" 75 Ω
- **ASI Input/Output**
- FULL MPEG2 & 4 SD & HD
- **6h LI-ION POL. BATTERIES**
- T. S. Analyzer/Reader *opt.*
- **LCN PROGRAM CODE**

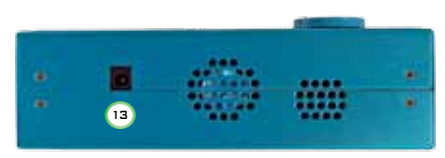
- MER Versus CARRIERS MEASUR.
- **ECHOES, MICROECHOES & PREECHOES** in REAL TIME
- Auto/Manual "LTE" FILTERS *opt.*
- **REAL TIME SPECTRUM** with MAX HOLD
- **CONDITIONAL ACCESS**
- "ITU" **QUALITY of SERVICE** with GPS *opt.*
- **NETWORK DELAY MEASUREMENT** for SFN networks *opt.*

**UP SIDE**

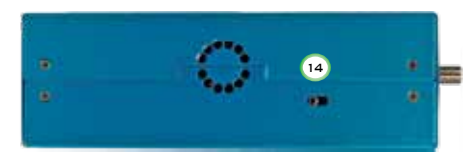


- |   |   |
|---|---|
| 1 = IF/RF IN connec. "F" 75 Ω<br>or opt. OPTIC IN: FC-ST-SC | 6 = USB A connector for memory stick        |
| 2 = IF/RF Input connector, type<br>"N" 50 Ω                 | 7 = USB B connector for SW<br>upgrades      |
| 3 = GPS antenna Input with SMB<br>connector ( <i>opt.</i> ) | 8 = LAN Ethernet RJ45 connector             |
| 4 = Analog Audio / Video Input<br>connector                 | 9 = Common Interface Slot for<br>CAM module |
| 5 = HDMI Output connector                                   | 10 = ASI Transport Stream IN/OUT            |
|   | 11 = 1PPS Input connector ( <i>opt.</i> )   |
|   | 12 = 10 MHz Input connector ( <i>opt.</i> ) |

**RIGHT & LEFT SIDES**



13 = Power Supply input (12 V DC - 3A)



14 = Remote Power Supply switch -  
DC at RF IN ON/OFF

# HD PRO TAB MAIN FEATURES

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

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

- MEASUREMENTS: MER, 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 PRO TAB 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



ETR 290 Transport Stream Analyzer



Spectrum in real time, fast and super-fast with MAX HOLD. Defects 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 measurement for carriers (optional)

## HD PRO TAB MAIN FUNCTIONS

For technical specifications see product cross reference table

- TV and CATV TUNER, extended band, 4-1000 MHz
- SAT TUNER, extended band, 930-2250 MHz, with S2 Multistream
- GSM extended band, 860-1000 MHz for telephone repeater installation, see application note
- **LTE FILTER, manual or automatic opt.**
- Double RF input, "N" 50 Ω and "F" 75 Ω
- Dual commands: Mechanical and Touch, the Touch Screen can be excluded
- 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
- **Defects, 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
- **Stereo, AAC and DOLBY Audio, all supplied**
- New 10,2" TFT TOUCH display, 16:10, high resolution
- **Input/Output supplied, internal T.S. and Analyzer opt.**
- **"HDMI" output and Audio Video Input/Output (analog)**
- **Slot for Conditional Access Common Interface**
- **CAM for C.I. plus opt.**
- Weighs only 2,5 kg, dim: H 11,5 x L 24,5 x D 18 cm
- **LI-ION-POLIMER 10A battery with 8 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, USB-OTG and Audio Video cables
- Free basic SW upgradeable on-line (USB-2 OTG socket)

Code	HD PRO TAB "HW" OPTIONS
HD "LTE" FILTER	HW and SW for built-in and selectable rejection filters to select and attenuate "LTE" Telecom TX
HD NETWORK DELAY MEAS.	HW and SW to measure the delay in SFN networks
HD GPS RECEIVER	HW and SW for GPS receiver complete with antenna and magnetic support
HD MULTIMEASURES TV	HW and SW for simultaneous representation of: MEASUREMENT, PICTURES, SPECTRUM, CONSTELLATION, ECHOES *
HD DVB-C2	HW and SW for DVB-C2 for second generation Cable TV
HD ATSC USA	HW and SW for 8VSB USA, specify when ordering *
HD GB20600 CHINA	HW and SW for CHINA Single and Multicarriers, specify when ordering *
HD ISDB-T JAPAN BRASIL	HW and SW for Standards in Japan and Brazil, specify when ordering *
HD CAM Plus	HW, CAM for C.I. Plus (only for some standards)

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











Code	HD PRO TAB "APP" (SW) OPTIONS
HD SATEXPERT FUNCTION	APP to point a satellite dish in 1 second
RIGHTS-SMART-1	APP for Authorization code for the SMART PRO. SW, PC management SW, to create plans & download measurements, etc.
HD T.S. ANALYZER	APP for Transport Stream Analyzer built-in the meter, without external PC
HD "ITU" QUALITY	APP for radioelectric quality measurement of service from Q1 to Q5, according to "ITU" regulations
HD SIGNAL COVERAGE QUALITY	APP to detect and register the TV service quality on the territory and with the GPS receiver option

FEATURES FUNZIONI FUNKTIONEN FUNCIONES FONCTIONS		HD PRO TAB <sup>STC</sup>	HD PRO <sup>STC</sup>	HD TOUCH <sup>STC</sup>	HD FLASH <sup>STC</sup>	
EXCLUSIVE ROVER INSTRUM. FUNCTIONS	COMPLETE, SIMPLE, EASY-TO-USE (TOUCH)	•	•	•	opt.	
	16:10 LED TFT DISPLAY, HIGH BRIGHTNESS	10,2" HD	7" HD	7" HD	7" HD	
	"LI-ION-POLIMER" BATTERIES from 10A, hours capacity	6 h	8 h	8 h	8 h	
	TOUCH &/or CLASSIC &/or COMBINED COMMANDS	COMBINED	COMBINED	ALL TOUCH	COMBINED	
	MAXIMUM ERGONOMICS and OPERATING SAFETY	•	•	•	•	
	SIX SELECTABLE LANGUAGES: UK-IT-FR-ES-DE-PO	•	•	•	•	
	MULTI MEASUREMENTS: Spect, Meas, Picture, Echoes, Constell.	opt.	opt.	opt.	opt.	
	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	3 KEYS	3 KEYS	3 ICONS	3 KEYS	
	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	•	•	•	•	
	BANDS	Extended SAT BAND - MHz	•	930 – 2.250	930 – 2.250	930 – 2.250
TV & RD BAND - MHz		•	41 – 887	41 – 887	41 – 887	
CATV extended BAND & return path - MHz		•	4 – 1.000	4 – 1.000	4 – 1.000	
GSM TELECOM BAND - MHz		•	860 – 1.000	860 – 1.000	860 – 1.000	
RF FILTERS REJECTION FILTERS for "LTE" BAND - MHz		790 – 862 opt.	790 – 862 opt.	790 – 862 opt.	790 – 862 opt.	
CONNECT. INTERCHANGEABLE RF CONNECTOR		DUAL:"N"50Ω & "F"75Ω	FIX "N" 50 Ω	"F" 75 Ω	"F" 75 Ω	
OPTICS OPTICAL INPUT, FC, ST, SC INTERCHANGEABLE CONNECTOR		—	—	opt.	opt.	
WORLD STANDARD CATV		DVB-S	•	•	•	•
		DVB-S2	•	•	•	•
		DVB-S2 MULTISTREAM	•	•	—	—
	DVB-T	•	•	•	•	
	DVB-T2	•	•	•	opt.	
	ATSC USA	opt.	opt.	opt.	opt.	
	GB20600 CHINA	opt.	opt.	opt.	opt.	
	ISDB-T JAPAN & BRAZIL	opt.	opt.	opt.	opt.	
	ANALOG TV WW STANDARD "CCIR" B-G-D-K-L-M-N	•	•	•	•	
	CATV DVB-C & annex A	•	•	•	•	
DVB-C & annex B	opt.	opt.	opt.	opt.		
DVB-C2	opt.	opt.	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.	opt.	opt.	
	ANALOG AUDIO INPUT	•	•	•	•	
	ANALOG AUDIO OUTPUT	•	•	•	•	
TRANSP. STREAM	T.S. ASI INPUT	•	•	opt.	—	
	T.S. ASI OUTPUT (Decoded via C.I.)	•	•	opt.	—	
	T.S. READER/RECORDER via LAN/PC	opt.	opt.	opt.	—	
	INTERNAL T.S. ANALYZER	opt.	opt.	opt.	—	
GPS	C.I. DESCRAMBLER	•	•	•	•	
	GPS RECEIVER USB	opt.	opt.	opt.	—	
	10 MHz from GPS INPUT	opt.	opt.	—	—	
LAN. IP	1 PPS from GPS INPUT	opt.	opt.	—	—	
	LAN, IP to ASI & ASI to IP	—	LAN (IPTV opt.)	•	—	
OTHERS	USB On The GO for MEMORY STICK	•	•	•	•	
	Free SW UPGRADES	•	•	•	•	
	BATTERY TEST FUNCTION	•	•	•	•	
	BATTERY SAVE FUNCTION	•	•	•	•	
	DiSEqC, SCR, USALS MOTOR	•	•	•	•	















# "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									
		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									
SPECIAL FUNCTIONS		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.	● 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	5V-12V-18V-24V								
		BARSCAN and TILT	●	●	●	●	●	●	●	●	●	●	●								
		INGRESS and LEAKAGE	●	●	●	●	●	●	●	●	●	●	●								
		AUDIO-VIDEO		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	●			●	●	●	●	●													
MEASUREMENTS		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	●	●	●								
		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.									
			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	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	4-1.000 MHz	4-1.000 MHz	4-1.000 MHz	4-1.000 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													
MODEL		HD PRO TAB STCOI		HD PRO STCOI		HD TOUCH STCOI		HD FLASH STCOI		HD COMPACT STC		HD LIGHT STC		HD ONE STC		HD SAT		HD TV		HD CABLE	

# "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	1.5 Typ. SAT 1.0 Typ. TV	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	5V-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	Opt. 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	47-1.000 MHz	4-1000 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	4-1000 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	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 