



Mod. **MRX-200**

Released V.4,2 Sept. 16

TV & SAT PROFESSIONAL MULTI-RECEIVER & MONITORING



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**ADVANCED
TECHNOLOGY**

FOR PROFESSIONAL
CABLE & BROADBAND
NETWORKS

DVB[®]
MEMBER N.50490

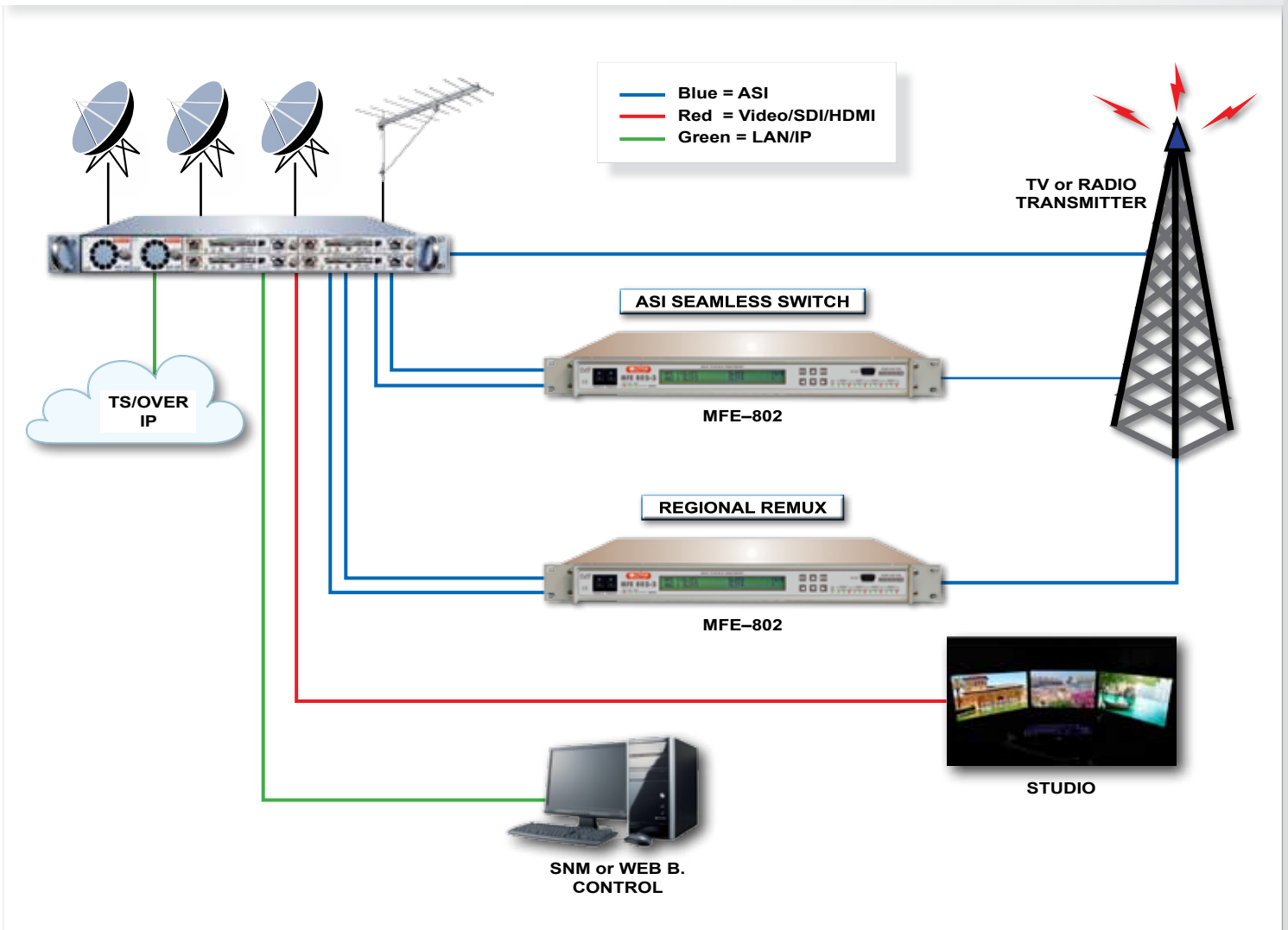
WTA
MEMBER

- Extremely cost effective solution.
- 4 different Hot Plug modules in 1U Rack.
- SAT receiver from 950 to 2.250 MHz.
- Descrambler integrated in SAT RX board.
- Multistandard TV receiver 48 – 870 MHz.
- MPEG integrated on the receiver board.
- Transport Stream Analyzer.
- SNMP & remote control via web browser.
- Optional Dual Redundant PSU.
- Monitoring with alarms.
- Alarms logger.



The "MRX-200" is a cost-effective platform that allow the customer to compone the unit in function of is necessity. Thank to the differents hotplug modules you can have more TV and/or SAT receiver with descrambler & MPEG integrated in only 1 unit rack. All configurable and monitored via Web brouser & SNMP.

MOD. MRX-200 MULTIPLE RECEIVER APPLICATIONS EXAMPLE



SATELLITE RECEIVER BOARD MOD. RS-200



FRONT VIEW



INTERNAL VIEW

This board allows the reception and demodulation of DVB-S/S2 signals, from 950 to 2.150 MHz and signal descrambling via common interface or with BISS (opt.).

Thanks to the integrated MPEG decoder the board is capable of extracting all services from the TS and convert them to: Analog composite Video and stereo Audio signals, Digital Video/Audio on the HDMI output and Digital SDI with embedded audio signal.

All the signals processed by this board can be monitored via remote control, web browser & SNMP.

MULTISTANDARD TV RECEIVER MOD. RT-200



FRONT VIEW

This board allows the reception and demodulation of all worldwide digital TV & RADIO standards and analog RF TV& RADIO signals, from 48 to 870 MHz descrambling the signals via common interface or with BISS (opt.).

Thanks to the integrated MPEG decoder, the board is capable of extracting all the service from the TS and converts them to Analog composite VIDEO and stereo AUDIO signals, DIGITAL VIDEO/AUDIO on the HDMI output and DIGITAL SDI with embedded audio signal.

All the signals processed by this board can be monitored via remote control, web browser & SNMP.

SAT RADIO RECEIVER MOD. RR-200



FRONT VIEW

This board allows the reception of RADIO services from satellite DVB-S/ S2 signals from 950 to 2.150 MHz. The balanced AUDIO STEREO output is provided through a 6 way screw connector (or male XLR CANON optional).

SCREW PLUGGABLE AUDIO CONNECTOR ADVANTAGES:

- Easy and fast installation.
- Cost and space reduction.
- Hot swap connection like XLR.
- Audio presence test with headphones, by just touching the connector screw without Audio interruption.



MOD. MRX-200 MAINFRAME SPECIFICATIONS

PARAMETERS	SPECIFICATIONS
Dual Power Supply	230 VAC/48 VDC or 230 VAC/230 VAC or 110 VAC/48 VDC or 110 VAC/110 VAC or 48 VDC/48 VDC
Power Supply AC	230 or 110 VAC \pm 10 %, 60 VA max. HOT PLUG.
Power Supply DC	+ 48 VDC \pm 5 %, 60 W max. HOT PLUG.
Operating Temp	0 - 45°C
Humidity	Up to 95% - Non condensing
Size	19" W x 17" D x 1.75" H (483 x 432 x 44.5 mm)
Number of Slots	4
Weight	4.0 Kg
Control	
Front Panel	LCD display
Control Ports	RJ45 10/100 Base-T
Control Protocols	SNMP, HTTP (web interface), FTP, Telnet over Ethernet port
Alarms	Temperature, PSU_A, PSU_B
MFE-802-2 Alarm Option	N. 8 x contact relays, n.4 fixed, n.4 programmable

MOD. RS-200/RR-200 DVB-S/S2M RECEIVER SPECIFICATIONS

PARAMETERS	SPECIFICATIONS
Standards	
ETS300421 (QPSK), EN302307 (QPSK, 8PSK, 16APSK), EN50083-9	
Demodulation (QPSK, 8PSK, 16APSK)	
Constellation	QPSK, 8PSK, 16APSK
DVBS2 Mode	VCM, CCM, Multi and single TS, Normal & Short FEC frames
Symbol Rate	1- 45 Msymb/s (DVB-S), 2- 45 Msymb/s (DVB-S2)
FEC	Auto, all ratios compliant with standards
FEC Block	Short and Normal
Roll-Off	0.2, 0.25, 0.35
DVB-S Block linear code (outer code)	R/S 204, 188
DVB-S2 Block linear code (outer code)	BCH, LDPC
Spectrum	Auto
RF Input	
Input connector	F -Type (75 Ω)
Frequency	L-band 930-2250 MHz
LNB control voltage	Off, +13/18 VDC, 22 KHz, 0.25 A (overload protection)
RF Input Level	40 - 100 dBuV (with attenuator)
ASI Output	
Standard	ASI-C MPEG-2 ISO/IEC 13818-1
Output mode	188 bytes packet
Output connector	2 x BNC (75 Ω) - 4 x BNC (opt)
Measures	
RF power level (dBuV, dBm), SNR, aBER&bBER(DVB-S), MPEG PER & PER (DVBS2), TS bitrate, TS Analyzer ETR 101-209, Stuffing rate, FECmode, FEC frame, Pilot, ISSY	
Alarms	
Input signal Unlock, LNB, BER, Level, SNR	

MOD. RT-200 MULTISTANDARD TV RECEIVER SPECIFICATIONS

PARAMETER	SPECIFICATIONS
CAPABILITIES	DVB T-T2 ISDBT - ATSC - DTMB - GB206000 Terrestrial Demodulator
Standards	ESTI EN 300744 (DVB-T, DVB-H), ETSI EN 302755 (DVB-T2), EN 50083-9 (DVB-C)
Demodulation	
Constellation	QPSK, 16QAM, 64QAM, 256QAM
Guard Interval	1/4, 1/8, 1/16, 1/32, 1/128, 19/256, 19/128
Carrier mode	1k, 2k, 4k, 8k, 16k, 32k
Hp/Lp code rate	1/2, 2/3, 3/4, 5/6, 7/8
Channel Bandwidth	5MHz, 6MHz, 7MHz, 8MHz (7 & 8 MHz BW with SAW Tuner)
PLP	Single & Multi PLP Selection (DVB T2)
RF input	
Input connector	N 50 Ohm Return Loss > 14 dB or F 75 Ohm Return Loss > 10 dB specify your choices when ordering
Frequency range	48 –870 MHz
Frequency resolution	10 KHz
RF input level range	40 to 120 dBuV
External reference OPTION	10 MHz input BNC connector 75 Ohm
ASI Output	
Standard	ASI-C MPEG-2 ISO/IEC 13818-1
Output connectors	2 x BNC on 75 ohm ASI-C
Output mode	DVB-ASI 188 byte packets
Available measurements	
RF input level	40-120 dB μ V (\pm 1dB - 0.05dB/ $^{\circ}$ C)
Frequency offset	1-500 KHz (option \geq 100Hz)
SNR / MER	8-40 dB (\pm 1dB)
bBER	1x10 ⁻² to 1x10 ⁻⁵ (DVB T)
aBER	1x10 ⁻² to <10 ⁻⁸ (DVB T)
TS Analyzer	ETR 101-290
TS Bitrate/Stuffing	1-40 Mb/s
TPS information	FEC/Guard Interval/Hierarchy/Cell. Id./Time Slicing /MPE FEC
Other available measurements	LDPC interactions, Pre-BCH BER, Pre-LDPC BER, PLP ID error
Frequency offset	10 to 500 KHz OPTION >100 Hz
Graphical	MER to Carrier, signals with selectable carrier range 1 to 32k Constellation diagram with standard-specific grid and zoom Impulse Response [-340 μ s, 340 μ s]
RF Spectrum OPTION	RF Spectrum with SPAN 10 MHz
Carrier Mode T/T2	2K, 8K
Carrier Mode T2	1K, 4K, 16K, 32K
Modulation T-T2	QPSK, 16QAM, 64QAM
Modulation T2	256QAM (T2)
Guard interval T/T2	1/4, 1/8, 1/16, 1/32, 1/2, 2/3, 3/4, 5/6, 7/8
Guard interval T2	1/128, 19/256, 19/128, 3/5, 5/5
Alarms	
Board self-test	Good / Fail
Signal lock	Lock / Unlock
Power Level	Alarm on threshold
MER	Alarm on threshold
BER	Alarm on threshold

MOD. RS-200 COMMON INTERFACE SPECIFICATIONS

SPECIFICATIONS	
Standards	EN50221 (Common Interface), EN50083-9 (ASI)
Packet length	188 / 204 Auto-detection
Interface	PCMCIA DVB-CI Common Interface
CA Methods	Multicrypt, Simulcrypt
CAS Support	Mediaguard, Viaccess, Irdeto, Conax, BISS with Professional multiprogram CAM (up to 24 Elementary Streams descrambling) Betacrypt, Cryptoworks, Nagravision with standard consumer CAM (up to 4 services descrambling)

MOD. RS-200/RT-200/RR-200 MPEG 2/4 DECODER GENERAL SPECIFICATIONS

SPECIFICATIONS				
		RS-200	RT-200	RR-200
Standard	ISO/IEC 13818-2 (MPEG2), ISO/IEC 14496-10 (MPEG4), EN300472 (VBI)	•	•	•
Output options	Connectors: 1x BNC on 75 Ω Analog Video	•	•	—
	6 way screw terminal block, Analog audio or AES/EBU optional	•	•	•
	XLR male canon audio connectors optional	—	—	•
	CVBS analog video 1 Vpp adjustable	•	•	—
	Video format: PAL-B/G, NTSC, SECAM, PAL-M	•	•	—
	Audio/Video delay: < 2ms	•	•	•
	Video resolution: 720 x 576, 704 x 576, 544 x 576, 480 x 576, 352 x 576	•	•	—
	Test Pattern: Color Bars	•	•	—
	Aspect Ratio: PAN SCAN, LETTER BOX, COMBINED, NATIVE	•	•	—
	Image Format Conversion: 4/3 , 16/9	•	•	—
	Decoding: MPEG2 (Musicam) layers I e II, MPEG2 AAC, MPEG 4, AVS, Dolby Digital AC-3	•	•	•
	Modes: Mono, Stereo, Left, Right , Diff. stereo analog	•	•	•
	Output Level: -10 ÷ + 6 dBm adjustable at 600 Ω – Min. + 6 dB	•	•	•
	MPEG2: VBI Re-insertion Teletext, WSS, VPS over CVBS	•	•	—
	Output connector: 1x BNC on 75 Ω SD-SDI/HD	•	•	—
	Format Video	•	•	—
	Interlaced ITU-BT601/656; Progressive: ITU-BT1358 (SD Format)	•	•	—
	1080i/SMPTE 274M, 720p/SMPTE 296M (HD Format)	•	•	—
	Format Audio: with audio embedded 1 stereo channel	•	•	•
	Audio Encoding: S/PDIF IEC958/IEC1937	•	•	•
	Logo Insertion: 1 to 10, Vertical and Orizzontal Position	•	•	—
	PSI Information: TS Id./NW Id.	•	•	•
	SI tables decoding: Visualization of service list, stream type	•	•	•
	PMT decoding: Service: PID composition; real time refresh on service selection	•	•	•
Thumbnail: 1 to 9 picture	•	•	—	

MOD. MRX-200 ORDERING CODE

MODEL	DESCRIPTION
FRAME & PSU	
OMRX-200-FRAME	MRX 19" metal frame
OMRX-200-PSU	PUS 110V/220V maximum 2 per Frame
BOARDS	
ORT-100	TV Receiver board with RF monitoring
ORS-100	SAT Receiver board with RF monitoring
OPTIONS	
OMRX-ASI/IP-ETR	Option for: ASI out, IP Encap/Decap, ETR101-290
OMRX-DEC-AV-CI	Option for: Mpeg H264 Decoder, HDMI out, Analog AV out, Common interface descrambler
OMRX-HD/SD-SDI	Option for: HD/SD SDI output with embedded Audio
OMRX-ETI	Option for: ETI
OMRX-SPECT	Option for: Specturm Analysis
OMRX-BISS	Option for: BISS descrambling SW
STANDARDS (ONE STANDARD PER BOARD ONLY)	
OMRX-CONST	Option for: Constellation, Reflectometer, Mer VS carrier (only for DVBT/T2)
OMRX-ANALOG-TV/FM	Option for: Analog front-end for TV and FM Radio
OHD_DAB+	Option for: DAB + demodulation
OHD_ATSC	Option for: ATSC demodulation
OHD_DTMB (GB20600)	Option for: DTMB demodulation

At the moment of the order is important to specify:

- PSU VOLTAGE: 220 V or 110 V
- RF INPUT CONNECTOR: "F" 75 ohm or "N" 50 ohm
- POWER CORD STANDARD: Euro, US, Australia, UK ...



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CERTIFICATES N°
1263 ISO 9001
1264 ISO 14001
1265 BS OHSAS 18001



Specifications and features are subject to change without notice.

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