

# DVB-T/H UHF Microtransposers/Gap-fillers

## MRD5000 SERIES



### MAIN FEATURES

- Up to seven modules in a 19" – 6U frame.
- Output power versions available for 0.25/1/2Wrms (MRD 5010) and 5Wrms (MRD 5050).
- High sensitivity and selectivity ( $> 40$  dB to  $\pm 4.2$  MHz).
- Input/Output frequency continuous tuning between 470 and 862 MHz without readjustments.
- MFN and SFN modes.
- Linear precorrector with amplitude-frequency response correction.
- Non-linear precorrector with independent adjustments AM/AM and AM/PM.
- Highly stable internal frequency reference with the possibility of external synchronization.
- IF input /output connectors externally accessible.
- High performance echo canceller (optional).
- Antioscillation system (SAO) with automatic regulation of output power.
- LDMOS balanced power amplifier.
- Integrated control unit with BER measurement in all the transmitted channels.
- Remote control and supervision via SNMP, free potential contacts or GSM/GPRS modem.
- Web browser optional.
- PC Graphical interface.
- Only one 24Vdc reference supply voltage for all modules. Redundancy opt.
- Configurable via easy-to-use push-buttons /display.
- N+1 redundancy optional (MRD5000N series).

The DVB-T / DVB-H micro-transposer/gap-filler allows for a simple and affordable extension of coverage in MFN/SFN networks. Each channel is composed of one module only and up to seven channels can be delivered within a standard 19" 6U height frame. The reception/transmission channels are fully programmable in a very easy and fast way. The high selectivity allows to work without problems in presence of adjacent channels; besides, it optionally incorporates a digital processing echo-canceller that effectively decreases the bandpass ripple resulting from an inadequate isolation between transmission and reception antenna systems. The control unit demodulates and measures the BER in all transmitted channels and also provides through the programmer a comprehensive management of the complete system, as well as remote control and supervision via free potential contacts, SNMP or GSM modem.



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## TECHNICAL CHARACTERISTICS

### MICRO-TRANSPOSER MODULE (MRD5010/MRD5050)

#### RECEPTION

##### RF INPUT

Signal type:	One DVB-T/H channel.
Frequency band:	470-862 MHz.
Sensitivity:	-75..-20dBm.
Selectivity:	>40dB $\pm$ 4.2MHz.
-with Echo Canceller:	>80dB $\pm$ 4.2MHz.
Noise figure:	<6 dB (Pin<-47 dBm.).
RF/IF Conversion:	Single conversion.
Connector:	BNC (f) 50 ohm.
Return losses:	>18 dB.

##### IF Processing

Central frequency:	36,15 MHz.
Bandwidth:	8 MHz.
Amplitude equalization:	$\pm$ 3dB (continuous).
Total delay (Without Echo C.):	4 $\mu$ S.
Total delay (With Echo C.):	8,5 $\mu$ S.

##### Echo canceller

Cancellation level:	>30 dB.
Maximum echo level:	+15dBc.
Delay:	4,5 $\mu$ s.
Cancellation window:	7,7 $\mu$ s.

#### TRANSMISSION

##### RF Output

Signal Type:	One DVB-T/H Channel.
Frequency Band:	470...862 MHz.
Nominal output power:	0,25/1/2W.(MRD5010). 5W (MRD5050).
Output power stability:	< $\pm$ 0.2 dB.
MER:	>32/34dB (MFN/SFN).
Intermodulation:	> 40dB(1W)/> 38dB(5W).
Connector:	BNC (f) 50 ohm.
Return losses:	>18 dB.
Harmonics and spurious:	<-85 dBc (up to 1GHz.).
Spurious (After filter):	<-60 dBc (up to 1.7GHz.).

##### REFERENCE

Internal reference:	10 MHz./1ppm
External reference:	100mV-3Vpp/SMA(f).

##### GENERAL

Temperature:	-5 $^{\circ}$ ...45 $^{\circ}$ C.
Relative humidity:	95% máx.
Supply voltage:	24 VDC.
Consumption:	
-Without echo canceller:	23W/45W.(MRD5010/5050).
-With echo canceller:	31W/53W.(MRD5050/5050).
Cooling:	Convection/Forced air.
Dimensions:	262 x 45 x 250mm (HxWxD).
Weight:	1,5 Kg. aprox.

#### FRAME

##### INPUT RF SPLITTER (opt.)

Number of inputs:	1 to 3.
Number of outputs:	7+3 test (max).
Insertion losses:	4...9 dB.

##### OUTPUT COMBINER (opt.)

Number of inputs:	6 max. BNC(f)-50 ohm.
Number of outputs:	2 max. N(f)-50 ohm.
Insertion losses:	1 dB max.
Aux. Outputs:	-30dBc.

##### POWER SUPPLY

P.S. units:	2 max.
Input /Output voltages:	90-264 VAC / 24 VDC.
Max. Power per unit:	240W./500W.

##### GENERAL

Dimensions:	19"-6U. (7U opt)
Weight:	20 Kgs. max.
Configuration:	Wall mounting, outdoor cabinet or 19" rack.

#### CONTROL UNIT (CCU5000)

##### RF Inputs (2X)

Level:	-30..0 dBm.
BER post Viterbi:	1xE-1...1xE-6.
Supervision:	Dry contacts, SNMP/GSM opt.
Power consumption:	24Vdc - 3W.
Dimensions:	262 x 45 x 230mm (HxWxD)
Weight:	1,3 Kg. aprox.

#### PARAMETERS/SETTINGS VIA FRONT KEYPAD/DISPLAY

- Input / Output Frequency selection
- Forward power and reflected power alarm
- Echo-canceller: ON/OFF, S/N, SAO, Echo leve
- Low input power mutting
- External reference detection: Manual/Automatic
- Digital precorrection enable/disable
- RF output configuration (Level, Frequency, spectrum)
- Linear precorrection. Amp/Freq. correction. Slope  $\pm$  3dB
- Non-linear precorrection
- Warnings/alarms management

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