



# DIGITAL MICROWAVE

## TV Links

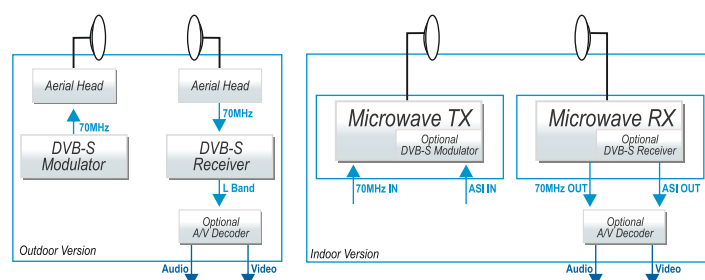


The **Digital Microwave TV Link** is the Neetra offer for the microwave distribution of digital signals, designed for a high flexibility together with an extreme ease of use. The use of the intermediate frequency (70MHz) and of the different output power levels let the system be attractive for both individual point-to-point links and complete distribution networks.

The system consists of a transmitter and a receiver that can be provided both as indoor and outdoor units. In the first case, the equipment contained within a single 19" rack unit makes its installation an easy job. In the outdoor version, instead, the use of a 70MHz input and output signal enables a connection with the indoor unit of length up to 200m; moreover, a specially designed ALC circuit equalizes the input and output signals from external units. The transmitter can be equipped with a QPSK modulator compliant with the DVB-S standard, with a modulation capacity up to 48Mbit/s, with ASI input. The receiver, correspondently, can be equipped with a QPSK demodulation board in order to directly produce the output ASI stream. The **Digital Microwave TV Link** is perfect for the distribution of the TS signals within SFN DVB-T networks.

The high quality of the frequency synthesis oscillators, used in the double conversion system, and the low noise figure of the receiver amplifiers allow the link to stay locked even for very low received signals. The use of input and output selective filters allow a branching connection of the transmitter and/or the receiver. All the units can be battery powered and controllable by remote. All the Neetra equipment are rigorously desi-

gned, produced and tested within the Quality System guaranteed by the ISO9001 certification.



### Main characteristics

- 70MHz IF Frequency
- Double Conversion System
- Indoor/Outdoor Versions
- Compatible with Analogue or Digital (DVB-T and ATSC) IF
- Frequency Range from 2 to 14GHz
- Available in Frequency-Agile Versions with 200/400MHz bandwidths
- Synthesised Oscillators

### Applications

- Digital Microwave Links for Data and Audio/Video Distribution Networks

### Performances and Options

- QPSK - DVB-S Modulator, ASI Input, optional in the Transmitter
- QPSK - DVB-S Receiver, ASI Output, optional in the Receiver
- Automatic PCR restamping on the ASI Inputs
- Automatic input bit-rate adaptation
- Symbol rate up to 30MS/s (48Mbit/s)

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## Technical characteristics

<b>TRANSMITTER SECTION</b>	
Input IF Frequency	70MHz
Input IF Level	0dBm ±10dBm
IF Output Frequency	BNC 50 Ohm
RF Output Connector	N Female 2-5GHz, Flange WR84 8GHz, PB120/WR75, 10-14GHz
RF Output Impedance	50 Ohm
<b>RECEIVER SECTION</b>	
RF Input Connector	N Female 2-5GHz, Flange WR84 8GHz, PB120/WR75, 10-14GHz
RF Input Impedance	50 Ohm
Noise Figure	7dB (typ.)
Receiver Input Level	From -85dBm to -30dBm
Sensitivity	BER= 10 <sup>-3</sup> @-85dBm
RF Output Frequency	70MHz
IF Output Level	0dBm ±1dB
IF Output Interface	BNC 50 Ohm
<b>DVB-S MODULATOR/RECEIVER (Optional)</b>	
Reference Standard	ETSI EN 300 421
Modulation	Gray-coded QPSK
Output Symbol Rate	1 to 30MS/s step 0.5MS/s
Output Frequency	70MHz
IF Bandwidth (MHz)	1.35 x symbol rate (expressed in MS/s)
Input Processing	Transport Multiplex Adaptation and Energy Dispersal
Outer Coder	Reed Solomon Encoder RS (204, 188, 8)
Convolutional Interleaver	12-branches Forney scheme
Inner Coder	Punctured Convolutional
Code Rates	1/2, 2/3, 3/4, 5/6, 7/8
Baseband Shaping	Roll-off factor = 0.35
TS Processing (Optional)	SFN Transport (only with Neetra DVB-S RECEIVER)
TS Input	BNC 75 Ohm DVB-ASI Interface
Input Bit-Rate	Up to 48.38Mbit/s
Input TS Fomrta	SPTS/MPTS
MPEG-2 Packet Length	188/204 with Automatic Adaptation
<b>GENERAL</b>	
Physical	Case 19"-1U Indoor Unit
Outdoor Size	265x315x125mm (Optional)
Reference Stability	≤ ±2.5ppm from 0 to +50°C
Oscillator Phase Noise	≤ -80dBc@10kHz
External Reference Frequency Input	10MHz or E1
Local Control Port	USB
Remote Control Port	Rs485 / Telemeasures
User Interface on Front Panel	LCD Display+Keyboard+Status LEDs
Power Supply Voltage	90 - 260VAC
DC Power Supply	+24Vdc Negative to ground
Operating Temperature	0 - 50°C (-10°C to +50°C Outdoor version)

Specifications and characteristics are subject to change without notice

FREQUENCY RANGE	OUTPUTPOWER*	BOOSTER*
1,5-2,7GHz	5W	20W#
3,0-3,5GHz	4W	-
4,0-4,5GHz	2W	-
5,5-8,5GHz	1W	5W
10-10,8GHz	1W	4W
14-14,5GHz	1W	4W

\* Power CW 1dBc, -6dB with DVB-S signal  
# Outdoor Unit