

DML

Microwave links series

**FIXED (STL) AND MOBILE DIGITAL MICROWAVE LINKS
FOR TV AND RADIO BROADCASTING APPLICATIONS**



The high quality, professional and cost-effective solution



High reliability
and compact size



Designed for
TV & Radio signals



High quality
digital & analog



Low cost
of ownership

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The **DML series** of **Digital Microwave Links** for fixed and mobile applications represent the latest development based on ABE digital and microwave technological knowledge and experience, accumulated with thousands of units produced since 1982.

These are agile synthesized digital links (also usable with analog signals), **extremely compact**, flexible and competitively priced.

The DML microwave links are available in **several frequency ranges**, for **Fixed STL** (Studio Transmitter Link) or **Mobile** applications, also with **carrying case** to easily store and handle the equipment.

The IDU units can be configured in **DVB-S/S2** or **OFDM** to operate in **NLOS** (Near Line Of Sight) condition.

PRODUCT SKILLS

- Capable to carry **up to #6 different MPEG Transport Streams**
- **Transparent mode** to carry **SFN Transport Streams** (including ISDB-T/Tb BTS)
- **Over 100Mbit/s total net bit rate** in 28MHz RF bandwidth
- **Frequency Agile** in its range (typically 500MHz)
- **Several frequency range** available (2, 6, 7, 8, 10, 13, 14 GHz - other on request)
- Modulation schemes supported: **DVB-S/S2** or **OFDM** (DVB standard)
- **Fixed** (STL) and **portable** applications
- **RF heads** for outdoor and indoor applications
- Standard input/output interface: **ASI** - On request: Ethernet for **T.S. over IP**
- **Analog Video/Audio in/out interfaces** (versions with embedded **MPEG codecs**)

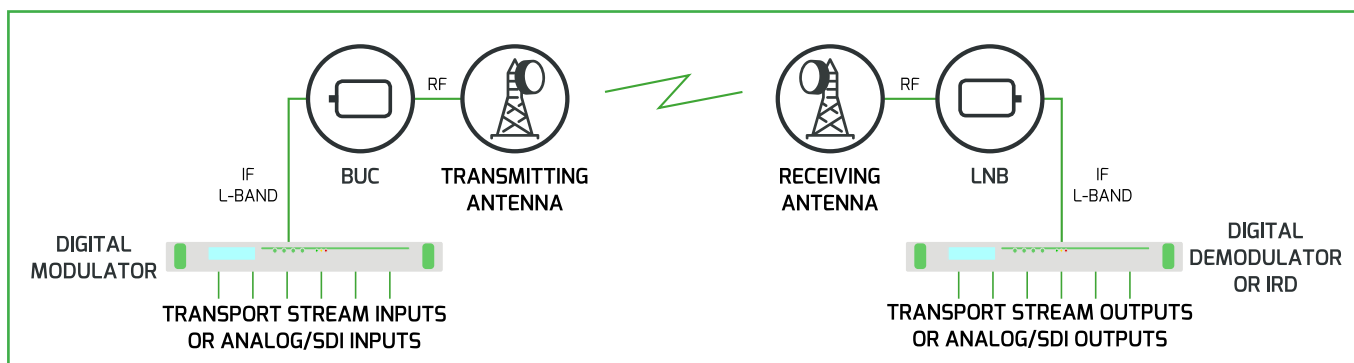
Mobile version with carrying case



MAIN BENEFITS

- **NO proprietary modulation schemes and FEC codes**
DVB-S/S2 modulation schemes up to 32APSK employed
- **NO proprietary aggregation systems**
The aggregation of the Transport Streams (up to #6) is made employing the DVB-S2 MULTISTREAM mode
- **NO proprietary encryption**
DVB-S2 Physical Layer scrambling implemented
- **NO overhead for encapsulation to carry multiple Transport Streams**
- **Very high efficiency Forward Error Correction Codes (LDPC + BCH)**
- **NO fixed capacity**
Parameters (bandwidth, FEC codes, etc.) are optimized in order to obtain the best performance according to the available bandwidth and needed capacity

TYPICAL CONFIGURATION



TECHNICAL SPECIFICATIONS

GENERAL SPECIFICATIONS

Frequency range	DML 2: 2.15 - 2.70 GHz DML 7: 5.70 - 6.54 GHz; 6.54 - 7.50 GHz; 7.50 - 8.60 GHz; DML 10: 10.10 - 10.90 GHz DML 13: 12.70 - 13.75 GHz DML 14: 14.00 - 14.50 GHz For other frequency ranges please contact ABE sales office
IF frequency	L-band 950 - 2150 MHz
Modulation standards	DVB-S (EN 300 241) - QPSK-8PSK-16QAM DVB-S2 (EN 302 307) - QPSK-8PSK-16APSK-32APSK DVB-T (EN 300 744) - QPSK-16QAM-64QAM For other modulation standards please contact ABE sales office
Operating temperature range	-5 to +45°C (indoor units) -30 to +50°C (outdoor units)
Maximum operative humidity	95% non condensing
Housing	Standard rack 19" 1U (indoor units) Sealed box (outdoor units)

LINK PERFORMANCE

Occupied bandwidth	Up to 40 MHz - According to Symbol Rate and Roll-off factor
Link capacity	Up to 100Mbit/s - According to modulation scheme, code rate, Symbol Rate, etc.
Receiver minimum input signal	Up to less than -100dBm - According to modulation, code rate, Symbol Rate, etc.
Example	Standard DVB-S2, Symbol Rate 16MS/s, roll-off 25% , code rate 3/4, modulation scheme 8PSK Net input bit-rate (TS bit-rate/Link capacity) is up to 34.8Mbit/s in the same occupied bandwidth (around 20MHz) of an analog TV microwave link. Receiver threshold is around -90dBm



SUSTAINABILITY

We design and build high performance and environmentally friendly equipment



MADE IN ITALY

Design and manpower are 100% Italian to guarantee quality and assistance



SOLIDITY

Being in the broadcast industry for nearly forty years is the most obvious proof of our seriousness



TECHNOLOGY

We believe it is essential to increase our technological know-how every day to provide excellent products

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TECHNICAL SPECIFICATIONS

DIGITAL MODULATOR - INDOOR UNIT

Model DME5000 - Check DME series brochure for further info

BUC (BLOCK UP-CONVERTER) - OUTDOOR UNIT

Input impedance and connector 50Ω - N female

Output power (@ gain compression) 1W or 2W (tol. ±1.5dB) according to the model

Power backoff according to modulation scheme
 QPSK: -3dB
 8PSK: -4dB
 16APSK: -6dB
 32APSK: -8dB
 OFDM: -10dB

Frequency stability $\geq 2.5 \times 10^{-6}$ (2.5ppm)

Output impedance and connector 50Ω - N female or WR75 waveguide, according to the model

Power supply 18 to 24VDC through L-band cable

LNB (LOW NOISE BLOCK DOWN-CONVERTER) - OUTDOOR UNIT

Input impedance and connector 50Ω - N female or WR75 waveguide, according to the model

Input level -90 to -45dBm

Gain 30 to 35dB

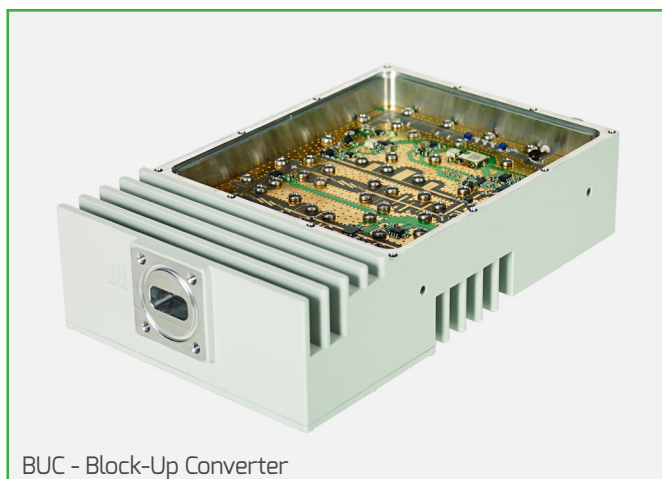
Noise figure typ. 1.2dB

Output impedance and connector 50Ω - N female

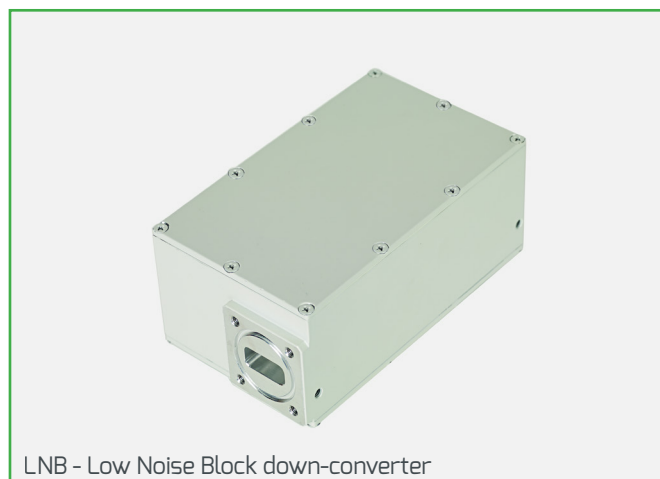
Power supply 15 to 19VDC through L-band cable

DIGITAL DEMODULATOR / IRD - INDOOR UNIT

Model IRD5001/AW - Check IRD series brochure for further info
 RXS or RXT - Check RX series brochure for further info



BUC - Block-Up Converter



LNB - Low Noise Block down-converter

ABE ELETTRONICA

Via Leonardo da Vinci, 224 - 24043 Caravaggio (BG) - Italy
 Tel. +39 0363 35 10 07 - Fax +39 0363 50 756 - mail@abe.it - www.abe.it