Datablad

MO-162 & MO-163

QPSK Transmodulatore

The **MO-162** / **MO-163** are direct **QPSK to COFDM transmodulators**. They convert a satellite transponder into a Digital Terrestrial Television channel.
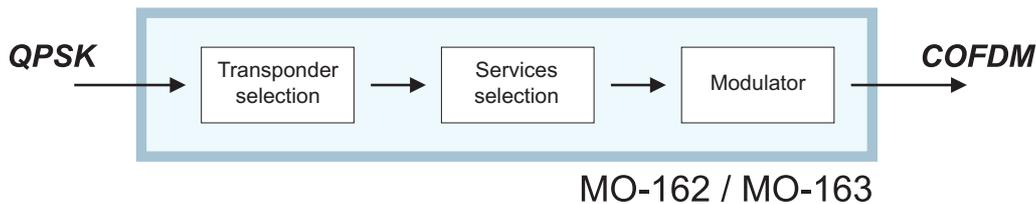
For it, the **MO-162** / **MO-163** allow the selection of the satellite transponder at the entrance and the output channel for the resulting multiplex. Obviously, it must be taken into consideration that the transport capacity of a DTT multiplex is lower to that one of a satellite transponder. Therefore, not all the services of a satellite transponder can fit into a single multiplex. For that reason the **MO-162** / **MO-163** allow the selection of the services to be transferred.

The equipment is constructed on 1 unit chassis for assembly in a 19 " rack. It has one F type IF satellite input (950 MHz to 2150 MHz).

The output coverage ranges from 475 MHz to 875 MHz for **MO-162** and 45 to 875 MHz for **MO-163** in 1 MHz steps. The output can be adjusted in steps of 1 dB and the MER is higher than 35 dB in all the channels. The COFDM modulation mode can be 2k or 8k carriers.

The **MO-162** / **MO-163** are ideal for use in Terrestrial Digital Television distribution systems at hotels, hospitals and in general in any cable distribution system.

The control of the operation of the **MO-162** / **MO-163** is been made very easy through an LCD on the frontal panel. All the functions of the transmodulator can be easily selected by means of an intuitive set of menus.

QPSK → Transponder selection → Services selection → Modulator → **COFDM**

MO-162 / MO-163

In this sample case, we use one **MO-162** / **MO-163** to select up to four services from a **QPSK transponder** and pack them in a **COFDM multiplex**.

The **MO-162** / **MO-163** allow the **selection of any of the transponders** at the input.

The next step will be to **select the services** that we wish to insert in the resulting multiplex.

Finally, we can **select the output channel** or frequency for this resulting multiplex.

| P_1 | P_2 | P_3 | P_4 |
| P_5 | P_6 | P_7 | P_8 |

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| P_5 | P_6 | P_7 | P_8 |
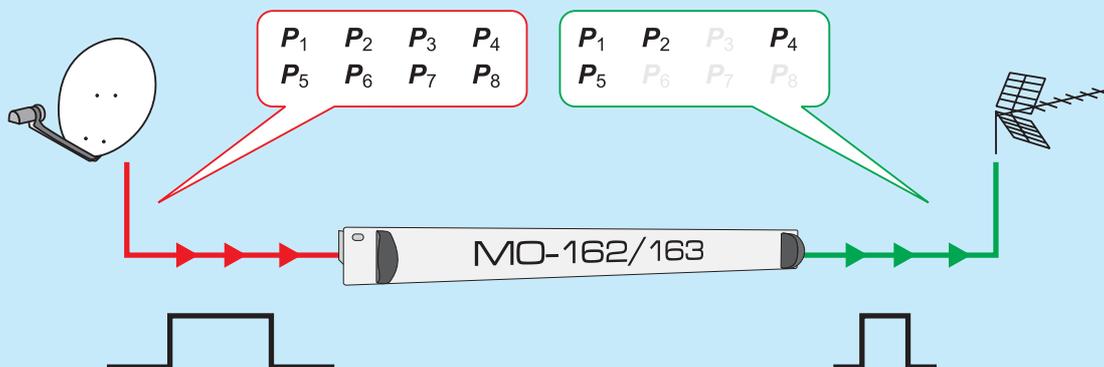
MO-162/163

Control interface

- Pushable rotary control on the pront panel with navigation key and LCD display
- Two LEDs indicating the power and synchronisation status of the equipment
- Ethernet connector

SPECIFICATIONS	MO-162 / 163
INPUTS	
QPSK	F female connector, 950-2150 MHz (between -65 to -25 dBm)
MPEG-2 Transport Stream	Two DVB-ASI inputs, 75 Ω female BNC TS packets of length 188 or 204 bytes (automatic detection) Support for burst and continuous packet mode
Operating modes	
Master	Input TS bit rate strictly below the value given in the DVB-T specification Packet stuffing for bit rate adaptation and PCR re-stamping are carried out automatically
Slave	Input TS bit rate constant and equal to the value given in the DVB-T document (no stuffing). Tolerance ±0.1‰
IF OUTPUT	
Type	50 Ω BNC female connector
Frequency range	Variable between 32 and 36 MHz in steps of 1 Hz Fixed at 36 MHz when RF output is off
Spectrum polarity	Selectable via front panel controls
Power level (average)	0 dBm (107 dBmV) fixed
In-band amplitude ripple	< 0.2 dB
In-band group delay ripple	< 10 ns
Frequency stability	20 ppm
Out-of-band spectral characteristics[1]	
@ ± 3.805 MHz	0 dBc
@ ± 4.25 MHz	-46 dBc (2k), -56 dBc (8k)
@ ± 5.25 MHz	-56 dBc
IQ amplitude imbalance	< 0.02%
IQ quadrature error	< 0.02º
Central carrier suppression	< -55 dBc
Harmonics and spurious	< -60 dBc
MER[2]	> 43 dB
RF OUTPUT	
Type	50 Ω N-type female connector
Frequency range	Adjustable between 475 and 875 MHz in 1 Hz steps (45-875 MHz for MO-163)
Spectrum polarity	Selectable via front panel controls
Power level (average)	-87 to -27 dBm in 1 dB steps (optional up to +6 dBm)
Level of harmonic and spurious	< -50 dBc
Frequency stability	20 ppm
MER	> 36 dB
SSB phase noise	≤ -87 dBc/Hz @ 2 kHz
DVB-T PARAMETERS	
IFFT size	2k, 8k
Guard intervals	1/4, 1/8, 1/16, 1/32
Code rates	1/2, 2/3, 3/4, 5/6, 7/8
Symbol interleaver	Native
Constellations	QPSK, 16QAM, 64QAM
Hierarchical modes	16QAM and 64QAM constellations with constellation ratio α = 1, 2 or 4
MFN operation	Available
TPS signalling	Cell ID
Channel bandwidth	6, 7 and 8 MHz (user selectable)
PROGRAM SELECTION	Service selection without table rebuilding (PID Filtering)
REMOTE CONTROL	Fast Ethernet (RJ-45 connector)
ETHERNET RJ-45 INTERFACE	
OPTIONS	
OP-1xx-S	SNMP Protocol
OP-1xx-P	+6 dBm output
POWER SUPPLY	
Coltage	90 - 250 V AC (50 - 60 Hz)
Consumption	20 W

[1] Frequencies referred to the central frequency for an 8 MHz channel. Average levels measured uding a 10 khz bandwidth are referred to the carriers located on either side of the spectrum.

[2] Value measured for an 8 MHz channel. MER value for a 7 and 6 MHz channels is approx. between 36.5 and 36 dB.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE