

Analogue Mod/Dem



MOD70P-DEM70P Rev.2K7

GENERAL DESCRIPTION

Elber's complete range of FM modulators and demodulators answers the market's requests offering excellent performance without compromising the ease of use. The product range characterised by the innovative design and CCIR standards conformity is also available in different versions according to the application and final clients needs.

The available analogue devices are capable of modulating / demodulating a television signal on a 70MHz sub-carrier and up to 4 sub-carrier audio channels. The default audio sub-carrier values are at 7.5MHz, 8.065MHz, 7.020MHz and 8.590MHz. However, on request, the sub-carriers can be re-located according to specific needs.

The superior performance of these products is mainly due to the measured signal to noise ratio (S/N), the group delay (<10ns) and network pre-emphasis and de-emphasis (manually disabled) included in the modulator and demodulator section respectively.

The integrated system is composed of four modular boards optionally provided as OPT MOD70 and OPT DEM70 in the TMC-R series available in 4U 19" rack.

In order to address specific applications in which the use of modulator and demodulator is distinct from the RF section, MOD70 and DEM70 are available in 4U 19" rack.

For the split-type versions the MOD/70P and DEM/70P incorporate the analogue modulator/demodulator together with necessary remote head control unit. This is applicable to both the monochannel (model TMC/P; R/P) and multichannel (model MT; MR, SPM system).

On client specific requests other variants can be produced.

FEATURES

- 1 Video Channel
- Up to 4 Audio Channels
- 70 MHz IF Signal
- Preemphasis/Deemphasis Network
- Weighted S/N > 70 dB
- Group Delay < 10 ns
- 4U Modular Indoor unit

SPECIFICATIONS

MODULATORS MOD70 - OPT MOD70

Modulator

Center Frequency:	70 MHz +/- 5 KHz
Output Impedance:	75 Ohm
Output Level:	+5 dBm +/- 1.5 dB
Output Return Loss:	< - 28 dB
Output Connectors:	BNC Female

Base Band

Input Level ($\Delta f=8$ MHz pp at 1512 KHz):	1 Vpp
Bandwidth (ripple < 1 dBpp):	40 Hz /10 MHz
Input Return Loss:	< - 28 dB
Input Connectors:	BNC Female

Video

Input Level:	1 Vpp
Bandwidth:	40 Hz /6 MHz
Preemphasis:	CCIR 405-1
Differential Gain:	< 1 %
Differential Phase:	< 1 %
Weighted S/N:	> 70 dB
Group Delay (40 Hz/6 MHz):	< 10 ns
Input Return Loss:	< -28 dB
Input Connectors:	BNC Female

Audio

Number of Audio Channels:	2- 4
Input Level:	9 dBm default; 0-3-6 dBm (Sel.)
Input Impedance (Balanced):	600 OHM /15 KOHM
Preemphasis:	50 μ s
Subcarriers Deviation:	70 KHz rms
Bandwidth:	30 Hz / 15 KHz
Subcarriers Frequencies (KHz):	7500; 8065 7020; 8590
Total Harmonic Distortion:	< 0.3 %

DEMODULATORS DEM70 - OPT DEM70

Base Band

Output Level ($\Delta f=8$ MHz pp at 1512 KHz):	1 Vpp
Bandwidth (ripple < 1 dBpp):	40 Hz /10 MHz
Output Return Loss:	< - 28 dB
Output Connectors:	BNC Female

Video

Output Level:	1 Vpp
Bandwidth:	40 Hz /6 MHz
Deemphasis:	CCIR 405-1
Differential Gain:	< 1 %
Differential Phase:	< 1 %
Weighted S/N:	> 70 dB
Group Delay (40 Hz/6 MHz):	< 10 ns
Return Loss Uscita:	< -28 dB
Output Connectors:	BNC Female

Audio

Number of Audio Channels:	2- 4
Output Level:	9 dBm default; 0-3-6 dBm (Sel.)
Output Impedance (Balanced):	50 OHM /600 OHM
Deemphasis:	50 μ s
Bandwidth:	30 Hz / 15 KHz
Subcarriers Frequencies (KHz):	7500; 8065 7020; 8590
Total Harmonic Distortion:	< 0.3 %

GENERAL

Electrical

Input Voltage:	AC 230V/115V \pm 10% 50/60Hz
Power Consumption:	DC 20V - 30V 20W

Compliance

CE Mark

Environmental:

Operating Temperature Range: -10 to 65 °C
Relative Humidity: 0 to 95%, non condensing

Physical

Cabinet MOD70 and DEM70:	Rack	19"	4U
Dimensions MOD70 and DEM70:	Width	482 mm	
	Height	177 mm	
	Depth	330 mm	
Cabinet MOD-SL and DEM-SL:	Rack	19"	1U
Dimensions MOD-SL and DEM-SL:	Width	482 mm	
	Height	44 mm	
	Depth	475 mm	

ORDERING INFO

FM Modulator

Option	Description
MOD70	Analogue Modulator 4U; 1 V + 2 A
MOD70 + OPT M4A	Analogue Modulator 4U; 1 V + 4 A
MOD70/P	Analogue Modulator 4U with integrated control unit for external RF head; 1 V + 2 A
MOD70/P + OPT M4A	Analogue Modulator 4U with integrated control unit for external RF head; 1 V + 4 A
OPT MOD70	Analogue Modulator 4U slot in for TMC-R series; 1 V+ 2 A
OPT MOD70 + OPT M4A	Analogue Modulator 4U slot in for TMC-R series; 1 V + 4 A

FM Demodulator

Option	Description
DEM70	Analogue Demodulator 4U; 1 V + 2 A
DEM70 + OPT D4A	Analogue Demodulator 4U; 1 V + 4 A
DEM70/P	Analogue Demodulator 4U with integrated control unit for external RF head; 1 V + 2 A
DEM70/P + OPT D4A	Analogue Demodulator 4U with integrated control unit for external RF head; 1 V + 4 A
OPT DEM70	Analogue Demodulator 4U slot in for TMC-R series; 1 V + 2 A
OPT DEM70 + OPT D4A	Analogue Demodulator 4U slot in for TMC-R series; 1 V + 4 A