

## Studio Links Microwave Analogue Links

MTL/M-P

MTL/S-P

MR/P

MR/S-P

MTL/M-UK

MTL/S-UK

MR2/UK

These Studio Transmitter Links operate on the following frequency bands: 1.400–2.700 GHz (European Band 1.377-1.382 GHz; 1.429-1.434 GHz; 1.517-1.525 GHz; 1.660-1.670 GHz; 2.367-2.372 GHz; 2.468-2.483 GHz.)

The MTL equipment are suitable for transmitting a high-quality mono or stereo audio signal for broadcasting with output power up to 5 W.

In the Transmitter there are no tuned circuits or adjustable components for tuning onto the required frequency. Also, since all the circuits are wide band,

the absence of spurious emissions is assured.

The frequency steps of the synthesised oscillator are 100 kHz.

In the UK version, a circulator ensures effective protection against possible intermodulation products caused by other transmitters feeding the same dish, and a low-loss band pass filter which restricts harmonic emissions to the levels in compliance with the strictest current standards.

It is also possible to power the equipment by using an external 24 Vdc battery.



- Same synthesised oscillator for the transmitter and the receiver.
- Comb line band pass filter to ensure image-frequency rejection exceeding 60dB.
- High sensitivity in mono is around 10mV per 60dB of S/N Ratio.

- Low phase and frequency distortion of the output base-band are ensured by the AGC, compensated filters, digital-pulse frequency demodulator, amplitude and phase equaliser and an elliptic low-pass filter with cut-off of 100 kHz.

CODE	MODEL	DESCRIPTION
F445.04	MTL/M-P	4 W Mono/MPX Microwave Transmitter with Output Filter
F445.05	MTL/M-UK	3,5 W Mono/MPX Microwave Transmitter with Circulator
F445.07	MTL/S-P	4 W Stereo Microwave Transmitter with Output Filter
F445.08	MTL/S-UK	3,5 W Stereo Microwave Transmitter with Circulator
F444.04	MR/P	Microwave Mono/MPX Receiver
F444.05	MR2/UK	Microwave Mono/MPX Receiver 1377-1382; 1429-1434 MHz
F444.07	MR/S-P	Microwave Stereo Receiver
AVAILABLE OPTIONS	Stereo coder & decoder - Circulator - Other frequency on request in the range from 1400 to 2700 MHz	

## Technical data

FREQUENCY		DESIGN DATA	
Modulation	solid state direct FM frequency synthesised crystal ref. thermal compensated	Pre & De emphasis	Flat or 75 or 50 $\mu$ s
Range	P Version: 1517÷1525; 1650÷1680; 2367÷2372; 2468÷2435 MHz UK Version: 1429÷1434; 1377÷1382 MHz	Amplitude response TX	(Mono) $\pm$ 0,15 dB (from 30 Hz to 15 KHz) - 40dB from 19 kHz to 100 kHz (MPX) $\pm$ 0,1 dB (from 40 Hz to 100 KHz) (SCA) 1 dB (from 20 KHz to 100 KHz)
System Capacity	1 stereo program or 1 mono program and one subcarrier (SCA)	Audio frequency response RX	(Mono) < 0,15 dB (from 30 Hz to 53 KHz); < -45 dB (from 19 kHz to 100 kHz) (MPX) < 0,2 dB (from 30 Hz to 53 KHz) < 1 dB (from 53 Hz to 75 kHz) < 3 dB (from 75 kHz to 100 kHz) > 40(from 120 kHz to 1 MHz)
Output frequency stability	Better than 2 ppm	Display Meter	Frequency, power output, voltage, temperature, lock, input level meter, input level set, pre-emphasis value, pre-emphasis set, carrier enable, temperature alarm set, -3dB power down alarm set
Setting	Directly digitally programmable on the front panel in 100 kHz steps	Protections	Alarm Frequency programming error Local oscillator locked in Heat sink temperature exceeds that set RF output power below 2,5 W (TX version) RF output power below squelch threshold (RX version) Power supply voltage of a module outside the permitted range
Fine frequency Adjustment	International multiturn trimmer		
RF OUTPUT SPECIFICATIONS VIDEO PERFORMANCE			
Harmonics suppression	< - 80 dBc		
Spurious Emission	< - 80 dBc		
Residual Asynchrony AM	> 60 dB Weighed		
Residual Synchrony AM	> 60 dB Weighed		
S/N RATIO (weighted)	> 70 dB (referred to $\pm$ 75 KHz)		
Distortion	0.05% or less for 75 kHz FM deviation		
Probe	BNC connector RF 0 dBm; BNC connector LF 12 dBm		
AUDIO SPECIFICATIONS			
Mono/MPX Impedance	600 Ohm bal. or 10 KOhm unbal., XLR female Connector		
SCA Impedance	10 KOhm unbal., BNC Connector		
Mono/MPX SCA Level	From 0 to + 12 dBm		
Left, and Right Impedance	600 Ohm bal. or 10 KOhm unbal., XLR female Connector		
Left, Right Level	From - 6 to + 12 dBm		
Stereo Separation	> 60 dB (40 Hz to 15KHz)		
THD	< 0,15% From 30 Hz to 15 KHz with de-emphasis		
RECEIVER SPECIFICATIONS			
Selectivity Static	3 dB @ $\pm$ 150 KHz; 60 dB @ $\pm$ 450 KHz; 80 dB @ $\pm$ 600 KHz		
Selectivity Dynamic	$\pm$ 300 KHz @ +5 dB; $\pm$ 400 KHz @ +38 dB; $\pm$ 500 KHz @ +40 dB		
Sensitivity Mono (deviation $\pm$ 75 KHz)	15 mV (S/N = 60 dB with bandwidth = 30 ÷ 15 KHz)		
Sensitivity Stereo (deviation $\pm$ 75 KHz)	150 mV (S/N = 60 dB with bandwidth = 30 ÷ 15 KHz decoded, de-emphasis)		
		REMOTE CONTROL	
		Output Connector	DB9 connectors (command - CD: transmitter power ; RX: RS232 signal; TX: RS232 signal; ALL1 & ALL 2: alarm output signal; GND: earth ;
STANDARDS COMPLIANCE			
Radio spectrum	ETSI 300-384		
EMC	ETS 449, ETS-339, ETS-384, CCIR-450, CCIR-412, CCIR-559, CCIR-468		
Safety	EN 60950 - EN 60215		
R&TTE	Declaration of Conformity with regards to the Directive 1999/5/EC		
TEMPERATURE			
Nominal range	0° to 45° C (Meets ETS 300 019 requirements)		
Storage range	- 30° to 50° C		
Maximum relative Humidity	90% non condensing		
Max Operating Altitude	2500 mt. a.s.l.		



SPECIFICATIONS	MTL P	MTL UK	MR P	MR UK
Rf output power	5 W	5 W		
Output Connector	N Type Female 50 Ohm	N Type Female	N Type Female 50 Ohm	N Type Female
Dimensions (W x H X D) mm	482 x 88 x 500	482 x 884 x 500	482 x 88 x 500	482 x 884 x 500
Weight	12 Kg	12 Kg	12 Kg	12 Kg
Power consumption	Approx. < 130 VA	Approx. < 130 VA	Approx. < 130 VA	Approx. < 130 VA
Nr. of power supply	1 from 230 V a.c. $\pm$ 10%	1 from 230 V a.c. $\pm$ 10%	1 from 230 V a.c. $\pm$ 10%	1 from 230 V a.c. $\pm$ 10%
DC Power Supply	24 V (18-26 V)	24 V (18-26 V)	24 V (18-26 V)	24 V (18-26 V)
Cooling	Forced Air	Forced Air	Forced Air	Forced Air