

OTMS-II 5-42MHz MULTIPLEX SYSTEM LASER PRO II SERIES

Features / Benefits

- Frequency agility with microprocessor control
- The EIGHTEEN-BAND MULTIPLEX SYSTEM is used to up-convert eighteen (5 to 42MHz) bands into one laser transmitter
- Up to FOURTEEN model **UC-42** Up-Converter modules can be housed in the model **OTMS-II** MAINFRAME
- The model **DC-42** Down-Converter module receives and then de-multiplexes the combined bands into eighteen separate (5-42MHz) outputs
- Excellent phase noise performance for transmitting of 64 QAM modulated carriers
- Input to output phase lock throughout the entire system
- Excellent dynamic range that typically exceeds the performance of the optical system
- Band edge pilot for each channel to control end to end gain
- High level Image Reject mixers
- Eighteen times the available bandwidth per subscriber over a single optical return
- Superior performance while maintaining cost effectiveness
- Modular platform design for efficient usage of space



The **Eighteen-Band (5 to 42MHz) Converter System** is made up of three key units. They consist of an up-converter model **UC-42** that multiplexes up to eighteen 5MHz to 42MHz return bands into one fiber or coaxial in the frequency band of 4.5MHz to 883.5MHz, a down-converter model **DC-42**, that de-multiplexes the combined band into eighteen 5 to 42MHz outputs, and the model **OTMS-II** Mainframe that acts as a common platform for both the downstream / upstream converters.

OTMS-II

Input Frequency Range.....	5 to 42MHz
Output Frequency Range	Block 1 ... 84.5 to 47.5MHz
	Block 2 ... 131.5 to 94.5MHz
	Block 3 ... 178.5 to 141.5MHz
	Block 4 ... 225.5 to 188.5MHz
	Block 5 ... 272.5 to 235.5MHz
	Block 6 ... 319.5 to 282.5MHz
	Block 7 ... 366.5 to 329.5MHz
	Block 8 ... 413.5 to 376.5MHz
	Block 9 ... 460.5 to 423.5MHz
	Block 10 .. 507.5 to 470.5MHz
	Block 11 .. 554.5 to 517.5MHz
	Block 12 .. 601.5 to 564.5MHz
	Block 13 .. 648.5 to 611.5MHz
	Block 14 .. 695.5 to 658.5MHz
	Block 15 .. 742.5 to 705.5MHz
	Block 16 .. 789.5 to 752.5MHz
	Block 17 .. 836.5 to 799.5MHz
	Block 18 .. 883.5 to 846.5MHz
Input RF Level	+30dBmV per carrier (6 carriers).
Output Carrier Level	+42dBmV per carrier. (6 carriers)
Gain	+4 to +12dB with front panel control
Internal Pilot	4.5MHz \pm 50Hz, -20° to 60°C
Pilot Level	-5dB relative to a reference carrier of +30dBmV at the input to the up-converter.
Gain Variation with temperature	< 2.5dB. -20 to 60 C compensated by thermal equalizer in the combiner/filter and by AGC in the down-converter.
Phase Noise	< -62dBc/Hz @ 1kHz offset < -92dBc/Hz @ 10kHz offset
LO Phase Modulation Spurs	< -60dBc
In Block CNR	> 58dB for an input carrier of +30dBmV maximum gain in 4MHz bandwidth.
Noise Power Ratio	>48dB for input levels between -46 and -30dBmV/Hz
Out of Block Noise	<-70dB relative to a reference carrier of +30dBmV at the input to the up-converter, in a 4MHz bandwidth.
In Block Spurious	< -60dBc relative to a reference carrier of +30dBmV at the input to the up-converter.
Out Of Block Spurious	< -58 dBc relative to a reference carrier of +30dBmV at the input to the up-converter.
Image Side Band Rejection	>60dBc, 15 to 42MHz >55dBc, 5 to 15MHz
Input Return Loss	>16dB, 5 to 42MHz, 75 Ω
Output Return Loss	>15dB, 45 to 883.5MHz, 75 Ω
Input and Output Connectors	Type F
Composite Distortion	<-58dBc. Below 6 carriers at +30dBmV at the input to the up-converter.
Mounting	OLSON TECHNOLOGY INC. model OTMS-II Chassis. Holding up to 18 UC Up-Converter or DC Down-Converter.
Alarms	Phase Lock, Power, compatible with OTMS-II Chassis.

OTMS-II

Input Frequency Range.....	47.5 to 883.5MHz
Output Frequency Range	5 to 42MHz
Input RF Level	+15dBmV/Carrier. Six carriers per block, 18 blocks.
Output RF Range	+38dBmV/carrier. Six carriers at maximum gain.
Gain	17 to 23dB by front panel control.
Gain Variation with Temperature	<1.5dB @ 0° to 50°C
Phase Noise	<-62dBc/Hz @ 1kHz offset <-92dBc/Hz @ 10kHz offset
LO Phase Modulation Spurs	<-60dBc
In Block CNR	>58dB for an input carrier of +15dBmV maximum gain, in 4MHz bandwidth.
Noise Power Ratio	>46dB for input level between -61 and -45dBmV/Hz.
Out of Block Rejection	>60dBc
Input Return Loss	>12dB from 45 to 883.5MHz.
Output Return Loss	>15dB from 5 to 42MHz
Test Point Connectors	Type F
Test Point Level	-20 ± 1dB relative to the output.
Composite Distortion	<-58dBc below six carrier output of +38dBmV.
Mounting	OLSON TECHNOLOGY INC. model OTMS-II rack mount chassis. Holding up to 14 DC Down-Converters.
Alarms	Phase lock power compatible with OTMS-II Chassis.

UC-42 and DC-42 Back To Back Performance

Amplitude Variations	4dB/MHz, from 5 to 10MHz 0.5dB/MHz, from 10 to 40MHz 1.5dB/MHz, from 40 to 42MHz
Envelope Delay	<40ns/MHz, from 5 to 10MHz <10ns/MHz, from 10 to 40MHz <20ns/MHz, from 40 to 42MHz
Frequency Error	0Hz . Down Converter LO is phase locked to up-converter pilot.
Phase Noise	<-59dBc/Hz @ 1kHz offset <-89dBc/Hz @ 10kHz offset
NPR dynamic range for NPR ³ 42dB, without optical path	>15dB One block varying in level , 17 are stationary. >12dB All blocks varying in level.
NPR dynamic range for NPR ³ 41dB including optical path	>13dB, One block varying in level , 17 are stationary. >7dB, All blocks varying in level. ELLT RF input -59dBmV/Hz Optical received power +2dBm U/C nominal input - 44dBmV/Hz D/C nominal input - 60dBmV/Hz

OTMS-II MAINFRAME



The **OTMS-II MAINFRAME**, model **OTMS-II**, makes efficient use of rack space (8.75”H x 19”W x 20”D) while housing, powering and routing status information between the up-converters and down-converter modules of the Multiplex System. It is a common platform for both the downstream / downstream modules. Several power systems are available. Although fans, blowers, and rack spacers are not usually required.

Eighteen Band Multiplex System

