# WARRANTY

All fiber optic transmission systems, products and accessories manufactured by Liteway, Inc. and it's subsidiaries are fully tested prior to shipment and are warranted against defective materials and workmanship for a period of five full years from the date of the original shipment. Should a problem occur, a Return Material Authorization Number (RMA) must be obtained from Liteway Inc. at (516) 931-2800 and the item returned to Liteway, Inc. 166 Haverford Road, Hicksville, NY 11801, USA, prepaid. Liteway Inc. will then, at its option repair or replace the defective item.

Liteway, Inc. maximum liability under this warranty is limited to the cost of the defective item only. No contingent liabilities of any kind are either assumed or implied.

Any items returned to Liteway, Inc. that have been misused, abused, damaged, modified, connected or adjusted in any way contrary to the instructions furnished by Liteway, Inc. or repaired by unauthorized personnel will not be covered by this warranty. Any non-warranty repairs required will be quoted at the current rate for such services.

## Important Notices

**CAUTION ! AVOID DIRECT EXPOSURE TO BEAM.**
All -7,-8, and -9 Models use laser diodes. These solid-state laser diodes are located in the optical ports of these units. Laser diodes produce invisible radiation that may be harmful to human eyes. Never look directly into the optical port of any fiber optic unit designed to operate with single-mode optical fiber.

**NOT FOR LIFE SUPPORT SYSTEMS**
Liteway, Inc. does not authorize or warrant any of its products or accessories for use in critical life support systems or applications of any kind.





# OPERATING INSTRUCTIONS


***10 MHz Sine-Wave***

***Distribution Amplifier***

***INSM-2104***

The INSM-2104 is a distribution amplifier that accepts a precision 10 MHz sine-wave input signal and produces four individual electrical output signals for distribution over four separate coaxial cables.

## Technical Specifications

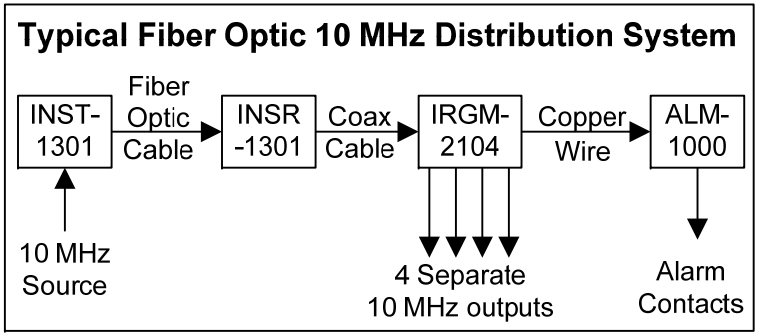
| | |
|---|---|
| System Bandwidth/channel | 10 MHz |
| Input/Output Impedance | 50 ohms |
| Input/Output Signal Level | 1V rms (3 volts pp) |
| Harmonic Levels* | -50dBc typically |
| Output Channel Isolation | >40 dB |
| Propagation Delay | 5 nanoseconds |
| Skew between outputs | 0.5 ns typical |
| Signal Connectors | BNC |
| Number of Outputs | 4 channels |
| MTBF | >100,000 Hours (MIL-HDBK-217) |
| Temperature Range | -35º to +75ºC |
| Power Requirements | 11-24 VAC/DC @350 mA |
| Physical Size (mm) | 5.0"(127)Lx3.0"(76)Dx1.0"(25.4)W |

* The INSM-2104 will only degrade the harmonic levels of an input signal by less than 5dB. For example, an input signal with a third harmonic level of -60dBc will result in an output signal with a third harmonic level of less than -55dBc.

All specifications are subject to change without prior notice.

# Installation Instructions

The diagram below shows the typical installation of the INSM-2104 as used for 10 MHz sine-wave distribution.




The INSM-2104 provides four electrical outputs. Multiple INSM-2104 units may be “daisy-chained” when more than 4 output channels are required.

## Input Considerations

The INSM-2104 is DC coupled so any signals with significant DC offsets will pass through the unit and may degrade the harmonic content specifications. As a result for best results input signals must either be symmetrical around 0 volts or AC coupled..

Signals greater than 1 volt rms (3 volts pp) may be clipped by the unit.

Since the INSM-2104 contains an integral 10 MHz low pass filter to aid in "cleaning up" high harmonic content signals. Signals more than a few percent of 10 MHz will be significantly attenuated.



## Removable Terminal Block Power Connections

| Pin | Function |
|---|---|
| 1 | Alarm output for use with optional Alarm Sensing Unit ALM-1000. No other connections should be made to this terminal |
| 2 | +11 to 24 DC or AC Volts input |
| 3 | AC or DC return (Common to Housing) |

Be certain to check all connections, settings and voltages before applying power

## Indicator Lights

| Indicator | Lights when |
|---|---|
| Pwr | Proper power is present. |
| Alrm | The loss of signal alarm is activated and there is no 10 MHz signal present to transmit or the level of the input signal is less than 0.1 volts |
| Sig | A valid 10 MHz sine-wave signal is present. |

## Front Panel DIP Switch

The **Alarm** switch portion of the front panel DIP switch is used to turn the alarm function on and off as desired.