Fiore Industries Inc.
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Data Sheet: 1310B (November 2017)

Passive Integrator 0.1µs to 10µs

Specification Summary

Parameter	Time Constant Value(s)			
Standard Time Constants	0.1 µsec	0.2 µsec	1.0 µsec	10.0 µsec
Model Numbers*	FPI-15	FPI-22		FPI-30
Input Impedance	50 ohms			
Load Impedance	≥500k Ohm in parallel with ≤10pF			
Maximum transient input	±500 Vpeak at 100ns maximum duration			
Maximum CW Input	1.6 Watt (9 Vrms)			
Connectors, Input/Output	SMA(F)/SMA(M)			

* FPI-XX, where XX indicates use with ODT-15, -18/22 or -30 transmitters.

Active Integration with the ODS-1500 & 1800/2200 Systems

Active integration is achieved when the passive integrator is used in conjunction with the 1M Ohm input buffer of the ODT-15 and ODT-18/22 transmitters. The passive integrator has an approximate first order frequency roll-off of 20dB/decade (or 6dB/octave) as shown in the graph below. The FPI series integrators are designed for use with specific Optical Transmitter types. FPI-15 integrators should not be used with ODT-18/22 Transmitters and vice versa.

Important Note: The 1M Ohm input buffer in the ODT-18/22 transmitter has a maximum input signal level of about 1.4Vp-p (or ±0.7Vpeak). For long duration pulses, where the low frequency

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content of the pulse is not integrated, the system gain range must be limited to between +50dB and -7dB to avoid saturation of the 1M input buffer stage.

Measurement Procedure with D-dot and B-dot Sensors

Start by attaching the passive integrator to one input of the ODT-18/22 transmitter. Then connect the sensor output to the input of the passive integrator via a 20dB in-line attenuator - the attenuator may be removed for measurements in low field strengths.

1) Select the appropriate transmitter input, with 1M input impedance and a system gain of -7dB.
2) Carry out the first EM pulse measurement to establish the correct level of system gain required.
3) If the peak signal output from the receiver is much lower than the full scale output level of ±320mVpeak, then increase the system gain appropriately until the peak pulse amplitude is closer to full scale on subsequent tests.
4) If the receiver output signal amplitude is greater than ±320mVpeak at -7dB system gain, then the value of the in-line attenuation must be increased - typically from 20dB to 40dB.

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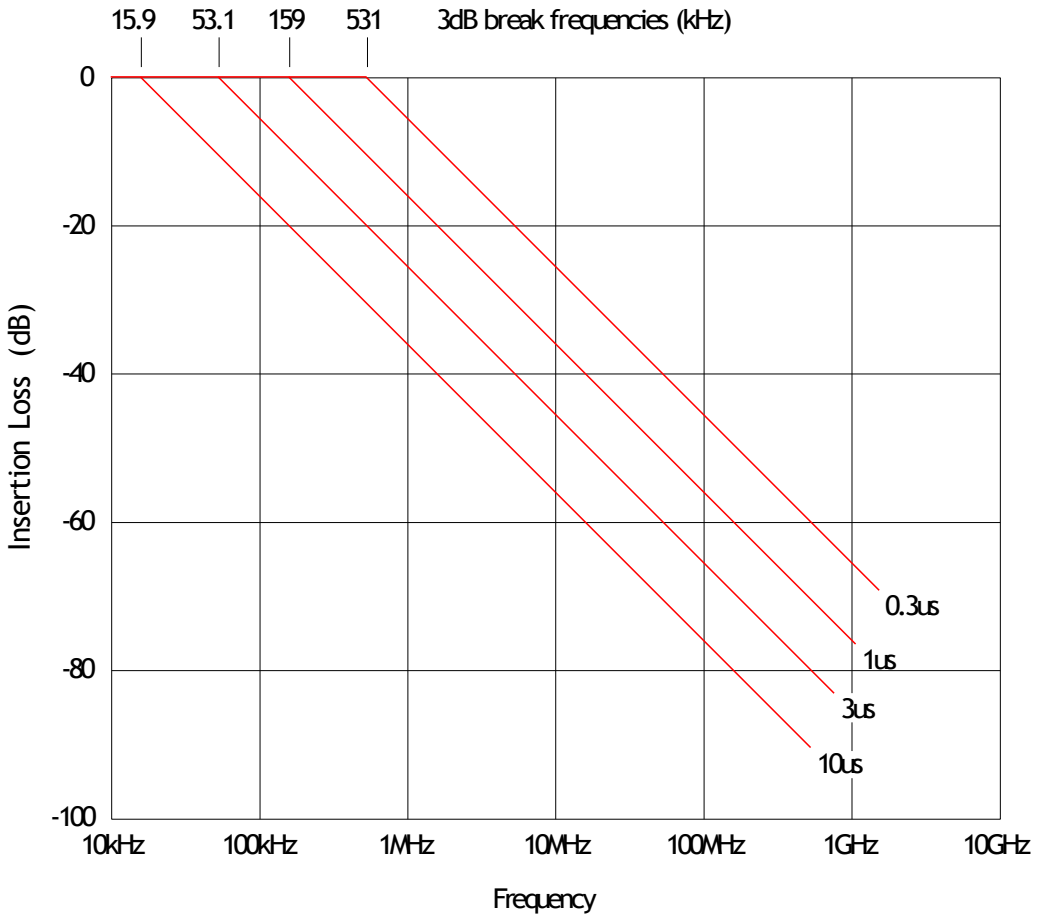

Typical insertion loss characteristic for each of the standard FPI time constants when combined with the 1M Ohm input buffer of the ODT-18/22 transmitter (idealized responses)