

Series 3000 Radar Range Simulator is designed for radar test, wireless communications, Wi-MAX, and altimeter applications.

Product Applications

- Radar target simulation
- Signal processing
- Extension of radar range sites
- Phase noise measurements

Configure Now



Series 3000 Radar Range Simulator

The Eastern OptX Series 3000 Radar Range Simulator is a high performance, turnkey solution for the radar test industry. The Series 3000 provides multiple programmable delays with front panel and/or remote computer control. It features ultra wide bandwidth, low loss, high isolation, and high dynamic range. Available with time delays up to 500 μ sec (longer delays possible) and a top end frequency of 40 GHz.

Technology Features

The Eastern OptX fiber optic technology overcomes the shortcomings of conventional schemes such as acoustic, digital, and coaxial transmission line delays including:

- Quantization Errors
- Triple Transit Time
- Dispersion

System Features

- Easy, reliable operation
- Up to 8 switchable delays
- Available for L, S, C, X and Ku radar bands (0.1 to 40 GHz)
- Progressive and discrete configurations
- Accurate amplitude balance
- External delay option
- Stable and repeatable performance
- Built In Self Test
- Doppler Generator

Reliability

- Reliability of > 200,000 hours of operation in field environments



Series 3000 Radar Range Simulator



Series 3000 Specifications

Parameter	Specifications	Notes
Delay Accuracy	1 %	Optional 0.1%
Delay Repeatability	0.01%	At constant Temperature
System RF Gain *	6 dB (0.1 dB/us delay loss)	Typical, 50 μ s delay, 5 GHz
VSWR	2 : 1	Maximum
Spurious Free Dynamic Range	100 dB/Hz ^{2/3}	Minimum
1 dB Input Compression	-15 dBm	Minimum
Noise Figure	25 dB	Maximum (Lower NF optional)
Input/Output Impedance	50 Ω	Nominal
Dimensions	19" Rack Per EIA-310-D	2U—5U, 18" - 22" depending on design

Series 3000 Options

Feature	Options / Description
Frequency Range	0.1 to 3, 4.5, 6, 11, 13, 15, 18, or 40 GHz
Number of Delays	2 to 8 (see System Detail Worksheet)
Delay Values	0.1 to 500 μ sec (Longer delays possible)
Delay Configuration	Discrete (Individually, selectable cells), or Progressive. (2n possible combinations of user selectable cells)
Remote Control	Ethernet, TTL, USB, GPIB, None
Front Panel Control	Rotary Switch, LCD Touch Screen, Keypad, Toggle, None
RF connector	Type N or SMA (Jack (F)), Other connector types available.
Bypass	Yes / No. (Bypasses optical path)
Amplitude Control	Yes (< 0.5 dB total) / No (< 0.06 dB/ μ sec for the longest delay), (Delay to delay amplitude variation, contact Eastern OptX for control options)
External Delay	Yes / No (Optical ports provided for user connected, external fiber optic delay line)
Power Meter	Yes / No (Built-in, average RF power meter)
Switching Speed	< 10 ms, (Remote control delay switching speed)
BIT and Doppler	Built In Self Test (BIT), and Doppler Generator





Series 3000 Radar Range Simulator



Series 3000 Part Number Configurator

Custom Options: (1) Yes or (0) No

- Travel Case
- Phase Inverter
- Phase Modulator
- Multi-path Simulator
- Distance Propagation Loss Simulation
- Frequency Counter

Built In Self Test: (1) Yes or (0) No

Doppler*: (1) Yes or (0) No

Switching Speed: (1) <100 ms or (0) <10 ms

Power meter: (1) Yes or (0) None

External Delay: (1) Yes or (0) No

Amplitude Control: (1) Yes or (0) No

Bypass: (1) Yes or (0) None

RF Connectors: (N) N or (S) SMA or (K) K

Part
Number

3 3 0 4 - D 3 3 S 1 - 1 0 1 1 0 1 0

Front Panel Control: (1) Rotary Switch (2) Touchscreen
(3) Keypad (4) Toggle
(0) None

Remote Control: (1) USB (2) TTL (3) Ethernet
(4) GPIB (0) None

Delay Configuration: (P) Progressive or (D) Discrete

Number of Cells: (2), (3), (4), (5), (6), (7), (8)

Power Option: (0) 120 VAC 60Hz or (1) 230 VAC 50Hz

Frequency Range: (0) 0.01 to 3 GHz (5) 0.1 to 15 GHz
(1) 0.1 to 4.5 GHz (6) 0.1 to 18 GHz
(2) 0.1 to 6 GHz (7) 1 to 40 GHz
(3) 0.1 to 11 GHz
(4) 0.1 to 13 GHz

Series:

- (1) Single-Delay Radar Range Simulator
- (3) Multi-Delay Radar Range Simulator
- (6) Altimeter Test Set

*Contact Eastern OptX for more information



Series 3000 Radar Range Simulator



Delay Configuration Options

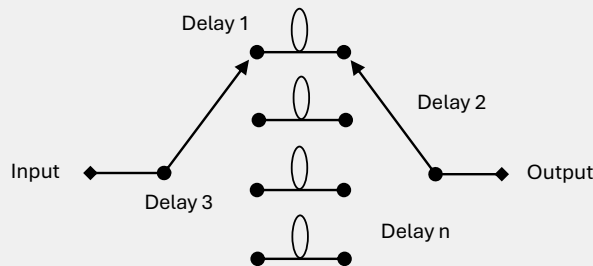
Progressive Delay

- Best solution for equally spaced delay step sizes
- Numerous possible delay combinations (Binary: 1, 2, 4, 8 etc.)
- More delays in a smaller package
- 1% overall accuracy

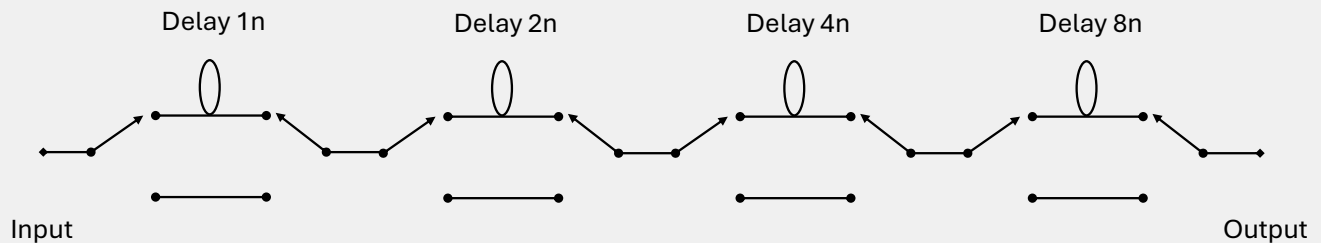
Discrete Delay

- Best solution for few delays or unequal delay steps sizes
- One to eight delays typical
- Better than 0.1% accuracy possible

Discrete Delay



Progressive Delay



Cell Delay Feature

- Up to eight (8) switchable delays can be configured separately
 - When ordering, let the Eastern OptX salesperson know the desired total round-trip delay for each cell (in μsec)
- Example: Delay 1 ($5 \mu\text{sec}$), Delay 2 ($8 \mu\text{sec}$)...