

EO Series 3000 Delay Line RADAR Range Simulator



Product Summary

Description

The EO 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

EO 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

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 (Page 5)
- Accurate amplitude balance
- External delay option
- Stable and repeatable performance

Applications

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

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Product Details

Parameter	Specification	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

Available Options

* Contact Factory for More Information

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. (2 ⁿ possible combinations of user selectable cells (See Page 5))
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 factory 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

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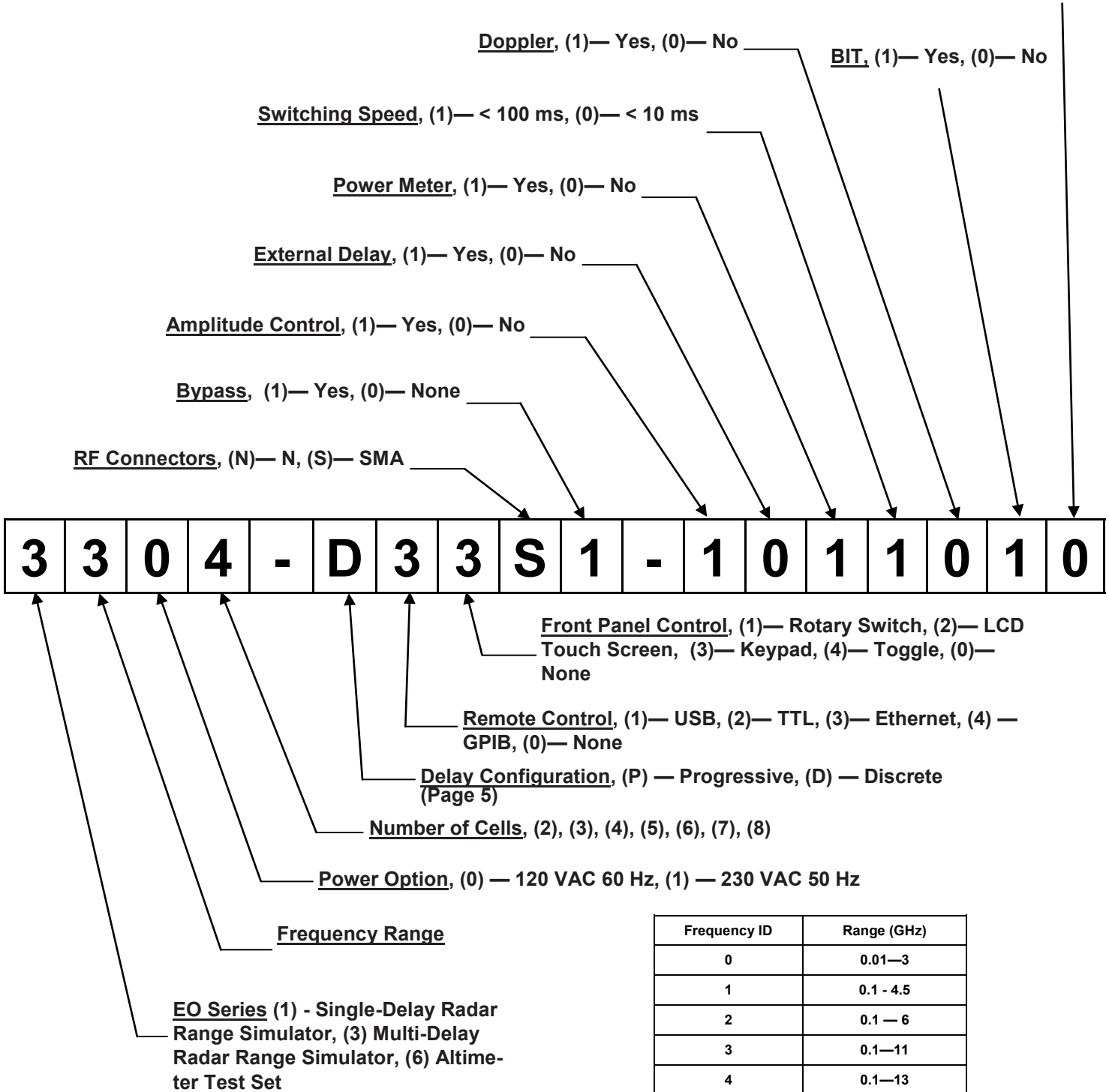
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Part Number Description

Custom Option (See System Detail Worksheet), (1)— Yes, (0)— No



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

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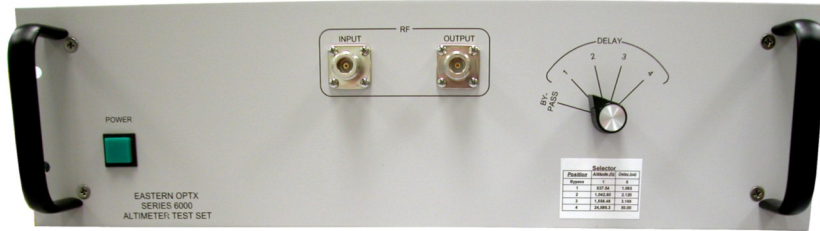
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EO Series 3000 Delay Line RADAR Range Simulator

System Detail Worksheet



Feature	Description
Delay	Enter the desired total round-trip delay for each cell (µsec)
Delay 1	
Delay 2	
Delay 3	
Delay 4	
Delay 5	
Delay 6	
Delay 7	
Delay 8	
Typical Custom Options: <ul style="list-style-type: none"> • Travel Case • Phase Inverter • Phase Modulator • Multi-path Simulator • Distance propagation loss simulation (manual and auto mode) • Frequency Counter 	

Part Number

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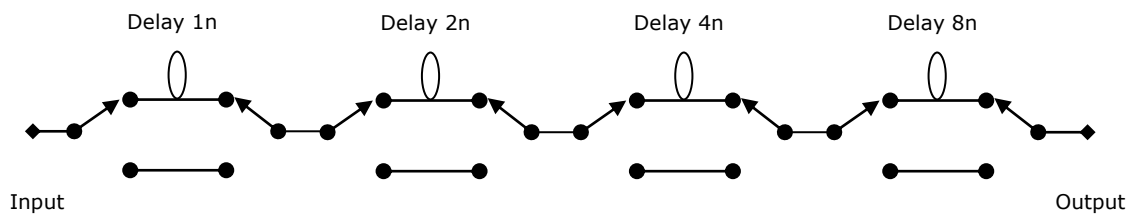
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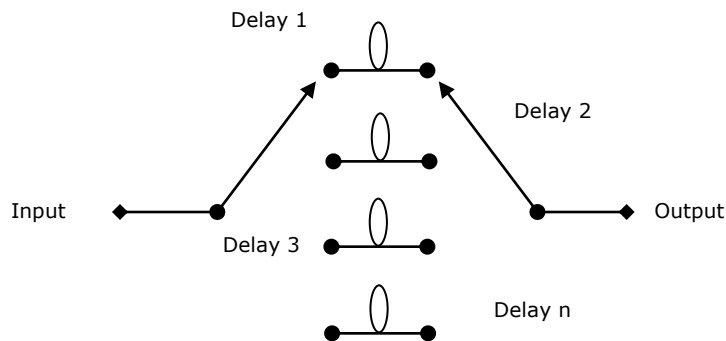


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Delay Configuration



Progressive Delay Configuration



Discrete Delay Configuration

Progressive:

- Best solution for equally spaced delay step sizes
- Numerous possible delay combinations (Binary: 1, 2, 4, 8 etc.)
- More delays in a smaller package
- BIT (Built In Self Test)
- Doppler Generator (Contact Factory for details or see Series 5000 Data Sheet)

Discrete:

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

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