



Series 1100 Radar Target Simulator

Bringing the Test Range to Your Test Bench

Product Summary

Introduction

The Eastern OptX Series 1100 Radar Target Simulator is a true propagation path replicator. The Series 1100 receives the signal transmitted from a radar system and adds the round-trip propagation delay associated with the target distance. That signal is then output to the radar receiver. The radar I/O may be connected directly to the Series 1100 or received and transmitted with user specified antenna. For a moving target the system will add the appropriate Doppler shift associated with the target speed and Radar frequency. The Series 1100 is broad band with ranges up to 40 GHz with a dynamic range of over 100 dB.

The Series 1100 operates with pulsed, frequency hopping, or CW radars and with any encryption or modulation scheme. It is expandable in range and operation modes to accommodate new systems designs.



Standard System Features

- Replicates target distance and speed.
- Target distances from 1 to 100,000 m.
- Doppler frequencies from 0 to 50 kHz including sub-Hz steps
- Multipath (Clutter) Replicator Option
- Radar Target Cross Section Input
- Remote Control Interface
- Front Panel LCD Touch Screen Control
- External Delay Option for Future Expansion
- Propagation loss replication
- I/O Antenna Gain Input
- Longitude, Latitude, and Altitude Target Input Option
- Interferer Injection (Jammer)
- Target Movement Scenario Generator
- Programmable (SCPI Commands)
- Broadband performance (to 40 GHz)
- Synchronous and Free-Running Modes

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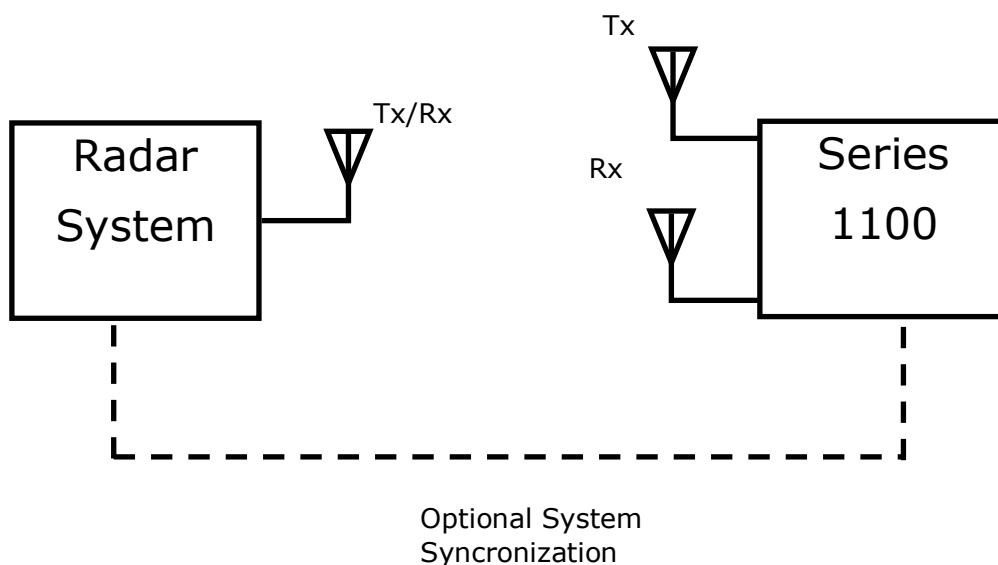
710 E. Main Street · Moorestown, NJ 08057 · 877 870 6789 (toll free) · 856-231-9022 (fax)

www.eastern-optx.com · sales@eastern-optx.com · CAGE Code 56N13

Radar Target Simulator

System Description

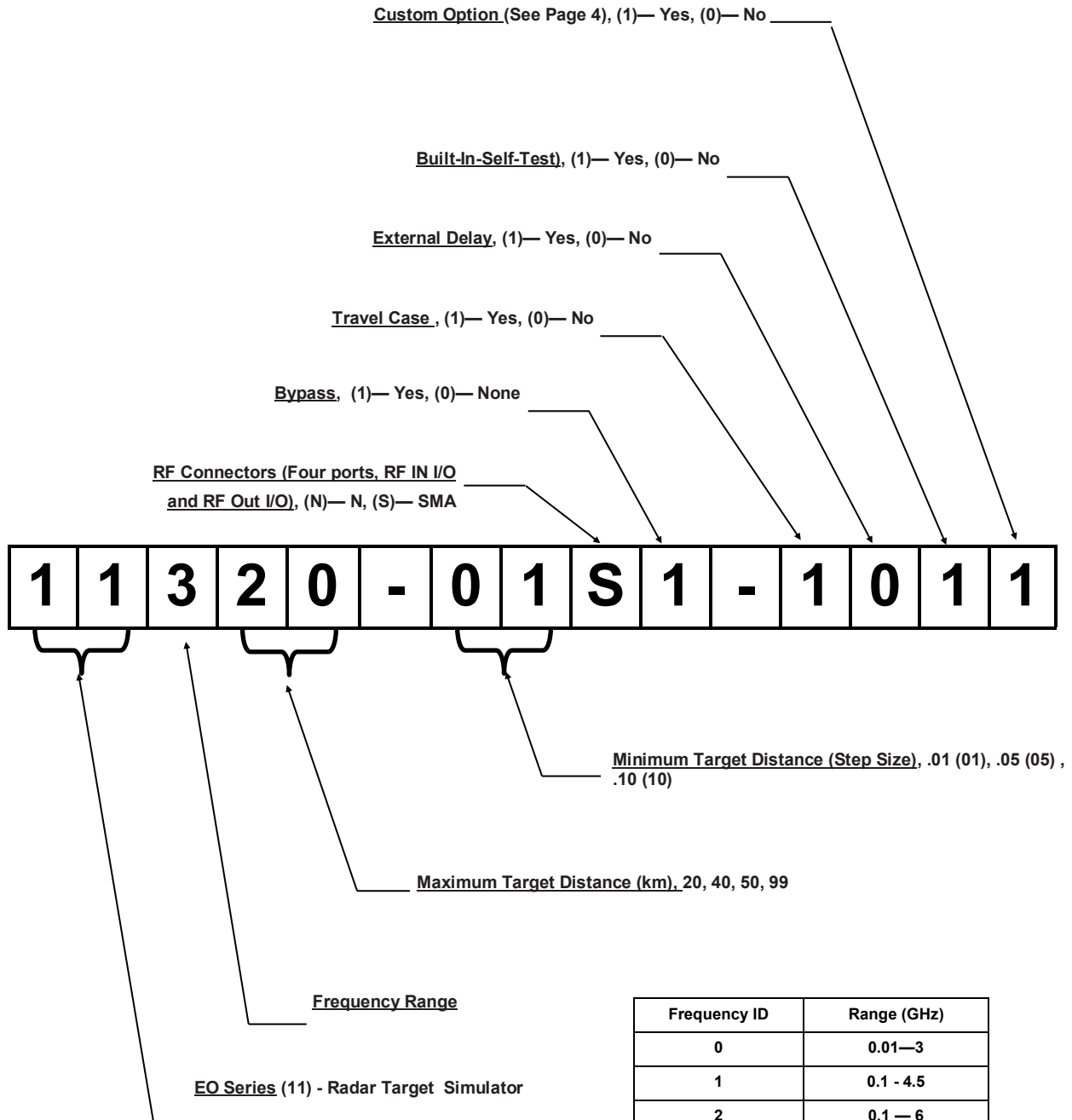
The block diagram below shows a typical Series 1100 System used with a common antenna radar system. The Series 1100 receives the signal transmitted from the radar, provides the necessary target delay, propagation loss, and Doppler, and then transmits back to the radar receiver. 60 dB of Input to Output Isolation is typical for most applications. Greater isolation is optional. Single antenna systems with octave band isolators are also available for specific radar bands. Direct RF connection to Radar and Series 1100 without external antenna is permissible and common. The System Operates with single antenna or phased array systems. Optional multiple target generation is available with single or multiple output emissions.



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Radar Target Simulator

Product Details

| Parameter | Specification | Notes |
|-----------------------------|--------------------------|--------------------------------------|
| Input/Output Isolation | 60 dB | Minimum |
| Accuracy | 1 % | Optional 0.5% |
| Repeatability | 0.1% | At constant temperature |
| Minimum System Loss | 0.5 dB/km | Typical, @ 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 (13 dB Typ.) | Maximum (Lower NF optional) |
| Input/Output Impedance | 50 Ω | Nominal |
| Dimensions | 19" Rack Per EIA-310-D | 2U—8U, 18" - 22" depending on design |

Typical System Options:

- Multipath (Clutter)
- Interferer Generator/Injector
- Radar Cross-Section Input
- Multiple Target Output
- Input/Output Signal Measurement and Display
- Call for special features
- Input/Output Antenna Probes

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