# Radar Phased Array Antenna Training System (add-on to the Radar Processor/Display)

8112507 (8097-60)

**LabVolt Series**

Datasheet


* The product images shown in this document are for illustration purposes; actual products may vary. Please refer to the Specifications section of each product/item for all details. Festo Didactic reserves the right to change product images and specifications at any time without notice.

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# Table of Contents

## General Description

The Radar Phased Array Antenna Training System is specifically designed to be used with the complete, pulse radar system that can be implemented with the Basic Radar Training System and the Radar Processor/Display. The training system includes a phased array antenna, a beam-steering control module, the necessary cables, and a comprehensive student manual that deals with the principles of electronically steered antennas.

* WARNING: This equipment is subject to export control. Please contact your sales representative to know if this product can be imported in your region.

Beam steering in the Radar Phased Array Antenna Training System is achieved using a microwave switch coupled to a Rotman lens and microstrip tapered slot array antennas. Beam steering control can be manual, continuous or radar PRF dependent. Scan speeds of up to 1080 scans/min can be achieved, thereby allowing the PPI display (sector scan) of the radar system to be refreshed at much higher rates than with a conventional mechanically rotated parabolic antenna. Targets can thus be followed in near real time.

The Radar Phased Array Antenna Trainer is fully compatible with the Radar Training System. It allows sector-scan operation with no antenna motion.

## List of Equipment

| Qty | Description | Model number |
|---|---|---|
| 1 | The Phased Array Antenna (Student Manual) | 580428 (38547-00) |
| 1 | Phased Array Antenna | 581966 (9612-00) |
| 1 | Phased Array Antenna Controller | 581968 (9613-00) |
| 1 | Accessories for the Radar Phased Array Antenna | 581987 (9690-E0) |

## List of Manuals

| Description | Manual number |
|---|---|
| The Phased Array Antenna (Workbook) | 580428 (38547-00) |
| Radar Training System (User Guide) | 8112390 |

## Table of Contents of the Manual(s)

**The Phased Array Antenna (Workbook) (580428 (38547-00))**

- 2-5 Maximum Scan Angle Measurement
- 2-6 Target Bearing Estimation
- 2-7 Target Speed Estimation

# Equipment Description

## Phased Array Antenna 581966 (9612-00)


The Phased Array Antenna is specifically designed to be used with the Radar Training System. It allows an horizontal sector to be scanned (azimuthal scanning) without any antenna motion. The antenna can be tilted 90° to demonstrate elevation scanning. The Phased Array Antenna consists of a microwave switch coupled to a Rotman lens and microstrip tapered slot array antennas. A built-in circulator allows simultaneous transmission and reception.

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### Specifications

| Parameter | Value |
|---|---|
| **Scan Width** | ±35° |
| **Number of Beams** | 16 |
| **Horizontal Beam Width** | 5 to 6° |
| **Gain** | 20 to 22 dBi |
| **RF Input and Output Impedance** | 50 Ω |
| **Control Input** | TTL |
| **Physical Characteristics** | |
| Dimensions (H x W x D) | 450 x 370 x 490 mm (17.7 x 14.6 x 19.3 in) |
| Net Weight | 7.5 kg (16.5 lb) |

## Phased Array Antenna Controller 581968 (9613-00)


The Phased Array Antenna Controller is used for beam steering control of the Phased Array Antenna (PAA). It allows the PAA to be operated in the following three different scan modes: manual, continuous, and PRF locked (radar PRF dependent). The beam sequence (i.e., the order in which the beams are scanned) can be either linear or pseudo-random, or consists of even-numbered beams only (skips over every second beam). A 3-digit display on the front panel of the Phased Array Antenna Controller indicates the number of the selected beam, the angular position of the beam or the scan speed.

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## Specifications

| Parameter | Value |
|---|---|
| **Scan Mode** | Manual, Continuous, and PRF Locked |
| **Scan Speed (Continuous Scan Mode)** | Selectable, 54, 90, 135, 270, 540, 810, and 1080 scans/min |
| **Beam Sequence** | Incremental, Pseudo-Random, and Even |
| **Trigger Inputs** | TTL |
| **Azimuth Output** | 10-bit TTL |
| **Control Output** | TTL |
| **Physical Characteristics** | |
| Dimensions (H x W x D) | 112 x 330 x 300 mm (4.4 x 13.0 x 11.8 in) |
| Net Weight | 3.2 kg (7.1 lb) |

## Accessories for the Radar Phased Array Antenna 581987 (9690-E0)

The Accessories for the Radar Phased Array Antenna contain two short SMA cables with built-in passive limiters, two low-loss long SMA cables, a 30 dB SMA attenuator, a DB25 cable, and a microwave absorbing pen.

Reflecting the commitment of Festo Didactic to high quality standards in product, design, development, production, installation, and service, our manufacturing and distribution facility has received the ISO 9001 certification.



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