

LeakMaster

DEFENDER

Technical Specifications



The Defender is a compact cost-effective pressure decay or vacuum decay leak test instrument. The 64-bit processor and 24-bit pressure transducer enable the unit to perform fast and accurate leak testing processes. Integration and setup are simple and straight forward, building confidence and eliminating confusion during day-to-day operations. Standard Ethernet IP® communications make startup and integration quick and efficient.

COMPACT. COST EFFECTIVE. *LEAK TESTING*



Light Mode



Dark Mode

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Features and Benefits

- Compact Design for Simple Integration
- High Resolution Pressure Detection
- -14.7 to 116 PSIG pressure ranges
- Automatic Calibration of Programs
- Occlusion Testing to check for obstructions
- Standard Ethernet IP® and USB/RS232 communications
- Self-Test Feature for easy diagnostics of internal manifold
- Exportable Graphing of each test cycle
- Ability to import/export all test parameters via USB

Enclosure

Compact design (10" w x 7" h x 7.5" d)
Mounting holes in the rear (4, 10-32 threaded holes)
Vesa Mounting Pattern
Electrical Connections on Left side of unit
Pneumatic Connections out the bottom of the unit
Designed and built to last in heavy industrial environments

Electrical Requirements

24VDC @ .75A
M12 Euro input connection

Pneumatic Requirements

Clean Dry Air or Nitrogen (.5 Micron Filtration)
Supply pressure must exceed test pressure

Test Port

Single Channel Only – 1 Port for testing
1/4" NPT female CPC quick connect

Discrete I/O

16 inputs (5-32 VDC sourcing)
16 outputs (24 VDC sourcing)

Communications

Ethernet IP® Standard (EDS file supplied)
USB/RS232 Ascii results output

Color Touch Screen

7" HDMI color touch screen
Touch inputs for programming and setup
Screen turns Green or Red for Pass/Fail status
Light/Dark Mode for user selectable viewing preferences

Processor and Resolution

64-bit CPU and 24-bit pressure transducer enables you to read up to 1000 scans per second.
Data points are averaged and interpolated to minimize noise and increase resolution and repeatability.

Graphing

Live Graphing can be viewed during test
Each test is graphed and stored in the results menu
User can zoom in on the graphs to view each step of the leak test cycle to optimize cycle times.
Graphs can be exported to USB as CSV files



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Test Programs

10 user selectable programs
Program 11 designed for Self-Test Mode
Each program can operate in different modes
Pressure or Vacuum Decay Mode
Occlusion Testing Mode (Blockage Test)
Touch screen programmable
Timers, Pressure Limits, and Reject Limits
Calibration Parameters
Units of Measurement
Selectable via user, Ethernet IP®, or Discrete I/O
Import/Export to USB flash drive
Multi-Level Users with Password Protection

Self-Test Program

Allows user to plug the unit to verify the instrument is leak free.
Useful tool for troubleshooting tooling and locating leak sources.

Program Calibration

Automatic routine teaches the instrument pressure curves of non-leaking part vs. a reject leak condition.
Automatically calculates test volume of the circuit.

Units of Measure

Pressure – PSIG, PSIA, kPa, Pa, Bar, mbar, in. H₂O, in. Hg., Kgf/cm²
Flow – sccm, sccs, slpm, slps
Time – seconds (0.001 increments)
All units can be programmed independently per program.

Password Protection

3 Level - Admin, Supervisor, Operator levels
Logged-In User is logged with each result

Data Logging

2,500 tests stored in memory
Exportable to USB flash drive
Each result consists of leak rate, test pressure, units of measure, programmed times, limits and calibration data.
Barcode reader integration capable of storing individual part numbers with leak test data.

Manual Precision Air Regulator

- Sensitivity to ¼" of water column.
- One regulator supplied with each instrument.

Pressure Regulator Ranges

Range: 0-2 PSIG
 .73-29 PSIG
 1.5-58 PSIG
 1.5-116 PSIG

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Bottom (Pneumatic Interface)



Left Side (Electrical Interface)

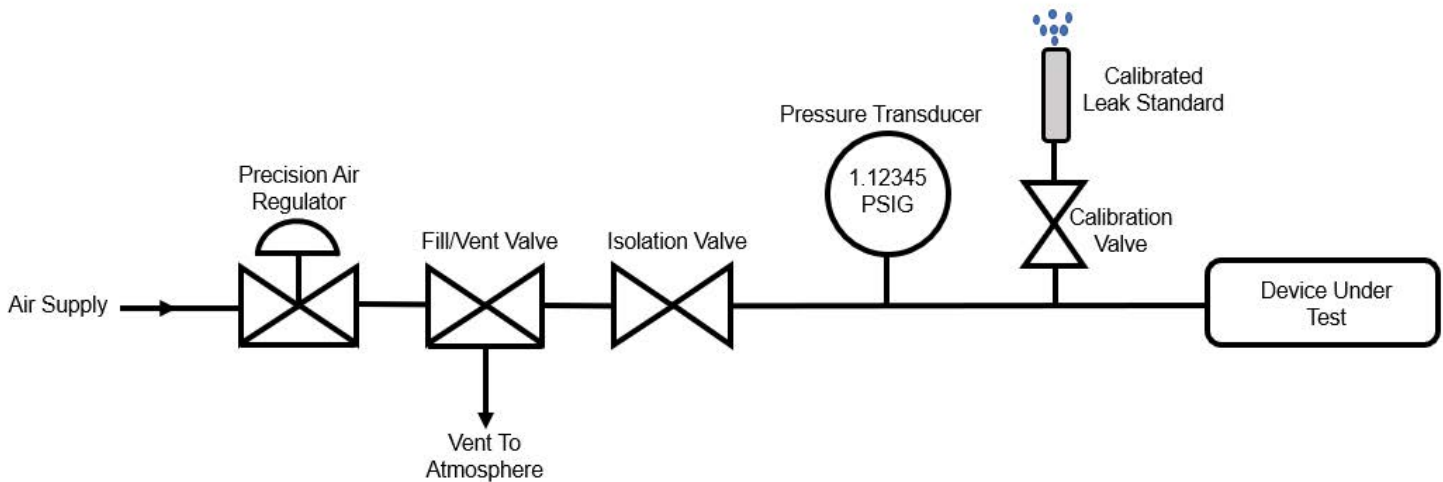
Pressure Transducer Options

Range	Measurement	Accuracy	Resolution
0-29 PSIA	-14.7 to 14.7 PSIG	.01% FS	.00001 PSIG
0-15 PSIG	0-15 PSIG	.01%FS	.00001 PSIG
0-60 PSIG	0-60 PSIG	.01%FS	.00001 PSIG
0-150 PSIG	0-150 PSIG	.01%FS	.0002 PSIG

Defender Available Test Types

Pressure Decay – volumetric leak rate (sccm)
 Pressure Decay – pressure loss/time
 Vacuum Decay – volumetric leak rate (sccm)
 Vacuum Decay – vacuum loss/time
 Occlusion Testing

Defender Internal Leak Test Manifold Pneumatic Setup



All internal valves are air-operated (pilot pressure required to operate) to minimize solenoid heat transfer into the tester manifold to maximize repeatability. Capable of multi-million cycles without maintenance intervention.

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Common Accessories:

Optional Calibrated Leak Standards

- Calibrated Leak Standards to simulate the reject leaking condition
- Used for calibrating programs (teaching volumetric leak rates)
- ISO17025 A2LA accredited calibration laboratory
- Flow Rate ranges from .5 to 100,000 sccm
- Pressure ranges from -14.5 to 150 PSIG
- Uncertainty $\pm 1.4\%$ of stated flow rate
- Manufacturing tolerance of $+1\%/-0\%$ of specified flow rate or .1 sccm (whichever is greater)



LM 120V

- Power Adapter to convert 120-240 VAC, 50/60 Hz, to 24VDC for instrument power.



LM APU

- LeakMaster Air Prep Unit Assembly. Includes manual lockout valve, filter regulator, and .5 micron coalescing filter to provide clean/dry air to the test instrument. Max output of 125



LM DEFMT

- Mounting Plate/Swivel Assembly



LM PRIMO STAND

- Mounting Stand
- Anodized Aluminum base plate (for mounting fixturing). 4 Bolt holes in base plate for fastening to a work table.
- Anodized Aluminum back plate for mounting LM APU
- Back Plate also has hole pattern for LM DEFMT swivel assembly

