

LeakMaster

GUARDIAN

Technical Specifications



The LeakMaster Guardian is a cost effective, configurable leak tester that is extremely accurate and user friendly. At only 12" wide the Guardian is well suited for a wide range of installations from lab environments and medical clean room applications to abusive environments. This leak tester instrument is equipped with a 10" touch screen! The Guardian is configurable for pressure decay, vacuum decay, dual channel, mass flow, differential pressure or occlusion testing. Guardian can also be totally controlled through slave mode over Ethernet IP via customer PLC.

POWER. PERFORMANCE. *SPEED*



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Features and Benefits

- High Resolution Pressure or Flow Detection
- -14.7 to 380 PSIG pressure ranges
- Automatic Calibration of Programs
- Quick Test Feature
- Occlusion Testing to check for obstructions
- Configurable to do any style of air leak testing
- Large 10" User Interface
- LED logo indicates Pass/Fail/Testing to easily inform the operator of test status
- High Flow Valves for quickly filling test parts
- Optional Ethernet IP® and USB/RS232 communications
- Slave Mode over Ethernet IP® for complete PLC control of the instrument
- Network Communications of JSON data export every cycle
- Discrete I/O for external 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

Dimensions (12"w x 12"h x 10.25"d)
VESA mounting holes in the rear (4, 1/4-20 threaded holes)
Electrical Connections on Left side of unit
Pneumatic Connections out the bottom of the unit
Designed and built to last in extreme industrial environments

Electrical Requirements

24VDC @ 1 A
M12 Euro input connection

Pneumatic Requirements

Clean Dry Air or Nitrogen (.5 Micron Filtration)
Supply pressure must exceed test pressure
Pilot Pressure must be above 80 PSI

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

Optional Ethernet IP® (EDS file supplied)
USB/RS232 Ascii results output, JSON file output over Ethernet

Color Touch Screen

10" HDMI color touch screen
Touch inputs for programming and setup
Screen turns Green or Red for Pass/Fail status
Pass/Fail status stands out to operator for easy indication

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
Graphs can be exported to USB as CSV files



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Test Programs

- 999 user selectable programs
- Program 11 designed for Self-Test Mode
- Each program can operate in different modes
 - Pressure or Vacuum Decay Mode
 - Mass Flow Optional (.01 sccm resolution)
 - Differential Pressure Optional (.000001 PSI resolution)
 - Occlusion Testing Mode (Blockage Test)
 - Dual Pressure Optional
 - Electronic Regulator Optional
- 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
- 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.



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Manual Precision Air Regulator

- Sensitivity to 1/4" of water column.
- Two Manual Regulators maximum

Manual Pressure Regulator Ranges

Range: 0-2 PSIG
.5-30 PSIG
1-60 PSIG
5-400 PSIG

Optional Electronic Air Regulator

- Sensitivity to .1 PSI

Electronic Pressure Regulator Ranges

Range: 0-14.5 PSIG
0-72.5 PSIG
0-145 PSIG
Higher Ranges available upon request

Standard Pressure Transducer Options

Range	Measurement	Accuracy	Resolution
0-15 PSIA	-14.7 to 3 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	0-100 PSIG	.01%FS	.0001 PSIG
0-380 PSIG	0-380 PSIG	.01%FS	.001 PSIG

Differential Pressure Transducer Options

Range	Measurement	Accuracy	Resolution
+/- 1.45 PSID	+/- 1.45 PSID	.01% FS	.000001 PSIG

Mass Flow Sensor Options

Range	Measurement	Accuracy	Resolution	Max Pressure
0-1000 sccm	-100 to 1000 sccm	+/- 1% of reading	.01 sccm	100 PSI
0-6000 sccm	-100 to 6000 sccm	+/- 1% of reading	.06 sccm	25 PSI
0-200 sccm	+/- 200 sccm	+/- 1% of reading	.066 sccm	25 PSI

Guardian 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
Mass Flow Testing
Differential Pressure Decay – volumetric leak rate (sccm)
Differential Pressure Decay – pressure loss/time
Metered Volume/Volumetric Fill (Testing Sealed Parts)
Dual Channel Pressure Decay

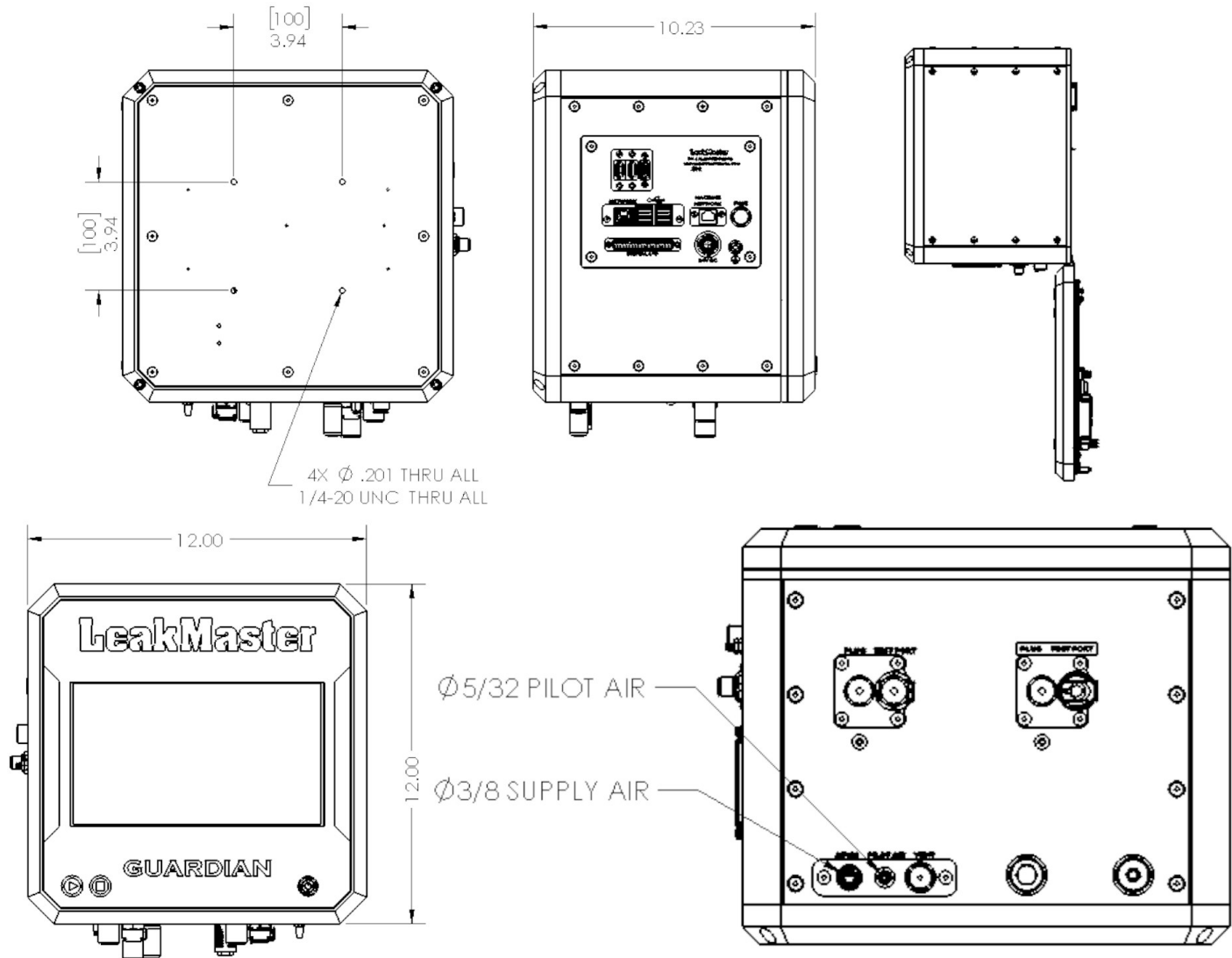
Optional Calibrated Leak Standards

- Calibrated Leak Standards to simulate the reject leaking condition
- ISO17025 A2LA accredited calibration laboratory
- Flow Rate ranges from .5 to 100,000 sccm
- Pressure ranges from -14 to 150 PSIG
- Uncertainty +/-1.4% of stated flow rate
- Manufacturing tolerance of +1%/-0% of specified flow rate or .1 sccm (whichever is greater)



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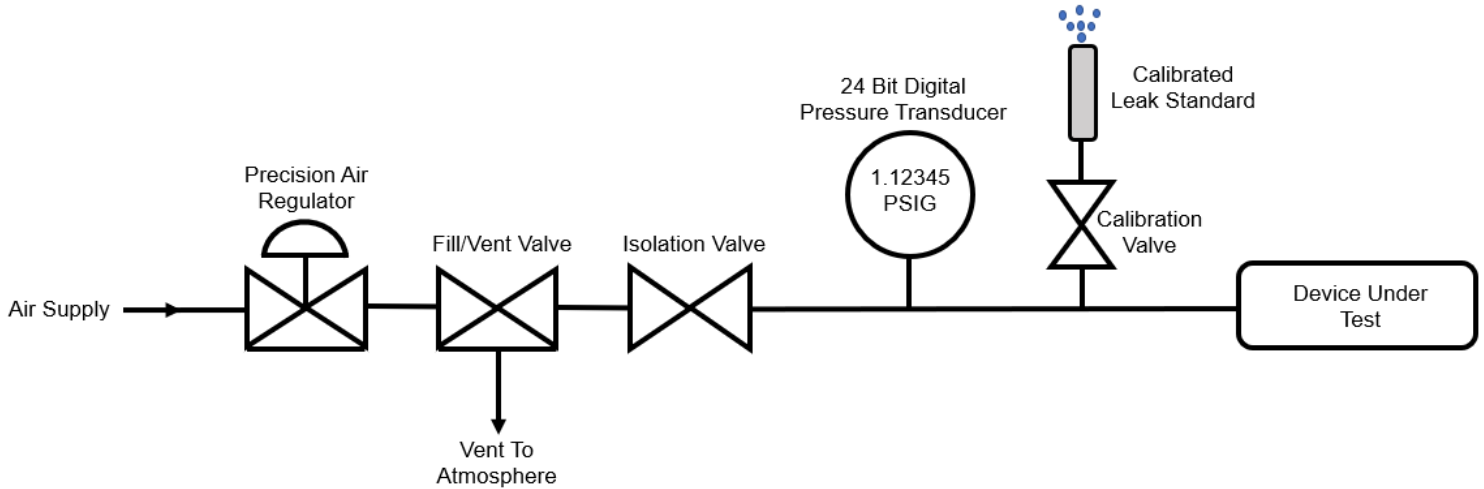
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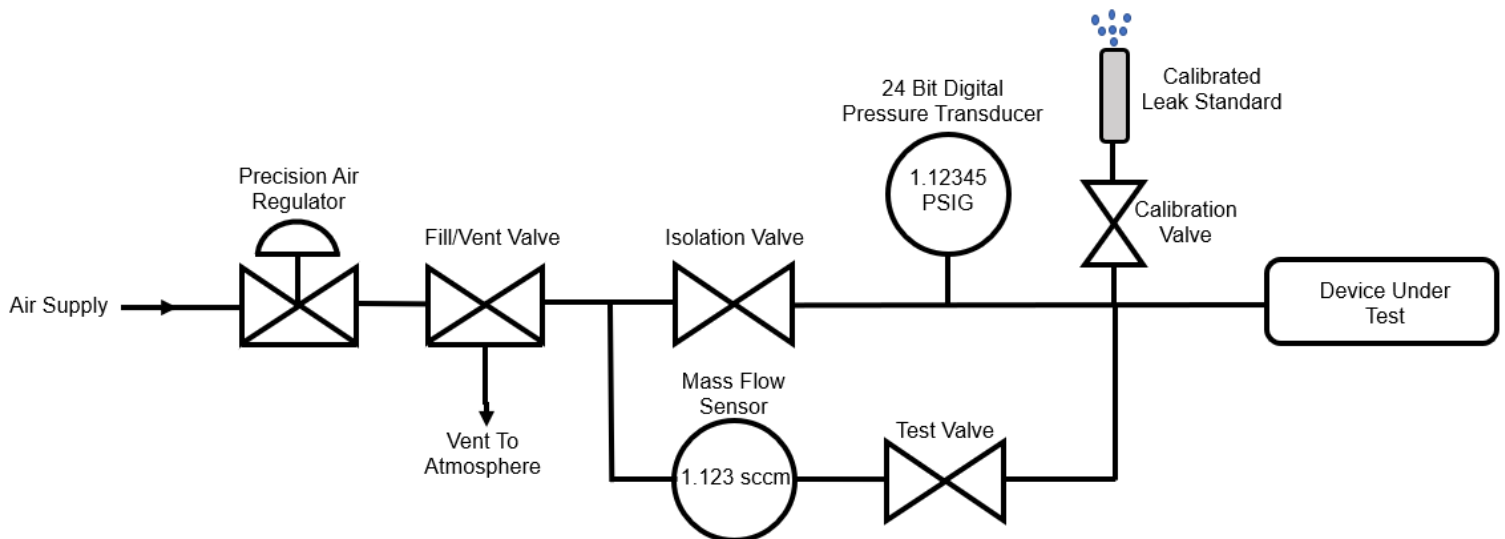
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Guardian Single Channel Pressure Decay Leak Test Manifold Pneumatic Setup



All internal valves are air-operated (pilot pressure required to operate) to minimize solenoid heat transfer into the tester manifold to maximize repeatability.

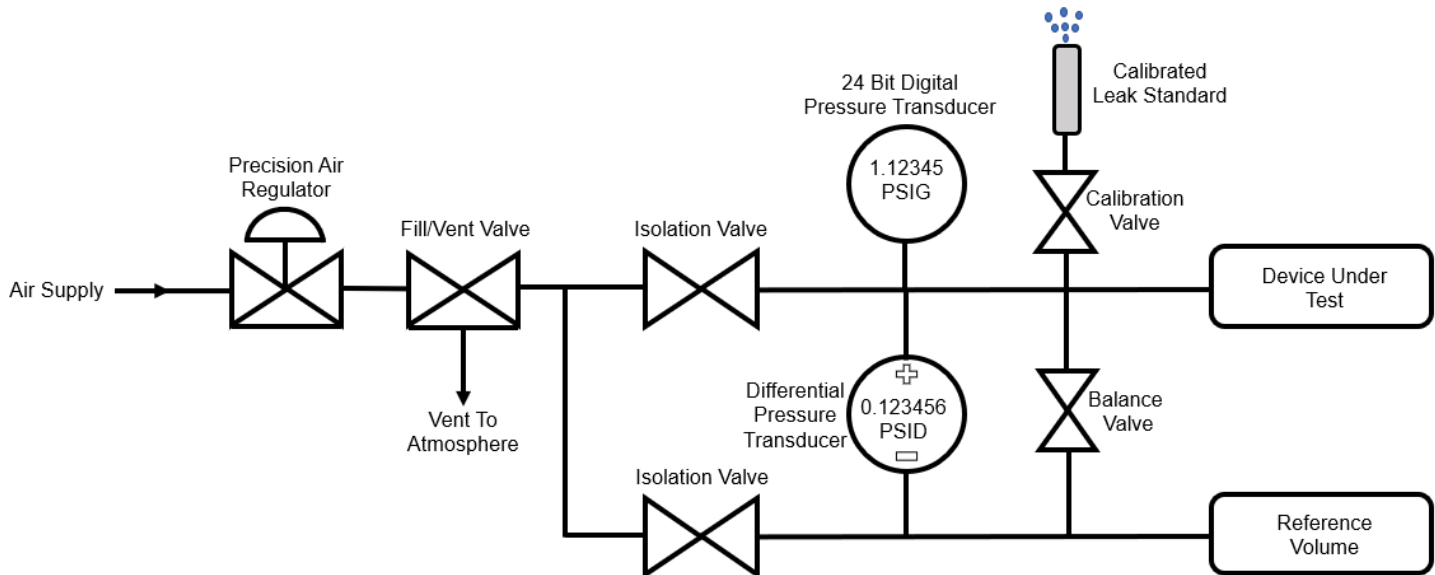
Guardian Single Channel Mass Flow Leak Test Manifold Pneumatic Setup



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Guardian Single Channel Differential Pressure Decay Leak Test Manifold Pneumatic Setup



Guardian Single Channel Metered Volume Pressure Decay Leak Test Manifold Pneumatic Setup

