

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 controlled through slave mode via customer PLC.

POWER. PERFORMANCE. *SPEED*



LeakMaster

GUARDIAN

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, ¼-20 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 @ .75A
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
¼" 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



LeakMaster

GUARDIAN

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.



LeakMaster

GUARDIAN

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

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 |

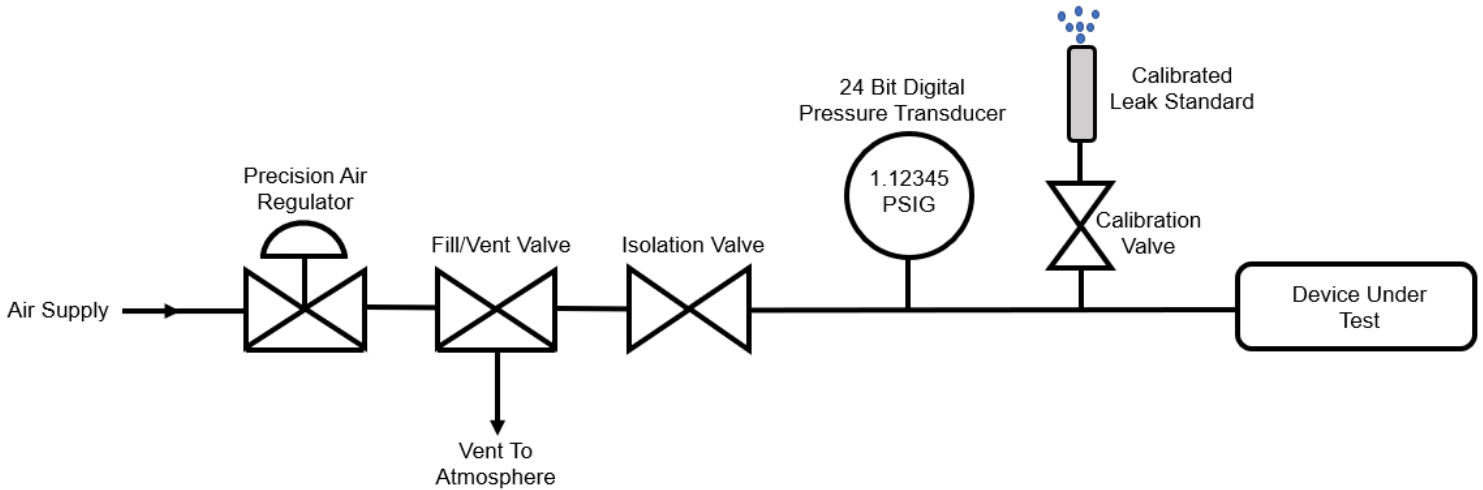
Guardian Available Test Types

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

LeakMaster

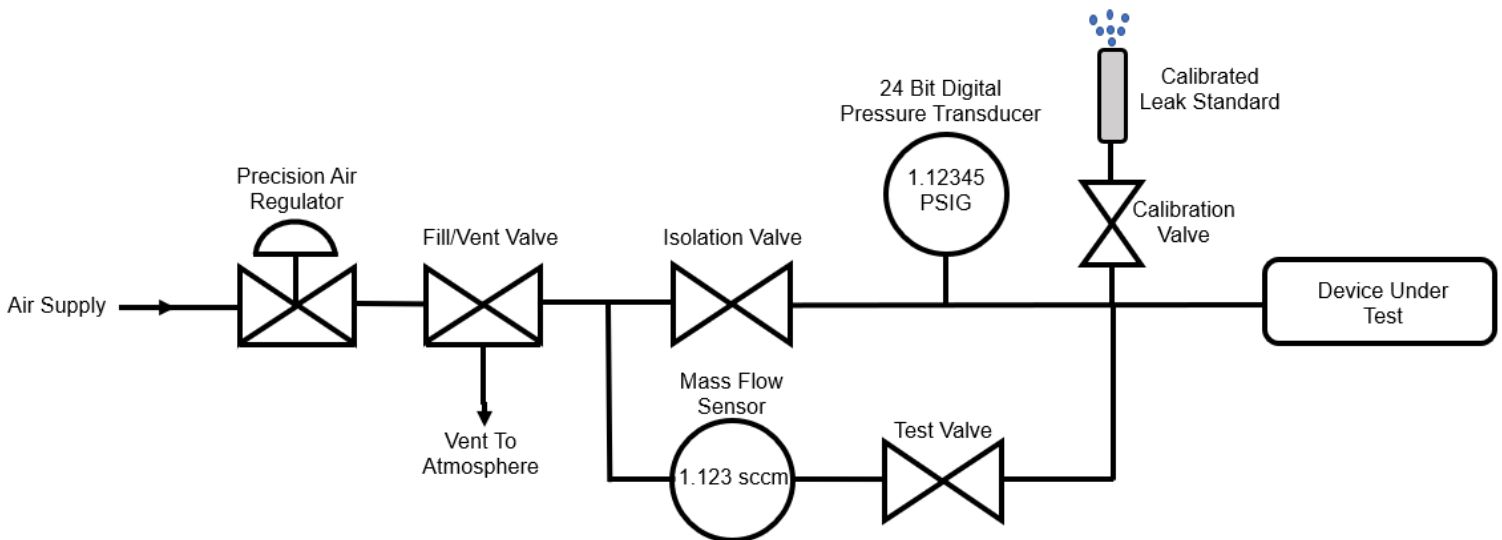
GUARDIAN

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.

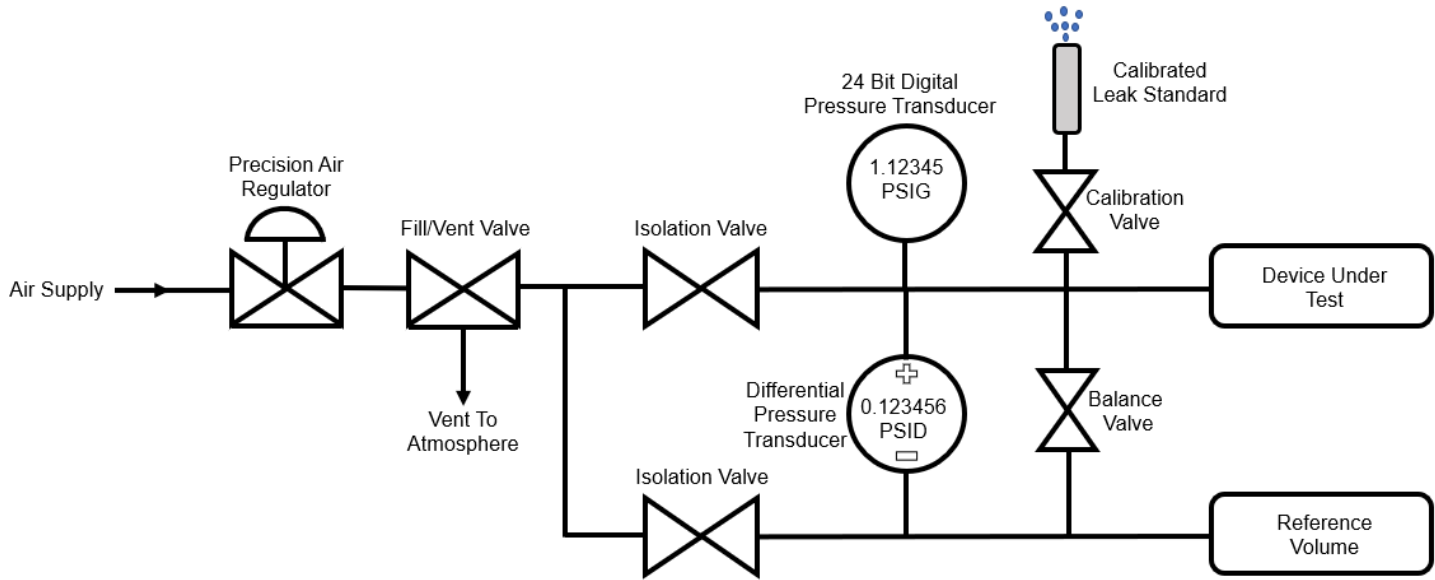
Guardian Single Channel Mass Flow Leak Test Manifold Pneumatic Setup



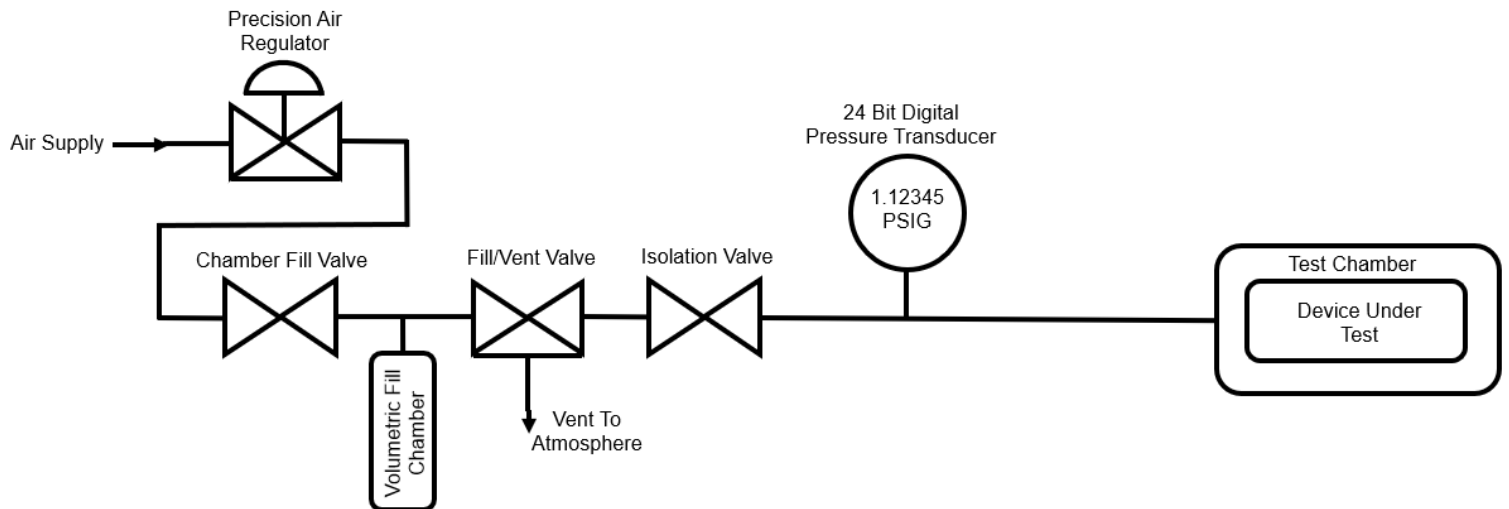
LeakMaster

GUARDIAN

Guardian Single Channel Differential Pressure Decay Leak Test Manifold Pneumatic Setup



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



LeakMaster

GUARDIAN

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)

