

LeakMaster

ULTRAFLOW V3

Technical Specifications



The UltraFlow V3 is the world's best performing pressure decay / mass-flow combination leak test instrument with a configurable flow sensor range up to 200 SLPM. Designed specifically for speed, repeatability, and ease of use. When your application requires the absolute fastest cycle time, there is only one UltraFlow. This leak test instrument is equipped with a 7" touch screen! The UltraFlow V3 is configurable for mass flow, pressure decay, or occlusion testing. UltraFlow V3 can also be totally controlled through slave mode over Ethernet IP via customer PLC. This unit comes in two different enclosure options. The standard unit has the HMI built into the enclosure. The UltraFlow V3-RT enables the use of a remote HMI screen that can be placed in an easily accessible area while the control unit can be tucked into a work station close to the test part.

POWER. PERFORMANCE. *SPEED*



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Features and Benefits

- High Resolution Pressure or Flow Detection
- 0 to 30 PSIG pressure ranges
- Automatic Calibration of Programs
- Quick Test Feature
- Occlusion Testing to check for obstructions
- Mass Flow or Pressure Decay Mode included in all units
- Large 7" 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

UFV3 Dimensions (12.6"w x 11"h x 15"d)
UFV3-RT Dimensions (10"w x 8.25"h x 15"d)
UFV3_RT remote touch screen comes with VESA mounting holes in the rear (4, 10-32 threaded holes)
Electrical Connections on rear of unit
Pneumatic Input Connections out the bottom of the unit
Test Port goes out of the front 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 60 PSI

Test Port

Single Channel Only – 1 Port for testing
1/2" G Thread female Swagelok Quick Connect

Communications

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

Color Touch Screen

7" 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 Decay Mode (.00001 PSI resolution)
- Mass Flow Optional (resolution dependent upon flow sensor used)
- Occlusion Testing Mode (Blockage Test)
- Standard Electronic Regulator
- 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., Kg/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 regulators are typically only used when the 0-200 sccm sensor is installed.

Manual Pressure Regulator Ranges

Range: 0-2 PSIG
.5-30 PSIG

Electronic Air Regulator

- Sensitivity to .05 PSI

Electronic Pressure Regulator Ranges

Range: 0-14.5 PSIG
0-72.5 PSIG (limited to 30 PSI)

Standard Pressure Transducer Options

Range	Measurement	Accuracy	Resolution
0-15 PSIG	0-15 PSIG	.01% FS	.00001 PSIG
0-60 PSIG	0-60 PSIG	.01%FS	.00001 PSIG

Mass Flow Sensor Options

Range	Measurement	Accuracy	Resolution	Max Pressure
0-200 sccm	+/- 200 sccm	+/- 1% of reading	.01 sccm	20 PSI
0-750 sccm	-250 to 750 sccm	+/- 1% of reading	.03 sccm	20 PSI
0-10 SLPM	-1 to 10 SLPM	+/- 1% of reading	.002 SLPM	30 PSI
0-200 SLPM	-20 to 200 SLPM	+/- 1% of reading	.03 SLPM	30 PSI

UltraFlow V3 Available Test Types

Mass Flow Testing
Pressure Decay – volumetric leak rate (sccm)
Pressure Decay – pressure loss/time
Occlusion Testing

Optional Calibrated Leak Standards

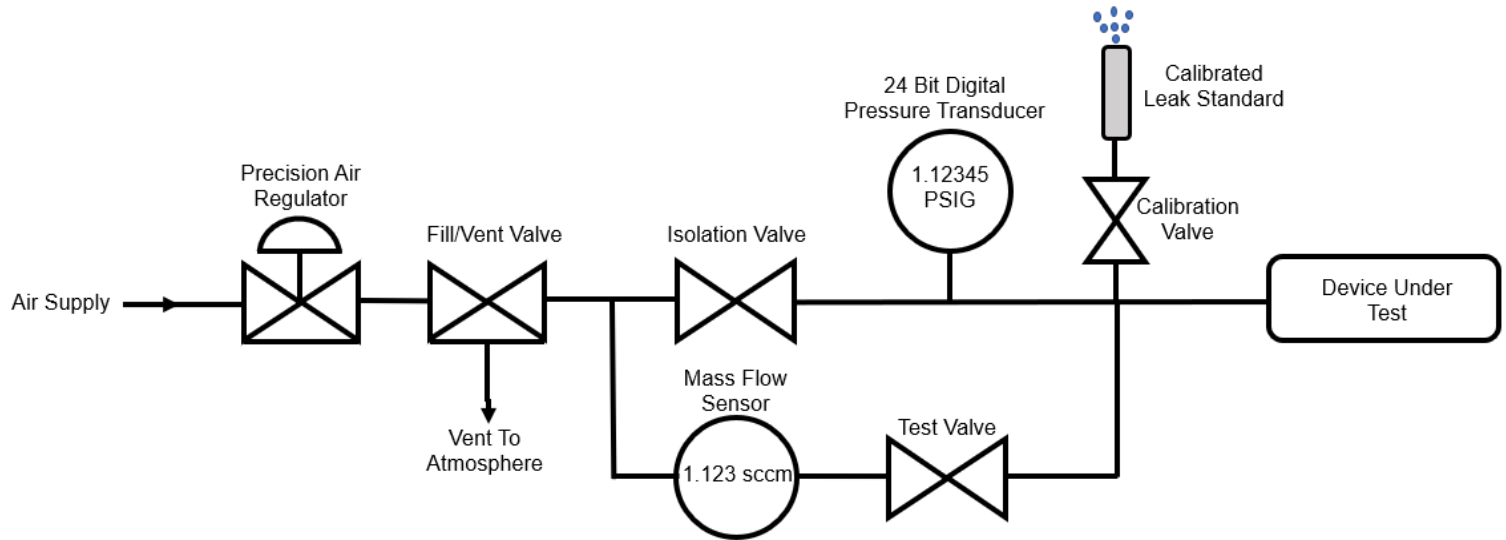
- Calibrated Leak Standards to simulate the reject leaking condition
- ISO17025 A2LA accredited calibration laboratory
- Flow Rate ranges from .5 to 100,000 sccm
- Pressure ranges from -14 to 150 PSIG
- Uncertainty +/-1.4% of stated flow rate
- Manufacturing tolerance of +1%/-0% of specified flow rate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



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UltraFlow V3 Mass Flow / 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.