



M1075-06y Instrument Specifications

Mass Flow Leak Detector

World Leader in Leak Detection Technology

**ISO 9001 Registered
ISO 17025 Accredited**

Turnkey, Single Source Capabilities

InterTech has the in-house resources required to assume single source responsibility for its products while maintaining outstanding quality and meeting delivery commitments.

Instrumentation

- Air Leak Test Systems
- Helium Leak Test Systems
- Assembly and Test Systems
- Functional Test Systems

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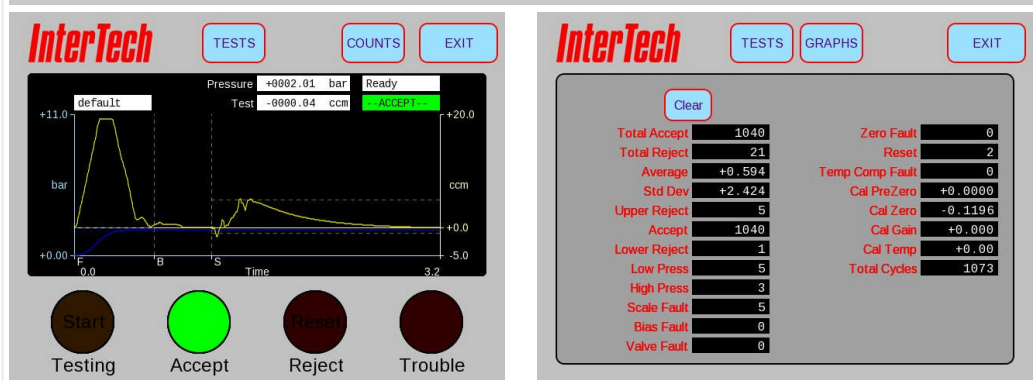
May be covered by one or more of the following U.S. patents:

- No. 5,363,689
- No. 5,161,410
- No. 5,546,789
- No. 6,279,383
- No. 6,422,550

Specifications subject to change without notice

Document Revision:
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This is a compact instrument designed for the high speed testing of parts ranging in volume from several cubic-centimeters to several liters. InterTech's patented mass flow test technology results in a cost effective solution to the requirements of high speed testing.



Touch-screen control panel, dual USB ports, Ethernet connectivity, and embedded Web page.

Test Technology and Operation

The mass flow transducer is connected to both the reservoir, and the test part. When this circuit is filled with air and isolated from the supply, any leak results in a flow of air from the reservoir to the test part through the transducer. The transducer output provides a direct measurement of leakage.

- Leak range: 0 - 20 sccm.
- Pressure range: 2 - 100 psig or 1 - 20 psig.
- Transducer repeatability: 0.05% F.S.D.
- Transducer sensitivity: 0.05% F.S.D.
- A/D Conversion: 14 bit, 1,000 samples/sec.
- Timer increments: 0.01 sec.
- NIST traceable calibration to less than 5% R&R.

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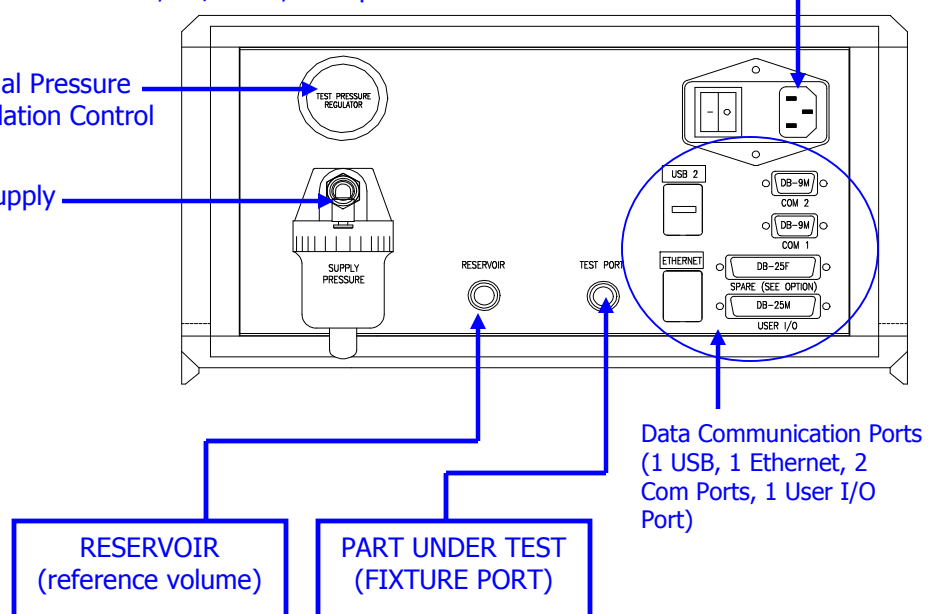
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User Connections and Controls

Power: 90-240VAC, 50/60 Hz, 1 Amp

Manual Pressure
Regulation Control

Air Supply



Data Communication Ports
(1 USB, 1 Ethernet, 2
Com Ports, 1 User I/O
Port)

Pneumatic Connection:

Air Supply Port - 1/4 inch (standard) / 6 mm (metric tube)
Test Port – 1/4 inch (6 mm) tube
Reservoir Port – 1/4 inch (6 mm) tube or tank
Calibration 1 Port (front side) – 1/8 inch (4 mm) quick connect type tube

Communication Connection:

USB Ports to upload/download data files & program restore/backup
RS-232 Com1 Port – data and control
RS-232 Com2 Port – serial port available for additional capabilities or RS485 option
Ethernet Port to connect with factory/host network (TCP/IP)
Embedded web page server for remote viewing of instrument data and files

User I/O Connection (see also specifications):

25-Pin male user I/O Port – Inputs: Start, Reset, Part Select, Outputs: In Test, Reject
Optional - additional (2) 25-Pin female user I/O connectors (machine/fixture controls)

Calibration

Calibration is NIST traceable using a transfer standard such as the CalMaster CM-15 which can be connected to the panel mounted calibration port. A menu driven sequence results in the independent calibration of instrument zero and span.

Operator Displays and Keypad

6.5 inches color monitor with touch-screen key-pad provides a user friendly and flexible operator interface.

- Password protection is a standard feature
- Amber, green, red displays indicate test-in-progress, accept, reject, and trouble status
- User selectable language: *English, German, French, and Spanish*

Fail-Safe Operation

Test pressure and mass flow transducer status are monitored during each test cycle to ensure correct operation of all components of the test circuit. Fault conditions are signaled by a red light, error message, and test record entry. The trouble contact output can be programmed to energize after a user selectable consecutive number of rejects.



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Test Displays and Menus

All functions are Menu driven with touch-screen prompts for ease of use.

The normal test mode display includes:

- Test state: *Ready, Fill, Bypass, Stabilize.*
- Test status: *Accept, Cause of Reject.*
- Leak rate in sccm
- Real-time display of supply pressure, leak, and time remaining
- Real-time test graph shows trace of test transducer verses cycle time (with upper and lower user specified limits).
- Gauge R&R screen display of test records, automatically calculates R%R percentages based on the number of trials.

Seal check facilitates troubleshooting (continuous test state display, indicating time elapsed).

Counts display shows total accepts, rejects, and related statistics. Test program Edit Menu allows the on-site entry of new test programs and changes to existing programs without the need for a remote terminal. Additional menus prompt the user through calibration, print, and diagnostic functions.

Test Programs

Up to 99 different test programs may be selected.

Test parameters includes:

- Fill/bypass/stabilize times
- Minimum and maximum pressure limits
- Upper and lower accept limits
- Calibration factors

User selectable features include:

- Hold pressure on reject
- Quick/Early Pass (optional)
- Pre-Fill pressure to reduce test cycle time, stress part, and stretch (requires programmable pressure regulator option)

Set-up

The leak detector may operate as a stand alone instrument, or can be easily interfaced with a PLC or PC.

The test cycle is started and reset:

Manually by depressing the front panel controls

By the PLC using digital start and reset inputs

By using the Com1 RS232 port

In addition:

The required test program is externally selectable using a BCD input (selector switch, PLC) or RS232 (PC). Fixture control using anti-tie-down palm buttons, proximity switches, and solenoid valves are available

Data Storage, Statistics & Communications

Two USB Ports are included for storing test records to the Thumb-Drive.

Up to (1000) test records may be stored in a buffer and include:

Part number, part name, date, time, test value, pass/fail status

Statistics calculated on up to the last (1000) test records include:

Mean, standard deviation

Mean \pm 3 standard deviation

Counts, accumulated since last "clear" command include:

Total – pass – fail

Buffer records, counts, and statistics:

Can be printed on demand

Cleared on demand or automatically on part changeover

Viewed on the counts display (not records)

Individual test records are automatically transferred to the Com1 RS232 port at the end of each test, and can also be printed (user selectable) at that time. Bi-directional communications to interface with InterTech's S-3085 monitoring software (or customer network) is standard.



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Specifications

- **Dimensions:** 15.75" D x 12.60" W x 6.77" H (400 mm x 320 mm x 172 mm)
- **Touch-Screen Display:** 6.5 inch color monitor, 640 x 480 resolution
- **Weight:** 26 lbs.
- **Power Supply:** 90-240VAC, 50/60Hz, 1Amp
- **Air Supply:** Clean, dry, and minimum 10 psig higher than test pressure
- **Inlet Filter:** 5 micron particulate filter
- **Pneumatic connections:** (1) test port, (1) air supply, (1) calibration port, (1)reservoir port
- **Test outputs(4):** 5-30VDC, 0.3 Amp Contact closures (accept, reject, trouble, testing)
- **Test inputs(2):** 24VDC Digital (test start & reset)
- **Fixture control:** (1) 24VDC digital input (anti-tie-down), (3) 24 VDC digital proximity switch inputs, (1) 5-30VDC 0.3 Amp contact closure output. See also machine controls (page 3) for more user inputs and outputs.
- **Program selection:** (2) BCD digits with strobe
- **Data Communications:** (1) RS232 port: Com1 data and control; Com2: serial port available for additional capabilities or RS485 option; (1) Parallel printer port; (2) USB Ports data & program restore/backup, (1) Ethernet Port

Options

- Temperature compensation
- Programmable pressure regulation
- Customer specific pressure ranges (0.03-2 psig, 2-150 psig, 2-200 psig)
- Customer specific leak ranges (0 - 4 sccm, 0 – 40 sccm, 0 – 80 sccm, 0 – 400 sccm)
- Additional (2) 25-Pin I/O's for user machine/fixture controls
- Active Com2 RS232 port
- Profibus, Modbus TCP/IP, or CANbus interface

Machine Control (User Inputs/Outputs)

- 25-pin male user I/O connector

