

**World Leader in
Leak Detection
Technology**

**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

InterTech Development Co.

7401 N. Linder Avenue
Skokie, IL 60077, USA
T. 847.679.3377
F. 847.679.3391

InterTech Europe

19 rue Clément Michut, Villeurbanne
69100 France
T. +33.437.434.116
Fax +33.437.434.117

InterTech Shanghai Technical Center

Shanghai Waigaoqiao, F.T.Z.
200131 P.R. China
T. +86.21.58682895
F. +86.21.586828003

www.intertechdevelopment.com



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

Consult factory for application requiring less than 10% of rated pressure, leak rates, etc.

Document Revision:
M1045-20y rev. 4
August 14, 2015

M1045-20y Instrument Specifications Pressure Change Leak Detector

The InterTech M1045-20y Leak Detector is a low cost, high resolution, pressure change instrument suitable for a medium to large volume parts.



Pressure change testing, fast filling, compact construction, programmable pressure regulator, touch-screen control panel and high (24-bit) resolution instrumentation.

Test Technology and Operation

The pressure transducer is connected to the test part. When this circuit is filled with air and isolated from the supply, any leak results in a pressure change relative to atmospheric pressure. The transducer output provides a measurement of the pressure change proportional to the leak rate.

- Programmable Pressure Range: 0 – 150 psig (standard)
- Transducer repeatability: 0.05% F.S.D.
- Transducer sensitivity: <math> < 10^{-5}</math> psi (STD)
- A/D Conversion: 24 bit, 100 conversions/second
- Timer increments: 0.01 sec.
- Low (<math> < 1.5</math> cm³) internal volume

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. This allows the instrument to provide a reading in flow units (sccm typical). A menu driven sequence results in the independent calibration of instrument zero and span.

Operator Touchscreen Displays

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
- Keypad functions
- User selectable language: English, German, French, and Spanish

Fail-Safe Operation

Test pressure 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 rejections.

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**ISO 9001 Registered
ISO 17025 Accredited**

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User Connections and Controls

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

Air Supply



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

PART UNDER TEST
(FIXTURE PORT)

Pneumatic Connection:

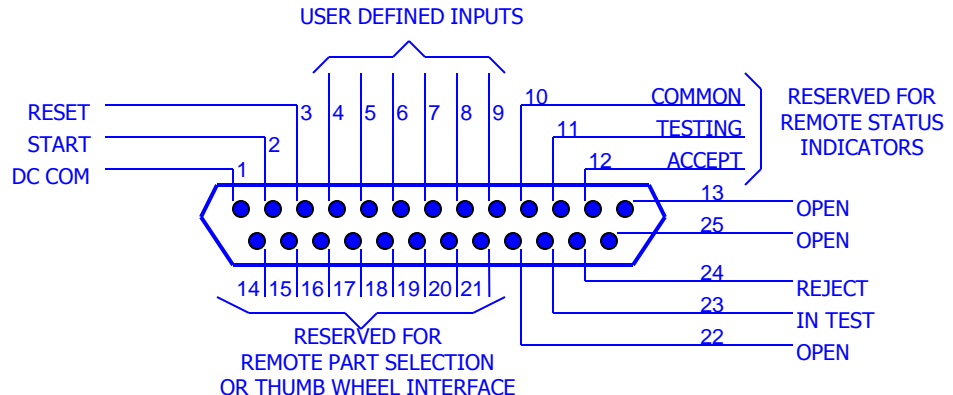
- Air Supply Port - 1/4 inch (standard) / 6 mm (metric tube)
- Test Port - 1/8 inch standard / 4 mm (metric) tube
- Calibration Port (front side) - 1/8 inch (4 mm metric) quick connect type (standard)

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)





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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, Stabilize, and Test*
- Test status: *Accept, Cause of Reject.*
- Display of pressure in psig, or can be calibrated in sccm
- Real-time display of pressure, pressure change, and time remaining
- 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 include:

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

User Selectable Features include:

- *Hold pressure on reject*

Set-up

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

The test cycle can be started and reset:

- Manually by depressing the front panel controls.*
- By the PLC using digital start and reset inputs*
- By using the Ethernet control (TCP/IP)*

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 4,000,000 test records may be stored onboard and include:

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

Statistics calculated on the buffer records include:

- Mean standard deviation*
- Mean +/- 3 standard deviation*

Counts, accumulated since last CLEAR command include:

Total - pass – fail

Buffer records, counts, and statistics:

- Can be recorded on demand*
- Cleared on demand, or automatically, on part changeover*
- Viewed on the counts display*
- 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 S-3085 monitoring software (or customer network), are standard.*
- Past records viewable on demand*
- Copy part parameters (pdf) to the Thumb-drive*
- USB backup/restore system & configuration file to the Thumb-drive*
- Download test records to the Thumb-drive*
- Save R&R study (.pdf) to the Thumb-drive*

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Specifications

- **Dimensions:** 13.50 in W x 12.75 in D x 6.25 in H (343 mm x 324 mm x 159 mm)
- **Touch-Screen Display:** 6.5 in 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
- **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
- **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; (2) USB Ports data & program restore/backup, (1) Ethernet Port

Options

- Customer specific pressure ranges (0 – 2 psig, 0 – 15 psig, 0 – 150 psig, 0 – 450 psig)
- Multiple channel (up to 4 channel(instrumentation
- RS485 Com2 port
- Active Com2 RS232 port
- InterTech S-3085 Windows based software
- Barcode interface
- Profibus, Ethernet, Modbus TCP/IP, or CANbus interface