**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.

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**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:** < 10^-5 psi (STD)
- **A/D Conversion:** 24 bit, 100 conversions/second
- **Timer increments:** 0.01 sec.
- **Low (<1.5 cm3) internal volume**

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**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.

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**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

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**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 rejects.
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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)
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 Edt 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
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**