

PIT5000: Pipeline Integrity Tester



The **PIT5000** from Meriam Process Technologies is the modern tool for conducting pipeline hydrostatic tests. Replace your dead weight testers, pressure chart recorders and temperature chart recorders with the convenience of digital data collection and user friendly PC software.

Pressure, ambient temperature and pipeline temperature are measured by the system's NIST traceable instrumentation and plotted on one graph versus time. The PC's real time plots feature self adjusting x- and y-axes, color coded plot lines and zoom controls.

The PIT5000 also provides for site data entry, automatic data logging, pump stroke counter, test limits with associated visual alarms and much more.

Software

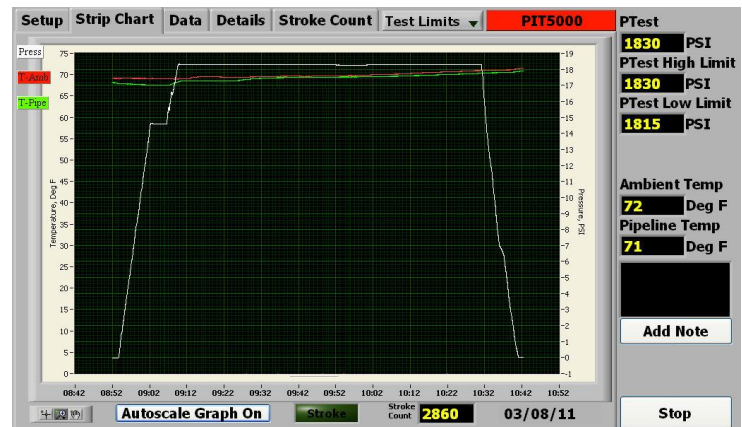
PIT5000 software is designed to streamline the hydro-test operator's workload. A tab structure allows fast selection of any desired screen. Each tab provides test information, plots, or editable fields as appropriate. A Data Panel of key test parameters is provided along the right hand side of each tab. During the pressure test program, pressure and temperature measurements are plotted vs. time. Pressure values that exceed the limits entered in the Setup screens are highlighted by a flashing red background. Complete data sets are logged in one minute intervals to the PC's hard drive.

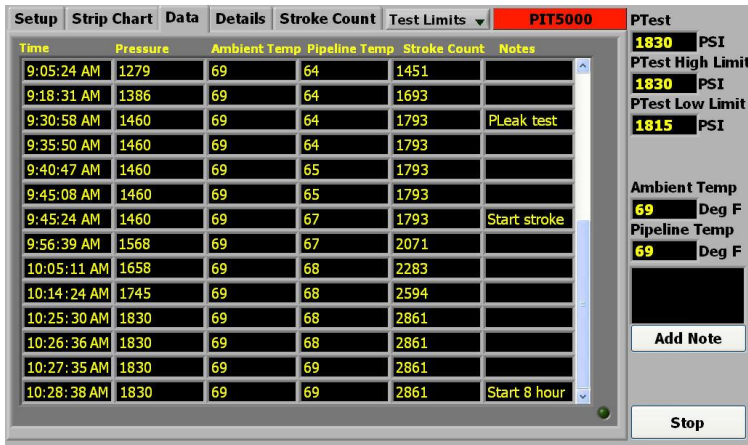
Tab / Screen Titles

Setup **Strip Chart** **Data** **Details** **Stroke Count**

Setup – input screen for site information, pump information, stroke count selection, test pressure, alarm limits, high and low point elevations, end point elevations, PIT5000 elevation, etc.

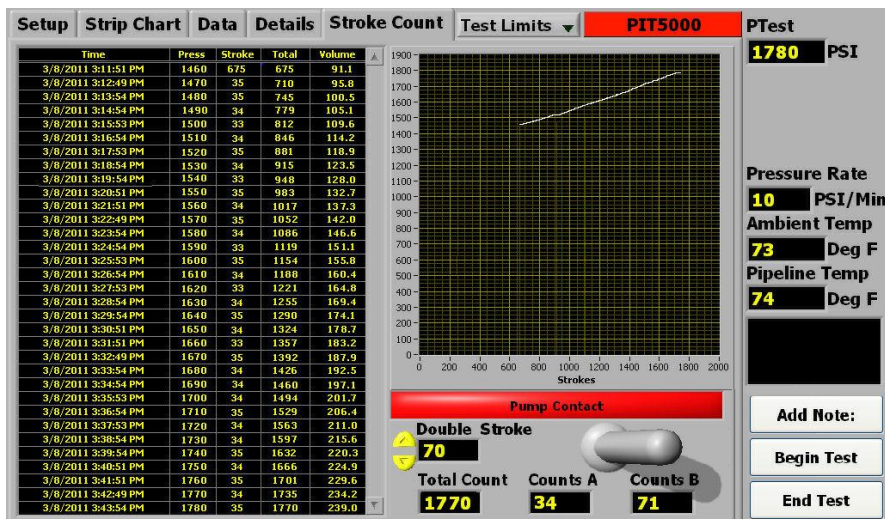
Strip Chart – live plot of T_{ambient} and T_{pipe} (left y-axis scale) with hydrostatic pressure (right y-axis scale) versus time (x-axis); features self-adjusting scales, zoom controls and color coded plot lines





Data – provides a table of logged data sets. A data set includes Time, Pressure, $T_{ambient}$, $T_{pipeline}$, Stroke Count and operator Notes. Data sets are added each minute during pressurization. A user setting determines the data acquisition rate during the shut-in pressure test. A scroll bar provides access to data over the entire test period.

Details – provides clock, elapsed timer, estimated test completion and file path where the results are saved. Serial numbers of the PIT5000's measurement devices are also displayed for convenient verification of NIST traceable certificates.



Stroke Count – provides a live plot of pressure on y-axis vs. pump stroke count on x-axis plus digital displays for 1) total pump strokes, 2) strokes recorded for the previous 10 PSI increment and 3) strokes recorded during the current 10 PSI increment period. User provides a normally open, dry contact from the pump's counter. PIT5000 provides +5VDC, 150 ft cable & counter device.

Hardware

- Durable HPX[®] resin case with built in wheels and telescoping handle, water resistant, hinged lid with latches and locking provisions
- Control panel for mounting MFT4000 measurement device, mini-PC (using Velcro), one 1/4" NPT(F) pressure connection, two RTD connectors, one stroke counter connector, battery voltage indicator and 12VDC automotive style socket

- Select 12 hour or 28 hour battery options for PIT5000 system operation. The 12 hour battery model has an internal battery. The 28 hour battery option uses the 12 hour internal battery and an external battery case to extend battery life.
- Option for “no battery” for test sites with AC or DC power sources available
- 115V AC 50/60 Hz charger, includes AC wall plug (input) and DC automotive style plug (output). A second charger is included with the 28 hour model.
- 30 ft DC extension cord with DC automotive style plugs on each end. Connect to automobile outlet to extend / finish a test or use to connect the 28 hour model’s external battery case to the PIT5000.
- Mini-PC, includes 4GB SD card, two USB ports
- Meriam MFT 4000 with user specified pressure range and two (2) RTD measurement modules
- 5,000 PSI pressure hose (50 or 150 ft length), SS quick test ends, adapter fitting
- Two (2) Pt100 RTD assemblies, 4-wire, 1/4” diameter, 6” length, class A accuracy, alpha = 0.00385 with military style electrical connectors
- Two RTD cables (50 or 150 ft length), military style electrical connectors on each end
- Pump stroke counter with 150 ft cable length, military style electrical connector x #8 spade lug terminations
- Nylon gear bag for storing and toting hose, cables, RTDs, charger, DC extension cord, etc.

System Battery & Charger

An internal, rechargeable sealed battery provides portable power for the PIT5000-12. Order the 12 hour battery option to support 8 hour hydrostatic pressure tests. A 115V AC 50/60 Hz charger, complete with US wall plug and DC automotive cord/plug, is included. The charger connects to the PIT5000’s automotive style socket and can charge the battery or power the PIT5000. The battery is fully charged after about eight (8) hours or when 13.3 V is indicated on the control panel’s voltmeter. A 30 foot extension with automotive style plugs on both ends can be used to recharge the system battery on site or to power the PIT5000 from an automobile if needed.

The PIT5000-28 for 28 hour battery operation supports longer test times. The base PIT5000 is used with an external battery case for a second 12V DC battery (supplied by user). Connect the external case to the PIT5000 using the supplied 30 extension. A second charger is also supplied with this model.



External Battery Case for PIT5000-28 models

Specifications

Range / Safe Working Pressure: 0 – 1500 PSIG / 3000 PSIG
0 – 3300 PSIG / 6000 PSIG

PC working temperature: 41° to 95° F (5° to 35° C)
Battery working temperature: 41° to 95° F (5° to 35° C)
Storage temperature: -4° to 140° F (-20° to 60° C)

Pressure Accuracy: ±0.025% FS for 0 – 1500 PSIG range
±0.05% FS for 0 – 3300 PSIG range
No temperature effect over -4° F to +122° F (-20° to 50° C)

Temperature Accuracy:
Class A Pt100 RTD: ±1.44° F (±0.8° C) over temperature range of ±212° F (±100° C)
RIO4000 RTD module: ±0.72° F (±0.4° C) for temperatures between 64° F and 82° F (18° C and 28° C). Outside this range apply Temp. Coeff. of 0.04° F/° F (0.02° C/° C)

Voltage output: +5VDC to normally open, dry contacts (supplied by user for pump stroke counting)

Dimensions: 24.8”L x 19.7”W x 11.9”D



RTD Assembly with Military Style Connector

Weight: no battery - 43 lbs plus gear bag with cables & hoses, etc.
 12 hour battery - 70 lbs plus gear bag with cables & hoses, etc.
 28 hour battery - 70 lbs plus external battery case, gear bag with cables & hoses, etc.

System PC: Operating System - Windows 7 Starter, typical
 10.1" Widescreen TFT 1024 x 600, typical
 Keyboard and mouse pad with right and left click buttons
 1GB RAM, 160GB Hard drive, typical
 Two (2) USB ports, minimum
 Memory card slot for SD/SDHC/MMC cards
 AC power adapter



Gear Bag is included with each PIT5000. 12"D x 12"H x 24"W nylon gear bag with zippered main compartment for storing and toting pressure hose, RTD cables, RTDs, counter cable, AC charger, DC extension cord, etc. Weight: 22 to 27 lbs depending on order options

Ordering Information

Model		
PIT5000	Pipeline Integrity Tester	
	Battery	
	-12	12 hour supply for PIT5000 devices, rechargeable from 115V AC or 12V DC
	-28	PIT5000-12 with external battery case for user's 12V DC battery, rechargeable from 115V AC or 12V DC
	Hose/Cable Lengths	
	-00	No cables or hoses. Tester includes military style electrical connections for RTDs and counter connection and 1/4" NPT(F) pressure connection
	-30	30 ft RTD cables, 150 ft counter cable, 1/4" NPT(F) pressure connection (no pressure hose)
	-31	30 ft RTD cables, 150 ft counter cable, 30 ft XT Quick-Test pressure hose & adapters (2)
	-100	100 ft RTD cables, 150 ft counter cable, 1/4" NPT(F) pressure connection (no pressure hose)
	-101	100 ft RTD cables, 150 ft counter cable, 100 ft XT Quick-Test pressure hose & adapters (2)
	-150	150 ft RTD cables, 150 ft counter cable, 1/4" NPT(F) pressure connection (no pressure hose)
	-151	150 ft RTD cables, 150 ft counter cable, 150 ft XT Quick-Test pressure hose & adapters (2)
	Pressure Range	
	-GI1500	0 - 1500 PSIG, ±0.025% FS
	-GI3000	0 - 3000 PSIG, ±0.05% FS

Example: PIT5000-12-151-GI3000

Optional Accessories

- Z9P495 Spare adapter fittings to mate with customer's pressure connection; 1/4" NPT(M) x quick test fitting, 316L SS, 5000 PSI SWP
- Z9A805 Air purge kit. Installs between PIT5000's 1/4" NPT(F) pressure fitting and pressure hose to assist in venting air prior to tests. Consists of: 316SS angle adapter, 1/4" NPT(M) x 1/4" tube; 316SS 1/4" tube, 8" length; 316SS 1/4" NPT(F) x 1/4" tube adapter; 316SS 1/4" NPT(F) tee; 316SS 1/4" NPT(M) x 1/4" NPT(M) 90 deg bleed valve