PIT5000: Pipeline Integrity Tester

meriam
A SCOTT FETZER COMPANY

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 in / out control.

The PIT5000 also provides site data entry, data logging, pump stroke counter, 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 plus a digital display of key test parameters along the right hand side. During the pressure test program, measurements that exceed the limits entered into the Setup screen are highlighted by a flashing red background. Data sets are saved in one minute intervals to the PC's hard drive and to an SD card for back up.
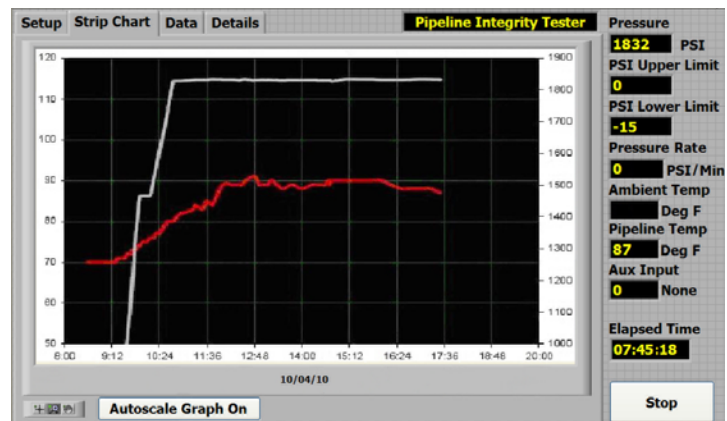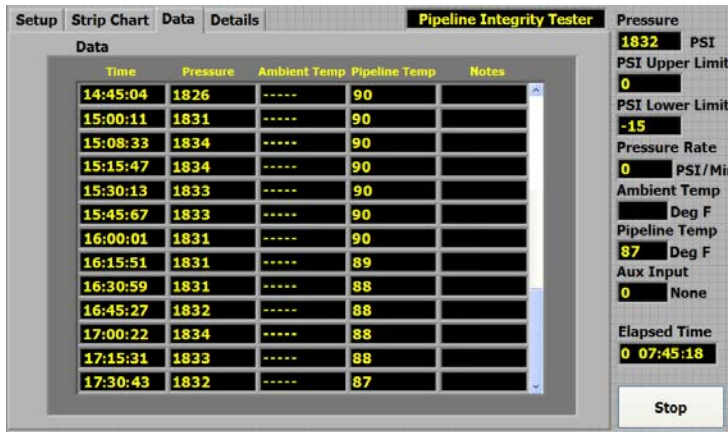
Tab / Screen Titles   Setup | Strip Chart | Data | Details | Stroke Count

Setup – input screen for test pressure, alarm limits, christmas tree elevation, PIT5000 elevation, etc.

Site Info – input screen for test site information such as test name, location, operator name, high point elevation, low point elevation, etc.
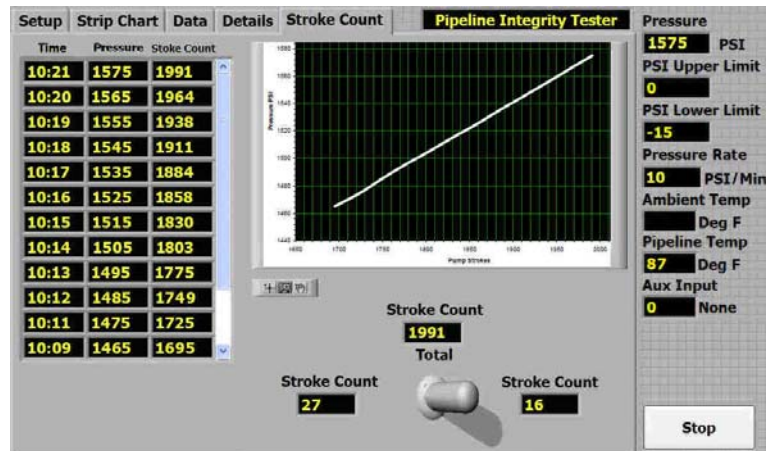
Strip Chart – live plot of $T_{ambient}$ and T_{pipe} (left y-axis scale) with hydrostatic pressure (right y-axis scale) versus time (x-axis); features self-adjusting scales, zoom in / out and color coded plot lines
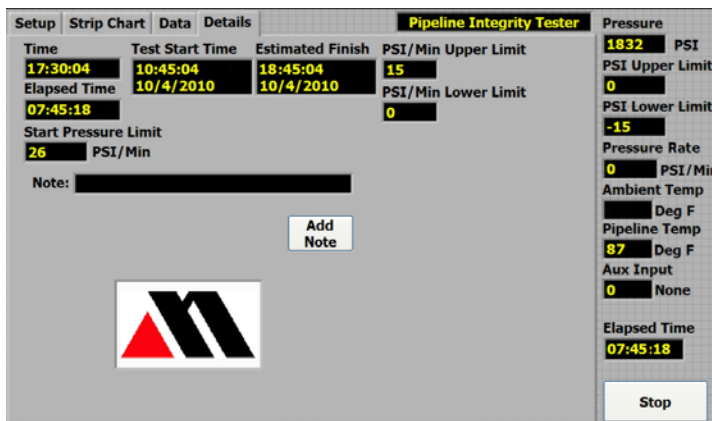
Data – provides viewer for all of logged data sets. One data set includes time, pressure, $T_{ambient}$, T_{pipe}, stroke count and operator notes

Stroke Count – provides a live plot of pressure on y-axis vs. pump stroke count on x-axis. And digital displays for 1) total pump strokes during pressurization, 2) stroke count recorded for previous 10 PSI increase and 3) stroke count during active 10 PSI increase period. The operator provides a set of dry contacts from the pressure pump's counter. The PIT5000 provides +5VDC and counter device.

Details - provides clock, test start time, estimated finish time, elapsed test time, alarm setting summary and text box for entering user notes and adding them the to the data log.

Hardware

- Durable HPX® resin case with built in wheels and telescoping handle, water resistant, hinged lid with latches and provisions for a lock
- Control panel for mounting MFT4000 measurement device, mini-PC (using Velcro), one 1/4" NPT(F) pressure connection, two M12 RTD connectors, one M12 stroke counter connector, battery voltage indicator and 12VDC automotive style socket
- 12 hour or 28 hour sealed battery for PIT5000 system operation, rechargeable
- 115V AC 50/60 Hz charger, includes AC wall plug (input) and DC automotive style plug (output)
- 30 ft DC extension cord with DC automotive style plugs on each end
- Mini-PC, includes 4GB SD card, three USB ports (one available), one Ethernet port

- Meriam MFT 4000 with user specified pressure module and two (2) RTD measurement modules
- Ralston QSQS 5,000 PSI hose of user specified length, SS ends, adapter fittings
- Two (2) Pt100, 4-wire RTDs, 1/4" diameter, class A accuracy, alpha = 0.00385, with user specified cable lengths and M12 mating connectors
- Pump stroke counter with user specified cable length, M12 mating connector by spade 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. Order the 12 hour battery option to support 8 hour hydrostatic pressure tests or the 28 hour battery option to support up to 24 hour tests. A 115V AC 50/60 Hz charger, complete with 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 necessary.

Specifications

Safe Working Pressure: 3000 PSIG for 0 – 1500 PSIG range option
6000 PSIG for 0 – 3300 PSIG range option

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 $+122^\circ$ F (-20° to 50° C)

Temperature Accuracy: $±0.72^\circ$ F ($±0.4^\circ$ C) for temperatures between 64° F and 82° F (18° C and 28° C). Outside this range apply Temp. Coeff. of 0.04° F/$^\circ$ F ($0.02 ^\circ$ C/$^\circ$ C)

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

Dimensions: 24.8"L x 19.7"W x 11.9"D
Weight: 12 hour battery - approximately 75 lbs
28 hour battery - approximately 95 lbs

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

Gear Bag: 12"D x 12"H x 24"W nylon gear bag (handles & shoulder strap) - zippered main compartment for storing and toting pressure hose, RTD cables, RTDs and counter cable, AC charger, DC extension cord, etc.

Ordering Information

Model				
ZPIT5000	Pipeline Integrity Tester			
	Battery			
	-00	No internal battery. Run from supplied 115V AC charger or 12V DC extension		
	-12	12 hour supply for PIT5000 devices, rechargeable from 115V AC or 12V DC		
	-28	28 hour supply for PIT5000 devices, rechargeable from 115V AC or 12V DC		
		Hose/Cable Lengths		
		-00	No cables or hoses. Tester includes M12 RTD connections, M12 counter connection, 1/4" NPT(F) pressure connection	
		-50	50 ft RTD cables, 150 ft counter cable, 1/4" NPT(F) pressure connection, NO PRESSURE HOSE	
		-51	50 ft RTD cables, 150 ft counter cable, 50 ft QSQS Quick-Test pressure hose	
		-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 QSQS Quick-Test pressure hose	
			Pressure Range	
			-1500	0 - 1500 PSIG, ±0.025% FS
			-3300	0 - 3300 PSIG, ±0.05% FS

Example: ZPIT5000-12-151-3300