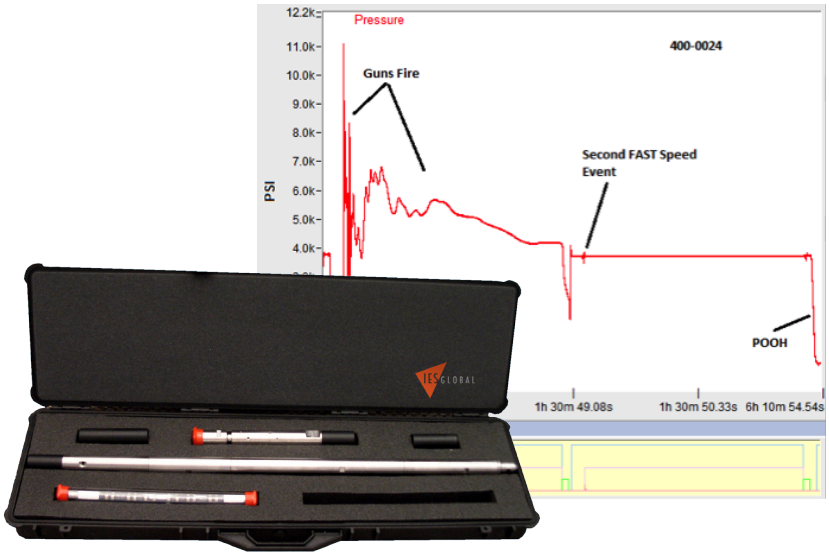
IES GLOBAL
EXTREME ENGINEERING

Series 400

Spec Sheet

Updated: March 2015

GAUGE SPECIFICATIONS	
Gauge Sensors	Pressure (30,000psi), Accelerometers (+/-15G's, or +/-60,000G's), RTD
Battery Options	120ºC Lithium, 150ºC Lithium
Maximum Acceleration / Vibration Rating	+/-60,000 G's of Acceleration / Vibration
Sampling Rate (High, Intermediate, & Slow)	115,000 data points/second, and down to one sample every 10 seconds
Data Resolution	12 bits (4096 steps) @ 115,000 data points/sec (0.02% accuracy of full scale)
Pressure Range	30,000 psi (peak), 30,000 psi (static)
Power Requirements	IES Potted Lithium Batteries
Current Drain	1 mA sleeping / 20 mA recording
Maximum Temperature Rating	150ºC
Sensor Frequency Response	0 to 10,000 Hz
Memory Capacity	Memory Capacity 2,000,000 data points (NON-Volatile Memory)
Computer Requirements / Communications	Windows 7 (US Version) / Serial or USB
Software (included)	Microsoft Windows (US Version) Required
Shock Mitigator - #IES-SM-11116	1-11/16" OD x 17" (8 lbs), 17-4 SS (Included with each Gauge)
Gauge Dimensions	1-11/16" OD x 50" (22 lbs), 17-4 SS



CAPABLE:
- **HSp** — high speed
- **MSp** — multi-speed
- **NVM** — non-volatile memory
- **Pr** — programmable

SURVIVABLE:
- **HP** — high pressure
- **HT** — high temp
- **HSh** — high shock
- **HV** — high vibration

RECORDABLE:
- **q** — dynamic pressure
- **a** — acceleration
- **v** — vibration

For use in a variety of downhole perforation events, the Series 400 can verify proper gun and propellant burn, underbalance pressures. gun movement, and vibration/shock. Included software helps you determine your formation's fracturing response by analyzing post-job data.

The Series 400 gauge can endure temperatures of up to 150°C and pressures of up to 30,000 PSI. It can survive high shock events of up to +/-60,000 G's. It samples data at 115,000 data points per second and can store up to 2,000,000 data points in its non-volatile memory.

The Series 400 is multi-speed which allows for "burst sampling"...the event-triggered recording of data. Other features include automatic sensor testing and balancing, selectable pressure, voltage readouts to verify proper gauge and sensor operation, selectable sampling rates, and auto start/stop recording modes.

The Series 400 comes standard with a 30,000 PSI pressure sensor. Options include a +/-15G accelerometer for measuring tool movement or a +/-60,000G accelerometer for measuring tool vibration and shock.

Each gauge is outfitted with a "Shock Mitigator" which extends product life by isolating the gauge from the tool.

The Series 400 can be used as a "drop bar" to trigger a mechanical firing head on a propellant or perforating gun and can also be integrated into a gun to capture internal pressure data *even as the charges are being fired*.

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