

# SMART Sens™

Real time, downhole wireline tension measurement to help prevent pump-off, stuck tool strings and expensive fishing operations



## Features

- ▶ Accurately measures real time tension, compression, line voltage, and internal tool temperature.
- ▶ Plug and Play—no special panels or hardware required.
- ▶ Compatible with Warrior System and commercial perforating switches.
- ▶ No field calibration required.
- ▶ No internal seals or parts to maintain.
- ▶ API RP-67 compliant.

## Benefits

- ▶ Maximizes pumpdown efficiency and speed.
- ▶ Minimizes lost time and fishing risk.
- ▶ Verifies plug setting and release.
- ▶ Eliminates uncertainty when activating a cable release device.

**Impact Selector's SMART Sens™** is a wireline tension monitoring device which maximizes efficiency and minimizes risk during challenging wireline operations. SMART Sens provides real time, downhole cable tension measurement which eliminates uncertainty and gives the operator increased control.

Maintaining safe cable tension downhole is challenging in highly deviated and lateral wells because surface measurements do not account for friction. If the cable tension is allowed to become too low, then slack cable and released torque can cause cable damage. If the tension is allowed to become too high, for example, during pumpdown operations, the weak point can be unintentionally broken. Increased visibility of downhole events such as plug setting and perforating guns firing can be valuable also where surface tension readings are inconclusive.

The SMART Sens is a robust and proven tool which is straightforward to use in the field. "Plug and Play" compatibility with Warrior means that many service companies can use this tool directly with no additional surface equipment.



**IMPACT SELECTOR™**  
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## Measurement Specifications

Maximum Tension (lbf)	10,000
Maximum Compression (lbf)	2,000
Resolution (lbf)	5
Sampling Rate (Hz)	10

## Electrical Specifications

Maximum Pass Through Voltage*‡ (VDC)	600
Operating Voltage* (VDC)	20 to 50
Current Draw (mA)	35

\*Polarity is configured to be compatible with perforating switch system used.

‡Pass through voltage of 600V is only applicable when the SMART Sens Tension Sub is NOT powered on. When the SMART Sens Tension Sub is powered on, usually during logging, the MAX line voltage that should be applied is 150 VDC.

## Mechanical Specifications

Outside Diameter (in / mm)	1.688 / 42.86	2.125 / 53.98	2.75 / 69.85
Make-up Length (ft / m)	2.46 / 0.75	2.3 / 0.70	2.20 / 0.67
Weight (lbs / kg)	12.6 / 5.7	24.5 / 11.1	33.5 / 15.2
Upper Connection	1-3/16-12 UN Box	1-3/16-12 UN Box	1-5/8—6 ACME Pin
Lower Connection	1-3/16-12 UN Pin	1-3/16-12 UN Pin	1-5/8—6 ACME Box

## Other Specifications

Pressure Rating (psi)	20,000
Temperature Rating (°F / °C)	350 / 175
Axial Shock (g, ms)	5,000, 1.0
Maximum Tensile Load (lbf)	100,000
Maximum Moment Force* (lbf-ft)	7,500

\*Measured at Lower Connection

