Intelligent Electronic Trigger

Expro's Intelligent Electronic Trigger is a high-integrity memory-based tool suitable for any remote explosive or non-explosive operation where the operator requires a reduction in running costs while maintaining the highest possible degree of safety and control for a memory based tool.

The field-replaceable electronics and sensor section ensures multiple backup tools can be available at a fraction of the cost of a complete tool.

A complete log of time, status, pressure, temperature, axial and radial acceleration (tilt and shock) and output voltage is stored to the tools flash memory for post-job analysis. A low-cost passive casing collar locator (CCL) can also be added to collect CCL data during the drift run, eliminating the need for an additional correlation tool.

The tool is activated or de-activated using a pre-programmed sequence of time, pressure/temperature safe windows and if required a series of pressure pulses and/or acceleration movements.

The tool is independently certified as safe for use in offshore environments and meets the recommendations of API RP67.

**Specifications:**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
<td>1.69“ 42.9 mm</td>
</tr>
<tr>
<td>Optional Diameter</td>
<td>1.375“ 34.9 mm</td>
</tr>
<tr>
<td>Length (make-up)</td>
<td>3.83 ft 1.17 m</td>
</tr>
<tr>
<td>Weight</td>
<td>22 lbs 10 kg</td>
</tr>
</tbody>
</table>

**Limitations:**

<table>
<thead>
<tr>
<th>Limitation</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Pressure</td>
<td>15,000 psi 103.4 MPa</td>
</tr>
<tr>
<td>Maximum Temperature</td>
<td>165 °C 329 °F</td>
</tr>
<tr>
<td>Extended</td>
<td>175 °C 347 °F</td>
</tr>
<tr>
<td>Memory Capacity</td>
<td>3MB, &gt;524,000 data sets (Module A)</td>
</tr>
<tr>
<td></td>
<td>1MB, 65,536 data sets (Module C)</td>
</tr>
<tr>
<td></td>
<td>1MB, 65,536 data sets (Module D)</td>
</tr>
<tr>
<td>Accuracy</td>
<td>&lt;±0.05 % FS (Pressure)</td>
</tr>
<tr>
<td></td>
<td>&lt;±0.5 °C (Temperature)</td>
</tr>
<tr>
<td></td>
<td>&lt;±0.1g (Acceleration)</td>
</tr>
<tr>
<td>Typical Resolution</td>
<td>&lt; 0.01 psi (Pressure)</td>
</tr>
<tr>
<td></td>
<td>&lt; 0.01°C (Temperature)</td>
</tr>
<tr>
<td></td>
<td>&lt; 0.01g (Acceleration)</td>
</tr>
</tbody>
</table>

**Mechanical:**

- Top Connection: 15/16“ x 10 UN (5/8” Sucker Rod) fish neck can be replaced with CCL crossover
- Bottom Connection: 1-3/16“ x 12 UNF GO Piri
- Power Requirements: 2 x PMX165 °C Lithium Battery
- Current Consumption: 5 mA (> 22.5 days' operation from a single battery)
- Wetted Materials: 17-4PH or NACE MR-01-75 Compatible

**Other information:**

- Dimensions: Depends on CCL
- Additional Current: 500 μA (idle)
- Composition: 2mA (1 sample/sec)
- Sample Rate: CCL is sampled 8x per sec., and stored once per sec. to memory

**Specifications CCL correlation:**

- Slickline Fish Neck or Crossover to Passive / Shooting CCL
- Lithium Battery Pack with Feed-through for Passive / Shooting CCL
- Pressure / Temperature Sensor
- Field-Replaceable Shock
- Mounted Electronics and Sensor Section
- Pressure / Temperature Safety Switches
Drill Stem Testing

Intelligent Electronic Trigger

Specifications:

Operating Parameters:
- Time: Initial Delay, Final Delay, Maximum Run Time
- Pressure/Temperature: Low/High Pressure/temperature Interlock Windows
- Tilt: Min/Max Deviation Windows
- Acceleration: Max Delta Acceleration on Axial and Radial Axes
- Baseline Stability: Min/Max Baseline Pressure, Max Delta Baseline Pressure, Specific deviation/acceleration limits (optional)
- Pressure and/or Acceleration Pulses: Each pulse duration = 1s to 1hr
- Restart during Final Delay: Min/Max Restart Pressure, Max Delta Restart Pressure, Specific deviation/acceleration limits (optional)

Supported Devices:
- EBW Igniters and Detonators using Ecosse EBW Firesets
- JR-RED Devices
- Dynawell Electronic Detonators and Igniters (RF safe devices)
- HPI Low Voltage Coil (same electronics module as DynaWell)

Features:
- High operating pressure and temperature (15,000 psi and 165°C)
- Field-Replaceable Electronics and Sensor Module
- CCL correlation requires no additional electronics
- Simple to use software (Windows XP/Vista compatible) with USB connection to tool
- Extends number of applications where tool can be run
- Multiple backups can be held at a fraction of the cost. All module types are inter-changeable.
- Allows operator to verify tool is operational
- No external interfaces required allowing

Applications:
- The Expro Intelligent Trigger can be used to perforate, plug and cut tubing, liner or casing and can be run on slickline, e-line, coil tubing and is suitable for TCP or DST operations.
  - Perforating
  - Dump Bailing
  - Plug Setting
  - Fluid Sampling
  - Cutting
  - Remote Valve Activation

* This is a proprietary product of Sentergy, a Probe company.