The shortest overall length available for a given base length allows the RST Digital Inclinometer to traverse a smaller radius bend than all other inclinometers.

A local microcontroller in the probe manages data collection, applies precision digital calibration, and provides a fast settling time which results in very efficient data collection.

Calibration of the inclinometer is not affected by the cable system and readout unit. Any RST digital inclinometer probe can be used with any approved readout with no additional calibration.

No-slip, swaged cable marks and casing collar cable grip eliminate the need for a heavy pulley assembly.

The Digital MEMS Inclinometer System from RST Instruments represents a major advance in the evolution of inclinometer systems. By utilizing cutting edge MEMS (Micro-Electro-Mechanical Systems) technology, users will be well-equipped with unmatched precision, high thermal stability and rugged durability when compared to older technologies. In addition, an internal 24 bit A/D converter provides digital data return for superb resolution, noise immunity and overall system accuracy that competing inclinometers cannot offer.

The Ultra-Rugged Field PC functions as the data collector. It provides a high-level user interface, industry-leading memory, optional Flash data security, "at-the-borehole" data analysis and comparison to previous data sets, and instant USB synchronization with office computers.

industry leading MEMS technology

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benefits

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drop it, dunk it and use it

The Ultra-Rugged Field PC is rock solid and field ready for the most extreme environments. Wireless communication between the inclinometer control cable and the Ultra-Rugged Field PC ensures ease of use and reliability since there is no longer any concern with fragile connectors, cable related failure and reliability problems.

- processor, operating system and memory
  - 520 Mhz PXA270 processor
  - Windows® Mobile Operating System
  - Bluetooth™ Wireless Communication
  - Internal solid state 512 MB Flash memory (2 million biaxial data sets)
  - Compact Flash (Type I or II) and SD/SDHC card slots
  - Both USB Host and Client plus 9-pin RS-232
  - Real-time clock keeps correct date & time, even without battery

- display
  - Active viewing area of 89 mm (3.5 in.) diagonal
  - Transflective LCD - brilliant contrast in direct sunlight
  - 1/4 VGA, 240 x 320 pixels, selectable for portrait or landscape view
  - Sealed, resistive, pressure sensitive touchscreen
  - On-board stylus
  - Backlit LCD

- power
  - Rechargeable, lightweight Li-Ion battery pack, 14 W-h (nom.)
  - 20 hour battery life on single charge (4 to 6 hrs. charge time)
  - Battery easily changed in the field without tools
  - 12 V vehicle power unit connector for charging or direct power unit
  - Intelligent battery notifier

- environmental
  - Operating temperature: -30 to 55°C (-22 to 130°F)
  - Waterproof and dustproof, IP67
  - Shockproof: multiple drops from 1.5 m (5 ft.)
  - MIL-STD-810F: water, humidity, sand and dust, vibration, altitude, shock, high temperature, low temperature, temperature shock
### Specifications

<table>
<thead>
<tr>
<th>INCLINOMETER</th>
<th>METRIC SYSTEM</th>
<th>IMPERIAL SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheelbase</td>
<td>0.5 m</td>
<td>24 in</td>
</tr>
<tr>
<td>Probe diameter</td>
<td>25.4 mm</td>
<td>1.00 in</td>
</tr>
<tr>
<td>Probe length (including connector)</td>
<td>710 mm</td>
<td>28.0 in</td>
</tr>
<tr>
<td>Probe weight</td>
<td>1.4 kg</td>
<td>3.0 lbs</td>
</tr>
<tr>
<td>Probe material</td>
<td>Stainless steel</td>
<td>Stainless steel</td>
</tr>
<tr>
<td>Full-scale range (other ranges available)</td>
<td>30 degrees</td>
<td>30 degrees</td>
</tr>
<tr>
<td>Data resolution</td>
<td>0.005 mm per 500 mm</td>
<td>0.00002 ft per 2 ft</td>
</tr>
<tr>
<td>Memory</td>
<td>&gt;1,000,000 readings</td>
<td>&gt;1,000,000 readings</td>
</tr>
<tr>
<td>Repeatability</td>
<td>±0.002°</td>
<td>±0.002°</td>
</tr>
<tr>
<td>System Accuracy</td>
<td>±2 mm per 25 m</td>
<td>±0.1 in. per 100 ft</td>
</tr>
<tr>
<td>Axis alignment</td>
<td>Digitally nulled</td>
<td>Digitally nulled</td>
</tr>
<tr>
<td>Temperature rating</td>
<td>-40 to +70°C</td>
<td>-40 to +158°F</td>
</tr>
<tr>
<td>Sensor Type</td>
<td>MEMS Accelerometer, Biaxial</td>
<td></td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>CABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable diameter</td>
</tr>
<tr>
<td>Cable weight</td>
</tr>
<tr>
<td>Cable tensile strength</td>
</tr>
<tr>
<td>Cable jacket</td>
</tr>
<tr>
<td>Cable stretch (suspended in 61 m dry borehole)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CABLE CONNECTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector material made of 316 stainless steel.</td>
</tr>
<tr>
<td>Rating for underwater use, with wet connection at 5000 ft. (1524 m) in salt water.</td>
</tr>
<tr>
<td>Includes a molded urethane rubber strain relief to enhance cable durability at the connector entrance.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CABLE REELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 100 m cable reel diameter</td>
</tr>
<tr>
<td>101 to 225 m cable reel diameter</td>
</tr>
<tr>
<td>+225 m cable reel diameter</td>
</tr>
<tr>
<td>Reel weight with 75 m (246 ft) cable</td>
</tr>
</tbody>
</table>

### Ordering Info

#### Systems - Metric
- IC32003 30 m complete system with 0.5 m probe
- IC32005 50 m complete system with 0.5 m probe
- IC32075 75 m complete system with 0.5 m probe
- IC32010 100 m complete system with 0.5 m probe
- 125, 150, 200, 250, 300 m and longer systems available

#### Systems - Imperial
- IC32110 100 ft complete system with 2 ft probe
- IC32115 150 ft complete system with 2 ft probe
- IC32120 200 ft complete system with 2 ft probe
- IC32130 300 ft complete system with 2 ft probe
- 400, 500, 600, 800, 1000 ft and longer systems available

#### Optional System Accessories
- IC35805 Dummy Probe 0.5 m wheelbase - METRIC
- IC35802 Dummy Probe 2 ft wheelbase - IMPERIAL
- IC32705 Digital MEMS Inclinometer Spiral Sensor (see separate brochure)
- IC35600 RST Inclinalysis™ - Digital Inclinometer Analysis Software

Horizontal MEMS Inclinometer (probe available in custom lengths in Metric and Imperial units - see separate brochure).

### Included System Components
- MEMS Digital Inclinometer probe with protective case
- Ultra-Rugged Field PC
- Reel with case and spare battery
- AC charger (universal voltage) for Ultra-Rugged Field PC
- Rechargeable Li-Ion battery for Ultra-Rugged Field PC
- USB cable for Ultra-Rugged Field PC
- User documentation CD for Ultra-Rugged Field PC
- Screen protector for Ultra-Rugged Field PC
- Silicone spray for probe/cable connectors
- Data collection & transfer software
- 12V automobile adapter
- 70 & 85 mm cable grips
The RST Digital MEMS Inclinometer System and Inclinalysis™ Software offer a powerful combination for quick and efficient reduction of large volumes of inclinometer data. Data can be analyzed and presented quickly in a variety of formats.

RST Inclinalysis™ Software is powerful, yet easy to use. Plotting, manipulating data and printing are all only a few clicks away. Menu and plot functions are designed to be intuitive making the program very easy to learn. Designed to complement the Digital MEMS Inclinometer System, data is organized in a standard file structure which makes importing data seamless between Inclinalysis™ and the Ultra-Rugged Field PC.

- Plot data at the click of a button. View several plots simultaneously across the screen. Ability to save multiple reports for a single borehole.
- Create custom plot titles and change graph properties. Change reading units instantly to millimeters, metres, inches or feet. Specify top or bottom data reference. Correct for bias-shift.
- Import inclinometer data in a variety of formats from different manufacturers including spiral data.
- Create vector plots displaying change in magnitude and direction, and time plots to assess the rate of movement at a particular depth or in a specific movement zone. Instant visual data validation by plotting checksum data.
- Display data in tabular format and compare directly to plots. Take direct measurements off any plot.
- Menu and plot functions are designed to be intuitive and easy to learn. Cascade windows to display multiple plots and tabular data on the same screen.