

VIEW THIS SYSTEM IN ACTION!

YouTube <http://youtu.be/1nqpiQUzh4o>

DIGITAL
MEMS
INCLINOMETER
SYSTEM

MEMS
TILT & INCLINATION
SERIES


inclinalysis™
digital inclinometer analysis software



EVOLUTION + INNOVATION

INCLINOMETER SYSTEMS

WIRELESS COMMUNICATION

DIGITAL MEMS TECHNOLOGY

rst
INSTRUMENTS

innovation in
geotechnical
instrumentation



SINCE 2003

THE SHORTEST OVERALL LENGTH

The RST Digital MEMS Inclinometer Probe with industry leading system accuracy of ± 2 mm per 25 m, shown connected to the cable.



DIGITAL MEMS INCLINOMETER SYSTEM

Since 2003, RST's Inclinometer systems have had the shortest overall length available for a given base length compared to competitive inclinometers. Undaunted, we've forged ahead and improved on our very own industry-leading specifications. With a new minimum negotiable casing radius of 1.99 m, RST's Digital MEMS Inclinometer can still traverse a smaller radius bend than all other inclinometers available in the industry. 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.

The Ultra-Rugged Field PC² functions as the data collector. It provides a high-level user interface, "at-the-borehole" data analysis and graphical comparison to previous data sets.

CONNECTOR COMPARISON

LEAST INTERFERENCE

Other Inclinometers

RST's Inclinometer

Interference

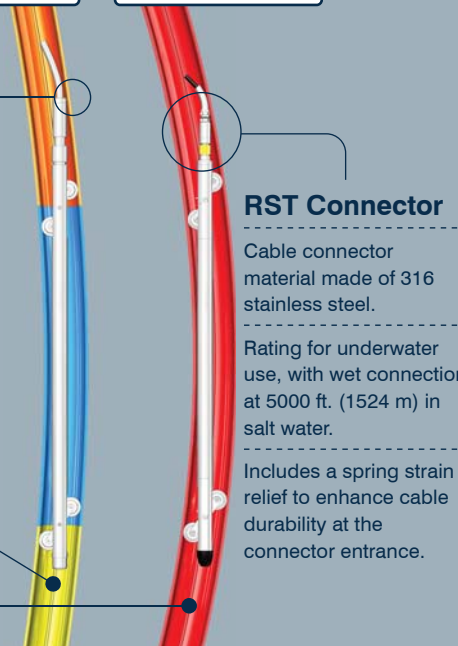
Interference at connector is visibly inherent in other inclinometers (left) while RST's Digital MEMS Inclinometer (right) can clearly traverse a smaller radius bend (1.99 m) than all other inclinometers.

Minimum Negotiable Casing Radius

Other Inclinometers:
3.12 m

RST Inclinometer:
1.99 m

0.5 m wheelbase probes shown in 70 mm OD inclinometer casing.

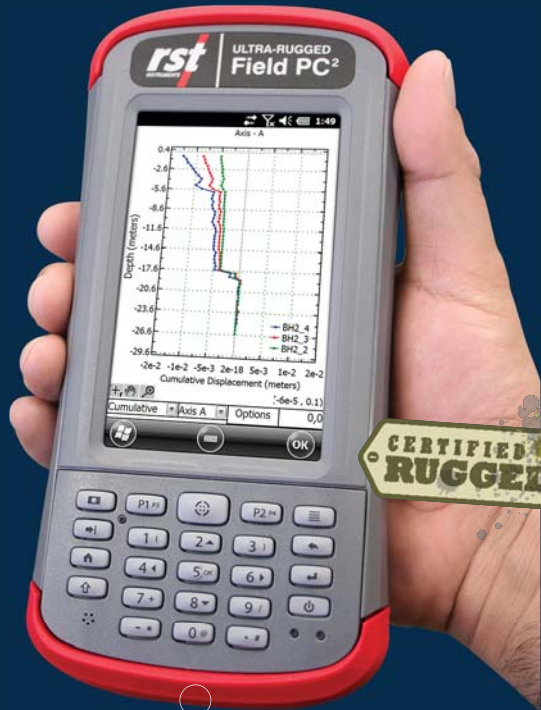


RST Connector

Cable connector material made of 316 stainless steel.

Rating for underwater use, with wet connection at 5000 ft. (1524 m) in salt water.

Includes a spring strain relief to enhance cable durability at the connector entrance.



CERTIFIED RUGGED

ULTRA-RUGGED Field PC²

PROCESSOR OPERATING SYSTEM MEMORY

Rock solid and field ready for the most extreme environments. Wireless communication between the inclinometer control cable and the Ultra-Rugged Field PC² ensures ease of use and reliability since there is no concern with fragile connectors, cable related failure and reliability problems.

- 1.0GHz ARM Cortex A8 i.MX53 processor
- Microsoft® Windows Embedded Handheld 6.5.3
- Microsoft® Office Mobile 2010 (Word, Excel, PowerPoint, Outlook)
- Bluetooth® Wireless Communication
- Wi-Fi® 802.11b/g/n with extended range
- Internal solid state 512 MB Flash memory (2 million biaxial data sets)
- 8GB flash storage, user-accessible micro SD/SDHC slot
- 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 109 mm (4.3 in.) diagonal
- WVGA LCD TFT (800x480)
 - portrait or landscape orientation
 - High visibility backlit LCD
 - brilliant contrast in direct sunlight
- Projected capacitive touch interface, "optically bonded" to display for increased visibility.
- Scratch-resistant screen
- On-board stylus with tether

POWER

- Intelligent Li-Ion battery 3.7VDC @ 10600mAh, 38.16Whr
- 20 hour battery life on single charge (2 to 4 hrs. charge time)
- Battery easily changeable in field

ENVIRONMENTAL

- Operating temperature: -30 to 60°C (-22 to 140°F)
- Bluetooth® rated to -20°C (-4°F)
- IP68 waterproof and dustproof
- Shockproof (multiple drops from 1.5 m (5 ft.) on to concrete)
- MIL-STD-810G: high/low temp., temp. shock, rain, humidity, sand & dust, immersion, vibration, altitude, shock.



DIGITAL MEMS TECHNOLOGY

WIRELESS COMMUNICATION

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DIGITAL MEMS INCLINOMETER SYSTEM

THE FIRST IN EVOLUTION + INNOVATION

For measuring any lateral movement down in the earth, via inclinometer casing, the Digital MEMS Inclinometer System from RST Instruments Ltd. was the first, and is still the best, Digital MEMS Inclinometer System available.

MEMS
TILT & INCLINATION
SERIES



The inclinometer reel can be charged without removing the battery and offers up to 30 hours of continuous use from a full charge. Its battery life can also be viewed with the Ultra-Rugged Field PC²

SPECIFICATIONS

| INCLINOMETER | METRIC SYSTEM | IMPERIAL SYSTEM |
|--|-----------------------------|---------------------|
| Wheelbase | 0.5 m | 24 in |
| Probe diameter | 25.4 mm | 1.00 in |
| Probe length (including connector) | 719 mm | 32.6 in |
| Probe weight | 1.06 kg | 2.45 lbs |
| Probe material | Stainless steel | Stainless steel |
| Full-scale range (other ranges available) | ±30 degrees | ±30 degrees |
| Data resolution | 0.005 mm per 500 mm | 0.00002 ft per 2 ft |
| Memory | >1,000,000 readings | >1,000,000 readings |
| Repeatability | ±0.002° | ±0.002° |
| System Accuracy | ±2 mm per 25 m | ±0.1 in. per 100 ft |
| Axis alignment | Digitally nulled | Digitally nulled |
| Temperature rating | -40 to +70°C | -40 to +158°F |
| Sensor Type | MEMS Accelerometer, Biaxial | |
| CABLE | | |
| Cable diameter | 6.40 mm (±0.1 mm) | 0.25 in |
| Cable weight | 2.3 kg / 50 m | 3.1 lbs / 100 ft |
| Cable breaking strength | 1.8 kN | 400 lbs |
| Cable reinforcement | Kevlar® † | Kevlar® † |
| Cable jacket | Polyurethane | Polyurethane |
| Cable stretch (suspended in 50 m dry borehole) | 7.0 mm | 0.27 in |
| CABLE REELS | | |
| Up to 75 m cable reel diameter | 310 mm | 12.2 in |
| 100 to 200 m cable reel diameter | 380 mm | 15 in |
| +225 m cable reel diameter | 460 mm | 18 in |
| Reel weight with 50 m (100 ft.) cable | 4.7 kg | 8.4 lbs |



RST's newly developed connector is by far the industry leader for the least amount of connector interference.

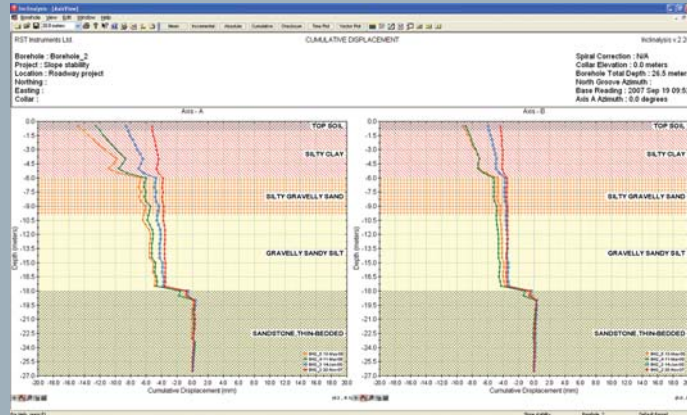


RST also provides the most robust cable on the market with a breaking strength of 1.8 kN (400 lbs.) Also, our new non-slip, swaged cable marks are unmatched in grip strength.



The compact reel system with 50 m cable weighs a very manageable 4.7 kg and can be easily held with one hand. A padded carrying case is included.

THE PERFECT PAIR



RST Inclinalysis™ Software screen capture shows cumulative displacement of a borehole.

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 PC².

Plot

Plot data at the click of a button. View several plots simultaneously across the screen. Ability to save multiple reports for a single borehole.

Assess

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.

Customize

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.

Compare

Display data in tabular format and compare directly to plots. Take direct measurements off any plot.

Import

Import inclinometer data in a variety of formats from different manufacturers including spiral data.

Intuitive

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.

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 |
| IC35650 | Protective Aluminum Carrying Case - for Inclinometer Probe |

Horizontal MEMS Inclinometer
(probe available in custom lengths in Metric and Imperial units - view separate brochure or contact sales at RST Instruments).

INCLUDED SYSTEM COMPONENTS

- MEMS Digital Inclinometer probe with protective case
- Cable Reel with Wireless Communication System
- Cable Reel Carrying Case
- Silicone spray for probe/cable connectors
- Data collection & transfer software
- 70 & 85 mm cable grips
- Ultra-Rugged Field PC² (with rechargeable Li-Ion battery)
- AC Adapter for Ultra-Rugged Field PC²
- AC Adapter for Reel Battery Charger
- USB cable for Ultra-Rugged Field PC²
- Quick start guide for Ultra-Rugged Field PC²
- Ultra-wide hand strap for Ultra-Rugged Field PC²
- Stylus with tether for Ultra-Rugged Field PC²



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