

VIEW THIS SYSTEM IN ACTION!

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

DIGITAL
MEMS
INCLINOMETER
SYSTEM

MEMS
TILT & INCLINATION
SERIES


inclinanalysis™
digital inclinometer analysis software



EVOLUTION + INNOVATION

INCLINOMETER SYSTEMS

WIRELESS COMMUNICATION

DIGITAL MEMS TECHNOLOGY

rst
INSTRUMENTS

innovation in
geotechnical
instrumentation

GEOTECHNICAL
MINING
ENVIRONMENTAL
STRUCTURAL



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

DIGITAL MEMS TECHNOLOGY

WIRELESS COMMUNICATION

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 1.93 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 (1.93 m) than all other inclinometers.

Minimum Negotiable Casing Radius

Other Inclinometers:

3.12 m

RST Inclinometer:

1.93 m

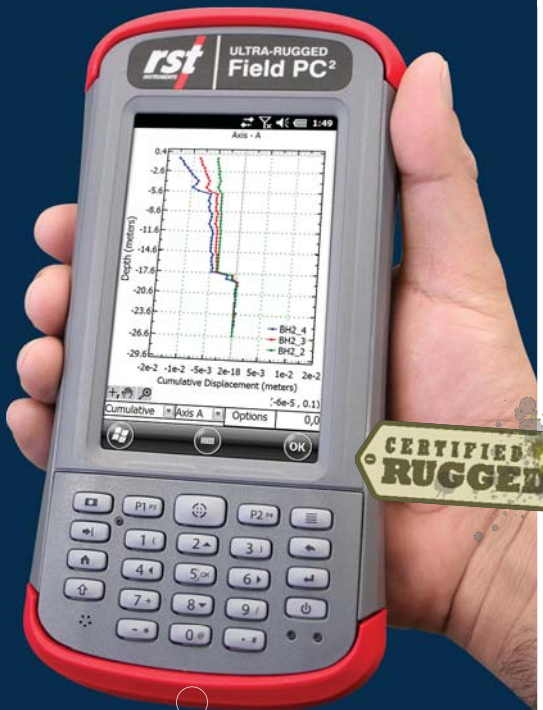
0.5 m wheelbase probes shown in 70 mm OD inclinometer casing.

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 molded urethane rubber 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.



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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

SPECIFICATIONS

INCLINOMETER	METRIC SYSTEM	IMPERIAL SYSTEM
Wheelbase	0.5 m	24 in
Probe diameter	25.4 mm	1.00 in
Probe length (including connector)	710 mm	28.0 in
Probe weight	1.2 kg	2.65 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	5.07 lbs / 164 ft
Cable breaking strength	5.90 kN	1325 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 100 m cable reel diameter	300 mm	12 in
101 to 225 m cable reel diameter	380 mm	15 in
+225 m cable reel diameter	460 mm	18 in
Reel weight with 50 m (164 ft.) cable	4.7 kg	10.4 lbs



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

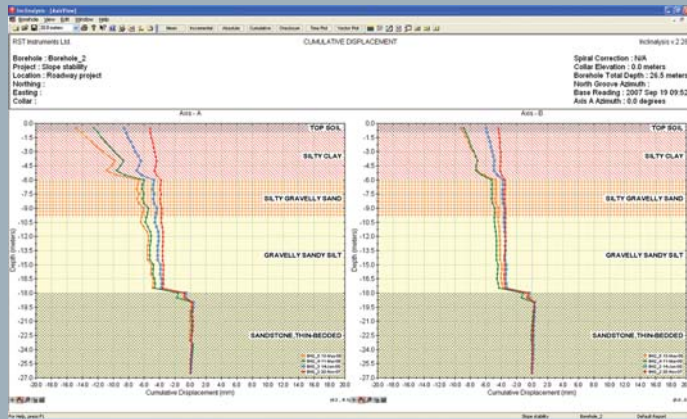


RST also provides the most robust cable on the market with a breaking strength of 5.90 kN (1325 lbs.) Also, our new non-slip, swaged cable marks are unmatched in grip strength.



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.

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.

Import

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

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.

Compare

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

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.

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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
- Reel with case and spare battery
- Silicone spray for probe/cable connectors
- Data collection & transfer software
- 12V automobile adapter
- 70 & 85 mm cable grips
- Ultra-Rugged Field PC²
- AC charger with international plug kit for Ultra-Rugged Field PC²
- Rechargeable Li-Ion battery for Ultra-Rugged Field PC²
- 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
- Screwdriver



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