

Logging Tensiometers

APPLICATIONS

- Soil science research
- Soil hydraulic properties
- Water retention properties
- Water retention curves
- Wetting/sorption curves
- Drying/desorption curves
- Column leachate

FEATURES

- Scientific accuracy
- PC Logging
- Plug & Play operation
- Universal software
- Modular and expandable
- Plain text data format
- Two-year warranty
- Low cost

Lab system for logging tensiometers

Soil tension measurements are an important aspect of soil science research. The tension under which water is held in the soil can be used to determine the amount of water in the soil and the stress under which plants are growing.

ICT International now offers scientists a highly accurate, low cost, plug & play solution to logging soil tension in the lab. The system consists of an SI8 PC interface and PCS Windows based software program. The system provides almost unlimited sensor capacity but for most applications between 3 and 30 tensiometers are common.



Applications

Jet Fill tensiometers equipped with pressure transducers connected to a computer via an SI8 interface are being employed to determine approach to equilibrium in the water-retention testing of stony-solids and weathered-rock materials that are widely used for store/release-covers on mine-wastes in the semi-arid areas of Western Australia. Due to the occurrence of stones and rock-fragments ranging up to several centimeters, large testing-cells are employed on conventional suction-plate apparatus, and attainment of equilibrium at the pre-set suction is confirmed via tensiometry. This technique is proving very useful in characterising the water-retention properties of such stony materials at the “wet-end” of the suction range.

Jet Fill Tensiometers



Jet Fill tensiometers have been used by soil scientists and researchers throughout the world for over 50 years. Through the use of precision moulded components, high grade ceramic cups of specified air entry values, Jet Fill tensiometers are unsurpassed for reliability, accuracy and quality. The unique Jet Fill reservoir enables refilling of the water column without breaking the intimate contact of the ceramic cup with the soil which reduces the chance of cavitation of the column and loss of data.



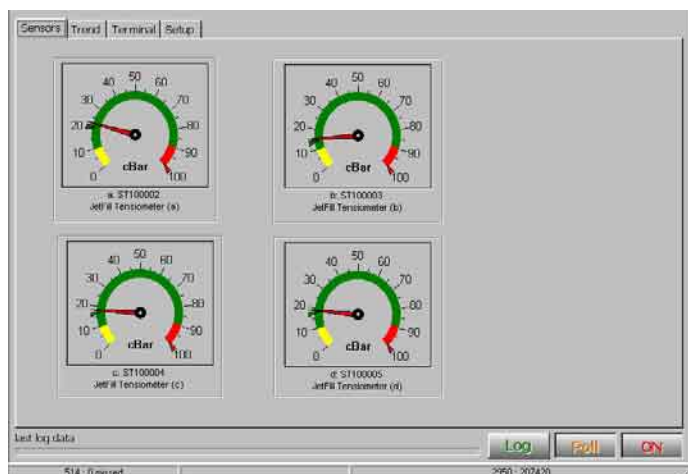
ICT International Pty Ltd

PO Box 503
Armidale NSW 2350
AUSTRALIA

Ph: [61] 2-6772-6770
Fax: [61] 2-6772-7616

sales@ictinternational.com.au
www.ictinternational.com.au

Computer logging



the Tensiometers connected. Once an Icon for the PCS software has been configured the Tensiometers begin logging automatically by double clicking the icon. The data is stored in a Comma Separated Values (CSV) file which can be opened in Microsoft Excel. A new file can be automatically generated for each day's data or a single file for each experiment depending on the preference of the user.

Smart interface

Each tensiometer is fitted with an external smart interface that consists of an integrated microprocessor. This interface contains all the required information to allow autonomous operation of the sensor, including the transducer calibration, power requirements and logging interval. The smart interface resolution is 16 Bit (1 in 65,000) offering highly precise and accurate recording of the tensiometer's pressure transducer.

Each interface is fitted with a standard cable length of 5 m, extension cables of any length can be interchanged as different experiments demand.

Pressure transducer

The Jet Fill transducer incorporates the GT3 Honeywell pressure transducer into a custom design specifically for the Jet Fill tensiometer range. The tough milled aluminium body has a brass 1/4" NPT thread that provides longevity of the unit even under the most extreme environmental conditions. With the Honeywell reputation for producing quality transducers you know you are measuring with accuracy.



Ordering information

SI8	SI8 PC logging interface with
power supply	
PCS	Windows software for sensor/PC operation
IB12	Monibus interface
ICTGT3	Pressure transducer
ST1	Tensiometer smart interface
2725ARL06NG	Jet Fill Tensiometer 15 cm length
2725ARL12NG	Jet Fill Tensiometer 30 cm length
2725ARL18NG	Jet Fill Tensiometer 45 cm length
2725ARL24NG	Jet Fill Tensiometer 60 cm length
2725ARL36NG	Jet Fill Tensiometer 90 cm length

Using the SI8 PC interface an individual Tensiometer or multiple Tensiometers can be logged and displayed in real time directly by the computer. The SI8 PC interface does not require any knowledge of electronics or computer programming.

The SI8 connects directly into a serial port on the PC. The SI8 is then linked to a MoniBus and

SPECIFICATIONS

PC Requirements:

IBM COMPATIBLE

Processor: Pentium or higher
Memory: 256 MB or higher
Hard Disk: 20 GB or higher
Operating System: Win95 or higher. Windows XP preferred
Software: HyperTerminal

APPLE MACINTOSH

Processor: 25 MHz 68040 or higher
Memory: 256 MB or higher
Hard Disk: 1 GB or higher
Operating System: OS 7.0 or higher
Software: ZTerm

Sensors:

SI8 INTERFACE

Baud Rate: 1200
Data Bits: 8
Parity: 1
Stop Bits: 1
Flow Control: Xon/Xoff
Power: 5–28 V unregulated
Current drain: 2 mA nominal

SMART INTERFACE

Range: 0–100 cBar
Resolution: 16 Bit
Accuracy: +/- 1%
Power: 5–28 V unregulated
Current drain: 1.3 mA

TENSIOMETER

Range: 0 to 100 cBar
Accuracy: +/- 1 cBar
Resolution: 0.1 cBar

TRANSDUCER

Range: 0 to 100 kPa
Accuracy: +/- 1%
Resolution: 0.1 kPa
Power requirement: 1.3 mA @ 10 V DC Stabilised
Temp shift: Temperature compensated in the range 0–50°C. Typical shift 0.5% of full scale

System packing

Dimensions:
1,000 mm x 460 mm x 520 mm
Weight: 3.5 kg