

DIGITAL TAPE EXTENSOMETER

DATASHEET E3

PRODUCTS



FEATURES

- Compact and very lightweight.
- Digital LCD readout.
- Simple, reliable and easy to read with positive tape tensioning.
- Stainless steel measuring tape.
- Can be operated with one person.
- Measurements from 1m to 30m on standard units.



The Soil Instruments' Digital Tape Extensometer is a portable device designed to measure the displacement between pairs of reference studs or eyebolts installed on a structure or in an excavation.

It comprises a stainless steel measuring tape and a lightweight body which has a digital LCD readout for ease of use.

Accurate and robust, the Soil Instruments Digital Tape Extensometer can be used to measure radial movements and convergence of tunnels, shafts, linings and caverns, displacement of retaining walls, cuttings, bridge piers, arches and abutments and deformations of excavations.

THE SOIL INSTRUMENTS DIGITAL TAPE EXTENSOMETER

The Soil Instruments Tape Extensometer is a portable instrument which is used to measure the displacement between pairs of reference studs or eyebolts grouted into holes in a structure or excavation. The studs or eyebolts are permanently fixed to provide a precise reference point at the surface of the structure.

Demountable extension studs are available for fixing in locations where, for instance, additional shotcrete is applied to the surface to be monitored.

The tape extensometer unit comprises a stainless steel measuring tape with equally spaced precision punched holes and a "hook" connector. The tape is fitted to a tape winding reel integral with the lightweight body of the instrument. The body of the extensometer also has a connector identical to that on the free end of the tape. The instrument incorporates a tape tensioning device and a digital LCD readout.

A location pin is engaged into the appropriate tape hole and is secured with a retaining clip, the tape tension is adjusted by rotating a knurled collar until white cursor lines on the face plate and internal spring anchor block are precisely aligned. Repeatability of 0.1mm is achievable with an experienced operator.

A reading is taken by noting the visible pin hole position on the tape at the instrument nose and adding the reading on the digital readout. For high accuracy one instrument should be dedicated for the duration of a project. New base readings must be established if a replacement tape is fitted, However correlation between instruments can be readily made on site.

It is important to note that the measurements being taken are not absolute, but relative to the previous measurement or movement providing accurate data over time.

The instrument can be operated by one person.

APPLICATIONS

- Tunnels
- Excavations
- Retaining walls
- Structures

SPECIFIC APPLICATIONS

TUNNELS

- Radial movements and convergence
- Monitoring and control of construction by the sprayed, Shotcrete tunneling method.

EXCAVATIONS

- Deformations of underground power houses, caverns and adits.

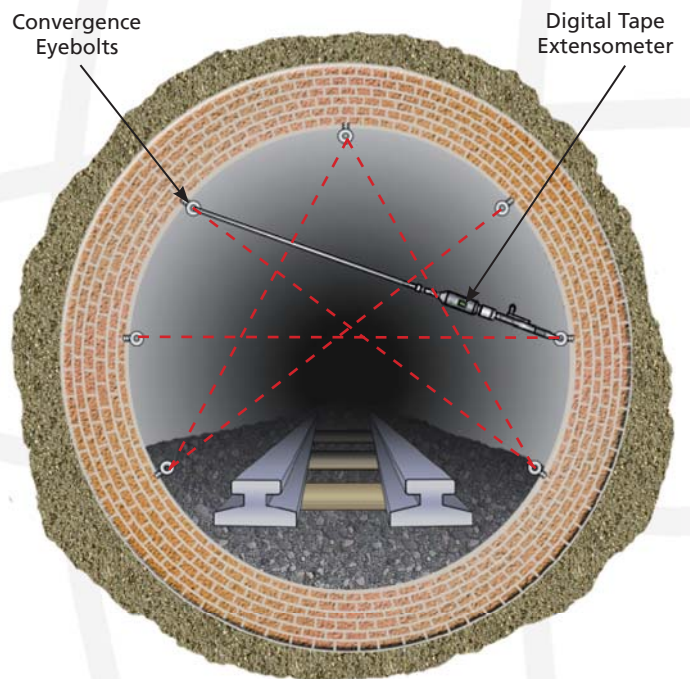
RETAINING WALLS

- Displacement of retaining walls, cuttings, bridge piers, arches and abutments.

STRUCTURES

- Stability of concrete structures and buildings.

TYPICAL TUNNEL INSTALLATION



FOR DETAILS ON:

- Push-in VW Pressure Cells, see data sheet P9.
- VW Settlement Cells, see data sheet S8.

SPECIFICATIONS

Range	20m, 30m, & 50m
Accuracy ¹	±0.01mm
Resolution	0.01mm
Repeatability ²	0.1mm
Operating Temperature	-10 to 60°C
Tape Tension	11kg
Tension Indicator	Optical
Weight Excluding Tape	1kg
Power Off	Automatic
Power On	Automatic (upon movement of the micrometer)

TAPES

Lengths	20m	30m	50m
Weight	410g	610g	1kg
Material	Stainless Steel		
Hole Pitch	25mm		

GROUTABLE ANCHORS 20MM DIAMETER

Rebar Length	100mm	250mm	500mm
Eye Bolt Material	Stainless Steel		
Rebar Material	Zinc Plated Carbon Steel		
Weight	270g	635g	1250g

THREADED EYE BOLTS

Material	Stainless Steel
Thread Size	M10 x 1.5 Pitch
Weight	22g

REFERENCE BAR

Dimensions	1200 x 80 x 130mm
Weight	3.5kg

¹Accuracy Of The Micrometer

²Dependant On Operator Experience

ORDERING INFORMATION

PART NO. DESCRIPTION

CONVERGENCE EYEBOLTS

E3-2.30	With M10 threaded stem
E3-2.31	With groutable anchor, 100mm length
E3-2.32	With groutable anchor, 250mm length
E3-2.33	With groutable anchor, 500mm length
E3-2.34	With groutable anchor, 150mm length
E3-2.35	Protective cap for E3-2 anchors

INSTALLATION EQUIPMENT

W6-4.4	Polyester resin cartridge
W6-4.5	Cartridge injection tool
W6-4.2	Metal adhesive
E3-3.8	Tool kit

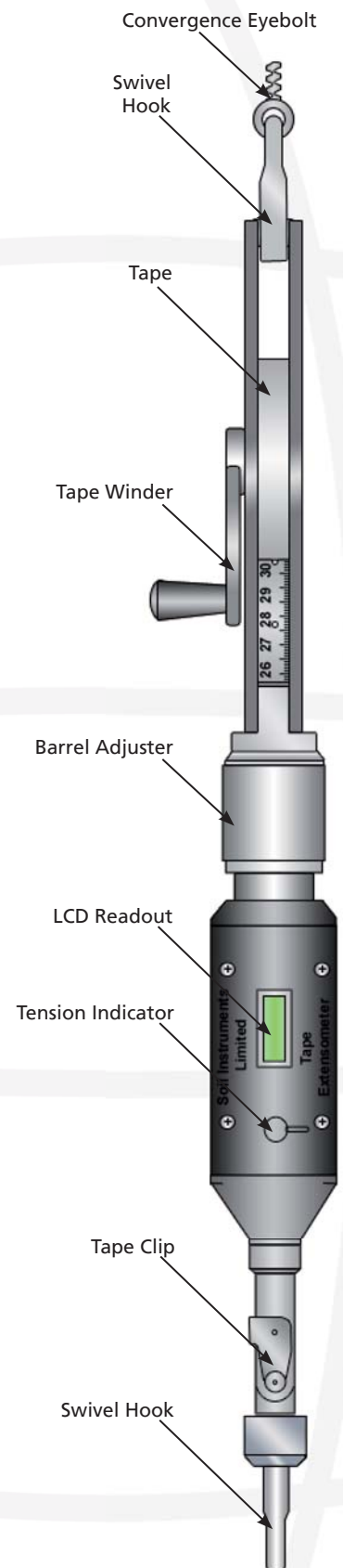
DIGITAL TAPE EXTENSOMETER

E3-4.30	20metre tape length
E3-4.31	30metre tape length

ACCESSORIES

E3-5.13	Replacement stainless steel tape, 20metre length
E3-5.14	Replacement stainless steel tape, 30metre length
E3-5.18	Portable reference bar

E3- Digital Tape Extensometer



Groutable Anchor



Threaded Eyebolt



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