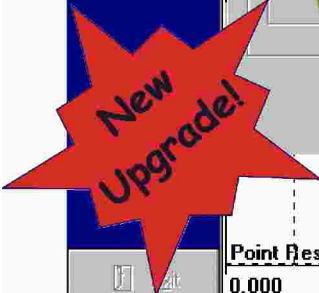
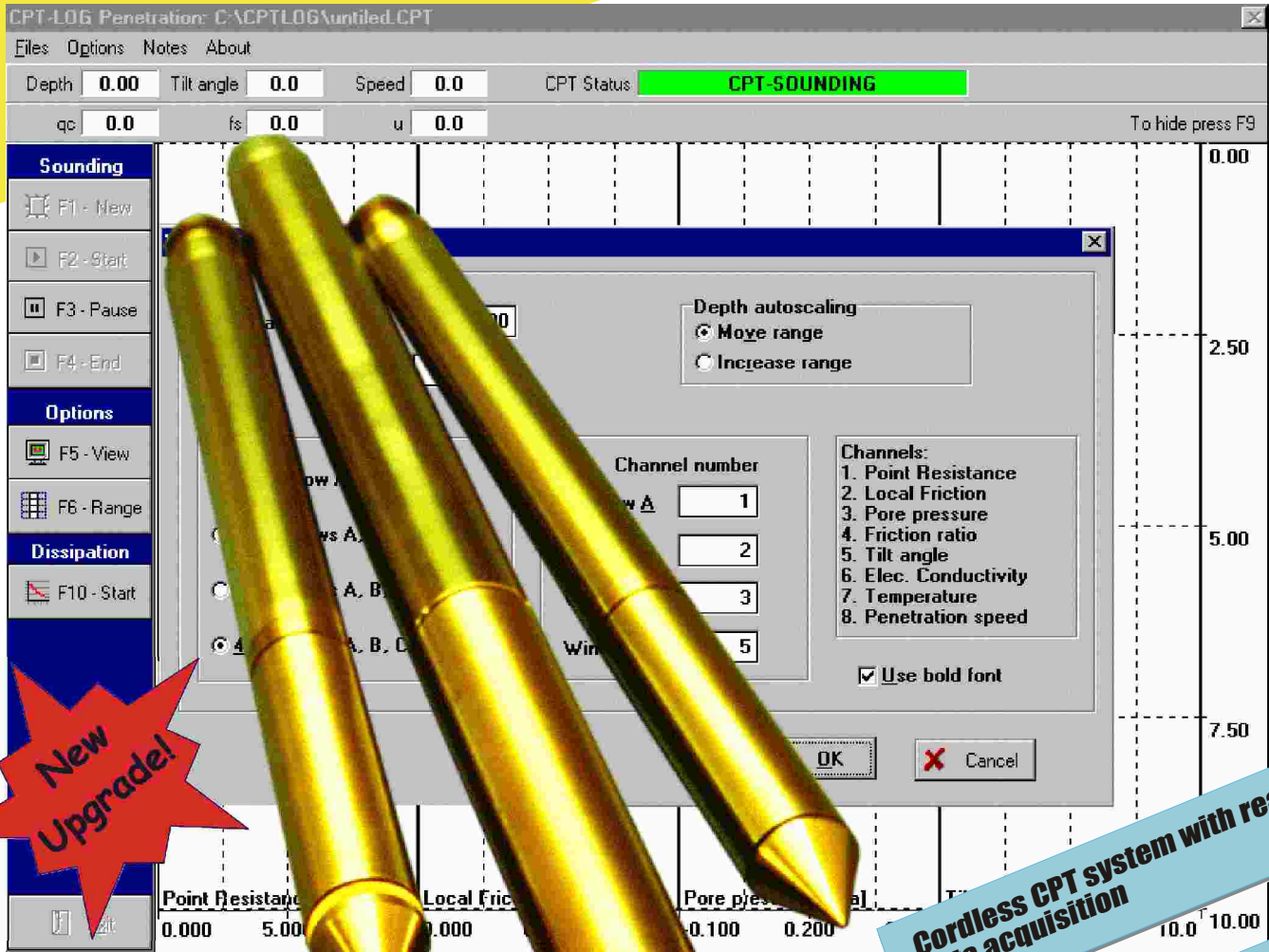


CPT(u) Probes

IN-SITU TESTING



Cordless CPT system with realtime data acquisition

Min 8 hours 18 bit back-up memory in cone available

Measurement of: Point resistance, Sleeve friction & Dynamic Pore Pressure

Options: Tilt, Temperature & Electric conductivity, Seismic

Probes in the standard 10 and 15 sq.cm section areas

Geotech CPT acquisition software CPT-LOG, replacing the CPTGL software. Overlain, CPT(U) probes with 10 and 15 sq.cm section areas, equipped with point resistance, sleeve friction, pore pressure and tilt sensors.

Geotech manufactures since 1979 a unique Cordless Cone Penetration Test (CPT) system. The data is transmitted acoustically from the probe to the surface through the CPT rods. The probes are equipped with up to 5 sensors.


**Datavägen 53, S-436 32 Askim
 (Göteborg) Sweden
 Tel +46 31 28 99 20, Fax +46 31 68 16 39
 E-mail: sales@geotech.se
 http://www.geotech.se**

THE LEADING EDGE SCANDINAVIAN MANUFACTURER OF GEOTECHNICAL EQUIPMENT

GEOTECH CPT(U) PROBES

The Geotech CPT(u) probes are equipped with individual sensors for point resistance (q_c), sleeve friction (f_s), pore pressure (u) (optional). The cones can also be equipped with tilt and temperature and with adapters for electric conductivity or seismic CPT. The data measured by the sensors is digitised, multiplexed and encrypted with an error detecting code in the probe before it is forwarded to the sound transmitter (P.N. 41205) or cable adapter for transmission to the surface. To back-up the data transmission, the cones can also be delivered with a back-up memory of 8 hours capacity, with 18 bits resolution on all channels. This downhole electronics can also be mounted on the 10 sq.cm compression cones from the subsidiary GeoMil Equipment bv (P.N. 08969).

All the three parameters point resistance, sleeve friction and dynamic pore pressure vary with the type of penetrated soil. In addition, the point resistance (q_c , in MPa, measured behind the cone) varies with the degree of stiffness. The sleeve friction (f_s , in kPa, measured along a sleeve on the probe) is an expression of the horizontal pressure building up during penetration of the probe, and varies with the type of soil and the degree of overconsolidation. The boundary between soil types is expressed by a modification in the sleeve friction/point resistance relation.

Clays are primarily identified by the dynamic pore pressure readings (u , in MPa, measured through a sintered pewter filter) which also give an indication of the undrained shear strength. The permeability of soils can be estimated by the dissipation time of the dynamic pore pressure. Extra available channels are temperature, electric conductivity and seismic.

The readings from the three channels are corrected for temperature drift by a temperature sensor and a processor in the electronic part of the probe. The probes have therefore a very low temperature sensitivity.

A tiltmeter can be delivered in the probe. During penetration, the deviation from the vertical of the probe can be monitored and the probe automatically stopped at a pre-set maximum tilt increment or point resistance with the programmable automatic electronic card (P.N. 41450). The card is mounted in the Geolog-PC or in the interface box (see separate data sheets).

Probe Characteristics	Probe 10 cm ²	Probe 15 cm ²
<i>Measurement channels:</i>		
Point resistance (q_c):	10, 50 or 100 MPa	10, 50 or 100 Mpa
Sleeve friction (f_s):	0,5 MPa, or 1.5 MPa(*)	0,5 or 1 MPa
Dynamic pore pressure (u) (option):	2,5 MPa, or 10 MPa(*)	2,5 MPa
Tilt (option):	0 - 40°	0 - 40°
Electric Conductivity (option):	-	0,001 - 10 S/m
Temperature (option):	-10° to +50° C (t= 20s)	-10° to +50° C (t= 20s)
Seismic (option):	Only with cable transmission	
Back-up memory:	8 hours, 18 bits resolution	
<i>Dimensions:</i>		
Cone:	60° apex angle	60° apex angle
Section area:	10 cm ²	15 cm ²
Friction surface:	150 cm ²	225 cm ²
Total length:	1000 mm	710 mm
Weight:	3,5 kg	5,5 kg
Power supply (autonomy):	6 alkaline batteries, type "C" (10 hours)	2 alkaline batteries, type "C" (10 hours)
Net area factor, cone:	0,58	0,7
Net area factor, sleeve friction:	0,014	0

(*) Ranges with 10 sq.cm cone bodies from the subsidiary GeoMil Equipment bv

TECHNICAL SPECIFICATIONS			
Variables	Point Resistance(q_c)	Sleeve Friction (f_s)	Dyn. Pore Press. (u)
Resolution (12 bits):	0,04%F.S.	0,05%F.S.	0,04%F.S.
Resolution (18 bits; 2 ¹⁷ steps):	10 ⁻⁴ %F.S.	10 ⁻⁴ %F.S.	10 ⁻⁴ %F.S.
Temperature stability:	<0,2%F.S.	<0,2%F.S.	<0,2%F.S.
Non linearity:	<0,1%F.S.	<0,5%F.S.	<3%F.S.
Overload allowance:	25%	50%	25%

ORDER REFERENCE			
P.N.	Description	P.N.	Description
41101	Probe 10 cm ² , 10 MPa, 3 chan., temp.comp.	41205	Sound transmitter for 36 mm rods
41106	Probe 10 cm ² , 50 MPa, 3 chan., temp.comp.	41180	Extra channel with tilt sensor
41110	Probe 10 cm ² , 100MPa, 3 chan., temp.comp.	41450	Programmable stop card
10520	Probe 10 cm ² , UNSPECIFIED RANGES, 3 ch	08791	Electric conductivity sensor
10521	Comb. Probe 10 cm ² , UNSPECIFIED RANGES, 3 ch	41132	Temperature sensor
08480	Probe 15 cm ² , 2 chan., temp. comp.	08969	Back-up memory for 10 cm ²

Geotech reserves the right to make any changes in the specifications of its products without prior notice

/CPT-Probes3.4.doc

INGENJÖRSFIRMAN GEOTECH AB

Headquarters (Göteborg):

Datavägen 53, SE-436 32 ASKIM, Sweden

Tel: +46 (0)31 28 99 20 Fax: +46 (0)31 68 16 39

E-mail: sales@geotech.se <http://www.geotech.se/>

Branch Office (Stockholm):

Sulkyvägen 15, SE-163 43 SPÅNGA, Sweden

Tel: +46 (0)8 28 99 20 Fax: +46 (0)8 56 47 47 65