Tectronic 4000

Geological Data Collector
for Stratum Measurements

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For more than two centuries F.W. BREITHAUPT & SOHN have been manufacturing geological compasses which today are successfully being used in 140 countries.
For stratum measurements (azimuth and angle of dip measurements) according to the method of Prof. Dr. Clar the BREITHAUPT Stratum Compass COCLA has proved its efficiency for 4 decades now.
The **Electronic Stratum Compass TECTRONIC 4000** started a new era of measuring planar and linear elements. It serves the needs of engineering and structural geologists to electronically measure a vast amount of data in the field to store the information, and to evaluate the data with the aid of a personal computer.

Field of Application

The Tectronic 4000 is an electronic compass applicable for structural and engineering field work. In one single operation both azimuth of dip and angle of dip are electronically measured, displayed in the LCD-window and stored in the memory.

Description

Outer appearance: Compact, light and appropriate for field use.

With outer dimensions of 126 x 78 x 31 mm (5 x 3 x 1,2 inches) (closed) and a weight of only 300 g the TECTRONIC 4000 is a very handy instrument. Sealed throughout (splash proof according to IP 67) the Tectronic may be used under adverse conditions. The large measuring plate (78 x 78 mm / 3 x 3 inches), a pressure-sensitive keyboard and a clearly readable LCD display guarantee optimum productivity. The conspicuous yellow warning colour of the housing and a carrying cord mean safety against loss. The outer edges of the case are graduated in metric and English units (mm and inches). A notch and bear finder sight is provided for distant target triangulations.

Highly integrated electronics in SMD-technics

Because of its compact size, the TECTRONIC 4000 utilizes double-sided printed circuit boards that contain densely packed non-magnetic electronic modules. Magnetic directions are determined through highly sensitive magnetic field sensors. Angles of dip are measured by a miniaturized inclinometer sensor. Pressure and temperature sensors determine barometric evaluations (option).Distances may be measured with an integrated pedometer the movements of which are electronically registered and counted.

1	Pressure-sensitive keyboard	8	Vertical angle encoder
2	Second ENTER-key	9	Battery compartment
3	Finder sights	10	Main ON-OFF switch
4	Circular level	11	Interface
5	LCD display	12	Female threads for tripod
6	Eye for carrying cord	13	Graduated scale
7	Measuring plate	14	Second circular level

This instrument operates with a microprocessor which has multiple application-related capabilities

Measuring stratum data
Hitting a key starts the menu “to measure stratum data“. The current measured values are displayed for 4 seconds alternately for the azimuth of dip and angle of dip.
Prior to starting the measurements, the local magnetic declination value can be entered, likewise the angle units (degrees or grades).

→to identify the outcrop

By entering a key number of max. 4 digits, up to 99 different outcrops or survey localities can be identified. Concurrently, the date, time, declination etc. will be automatically recorded.

→to register and record stratum data

With the compass cover serving as a measuring plate the TECTRONIC 4000 is aligned in contact with the measuring plane. After centering the circular level, pressing the ENTER key initiates the recording process. A second ENTER key is located at the side of the compass housing to enable measurements in situations where the measuring plate is in an almost closed position thus covering the keyboard. A second circular level is located on the underside of the housing so that readings can be taken by holding the instrument overhead.

→planar or linear

If the last reading was taken on a planar element, the instrument assumes that the next reading will also be a planar one. By simply pressing a key the instrument can be changed into a linear mode.

→complementary information for data set

Four-digit code numbers can be assigned twice for every set of data so that each value can be individually identified and described. In case of similar measurements, data from previous recordings can be incorporated.

→examination of stored data

All stored data sets (up to approx. 4000, subdivided into max. 99 survey stations) can be made visible in the display.

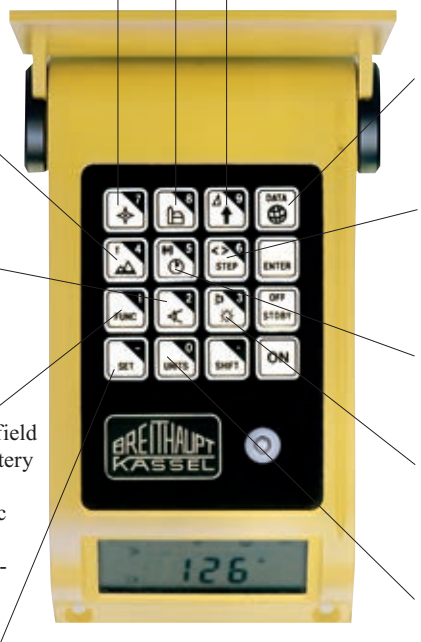
→to erase measuring data

The last recorded value or complete sets of data of a certain outcrop or survey station identified by a code number can be sequentially erased in any order starting from the back.

→data transmission via interface cable to PC

On the bottom side of the TECTRONIC 4000 compass housing is a special outlet that enables transmission of data via an interface cable to a PC. Data can be subsequently be evaluated using a computer.

Tectronic 4000



Additional electronic function-modules and multiple accessories for universal measuring applications

Upon special request, the Tectronic 4000 will be supplied with a built-in temperature compensated altimeter that registers barometric elevations, atmospheric pressures and temperatures. An external thermometer sensor attached to the bottom side of the instrument will transmit accurate temperature readings necessary for precise height determinations.

The integrated electronic pedometer allows distance measurement once a certain pace constant has been entered. In conjunction with the optional telescope, pedometer and barometer, the Tectronic 4000 can function as a topographic survey instrument.

The integrated watch module offers time and date. In the stop watch mode, the instrument may be a great asset for your time planning.

For 90 capitals and major cities around the globe, the direction towards Mecca is programmed.

Distinctive Advantages

- Electronic measurements and recording of planar and linear structural data. Measurements (azimuth of dip and angle of dip) according to the method of Prof. Dr. Clar
- Storage capacity of approx. 4000 data sets subdivided into max. 99 different outcrobs
- Most comfortable operating keyboard
- Ability to key-in individual code numbers for every measurement
- Interface to transmit measurement data to a PC
- Most advanced electronics for maximum reliability and productivity
- Integrated electronic pedometer for distance measurement
- Integrated electronic altimeter (option)
- Adaptable telescope for topographical surveys
- A universal, compact and field proven instrument, made in Germany

Technical Data

Angle measurement, smallest displayed unit	horizontal	1° (1g)
	vertical	1° (1g)
Swivel range of measuring plate		235°
Declination settings		any
Distance measurement		65536 paces
Altimeter, sensitivity		20 m
Circular level		50' / 2 mm
Drawing edge		9,5 cm / 3,5 inch
Weight (incl. battery)		300 g approx.
Dimensions (compass with cover closed)		126 x 78 x 31 mm (5 x 3 x 1,2 inch.)
Power supply (internal)		3 lithium cells, each 3 V
Power supply (external)		non-magnetic battery pack
Storage capacity		32 KB, approx. 4000 sets of measured data

Ordering Data

Geological Data Collector for Stratum Measurement
incl. case — No. 3300

Geological Data Collector for Stratum Measurement
with integrated electronic altimeter, incl. case — No. 3301

Accessory
Non-magnetic batteries, non-rechargeable
1 set (3 cells), 4 hours — No. 4033

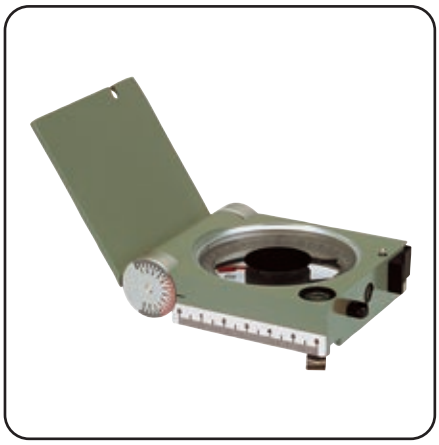
Alternative to non-magnetic batteries
Rechargeable battery pack (NiMH) incl. cable, measuring time approx. 18 hours — No. 15331
Battery charger — No. 15333
Solar panel — No. 2433

Accessories for data transmission
Evaluation software ARiAne, running under DOS — No. 5033
Evaluations software TectonicsFP, running under Windows incl. transfersoftware for data transmission and data conversion
TECTRONIC-PC — No. 3300.53
Data transfer cable (TECTRONIC – PC) — No. 2533
Connection cable (battery pack-PC) — No. 2633

Accessories for topographic measurements
Telescope (10 x 25), adaptable to Tectronic — No. 1033
Non-magnetic telescopic tripod — No. 8419
Ball joint head — No. 356.1
Canvas bag for tripod — No. 365

Tender specifications:

Geological Data Collector for Stratum Measurement
to measure planar and linear elements, digital readout in LCD display, storage capacity approx. 4000 data sets, RS 232 interface for transmission of measurement data to a PC, electronic pedometer, digital stop watch, electronic clinometer; Geological Data Collector as above but with optional integrated electronic altimeter.



Stratum compass COCLA according to Prof. Dr. Clar. For measuring azimuth and angle of dip in one operation

Basic stratum compass GEKOM according to Prof. Dr. Clar. For measuring azimuth and angle of dip in one operation.

Optical hand clinometer and automatic hand level NECLI having four different graduations (400 gon / %, reduction scale / 360°)

Manufacturing Program:

Magnetic Compasses

Geological Compasses, Stratum Compasses, Prismatic Compasses, Mining Compasses, Orientation Compasses, Electronic Stratum Compass, Electronic Surveying Compass, Electronic Orientation System.

Levelling Instruments

Quickset Levels, Builder's Levels, Engineer's Levels, Automatic Engineer's Levels, Precision Levels

A family-owned company now in the eighth generation

The continuous development of the company and its successful future are based on the design and manufacture of well marketable products of scientific acceptance since the establishment of the firm in the year 1762.
Astronomical Quadrant (1785)
First mining theodolite (1798)
High precision dividing machine (1816)
First order precision level BREITHAUPT-Seibt (1877)
Gyro theodolite (1924)
Universal theodolite +/- 0,13" (1932)
Advanced technology by incorporating electronics and laser techniques (1979)

Theodolites

Surveying Instrument Systems for Training Purposes, Builder's Theodolites, Compass Theodolites, Repetition Scale Theodolites, Double Center Theodolites, Mining Suspension Theodolites, Pilot Balloon Theodolites, Electronic Pilot Ballon Theodolites

Topographical Instruments

Optical Hand Clinometers, Telescopic Alidades, Plane Table Equipment, Plane Table Tacheometers, Topographical Range Finders, Electronic Range Finders, GPS

Experience and technical know-how accomplished in more than 245 years

More than 470.000 BREITHAUPT surveying instruments are successfully used by engineers and scientists in 140 countries. The comprehensive manufacturing program comprises the instrument that matches its intended special application.

Continuous development of our products built on experience, advice of the practising surveyor and coupled with latest production techniques, guarantee a maximum of quality, reliability and precision to the benefit of our customers throughout the world.

BREITHAUPT sets the marks of accuracy and excellence.

Geodetic Special Instruments

Clinometers, Level Quadrants, Optical Track Levelling Equipments, Universal Optical Track Measuring Instruments, Alignment Telescopes, Laser Profile Measuring Instruments, Optical Precision Plumbing Instruments, Laser field of view Measuring Equipments, Quarry Pulse Laser Instruments, Electronic Angle Measuring Instrument, Sag Measuring Instrument

Geodetic Testing Instruments

Testing Instruments for Graduated Circles, Double Image Comparators, Collimators and Adjusting Stands, Spirit Level Testing Instruments

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