

# REF TEK COLT

## BROADBAND SEISMOMETER

### EXCEPTIONAL PERFORMANCE

The compact REF TEK® Colt™ broadband seismometer provides high quality data for scientists conducting earth movement studies.

#### Low Self-Noise

Using a force-balance electronic feedback circuit design, the REF TEK Colt has exceptionally low self-noise allowing it to better measure ground motion even at the quietest sites. Scientists requiring portable or small footprint vault style seismometers now have a high dynamic range instrument available for quick, easy deployment.

#### Robust

The shock resistant mass locking system protects the instrument during transportation to any field location. And, with an IP67 rating, rain, hail and snow won't interfere with your data collection.

#### Intelligent Design

Many features make the REF TEK Colt broadband seismometer quick to install, including:

##### » ALIGNMENT TOOLS

Successful installations depend on precise directional alignment, the REF TEK Colt makes that easy with removable north/south pointers installed in the base of the unit to make orientation to the scribe line effortless.

##### » BUBBLE LEVEL

Visible on the top of the unit, so eyeballing is easy for perfect leveling.

##### » THREE POINT LEVELING

Leveling is made easy with 360° access to the leveling feet, just put it on site, then move the wheels until the unit is level.

##### » MASS UNLOCK

The automatic Mass Unlock simply unlocks the mass when you turn on the unit, no screwdriver required.

##### » CONNECTOR

With the connector located on the top of the unit, you can be ready for connecting the sensor to the recorder quickly and easily.



### BENEFITS

- » Low self-noise, resulting in high quality data for all your analysis requirements
- » Small and lightweight, for convenient carrying to site
- » Shock resistant housing and robust automatic mass locking system makes the unit ready for any field environment
- » Available in two frequency ranges for varying scientific budgets.

### RELIABLE PERFORMANCE FOR

- » Permanent and temporary broadband installations including:
  - » Local and regional broadband networks
  - » Aftershock and portable deployments
  - » Earthquake Early Warning Network (EEW)

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## BROADBAND SEISMOMETER

SPECIFICATIONS	
ELECTRICAL	
<b>Sensor Type</b>	Symmetrical Configuration (3 Component), Orthogonal Output
<b>Feedback</b>	Force balance with capacitive transducer
<b>Bandwidth</b>	0.0083 (120 seconds) – 80 Hz (Flat velocity response) 0.0167 (60 seconds) – 80 Hz (Flat velocity response)
<b>Dynamic Range</b>	>140dB (0.01 -0.05Hz); >160 dB (1–10 Hz)
<b>Self-Noise</b>	Below NLNM from 40 seconds to 10 Hz
<b>Clip Level</b>	>10 mm/s (@1 Hz)
<b>Nominal Sensitivity</b>	2000 Vs/m, $\pm 1\%$ (see supplied test sheet for precise value)
<b>Full Scale Output</b>	40 Volts Peak-Peak (Differential Output)
<b>Output Impedance</b>	<100 Ohms
<b>Parasitic Resonances</b>	>160 Hz
<b>Cross Axis Coupling</b>	<1%
<b>Linearity</b>	<–60 dB
<b>Total Harmonic Distortion</b>	<–60 dB
<b>Calibration Constant</b>	10 m/s <sup>2</sup> /A (nominal)
<b>Calibration Input</b>	Calibration current on 3 components simultaneously
<b>Calibration Enable Capability</b>	Active Low on Pin L to stay enable
<b>Cal Coil</b>	Single Cal signal input, isolated until cal enable line activated
<b>Mass Position Outputs</b>	$\pm 10$ V
POWER	
<b>Input Voltage</b>	9–18 VDC
<b>Consumption</b>	<0.7 Watts
<b>Protection</b>	Over-voltage, Reverse-voltage, & surge protection

SPECIFICATIONS	
MECHANICAL	
SIZE	
<b>Case Material</b>	Anodized Aluminum
<b>Without Handle &amp; Feet</b>	150 mm (5.9") Diameter x 192 mm (7.6") Height
<b>With Handle &amp; Feet</b>	150 mm (5.9") Diameter x 258 mm (10.2") Height
<b>Weight</b>	5.5 kg (12 lbs)
<b>Leveling</b>	Integrated bubble level and three adjustable leveling feet with locknuts
<b>Leveling Tilt Range</b>	$\pm 3.0$
<b>Alignment</b>	Handle of top of case parallel to the North-South Axis Removable N/S pins screw into the base for additional alignment guidance
<b>Mass Lock/Unlock</b>	Automatic unlock when sensor powers on (Unlock on Active LOW for more than 6 sec on Pin U) Automatic lock when sensor powers off (Unlock on Active LOW for more than 6 sec on Pin K) Lock/Unlock can also be done via logic level commands from digitizer
<b>Mass Centering</b>	Automatic when sensor powers on (Start after unlock, Active LOW pulse on Pin M) Manual upon logic level command from Digitizer
<b>Mass Centering Range</b>	$\pm 2.0^\circ$ (Auto-centering by motors)
<b>Mass Temperature Sensitivity</b>	+/- 20°C without mass re-centering
ENVIRONMENTAL	
<b>Operating Temp.</b>	–25 °C to +60 °C
<b>Storage Temp.</b>	–55 °C to +80 °C
<b>Watertight Integrity</b>	IP68* *1 meter underwater for 1 hr
CERTIFICATIONS	
<b>Compliance</b>	CE, RoHS

ORDERING INFORMATION	
PART NO.	DESCRIPTION
117400-120	REF TEK Colt broadband seismometer, 120 seconds to 80 Hz
117400-60	REF TEK Colt broadband seismometer, 60 seconds to 80 Hz

**CUSTOMER SUPPORT**

REF TEK products are installed in locations around the world, from urban settings to rainforests to deserts. The environments are often challenging for electronics and REF TEK Systems is committed to providing reliable, practical support. Our team includes seismologists and seismic installation experts as well as engineers and technicians.

**Contact support@reftek.com.**

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Contact your local dealer today

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