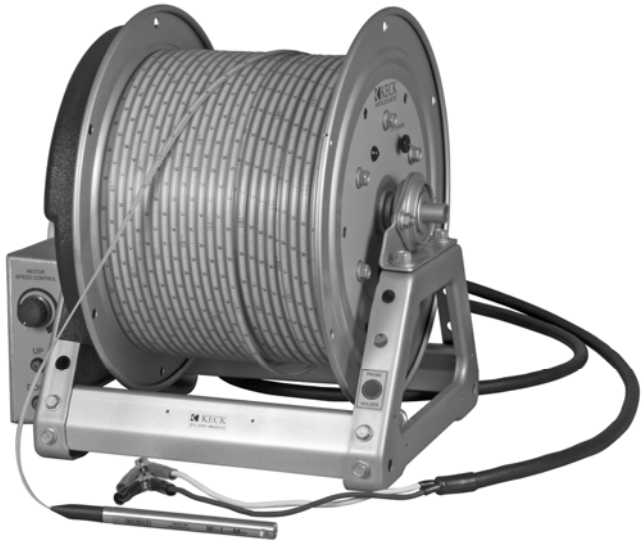
Keck 1500’ – 2000’ ET/Tuff Tape Water Level Meters

with optional electric rewind

Installation and operation Manual



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DOCUMENTATION CONVENTIONS

This uses the following conventions to present information:

WARNING

An exclamation point icon indicates a **WARNING** of a situation or condition that could lead to personal injury or death. You should not proceed until you read and thoroughly understand the **WARNING** message.

CAUTION

A raised hand icon indicates **CAUTION** information that relates to a situation or condition that could lead to equipment malfunction or damage. You should not proceed until you read and thoroughly understand the **CAUTION** message.

NOTE

A note icon indicates **NOTE** information. Notes provide additional or supplementary information about an activity or concept.

Chapter 1: System Description

Function and Theory

The Keck Water Level Meters are portable instruments used to accurately measure water levels in monitoring wells and bore holes. The meter detects water levels with a 5/8" O.D. stainless steel weighted probe attached to a polyethylene tape marked to 1/100th of a foot.

The meter relies on fluid conductivity to determine the presence of water. An audible signal and visible LED light activate when the probe contacts water. The meter incorporates a sensitivity adjustment to prevent false triggering.

To avoid damage to tape and strain relief, do not over tighten reel with probe in storage position.

System Components

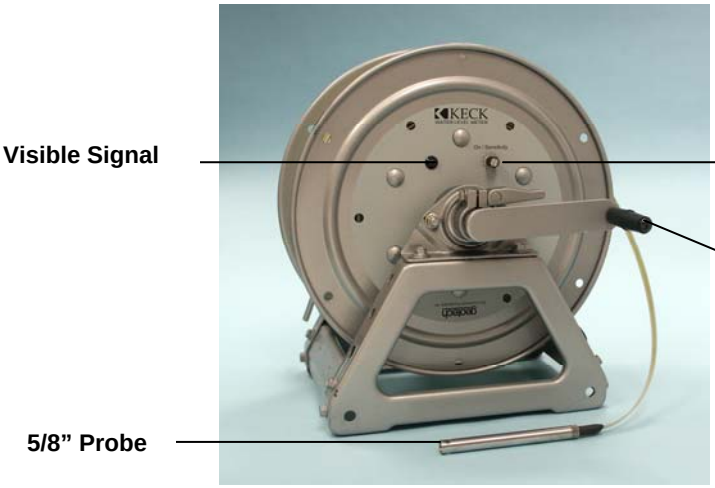


Figure 1 – Manual Reel Front View

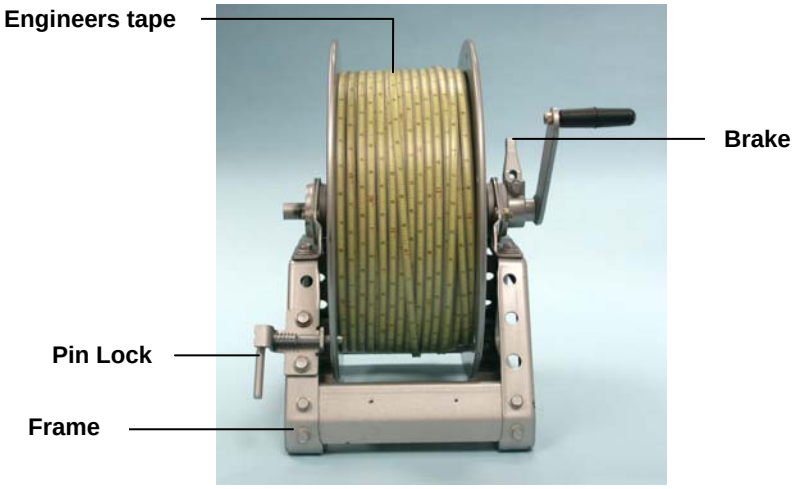


Figure 2 – Manual Reel Side View

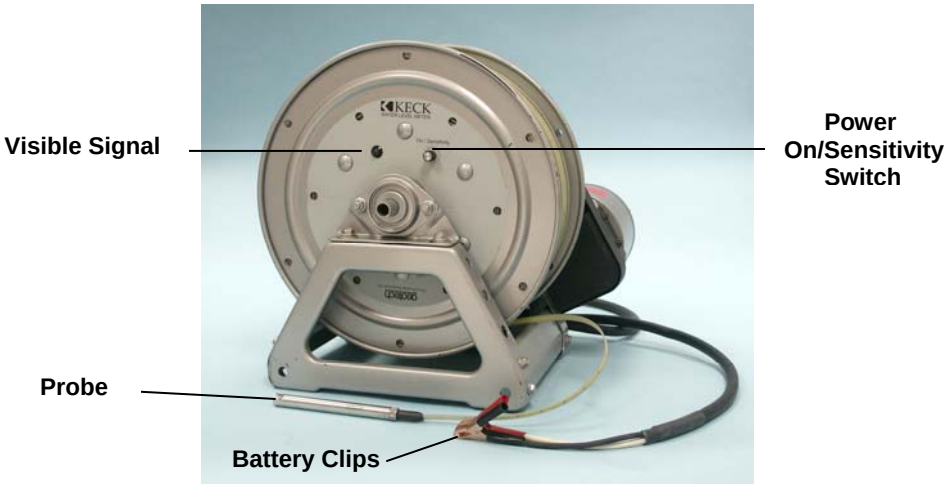


Figure 3 – Electric Reel Front View

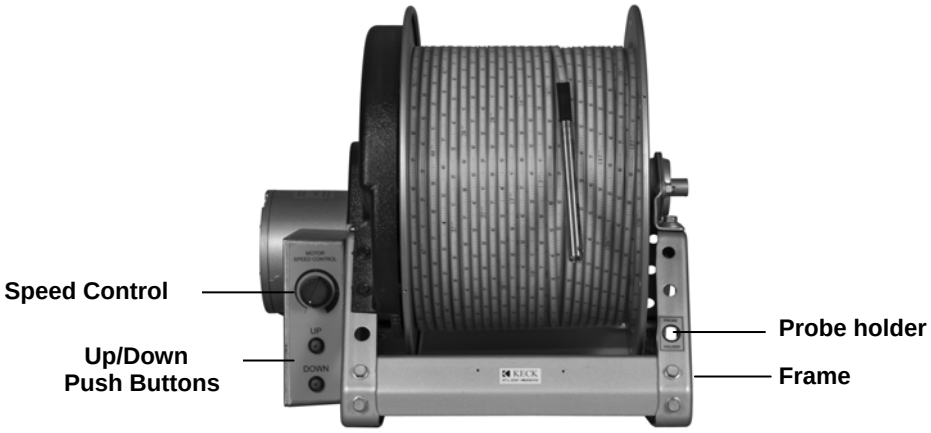


Figure 4 – Electric Reel Side View

Chapter 2: System Installation

Manual Reel

Carefully lower the probe into the well, using the tape guard to prevent damage to the tape.

Do not use the tape guard in wells larger than 4”, as it may fall down the well.

In wells larger than 4” be careful not to let the tape scrape against the lip of the well casing.

Electric Reel

1) Plug power cord into the control box of the reel.

2) Attach red clip to positive battery terminal, and black clip to the negative battery terminal.

3) Turn the speed control dial fully counter-clockwise. Press desired button (up/down). Slowly rotate the speed control until reel is rotating at the desired speed.

When winding the tape up on the reel, pay careful attention so that the tape and/or probe do not get caught or tangled.

Keep hands and loose article of clothing away from chain. DO NOT operate unit without guard!

Chapter 3: System Operation

1) Turn the instrument on with the ON/SENSITIVITY switch. If the buzzer makes a loud signal and the light is visible, the battery is adequate for normal operation.

2) Lower the probe down the well to the water surface. The light and buzzer will activate. At this point, adjust the probe sensitivity dial by rotating it counter-clockwise until the light and buzzer shut off.

3) With the probe still in contact with the water, adjust the probe sensitivity dial clockwise until the light and buzzer barely activate. In this setting, the probe will detect water levels but will not be affected by false triggering.

4) Water level measurements can now be taken from the top of the casing or any reference point.

5) The meter should be stored with the switch in the OFF position. If the meter will be stored and not used for three (3) months or longer, remove the battery to prevent battery leakage from damaging the meter.

To avoid damage to tape and strain relief, do not over tighten reel with probe in storage position.

Chapter 4: System Maintenance

Battery Replacement

Replace the battery when the audible and visible signals become weak or the unit does not operate.

Step 1 Gently remove the battery tray.

Step 2 Remove the old battery and replace it with a new one.

Be aware of the polarity (+, -) of the battery when placing the new battery in the tray.

Cleaning

The Water Level Meter can be cleaned with any detergent such as trisodium phosphate (TSP), Alconox or Liquinox. If other detergents are used, take care to select detergents that are compatible with Teflon®, polyethylene, and stainless steel. The reel should not be submerged in any liquid, but may be cleaned with a damp cloth.

If the probe becomes covered with silt or mud, it may be cleaned with detergent and a soft bristle brush.

Chapter 5: System Troubleshooting

PROBLEM: NO SIGNAL (audible or visible) WHEN UNIT IS TURNED ON.

Solutions:

1) The battery is discharged.
   - Check or change battery (see page 8).

2) The circuit is malfunctioning.
   - Consult the manufacturer.

PROBLEM: NO INDICATION OF WATER.

Solutions:

1) The conductive contact is dirty.
   - Clean the contact (see page 8)

2) There is an open connection in the tape.
   - Replace tape and/or probe. **

3) The circuit is malfunctioning.
   - Consult the manufacturer.

PROBLEM: THE SIGNAL (audible or visible) IS INTERMITTENT.

Solutions:

1) There is an open connection in the tape.
   - Replace tape and/or probe. **

2) There is a loose connection in the circuit or the probe.
   - Repair the connection. **

PROBLEM: The signal (audible or visible) is continuous when not in water.

Solutions:

1) The conductive contact is dirty (causing bridging).
   - Clean the contact (see page 8).

2) There is a short in the tape and/or probe.
   - Replace tape and/or probe. **

3) The circuit is malfunctioning.
   - Consult the manufacturer.

**For Technical Assistance, Call Geotech Environmental Equipment at 1-800-833-7958 or 1-800-275-5325.

Chapter 6: System Specifications

Probe

Material:	Stainless Steel and Teflon®	
Weight:	4.53oz	125.8 g
Diameter:	5/8 inch	1.59 cm
Length:	7 ¾ inch	19.69 cm
Minimum Detectable Conductivity:	10 µS	

Tape

Material:	Polyethylene coated stainless
Length/Weight:	1500' / 450 m = 50.4 lbs (man.) 1500' / 450 m = 60.5 lbs (elec.) 2000' / 600 m = 70.4 lbs (man.) 2000' / 600m = 80.5 lbs (elec.)
Tape accuracy:	100th of a foot / 100'

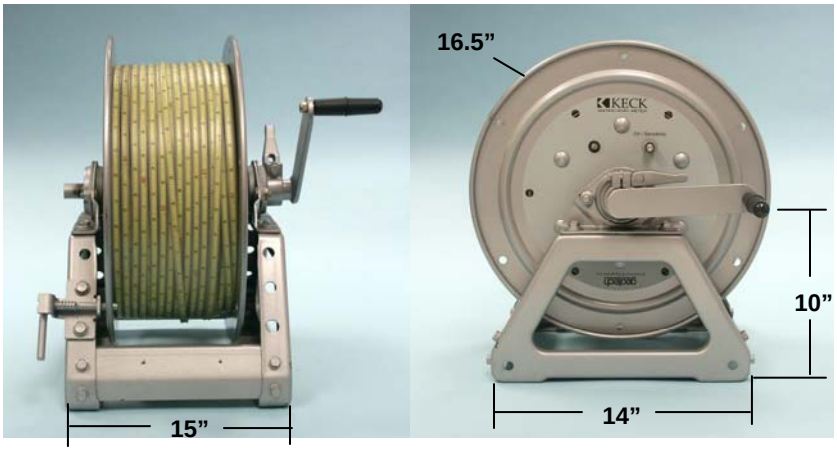
Reel/Frame

Material:	Steel and Aluminum
Size:	18.25" H x 14" W x 15" L (man.) 18.25" H x 14" W x 20" L (elec.)

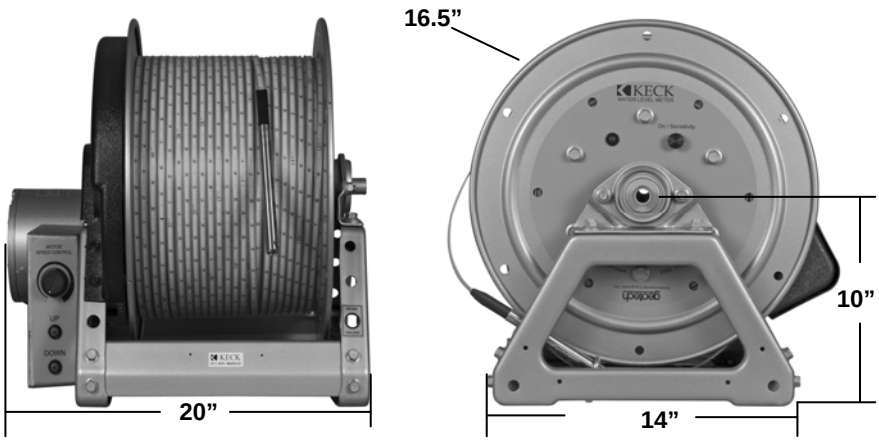
Unit

Battery:	9V alkaline	
Battery Life:		
Continuously detecting	8 hours	
On not detecting	>1 year	
Output tone:	5 kHz	
Operating Temperature:	32-140°F	(0-60°C)
Storage Temperature:	-40-150°F	(-40-70°C)
Response Time:	<10 milliseconds	

Chapter 7: System Schematic



Manual Reel Front and Side view



Electric Reel Front and side view

Chapter 8: Replacement Parts List

Part Number	Part Description
52050144	Reel assy., 1500’ - 2000’ manual
52050145	Reel assy., 1500’ - 2000’ electric
52050124	Tape assy., poly 1500’
52050125	Tape assy., poly 2000’
52050248	Tape assy., poly, 450 m
52050249	Tape assy., poly, 600 m
52050052	Probe assy.
12050060	Tape Guard
12050339	Manual

Notes

Notes

The Warranty

For a period of one (1) year from date of first sale, product is warranted to be free from defects in materials and workmanship. Geotech agrees to repair or replace, at Geotech's option, the portion proving defective, or at our option to refund the purchase price thereof. Geotech will have no warranty obligation if the product is subjected to abnormal operating conditions, accident, abuse, misuse, unauthorized modification, alteration, repair, or replacement of wear parts. User assumes all other risk, if any, including the risk of injury, loss, or damage, direct or consequential, arising out of the use, misuse, or inability to use this product. User agrees to use, maintain and install product in accordance with recommendations and instructions. User is responsible for transportation charges connected to the repair or replacement of product under this warranty.

Equipment Return Policy

A Return Material Authorization number (RMA #) is required prior to return of any equipment to our facilities, please call 800 number for appropriate location. An RMA # will be issued upon receipt of your request to return equipment, which should include reasons for the return. Your return shipment to us must have this RMA # clearly marked on the outside of the package. Proof of date of purchase is required for processing of all warranty requests.

This policy applies to both equipment sales and repair orders.

FOR A RETURN MATERIAL AUTHORIZATION, PLEASE CALL OUR SERVICE DEPARTMENT AT 1-800-833-7958 OR 1-800-275-5325.

Model Number: _____

Serial Number: _____

Date: _____

Equipment Decontamination

Prior to return, all equipment must be thoroughly cleaned and decontaminated. Please make note on RMA form, the use of equipment, contaminants equipment was exposed to, and decontamination solutions/methods used.
Geotech reserves the right to refuse any equipment not properly decontaminated. Geotech may also choose to decontaminate equipment for a fee, which will be applied to the repair order invoice.

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