

# ETL Water Level Meter

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.



**Notice for consumers in Europe:**

This symbol indicates that this product is to be collected separately.

The following applies only to users in European countries:

- This product is designated for separate collection at an appropriate collection point. Do not dispose of as household waste.
- For more information, contact the seller or the local authorities in charge of waste management.

## Section 1: System Description

### Function and Theory

The Geotech ETL Water Level Meter (ETL WLM) is a portable instrument used to accurately measure water levels in monitoring wells and bore holes. The sensor consists of a stainless steel and PTFE probe attached to a reel-mounted, polyethylene-coated engineer's tape. The engineer's tape comes in standard or metric graduations, and is accurate to 1/100th of a foot, or 1 millimeter.

The sensor relies on fluid conductivity to determine the presence of water. An audible signal and visible red LED activate when the probe contacts water. It features adjustable sensitivity, used to prevent false triggering.

The ETL WLM is intended for use as a depth to water measuring device. Using the ETL WLM for any other purpose may compromise safety of the operator and/or void manufacturer's warranty.



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

### System Components



Figure 1-1

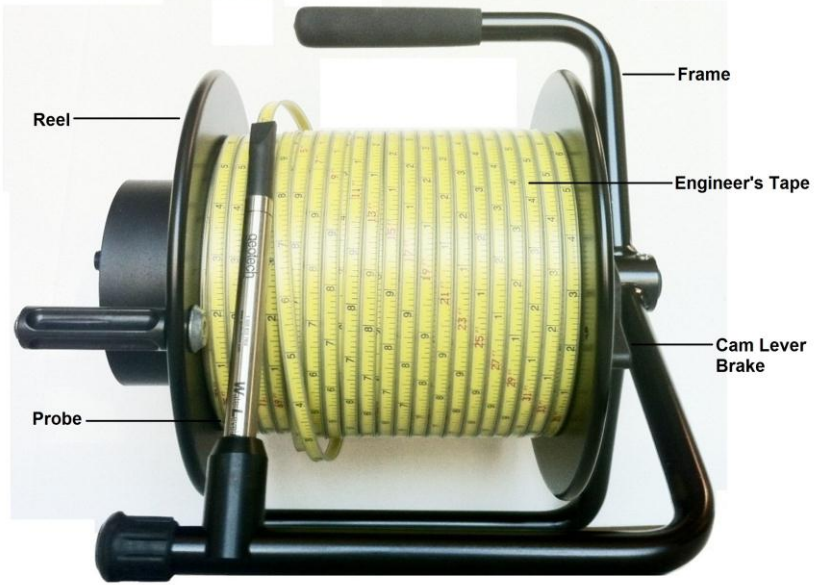


Figure 1-2



Figure 1-3



**Engineering or  
Metric Tape**

**5/8" stainless  
steel probe  
body**

**3/8" stainless  
steel probe  
body**

**Probe  
sensor**

Figure 1-4

## Section 2: System Installation

Place the reel next to the well casing and carefully lower the probe into the well using the tape leader guard to prevent damage to the tape.



Do not use the tape leader guard in wells larger than 4" (10cm), as it may fall down the well.

An optional Tape Guide, to prevent the edge of the well casing from damaging the tape, is also available from Geotech. Figure 2-1 is an example of the two parts.



Figure 2-1 Tape Leader Guard and Tape Guide

### Section 3: System Operation

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

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

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 the water level and avoid false triggering.

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

The ETL WLM should be stored with the ON/SENSITIVITY switch in the OFF position. To turn the unit off, rotate the switch fully counter-clockwise until the switch clicks. If the ETL WLM is not used and is stored for longer than three (3) months, remove the battery to prevent battery leakage, which can cause internal damage.



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



This unit is not rated for use with hydrocarbons or flammable liquids. If measuring depth to fluid of wells containing hydrocarbons, use Geotech's line of interface probe products.

## Section 4: System Maintenance

### Battery Replacement

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

1. Gently remove the battery tray.
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. Use a 9V alkaline battery only.

### Cleaning

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

### Cleaning the Optical Probe

The optical end of the probe should be periodically cleaned with a non-abrasive cleaner such as isopropyl alcohol, xylene, methanol, Alconox, or Liquinox type cleaner. To clean the sensor probe head, place a small amount of the cleaner on a cotton swab; rub the optical face and around the conductivity sensor wire to remove all foreign matter. Repeat this process until all foreign matter has been removed.

## **Section 5: System Troubleshooting**

**Problem:** No signal (audible or visible) when unit is turned on.

**Solutions:**

- The battery is discharged. Check or change battery (Section 4).
- The circuit is malfunctioning. Contact Geotech Service.

**Problem:** No indication of water.

**Solutions:**

- The conductive contact is dirty. Clean the contact (Section 3).
- There is an open connection in the tape. Replace tape and/or probe.
- The circuit is malfunctioning. Contact Geotech Service.

**Problem:** The signal (audible or visible) is intermittent.

**Solutions:**

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

- The conductive contact is dirty (causing bridging). Clean the contact (Section 3).
- There is a short in the tape and/or probe. Replace tape and/or probe.
- The circuit is malfunctioning. Contact Geotech Service.

For technical assistance, call Geotech Environmental Equipment at 1-303-320-4764 or 1-800-833-7958

## Section 6: System Specifications

Length/Weight:                      500 foot (152 meters) = 20 lbs (9 kg)  
   750 foot (229 meters) = 24 lbs (10.9 kg)  
   1000 foot (305 meters) = 28 lbs (12.7 kg)

### 5/8" Probe

Material:                                Stainless steel, PTFE, Viton  
Weight:                                 4.68 oz (132.54 g)  
Diameter:                              .625" (1.59 cm)  
Length:                                 6.125" (19.69 cm)  
Minimum Conductivity  
Threshold (detects water at):    10 $\mu$ S

### 3/8" Probe (optional)

Material:                                Stainless steel, PTFE, Viton  
Weight:                                 1.06 oz (30.5 g)  
Diameter:                              .375" (.953 cm)  
Length:                                 6" (15.24 cm)  
Minimum Conductivity  
Threshold (detects water at):    10 $\mu$ S

### Tape

Material:                                Polyethylene coated steel tape w/ stainless steel conductors  
Accuracy:                              100th of a foot/100' (3 mm/30.5 meters)  
   Per Federal Specification: GGG-T-106E  
   or  
Material:                                MDPE tape w/ stainless steel conductors  
Accuracy:                              100th of a foot/100' (3 mm/30.5 meters)

### Reel/Frame

(300 – 500' frame)

Material:                                Steel & aluminum  
Size:                                     15" H x 11.5" W x 10.5" D (38 cm H x 29 cm W x 27 cm D)

(750 – 1000' frame)

Material:                                Steel & aluminum  
Size:                                     15" H x 11.5" W x 14.5" D (38 cm H x 29 cm W x 37 cm D)

## Unit

Battery:	9 volt alkaline
Max power:	< 1 Watt
Max sound pressure output:	75 dB @ 30 cm
Insulation rating:	Insulation rating is considered double as there are no hazardous voltages or power circuits to pose a threat to the operator.
Battery life:	Continuously detecting: 8 hours On but not detecting: >1 year
Output tone:	5 kHz
Operating temperature range:	32 – 140 °F (0 – 60 °C)
Storage temperature range:	-40 – 158 °F (-40 – 70 °C)
Response time:	<10 milliseconds
Humidity:	0-100%
Elevation:	-328 – 13,124 feet (-100 – 4000 meters)

Rated for Outdoor Use.

Section 7: System Schematic

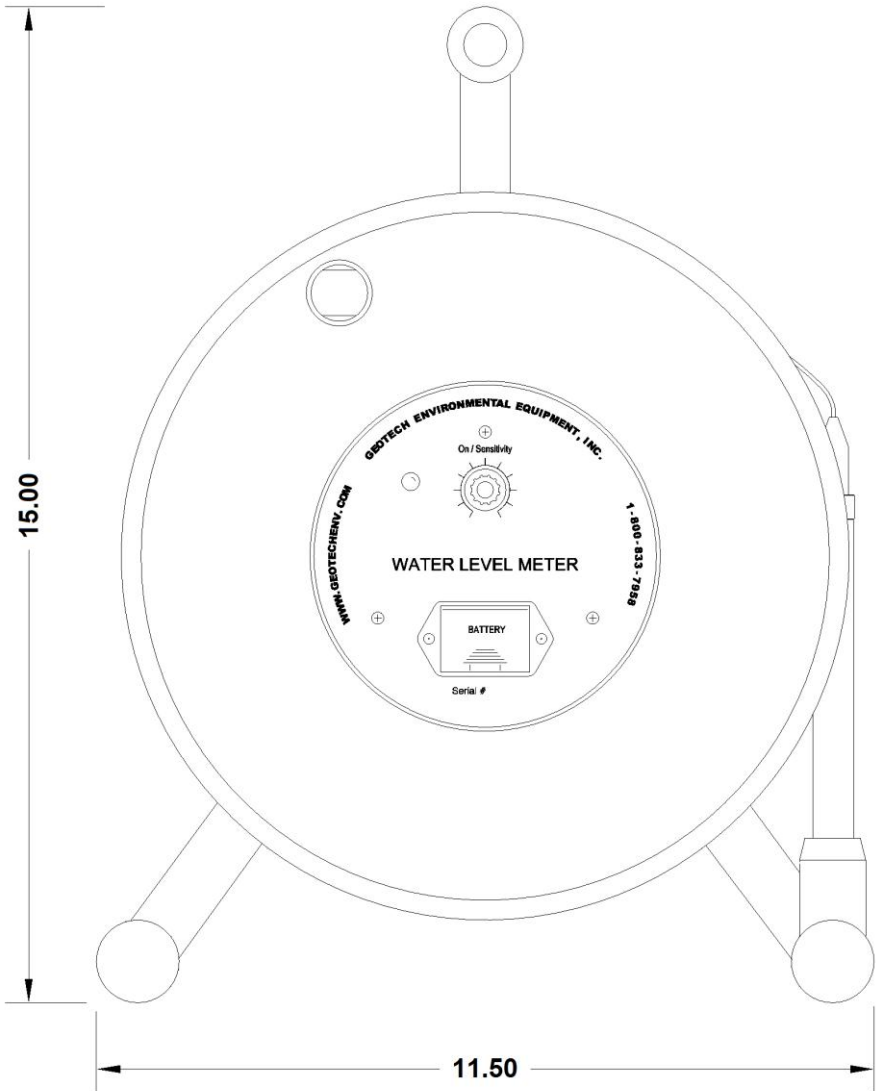


Figure 7-1 ETL Water Level Meter (front view)

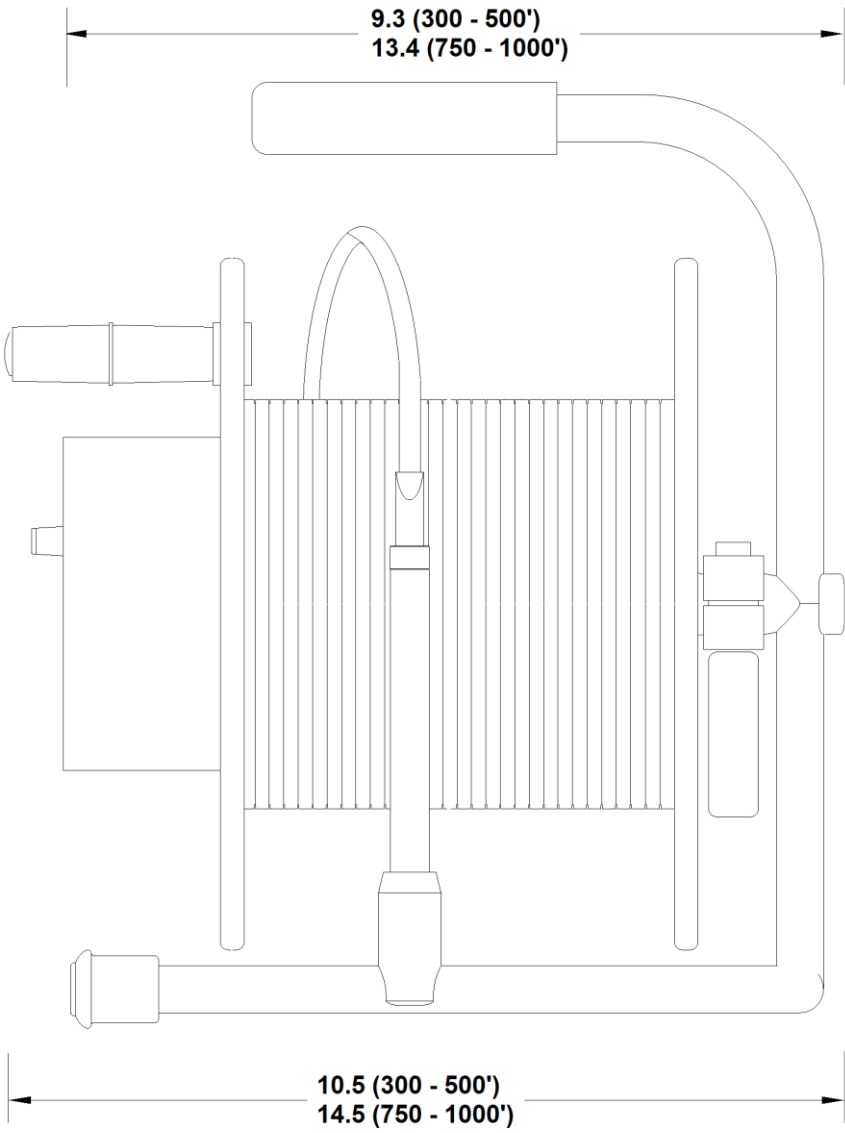
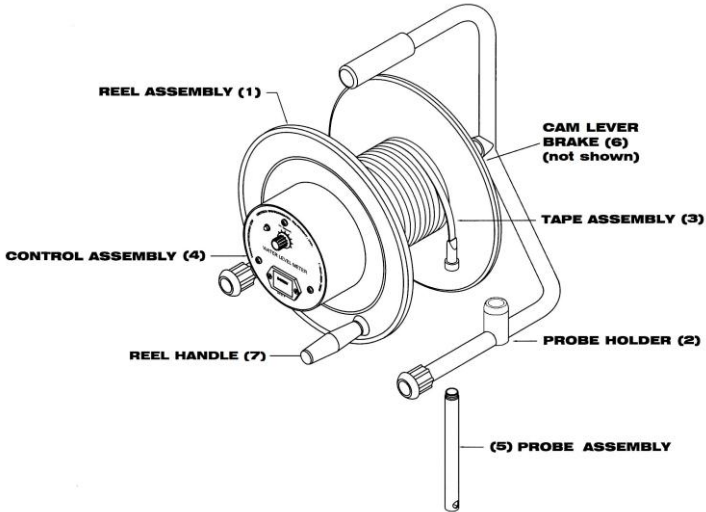


Figure 7-2 ETL Water Level Meter (side view)

## Section 8: Replacement Parts List



Item #	Parts Description	Parts List
1	ASSY,REEL,300-500FT,GEOWLM	52050021
	ASSY,REEL,750-1000FT,GEOWLM	52050043
2	PROBE HOLDER, 5/8", ETL	52050220
3	ASSY,TAPE,GEOWLM,POLY,500FT	52050121
	ASSY,TAPE,GEOWLM,POLY,750FT	52050122
	ASSY,TAPE,GEOWLM,POLY,1000FT	52050123
4	ASSY,CONTROL,GEOWLM	52050140
5	ASSY,PROBE,GEOWLM	52050052
6	BRAKE,CAM LEVER DRAG,ETL	12050615
7	HANDLE,MANUAL CRANK,W/HDWR	12050624
	GUARD,LEADER,PROPAMIDE,NATURAL	12050060
	CASE,GEOWLM,500-1000'	12050113
	MANUAL,INSTRUCTION,ETL	12050319

## 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 our 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.

Model Number: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

## 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 the equipment for a fee, which will be applied to the repair order invoice.

## Declaration of Conformity

Geotech Environmental Equipment Inc.  
2650 E 40<sup>th</sup> Avenue  
Denver, CO 80205

Following products are covered:

Geotech P/N	Product
82050011	Water Level Meter, 229 meter ET
82050012	Water Level Meter, 100 ft ET
82050013	Water Level Meter, 200 ft ET
82050014	Water Level Meter, 300 ft ET
82050048	Water Level Meter, 30 m ET
82050021	Water Level Meter, 60 m ET
82050040	Water Level Meter, 100 m ET
82050074	Water Level Meter, 3/8, 100 ft ET
82050075	Water Level Meter, 3/8, 200 ft ET
82050076	Water Level Meter, 3/8, 300 ft ET
82050077	Water Level Meter, 3/8, 30 m ET
82050078	Water Level Meter, 3/8, 60 m ET
82050079	Water Level Meter, 3/8, 100 m ET
82050088	Water Level Meter, 500 ft ETL
82050089	Water Level Meter, 750 ft ETL
82050090	Water Level Meter, 1000 ft ETL
82050097	Water Level Meter, 1500 ft manual rewind ETL
82050101	Water Level Meter, 2000 ft manual rewind ETL
82050244	Water Level Meter, 100 ft MDPE ET
82050245	Water Level Meter, 200 ft MDPE ET
82050246	Water Level Meter, 300 ft MDPE ET
82050252	Water Level Meter, 500 ft MDPE ETL
82050253	Water Level Meter, 750 ft MDPE ETL
82050254	Water Level Meter, 1000 ft MDPE ETL
82050256	Water Level Meter, 1500 ft MDPE manual rewind ETL
82050258	Water Level Meter, 2000 ft MDPE manual rewind ETL
82050262	Water Level Meter, 152 m ETL
82050263	Water Level Meter, 30 m MDPE ET
82050264	Water Level Meter, 60 m MDPE ET
82050265	Water Level Meter, 100 m MDPE ET
82050266	Water Level Meter, 3/8, 30 m MDPE ET
82050267	Water Level Meter, 3/8, 60 m MDPE ET
82050268	Water Level Meter, 3/8, 100 m MDPE ET
82050269	Water Level Meter, 3/8, 100 ft MDPE ET
82050270	Water Level Meter, 3/8, 200 ft MDPE ET
82050271	Water Level Meter, 3/8, 300 ft MDPE ET
82050275	Water Level Meter, 305 m ET

These products comply with the directive 2004/108/EC (EMC), harmonized standard EN 61010-1 2001-12-07, emissions class A.

These products comply with harmonized standard EN 61326-1 May 2006.

Signatory:



Joe Leonard  
Product Development

Year of manufacture: 2010

EMC conformity established 2/14/2008.

This declaration is issued under the sole responsibility of Geotech Environmental Equipment, Inc.

Model \_\_\_\_\_

Serial number \_\_\_\_\_





**Geotech Environmental Equipment, Inc.**

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