geotech

Water Level Meter + Temperature

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.
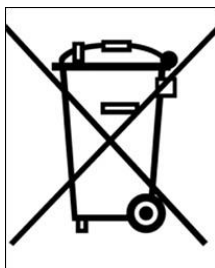
CAUTION

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 +Temperature (ETL WLM+T) is a portable instrument used to accurately measure water levels and temperature in monitoring wells and bore holes. The sensor consists of a stainless steel and PTFE probe attached to a reel-mounted, PVDF-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 blue LED activate when the probe contacts water, and there is a mute button to silent the signal while probing for temperature. The reel features adjustable conductivity sensitivity to prevent false triggering.

The ETL WLM+T is intended for use as a depth to water measuring device and temperature sampling. Using the ETL WLM+T 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.
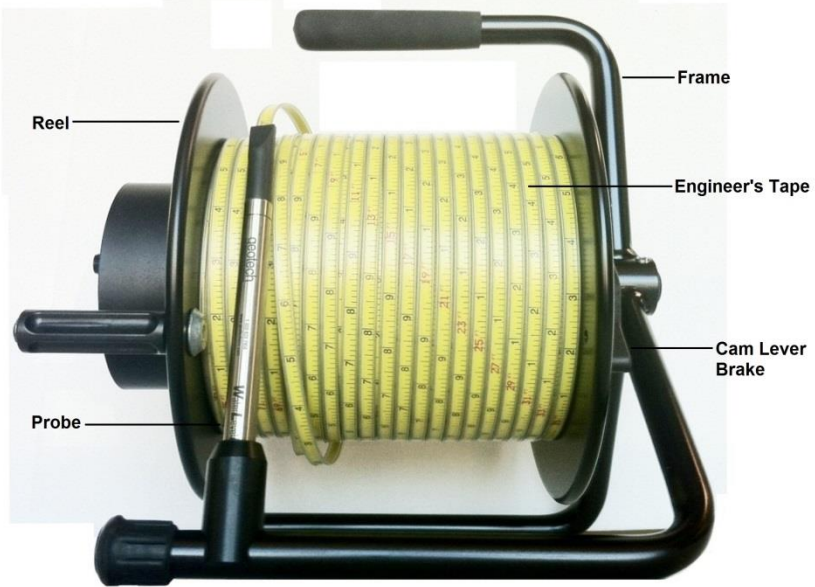
System Components

Figure 1-1: ETL WLM + T Front View
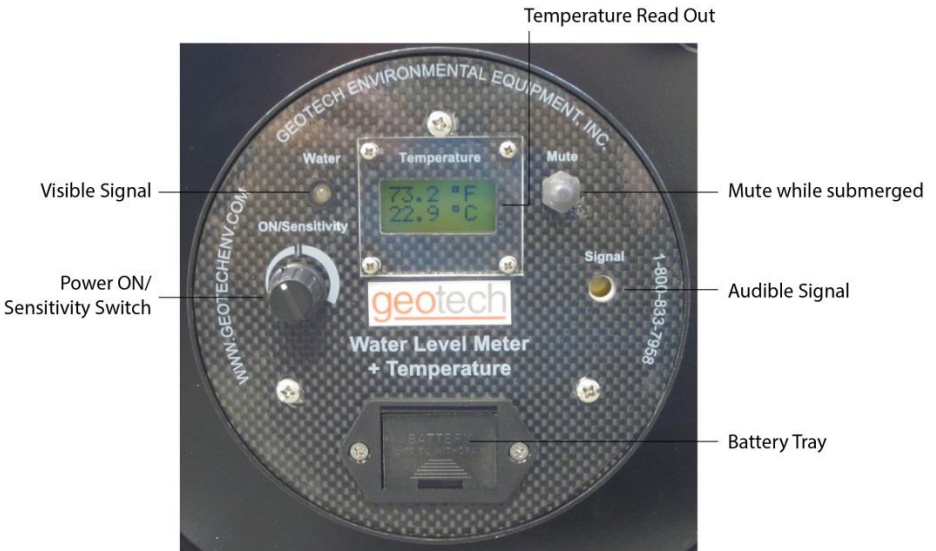
Figure 1-2: ETL WLM + T Side View

Figure 1-3: ETL WLM + T User Interface

Figure 1-4: ETL WLM + T Probe

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. The optional tape weight helps sink probe into a deep or crooked 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 Guide (optional), Tape Weight (optional), Tape Leader Guard

Optional Tape Weight Installation

Attach tape weight to tape near probe end being lowered into well.

1) Loosen the screws using and Allen wrench.
2) Slide the weight onto the tape (Figure 2-2).
3) Tighten the screws (Figure 2-3).

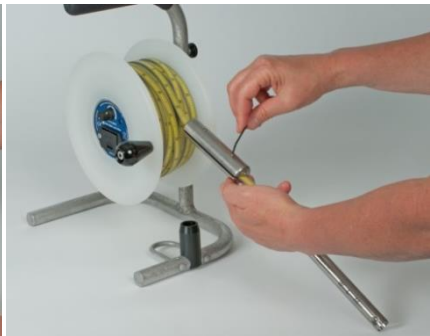**Figure 2-2:** Fitting
(Optional) Tape Weight

Figure 2-3: Tightening
(Optional) Tape Weight

Section 3: System Operation

Turn ON the ETL WLM+T with the ON/SENSITIVITY knob. If the buzzer makes a loud double-signal and the LCD turns ON, the battery is adequate for normal operation.

Lower the probe down the well to the water surface. The blue light and buzzer will activate when it make contact with the conductive fluid.

With the probe still in contact with the water, adjust the ON/SENSITIVITY knob clockwise until the light and buzzer barely activate. In this setting, the probe will detect the water level and avoid false triggering.

Water level and temperature measurements can now be taken from the top of the casing or any reference point. There is a "Mute" button on the control faceplate that silences the signal while probing for temperature. The blue LED will stay illuminated while the probe is in water.

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

Cleaning the Conductivity/Temperature Contact

The conductivity contact of the probe should be periodically cleaned with a non-abrasive cleaner such as isopropyl alcohol, xylene, methanol, or phosphate free type cleaner. To clean the conductivity contact, place a small amount of the cleaner on a cotton swab; rub the conductivity contact 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: System Maintenance*).
- The circuit is malfunctioning. Contact Geotech Service.

Problem: No indication of water.

Solutions:
- The conductive contact is dirty. Clean the contact (*Section 4: System Maintenance*).
- 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 4: System Maintenance*).
- 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

5/8" Probe

Material:	Stainless steel, PTFE, Viton
Weight:	4.7 oz (133 g)
Diameter:	0.625" (1.59 cm)
Length:	6.125" (19.7 cm)
Minimum Conductivity Threshold (detects water at):	10µS
Operating temperature range:	32 – 158°F (0 – 70°C)
Temperature accuracy:	+/- 1°F (0.5°C)
Max immersion temperature:	302°F (150°C)

Tape

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

Reel/Frame

(100' – 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)

Reel + Tape

Length:	Weight:
100' (30m)	14 lbs. (6.4 kg)
200' (60m)	16 lbs (7.3 kg)
300' (100m)	18 lbs. (18.2 kg)
500' (150m)	20 lbs. (9.1 kg)
750' (225m)	24 lbs. (10.9 kg)
1000' (300m)	28 lbs. (12.7 kg)

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: 6 hours
On but not detecting: >1 year

Output tone: 5 kHz

Operating temperature range: 32 – 158°F (0 – 70°C)

Storage temperature range: -40 – 158°F (-40 – 70°C)

Response time: <10 milliseconds

Operating environment: Rated for outdoor use.

Humidity: 0-100%

Elevation: -328 – 13,124' (-100 – 4000 meters)

Tape Weight (Optional) 1" (2.54cm) OD, 4" (10.16cm) Long, 12.74oz (361g)
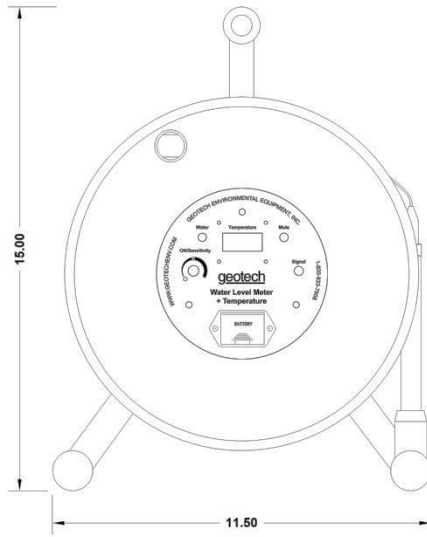
Section 7: System Schematic

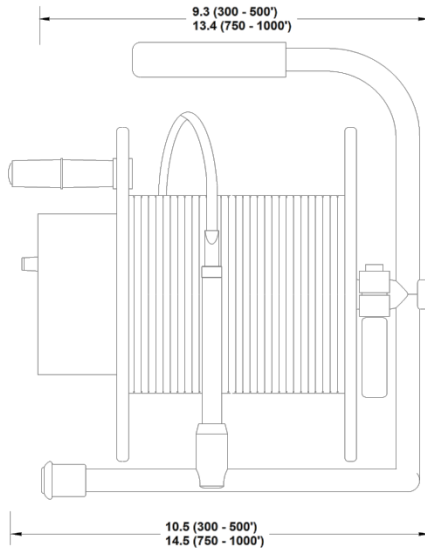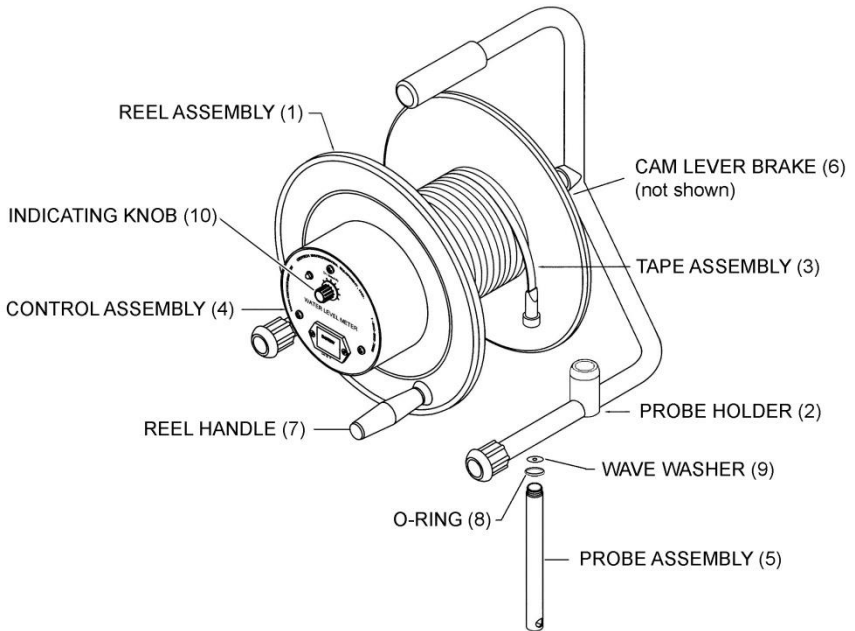**Figure 7-1:** ETL Water Level Meter + Temperature (front view)

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

Section 8: Replacement Parts List

Parts List on next page

REEL ASSEMBLY (1)

INDICATING KNOB (10)

CONTROL ASSEMBLY (4)

REEL HANDLE (7)

O-RING (8)

CAM LEVER BRAKE (6)
(not shown)

TAPE ASSEMBLY (3)

PROBE HOLDER (2)

WAVE WASHER (9)

PROBE ASSEMBLY (5)

Item #	Parts Description	Part #
1	ASSY,REEL,300-500FT,GEOWLM	52050021
	ASSY,REEL,750-1000FT,GEOWLM	52050043
2	PROBE HOLDER, 5/8", ETL	52050220
3	REPAIR,TAPE,WLM+T,100',PVDF TAPE	52050286
	REPAIR,TAPE,WLM+T,200',PVDF TAPE	52050287
	REPAIR,TAPE,WLM+T,300',PVDF TAPE	52050288
	REPAIR,TAPE,WLM+T,500',PVDF TAPE	52050289
	REPAIR,TAPE,WLM+T,750',PVDF TAPE	52050290
	REPAIR,TAPE,WLM+T,1000',PVDF TAPE	52050291
	REPAIR,TAPE,WLM+T,30M,PVDF TAPE	52050292
	REPAIR,TAPE,WLM+T,60M,PVDF TAPE	52050293
	REPAIR,TAPE,WLM+T,100M,PVDF TAPE	52050294
	REPAIR,TAPE,WLM+T,150M,PVDF TAPE	52050295
	REPAIR,TAPE,WLM+T,225M,PVDF TAPE	52050296
	REPAIR,TAPE,WLM+T,300M,PVDF TAPE	52050297
4	ASSY,CONTROL,GEOWLM+T	52050299
5	ASSY,PROBE,GEOWLM+T	52050298
6	BRAKE,CAM LEVER DRAG,ETL	11400070
7	HANDLE,MANUAL CRANK,W/HDWR	12050624
8	O-RING, VITON, .480 x .039, BROWN	17500202
9	WASHER, WAVE	12050255
10	KNOB, INDICATING, 1/4", RND	12050090
Not shown:		
	GUARD,LEADER,PROPAMIDE,NATURAL	12050060
	GUIDE,TAPE,PVC	22050601
	ASSY,WEIGHT,TAPE,SS,1"X4.1",0.75LBS (360 GRAMS)	52050277
	BAG, WLM/IP, 500-1000'	12050113
	BUZZER,3-24VDC,PIEZO	12050118
	MANUAL, INSTRUCTION, GEOWLM+T	12050744

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EC Declaration of Conformity

Manufacturer:

Geotech Environmental Equipment, Inc.
2650 E 40th Avenue
Denver, CO 80205

Declares that the following products,

Product Name: Water Level Meter + Temperature, manual rewind only

Model(s):   ETL Water Level Meter + Temperature, all tape lengths

Year of manufacture: 2017

Conform to the principle safety objectives of 2006/95/EC Low Voltage Directive by application of the following standards:
EN 61010-1: 2010
EN 809-1 + A1:2010

Year of affixation of the CE Marking: 2017

Conform to the protection requirements of 2004/108/EC Electromagnetic Compatibility (EMC) by application of the following standards:
EN 61000-6-1: 2007
EN 61000-6-3: 2012
EN 61326-1: 2013

EMC conformity established 5/24/2017

Production control follows the ISO 9001:2008 regulations and includes required safety routine tests.

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

Joseph Leonard

Joe Leonard
Product Development

Serial number   _____

CE

DOCUMENT REVISIONS		
EDCF#	DESCRIPTION	REV/DATE
Project # 1470	Release, SB	5/15/2017

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.