Model 8940

GeoNet Dataloggers

Instruction Manual

GEOKON®

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WARRANTY STATEMENT

GEOKON warrants its products to be free of defects in materials and workmanship, under normal use and service for a period of 13 months from date of purchase. If the unit should malfunction, it must be returned to the factory for evaluation, freight prepaid. Upon examination by GEOKON, if the unit is found to be defective, it will be repaired or replaced at no charge. However, the WARRANTY IS VOID if the unit shows evidence of having been tampered with or shows evidence of being damaged as a result of excessive corrosion or current, heat, moisture or vibration, improper specification, misapplication, misuse or other operating conditions outside of GEOKON's control. Components that wear or are damaged by misuse are not warranted. This includes fuses and batteries.

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1. INTRODUCTION

GEOKON Model 8940 Series Dataloggers offer a high-value data collection option for all GEOKON Vibrating Wire (VW) instruments and digital sensor (MEMS and VW) strings. Dataloggers are now manufactured with a pressure compensation vent to prevent condensation buildup in humid climates.

Waterproof single and four-channel GeoNet dataloggers housed inside rugged PVC enclosures are also available.

Each datalogger is ready to be installed from the factory and acquires data in minutes. Sensor data is collected on site by connecting the 8940 to a P.C. and using the free GEOKON Agent software program for data viewing and reporting.

Model 8960 Digital Vibrating Wire interfaces can be connected to GeoNet multi-channel and addressable dataloggers to expand the capacity of the logger (See Section 3.6).

Datalogger setup and data downloads must be done using Agent Software.

FEATURES:

- USB connector for firmware updates, diagnostics, and more

1.1 8940 MODEL LIST

Model Number	Datalogger Type	Sensor Cable Entry
8940-01C-CBL	Single-Channel Vibrating Wire	Cable Gland
8940-01C-10P	Single-Channel Vibrating Wire	10-Pin Connector
8940-04C-CBL	Four-Channel Vibrating Wire	Cable Gland
8940-04C-10P	Four-Channel Vibrating Wire	10-Pin Connector
8940-08C-CBL	Eight-Channel Vibrating Wire	Cable Gland
8940-ADR-CBL	Addressable	Cable Gland
8940-TLT-NAP	Tilt	Not Applicable

TABLE 1: *List of Model 8940 Dataloggers*

1.2 8943 MODEL LIST

Model Number	Description	Sensor Cable Entry
8943-01C-WP	Single-Channel Waterproof Datalogger	6-Pin Connector
8943-04C-WP	Four-Channel Waterproof Datalogger	6-Pin Connector
8943-CAB-100	Waterproof Cable with female 6-pin connector and collar, 30 m length	Not Applicable
8943-CAB-200	Waterproof Cable with female 6-pin connector and collar, 60 m length	Not Applicable
8943-CAB-VL	Waterproof Cable with female 6-pin connector and collar, specify length (>60 m)	Not Applicable
02-250P4	Green Polyurethane Cable,6.35 mm (±0.25 mm) [0.25"] Ø, 2 twisted pairs, for the above	Not Applicable

TABLE 2: *List of Model 8943 Dataloggers and Cables*

1.3 ACCESSORIES

Model Number	Description
COM-109	USB Patch Cord
BAT-111	Alkaline D size battery
BAT-202	Lithium D size battery, 1 Ah
SUP-514	Desiccant pack, 10 grams
KIT-GEONET-C	Accessory Kit, USB-C cable and screwdrivers, for Model 8940 Dataloggers
KIT-GEONET-WP-C	Accessory Kit, USB-C cable and screwdrivers, for Model 8943 Waterproof Dataloggers

TABLE 3: *List of Accessories*

2. COMPONENTS

2.1 VIBRATING WIRE (VW) DATALOGGERS

Model 8940 VW Datalogger series read the quantity of gauges outlined below. Sensor cables are connected through a cable gland or a 10-pin bulkhead connector, depending on model.

2.1.1 SINGLE-CHANNEL VIBRATING WIRE DATALOGGER

Single-channel dataloggers will read one GEOKON vibrating wire gauge.

FIGURE 1: *Single-Channel 8940 Datalogger*

2.1.2 FOUR-CHANNEL VIBRATING WIRE DATALOGGER

Four-channel dataloggers will read up to four GEOKON vibrating wire gauges.

FIGURE 2: *Four-Channel 8940 Datalogger*

A four-channel datalogger can be configured as follows:

Maximum Number of Gauges	Maximum Number of Load Cells
Four	One 3-gauge **or** one 4-gauge load cell *Refer to Appendix E for load cell wiring tables*

TABLE 4: *Four-Channel Datalogger Gauge/Load Limits*

2.1.3 EIGHT-CHANNEL VIBRATING WIRE DATALOGGER

Eight-channel dataloggers will read up to eight GEOKON vibrating wire gauges.

FIGURE 3: *Eight-Channel 8940 Datalogger*

An eight-channel Datalogger can be configured as follows:

Maximum Number of Gauges	Maximum Number of Load Cells
Eight	One 3-gauge **and** one 4-gauge load cell Two 3-gauge **or** two 4-gauge load cells One 6-gauge load cell *Refer to Appendix E for load cell wiring tables*

TABLE 5: *Eight-Channel Datalogger Gauge/Load Limits*

2.2 ADDRESSABLE (RS-485) DATALOGGER

Model 8940 Addressable Dataloggers are compatible with GEOKON Digital Addressable MEMS products. Sensor cables are connected through a cable gland.

FIGURE 4: *Addressable 8940 Datalogger*

2.3 TILT DATALOGGER

Model 8940 Tilt Dataloggers contain an integrated tiltmeter sensor. The two axes of the tiltmeter have a range of ±90° (the calibrated range is ±30°), based on a starting position of 0° (antenna pointing up).

Note: Tilt dataloggers do not possess sensor-reading functionality; external sensors cannot be connected.

FIGURE 5: *Tilt 8940 Datalogger*

Tilt dataloggers have two serial numbers, the datalogger serial number is the upper number, and serial number for the internal tiltmeter is the lower number. See the figure below.

Note: Tilt Logger serial numbers greater than 2047508 provide calibrated output and do not require post processing.

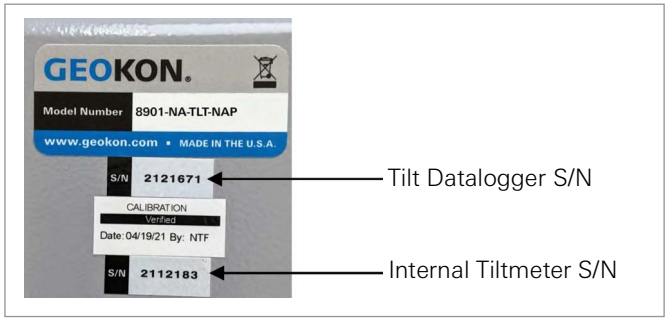

FIGURE 6: *Tilt Datalogger Serial Number Placement*

2.1 WATERPROOF DATALOGGERS

Model 8943 Waterproof Datalogger Series read the quantity of gauges outlined below. The dataloggers are housed inside a rugged PVC enclosure. Sensor cables are connected through a 6-pin connector.

2.1.1 SINGLE-CHANNEL WATERPROOF DATALOGGER

Single-channel waterproof dataloggers will read one GEOKON vibrating wire gauge.

FIGURE 7: *Single-Channel 8943 Waterproof Datalogger*

2.1.2 FOUR-CHANNEL WATERPROOF DATALOGGER

Four-channel waterproof dataloggers will read up to four GEOKON vibrating wire gauges.

FIGURE 8: *Four-Channel 8943 Waterproof Datalogger*

A four-channel datalogger can be configured as follows:

Maximum Number of Gauges	Maximum Number of Load Cells
Four	One 3-gauge **or** one 4-gauge load cell *Refer to Appendix E for load cell wiring tables*

TABLE 6: *Four-Channel Datalogger Gauge/Load Limits*

3. INSTALLATION

3.1 INSTALLATION OVERVIEW

A general overview of the installation is shown in the steps below. Each step is described in detail in the sections that follow.

1. Mount the datalogger
2. Connect an earth ground
3. Remove the cover
4. Connect the sensors
5. Expanding datalogger capacity (Optional)
6. Power the datalogger
7. Set up datalogger to record and download data
8. Seal the datalogger

3.2 MOUNT THE DATALOGGER

- **8940 Models**

  The attached mounting bracket is designed to be used with U-bolts, hose clamps, screws, etc. Mount all devices vertically, with the cable entries pointing down. GEOKON recommends a mounting height of at least two meters. Lower than two meters may compromise performance. As a rule, higher is usually better.

- **8943 Models**

  For submersed installations, install the supplied eye bolt in the bottom of the datalogger and attach it to a suitable anchor.

3.3 CONNECT AN EARTH GROUND

Properly grounding GeoNet devices will lessen the chance of them being damaged from nearby lightning strikes or other large transient voltages.

All dataloggers can be grounded by connecting a suitable earth ground to the mounting bracket. Multi-Channel dataloggers can also be grounded via the copper ground lug on the bottom of the enclosure. See Section 4.2 for more information.

A 6-foot copper grounding rod and 12 AWG or larger copper wire is recommended; both of which can be purchased from GEOKON.

3.4 REMOVE THE COVER

Remove the cover by unscrewing the four cap screws on the front of the enclosure.

Important! Ensure that no dirt, water, or other contaminants enter the enclosure.

3.5 CONNECT THE SENSORS

Note: Multi-channel and addressable dataloggers will stop trying to read an empty channel after two attempts. The datalogger will read all channels at the top of every hour and will resume sampling when it detects a sensor.

3.5.1 CABLE GLAND CONNECTIONS

For ease of wiring, sensor cables should be inserted into the cable glands on multi-channel dataloggers in order from left to right and wired into the VW terminal blocks in sequence, starting with channel one.

To connect a sensor using a cable gland connection:

1. Loosen the nut on the cable fitting and remove the white plastic dowel.
2. Slide the transducer cable through the cable gland nut and fitting.
3. Connect the cable leads to the terminal block by holding down an orange tab, inserting the lead, and then releasing the tab. The wiring order is shown in the tables and figures below.

Important! To prevent a short circuit, do not allow the cable leads to touch each other during or after wiring.

4. Pull gently on each conductor to ensure it is secure.
5. Tighten the cable gland nut until it firmly grips the outer jacket of the cable. The cable gland nut must be properly tightened to prevent water entry. Do not overtighten, as this might strip the plastic threads.
6. Pull gently on the gauge cable to ensure it is held in place by the cable gland.
7. Repeat these steps for each gauge cable to be connected.

Single/Multiple.Channel Vibrating Wire Datalogger		
Position	**Color**	**Description**
VW+	RED	Vibrating Wire+
VW-	BLACK	Vibrating Wire-
TH+	WHITE	Thermistor+
TH-	GREEN	Thermistor-
SHD	BARE	Analog Ground (Shield)

TABLE 7: *Vibrating Wire Datalogger Wiring*

Addressable (RS-485) Datalogger		
Position	**Color**	**Description**
485+	WHITE	RS-485 Data+
485-	GREEN	RS-485 Data-
12V	RED	12 Volt Bus
GND	BLACK	Bus Ground
SHD	BARE	Analog Ground (Shield)

TABLE 8: *Addressable (RS-485) Datalogger Wiring*

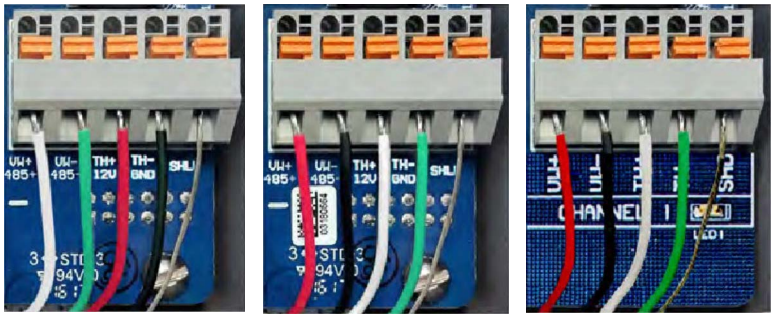

FIGURE 9: *Terminal Connections*

3.5.2 10-PIN CONNECTIONS

To connect a device using a 10-pin connection:

1. Remove the cover from the 10-pin connector.
2. Align the grooves on the sensor connector (male), with the connector on the datalogger (female).
3. Push the connector into place and then twist the outer ring of the male connector until it locks.

3.5.3 WATERPROOF 6-PIN CONNECTIONS

To connect a sensor to Model 8943 Waterproof Dataloggers:

1. Loosen the locking sleeve by rotating it counterclockwise. Then remove the "dummy" connector from the datalogger by pulling on it. (You will experience some resistance when removing the connector due to the internal O-ring seal.)
2. Align the large pin on the datalogger connector (male) with the large hole on the sensor connector (female). (Use the 3H logo on the female connector as a guide as shown in the figure below.)
3. Push the connectors together until they are completely mated.
4. Tighten the locking sleeve onto the connector by turning it clockwise.
5. Repeat the above process for the rest of the sensors.

FIGURE 10: *Connector Alignment*

3.6 EXPANDING DATALOGGER CAPACITY (OPTIONAL)

Model 8960 Digital Vibrating Wire interfaces can be connected to GeoNet multi-channel and addressable dataloggers to expand the capacity of the logger. Multiple VW interfaces can be daisy-chained together to bus the data to a single datalogger. The bus limit is 32 units or 64 Channels.

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Refer to the Model 8960 Instruction Manual for information on how to connect a datalogger to an interface, how to address the interfaces, and other applicable steps. To get immediate software recognition the interfaces must be connected before the datalogger has been powered on.

3.7 POWER THE DATALOGGER

1. Align the positive (+) side of the batteries with the + indicator in the battery holder. Push the batteries straight down into the holder.
2. Move the battery select switch to either the ALKALINE or LITHIUM position depending on the type of battery being used.

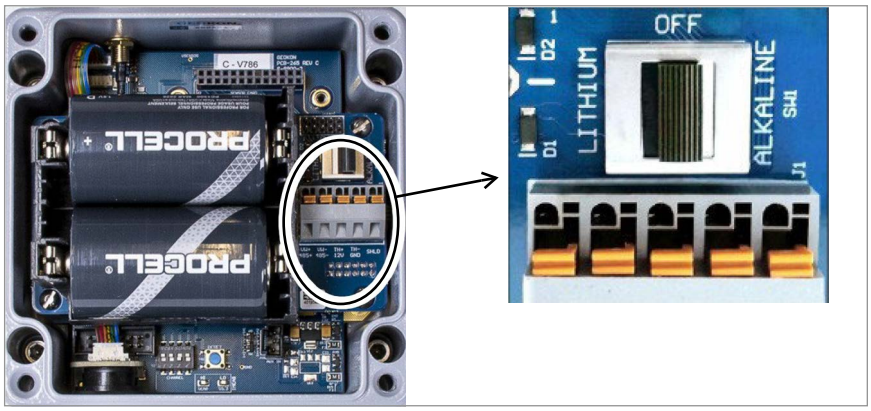


FIGURE 11: Battery Switch Location and Detail

3.8 SET UP DATALOGGER TO RECORD AND DOWNLOAD DATA

Note: The same Agent transfer file must be used for any GeoNet 8940 datalogger when connecting, downloading, or making changes to the sensor settings and log intervals.

See the GeoNet Agent software manual for detailed instructions.

1. Connect to the 8940 datalogger to a PC via the USB port. (For Model 8943 Waterproof Dataloggers, the USB port is located inside the logger.)
2. Verify the COM port configuration with the **Windows Device Manager**.
3. Open **Agent software**
4. **Add new network**, verify name, Address (or COM), Read interval.
5. Select **Save**.

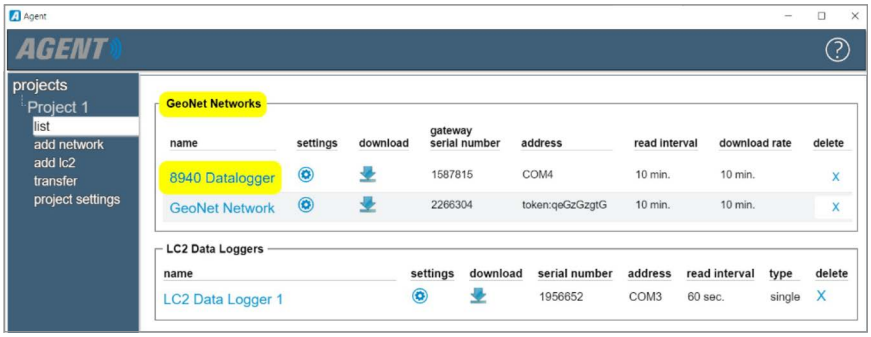


FIGURE 12: *The Datalogger will appear in the GeoNet Networks category*

6. Configure sensors in the Logger Settings tab.
7. Configure charts as desired.
   - **Data must be downloaded** from the datalogger before any chart data is visible. Data download can be performed manually from the list view, or automatically in the network settings view.
   - Data can be exported after download.
   - When the datalogger has been configured, create an **Agent Transfer File** to share with all users who will be connecting to and downloading from this datalogger.
   - Any user can load the saved transfer file onto their PC using Agent Software. GEOKON highly recommends this because all sensor settings are software configurations only and do not reside on the datalogger.

This means any user that connects to the logger without a preconfigured transfer file will have no settings loaded. Any data downloaded will not be viewable by that user until the sensors are configured for export.

Note: All subsequent visits to the datalogger to download data must use the **Master** transfer file to connect and download data so that datalogger and sensor settings remain unchanged.

3.9 SEAL THE DATALOGGER

1. Record the serial number of the dataloggers and the attached sensors. For multi-channel dataloggers, also record the channel to which each sensor has been connected.
2. Insert the desiccants into the enclosure.
3. Make sure the cover gasket and the mating ridge on the enclosure are clean and that the gasket is properly seated inside the groove.
4. Place the cover on the unit, making sure the orientation is correct.
5. Tighten the cover screws a little at a time, working in a diagonal pattern.
6. Check that the cover has closed tightly and evenly.

Note: Make sure any unused openings are plugged and tightened.

4. MAINTENANCE

4.1 WEATHER PROOFING

With the exception of Model 8943 Waterproof Datalogger, standard GeoNet devices are designed to be splash proof and rain proof but **are not submersible**. The enclosures are sealed by a gasket. The gasket will only prevent water entry if the screws that hold the lid in place are properly tightened, and the gasket is properly aligned inside the lid.

Always mount the devices so that the cable entries are on the bottom. Ensure the cable gland fittings are securely tightened and that the white plastic dowels provided are used to plug cable entries which are not in use. For models that feature a 10-pin connector, the watertight cap must be installed when the connector is not in use.

It is important to periodically check the desiccant packs inside the devices and change them out as necessary with fresh ones.

Despite these precautions, the dataloggers may encounter leakage along the cable if the cable is cut, or if the unit is installed in an especially humid environment. In this type of environment, GEOKON recommends that the internal desiccant packs be replaced at frequent intervals to prevent condensation from corroding or shorting out the internal electronics.

4.2 LIGHTNING PROTECTION

Each vibrating wire (VW) channel is protected by a 230V gas discharge tube, followed by a high-speed surge protector and a transient voltage suppression diode. Each thermistor (TH) channel is protected by a 230V gas discharge tube, followed by an inductor (lower resistance than high-speed surge protectors) and a transient voltage suppression diode.

For these components to safely divert lightning energy to ground, a solid electrical connection to earth ground is required. A copper grounding rod at least six feet in length should be driven into the soil to a minimum depth of three feet, as close to the device as possible. Alternatively, any other suitable earth ground attachment may be used. Connect the grounding rod to the copper grounding lug on the exterior of the device (if equipped) with a 12 AWG or larger wire. This will provide a path from the device to earth ground in the event of a lightning strike.

APPENDIX A. TROUBLESHOOTING

Technical Support

Listed below are a few commonly experienced problems and remedial action. Visit geokon.com/Technical-Support for additional troubleshooting help.

SYMPTOM: UNIT WILL NOT RESPOND TO COMMUNICATIONS

- ☐ Wrong connection type, or incorrect address specified in Agent software.
- ☐ The batteries may be improperly installed. Check their placement.
- ☐ The batteries inside the unit may be dead. Replace the batteries.

SYMPTOM: DATA PRESENT (E.G., BATTERY/SIGNAL STRENGTH) BUT NO VW GAUGE DATA AVAILABLE

- ☐ Verify that the gauge leads are wired correctly inside the datalogger. (See Section 3.5.1).
- ☐ Check the gauge for proper operation with an independent readout, such as a GK-404 or GK-406.

SYMPTOM: VW GAUGE READING IS UNSTABLE

- ☐ Move any sources of electrical noise away from the transducer cable, such as generators, motors, arc welding equipment, high voltage lines, etc.

SYMPTOM: THERMISTOR DISPLAY SHOWS -273.15 DEGREES C?

- ☐ This indicates an open circuit to thermistor leads. Verify that the thermistor leads are properly connected inside the datalogger. (See Section 3.5.1).
- ☐ Check the thermistor for proper operation with an independent readout, such as a GK-404 or GK-406.

APPENDIX B. SPECIFICATIONS

B.1 VIBRATING WIRE DATALOGGER SPECIFICATIONS (STANDARD AND WATERPROOF)

Data Memory	32 MB
Storage Capacity	Varies by model
Trueness	0.082 Hz
Frequency Precision	±0.146 Hz (99% CI)
Frequency Resolution	±0.002 Hz
Thermistor Accuracy	1% (0.5° C thermistor point match)
Thermistor Resolution	0.032 °C
Scan Interval	Min: 1 minute; Max: 1 day
Power Supply	2x D cell, Alkaline or Lithium, 12 V Auxiliary
Operating Temperature	-40 °C to +65 °C (range varies by power source)
VW Frequency Range	400-6,500 Hz
Enclosure	Standard: Die-cast aluminum 120 × 122 × 91 mm (single-channel) 160 × 260 × 91 mm (four-channel) 180 × 280 × 101 mm (eight-channel)
	Waterproof: PVC (H1 x ∅ 216 × 141 mm (single-channel) 356 × 168 mm (four-channel)

TABLE 9: *Vibrating Wire Datalogger Specifications*

B.2 ADDRESSABLE (RS-485) DATALOGGER SPECIFICATIONS

Data Memory	32 MB
Storage Capacity	Varies by sensor sting connected
Communication Protocol	RS-485 Modbus
Thermistor Accuracy	1% (0.5° C thermistor point match)
Thermistor Resolution	0.032 °C
Scan Interval	Min: 1 minute; Max: 1 day
Power Supply	2x D cell, Alkaline or Lithium, 12 V Auxiliary
Operating Temperature	-40 °C to +65 °C (range varies by power source)
Enclosure	Die-cast aluminum 120 × 122 × 91 mm

TABLE 10: *Addressable (RS-485) Datalogger Specifications*

B.3 TILT DATALOGGER SPECIFICATIONS

Range[1]	±90°
Resolution[2]	±0.00025° (±0.004 mm/m)
Precision[3]	±0.0075° (±0.13 mm/m)
Nonlinearity	±0.005° across ±30° range (±0.09 mm/m)
Temperature Dependent Uncertainty	±0.001° across ±5° range (±0.016 mm/m) ±0.0016° across ±15° range (±0.026 mm/m) ±0.0026° across ±30° range (±0.042 mm/m)
Axis	2
Data Memory	32 MB
Storage Capacity	500,000 readings
Thermistor Accuracy	1% (0.5 °C thermistor point match)
Thermistor Resolution	0.032 °C
Scan Interval	Min: 1 minute; Max: 1 day
Power Supply	2x D cell, Alkaline or Lithium, 12 V Auxiliary
Operating Temperature	-40 °C to +65 °C (range varies by power source)
Enclosure[4]	Die-cast aluminum 120 × 122 × 91 mm

TABLE 11: *Tilt Datalogger Specifications*

Note:

[1] Calibrated Range: ±30°

[2] 99% confidence interval (i.e., 99 out of 100 individual readings fall within this tolerance).

[3] Includes random walk (changes between consecutive readings that have no discernible cause) and seismic noise during testing.

[4]Eye bolt and cable sleeve add approximately 82 mm

APPENDIX C. CONNECTOR PINOUTS

C.1 VW DATALOGGERS WITH CABLE GLAND CONNECTION

Terminal Strip Position	Description	Cable Wire Color
VW+	Vibrating Wire+	RED
VW-	Vibrating Wire-	BLACK
TH+	Thermistor+	WHITE
TH-	Thermistor-	GREEN
S	Analog Ground (Shield)	BARE WIRE

TABLE 12: *VW Datalogger, Cable Gland Connection*

C.2 VW DATALOGGERS WITH 10-PIN BULKHEAD CONNECTION

10-Pin Bulkhead	Internal Wire Color	Description	Cable Wire Color
A	Brown	Vibrating Wire+	RED
B	Red	Vibrating Wire-	BLACK
C	Orange	Thermistor+	WHITE
D	Yellow	Thermistor-	GREEN
E	Green	Analog Ground (Shield)	BARE WIRE
F	Blue	+VCC Supply	N/A
G	Violet	Digital Ground	N/A
H	Grey	Mux Reset	N/A
J	White	Mux Clock	N/A
K	Black	Digital Ground	N/A

TABLE 13: *VW Datalogger, 10-Pin Bulkhead Connection*

C.3 ADDRESSABLE (RS-485) DATALOGGERS

Terminal Strip Position	Description	Cable Wire Color
485+	RS-485 Data+	WHITE
485-	RS-485 Data-	GREEN
12V	12 Volt Bus	RED
GND	Bus Ground	BLACK
S	Analog Ground (Shield)	BARE WIRE

TABLE 14: *Addressable Datalogger, Cable Gland Connections*

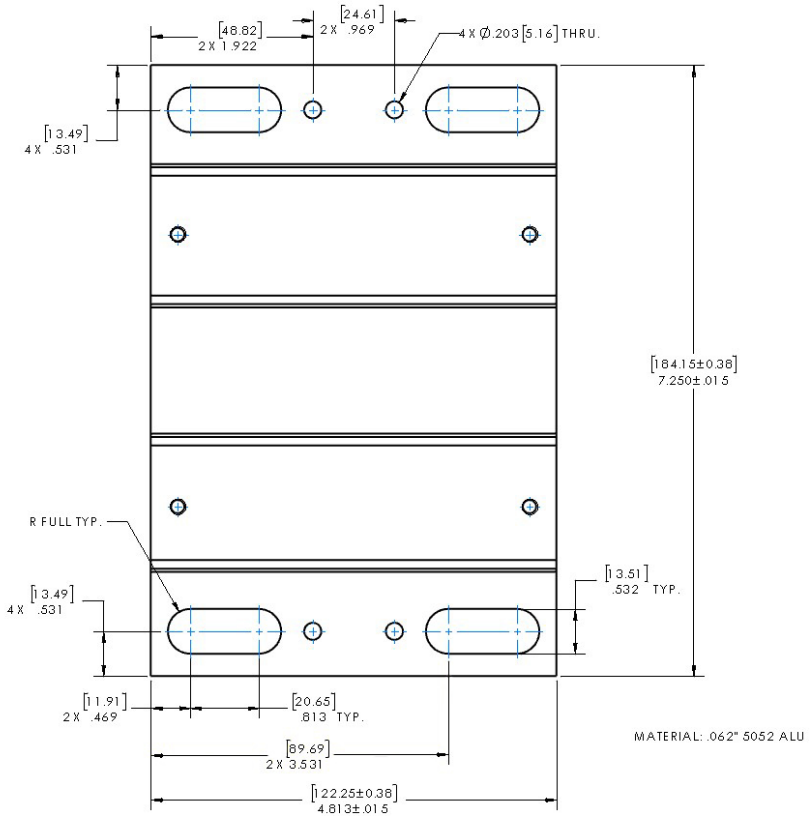
C.4 VW DATALOGGERS WITH 6-PIN CONNECTION

6-Pin Connector	Internal Wire Color	Description	Cable Wire Color
1	Red	Vibrating Wire+	RED
2	Black	Vibrating Wire-	BLACK
3	White	Thermistor+	WHITE
4	Green	Thermistor-	GREEN
5	Grey	Analog Ground (Shield)	BARE WIRE
6	N/C	N/A	N/C

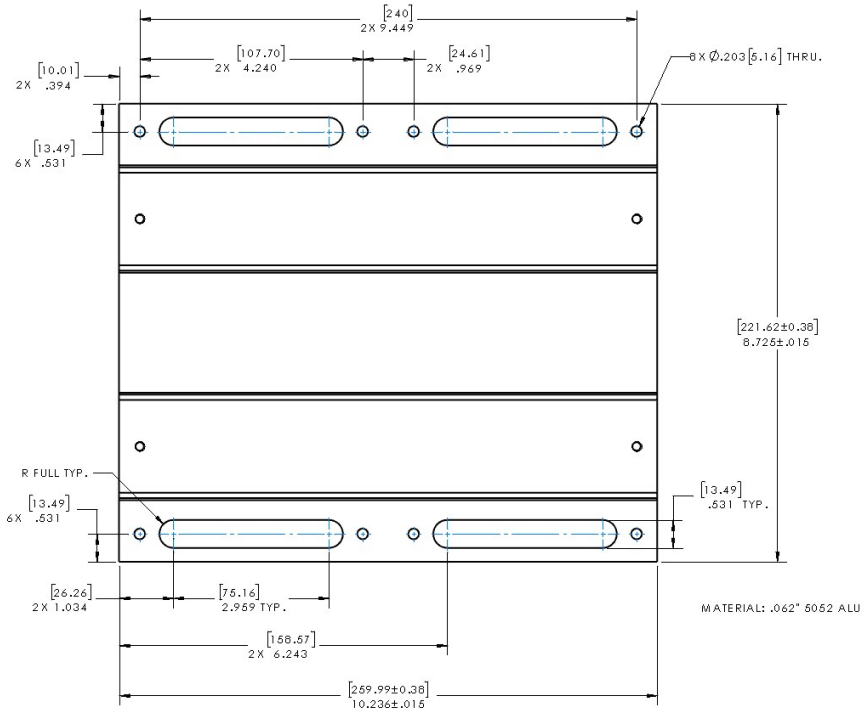
TABLE 15: *VW Datalogger, 6-Pin Connection*

APPENDIX D. MOUNTING BRACKET DIMENSIONS

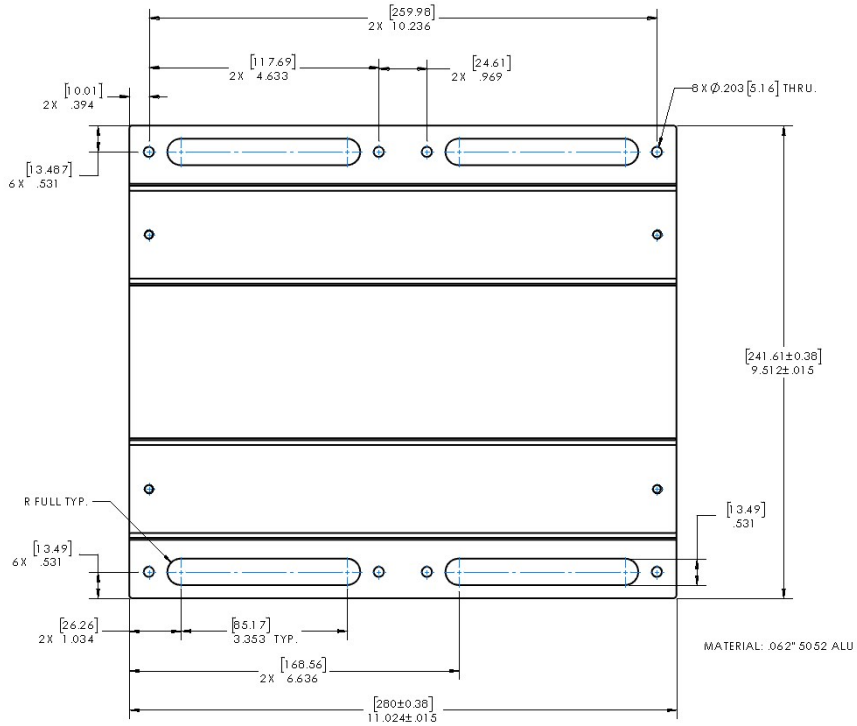
D.1 ALL SINGLE CHANNEL AND ADDRESSABLE DATALOGGERS



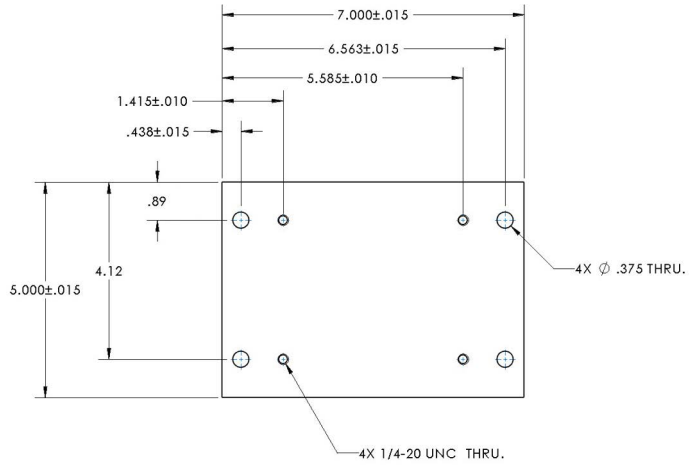
D.2 ALL FOUR-CHANNEL DATALOGGERS



D.3 ALL EIGHT CHANNEL DATALOGGERS



D.4 ALL TILT DATALOGGERS



APPENDIX E. VIBRATING WIRE LOAD CELL WIRING

E.1 WIRING SINGLE LOAD CELL

8CH Interface[1]	Function	3-Gauge Load Cell Violet Cable	4-Gauge Load Cell Violet Cable	6 Gauge Load Cell Orange Cable
Channel 1 VW+	Gauge #1	Red	Red	Red
Channel 2 VW+	Gauge #2	Red's Black	Red's Black	Red's Black
Channel 3 VW+	Gauge #3	White	White	White
Channel 4 VW+	Gauge #4	NC	White's Black	White's Black
Channel 5 VW+	Gauge #5	NC	NC	Green
Channel 6 VW+	Gauge #6	NC	NC	Green's Black
Channel 1 SHD	Shield	All Shields	All Shields	All Shields
VW- Channels[2]	Common	White's Black[3]	Green	Blue
Channel 1 TH +	Thermistor	Green[3]	Blue	Yellow
Channel 1 TH -	Thermistor	Green's Black	Blue's Black	Yellow's Black

TABLE 16: *Single Load Cell Wiring*

Note:

[1] Where second Load Cell is being included, retain relative channel position count up from channel 5.

[2] Common "VW-" between all channels associated with each VW Load Cell

[3] White's black and Green wires are switched on GEOKON three-gauge VW load cells prior to serial number 3313.

E.2 LOAD CELL CONFIGURATION SWITCH SETTINGS

POS 1	POS 2	POS 3	Configuration
OFF	OFF	OFF	Std. No Load Cell
ON	OFF	OFF	One 3-Gauge Load Cell
OFF	ON	OFF	One 4-Gauge Load Cell
ON	ON	OFF	Two 3-Gauge Load Cells, second starting at channel 5
OFF	OFF	ON	Two 4-Gauge Load Cells, second starting at channel 5
ON	OFF	ON	One 3-Gauge Load Cell & One 4-Gauge Load Cell starting at channel 5
OFF	ON	ON	One 4-Gauge Load Cell & One 3-Gauge Load Cell starting at channel 5
ON	ON	ON	One 6-Gauge Load Cell

TABLE 17: *Load Cell Configuration Switch Settings*

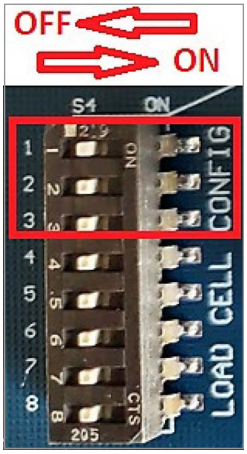


FIGURE 13: *Load Cell Configuration Switch*

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