# DT Series Dataloggers Maintenance and Service Guidelines



---

**Document Number**: ELM0088B

**Release Date**: August 14, 2020

**RST INSTRUMENTS LTD.**
**11545 Kingston St.,**
**Maple Ridge, BC**
**CANADA V2X 0Z5**

**SALES + SERVICE + MANUFACTURING:**
604 540 1100 | info@rstinstruments.com
TOLL FREE (USA & Canada) | 1-800-665-5599

**www.rstinstruments.com**

# REVISION HISTORY

| Rev. | Revision History | Date | Prepared By | Approved By |
|---|---|---|---|---|
| A | Initial release | 2018-Aug-07 | CM | JW |
| B | Added GAA2820 and DTSAA, removed contact information from Section 5. | 2020-Aug-14 | JW | AB |

# TABLE OF CONTENTS



# LIST OF FIGURES



# LIST OF TABLES

# 1 INTRODUCTION

RST DT Series Dataloggers are mounted inside NEMA 4X (IP66) weather-resistant enclosures which are dust-tight and water-resistant. The dataloggers can be exposed to elements such as rain and splashes of water, but they are not waterproof and are not suitable to be submerged.

RST DT Series Dataloggers are low maintenance but require some periodic servicing. Follow the maintenance guidelines as provided in this manual to ensure long lifespan of the dataloggers.

Note that any service or maintenance involving the exposure of the logger's internal components should be performed in clean and dry conditions.

**CAUTION:**

**AVOID OPERATIONS WITH THE LOGGER COVER OFF IN RAIN OR SNOW.**

**DO NOT ALLOW RAIN OR SNOW TO ENTER THE ENCLOSURE.**

**DO NOT INSTALL IN LOCATIONS PRONE TO FLOODING.**

**DT LOGGERS ARE RAIN-TIGHT BUT CANNOT BE SUBMERGED.**


**FIGURE 1-1 RST INSTRUMENTS DT SERIES DATALOGGERS**

# 2 BATTERY

The recommended battery models for most RST DT Series Dataloggers are the SAFT LSH14 (lithium-thionyl chloride C-Cell) or SAFT LSH20 (lithium-thionyl chloride D-Cell). SAFT LSH20 is the recommended battery for all datalogger units with RSTAR and DT Link wireless capability. The only exception is that the DTSAA logger only supports SAFT LSH20 battery.

Battery lifespan is difficult to accurately predict due to the number of variables that can affect it, including measurement interval, number of sensors being measured, radio signal (if applicable), temperature, and humidity, among others.

Although battery voltage data is logged in all DT Series dataloggers, lithium-thionyl chloride batteries generally stay at full voltage before suddenly dropping and depleting. This makes it difficult to predict when lithium-thionyl batteries should be replaced. Contact RST Instruments to determine the recommended approximate battery replacement schedule.

It is recommended to disconnect the battery when the DT Series dataloggers are not in use as the dataloggers will continue logging if the batteries are left installed. Store the batteries at room temperature if possible.

## 2.1 BATTERY SAFETY

**CAUTION:**

**DO NOT ATTEMPT TO RECHARGE THE BATTERY.**

**DO NOT REPLACE THE BATTERY WITH AN ALKALINE OR ZINC-CARBON BATTERY.**

**DO NOT SHIP THE DT-SERIES DATALOGGERS WITH THE BATTERY INSIDE.**


Follow local laws and regulations of your region for battery disposal.

Contact RST for replacement batteries.

# 3 MOISTURE PREVENTION

RST DT Series Dataloggers are housed in weather resistant, NEMA 4X IP66 rated enclosures. This prevents rain, snow, and dust from entering the enclosure but only if the dataloggers are properly installed and sealed. RST DT Series Dataloggers are not submersible.

Each datalogger has up to four areas of entry for moisture and humidity if not properly sealed:

- Datalogger lid: The datalogger lid will need to be removed and reinstalled from time to time for instrument wiring and periodic maintenance. It is important to ensure the O-ring is free of debris before reassembling the lid. Refer to Figure 3-1 for the proper sequence to follow when tightening the screws on the datalogger lid. Each screw will need to be loosely tightened in the sequence shown in Figure 3-1 before being tightly screwed in the same sequence.

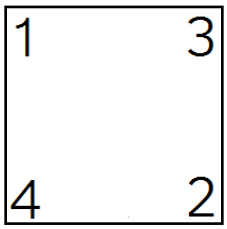


**FIGURE 3-1 TIGHTEN SCREWS IN THE FOLLOWING ORDER**

- Cable glands: ensure the cables are clean prior to inserting into the logger to prevent introducing dirt in through the gland opening. It is important to ensure all cable glands are sealed. The cable gland plugs should remain secured on any unused cable glands. Cable glands with sensor cables through should be securely sealed. Refer to the “Datalogger Hardware Connections” video for proper sealing guidelines located on the RST website at https://www.rstinstruments.com/Geotechnical-Videos.html or via YouTube directly at https://youtu.be/a5hHQaN1NkI

- USB connector: ensure the lid is firmly screwed in to provide a watertight seal when the USB is not in use. The USB connector lid contains a rubber gasket to seal the USB connector lid.

- Antenna connector (if applicable): Plug the antenna connector with the provided rubber connector cap when the antenna is not in use. When the antenna is in use, ensure it is screwed on hand tight and facing upwards.

Moisture intrusion is a possibility if any of these items are not properly sealed.

## 3.1 DESICCANT PACK

A desiccant packet is provided inside each datalogger during point of sale. These packs should be replaced if they ever appear to be moist or if any moisture is present inside the enclosure. It is recommended to replace the desiccant packets each time the battery is replaced or as required if the dataloggers are installed in climates with high humidity.

Refer to Table 3-1 for the corresponding desiccant packet per datalogger.

**TABLE 3-1 CORRESPONDING DESICCANT PACKET PER DATALOGGER**

| Datalogger | Corresponding Desiccant Packet |
|---|---|
| DT2040, DT2055B | ULINE S-3906, 10-gram desiccant pack |
| DT2011B, DT2306, DT2350, DT2485, DT4205, DTL201B + DTL202B, GAA2820, DTSAA | ULINE S-3902, 1-gram desiccant pack |

# 4 MAINTENANCE

Additional service and maintenance may be required depending on site conditions. Inspect the dataloggers for any signs of moisture or corrosion whenever the battery is replaced. Contact RST Instruments for troubleshooting recommendations if moisture or corrosion is detected.

Inspect the antenna if the diagnostic data shows any issue with the radio signal. Examine the dataloggers for loose internal and external antenna connections, damage to the antenna, and any moisture inside the enclosure.

Any datalogger upgrades or repairs should be performed by or under specific direction from RST Instruments Ltd.

Contact RST Instruments for any maintenance and servicing questions.

# 5 SERVICE AND REPAIR

The product contains no user-serviceable parts. Contact RST for product service or repair not covered in this manual.