

Rovanco® Piping Systems

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INS-PMH

Pre-Fabricated Steel Manhole Installation Instructions

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The following procedure shall be followed in the installation of pre-fabricated manholes.

Section 1: Inspection & Receiving of Manholes

- A. Check packing list against manholes and cartons received. Be sure all incidental materials have been received. Have the freight carrier make out a damage or short receipt if any discrepancies are found.
- B. The manholes shall be removed from the truck using the lifting lugs on the manhole.
- C. Care shall be taken to prevent dropping the manholes.
- D. The manhole shall be stored above ground in an upright position.

Section 2: Excavation

- A. The excavation shall be at least 2'-0" larger in diameter than the manhole and wider at the stub-outs.
- B. The excavation depth shall allow for 8" of concrete below the bottom plate.
- C. To ease installation and testing, bell holes shall be located at field joint locations between the manholes and the adjacent piping.
- D. In areas of granular soil, the excavation walls shall be sloped at the natural angle of repose.
- E. All local codes and regulation shall be observed in the excavation.

Section 3: Lowering of Units Into Trench

- A. Before lowering the manhole, the hole must be completely dewatered. Until the closure bands at the field joints are welded and tested, the excavation shall be kept dewatered.
- B. Before lowering the manhole, the coating shall be visually inspected for voids. If voids in the coating are detected they must be repaired.
- C. Each manhole shall be lowered into the excavation using the lifting lugs.
- D. Each manhole shall be positioned as shown on the approved Rovanco installation drawing.

Section 4: Pouring Anti-Float Pad

- A. The manhole shall be positioned so that the stub-outs are oriented correctly with the proper elevation. Concrete blocks shall be used to block up the manhole to provide a minimum of 8" of clearance beneath the manhole floor.
- B. A concrete pad shall then be poured. Care shall be taken to work the concrete beneath the manhole bottom. The concrete pad shall extend at a minimum of 9" greater in radius of the manhole walls and 6" above the bottom plate, or as shown on the installation drawing.

Section 5: Welding of Adjacent Pipe

The carrier pipe of the stub-outs shall be welded to the adjacent piping per the attached instructions.

Section 6: Testing

All carrier pipe must be hydro tested prior to insulating, pouring thrust blocks or backfilling the system. Failure to comply with testing procedures will void warranty.

Section 7: Construction of Conduit Field Joints

The construction of field joints shall be per the attached instructions.

Section 8: Backfilling

- A. Any holiday/voids in the coating shall be repaired with mastic provided by Rovanco. A common paint brush is used to paint the holiday area. Allow six hours for mastic to dry.
- B. The excavation shall be backfilled with suitable material. Unless the contract documents specify otherwise, particles $\frac{1}{4}$ " or smaller in diameter shall be used until 12" of cover is obtained over the top plate of the manhole. This material shall be compacted per the project specifications.

Section 9: Leak Detection

Content of the Box

- Device SAM Unit
- Battery
- Antenna *(with accessories, as per order)*



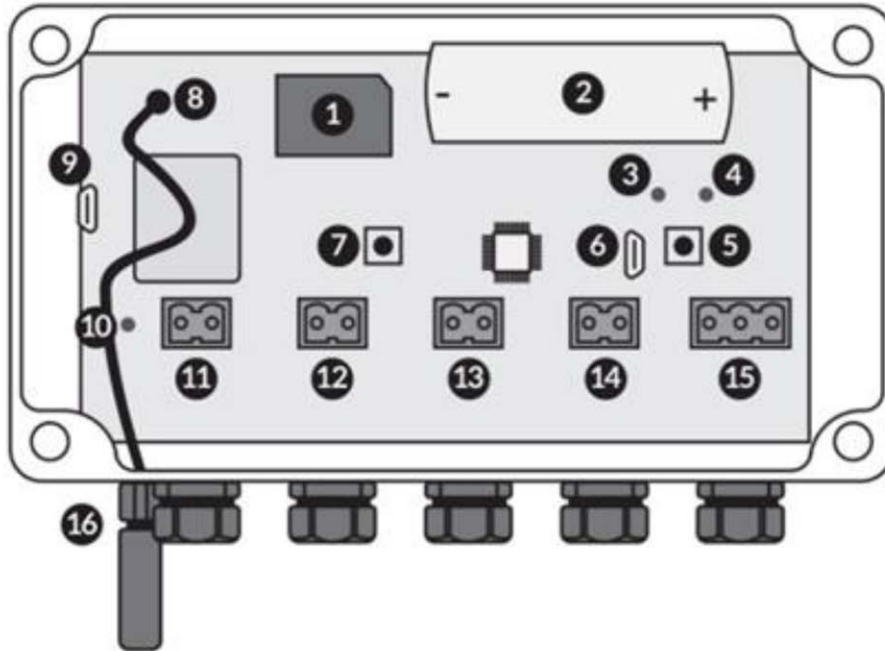
- √ Before using the the device, please read this Operating Manual carefully.
- √ Adherence to this manual does not exempt from the need to comply with other safety regulations.
- √ Any repairs or interference with the device and its accessories may only be carried out by an authorized service centre of the manufacturer.
- √ The devices are covered by a 24-month warranty starting on the date of purchase.
- √ In connection with the continuous development of the device, the manufacturer reserves the right to update this manual without the need to notify the users of the device.
- √ The current version of the manual is available at www.ratmon.com



Intended Use of the Device

The SAM-1 device is for remote supervision of objects at risk of flooding with water or other liquid. The device can operate with 4 sensors of input (flooding or door open) signals. In addition, the device is equipped with a temperature sensor and optionally a humidity sensor. Communication takes place using the MQTT protocol and the IoT network. Visualization and supervision is implemented in the RATMON System.

View of the Device



1. Micro SIM Card Slot	7. S1 Button
2. Battery 3.6 volt	8. Antenna Connector
3. LED	9. Micro USB (control) Port
4. LED	10. Processor Status LED
5. S2 Button	11-15. Sensor Inputs
6. Micro USB (service) Port	16. Antenna Socket

Section 4: Installation Of Control Panel, Floats and Sensors

The SAM-1 control panel should, whenever possible, be installed in the place where network coverage will be ensured (near a manhole, window, etc.) using mounting pins.

- Float Sensors – Installation of flood sensors should be mounted to the wall on a grounded DIN rail (vertically). Several “floats” can be mounted on one rail at different heights to reflect different levels of flooding (e.g. 20 cm and 1 m above the floor level).
- Hatch Opening Sensor – 1 sensor is responsible for one hatch/door. The sensor should be installed in such a way that opening of the hatch causes deformation (excitation) of the sensor.

Unit Operations and LED Indicators

IMPORTANT NOTE!

When inserting and removing the SIM card, the battery must be removed!

The SAM-1 device operates in continuous 24/7 mode. Each activation of the sensor causes excitation of the control panel and transmission of the relevant information, e.g. to the RATMON system, where all information can be viewed. The device operates: flood sensor, hatch/door opening sensor, temperature sensor. We recommend contacting the manufacturer before connecting other sensors.

The level of the GSM signal can be displayed on the LEDs **(3) (4)**.
LEDs are switched off by default to conserve battery.

To check the level of the control panel GSM signal at once, press the S1 button **(7)** once and then press the S2 button **(5)** once. The LED **(3)** should light continuously and the LED **(4)** will indicate the status of the network connection.

- Fast Flashing; connecting to the network
- Continuous Light; established connection to the network

√ After the continuous light, the LED will display the GSM signal level by means of a number of flashes (1 to 4) in two series.

- If the device flashes with the LED **(3)** for more than 5 minutes, it means that the device cannot establish connection to the network.
- The next connection attempt will take place automatically after 5 minutes, during which time it is recommended to place the device in a place with a better exposure to the GSM signal or use an external antenna.

To enter the service mode, connect the micro USB cable to the port **(6)** and press the S1 button **(7)**. The LED **(3)** will light up continuously.

Waste electrical and electronic equipment should be collected selectively, i.e. not disposed of with other types of household waste. Waste electronic equipment should be handed over to the collection point in accordance with the local regulations on Waste Electrical and Electronic Equipment.

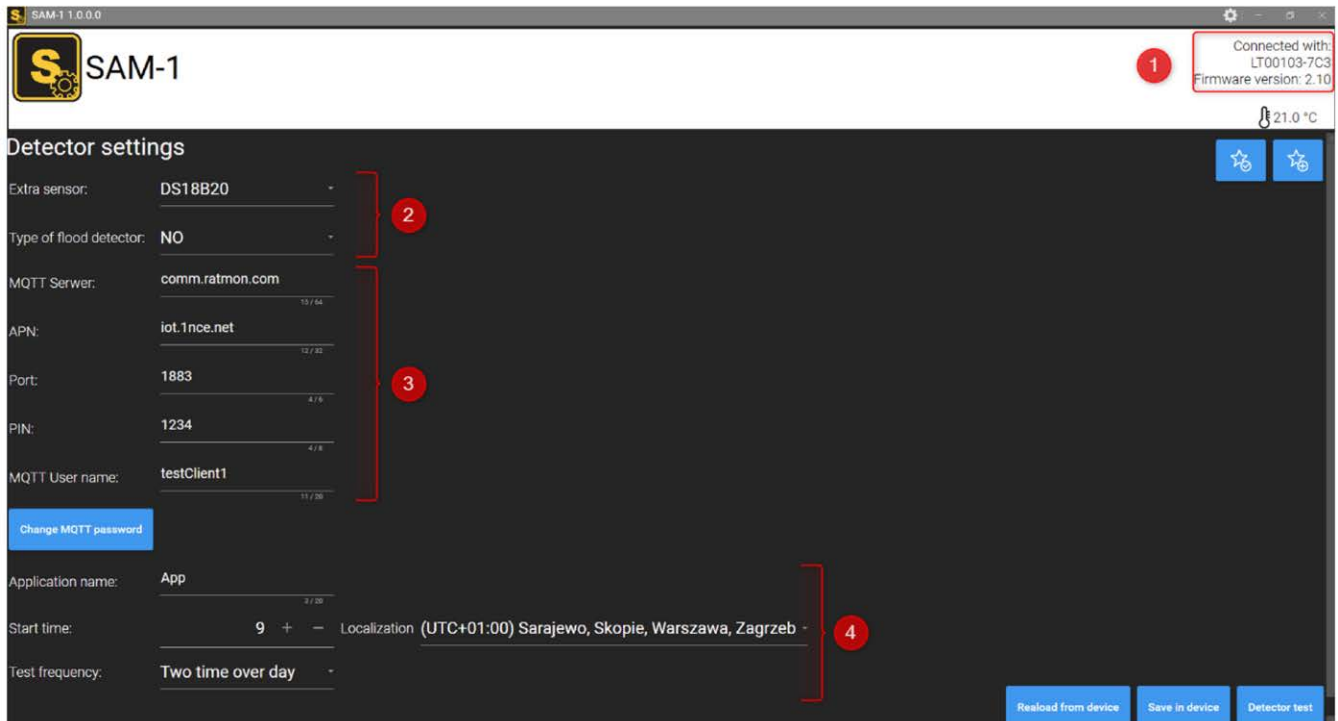
Before handing over the equipment to a collection point, do not disassemble any parts of this equipment yourself. Always observe local regulations for the disposal of packaging, waste batteries and rechargeable batteries.

Configuring the SAM Unit

We can configure the SAM-1 device with a dedicated program, which can be downloaded from the website: <https://www.ratmon.com>.

To set up the device you will need: SAM-1 with battery, micro USB cable and a Windows computer.

- Insert the batteries into the device, and connect the micro USB cable to the input No. **(6)** and the computer.
- The program will bring up the following view:




1. The serial number of the SAM-1 device and its software versions.
2. Sensor settings
 - Extra sensor e.g. temperature sensor, digital distance sensor, etc.,
 - Type of flood detector - S-1 sensor, S-2 flood opening sensor.
3. MQTT client settings (to be determined with the client).
4. Settings of measurement time period and time zone.

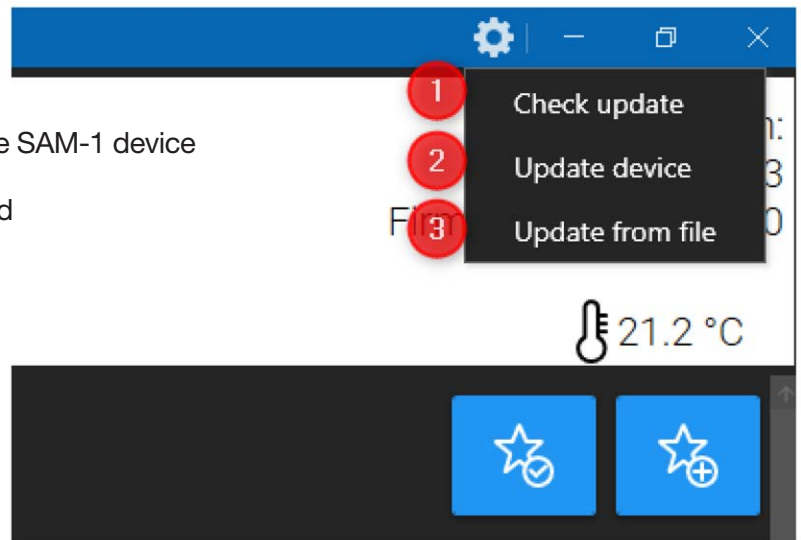
Every change made should be saved!

Upgrading the SAM Unit

To update the device you will need: SAM-1 with battery, micro USB cable and a Windows computer.

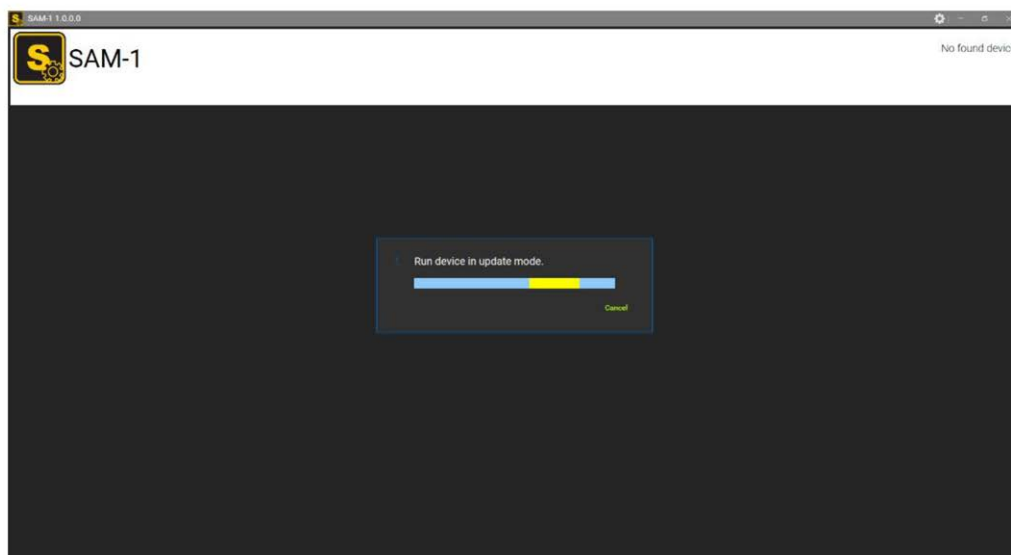
1. insert the batteries into the device, and connect the micro USB cable to the input No. **(6)** and the computer.
2. In the upper right corner, select settings  and then choose the appropriate update method:

- 1** Checks for new software versions for the SAM-1 device
- 2** Update the SAM-1 device from the cloud
- 3** Update the SAM-1 device from a file



3. To the SAM-1 device you need to enter a special mode for communication. To do this, click in sequence:

- Hold S2 (5) button
- Briefly click S1 (7)
- Then release the S2 (5) button



4. The device will begin to go through the update process. When the process is properly completed, you will be informed by an appropriate message:

```
cmd C:\Windows\System32\cmd.exe
erasing sector 0374 @: 0x08017600 done
erasing sector 0375 @: 0x08017700 done
erasing sector 0376 @: 0x08017800 done
erasing sector 0377 @: 0x08017900 done
Download in Progress:
██████████████████████████████████████████████████████████████████████████████ 100%
File download complete
Time elapsed during download operation: 00:00:12.522

Verifying ...

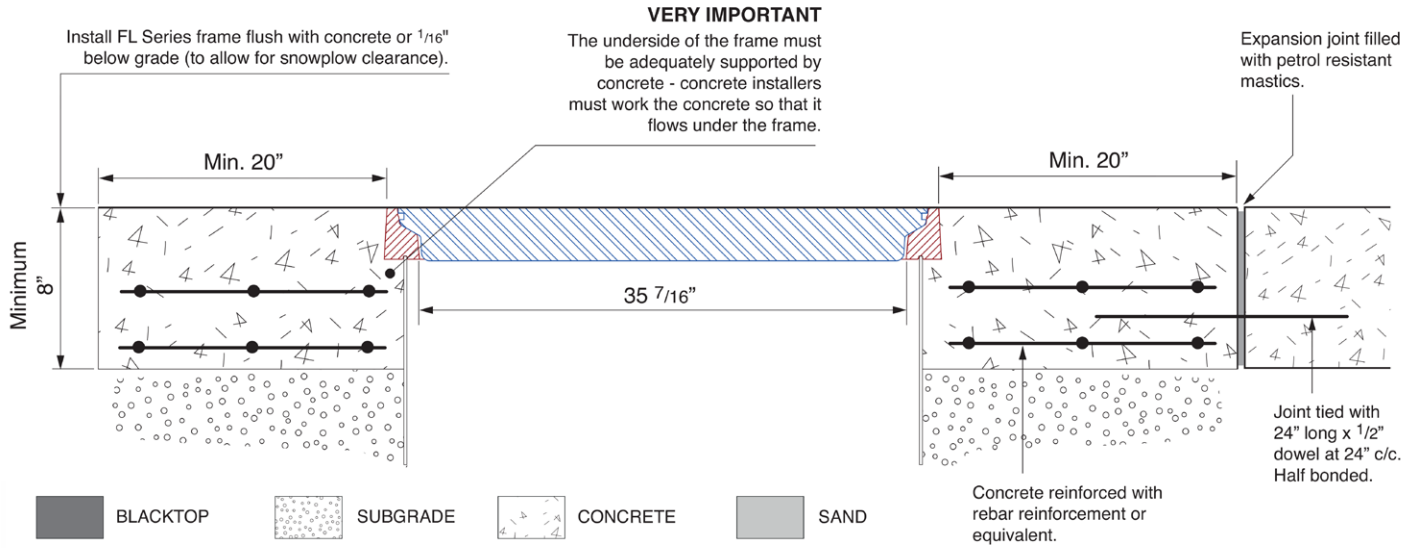
Read progress:
██████████████████████████████████████████████████████████████████████████████ 100%
Download verified successfully

RUNNING Program ...
Address:          : 0x8000000
Start operation achieved successfully

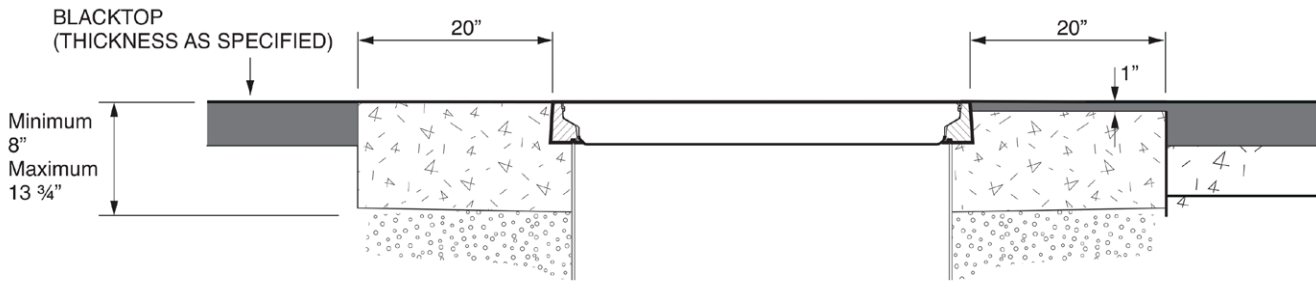
C:\Program Files\SAM1>
```

Section 10: Fibrelite Manway Lid Installation

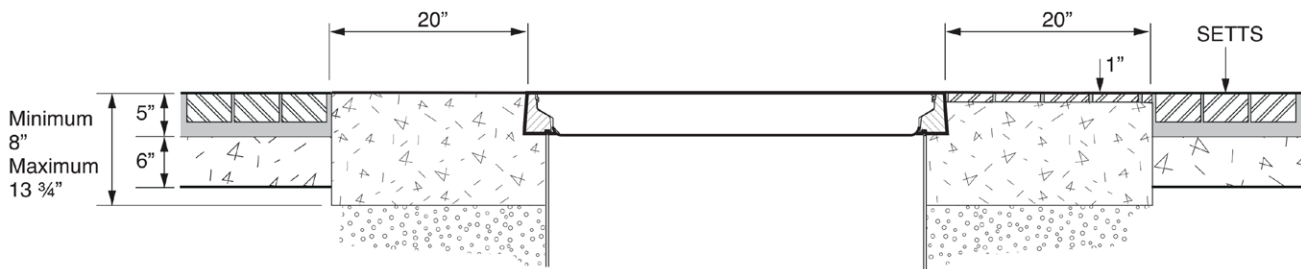
Concrete



Blacktop



Paving Stones / Brickwork



36" diameter flat sealed composite cover with a composite frame.

For reference purposes only. This drawing is not a specification.