Pyxis®

PRL-100 PERSONAL RADAR LEVEL SENSOR

Near-Field Communication Tag Scanner with LoRa Capability

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USER GUIDE

DESCRIPTION

This quick user guide describes how to perform tank level measurement with the Pyxis Lab® PRL-100 Personal Radar Level Sensor and the uPyxis® 2.0 app.

PRE-REQUISITE, WHAT YOU WILL NEED...

- Pyxis Lab® PRL-100 Personal Radar Level Sensor (P/N: XXXXXX)
- Smart Phone with uPyxis® 2.0 App Installed
- Pyxis Lab® NFC Tags (INCLUDED)

INVENTORY TRACKING WITH PRL-100

The PRL-100 personal radar level sensor is perfect for tracking chemical inventory. It quickly measures levels in about 10 seconds and lets you identify each tank or container with an NFC (Near Field Communications) tag. It also provides key data, including chemical usage rates and days remaining before the tank is empty. The following user guide outline how to start tracking your chemical inventories.

PREPARING YOUR NFC TAG

An NFC tag is a small device that uses Near Field Communication (NFC) technology for data exchange with compatible devices over short distances, operating through electromagnetic induction. Pyxis Lab® offers customizable NFC tags that work with the uPyxis® 2.0 app and the PRL-100. You can program tank or container information into the NFC tag using the uPyxis® 2.0 app before taking a level measurement.

To prepare your NFC tag, open the uPyxis® 2.0 app on your smartphone, tap the 'Tools' icon in the upper-right corner, and then select the 'NFC' icon to connect with your NFC tag.

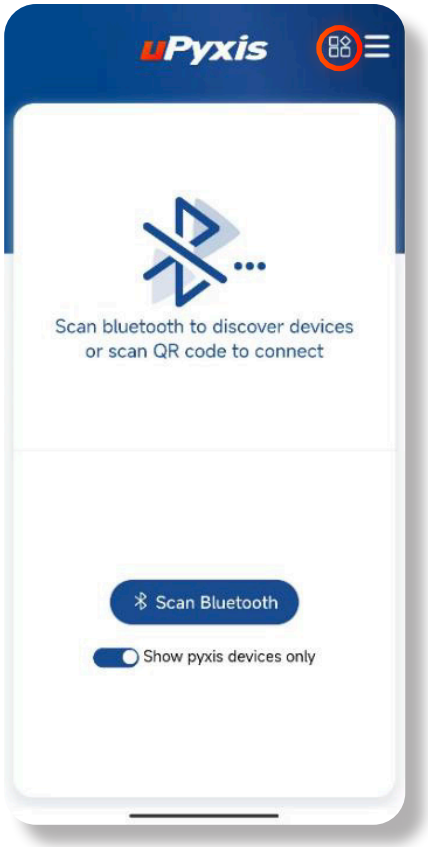

Fig 1. uPyxis Start-Up

Fig 2. uPyxis Tool Menu

Place the NFC tag on the back of your smartphone, the app will automatically read content on the tag.

NOTE *Please put the tag closer to the phone and try moving it around if the app does not read it properly at first.*

PREPARING YOUR NFC TAG, CONT.

The app will display **NFC Card is Empty** if this is a new NFC tag, otherwise data already saved to the tag will be read out and displayed on the app.

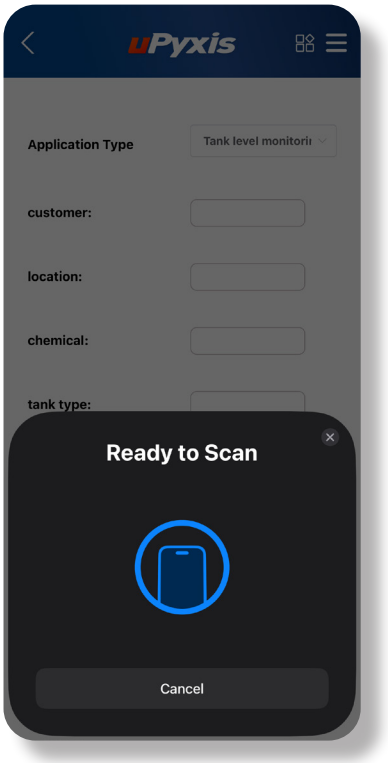

Fig 3. Prepare NFC Tag

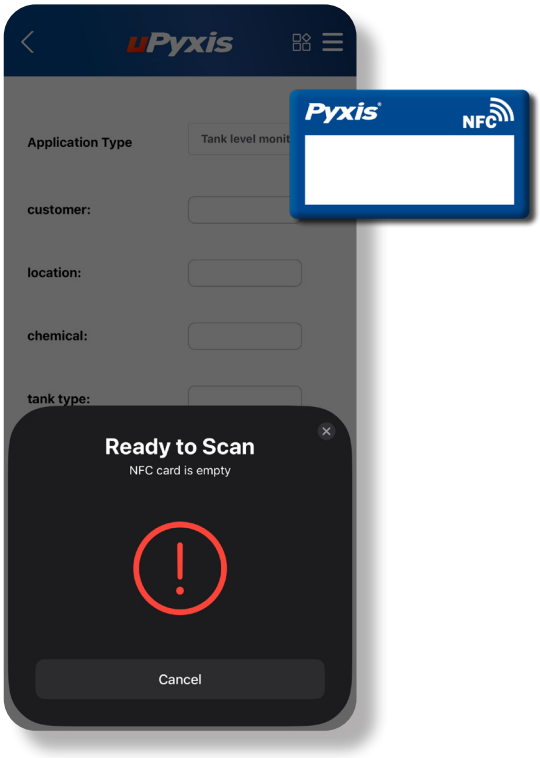

Fig 4. uPyxis Scans Empty Tag

To configure your NFC tag, please fill in tank information on the app and select 'Tag Write' button to program the NFC tag.

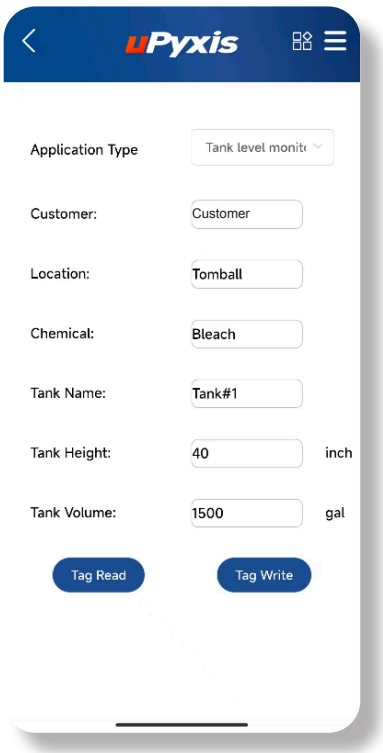

Fig 5. Progamming your Tag

PLACE THE NFC TAG ON YOUR TANK

There is a layer of adhesive on the back of your tag, peel off the protective layer and stick the NFC tag onto your tank/container where you can easily access it with the PRL-100.

Fig 6. NFC Tagged Tank

SCAN THE NFC TAG

Please scan the NFC tag every time before making a level measurement. Simply hold the head of the PRL-100 close to the tag and the PRL-100 will automatically read the tank/container information as shown in the figure below. Click the 'OK' button to confirm the tank settings and continue with the reading.

Fig 7. PRL-100 Start-Up

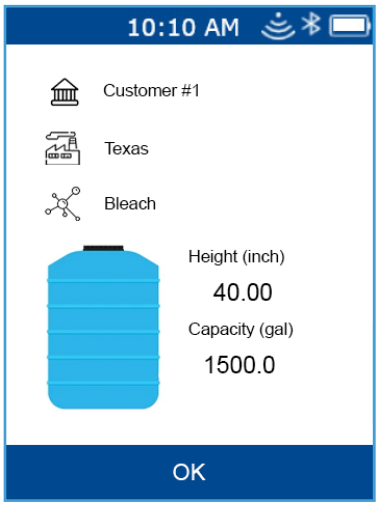

Fig 8. PRL-100 Reads Tag

TAKE A LEVEL MEASUREMENT

Hold the PRL-100 with one hand and place it vertically against the top surface of the tank if the tank is made of plastic such as PVC, PP or HDPE. The PRL-100 will display an indication[1] of radar signal strength and an icon[2] to tell whether the signal is vertical as shown in Figure 9.

NOTE *Vertically holding the sensor closest to the center of the circle icon[2], will ensure an accurate sensor measurement.*

Make sure you have a strong radar signal, and the signal is pointed vertically downwards. The PRL-100 will start measuring distance, level and remaining volume of the tank. It also calculates the usage rate and remaining days by referencing previous measurements to this same tank as shown in Figure 10. The PRL-100 will lock the measurement (background color changes to blue) and will save the results to the SD card once the reading has stabilized.

[1] - The greater the amount of waves, the stronger the radar signal.
[2] - The closer the cross is to the center, the more vertical the radar signal is.

Fig 9. Level Measurement

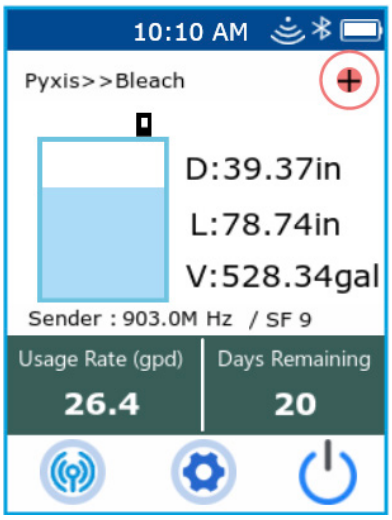

Fig 10. Measurement Results

TAKE A LEVEL MEASUREMENT, CONT.

As shown in Figure 11, the PRL-100 has a thread on the bottom of the device. If the tank you are monitoring is made of a metal, such as stainless steel, make sure to screw the PRL-100 into the top of the tank for proper measurements. As radar waves, being electromagnetic, **DO NOT Penetrate Metal**.

Fig 11. NPT 2" Thread

EXPORT & SHARE DATA

The PRL-100 saves measurement results internally with a SD Card, storing data by month. Each month has a separate folder named after the year and month recorded (YYYY-MM). Within the folder, the PRL-100 creates multiple datalog files and each file is associated with a different tank. All saved datalog files can be exported via uPyxis® 2.0 and shared with your customers.

First, connect to the PRL-100 on the uPyxis® 2.0 app and navigate to the 'LOG' function. Click 'Read File List' to read all saved folders as shown in Figure 13. Next, select the month you want to read and select 'Get Log List' to read the tank file information.

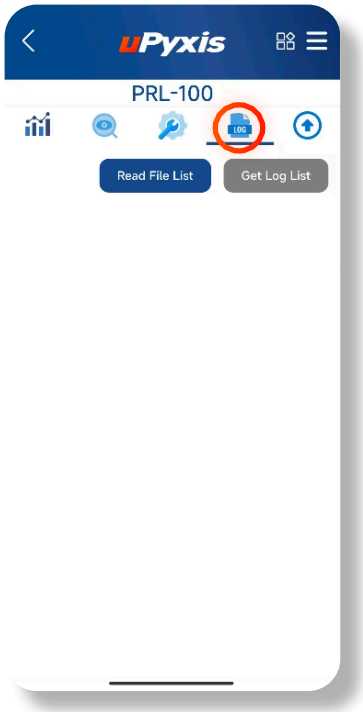

Fig 12. Datalog Page

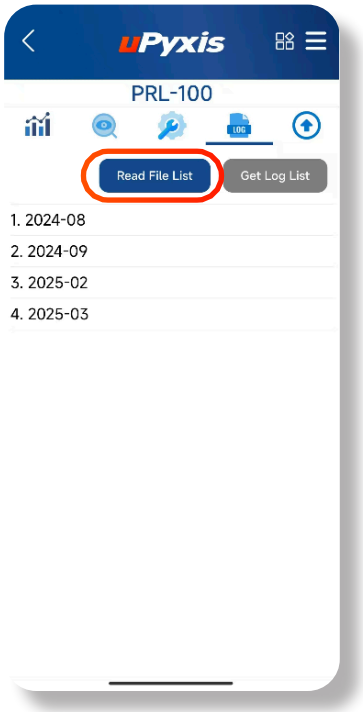

Fig 13. Read Month Folders

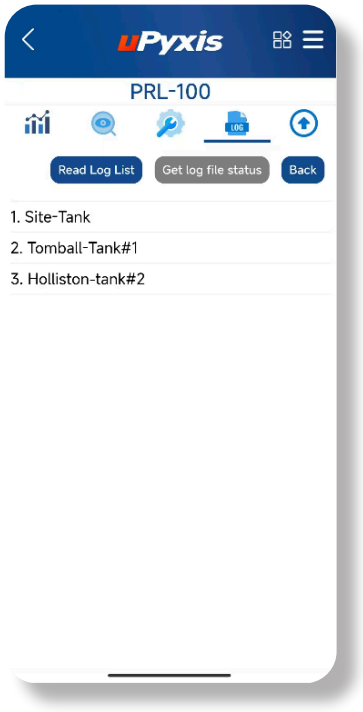

Fig 14. Read Tank Info

EXPORT & SHARE DATA, CONT.

Select the tank name you want to read datalog from, click ‘Get Log File Status’ to retrieve datalog file information as shown in Figure 15. Next, click ‘Read All Data Records’ to read all saved measurement results or ‘Read Last 100 Data Records’ to only read the last 100 data points as shown in Figure 16.

Click ‘Export’ to share the readout data as a .CSV file through email or any other apps.

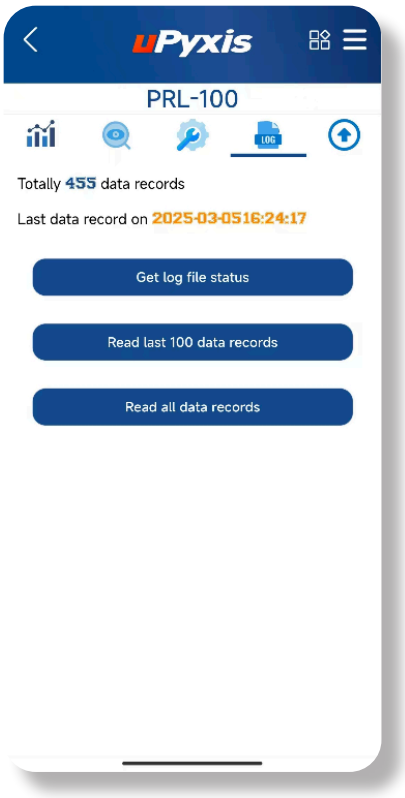

Fig 15. Read Log Info

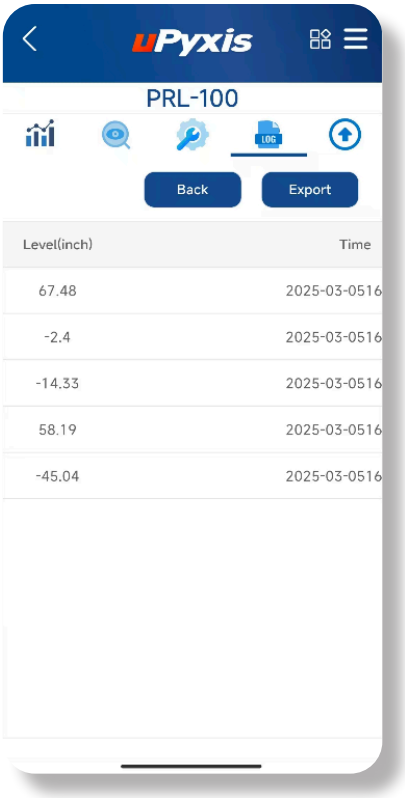

Fig 16. Read Log Data