



Installation and Set Up Instructions

Superfy Mini Smart Ultrasonic Fill Level Sensor

#### Contents

Safety Precautions		3	
Declaration of Conformity			
01	Product Introduction	4	
02	Hardware	6	
03	Before you start	8	
04	NFC Configuration	9	
05	Sensor Installation Process	13	
06	Installation of Superfy Mini Fill Level Sensor	15	
07	Optional sidewall Bracket Installation	17	
08	Optional Adjustable Bracket Installation	19	
09	Add a Container to the Map Using the Superfy App	22	
10	Allocate a Superfy Mini Fill Level Sensor to a Container using the App	27	
11	Add Images to a Container using the Superfy Mobile App	33	
12	Maintenance	38	
13	Warranty and RMA	39	

# **Safety Precautions**

Superfy will not shoulder responsibility for any loss or damage resulting from not following the instructions of this operating guide.

- The device must not be disassembled or remodeled in any way.
- The device is not intended to be used as a reference sensor, and Superfy won't shoulder responsibility for any damage which may result from inaccurate readings.
- Do not place the device close to objects with naked flames.
- Do not place the device in environments where the temperature is below or above the operating range.
- The device must never be subjected to shocks or impacts.

# **Declaration of Conformity**

The product is in conformity with the essential requirements and other relevant provisions of the CE, FCC, and RoHS.

#### Copyright © 2025 Superfy. All rights reserved.

All information in this guide is protected by copyright law. Whereby, no organization or individual shall copy or reproduce the whole or part of this user guide by any means without written authorization from Superfy Ltd.

For assistance, please contact: support@superfy.com

#### **Product Introduction**

#### **Overview**

The **Superfy Mini Fill Level Sensor** is a smart waste management sensor for monitoring the fill level status of all waste and recycling materials across a wide range of containers and bins.

The ultrasonic sensor implementation provides accurate distance and fill level sensing capability, up to 4.5 m. A robust enclosure includes a long lasting battery\* and cellular connectivity options for NB-IoT/Cat M.

Used in conjunction with the **Superfy Platform**, the sensor can enhance the operational and sustainability performance around the monitoring, collection and transport of waste and recycling material.

Ideal for smart cities, commercial waste and recycling collectors, construction sites, estates and parks, campuses and shopping malls.

#### **Key Features**

- Mobile App for ease of use and configuration
- Long lifetime replacable batteries of up to 7 years\*
- Robust waterproof enclosure
- Built-in 3-axis accelerometer sensor to monitor device tilt status
- Flame retardant enclosure



#### **SPECIFICATIONS**

#### **Sensors**

Capability	Distance, Temperature, 3-axis Accelerometer
Distance measurement	Ultrasonic
Minimum / Maximum distance	1 cm / 450 cm
Measurement calculation	Multi measurement with weight approximation
Connectivity	
Connectivity	LNB-IoT/Cat-M, GNSS
Adaptive Data Rate	Yes
Downlink configuration	Yes
Measurement times	Up to 48 readings per day
Physical	
Dimensions	118 × 65 × 32.5 mm (L x W x H)
Operational temperature	-30°C ~ +70°C (-22°F ~ +158°F)
Enclosure	ABS + PC (Flame Retardant)
Power	
Power supply	2 x 9000 mAh ER26500 Li-SOCL2 replaceable Batteries
Battery life	Up to 10 years (Estimated battery life, 4 Times Report per Day)*
Environmental	
IP Rating	IP67
Certifications	
Certifications	CE, FCC, IC, EAC, ROHS

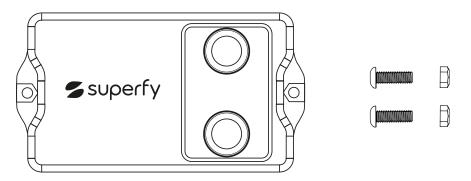
Note: For optimal battery life, we recommend a heartbeat of every 6 hours or more.

**Note:** When installing the sensor, both ultrasonic horns must be positioned facing downwards towards the centre bottom of the container. If one of the optical lenses is directed towards the side of the container or any other direction, it can result in inaccurate data readings.

<sup>\*</sup>Battery life estimates are influenced by several factors including temperature, installation and orientation of the device, the frequency of location updates, network coverage, sensor integrations, peripherals, accelerometer settings, and more. In some circumstances these environmental factors can materially affect the expected battery life of a device.

# Hardware

# **Packing List**



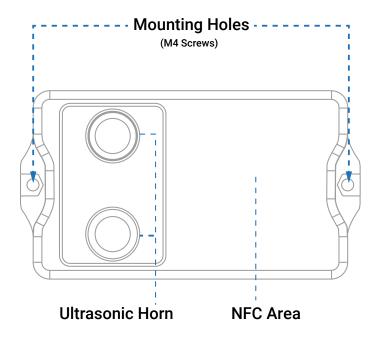
1 X Superfy Mini Smart Ultrasonic Fill Level Sensor

2 × Mounting Kits

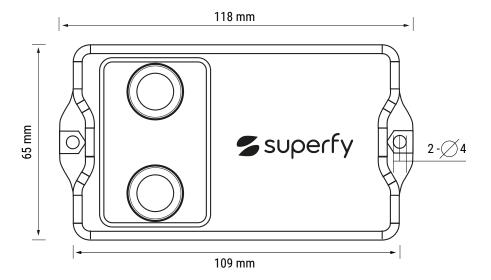


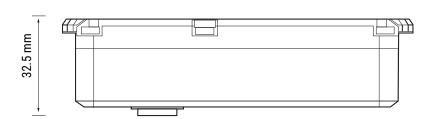
If any of the above items is missing or damaged, please contact your sales representative.

### **Hardware Overview**



## Dimensions (mm)





# **Before you start**

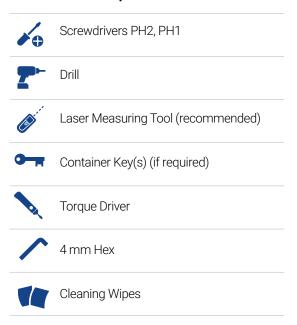
To get started with your **Superfy Platform** account setup and installation of the **Superfy Mini Smart Ultrasonic Fill Level Sensor**, please make sure to:

- Download the Installation Checklist
- Fill out the Container Information Template

**Note:** To complete the platform onboarding process, please fill out this form and return it via email to your **Superfy Customer Success Manager** or **support@superfy.com**Only complete and submit this form if you have not already done so.

• Email the forms to your customer success manager, or support@superfy.com

#### **Minimum Tools Required**

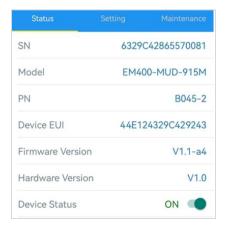


# **NFC Configuration**

#### Superfy Mini can be configured via NFC

- 1. Download and install the 'Toolbox App' from Google Play or App Store.
- 2. Enable NFC on the smartphone and open Toolbox App.
- **3.** Place the smartphone NFC area against the NFC area on the Superfy Mini to read the basic information.
- **4.** Basic information and device settings will be shown in the **Toolbox** if recognized successfully. You can switch on/off, read and write the device by tapping the **NFC icon** ( ) on the App.





#### Note:

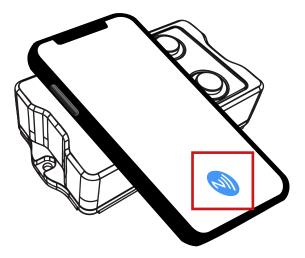
- **1.** To ensure the operation of smartphone NFC area it is recommended to take off the smartphone case.
- **2.** If the smartphone fails to read/write configurations via NFC, move the smartphone away and back and try again.

# **How to Turn On the Superfy Mini**

Please ensure that the **ToolBox App** is downloaded, as it is required to turn on the Superfy Mini.

Ensure that the **NFC feature** is enabled on your smartphone settings

• Open the ToolBox App and place the Superfy Mini near your smartphone's NFC area.

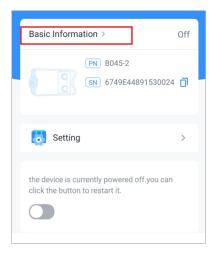


• Tap the NFC icon at the bottom of the Toolbox App screen to scan the device.

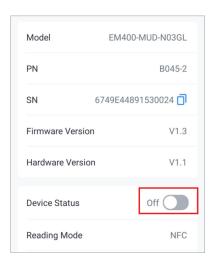
Ensure the **Superfy Mini** is held steadily against the **NFC** area of both your smartphone and the Superfy Mini for a successful scan



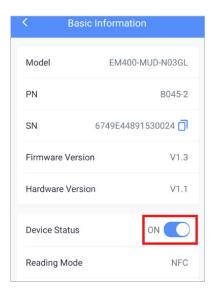
 After the device has been successfully scanned, tap Basic Information at the top of the screen.



• In the **Device Status** field, tap the device status **Off** button to turn on the **Superfy Mini**, then place your **Superfy Mini** against your smartphone's NFC area again to scan and activate it.



• The **Device Status** should change to **On** 



• Tap the **Back** button at the top left corner of the screen to return to the main page to scan the **Superfy Mini** one more time.

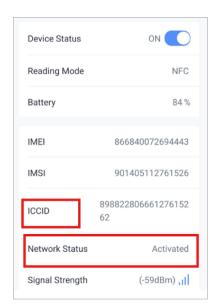


- Tap the NFC icon ( ) at the bottom of the screen once more, then place your Superfy Mini against your smartphone's NFC area one last time to scan it again.
- Check that the device status has changed to **Activated** at the top right corner, next to **Basic Information**.



 Click on Basic Information once more to verify that the ICCID number is visible and the Network Status shows as Activated.





## **Sensor Installation Process**

#### Download the latest version of the Superfy App onto your smartphone/tablet:





#### Apple users -

Please download the Superfy App from the **App Store here** 

#### OR

- Log into your App Store
- Search for **Superfy** using the **Search Bar**
- Select Superfy and click Install

#### Android users -

Please download the Superfy App from the **Google Play store here** 

#### OR

- Log into your Google Play Store
- Search for **Superfy** using the **Search Bar**
- Select Superfy and click Install



Login is the same login as you were initially set up with

#### Don't have a login?

Please reach out to your Company Admin, Account Manager,

Customer Success Manager, or

email support@superfy.com

They will be able to assist you in creating a login for your account.

# Measuring Fill Height and Fill Gap for Superfy Mini Fill Level Sensor

#### Superfy Mini Device Fitment - Standard Bracket

For accurate container fullness levels:



Before you go on site to install your Superfy Mini Fill Level Sensor in a container the \*Capacity or Volume of each container must be correctly recorded on the Container Information Template.

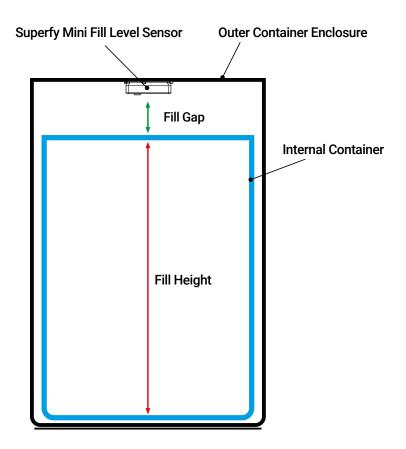


The **Fill Height** and **Fill Gap** must be recorded during installation on the **Superfy App**.

Please ensure to save the **Fill Height** and **Fill Gap** measurements, as you will need these measurements when assigning a sensor to its container in the Superfy App. This will be covered in more detail later in **Sections 9 & 10**.

**FILL GAP:** Measure the distance from the face of the Superfy Mini Sensor to the top of the internal container. This is the **Fill Gap**.

**FILL HEIGHT:** Measure the distance from the top of the internal container to the base of the internal container (i.e. to where the container will be considered '100% full'). This is the **Fill Height**.



Note: If these measurements are not accurate, you will receive incorrect fill level data.

<sup>\*</sup>Container capacity refers to the measurement of the container volume or capacity which is typically included in the container specification manual or data sheet provided by the container manufacturer. Additionally, you may be able to find the volume or capacity measurements on the manufacturer's website.

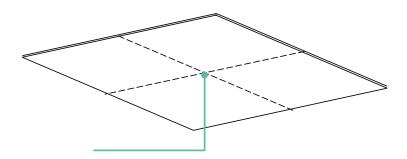
# **Installation of Superfy Mini Fill Level Sensor**



# Turn on the sensor immediately before installation

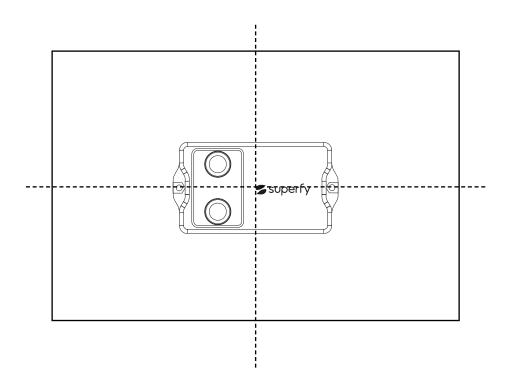
#### 1. Measure and mark centre point

Measure the length and width of the container surround on the top of the container lid so that the centre point can be marked. Mark the centre point on the container surround with a marker.



#### 2. Align and mark Superfy Mini holes

Align the Superfy Mini with the centre mark and use it as a template to mark the 2 mounting holes in the centre of each slot. Measure the length and width of the container surround on the top of the container lid so that the centre point can be marked. Mark the centre point on the container surround with a marker.



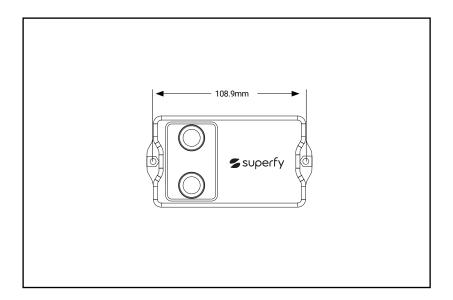
#### 1. Drill Superfy Mini Mounting holes

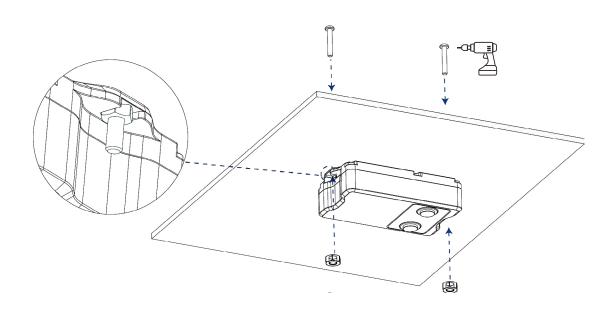
Drill  $4 \times 4.5 \text{mm}$  on the container cover according to the location of device mounting holes.

#### 2 Align the Superfy Mini

Put the device under container cover and align the holes in order to perfectly screw the bolts into the holes from the other side of the cover.

The **Superfy Mini** can also be fixed by two M4 mounting screws and wall plugs.





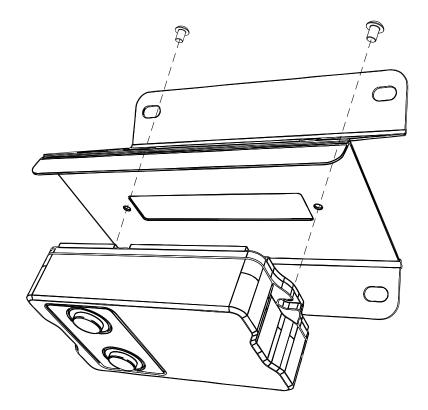
# **Optional sidewall Bracket Installation**

Required Tools			
M4 Allen Key	Cordless Drill		
Measuring Tape	5 mm Drill Bit		
Pencil / Marker	Tamper Proof Bit		

Fixings
4 x M5 x 16 Tamper Proof Bolts
4 x M5 Lock Nuts
4 x M5 x 20 Washers

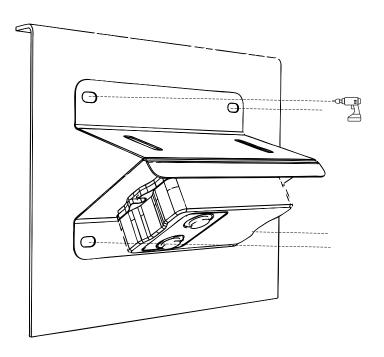
#### 1. Attach the Superfy Mini Fill Level Sensor (if required)

Remove the Standard Bracket from the back of the container Sensor. Using the same  $4 \times M4 \times 6$  button head socket screws, fasten the container Sensor to the  $45^{\circ}$  mounting bracket as shown.



#### 2. Drill bracket holes

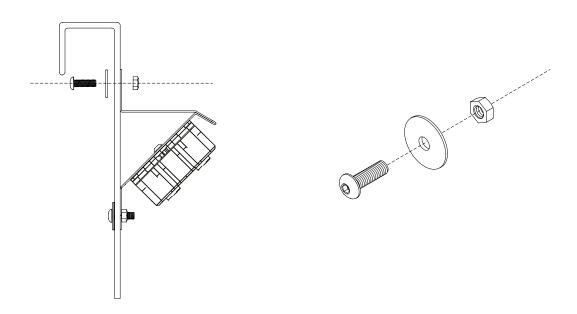
Once the installation position has been determined, use the  $45^\circ$  mounting bracket to mark and drill  $4 \times 5$  mm holes through the wall of the container. Ensure that the bracket remains level.



#### 3 Fasten the Superfy Mini Fill Level Sensor

Fasten the sensor, with attached 45° mounting bracket, to the container wall using  $4 \times M5 \times 16^*$  Button Head Tamper Proof bolts,  $4 \times M5 \times 20$  Washers and  $4 \times M5$  Lock Nuts.

\*Bolt length is based on a container wall thickness of 4 - 8 mm, length may need to be changed for different wall thicknesses.



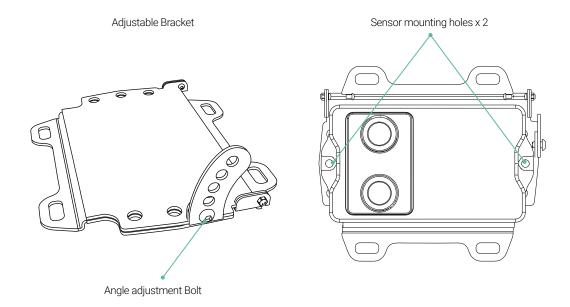
# **Optional Adjustable Bracket Installation**

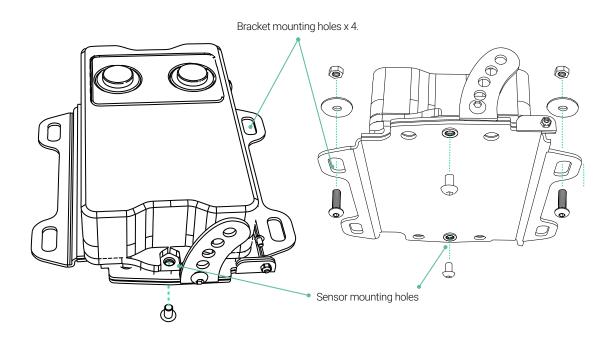
Required Tools	
M4 Allen Key	Cordless Drill
Measuring Tape	5 mm Drill Bit
Pencil / Marker	Tamper Proof Bit

Fixings
4 x M5 x 16 Tamper Proof Bolts
4 x M5 Lock Nuts
4 x M5 x 20 Washers

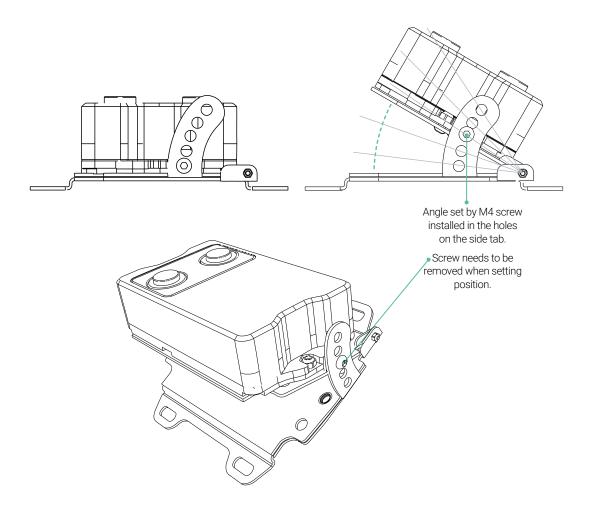
#### 1. Overview

Device angle fixing and mounting holes.





## 2 Bracket Adjustment

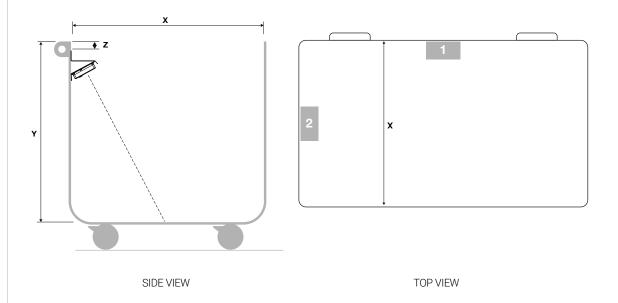


### **Superfy Mini Device Fitment - Adjustable Bracket**

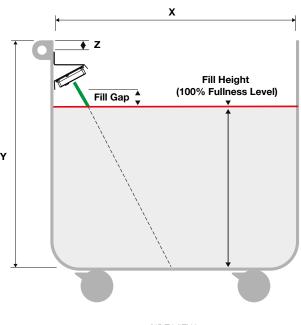
#### Measure the installation position

Measure the **Internal Height (Y)** and **Width (X)** of the container. If the container height **(Y)** of the back wall is less than the container width **(X)**, install the sensor in **Position 1**, if greater, install in **Position 2**.

The container sensor should be installed as close to the top edge of container as possible **(Z)**, however, consideration needs to be made for access and fixings through the container wall, avoiding any hinges or obstructions.



**Fill Height** is the measurement from the bottom of the container to where you establish 100% fullness (see **Red Line** below). The **Fill Gap** is the measurement from the sensor to the 100% fullness level. (see **Green Line** below).



# Add a Container to the Map Using the Superfy App

This step is only necessary if the containers have **not been already added to their respective location on the Superfy Platform. If the containers are already added, please skip to Section 10** on how to Allocate a Superfy Mini Fill Level Sensor to a container using the App.

There are 3 main container types within the Superfy Platform: a **Managed Container**, **QR Container** or a **Connected Container**. A container can also have both a QR code and a Sensor associated to it.



Connected Container: these containers are equipped with sensors that enable them to deliver real-time data on their fullness and temperature levels. You have the flexibility to adjust the frequency at which the Superfy Mini Fill Level Sensor records the fullness readings from the container and transmits this information to the Superfy Platform.



**QR Container:** these containers are equipped with **QR Codes**, allowing the public or your direct customers to scan the code to request collections, report damages, contamination or litter, making the collection process more efficient and accessible for all involved parties. These containers do not display fullness level data either.



**Managed Container:** these containers are not equipped with a QR code or sensor. Instead, they operate based on collection threshold rules, making them suitable for locations that do not require frequent pickups. They do not provide data on fullness levels; rather, they employ a color-coded system that shifts between **Green**, **Orange**, and **Red** to indicate their status according to predefined **Intermediate and Maximum Collection Thresholds**.



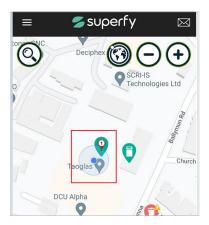
**QR and Connected Container** - the best of both worlds, you can assign a **QR Code and a Sensor** to a container.

To facilitate a seamless installation process, it is essential for customers to complete the **Container Information Template** and submit it to their **Account Manager** or **Customer Success Manager**. This important step enables our **Customer Success team** to add the containers to their designated location on the map prior to the installation of the **Fill Level Sensor** or **Smart Container**.

Alternatively, the installation technician(s) has the option to utilise the **Superfy App** to complete this process while on-site.

Ensuring that the containers are placed in their designated locations on the map is crucial for a smooth installation process. This step allows the installation technician(s) to verify that the **Fill Level Sensors** are turned on, assigned to the appropriate containers, and recording accurate fill level data. It also helps in proactively troubleshooting any issues while on-site.

- Open the **Superfy App** on your smartphone.
- Your smartphone's GPS will show your current location as a **Blue Dot** on the map.



If adding a container remotely, use the **Magnifying Glass** (②) icon located in the top left corner of the **Map View** to search for the desired address for where you wish to place the container. **Choose Streets/Location** from the available search options when looking for specific addresses.



• At the bottom of your phone screen, tap on **Add Container** (2) and tap on the location on the map where you wish to place the container.



- Complete the below information on the New Container Details screen by selecting from available options or adding new items:
  - Name use your preferred name for the container (i.e. Container Identification Number).
  - **Zone** choose the **Zone** where you wish to place the container.
  - **Icon** choose your preferred icon from the available list of container icons.

A **Zone** is a defined set of containers, often corresponding to the customer's own segmentation of their city.

- Images It is required to add photos during the installation of the Fill Level Sensor or Smart Containers.
- Include clear and detailed photos showcasing the installation of the sensor, providing a visual representation of where and how the sensor was installed.
- Photos of the container (type, Container Identification Number etc.)
- Include clear and detailed photos that showcase the environment surrounding the
  container. These photos will provide a visual representation of the area where the container
  is located, helping to provide context and a better understanding of its surroundings.
  - Tap on **Camera Image** ( ) to take and add a photo.
  - Add Title (i.e. container name).
  - Add Description this is optional!
    - Tap Done.
  - · Tap Save.



You can only upload One photo during the initial container creation. However, you can add additional photos once the container has been successfully created and added to the platform. This will be covered later below.

- **Subscription Type** choose the container subscription type by sliding the toggle next to your preferred option: QR Container, Connected Container, or both. Please be aware that the Managed option will be selected by default.
- **Container Type** choose the appropriate container type from the available options in the list.
- Container Tags this is optional. You can add any additional tags of your choice to a container.
- Waste Type select the appropriate waste material.
- Account select the appropriate account associated with the container.
- Location select the appropriate location associated with the container.

Please note to allocate a sensor, the **Connected Container Subscription Type** must be enabled. When this is enabled, you are required to allocate a sensor to the container as the next step.

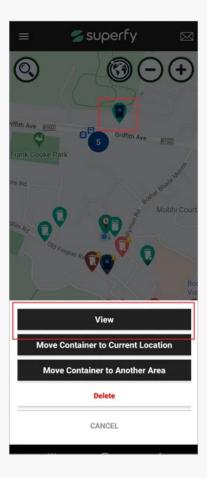
Once you select the **Connected Container** option for a container and save it, the setting **cannot be changed** in the App unless you first detach the sensor from the container.

- If you have selected the Connected Container subscription type, tap Next to allocate a sensor. Otherwise, tap Save to add the container to the platform.
  - On the Connected Container screen, tap on Sensor Name to search and allocate a sensor.
  - Select the **Sensor** from the list of available sensors or use the search bar to search for the sensor.
  - Tap on the sensor and tap **Done**.
  - Enter the accurate fill height on the Fill Height field.
  - Enter the accurate fill gap on the **Fill Gap** field.
  - Tap Save.

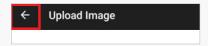
If the sensor is turned **ON**, the **Container Icon** ( ) will change colour accordingly from **Grey** to one of the below depending on the fullness level recorded by the sensor or the applied **Intermediate** or **Max Threshold**.



- To take and add more photos:
  - Tap on the **Container** ( ) on the map view.
  - Tap on View.



- On the Container Details screen, scroll down to Images again and tap on it.
- Tap **Plus** (+) icon to take and add more photo
- Tap Save.
- Tap the Back (</←) button located at the top left-hand side of the screen to add more photos and repeat the same steps by clicking the Plus (+) icon again if necessary.



- Tap the **Back** (</←) button once more to update the **Container Details**.
- Tap Next.
- Tap Save Container.

# Allocate a Superfy Mini Fill Level Sensor to a Container using the App

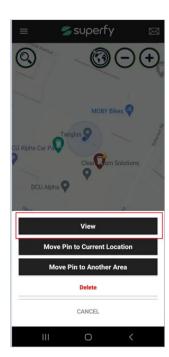
To accurately monitor the current **Fill Level and Temperature** of a container, it is essential to install, activate, and assign a Superfy Mini Fill Level Sensor to the container.

To ensure a smooth installation process, we highly recommend **Turning ON** the **Superfy Mini Fill Level Sensor** and allocating it to the container just before installation.

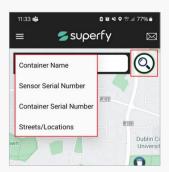
- Open the **Superfy App** on your smartphone.
- Your smartphone's GPS will show your current location as a **Blue Dot** on the map.



 Tap on the Container displayed at your current location on the Map, then tap on the View option.

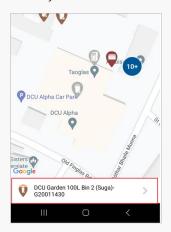


If you're not at the container's location, use the **Magnifying Glass** ( ) located at the top left-hand side in the **Map View** to search by **Container Name**, **Sensor Serial Number**, **Container Serial Number** and **Street/Location**.

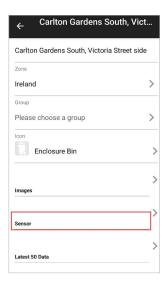


Alternatively, you can tap on **Explorer** (**②**) located at the bottom of the screen. This will provide you with a comprehensive list of all the **Containers** available for viewing.

• Tap on the **Container** of your choice.



- Tap on the **Arrow** beside the **Container Name** at the bottom of the screen to open the **Container Details** screen.
- On the Container Details screen, scroll down to the Sensor field and tap.



Before you allocate a new sensor to a container, you must first detach any sensor that is currently assigned to it. **A container can only have one sensor assigned at a time**, so this step is essential for a successful installation.

#### If a sensor is currently not allocated to the container, skip the below.

Tap on the 3 dots beside the Sensor ID Number.



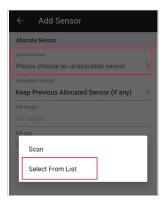
- Tap on **Detach Sensor** to detach the sensor from the container.
- Tap Okay (Android) or Detach (IOS) to detach sensor from container.



• To add a new **Sensor**, tap the **+** icon.



- Tap on Sensor Name to search and allocate a sensor.
- Tap on Select from List.



If you are unable to find the sensor in the list of available sensors, it is possible that the sensor has not been allocated to your account. In this case, please urgently reach out to your **Account Manager**, **Customer Success Manager**, or contact **support@superfy.com** for assistance.

- Alternatively, search for the **Sensor ID Number** using the **Search Bar**.
- Tap on the Sensor ID Number to allocate it to the container and tap on Done.



• Enter the accurate Fill Height and Fill Gap measurements.



Refer to Section 05 on how to take the Fill Height and Fill Gap Measurement.

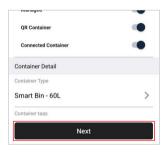
• Tap on **Allocate** to allocate the sensor to the container.



• Tap on **Back** (**<**/←) to return to the **Container Details** screen.



• Tap on **Next** located at the bottom of the screen.



Tap Save Container to update the Container Details.

• After saving the container, tap **Okay** on the pop-up message.

If the sensor is turned **ON**, the **Container Icon** (  $\bigcirc$  ) will change colour accordingly from **Grey** to one of the below depending on the fullness level or the applied **Intermidate** or **Max Threshold**.





# Add Images to a Container using the Superfy Mobile App

Including detailed images of the sensor's installation inside a Container and its surroundings is crucial for troubleshooting and strongly recommended.

When installing a sensor in a **Container**, it is crucial to:

- Include clear and detailed photos showcasing the installation of the sensor, providing a visual representation of where and how the sensor was installed.
- Photos of the Container (type, ID number etc.)
- Include clear and detailed photos that showcase the environment surrounding the
  container. These photos will provide a visual representation of the area where the container
  is located, helping to provide context and a better understanding of its surroundings.
- Open the Superfy App on your smartphone.
- Your smartphone's GPS will show your current location as a **Blue Dot** on the map.



• Tap on the Container displayed at your current location on the Map, then tap on View.



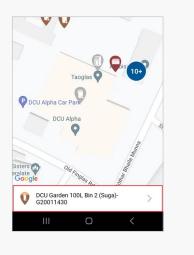
If you're not at the container's location, use the **Magnifying Glass** (②) on the left-hand side of the **Map View** to search by **Address**, **Container Name**, **Container Serial Number**, or **Sensor Serial Number**.





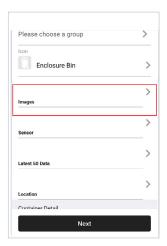
Alternatively, you can tap on **Explorer** ( ) located at the bottom of the screen. This will provide you with a comprehensive list of all the **Containers** available for viewing.

• Tap on the **Container** of your choice.



• Tap on the **Arrow** beside the **Container Name** to open the **Container Details**.

• On the **Container Details** screen, scroll down to **Images** and tap.



• Tap on the **Plus (+)** icon located on the top right-hand side of the screen.



- Tap on **Camera Image** ( ) to take a photo.
- Add Title (ie: container name).
- Add Description this is optional.
  - Tap Done.
- Tap Save.



- You can only add One photo at a time. Once you have saved the initial photo,
  - Tap the Back (</←) button once and tap on the Plus (+) icon again to add more photos.
  - Repeat the steps above until all photos are uploaded
- Tap on Back (</←) to return to the Container Details screen.</li>



• Tap on **Next** located at the bottom of the screen.



• Tap Save Container located at the bottom of the screen to update the Container Details.



### **Maintenance**

Superfy highly recommends regular cleaning of the sensor. This must be done with an eco-friendly cleaner.

## Cleaning the Superfy Mini Fill Level Sensor and Bracket

Gently clean the two ultrasonic sensors with a clean cloth, no detergent required. Wipe over both the device and the bracket removing any dirt and grime from both surfaces. Do not spray cleaner directly onto the device. There is no need to remove the device from the container.



# **Warranty and RMA**

The Superfy Mini Fill Level sensor has a 12-month warranty from the date of shipment of the Hardware to Customer during which Customer may perform Return Merchandise Authorization (RMA).

For products that are not covered under warranty, whether they are out of warranty or have subsequent defects, applicable charges for parts and services will apply. We recommend that customers consider the delivery costs before sending items for repair.

For more information on the RMA process please see:

https://knowledge.superfy.com/knowledge/rma-process

If you need any further assistance please contact:

support@superfy.com



www.superfy.com