

Monitoring unit

Type **PR-SOLO**



- bottle coolers
- ice cream cabinets
- glass door merchandiser equipments

PR-SOLO is the perfect solution for retrofit, providing a “plug & go” connected asset within 1 minute activity.

Features

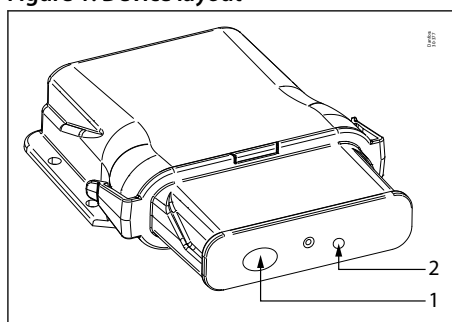
- The PR-SOLO is equipped with an internal temperature sensor to read and memorize the regulation cabinet temperature with an interval of 10 minutes frequency (configurable) together with notification of alarms in case of temperature higher than the configured one threshold.
- The PR-SOLO has built-in a 4G modem with M2M SIM enabling communication with the Alsense™ monitoring platform to transmit alarms and data (temperature and positioning).
- The PR-SOLO can track the asset (cabinet) position using nearby Wi-Fi Hot-Spots and GNSS module (GPS, GLONASS, Galileo, and QZSS Constellations) to further increase the position accuracy (horizontal accuracy < 2.5 m).
- Combining the asset tracking feature, together with the internal 3-axis accelerometer (to detect movements), PR-SOLO using an internal algorithm logic can generate anti-tampering and not authorized movement alarms. Alarms are real-time transmitted into Alsense™ Danfoss cloud for Users notification.
- The PR-SOLO is a battery operated device with standard "over the air" firmware upgrade via mobile app or cloud platform.

Product specification

Layout

Figure 1 illustrates the layout of the PR-SOLO device.

Figure 1: Device layout



- | | |
|---|---|
| 1 | Hall sensor |
| 2 | Red LED: Provides information about the device status (sleeping, waking up, or ready for BLE connection). |

See Table 1 for details on the operation.

Table 1: LED operation details

RED LED OFF	The device is sleeping.
RED LED blinking	The device is waking up.
RED LED ON	The device is ready to communicate with the mobile app.

Installation

Installation

The PR-SOLO is a battery operated device and does not require any cabling procedure. The PR-SOLO should be positioned in a way to correctly read the asset temperature and at the same time to have a good network signal. The dedicated APP is used to provide the user interface for first start up and signal strength.

Activation

PR-SOLO must be activated with a start-up procedure as per following steps:

1. The red LED is OFF
2. Use the "PR-SOLO activation" functionality on the mobile application
3. Put and remove the magnet close to the magnetic sensor 4 times within 7 seconds till the LED starts to blink red.
4. Wait till the LED is steady red
5. Open the mobile app on your smartphone and connect with PR-SOLO.
6. After the app is disconnected, LED will stay steady red for 60 seconds before to switch-off.

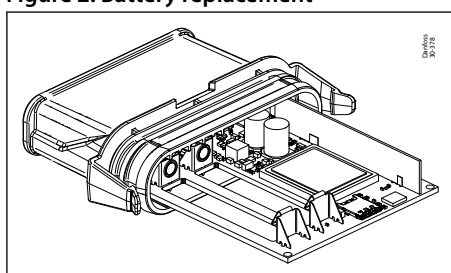
Battery replacement

The “battery change” operation is reserved for trained staff (not the end user or customer), who has read the user guide and the safety manual, and who will make sure to observe the following prescription: before opening the battery compartment, it is necessary to discharge from any electrostatic charge accumulated on your body, touching a metallic element that is connected to earth ground of the electrical system such as, for example, the metal body of the refrigerator. During the operation it is also preferable to avoid wearing woolen or synthetic fibers that could facilitate the accumulation of electrostatic charges. The battery compartment can be opened by loosening the side tabs. The correct replacement of the battery is confirmed by the red LED blinking 10 times. If the red LED does not blink 10 times check the battery type and polarity.

i NOTE:

Only replace with the same battery type (VARTA Ultra Lithium 1.5 V AA 6106). If suitable batteries are not used for the replacement, the red LED can blink but the overall performance of the device can be severely impacted (i.e. number of transmissions, temperature range, etc).

Figure 2: Battery replacement



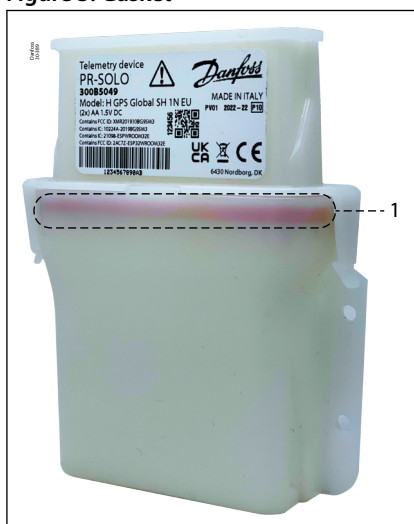
Gasket maintenance

The gasket is necessary to guarantee the ingress protection of the PR-SOLO. During the production the gasket is lubricated with KLUBERSYNTH UH1 14-31. After some years the gasket and lubricant can lose their original characteristics. Thus, to maintain the original ingress protection, when the device is opened (i.e., to replace the batteries) you must:

1. Open the device
2. Remove the gasket
3. Lubricate the gasket with KLUBERSYNTH UH1 14-31 (or equivalent)
4. Insert back the gasket
5. Replace the batteries
6. Wait at least 5 minutes to let the lubricant effect on the gasket
7. Close the device

The red gasket is partially visible when the box is closed, it should be straight like in **Figure 3: Gasket**

Figure 3: Gasket



1 Gasket

Technical specification

Table 2: Technical specification

Features	Description
Weight	148 g (300B5035), 156 g (300B5040)
Case Material	High density polyethylene
Storage Temperature	-25 – +60 °C
Operating Temperature	-40 – +50 °C
Ingress Protection	IP67
Power supply	2 x AA Lithium batteries (non-rechargeable) (VARTA Ultra Lithium 1.5 V AA 6106)
Connectivity	4G/2G modem LTE Cat M1/NB2/EGPRS bands: 1/2/3/4/5/8/12/13/18/19/20/25/26(2)/27(2)/28/31/66/71(3)/85(2) Cat M1 band only (3) Cat NB2 band only - WiFi - Protocols 802.11 b/g/n (802.11n up to 150 Mbps) - Frequency range 2.4 ~ 2.5 GHz - Bluetooth Protocols V4.2 BR/EDR and BLE specifications - NZIF receiver with –97 dBm sensitivity - Class1, class2 and class3 transmitter - AFH, Audio CVSD and SBC - GNSS module (only for model 300B5040 as per Table 3: Models) - GPS, GLONASS, Galileo, and QZSS - High sensitivity: -167 dBm @Tracking, -149 dBm @Acquisition - Horizontal Position Accuracy < 2.5 m CEP - SIM on Chip - Internal PCB Antenna 3 axis accelerometer - Temperature sensor: ±0.25 °C in range -40 – +85 °C, with resolution < 0.01 °C - Hall sensor

Table 3: Models

Version	Modem (Coverage)	GNSS	Temp. accuracy	SIM Holder	SIM type	Operating Temperature
PR-SOLO H Global 1N	4G/2G (300B5035)	No	0.25 °C	No	Chip	-40 – +50 °C
PR-SOLO H GPS Global 1N	4G/2G (300B5040)	Yes	0.25 °C	No	Chip	-40 – +50 °C

Dimensions

All units are in mm.

Figure 4: Side view

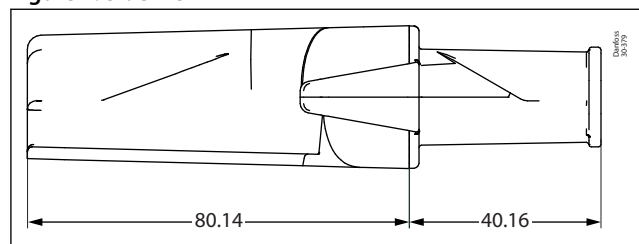


Figure 5: Top view

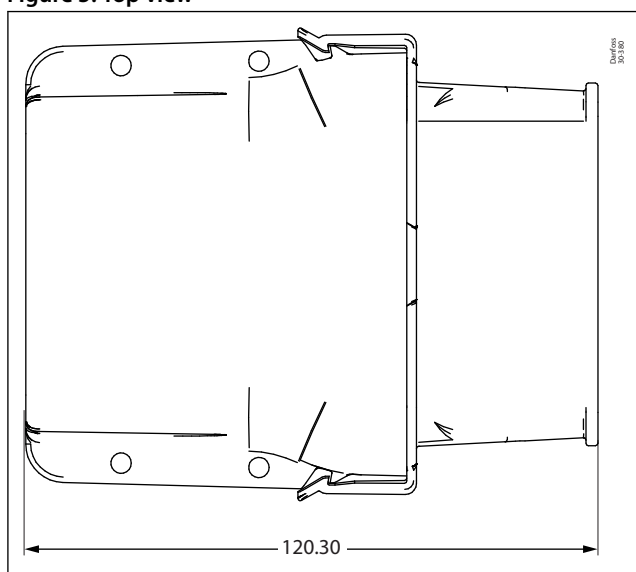
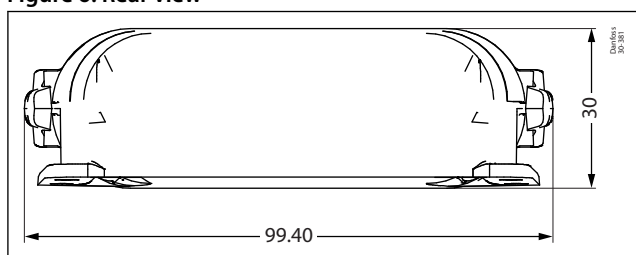


Figure 6: Rear view



Warnings

⚠ WARNING:

- The installation of the PR-SOLO has to be performed only and exclusively by qualified and skilled technicians.
- Inside the device there is an antenna. For this reason, while the PR-SOLO is working it must be at the minimum distance of 9.5 cm (4") from people. The installation must be done to ensure this distance.
- Any document related to the conformity declaration of the PR-SOLO can be downloaded from www.danfoss.com.
- This equipment is not suitable for use in locations where children are likely to be present.
- The device must be installed at a height of less than 2 m.
- Risk of explosion if the battery is replaced by an incorrect type.
- Disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery, that can result in an explosion.
- Leaving a battery in an extremely high temperature surrounding environment that can result in an explosion or the leakage of flammable liquid or gas.
- A battery subjected to extremely low air pressure that may result in an explosion or a leakage of flammable liquid or gas.

Ordering

Table 4: Ordering

Type	Description	Code No.
PR-SOLO	PR-SOLO H Global 1N	300B5035
PR-SOLO	PR-SOLO H GPS Global 1N	300B5040

Certificates, declarations, and approvals

The list contains all certificates, declarations, and approvals for the product. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

Some approvals may change over time. You can check the most current status at danfoss.com or contact your local Danfoss representative if you have any questions.

Table 5: Certificates, declarations, and approvals

File name	Document type	Document topic	Approval authority
-	EU Declaration of conformity	RED – Radio Equipment Directive (2014/53/EU) The full text of the EU declaration of conformity is available at the following internet address: Declaration of Conformity	Danfoss
E500508, Volume X1	Electrical - Safety Certificate	-	UL

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