ENGINEERING TOMORROW

Data Sheet

Monitoring unit Type **PR-OCTO Lean**

IoT Enabler for remote control and tracking of refrigeration equipment

The PR-OCTO Lean 2G Y8 0T (code no. 300B5070) device is an IoT Enabler specifically designed for cooling applications like bottle coolers, ice cream cabinets and other refrigeration type of equipment. This Enabler allows connectivity and access to the Alsense™ Cloud solutions from Danfoss.

Electronic thermostats, in general, by monitoring the temperatures and states related to the equipment, control the compressor and fan relays and generate warnings and alarms. By means of a wired connection, PR-OCTO can obtain from the thermostats diagnostic and alarm data relating to the equipment, or create new ones. Thanks to the presence of a modem and an M2M SIM on board, PR-OCTO communicates with the Alsense™ monitoring platform through the mobile network, transmitting the collected data. PR-OCTO also scans the mobile network and nearby WiFi HotSpots to determine its position and transmit it to Alsense™.

If in Alsense™ the refrigeration system is located in a position other than that transmitted by PR-OCTO, an alarm is notified on the monitoring platform. Authorized personnel can access Alsense™ to view active alarms and decide if PR-OCTO has to lock the operation of the refrigeration system.

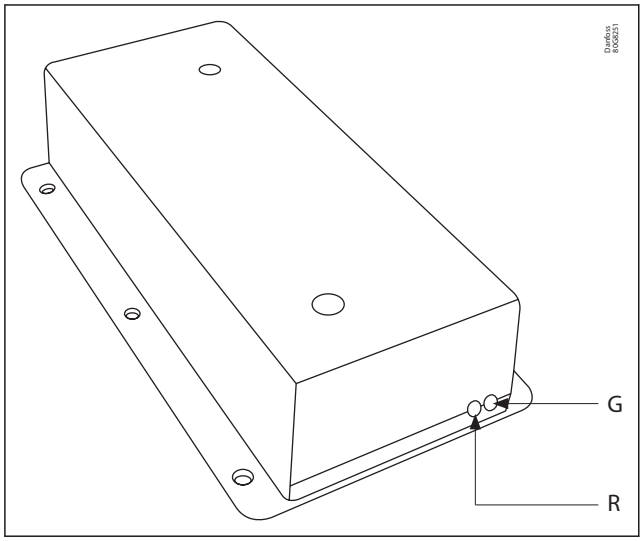
Danfoss guarantees a continuous after-sales maintenance of the PR-OCTO devices as they can be updated remotely (FOTA) or on site via the mobile app.

Product specification

Layout

Figure 1 and Figure 2 illustrate the layout of the PR-OCTO device.

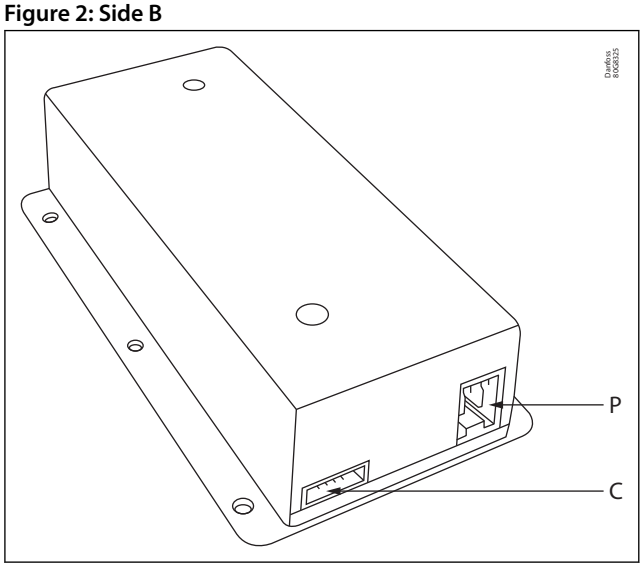
Figure 1: Side A



G	**Green LED:** Status of the mobile connection and the connection with the Alsense Platform.
R	**Red LED:** Status of the power supply and the communication with the electronic thermostat.

See Figure 2 for details on the operation.

Figure 2: Side B



P	**Power supply connector:** 100 – 240 V ~
C	**COMM connector:** The TTL communication port with the electronic thermostat. This is also the connector for the temperature probe inputs.

See Connections and wires for details on the connectors.

Table 1: LED operation details

RED LED OFF	The device is not correctly powered.
RED LED blinking	The device is powered and the communication with the electronic thermostat is not established yet.
RED LED ON	The device is powered and the communication with the electronic thermostat is correctly established.
RED LED fast blinking	The device is powered while the communication with the electronic thermostat has been interrupted.
GREEN LED OFF	The modem is not running
GREEN LED fast blinking	The modem is not registered to the network
GREEN LED blinking	The modem is registered to the network

Compatibility

The PR-OCTO device gives the possibility to execute the lock command and to collect the diagnostic information only in conjunction with an electronic thermostat.

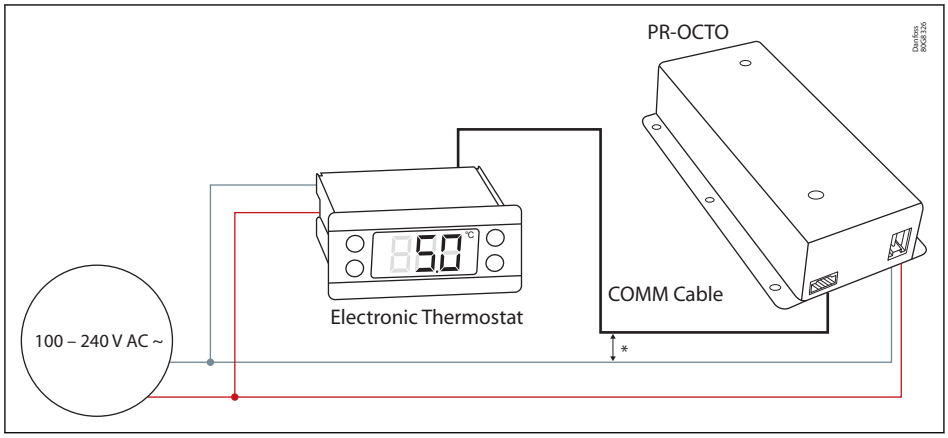
The current version of the PR-OCTO includes the compatibility with the thermostats listed in Table 2.

Table 2: Compatible electronic thermostats

Manufacturer	Models
Danfoss	ERC111, ERC112, EETa
Eliwell	EWPLUS400, EWPLUS961, EWPLUS974, EWPLUS974 Smart, EWPLUS978
Carel	PJP4C0HG00 (PYUG3R05R3, PYKM1Z051P), PZPU family (es. PZPUCOMB03K, PZPUCOMB06K), PYHB1R055S (PYFZ1Z056M), PZHBC0H00V, PYHB1R057F (PYHB1R05E9), PJP7C0HG00

Connections and wires

Figure 3: Connection to an electronic controller



* This distance has to be at least 5 cm in case the power supply is not double insulated.

The PR-OCTO requires two connections, one for the power supply, the other with the electronic thermostat.

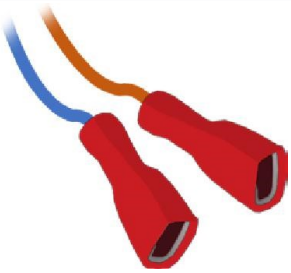
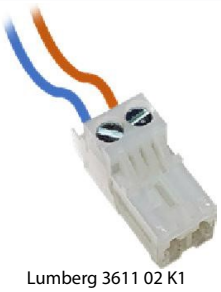
The power supply must be shared with the electronic thermostat: the PR-OCTO must be powered on only when the thermostat is also powered on. If the PR-OCTO is powered on when the thermostat is off, a “Controller communication failure” alarm is raised after 60 minutes.

NOTE:
Neither the cables nor the connectors are included in the PR-OCTO package.

For the POWER SUPPLY connector of the PR-OCTO, either two standard fast-on connectors or one connector with screw terminal can be used. In Table 3, illustrates the Lumberg 3611 02 K1, an easy plug connector with lift clamp and protection against misplacing and fast assembling. Neither the easy plug connector nor the standard fast-on connectors are included in the PR-OCTO package.

NOTE:
If the power supply cable is not double insulated, it must be physically separated from the COMM cable.

Table 3: Two possible PR-OCTO terminations for the power supply cable.

Standard fast-on	Easy plug double fast-on (for indirect mating)
	 Lumberg 3611 02 K1

Concerning the COMM Cable (the communication cable between the PR-OCTO and the electronic thermostat) a specified cable must be used depending on the specified thermostat.

The COMM Cable could be either assembled by the cooler manufacturer or could be purchased from Danfoss (please refer to “PR-OCTO: COMM Cable document”).

Technical specification

Table 4: Technical specification

Features	Description
Weight	126 g
Case Material	Polycarbonate Makrolon: RW2407
Storage Temperature	-20 – 85 °C
Operating Temperature	-20 – 55 °C
Humidity	95% non condensing
Voltage	100 – 240 V AC, 50/60 Hz
Connectivity	• Modem GSM/GPRS 4-bands 850/900/1800/1900 MHz • 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 specification ◦ NZIF receiver with –97 dBm sensitivity ◦ Class1, class2 and class3 transmitter ◦ AFH, Audio CVSD and SBC • SIM on Chip • Internal PCB Antenna • 8 MB Flash memory

Dimensions

All units are in mm.

Figure 4: Left and right view

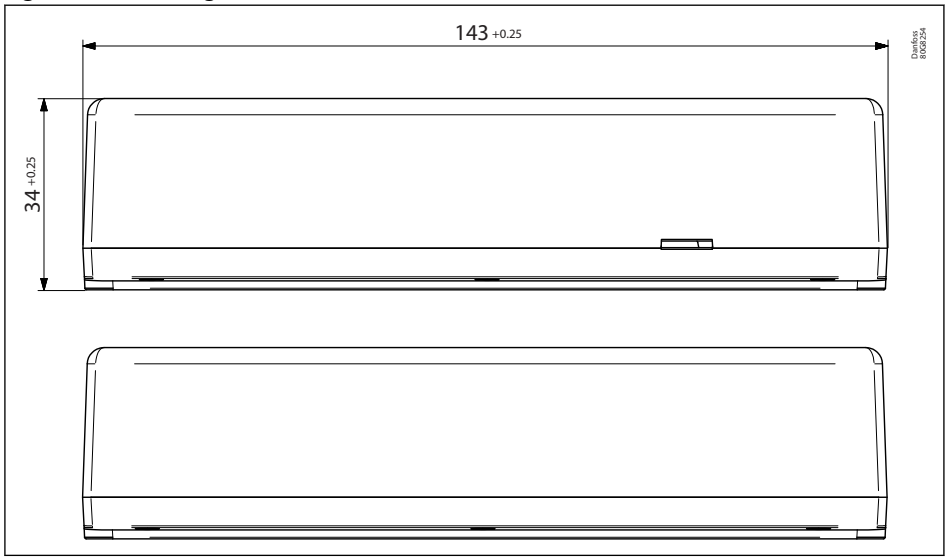


Figure 5: Top view

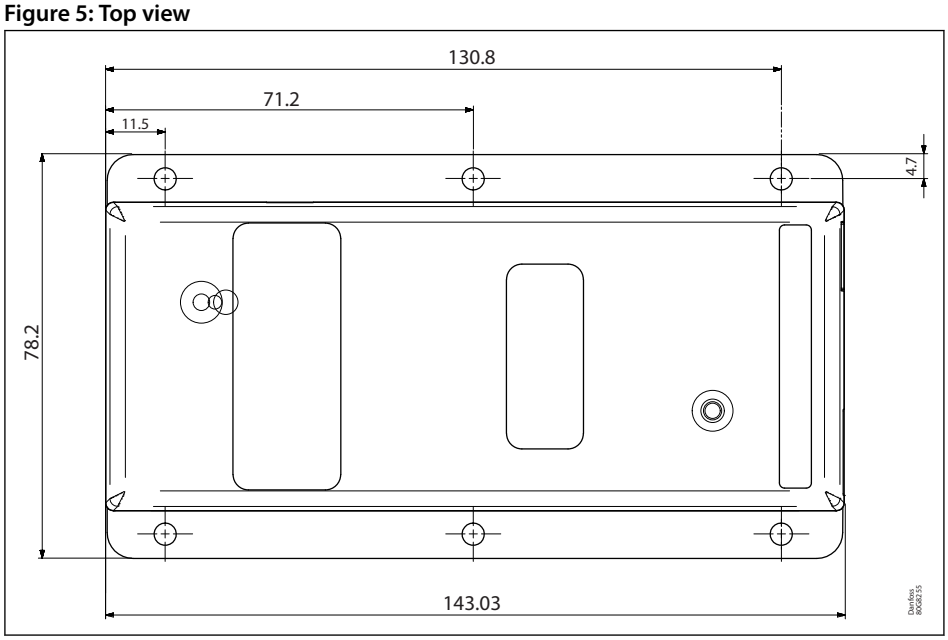
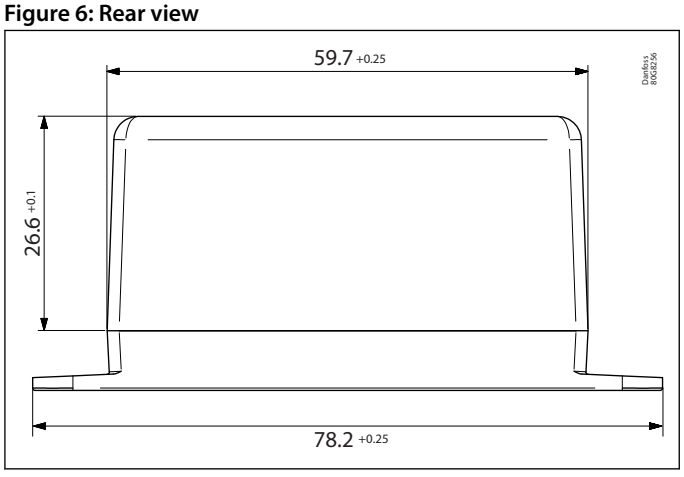


Figure 6: Rear view



Warnings

WARNING:

- The installation of the PR-OCTO has to be performed only and exclusively by qualified and skilled technicians.
- The installation of the PR-OCTO should be performed while the cooler is switched-off.
- Inside the device there is a GPRS antenna. For this reason, while the PR-OCTO is working it must be at the minimum distance of 9.5 cm (4") from the people. The installation must be done to ensure this distance.
- The PR-OCTO has to be installed in a protected position. The PR-OCTO has to be embedded in the cooler and not accessible. In case of installation on the back side of the cooler, the PR-OCTO has to be protected with an additional box to protect people from electric shock.
- If the power supply cable of the PR-OCTO is not double insulated, it has to be physically separated from the COMM cable (the communication cable with the thermostat).
- The PR-OCTO input power supply is protected by over-currents by the F002 device, with this characteristics: delayed fuse 250 V 400 mA.
- Any document related to the conformity declaration of the PR-OCTO can be downloaded from www.danfoss.com.
- This equipment is not suitable for use in locations where children are likely to be present.

Ordering

Table 5: Ordering

Type	Description	Code No.
PR-OCTO Lean	PR-OCTO Lean 2G Y8 0T	300B5070

Certificates, declarations, and approvals

The list contains all certificates, declarations, and approvals for this product type. 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 6: 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: Certificates, declarations, and approvals **RoHS – Restriction of the use of certain hazardous substances directive (2011/65/EU)** • EN 50581: 2012 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substance	Danfoss
E488917-A2-UL E500508-A6001-UL	Electrical - Safety Certificate	-	UL

Coverage:
In the Annex A, there is the list of the countries where the device can works: 300B5070.

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