

CNS

User Manual



Dinacell Electrónica S.L.

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Product Notice

This manual describes the features that serve the product in its most up-to-date version. The resources included in this manual serve the CNS model.

Notice about the battery and its consumption

The battery consumption values given here are for informational purposes only. They also depend on the actual conditions of use and are no guarantee of future performance. Subject to change.

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For more information

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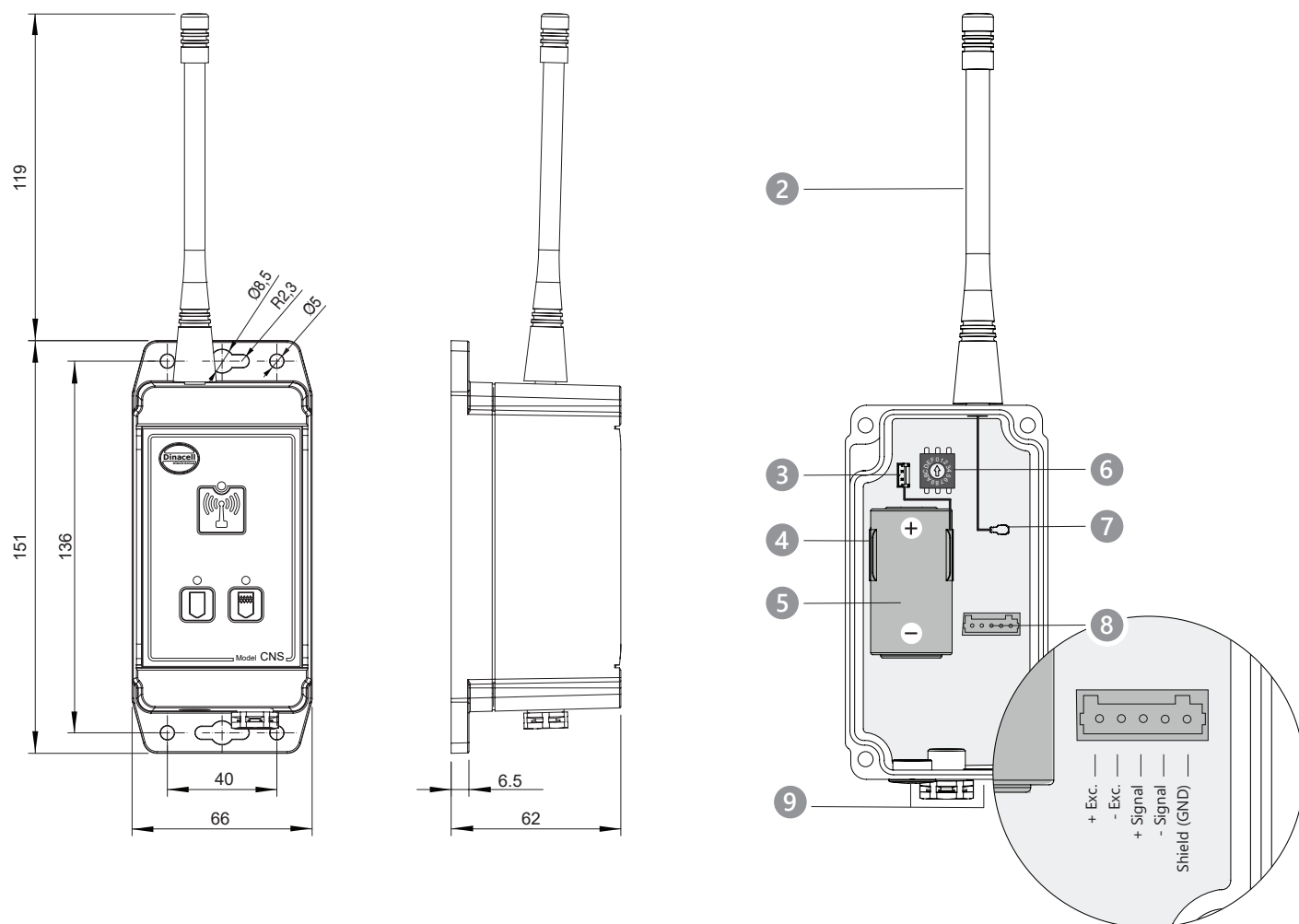
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Introduction


1.1 Product description

The CNS device is designed to send data through wireless connectivity without the need for WiFi or SIM card. The combination of this device with the SilosApp application will allow you monitor your installations remotely.

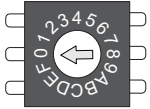
1.2 Dimensions and components of the device



Components

- (1) Device keyboard. The functionalities are indicated in section 2.2.
- (2) Device transmission antenna
- (3) Battery connector.
- (4) Battery support clamp.
- (5) Primary battery.
 -  **DANGER:** Fire, explosion and severe burns danger. Do not reload, disassemble. Heat above 100 °C. Do not incinerate or expose the contents to water.
- (6) Operating mode selector to set the power and time of the frame senditure. For more information, see section 2.1.
- (7) Antenna connector.
- (8) Sensor connector.
- (9) Sensor input with gland.

2.1 Power selection and transmission time



There is a selector on the device which allows the user to adjust the power and transmission time in order to establish different operating modes. The power must always be according to the coverage of the installation area. The lower the coverage, the greater the power.

Some transmission times have auto mode. This feature allows the device to wake up every 20 minutes and update the weight automatically in case of detecting large load variations in the silo.

Modes	Power	Transmission time	AUTO mode	Estimation in years of battery life
0	100%	4h	✓	>10
1		2h	✓	8
2		1h	✓	4
3		30min	✗	2
4	80%	4h	✓	>10
5		2h	✓	9
6		1h	✓	5
7		30min	✗	3
8	50%	4h	✓	>10
9		2h	✓	10
A		1h	✓	6
B		30min	✗	4
















C/D/E/F modes are reserved for future uses.



There are some shipping times that have the AUTO mode. This function allows the team to monitor the weight every 20 min and make an automatic shipment, in case of detecting significant load variations in the silo.

Approximately halfway through the configured sending time, the equipment saves a weight that will be output along with the current weight.

2.2 Functions of the buttons

Commands	Description	Result
<p>TRANSMISSION OF THE CURRENT WEIGHT.</p> 	<p>With the device LEDs turned off, press the  button once to dispatch the current weight. The led will start flashing indicating that it is waiting for the dispatch confirmation. You will need to press the  button again to confirm this.</p>	<p>The button led  will flash and fix itself for a few seconds to indicate that the dispatch has been successful. In case that the dispatch was not possible, the led will not turn on.</p>
<p>ZERO OPERATION (for system adjustment only).</p> 	<p>With the device LEDs turned off, press the  button once to dispatch the zero operation. The led will stay fixed, and the led button  will start flashing. Indicating that it is waiting for the dispatch confirmation. You will need to press the  button to confirm the dispatch of the frame.</p>	
<p>KNOWN WEIGHT OPERATION (for system adjustment only).</p> 	<p>With the device LEDs turned off press the  button once to dispatch the known weight. The led will stay fixed, and the led button  will start flashing. Indicating that it is waiting for the dispatch confirmation. You will need to press the  button to confirm the dispatch of the frame.</p>	
<p>Check the status and errors of the device.</p> 	<p>With the leds of the device turned off, press the buttons  and  at the same time to check the status and errors of the device.</p>	<p>The device will issue a number sequence to indicate the status of the device by turning on all leds. For more information, see section 2.3.</p>

2.3 Device status and errors

Blink code	Sensor	Device	Dispatch
1-1	✓	✓	✓
2-1	✓	✗	✓
3-1	✗	✓	✓
4-1	✗	✗	✓
1-2	✓	✓	✗
2-2	✓	✗	✗
3-2	✗	✓	✗
4-2	✗	✗	✗

✓ OK ✗ ERROR

Sensor error

Poorly connected sensor or load cell, damaged or broken cable, check the connections. In case the error persists, you will need to change the sensor.


Device error

Impossible to dispatch data. Disconnect and reconnect the battery to your device. In case the error persists, you must change the device.

Dispatch error

Abusive dispatch use detected. You will have to wait less than 24 hours to resume the dispatching.



Step by step installation guide

 The handling of the device buttons is indicated in Chapter 2.2.

3.1 Device Installation

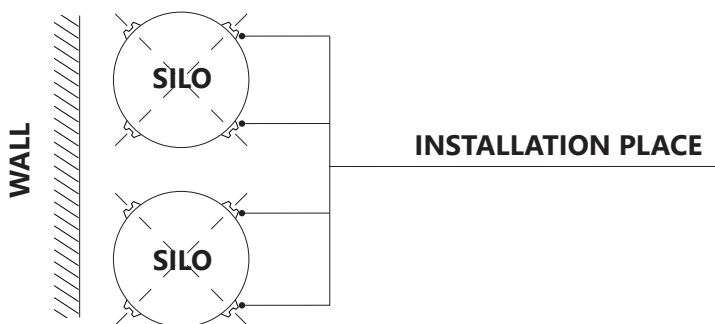
3.1.1 In case you need to change the power and dispatch time settings, you can select a different mode. For further information, see section 2.1.

3.1.2 When you are at the installation site you must connect the battery to the device.

3.1.3  →  The controlling of these devices will be carried out through the SILOSAPP application. You will need to link the device to the application and consider section 3.1.5 where the place of installation is specified, it is recommended to make a DISPATCH OF THE CURRENT WEIGHT from the location where the device is to be installed, and verify that it has been received correctly by the application. Otherwise, you must place the device in a clearer area, avoiding possible interference. If the communication is still not possible, you can try connecting the external antenna accessory by placing it at a higher and clearer area.



3.1.4 Once you have verified that the location of the device is valid for communications, you must install the sensor by following the steps in your manual and connect it to the device.



3.1.5 These devices can be installed on the silo leg itself, at an optimal height to access the buttons. You will need to consider the location and leg type of the silo so that the device is located in the clearest part.



3.2 System adjustment

To be able to adjust the device and with the application you will have to follow the following steps:

3.2.1  →  The first step to adjust the system, is to have an empty silo weight reference. To do this, you can wait until the silo is empty or, in the event that the silo is loaded, you must know its approximate weight before performing the ZERO OPERATION. If this occurs, it is recommended to perform the ZERO OPERATION again when the silo is completely empty. In order to have a more precise value. If you have dispatched the ZERO OPERATION with an empty silo, you must configure the SILOSAPP application with a value equal to zero, but if the silo is loaded, you must indicate that load in the application.

3.2.2  →  The second step to adjust the system, is to have a known weight reference. To do this, we will take advantage of the loading of the silo to perform a KNOWN WEIGHT OPERATION. Next, you need to configure the application with the weight value of that load. The value of the load used for the calibration of the silo shall be at least 60% of the total silo capacity.

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