

lix.pure solo

User Manual

English

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Revisions

Version	Date	Author	Changes
1.0	29.08.2024	ASP	Initial release

1 General Information

The sensor is supplied with 24 VDC via the Zhaga connector and may never be connected to the 230 VAC mains under any circumstances.

Make sure that the sensor is correctly mounted and locked.

The manufacturer accepts no liability for damage caused by improper use.

2 Montage

The sensor supports the Zhaga connectivity standard for plug and play luminaire extension. This allows flexible integration into luminaires without tools. The connectivity interface is designed according to Zhaga Book 18 Ed. 2.

2.1 Installation of the Luminaire



Press and rotate clockwise until the sensor locks into place

! Important: The sensor must be attached to the DOWNWARD facing Zhaga-connector



When the sensor is locked in place, the white arrow on the sensor has to point towards the street.

! Important: Mounting the sensor incorrect might lead to malfunctions or permanent damage.

In the illustration below, the lix.one solo sensor is mounted on the lower Zhaga socket. A D4i-compatible luminaire controller must be mounted on the upper Zhaga socket.

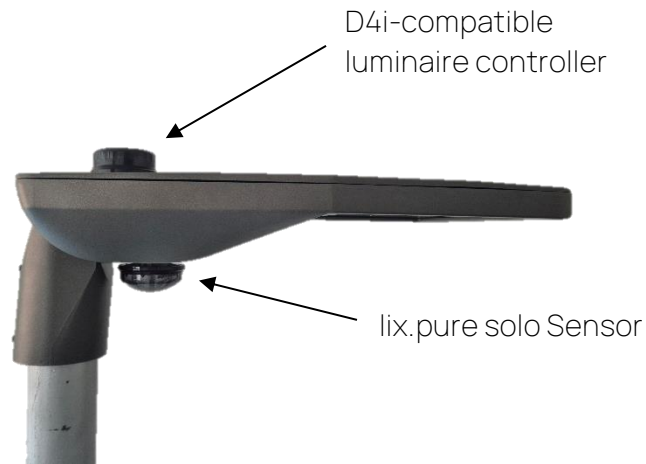


Figure 1: lix.pure solo Luminaire Mounting



Important: The lix.one solo sensor is a pure motion detector, which is without function without a likewise connected luminaire controller (DiiA Part 351 Type B Device).

3 Detection Area of the Sensor

The lix.pure solo sensor is equipped with a radar sensor that looks down onto the road ahead from the light point.

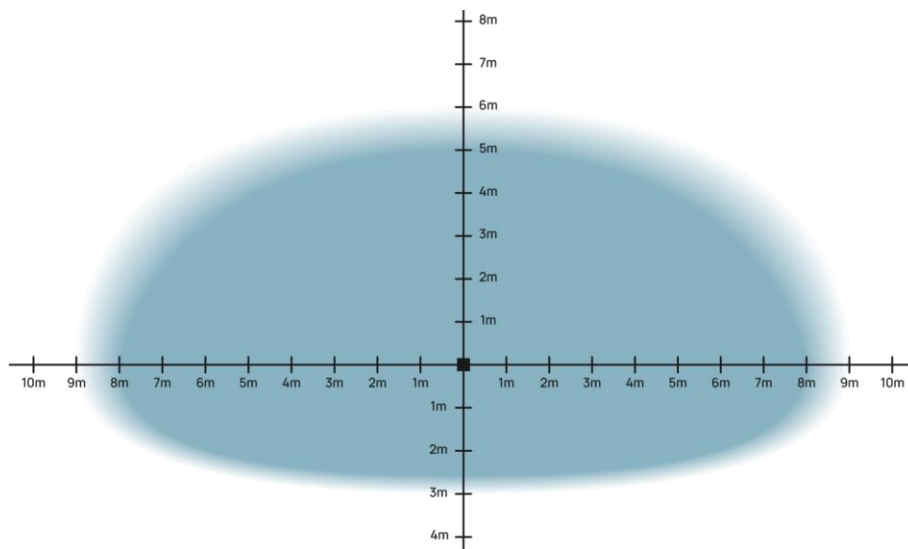


Figure 2: lix.pure solo Detection Area

4 lix.pure solo Status LEDs

The lix.pure solo sensor has a status LED that is visible to the user. The meaning of the LED is as follows:

- Red LED: Lights up when an object is detected

5 lixtec USB-Stick

A lixtec USB-Stick is required to use the lix.solo Configurator. It is plugged into a Windows notebook or PC and establishes a wireless connection to lix.one solo sensors within range.



Figure 3: lixtec USB-Stick

6 lix.solo Configurator

The configuration of the lix.one solo sensors is possible via the lix.solo Configurator. This is a user-friendly Windows app for displaying and configuring the lix.one solo sensor.

After starting the app, the basic view looks like this:

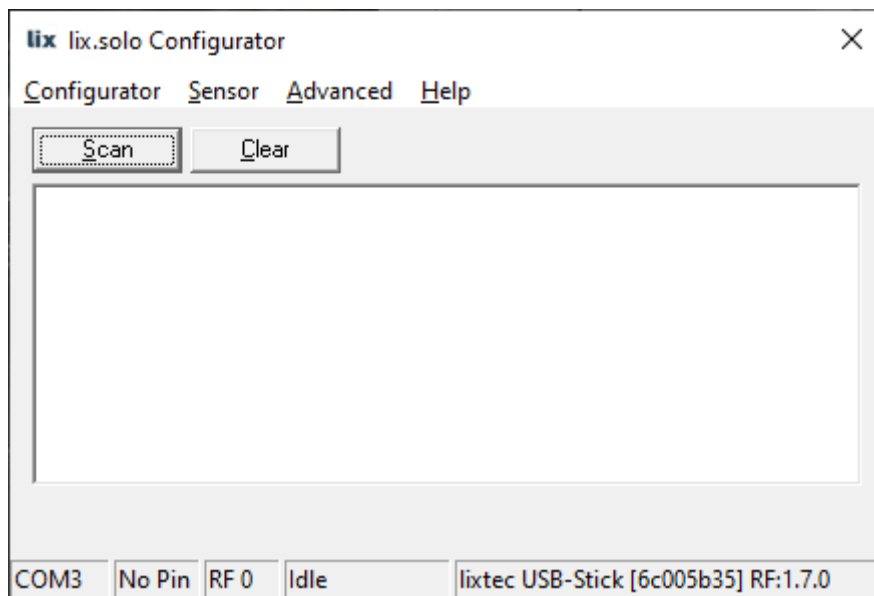


Figure 4: Basic View lix.solo Configurator

6.1 Connecting to a lix.pure solo Sensor

Clicking the "Scan" button searches for lix.pure solo sensors within range. If a lix.pure solo sensor is within range, this (or several) will appear in the field below the "Scan" button as "lixtec Sensor ...".

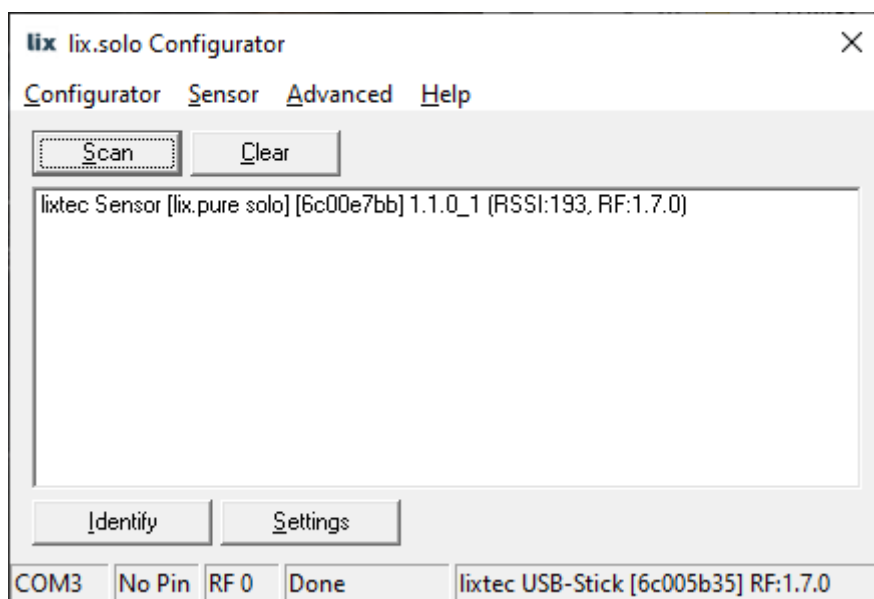


Figure 5: lix.solo Configurator / Scan

If a "lixtec sensor" is selected from the list with the mouse, a click on the "Identify" button helps to identify which sensor you are connected to.

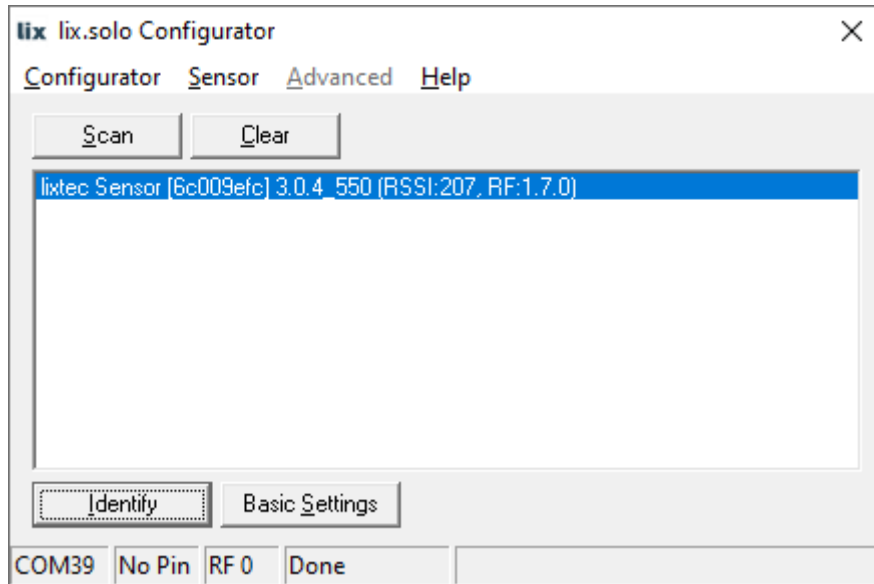


Figure 6: lix.solo Configurator / Identify

After clicking on the "Identify" button, the connected sensor will play a flashing sequence with the red status LED lasting several seconds.

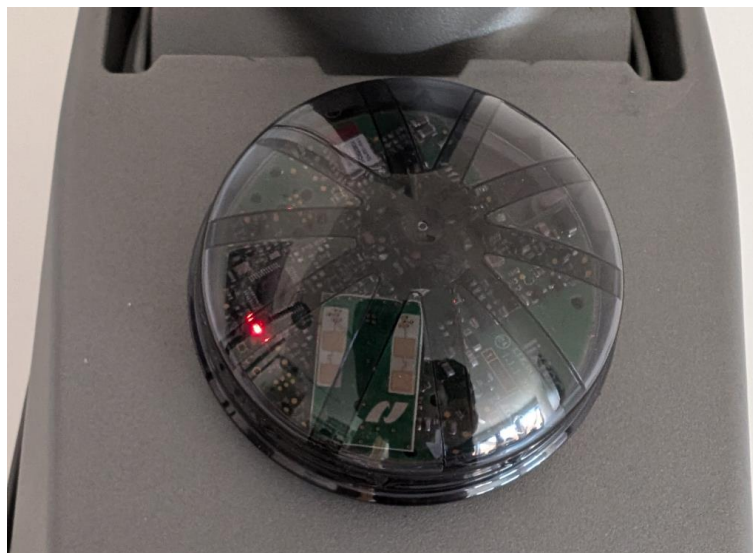


Figure 7: lix.pure solo / Flashing Sequence

! Important: In the factory default settings, all lix.pure solo sensors are set to RF channel "0" and have no pin code set. If adjustments have already been made here, lix.pure solo sensors on a different RF channel or with a set pin will not be found via a "Scan".

6.2 Settings of the lix.pure solo Sensor

If a "lixtec sensor" is selected from the list with the mouse, clicking on the "Settings" button opens a pop-up window with the basic settings.

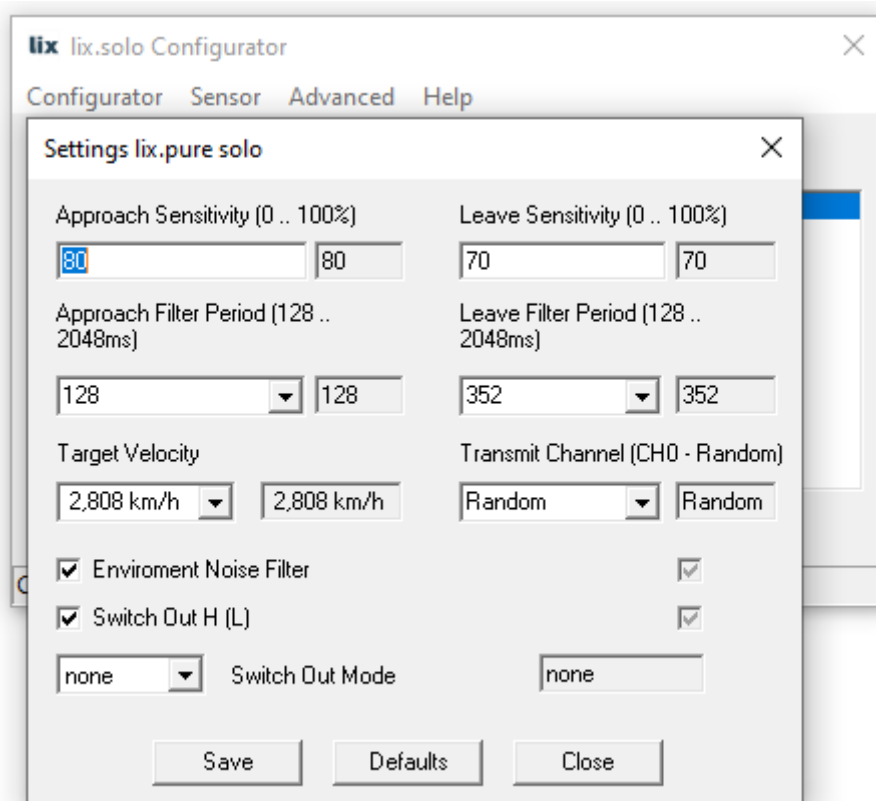


Figure 8: lix.pure solo Sensor / Settings

- "Approach / Leave Sensitivity": The approach and range sensitivity of the radar sensor can be adjusted independently of each other. The more sensitive a sensor is set, the greater the range, but also the greater the possibility of potential false alarms.
- "Approach / Leave Filter Period": The trigger delay when approaching or leaving the radar sensor can be adjusted independently of each other.
- "Target Velocity": This setting can be used to adapt the detection to the speed of the expected road users. This improves detection.
- "Transmit Channel": In the event that two neighboring sensors interfere with each other during object detection, they can be set to different radar channels.
- "Environment Noise Filter": This filter minimizes environmental influences such as wind or rain on the detection and should only be deactivated if there are problems.
- "Switch Out (H/L)": If detected, a digital signal can be output on pin 4 of the Zhaga connector. When the check mark is set, 24 VDC (or the operating voltage) is output at the pin; without a check mark, GND potential is output. The type of signal is selected in "Switch Out Mode".
- "Switch Out Mode": In the drop-down menu, you can select which signal is output when pin 4 is detected:
 - o none: off, no signal
 - o 100msPuls: A 100 ms pulse is output on H/L for each detection
 - o 200msPuls: A 200 ms pulse is output on H/L for each detection
 - o RedLed: The signal, like the red LED, is permanently on H/L as long as an object is detected
 - o Burst: When an object is detected, a 100 ms pulse is output cyclically on H/L with a 200 ms period for the duration of the detection
- „Save“: Each change is only saved by clicking on this button.
- „Defaults“: The factory settings are restored by clicking on this button and confirming with "Save".
- „Cancel“: Click on this button to close the pop-up window without changing the settings.

6.3 Settings Menu of the lix.pure solo Sensor

If you click on the menu item "Sensor" in the lix.solo Configurator, a window with several selection options will open.

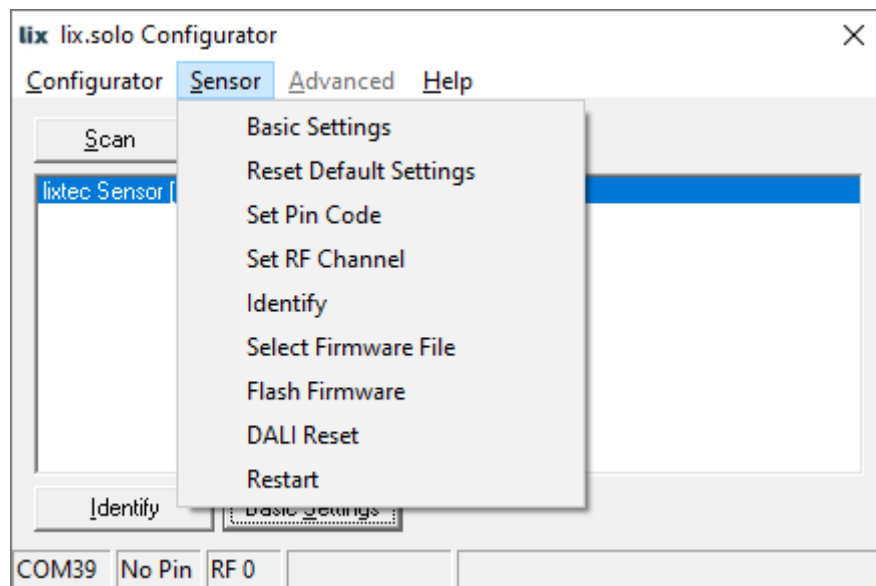


Figure 9: Sensor Options

- „Basic Settings“: Clicking on this menu item opens the pop-up window with the basic settings of the sensor (see 6.2 Settings of the lix.pure solo Sensor).
- „Reset Default Settings“: Clicking this menu item resets all settings of the sensor to the factory settings, including the RF channel ("0") and the pin code ("0").
- „Set Pin Code“: Clicking on this menu item opens a pop-up window in which a pin code for the sensor can be set from "0" to "9999999". "0" means no pin code. By checking "Change Configurator Pin Code", the Configurator is also set to this pin code at the same time.

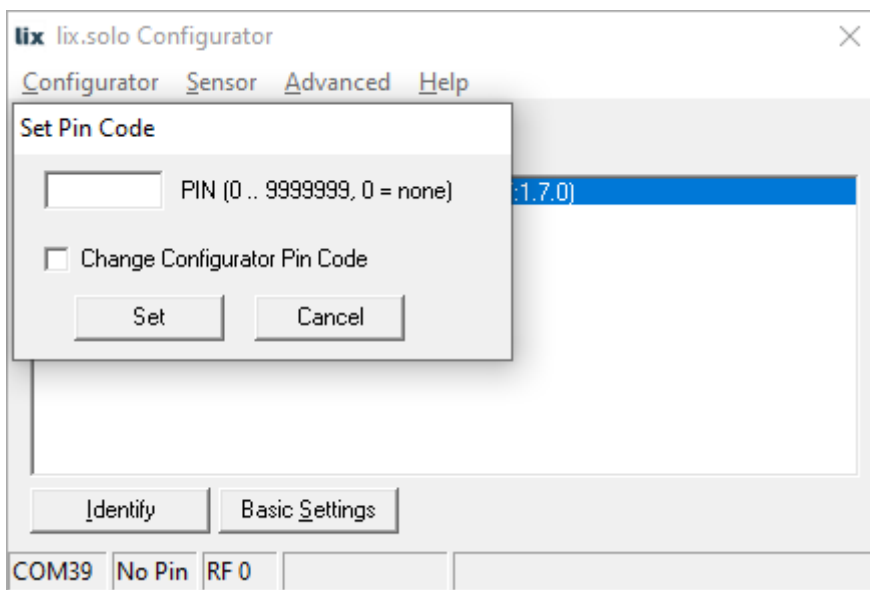


Figure 10: Sensor / Set Pin Code

- „Set RF Channel“: Clicking on this menu item opens a pop-up window in which the RF channel for the sensor can be set from "0" to "39". By setting the checkmark at "Change Configurator Pin Code", the Configurator is also set to this channel at the same time.

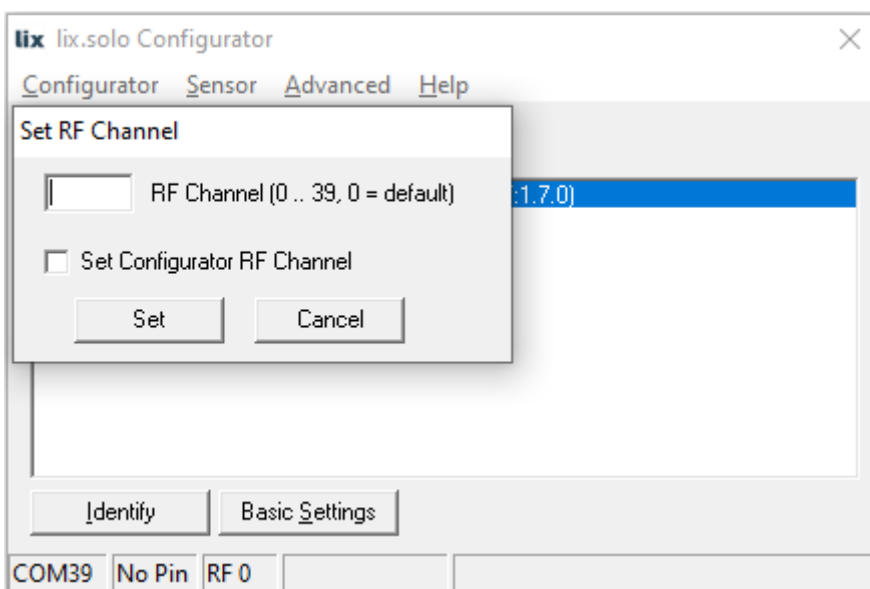


Figure 11: Sensor / Set RF Channel

- „Identify“: After clicking on the "Identify" button, the connected sensor will play a flashing sequence with the red status LED lasting several seconds. (see also 6.1 Connecting to a lix.pure solo Sensor).

- „Select Firmware File“: Clicking this button opens a Windows Explorer window where you can select a new firmware file on the PC.
- „Flash Firmware“: With a click on this button a previously selected firmware file is transferred to the sensor.
- „DALI Reset“: Clicking this button performs a DALI reset, e.g. resetting the short address (see also 7.1.1 Reset).
- „Restart“: Clicking on this button causes a reset and restart of the sensor.

6.4 Settings Menu of the lix.pure solo Configurator

If you click on the menu item "Configurator" in the lix.solo Configurator, a window with several selection options will open.

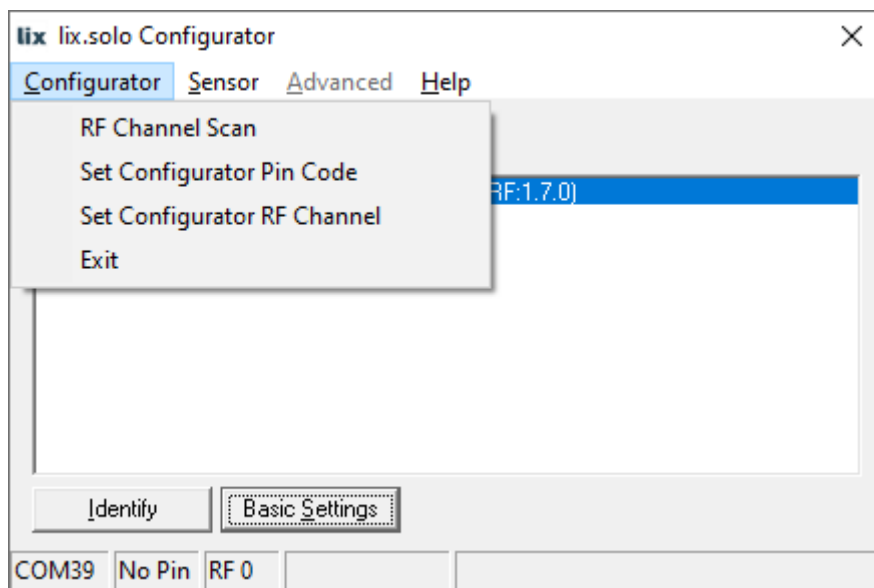


Figure 12: Configurator Options

- „RF Channel Scan“: With a click on this menu item all RF channels (“0” to “39”) are searched for lix.one solo sensors.



Important: Only sensors for which the pin code matches the pin code of the Configurator (factory setting: “0”) are displayed.

- „Set Configurator Pin Code“: If lix.one solo sensors were previously protected with an up to 7-digit pin code, this pin code must be set again on the Configurator in order to communicate with these sensors.
- „Set Configurator RF Channel“: If lix.one solo sensors were previously migrated to a different channel (delivery state: channel “0”), the same channel must be set on the Configurator in order to communicate with these sensors.

7 DALI Functionality

In addition to configuration via the lix.solo Configurator, it is also possible to configure the lix.one solo sensor via DALI-2.

Electrical specifications, bit-timing, collision detection and frame encoding according to EN 62386-101 und EN 62386-103.

lix.one solo is a motion detector according to EN 62386-303.

lix.one solo is an input device type B according DiiA DALI Part 351.

lix.one solo has the following GTIN (Global Trade Item Number): 9120124990047

The lix.pure solo sensor can be uniquely identified via DALI-2 using this GTIN.

7.1 Device Configuration

7.1.1 Reset

The RESET command sets all variables defined in EN 62386-103, Table 17 and 18 to the values defined in the "RESET VALUE" column.

Note: A reset can also be performed via the lix.solo Configurator.

7.2 Movement Sensor

7.2.1 Events

lix.pure solo is a movement sensor with two possible states:

"Vacant & No Movement" or "Occupied & Movement"

These states are defined in EN 62386-303, Table 1. This table is shown below:

Table 1: „inputValue“

"inputValue"	Area State	Movement
0x00	Vacant	No
0x55	Vacant	Yes
0xAA	Occupied	No
0xFF	Occupied	Yes

7.3 Memory Banks

7.3.1 Memory Bank 0

Memory bank 0 is implemented according to EN 62386-103, Chapter 9.10.6, Table 12.

7.3.2 Memory Bank 1

Memory bank 1 is intended for additional OEM information, but is currently unused by lix.pure solo.

7.3.3 Memory Bank 2

Memory bank 2 is implemented according to EN 62386-103, Chapter 9.10.2, Table 11.

Table 2: Memory Bank 2

Address	Description	Default Value	Reset Value	Memory Type
0x00	Address of last accessible memory location	0x0E	no change	ROM
0x01	Indicator byte	0x01	no change	ROM
0x02	Memory bank lock byte	0xFF	0xFF	NVM
0x03	Approach sensitivity	0x50	0x50	NVM
0x04	Leave sensitivity	0x50	0x46	NVM
0x05	Approach filter period	0x07	0x07	NVM
0x06	Leave filter period	0x15	0x15	NVM
0x07	Target velocity	0x02	0x02	NVM
0x08	Environment noise filter	0x01	0x01	NVM
0x09	Reserved, don't change	0x01	0x01	NVM
0x0A	Reserved, don't change	0x05	0x05	NVM
0x0B	Reserved, don't change	0x01	0x01	NVM
0x0C	Reserved, don't change	0x01	0x01	NVM
0x0D	Switch out H (L)	0x01	0x01	NVM
0x0E	Switch out mode	0x00	0x00	NVM

Possible values for "Approach Sensitivity" and "Leave Sensitivity" are 0% to 100% in 1% increments. Table 3 shows the corresponding configuration values in hexadecimal numbers.

Table 3: Values for „Approach / Leave sensitivity“

Approach / Leave sensitivity	Value
1%	0x00
2%	0x01
3%	0x02
...	...
70%	0x46
...	...
80%	0x50
...	...
98%	0x62
99%	0x63
100%	0x64

Possible values for "Target velocity" are shown in Table 4.

Table 4: Values for „Target velocity“

Approach / Leave filter period	Value
1,4 km/h	0x00
1,9 km/h	0x01
2,8 km/h	0x02
5,6 km/h	0x03
11,2 km/h	0x04
22,3 km/h	0x05
44,6 km/h	0x06
89,3 km/h	0x07

Possible values for "Approach filter period" and „Leave filter period" are shown in Table 5.

Table 5: Values for „Approach / Leave filter period"

Approach / Leave filter period	Value
128ms	0x07
256ms	0x0F
384ms	0x17
512ms	0x1F
640ms	0x27
768ms	0x2F
896ms	0x37
1024ms	0x3F
1152ms	0x47
1280ms	0x4F
1408ms	0x57
1536ms	0x5F
1664ms	0x67
1792ms	0x6F
1920ms	0x77
2048ms	0x7F

Possible values for "Target velocity" are shown in Table 6.

Table 6: Values for „Target velocity"

Target velocity	Value
128ms	0x07
256ms	0x0F
384ms	0x17
512ms	0x1F
640ms	0x27
768ms	0x2F
896ms	0x37
1024ms	0x3F

Possible values for "Switch out" are shown in Table 7.

Table 7: Values for „Switch out“

Switch out	Value
High	0x01
Low	0x00

Possible values for "Switch out mode" are shown in Table 8.

Table 8: Values for „Switch out mode“

Switch out mode	Value
None	0x00
100ms pulse	0x01
200ms pulse	0x02
RedLed	0x03
Burst	0x04

7.3.4 Memory Bank 201

Memory Bank 201 is implemented according to DALI Part 351, Table 4.