Presentia W0

Presence Detector with Luminosity Sensor for Wall Mounting

ZPDW0

Application program version: [1.0]
User manual edition: [1.0]_a

www.zennio.com

CONTENTS

1 INTRODUCTION

1.1 PRESENTIA W0

Presentia W0 from Zennio is a device that aims at, among other functions, the detection of presence, the measurement and control of the room luminosity and the detection of occupancy within the room where it has been installed. It has been designed for wall mounting by means of the bundled accessories.

The most outstanding features of Presentia W0 are:

- **2 available colours,** white and black.

- **2 sensors** with configurable sensitivities.

- **1 LED** to indicate motion.

- **Presence detection**:

  ➢ 6 presence detection channels.

  ➢ Luminosity-dependent presence detection (optional).

  ➢ Periodic and delayed sendings (binary, scene, HVAC, percentage).

- **Occupancy detection**:

  ➢ 1x occupancy detection channel.

  ➢ Master / slave configuration.

  ➢ Trigger upon door opening or closing.

  ➢ Periodic and delayed sendings (binary, scene, HVAC, percentage).

- **Luminosity measurement**:

  ➢ Periodic sending or upon value change.

  ➢ Sending of luminosity-dependent notifications.

- **Day / night** configuration.

- **10** customisable, multi-operation **logic functions**.

- **Heartbeat** or periodic "still alive" notification.

1.2 INSTALLATION

Presentia W0 connects to the KNX bus through the on-board KNX connector.

Once the device is provided with power from the KNX bus, both the individual address and the associated application program may be downloaded.

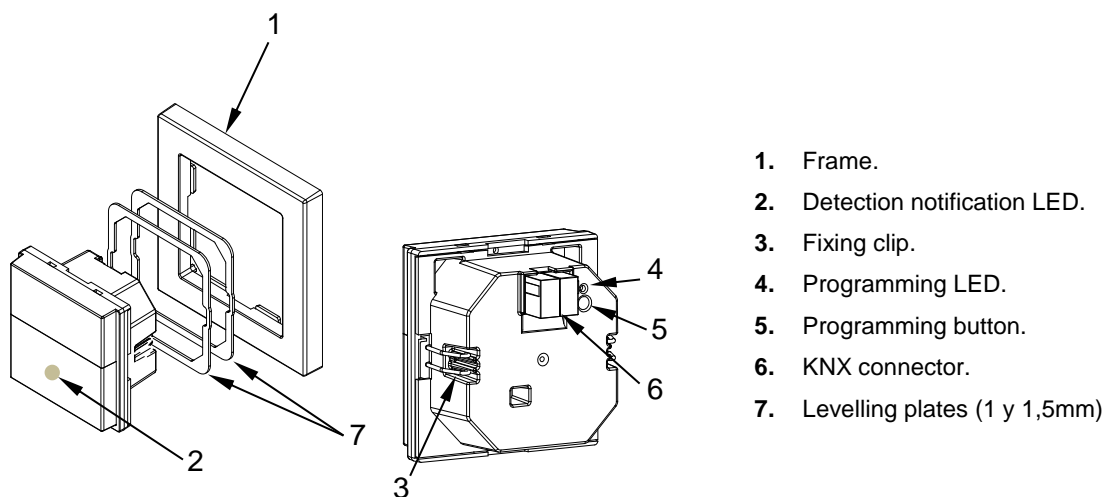This device does not need any additional external power since it is entirely powered through the KNX bus.

1. Frame.
2. Detection notification LED.
3. Fixing clip.
4. Programming LED.
5. Programming button.
6. KNX connector.
7. Levelling plates (1 y 1,5mm)

Figure 1. Presentia W0. Elements

The main elements of the device are described next.

- **Programming button (5)**: a short press on this button sets the device into the programming mode, making the associated LED (4) light in red.

  Note: *if this button is held while plugging the device into the KNX bus, the device will enter the **safe mode**. In such case, the LED will blink in red every 0.5 seconds.*

- **Detection notification LED (2)**: emits a light flash whenever the sensor associated to that zone observes motion.

  Note: *for an optimal operation of the presence and luminosity sensors it is recommended that this detection notification LED only be activated during the installation process.*

To get detailed information about the technical features of this device, as well as on the installation process and on security procedures, please refer to the corresponding **Datasheet**, bundled with the original packaging of the device and also available at www.zennio.com.

1.3 START-UP AND POWER LOSS

During the start-up of the device, the detection notification LED flashes red for **one minute** before the motion sensor is operational.

Depending on the configuration, some specific actions will also be performed during the start-up. For example, the integrator can set whether the detection channels should start up enabled or disabled.

2 CONFIGURATION

After importing the corresponding database in ETS and adding the device into the topology of the desired project, the configuration process begins by entering the parameters window of the device

2.1 GENERAL

This window is subdivided into several other sections, which contain different general parameters.

2.1.1 CONFIGURATION

ETS PARAMETERISATION

From "General" tab all the required functionality can be activated/deactivated.

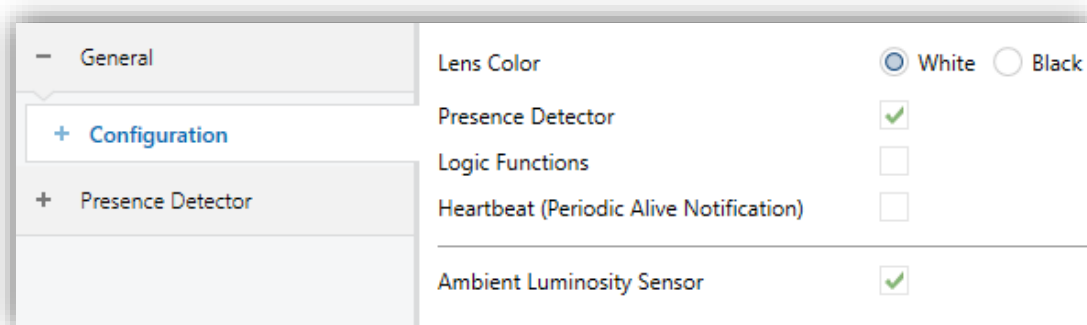**Figure 2.** General

- **Lens Color** [*White / Black*][1]: selects the lens colour depending on Presentia W0 type (white or black), allowing a correct measurement of luminosity and detections through the sensors.

- **Presence Detection** [*enabled/disabled*]: enables the "Presence Detector" tab in the tree on the left. For more information, see section 2.2.

- **Logic Functions** [*enabled/disabled*] enables or disables the "Logic Functions" tab in the tree on the left. For more information, see section 2.3.

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[1] The default values of each parameter will be highlighted in blue in this document, as follows: [*default/rest of options*].

- **Heartbeat (Periodic Alive Notification)** [_enabled/disabled_]: incorporates a one-bit object to the project ("**[Heartbeat] Object to Send '1'**") that will be sent periodically with a value of "1" to notify that the device is still working (still alive).
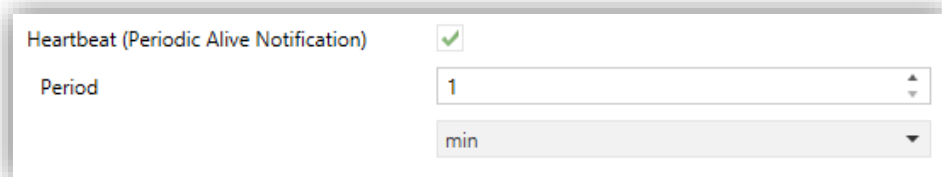

Figure 3. Heartbeat

Note: _the first sending after download or bus failure takes place with a delay of up to 255 seconds, to prevent bus overload. The following sendings match the period set._

- **Ambient Luminosity Sensor** [_enabled/disabled_]: enables or disables the ambient luminosity sensor. When enabled, a new tab is added in the tree on the left. For more information, see section 2.1.1.1.

2.1.1.1 AMBIENT LUMINOSITY SENSOR

Presentia W0 incorporates **a luminosity sensor** to receive and monitor ambient luminosity measurement.

Please refer to the specific manual "**Luminosity and Proximity Sensor**" (available in the Flat Display product section at the Zennio homepage, www.zennio.com) for detailed information about the functionality and the configuration of the related parameters.

Note: _Proximity functionality, described in the "**Luminosity and Proximity Sensor**" manual, is not included in Presentia W0._

2.2 PRESENCE DETECTOR

Presentia W0 incorporates six independent presence detection channels and one for occupancy detection.

- **Presence detection** consists in sending objects to the bus whenever the device observes a moving body (or no longer observes it) in the environment of the room where it has been installed.

- **Occupancy detection** is an algorithm that allows determining, through a multiple sensor configuration, whether a particular space is under occupation no matter if the occupant moves or not (i.e., no matter if the device is detecting presence in the room or not).

It also allows setting different luminosity setpoints or object types for **day and night time** as well as activating or deactivating the motion indicator LEDs.

Presentia W0 can also set custom **sensitivity** of the motion sensor and measure the **luminosity** level of the room. This measurement will be made according to the **colour of lens** selected.

Please refer to the specific manual "**Presence Detector**" available in Presentia W0 product section at the Zennio website (www.zennio.com) for detailed information about the functionality and the configuration of the related parameters.

Please note:

- *The constant light regulation functionality is not included (the working plane on which the device is installed is not suitable for this functionality).*

- *The unit of measurement for the luminosity level is percentage.*

2.3 LOGIC FUNCTIONS

This module makes it possible to perform numeric and binary operations to incoming values received from the KNX bus, and to send the results through other communication objects specifically enabled for this purpose.

Presentia W0 can implement up to **10 different and independent functions**, each of them entirely customisable and consisting of **up to 4 consecutive operations**.

The execution of each function can depend on a configurable **condition**, which will be evaluated every time the function is **triggered** through specific, parameterisable communication objects. The result after executing the operations of the function can also be evaluated according to certain **conditions** and afterwards sent (or not) to the KNX bus, which can be done every time the function is executed, periodically or only when the result differs from the last one.

Please refer to the "**Logic Functions**" user manual available under the Presentia W0 product section at the Zennio homepage (www.zennio.com) for detailed information about the functionality and the configuration of the related parameters.

ANNEX I. COMMUNICATION OBJECTS

- "**Functional range**" shows the values that, with independence of any other values permitted by the bus according to the object size, may be of any use or have a particular meaning because of the specifications or restrictions from both the KNX standard or the application program itself.

Number	Size	I/O	Flags	Data type (DPT)	Functional Range	Name	Function
1	1 Bit		C - - T -	DPT_Trigger	0/1	[Heartbeat] Object to Send '1'	Sending of '1' Periodically
2	1 Byte	I	C - W - -	DPT_SceneNumber	0 - 63	[General] Scene: Receive	0 - 63 (Run Scene 1-64)
3	1 Byte		C - - T -	DPT_SceneControl	0-63; 128-191	[General] Scene: Send	0 - 63/128 - 191 (Run/Save Scene 1-64)
18	1 Bit		C - - T -	DPT_Bool	0/1	[General] Luminosity (1-Bit)	0 = Over Threshold; 1 = Under Threshold
18	1 Bit		C - - T -	DPT_Bool	0/1	[General] Luminosity (1-Bit)	0 = Under Threshold; 1 = Over Threshold
44	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	Luminosity - Internal Sensor	%
48	1 Bit	I	C - W - -	DPT_DayNight	0/1	Day/Night	0 = Day; 1 = Night
48	1 Bit	I	C - W - -	DPT_DayNight	0/1	Day/Night	0 = Night; 1 = Day
49	1 Bit	I	C - W - -	DPT_Enable	0/1	Detection LEDs	0 = Disable; 1 = Enable
49	1 Bit	I	C - W - -	DPT_Enable	0/1	Detection LEDs	0 = Disable; 1 = Enable Only During the Day
50	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	Occupancy: Output (Scaling)	0-100%
51	1 Byte	O	C R - T -	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	Occupancy: Output (HVAC)	Auto, Comfort, Standby, Economy, Building Protection
52	1 Bit	O	C R - T -	DPT_Switch	0/1	Occupancy: Output (Binary)	Binary Value
52	1 Bit		C - - T -	DPT_Trigger	0/1	Occupancy: Slave Output	1 = Motion Detected
53	1 Bit	I	C - W - -	DPT_Window_Door	0/1	Occupancy: Trigger	Binary Value to Trigger the Occupancy Detection
54	1 Bit	I	C - W - -	DPT_Trigger	0/1	Occupancy: Slave Input	0 = 1 = Detection from slave device
55	2 Bytes	I	C - W - -	DPT_TimePeriodSec	0 - 65535	Occupancy: Waiting Time	0-65535 s.
56	2 Bytes	I	C - W - -	DPT_TimePeriodSec	1 - 65535	Occupancy: Listening Time	1-65535 s.
57	1 Bit	I	C - W - -	DPT_Enable	0/1	Occupancy: Lock	0 = Unlock; 1 = Lock
57	1 Bit	I	C - W - -	DPT_Enable	0/1	Occupancy: Lock	0 = Lock; 1 = Unlock

58	1 Bit	O	**C R - T -**	DPT_Occupancy	0/1	Occupancy: Occupancy State	0 = Not Occupied; 1 = Occupied
59	1 Byte	I	**C - W - -**	DPT_Scaling	0% - 100%	Sensor 1 Sensitivity	1-100%
60	1 Byte	I	**C - W - -**	DPT_Scaling	0% - 100%	Sensor 2 Sensitivity	1-100%
61, 71, 81, 91, 101, 111	1 Bit	I	**C - W - -**	DPT_Trigger	0/1	[Cx] External Motion Detection	0 = 1 = Motion detected by an external sensor
62, 72, 82, 92, 102, 112	1 Byte	O	**C R - T -**	DPT_Scaling	0% - 100%	[Cx] Output (Scaling)	0-100%
63, 73, 83, 93, 103, 113	1 Byte	O	**C R - T -**	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Cx] Output (HVAC)	Auto, Comfort, Standby, Economy, Building Protection
64, 74, 84, 94, 104, 114	1 Bit	O	**C R - T -**	DPT_Switch	0/1	[Cx] Output (Binary)	Binary Value
65, 75, 85, 95, 105, 115	1 Bit	I	**C - W - -**	DPT_Enable	0/1	[Cx] Lock Status	0 = Unlock; 1 = Lock
	1 Bit	I	**C - W - -**	DPT_Enable	0/1	[Cx] Lock Status	0 = Lock; 1 = Unlock
66, 76, 86, 96, 106, 116	1 Bit	I	**C - W - -**	DPT_Switch	0/1	[Cx] Force State	0 = No Detection; 1 = Detection
67, 77, 87, 97, 107, 117	1 Bit	I	**C - W - -**	DPT_Switch	0/1	[Cx] External Switch	0 = No Detection; 1 = Detection
68, 78, 88, 98, 108, 118	2 Bytes	I/O	**C R W - -**	DPT_TimePeriodSec	1 - 65535	[Cx] Length of Detection	1-65535 s.
153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184	1 Bit	I	**C - W - -**	DPT_Bool	0/1	[LF] (1-Bit) Data Entry x	Binary Data Entry (0/1)
185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200	1 Byte	I	**C - W - -**	DPT_Value_1_Ucount	0 - 255	[LF] (1-Byte) Data Entry x	1-Byte Data Entry (0-255)
201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216	2 Bytes	I	**C - W - -**	DPT_Value_2_Uncount	0 - 65535	[LF] (2-Byte) Data Entry x	2-Byte Data Entry
				DPT_Value_2_Count	-32768 - 32767		
				9.xxx	-671088.64 – 670433.28		
217, 218, 219, 220, 221, 222, 223, 224	4 Bytes	I	**C - W - -**	DPT_Value_4_Count	-2147483648 - 2147483647	[LF] (4-Byte) Data Entry x	4-Byte Data Entry
225, 226, 227, 228, 229, 230, 231, 232, 233, 234	1 Bit	O	**C R - T -**	DPT_Bool	0/1	[LF] Function x - Result	(1-Bit) Boolean
	1 Byte	O	**C R - T -**	DPT_Value_1_Ucount	0 - 255	[LF] Function x - Result	(1-Byte) Unsigned
	2 Bytes	O	**C R - T -**	DPT_Value_2_Ucount	0 - 65535	[LF] Function x - Result	(2-Byte) Unsigned
	4 Bytes	O	**C R - T -**	DPT_Value_4_Count	-2147483648 - 2147483647	[LF] Function x - Result	(4-Byte) Signed
	1 Byte	O	**C R - T -**	DPT_Scaling	0% - 100%	[LF] Function x - Result	(1-Byte) Percentage
	2 Bytes	O	**C R - T -**	DPT_Value_2_Count	-32768 - 32767	[LF] Function x - Result	(2-Byte) Signed
	2 Bytes	O	**C R - T -**	DPT_Value_Temp	-273.00 - 670433.28	[LF] Function x - Result	(2-Byte) Float

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