Zennio ZPDC30LV2 Presence Detector with Luminosity Sensor for Ceiling Mounting User Manual

Presentia C v2

**Presence Detector with Luminosity Sensor
for Ceiling Mounting
ZPDC30LV2**

Application program version: [1.4]
User manual edition: [1.4]_b
www.zennio.com

USER MANUAL

Contents

DOCUMENT UPDATES

Version	Changes	Page(s)
[1.4]_b	**Changes in the document:** • Correction of error in the objects table.	–
	Changes in the application program: • Optimization of Logic Functions and Presence Detector modules.	–

INTRODUCTION

1.1 PRESENTIA C v2
Presencia C v2 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 ceiling or false ceiling mounting by means of bundled accessories.

The most outstanding features of Presencia C v2 are:
4 sensors with configurable sensitivities.
4 LEDs 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:

- Configurable correction factor and offset.
- Periodic sending or upon value change.
  2 constant light control channels with configurable setpoints.
  10 customizable, multi-operation **logic functions**.
  Heartbeat or periodic "still alive" notification.
  Day / **night** configuration.

1.2 INSTALLATION

Presencia C v2 connects to the KNX bus through the onboard 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.
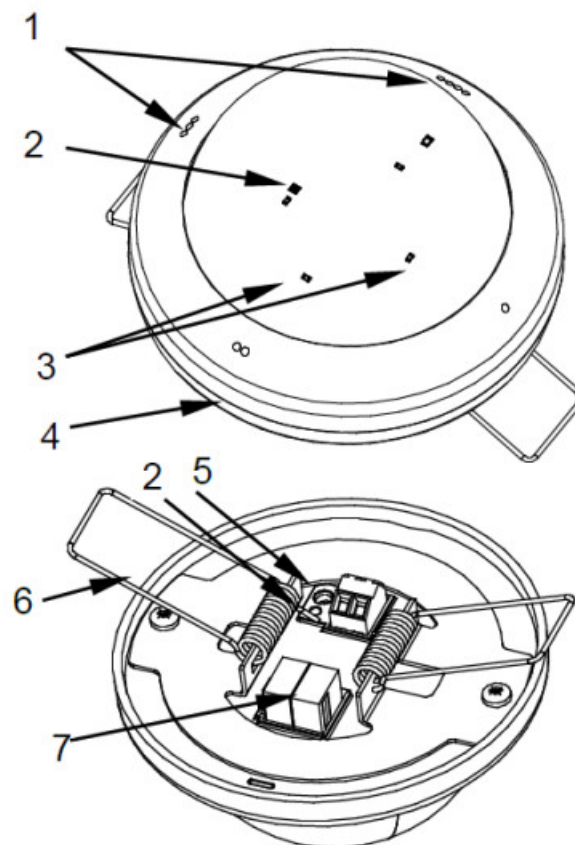

Figure 1. Presencia C v2. Elements

1. Orientation marks.
2. Test/Prog. LED.
3. Detection notification LEDs.
4. Base.
5. Test/Prog. button.

6. Retaining spring.

7. KNX connector.

The main elements of the device are described next.
Programming button (5): a short press on this button sets the device into the programming model, making the associated LED (2) 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 a case, the LED will blink in red every 0.5 seconds.
Detection notification LEDs (3): each of them emits a light flash whenever the sensor associated with that zone observes motion.

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 Test/Prog. LED will blink in blue color for one minute before the motion sensors are ready.

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. Please consult the next sections of this document for further details.

On the other hand, when a bus power failure takes place, the device will interrupt any pending actions and will save its state so it can be recovered once the power supply is
restored.

CONFIGURATION

2.1 GENERAL

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.

ETS PARAMETERISATION

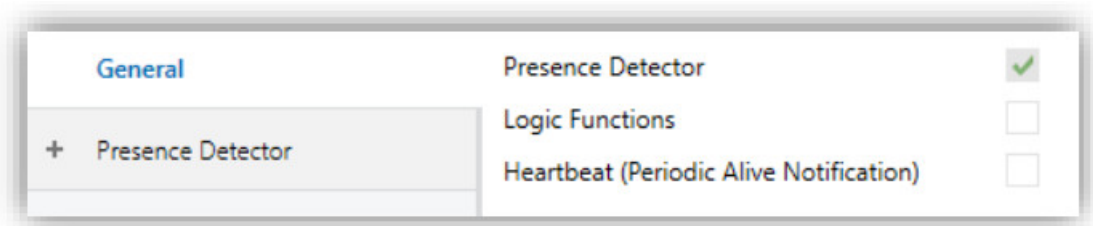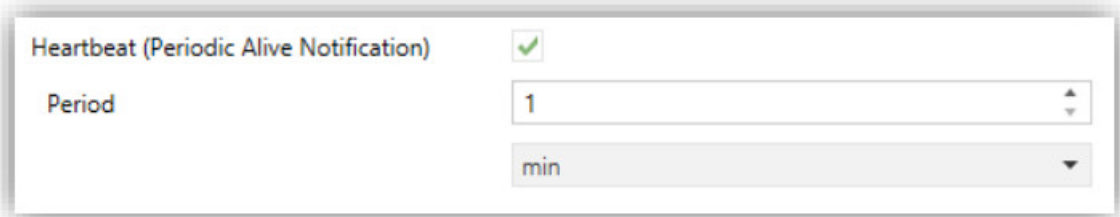From **General** screen, it is possible to activate/deactivate all the required functionality.

Figure 2. General

Presence Detection [enabled][1]: 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.

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

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

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.

2.2 PRESENCE DETECTOR

Presentia C v2 incorporates six independent presence detection channels, two more for constant light control 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.

Constant light control consists in sending KNX orders to the dimmer device that controls the in-room luminaries so the ambient light level remains constant even if other light sources are present.

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

Please refer to the specific manual "**Presence Detector**" available in the Presencia C v2 product section at the Zennio website (**www.zennio.com**) for detailed information about the functionality and the configuration of the related parameters.

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 C v2 can implement up to **10 different and independent functions**, each of them entirely customizable 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 afterward 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 C v2 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 the 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_Scene Number	0 – 63	Scene Input	Scene Value
3	1 Byte		C − − T −	DPT_Scene Control	0-63; 128-191	Scene Output	Scene Value
4	2 Bytes	I/O	C **R** W − −	**1. xxx**	0/1	Correction Factor – Internal Sensor	[0, 80] x0.1
5	2 Bytes	I/O	C **R** W − −	**1.xxx**	0/1	Offset – Internal Sensor	[-200, 200] Luxes
6	2 Bytes	0	C R − T −	DPT_Value_Lux		Luminosity – Internal Sensor	Luxes
10	1 Bit	I	C − W − −	DPT_DayNight	0/1	Day/Night	0 = Day; 1 = Night
	1 Bit	I	C − W − −	DPT_DayNight	0/1	Day/Night	0 = Night; 1 = Day
11	1 Bit	I	C − W − −	DPT_Enable	0/1	Detection LEDs	0 = Disable; 1 = Enable
	1 Bit	I	C − W − −	OPT_Enable	0/1	Detection LEDs	0 = Disable; 1 = Enable Only During the Day
12	1 Bit	0	C **R** − **T** −	OPT_Switch	0/1	Occupancy: Output (Binary)	Binary Value
	1 Bit		C − − **T** −	DPT_Start	0/1	Occupancy: Slave Output	1 = Motion Detected

13	1 Byte	0	C R – T –	DPT_Scalin g	0% – 100%	Occupancy: Output (Scaling)	0-100%
14	1 Byte	0	C R – T –	DPT_HVAC Mode	1=Comfort 2=Sta ndby 3=Economy 4=B uilding Protection	Occupancy: Output (HVAC)	Auto, Comfort, Stan dby, Economy, Build ing Protection
15	1 Bit	I	C – W – –	DPT_Wind ow_Door	0/1	Occupancy: Trigger	Value to Trigger the Occupancy Binary D etection
16	1 Bit	I	C – W – –	DPT_Start	0/1	Occupancy: Slave In put	1 = Detection from sl ave device
17	2 Bytes	I	C – W – –	DPT_Time PeriodSec	0 – 65535	Occupancy: Waiting Time	0-65535 s.
18	2 Bytes	I	C – W – –	OPT_Time PeriodSec	0 – 65535	Occupancy: Listening Time	1-65535 s.
19	1 Bit	I	C – W – –	DPT_Enabl e	0/1	Occupancy: Lock	0 = Unlock; 1 = Lock
	1 Bit	I	C – W – –	DPT_Enabl e	0/1	Occupancy: Lock	0 = Lock; 1 = Unlock
20	1 Bit	0	C R – T –	DPT_Occu pancy	0/1	Occupancy: Occupan cy State	0 = Not Occupied; 1 = Occupied
21	1 Byte	I	C – W – –	DPT_Scalin g	0% – 100%	Sensor 1 Sensitivity	1-100%
22	1 Byte	I	C – W – –	DPT_Scalin g	0% – 100%	Sensor 2 Sensitivity	1-100%
23	1 Byte	I	C – W – –	DPT_Scalin q	0% – 100%	Sensor 3 Sensitivity	1-100%
24	1 Byte	I	C – W – –	OPT_Scalin q	0% – 100%	Sensor 4 Sensitivity	1-100%

2 5 ,	3 5 ,	4 5 ,	5 5 ,	6 5 ,	7 5	1 Bit	I	C – W – –	DPT Start –	0/1	[Cx) External Motio n Detection	1 = Motion detected by an exte rnal sensor

						Size	Flag	Comm	DPT	Range	Object Name	Description
26,	36,	46,	56,	66,	76	1 Bit	0	C R – T –	DPT_Switch	0/1	[Cx] Output (Binary)	Binary Value
27,	37,	47,	57,	67,	77	1 Byte	0	C R – T –	DPT_Scaling	0% – 100%	[Cx] Output (Scaling)	0-100%
28,	38,	48,	58,	68,	78	1 Byte	0	C R – T –	DPT_HVACMode	1=Comfort 2=Standby 3 =Economy 4=Building Protection	[Cx) Output (HVAC)	Auto, Comfort, Standby, Economy, Building Protection
29, 30, 31, 32,	39, 40, 41, 42,	49, 50, 60, 51.52,	59, 60, 61, 62,	69, 70, 71, 72,	79 80 81 82	1 Bit	I	C – W – –	DPT_Enable	0/1	[Cx] Lock Status	0 = Unlock; 1 = Lock
						1 Bit	1	C – W – –	DPT_Enable	0/1	[Cx] Lock Status	0 4 Lock; 1 4 Unlock
						1 Bit	I	C – W – –	DPT_Start	0/1	[Cx) Force State	0 4 No Detection; 1 is Detection
						1 Bit	1	C – W – –	DPT_Start	0/1	[Cx] External Switch	0 sz No Detection; 1 = Detection
						2 Bytes	I/O	C R W – –	DPT_TimePeriodSec	0 – 65535	[Cx] Length of Detection	1-65535 s.
		85,	101			1 Bit	I	C – W – –	DPT Start _	0/1	[CLCx] External Motion Detection	external\n1 = Motion detected by an exte sensor
		86, 87.88,	102 103 104			1 Bit	I	C – W – –	DPT_Enable	0/1	[CLCx] Lock Status	0 = Unlock; 1 = Lock
						1 Bit	I	C – W – –	DPT_Enable	0/1	[CLCx] Lock Status	0 = Lock; 1 = Unlock
						1 Bit	I	C – W – –	DPT_Start	0/1	[CLCx] Force State	0 = No Detection; 1 = Detection
						1 Bit	I	C – W – –	DPT_Start	0/1	[CLCx] External Switch	0 = No Detection; 1 .. Detection

				Size	Flag	C/R/W/T	DPT	Range	Object	Description
		89, 90,		2 Bytes	1	C − W − −	OPT_Value_Lux		[CLCx] Setpoint	Setpoint Value (1-2 000)
				2 Bytes	I	C − W − −	DPT_Value_Lux		[CLOc] Setpoint During Day	Setpoint Value (1-2 000)
		105 106		1 Byte	1	C − W − −	DPT_Scaling	0% − 100%	[CLCx] Setpoint	Setpoint Value (1-1 00)%
				1 Byte	I	C − W − −	DPT_Scaling	0% − 100%	[CLCx] Setpoint During Day	Setpoint Value (1-1 00)%
				2 Bytes	I	C − W − −	DPT_Value_Lux		[CLCx] Setpoint During Night	Setpoint Value (1-2 000)
				1 Byte	I	C − W − −	DPT_Scaling	0% − 100%	(CLCx) Setpoint During Night	Setpoint Value (1-1 00)%
		91,		1 Byte	0	C R − T −	DPT_Scaling	0% − 100%	[CLCx] Dimming Value	Dimming Value (%)
		107								
		92, 94, 95, 96,		2 Bytes	I/O	C R W − −	DPT_TimePeriodSec	0 − 65535	[CLCx] Length of Detection	1-65535 s.
				1 Bit	I	C − W − −	DPT_Switch	0/1	[CLCx] Manual Control: On/Off (Input)	1-Bit Control
		108 110 111 112		4 Bit	1	C − W − −	DPT_Control_Dimming	Ox0 (Stop) Oxl (Dec. by 100%)··• 0x7 (Dec. by 1%) Ox8 (Stop) OxD (Inc. by 100%) ··• OxF (Inc. by 1%)	[CLCx] Manual Control: Relative Dimming (Input)	4-Bit Control
				1 Byte	I	C − W − −	DPT_Scaling	0% − 100%	[CLOc] Manual Control: Absolute Dimming (Input)	1-Byte Control
		97,		1 Bit	0	C R − T −	DPT_Switch	0/1	[CLCx] Manual Control: On/Off (Output)	1-Bit Control
		113								

	98,	114		4 Bit	0	C R – T –	DPT_Control_Dimming	Ox0 (Stop) Oxl (Dec. by 100%) . -•	[CLCx] Manual Control: Relative Dimming (Output)	4-Bit Control

								0x7 (Dec. by 1%) 0x8 (Stop) 0xD (Inc. by 100%)••• OxF (Inc. by 1%)		
	99,	115		1 Bit	I	C – W – –	DPT Enable	0/1	[CLCx] Manual Control	0 = Disable; 1 = Enable
	100,	116		1 Bit	0	C R – T –	DPT Enable	0/1	[CLCx] Manual Control (Status)	0 = Disabled; 1 = Enabled
117, 121, 125, 129, 133, 137, 141, 145,	118, 122, 126, 130, 134, 138, 142, 146,	119, 123, 127, 131, 135, 139, 143, 147,	120, 124, 128, 132, 136, 140, 144, 148	1 Bit	I	U	DPT Bool	0/1	[LF] (1-Bit) Data Entry x	Binary Data Entry (0/1)

			Size		Flags	DPT	Range	[LF]	Description
149, 153, 157, 161,	150, 154, 158, 162,	151, 155, 159, 163,	152, 156, 160, 164	1 Byte	I	U	DPT_Value_1_Ucount	0 – 255	[LF] (1-Byte) Data Entry x	1-Byte Data Entry (0-255)
165, 169, 173, 177,	166, 170, 174, 178,	167, 171, 175, 179,	168, 172, 176, 180	2 Bytes	I	U	DPT_Value_2_Ucount	0 – 65535	[LF] (2-Byte) Data Entry x	2-Byte Data Entry
							DPT Value 2 Count	-32768 – 32767		
							DPT_Value_Temp o	-273, 00 – 670760, 00		
181, 185,	182, 186,	183, 187,	184, 188	4 Bytes	I	C – W – –	DPT_Value_4_Count	-2147483648 – 2147483647	[LF] (4-Byte) Data Entry x	4-Byte Data Entry
189, 193,	190, 194, 197,	191, 195, 198	192, 196,	1 Bit	0	C R – T –	DPT_Bool	0/1	[LF] Function x – Result	(1-Bit) Boolean
				1 Byte	0	C R – T –	DPT_Value_1_Ucount	0 – 255	[LF] Function x – Result	(1-Byte) Unsigned
				2 Bytes	0	C R – T –	DPT_Value_2_Ucount	0 – 65535	[LF] Function x – Result	(2-Byte) Unsigned
				4 Bytes	0	C R – T –	DPT_Value_4_Count	-2147483648 – 2147483647	[LF] Function x – Result	(4-Byte) Signed
				1 Byte	0	C R – T –	DPT_Scaling	0% – 100%	[LF] Function x – Result	(1-Byte) Percentage
				2 Bytes	0	C R – T –	DPT_Value_2_Count	-32768 – 32767	[LF] Function x – Result	(2-Byte) Signed
				2 Bytes	0	C R – T –	9. xxx	-671088.64 – 670433.28	[LF] Function x – Result	(2-Byte) Float

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Documents / Resources

Presentia C v2 Presence Detector with Luminosity Sensor for Ceiling Mounting ZPDC30LV2	**Zennio ZPDC30LV2 Presence Detector with Luminosity Sensor for Ceiling Mounting** [pdf] User Manual ZPDC30LV2, Presence Detector with Luminosity Sensor for Ceiling Mounting, ZPDC30LV2 Presence Detector with Luminosity Sensor for Ceiling Mounting, Luminosity Sensor for Ceiling Mounting

Manuals+,