Zennio ZPDEZTPVT Motion Detector with Luminosity Sensor for Ceiling Mounting User Manual

Contents

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INTRODUCTION

EYEZEN TP VT

EyeZen TP vT 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 the bundled accessories. The most outstanding features of EyeZen TP vT are:

- Sensor with configurable sensitivity.
- LED to indicate motion.
- Two types of lenses: black and white.
- Presence detection:
  - 6 presence detection channels.
  - Luminosity-dependent presence detection (optional).
  - Periodic and delayed sendings (binary, scene, HVAC, percentage).

Occupancy detection:

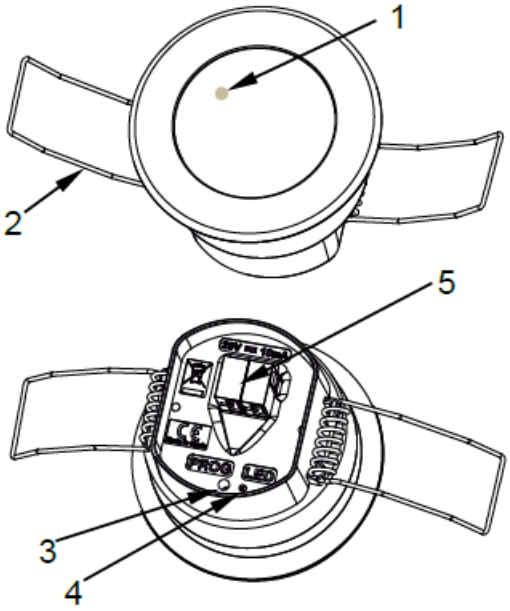
- 1x occupancy detection channel.
- Master / slave configuration.
- Trigger upon door opening or closing.
- Periodic and delayed sendings (binary, scene, HVAC, percentage).

Luminosity measurement:

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

INSTALLATION

EyeZen TP vT 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. Detection LED indicator.
2. Retaining spring.
3. Test/Prog. button.
4. Test/Prog. LED.
5. KNX connector.

The main elements of the device are described next.

- **Programming button (3):** 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 (1):** emits a red light flash when the sensor 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**.

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 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.

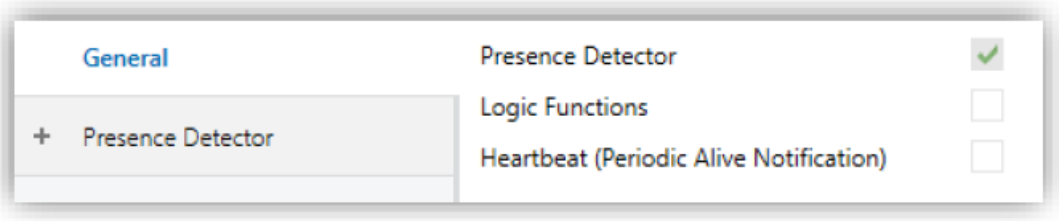
CONFIGURATION

GENERAL

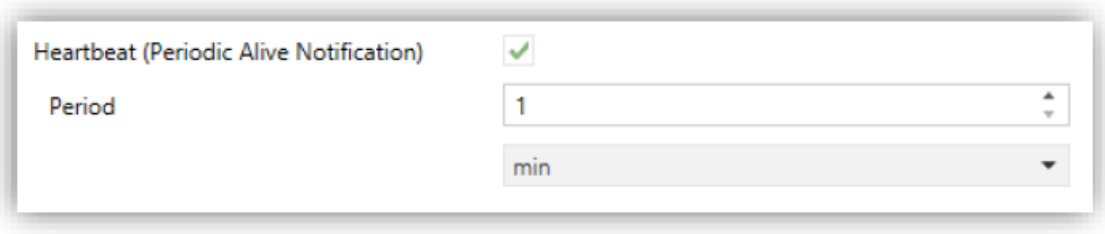
After importing the corresponding database in ETS and adding the device into the topology of the desired project, the configuration process begins by entering the parameters window of the device.

ETS PARAMETERISATION

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



- **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).



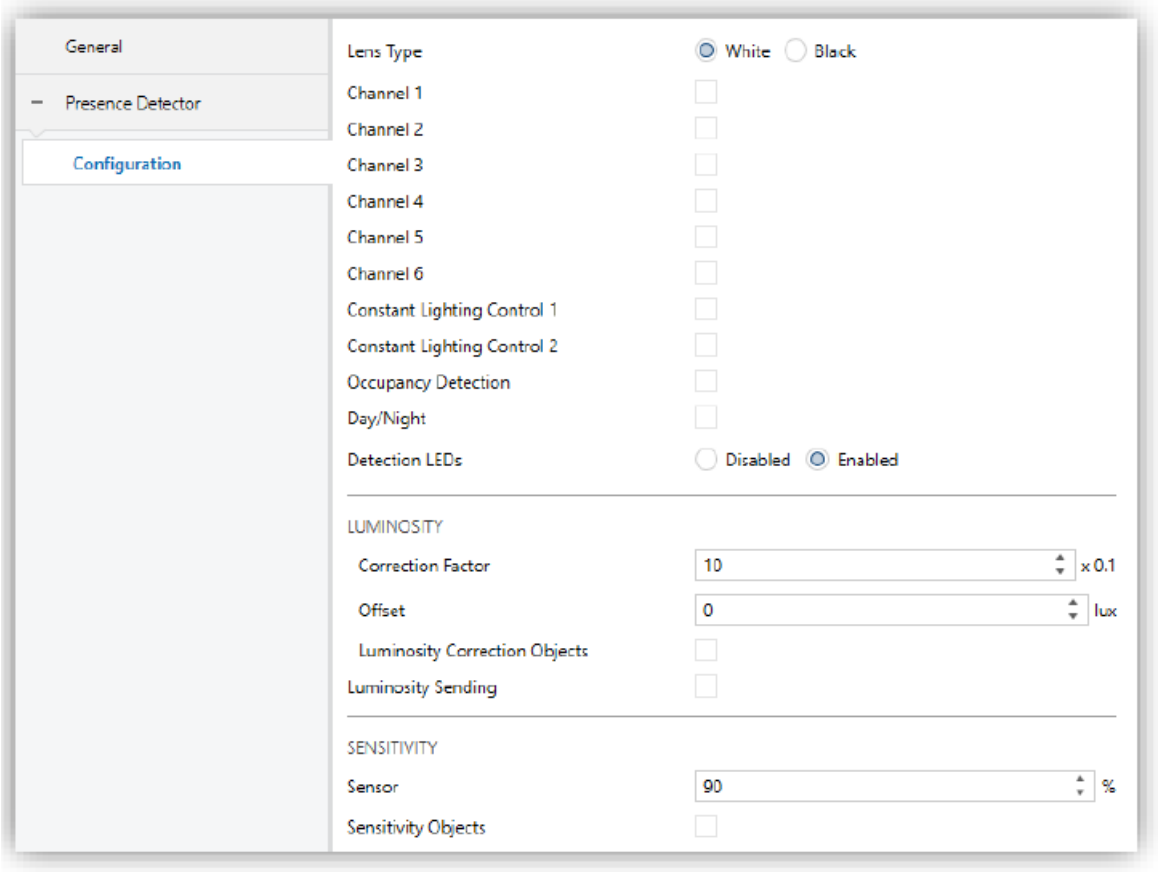
Note: the first sending after download or bus failure takes place with a delay of up to 255 seconds, to prevent bus overload. The following sendings match the period set.

PRESENCE DETECTOR
EyeZen TP vT 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 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 daytime and night time as well as activating or deactivating the motion indicator LEDs. EyeZen TP vT can also set custom sensitivity of the motion sensor and measure the luminosity of the room by making certain adjustments. This measurement will be made according to the type of lens selected. Please refer to the specific manual “Presence Detector” available in EyeZen TP vT product section at the Zennio website (**www.zennio.com**) for detailed information about the functionality and the configuration of the related parameters.

ETS PARAMETERISATION
In Presence Detector screen, additional to the parameters of this functionality, lens type parameter is included.



Lens Type [White / Black]. Selecting the lens type that EyeZen TP vT has installed, will allow a correct measurement of luminosity through the sensor.

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. EyeZen TP vT 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 EyeZen TP vT 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	Scene Input	Scene Value
3	1 Byte		**C – – T –**	DPT_SceneControl	0-63; 128-191	Scene Output	Scene Value
4	2 Bytes	I/O	**C R W – –**	DPT_Coefficient	0 – 80	Correction Factor – Internal Sensor	[0, 80] x0.1
5	2 Bytes	I/O	**C R W – –**	DPT_Luminosity_Offset	-200 – 200	Offset – Internal Sensor	[-200, 200] Luxes
6	2 Bytes	O	**C R – T –**	DPT_Value_Lux	0 – 2000	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 LED	0 = Disable; 1 = Enable

	1 Bit	I	**C – W – –**	DPT_Enable	0/1	Detection LED	0 = Disable; 1 = Enable Only During the Day
12	1 Byte	O	**C R – T –**	DPT_Scaling	0% – 100%	Occupancy: Output (Scaling)	0-100%
13	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
14	1 Bit	O	**C R – T –**	DPT_Switch	0/1	Occupancy: Output (Binary)	Binary Value
	1 Bit		**C – – T –**	DPT_Trigger	1	Occupancy: Slave Output	1 = Motion Detected
15	1 Bit	I	**C – W – –**	DPT_Window_Door	0/1	Occupancy: Trigger	Binary Value to Trigger the Occupancy Detection
16	1 Bit	I	**C – W – –**	DPT_Trigger	0/1	Occupancy: Slave Input	0 = 1 = Detection from slave device
17	2 Bytes	I	**C – W – –**	DPT_TimePeriodSec	0 – 65535	Occupancy: Waiting Time	0-65535 s.

18	2 Bytes	I	**C – W – –**	DPT_TimePeriodSec	1 – 65535	Occupancy: Listening Time	1-65535 s.
19	1 Bit	I	**C – W – –**	DPT_Enable	0/1	Occupancy: Lock	0 = Unlock; 1 = Lock
	1 Bit	I	**C – W – –**	DPT_Enable	0/1	Occupancy: Lock	0 = Lock; 1 = Unlock
20	1 Bit	O	**C R – T –**	DPT_Occupancy	0/1	Occupancy: Occupancy State	0 = Not Occupied; 1 = Occupied
21	1 Byte	I	**C – W – –**	DPT_Scaling	0% – 100%	Sensor Sensitivity	1-100%

25, 35, 45, 55, 65, 75	1 Bit	I	**C – W – –**	DPT_Trigger	0/1	[Cx] External Motion Detection	0 = 1 = Motion detected by an external sensor
26, 36, 46, 56, 66, 76	1 Byte	O	**C R – T –**	DPT_Scaling	0% – 100%	[Cx] Output (Scaling)	0-100%
27, 37, 47, 57, 67, 77	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

28, 38, 48, 58, 68, 78	1 Bit	O	**C R – T –**	DPT_Switch	0/1	[Cx] Output (Binary)	Binary Value
29, 39, 49, 59, 69, 79	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
30, 40, 50, 60, 70, 80	1 Bit	I	**C – W – –**	DPT_Switch	0/1	[Cx] Force State	0 = No Detection; 1 = Detection
31, 41, 51, 61, 71, 81	1 Bit	I	**C – W – –**	DPT_Switch	0/1	[Cx] External Switch	0 = No Detection; 1 = Detection
32, 42, 52, 62, 72, 82	2 Bytes	I/O	**C R W – –**	DPT_TimePeriodSec	1 – 65535	[Cx] Length of Detection	1-65535 s.
85, 101	1 Bit	I	**C – W – –**	DPT_Trigger	0/1	[CLCx] External Motion Detection	0 = 1 = Motion detected by an external sensor
86, 102	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
87, 103	1 Bit	I	**C – W – –**	DPT_Switch	0/1	[CLCx] Force State	0 = No Detection ; 1 = Detection
88, 104	1 Bit	I	**C – W – –**	DPT_Switch	0/1	[CLCx] External Switch	0 = No Detection ; 1 = Detection
89, 105	2 Bytes	I	**C – W – –**	DPT_Value_Lux	1 – 2000	[CLCx] Setpoint	Setpoint Value (1-2000)
	2 Bytes	I	**C – W – –**	DPT_Value_Lux	1 – 2000	[CLCx] Setpoint During Day	Setpoint Value (1-2000)
90, 106	2 Bytes	I	**C – W – –**	DPT_Value_Lux	1 – 2000	[CLCx] Setpoint During Night	Setpoint Value (1-2000)
91, 107	1 Byte	O	**C R – T –**	DPT_Scaling	0% – 100%	[CLCx] Dimming Value	Dimming Value (%)
92, 108	2 Bytes	I/O	**C R W – –**	DPT_TimePeriodSec	1 – 65535	[CLCx] Length of Detection	1-65535 s.

94, 110	1 Bit	I	**C – W – –**	DPT_Switch	0/1	[CLCx] Manual Control: On/Off (Input)	1-Bit Control
95, 111	4 Bit	I	**C – W – –**	DPT_Control_Dimming	0x0 (Stop) 0x1 (Dec. by 100 %) … 0x7 (Dec. by 1%) 0x8 (Stop) 0xD (Inc. by 100 %) … 0xF (Inc. by 1%)	[CLCx] Manual Control: Relative Dimming (Input)	4-Bit Control
96, 112	1 Byte	I	**C – W – –**	DPT_Scaling	0% – 100%	[CLCx] Manual Control: Absolute Dimming (Input)	1-Byte Control
97, 113	1 Bit	O	**C R – T –**	DPT_Switch	0/1	[CLCx] Manual Control: On/Off (Output)	1-Bit Control

98, 114	4 Bit	O	**C R – T –**	DPT_Control_Dimming	0x0 (Stop) 0x1 (Dec. by 100 %) … 0x7 (Dec. by 1%) 0x8 (Stop) 0xD (Inc. by 100 %) … 0xF (Inc. by 1%)	[CLCx] Manual Control: Relative Dimming (Output)	4-Bit Control
99, 115	1 Bit	I	**C – W – –**	DPT_Enable	0/1	[CLCx] Manual Control	0 = Disable; 1 = Enable
100, 116	1 Bit	O	**C R – T –**	DPT_Enable	0/1	[CLCx] Manual Control (Status)	0 = Disabled; 1 = Enabled
134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165	1 Bit	I	**C – W – –**	DPT_Bool	0/1	[LF] (1-Bit) Data Entry x	Binary Data Entry (0/1)

166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181	1 Byte	I	**C – W – –**	DPT_Value_1_Ucount	0 – 255	[LF] (1-Byte) Data Entry x	1-Byte Data Entry (0-255)
182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197	2 Bytes	I	**C – W – –**	DPT_Value_2_Ucount	0 – 65535	[LF] (2-Byte) Data Entry x	2-Byte Data Entry
				DPT_Value_2_Count	-32768 -32767		
				9.xxx	-671088.64 – 670433.28		
198, 199, 200, 201, 202, 203, 204, 205	4 Bytes	I	**C – W – –**	DPT_Value_4_Count	-2147483648 – 2147483647	[LF] (4-Byte) Data Entry x	4-Byte Data Entry
	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

206, 207, 208, 209, 210, 211, 212, 213, 214, 215	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 –**	9.xxx	-671088.64 – 670433.28	[LF] Function x – Result	(2-Byte) Float

Join and send us your inquiries about Zennio devices:
https://support.zennio.com

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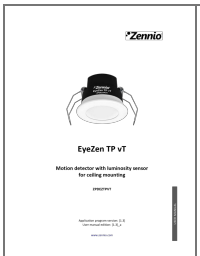
Documents / Resources

	**Zennio ZPDEZTPVT Motion Detector with Luminosity Sensor for Ceiling Mounting** [pdf] User Manual ZPDEZTPVT Motion Detector with Luminosity Sensor for Ceiling Mounting, ZPDEZTPVT, Motion Detector with Luminosity Sensor for Ceiling Mounting, Ceiling Mounting, Luminosity Sensor, Sensor

References

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