



Presentia C vT

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

ZPDC30LVT

Application program version: [1.4]
User manual edition: [1.4]_a

www.zennio.com

CONTENTS

Contents	2
Document Updates	3
1 Introduction	4
1.1 Presentia C vT	4
1.2 Installation.....	5
1.3 Start-Up and Power Loss	6
2 Configuration.....	7
2.1 General.....	7
2.2 Presence Detector.....	8
2.3 Logic Functions.....	9
ANNEX I. Communication Objects.....	10

DOCUMENT UPDATES

Version	Changes	Page(s)
[1.4]_a	Changes in the application program: <ul style="list-style-type: none">• Optimisation of Logic Functions and Presence Detector modules.	-

1 INTRODUCTION

1.1 PRESENTIA C VT

Presentia C 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 Presentia C vT 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** customisable, multi-operation **logic functions**.
- **Heartbeat** or periodic “still alive” notification.
- **Day / night** configuration.

1.2 INSTALLATION

Presentia C 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.

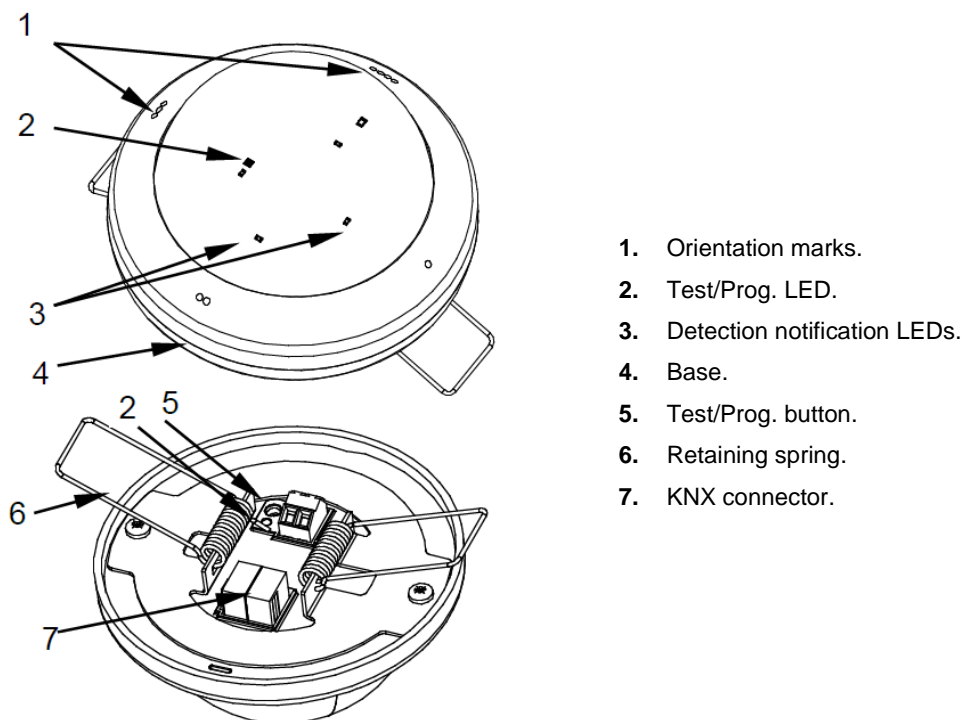


Figure 1. Presentia C vT. Elements

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 (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 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 to 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 colour 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.

2 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.

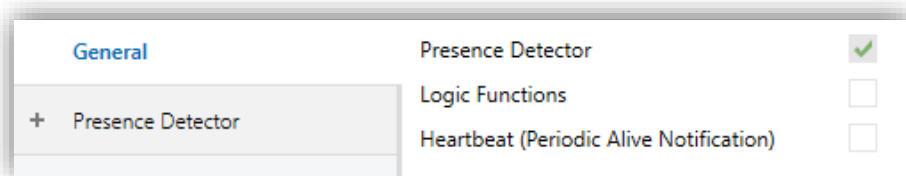


Figure 2. General

- **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).

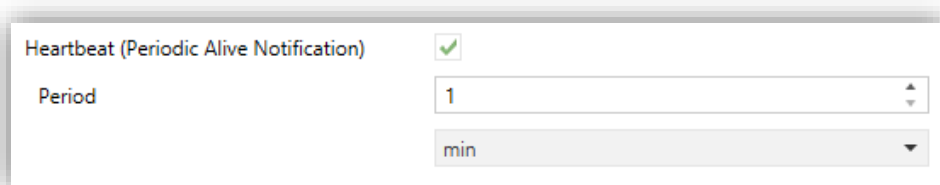


Figure 3. Heartbeat

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.*

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

2.2 PRESENCE DETECTOR

Presentia C 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, 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).

Please refer to the specific manual “**Presence Sensor**” available in Presentia C vT 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 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, parameterizable 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 C 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 - -	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	O	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 - -	DPT_Enable	0/1	Detection LEDs	0 = Disable; 1 = Enable Only During the Day
12	1 Bit	O	C R - T -	DPT_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	O	C R - T -	DPT_Scaling	0% - 100%	Occupancy: Output (Scaling)	0-100%
14	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
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_Start	0/1	Occupancy: Slave Input	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	0 - 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 1 Sensitivity	1-100%
22	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	Sensor 2 Sensitivity	1-100%
23	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	Sensor 3 Sensitivity	1-100%
24	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	Sensor 4 Sensitivity	1-100%

25, 35, 45, 55, 65, 75	1 Bit	I	C-W--	DPT_Start	0/1	[Cx] External Motion Detection	1 = Motion detected by an external sensor
26, 36, 46, 56, 66, 76	1 Bit	O	CR-T-	DPT_Switch	0/1	[Cx] Output (Binary)	Binary Value
27, 37, 47, 57, 67, 77	1 Byte	O	CR-T-	DPT_Scaling	0% - 100%	[Cx] Output (Scaling)	0-100%
28, 38, 48, 58, 68, 78	1 Byte	O	CR-T-	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Cx] Output (HVAC)	Auto, Comfort, Standby, Economy, Building Protection
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_Start	0/1	[Cx] Force State	0 = No Detection; 1 = Detection
31, 41, 51, 61, 71, 81	1 Bit	I	C-W--	DPT_Start	0/1	[Cx] External Switch	0 = No Detection; 1 = Detection
32, 42, 52, 62, 72, 82	2 Bytes	I/O	CRW--	DPT_TimePeriodSec	0 - 65535	[Cx] Length of Detection	1-65535 s.
34, 44, 54, 64, 74, 84	1 Byte	O	CR-T-	DPT_Value_1_Ucount	0 - 255	[Cx] Observation Window (Testing)	Current Observation Window
85, 101	1 Bit	I	C-W--	DPT_Start	0/1	[CLCx] External Motion Detection	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_Start	0/1	[CLCx] Force State	0 = No Detection; 1 = Detection
88, 104	1 Bit	I	C-W--	DPT_Start	0/1	[CLCx] External Switch	0 = No Detection; 1 = Detection
89, 105	2 Bytes	I	C-W--	DPT_Value_Lux		[CLCx] Setpoint	Setpoint Value (1-2000)
	2 Bytes	I	C-W--	DPT_Value_Lux		[CLCx] Setpoint During Day	Setpoint Value (1-2000)
	1 Byte	I	C-W--	DPT_Scaling	0% - 100%	[CLCx] Setpoint	Setpoint Value (1-100)%
	1 Byte	I	C-W--	DPT_Scaling	0% - 100%	[CLCx] Setpoint During Day	Setpoint Value (1-100)%
90, 106	2 Bytes	I	C-W--	DPT_Value_Lux		[CLCx] Setpoint During Night	Setpoint Value (1-2000)
	1 Byte	I	C-W--	DPT_Scaling	0% - 100%	[CLCx] Setpoint During Night	Setpoint Value (1-100)%
91, 107	1 Byte	O	CR-T-	DPT_Scaling	0% - 100%	[CLCx] Dimming Value	Dimming Value (%)
92, 108	2 Bytes	I/O	CRW--	DPT_TimePeriodSec	0 - 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	CR-T-	DPT_Switch	0/1	[CLCx] Manual Control: On/Off (Output)	1-Bit Control
98, 114	4 Bit	O	CR-T-	DPT_Control_Dimming	0x0 (Stop)	[CLCx] Manual Control: Relative Dimming	4-Bit Control

					0x1 (Dec. by 100%) ... 0x7 (Dec. by 1%) 0x8 (Stop) 0xD (Inc. by 100%) ... 0xF (Inc. by 1%)	(Output)	
99, 115	1 Bit	I	C - W - -	DPT_Enable	0/1	[CLCx] Manual Control	0 = Disable; 1 = Enable
100, 116	1 Bit	O	CR - T -	DPT_Enable	0/1	[CLCx] Manual Control (Status)	0 = Disabled; 1 = Enabled
117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148	1 Bit	I	C - W - -	DPT_Bool	0/1	[LF] (1-Bit) Data Entry x	Binary Data Entry (0/1)
149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164	1 Byte	I	C - W - -	DPT_Value_1_Ucount	0 - 255	[LF] (1-Byte) Data Entry x	1-Byte Data Entry (0-255)
165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180	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		
				DPT_Value_Tempo	-273, 00 - 670760, 00		
181, 182, 183, 184, 185, 186, 187, 188	4 Bytes	I	C - W - -	DPT_Value_4_Count	-2147483648 - 2147483647	[LF] (4-Byte) Data Entry x	4-Byte Data Entry
189, 190, 191, 192, 193, 194, 195, 196, 197, 198	1 Bit	O	CR - T -	DPT_Bool	0/1	[LF] Function x - Result	(1-Bit) Boolean
	1 Byte	O	CR - T -	DPT_Value_1_Ucount	0 - 255	[LF] Function x - Result	(1-Byte) Unsigned
	2 Bytes	O	CR - T -	DPT_Value_2_Ucount	0 - 65535	[LF] Function x - Result	(2-Byte) Unsigned
	4 Bytes	O	CR - T -	DPT_Value_4_Count	-2147483648 - 2147483647	[LF] Function x - Result	(4-Byte) Signed
	1 Byte	O	CR - T -	DPT_Scaling	0% - 100%	[LF] Function x - Result	(1-Byte) Percentage
	2 Bytes	O	CR - T -	DPT_Value_2_Count	-32768 - 32767	[LF] Function x - Result	(2-Byte) Signed
	2 Bytes	O	CR - T -	9.xxx	-671088.64 - 670433.28	[LF] Function x - Result	(2-Byte) Float

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