

### Datasheet

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Figure 1. Ceiling Mount 12-in-1 Sensor

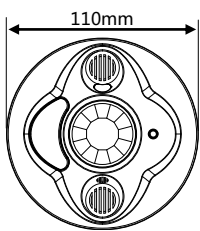


Figure 2. Dimensions - Front View

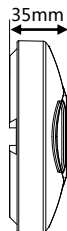


Figure 3. Dimensions - Side View

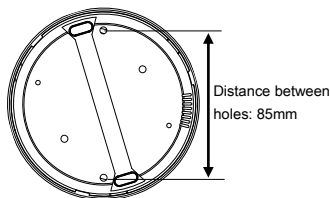


Figure 4. Dimensions - Back View

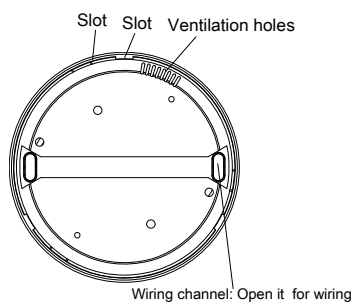


Figure 5. Components - Back View

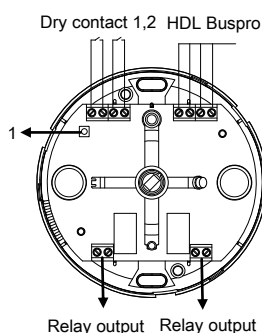


Figure 6. Wiring

## Overview

Ceiling Mount 12-in-1 Sensor (See Figure 1) includes temperature sensor, PIR motion sensor, LUX sensor, ultrasonic sensor, dry contacts, and supports IR receiving and IR emitting. The logic block can combine all sensors for different applications. The sensor supports HDL security mode and command. Only the infrared codes emitted by HDL remote control can be received, and other infrared codes can be downloaded.

## Functions

- 9 input conditions in total: Temperature, LUX, PIR motion, ultrasonic, 2 dry contact inputs, 2 external inputs, logic.
- 2 logic relations: OR, AND.
- 24 logic blocks, up to 9 logic inputs, up to 20 control targets in each logic block.
- 2-channel of 5A relay output.
- Built-in PID for constant illumination control.
- Up to 40 IR receiving control targets.
- Up to 240 IR sending control targets.
- Up to 24 programmable logic blocks.
- Each logic block has target set-up action and target unset-up action, target triggering delay settings
- The power-on logic status settings are: Last status recall, Compulsory forced to be set up, Forced to be unfounded, No action
- Security function in conjunction with the security module.
- Supports upgrade from HDL Buspro.

## Important Notes

- Installation location - Away from AC outlets and heat source for indoor use
- Operation temperature - Below 36°C for using PIR function.
- Target detection - Moving objects with heat radiation (human, animals, etc.) for PIR, all moving objects for ultrasonic
- Buspro cable - CAT5E or dedicated HDL Buspro cable.
- Buspro connection - Series connection (hand-in-hand recommended).

## Product Information

**Dimensions - See Figure 2 - 4**

**Components - See Figure 5**

**Wiring - See Figure 6**

1. Device address setting button: Press this button for 3s, red LED will be on, then modify the address via HDL Buspro Setup Tool by the following steps: Address Management → Modify Address, then read and modify the initial address.

**Detection range - See Figure 7**

**Installation - See Figure 8 - 11**

Step 1. Rotate and open the sensor.

Step 2. Fix the sensor base on the ceiling with screws.

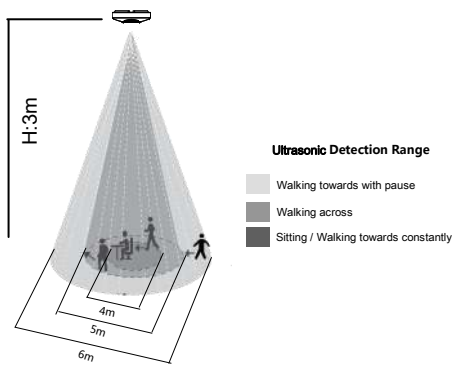
Step 3. Put the cover on the sensor.

## Safety Precautions

- The installation and commissioning of the device must be carried out by HDL or the organization designated by HDL. For planning and construction of electric installations, the relevant guidelines, regulations and standards of the respective country are to be considered.
- HDL does not takes responsibility for all consequences caused by installation and wire connection which are not in accordance with this document.
- Please do not privately disassemble the device or change components, otherwise it may cause mechanical failure, electric shock, fire or body injury.
- Please resort to our customer service department or designated agencies for maintenance service. The warranty is not applicable for the product fault caused by private disassembly.

## Package Contents

HDL-MS12.2C\*1 / Screw\*2 / Datasheet\*1

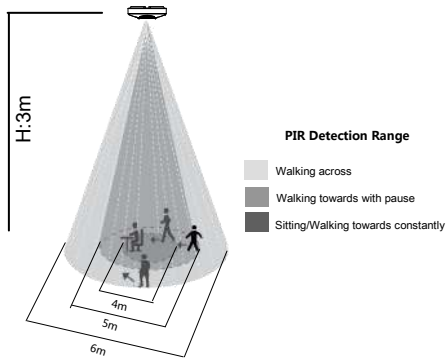


**Ultrasonic Detection Range**

- Walking towards with pause
- Walking across
- Sitting / Walking towards constantly

**Ultrasonic Detection Range (At 25°C)**

Mounting height	Sitting / Walking towards constantly	Walking across	Walking towards with pause
3m	4m	5m	6m



**PIR Detection Range**

- Walking across
- Walking towards with pause
- Sitting/Walking towards constantly

**PIR Detection Range (At 25°C)**

Mounting height	Sitting / Walking towards constantly	Walking towards with pause	Walking across
3m	4m	5m	6m

Figure 7. Detection Range

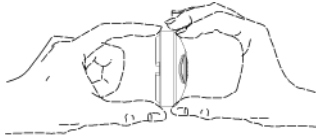


Figure 8  
↓ 1

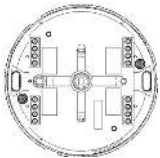


Figure 9  
↓ 2

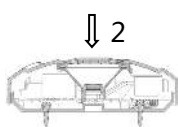


Figure 10  
↓ 3

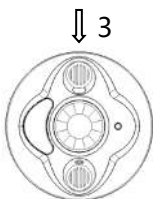


Figure 11

Figure 8 - 11. Installation

**Technical support**

E-mail: support@hdlautomation.com  
Website: https://www.hdlautomation.com

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## Technical Data

### Basic Parameters

Working voltage	18~30V DC
Working current	90mA/24V DC
IR transmit frequency	38kHz
IR emission distance	4m
Illumination detection range	0-5000Lux
PIR detection range in diameter	6m (installation height:3m)
Ultrasonic detection in diameter	6m (installation height:3m)

### External Environment

Working temperature	-5°C~45°C
Working relative humidity	≤90%
Storage temperature	-20°C~60°C
Storage relative humidity	≤93%

### Specifications

Dimensions	Φ110mm×35mm
Net weight	207g
Housing material	Lens, ABS
Installation	Ceiling mount (See Figure 8 - 11)
Protection rating (Compliant with EN 60529)	IP20

### Name and Content of Hazardous Substances in Products

Components	Hazardous substances					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Chromium VI (Cr (VI))	Poly-brominated biphenyls (PBB)	Poly-brominated diphenyl ethers (PBDE)
Plastic	o	o	o	o	o	o
Hardware	o	o	o	o	-	-
Screw	o	o	o	×	-	-
Solder	×	o	o	o	-	-
PCB	×	o	o	o	o	o
IC	o	o	o	o	×	×

The symbol “-” indicates that the hazardous substance is not contained.

The symbol “o” indicates that the content of the hazardous substances in all the homogeneous materials of the component is below the limit requirement specified in the Standard IEC62321-2015.

The symbol “x” indicates that the content of the hazardous substance in at least one of the homogeneous materials of the part exceeds the limit requirement specified in the Standard IEC62321-2015.

## HDL Buspro Cable Guide

HDL Buspro	HDL Buspro Cable	CAT5/CAT5E
DATA+	Yellow	Blue/Green
DATA-	White	Blue white/Green white
COM	Black	Brown white/Orange white
24V DC	Red	Brown/Orange