

Specification

Product Name: 24GHz Large-space presence sensor (Dali 2.0 version)

Product Model: MSA213D 99

Product Version: V1.0

| Versions | Release/ change Date | Publishing |
|----------|----------------------|------------|
| V1.0 | 2023.03.22 | Jacky |
| | | |

【Product Description】

MSA213D 99 is a 24GHz millimeter wave sensor based on the large-beam orthogonal half-wave foldback antenna patented by Mindray Technology. It has high antenna gain and wide sensing range. Combined with the unique software algorithm of Merrytek, it can realize Accurate detection of subtle movements brought about by human vital signs(like human breath) in almost all indoor spaces, and at the same time, through Dali 2.0 communication technology, it provides fast and accurate front-end sensor input for scenarios such as smart homes, smart hotels, and smart offices based on human presence.

【Product Feature】

- Merrytek patent human breath detection technology
- Detect presence / absence status accurately
- Daylight threshold / daylight harvesting function
- Dali 2.0 signal output
- Apply 24GHz mm microwave technology
- Same detection range for breath,slight motion and motion signal
- Detection range: 4-6 in diameter
- Circled radiation pattern without blind detection area
- Parameters can be set by remote
- Not affected by temperature, humidity, noise, airflow, dust, light and other environments
- Blind time from absence to presence status: 0.5s
- Blind time from presence to absence status: over 30s
- Realization of intelligent perception function based on Doppler radar technology
- Ultra low RF power output, harmless to human health



【Applied fixture】

- Panel
- Linear
- Ceiling lamb
- Kitchen and bathroom lamp

【Housing】

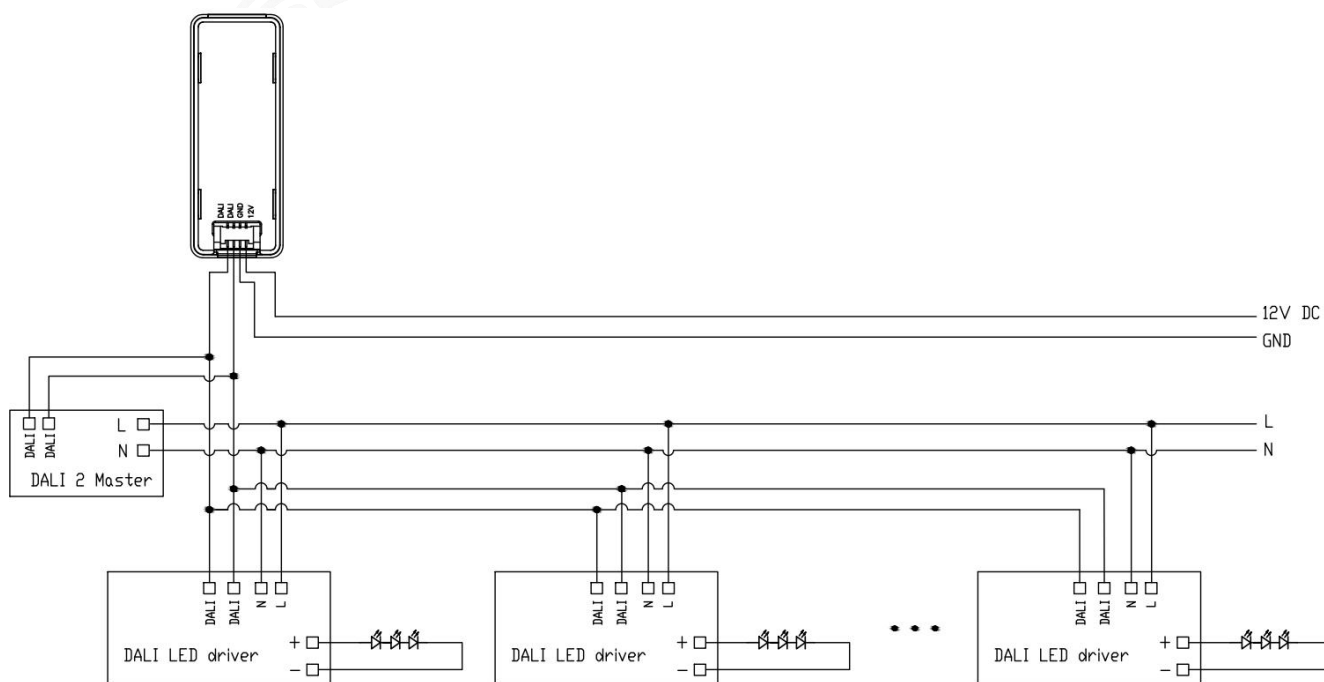
- Dimension: 50*19*19mm
- Wiring: by 4 pin terminals

【Parameters】

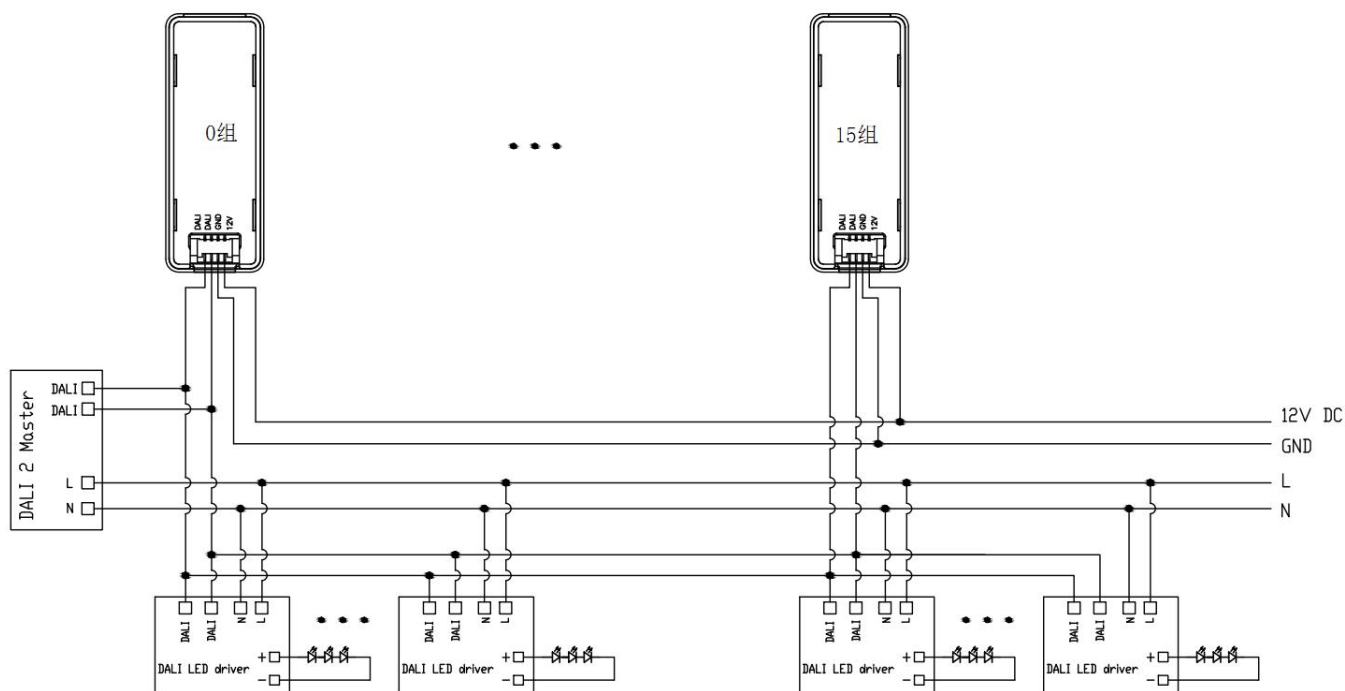
| | | |
|---------------------------|------------------------------|---|
| Input/Output | Input voltage | 12-24V DC |
| | Rated voltage | 12V DC / 24V DC |
| | Working current | ≤50mA (@Vdc=12V) ≤30mA (@Vdc=24V) |
| | Ripple voltage | <100mVp-p |
| | Power consumption | ≤0.6W @12V DC |
| | Output signal | DALI 2.0 |
| Sensor parameters | Operating Frequency | 24GHz-24.25GHz ISM band |
| | Microwave Transmitting Power | 3dBm Max |
| | Detection Area | 遥控器 MH10 设置: 100% 75% 50% 25% |
| | Hold time | Dali 主机设置: 1s -30min (本产品前端固定延时 5s,故而设置 1s 的时候, 实际延时会是 61s) |
| | Daylight measure range | 0-1200Lux |
| | Detecting Area (100%,radius) | Normal movement detection (3m in height) : 2-3m |
| | | Presence detection (3m in height) : 2-3m |
| | Remote control | available |
| | 安装高度 | 2.5-4m, 典型值:3m |
| | 3db beam angle | 80° (horizontal) |
| | | 96° (Vertical) |
| Communication protocol | DALI 2.0 | IEC62386-101 IEC62386-103 IEC62386-303 IEC62386-304 |
| Environment | Operating Temperature | 0℃...+50℃ |
| | Storage Temperature | -25℃...80℃ humidity:≤85% (no condense) |
| Certificate | Complied by | FCC / RED |
| | Environmental requirements | Comply with RoHS |
| | IP rating | IP20 |
| | Others | N/A |
| Note: | | |
| "N/A" means not available | | |

【Wiring diagram】

Broadcast mode:



Group mode:



【Detection signal instruction】

- **Normal motion signal:** detect normal movement (walking) in detection range
- **Presence(breath) signal:** signal from human respiratory vital (abdominal cavity and thoracic cavity expansion behavior)

Note: Presence and normal movement signal are motion signal

【Default setting】

Detection area: 100%(low sensitivity) Hold time: 1min

【Remote control instruction】

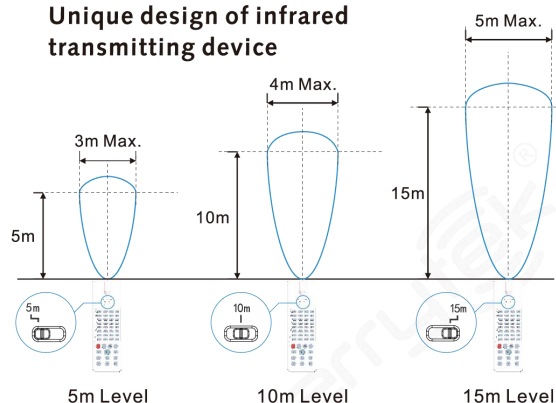
| Remote Control Setting | Button | Remarks |
|------------------------|--------------------|---|
| | ON/OFF | Press "ON/OFF", the load lamp will enter normal ON mode, sensor function will be override. In normal ON mode, DIM+ / DIM- can be used to dim up / down load. Dimming level has memory after restart power supply. |
| | Reset | Press "RESET", sensor parameters return to default setting. |
| | Sensor motion | Press "Sensor motion", return to sensor mode (previous parameters setting is valid) |
| | DIM Test | Press "DIM Test", automatically test dimming function and correct wiring. After 2S, return to previous status. |
| | Override DH | Long press >3S, exit daylight harvesting mode, back to daylight threshold mode |
| | DIM+ DIM - | Short press "DIM+/DIM-" to dim up/down load, each press will dim 2% of full power; long press will dim up/down load, Load power is adjusted in 1% increments; Dimming range: 10% to 100% (only applicable for sensor with daylight harvesting function) Note: Press "DIM+ / DIM-" to dim up/down load in normal ON mode |
| | DH Mode | Long press >3S, exit daylight harvesting mode, back to daylight threshold mode |
| | Q1 Q2 Q3 | QS1: High Sensitivity Mode QS2: Low Sensitivity Mode QS3: N/A Note: High Sensitivity Mode is suitable for ceiling light, downlight and other lights with mounting heights of 2.5-3.0m. Low Sensitivity Mode is suitable for strip light and other lights with mounting heights of 1.8-2.5m. |
| | TEST 2S | N/A |
| | HS LS | HS: Turn ON indicator light LS: Turn OFF indicator light |
| | Daylight Sensor | Set up daylight threshold: 5LUX/30LUX/100LUX/Disable(N/A for other keys) |
| | Stand-by period | Set up stand-by time: 0S/10S/1min/3min/5min/10min/30min/+∞ |
| | Hold time | Set up hold time: 5S/30S/1min/3min/5min/10min/20min/30min |
| | Stand-by dim level | Set up stand-by dim level: 10%/20%/30%/50% |
| | Detection Area | Set up detection area: 25%/50%/75%/100% |
| | Remote Distance | Toggle bottom can set the remote distance of remote control and sensor. |

Remote control and code setting conversion

1. DIP switch setting convert to remote control Press any bottom except "RESET" on the remote control, and the sensor settings convert to the function currently selected by the remote control.
(No function button settings invalid)

2 remote control convert to DIP switch setting
Turn off the power, toggle any DIP switch, connect to the power, and all settings return to the DIP switch settings when supply power again.

Unique design of infrared transmitting device



【Disclaimer】

Due to the complexity of product technology and differences in application environment, it is difficult to guarantee a completely accurate or complete description, so this specification is only for user reference.

We will reserve the right to make changes to the product specifications without notifying the user, and do not make any commitments and guarantees in the legal sense.

At the same time, our company encourages users to supplement or modify the contents of our specifications after using our products.