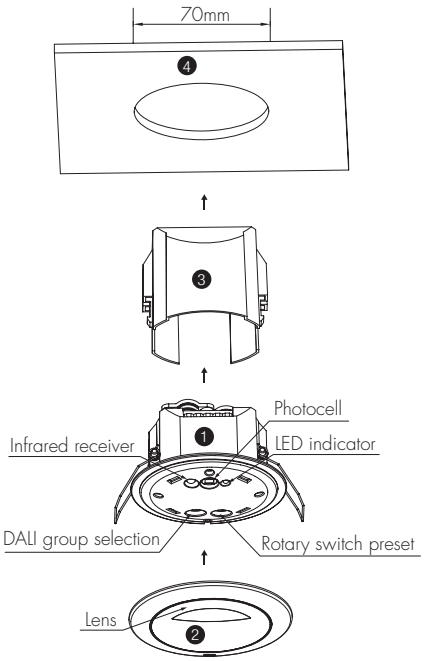
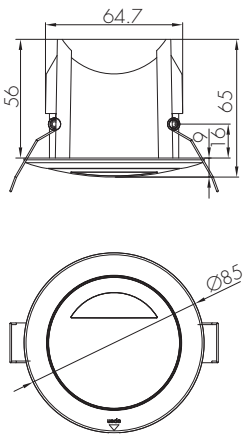
Stand-alone HF Motion Sensor

HMW23
Tri-level Control for System DALI

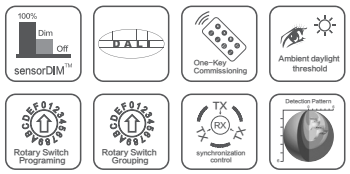
HYTRONIK®

Mechanical Structure





(1) Sensor inset
(2) Lens pluggable
(3) Protection cover
(4) Ceiling (drill hole Ø70mm).



Note:We recommend the mounting distance between sensor to sensor should be more than 2m to prevent sensors from false-triggering.

Technical Data

Input Characteristics

Model No.	HMW23
Operating voltage	9.5 ~ 22.5VDC
Stand-by power	<0.5W
Input current	Approx. 12mA
Warming-up	20s

Sensor Data

Model No.	HMW23
Sensor principle	High Frequency (microwave)
Operation frequency	5.8GHz +/- 75MHz
Transmission power	<0.2mW
Detection range	Max. (Ø x H) 12m x 6m
Detection angle	360°

Safety and EMC

EMC standard (EMC)	EN55015, EN61000
Safety standard (LVD)	EN60669, AS/NZS60669
Radio Equipment (RED)	EN300440, EN301489, EN62479
Certification	Semko, CB, CE, EMC, RED, RCM

Environment

Operation temperature	Ta: -20°C ~ +50°C
IP rating	IP20

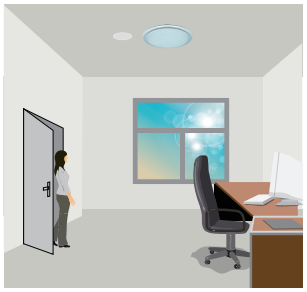
CE emc RED CB IP20

This DALI sensor is designed for incoporated in the DALI system, taking command from the DALI master, accepting and carrying out the grouping work with up to 64 lumanaires. It can switch on/off, or dim the assigned group members and feed back the status to the DALI master.

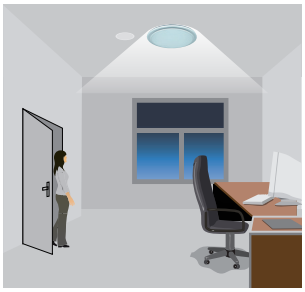
Functions and Features

1 Tri-level Control (Corridor Function)

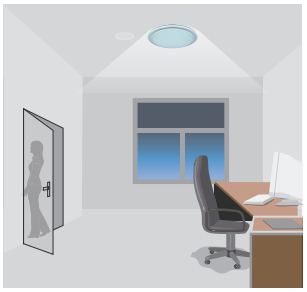
Hytronik builds this function inside the motion sensor to achieve tri-level control, for some areas which require a light change notice before switch-off. The sensor offers 3 levels of light: 100%-->dimmed light -->off; and 2 periods of selectable waiting time: motion hold-time and stand-by period; Selectable daylight threshold and freedom of detection area.



With sufficient natural light, the light does not switch on when presence is detected.



With insufficient natural light, the sensor switches on the light automatically when presence is detected.



After hold-time, the light dims to stand-by level.

Light switches off automatically after the stand-by period elapses.

2 Synchronisation Function

By connecting the DALI terminals in parallel (see wiring diagram), no matter which sensor detects motion, all HMW23 in the group will turn on the lights when surrounding natural light is below the daylight threshold. The detection area could be widely enlarged in this way.

DALI Grouping Selection

DALI group configuration can be done either on PC, or on the rotary coding switch:

a. There are 16 channels available on the rotary switch. "0" is for DALI broadcast, the rest 15 channels are for end-user to define the application unit.

b. PC grouping can overwrite rotary switch grouping, and vise versa. The last setting controls.

The rotary switch channels are corresponding to the groups listed below:

DALI group selection

Switch channel	DALI group	Switch channel	DALI group
0	broadcast	8	group 7
1	group 0	9	group 8
2	group 1	A	group 9
3	group 2	B	group 10
4	group 3	C	group 11
5	group 4	D	group 12
6	group 5	E	group 13
7	group 6	F	group 14

Rotary Switch Preset

A rotary switch is built inside the sensor for scene selection / fast programming. Total 16 channels are available:

Rotary switch preset

Note: settings can also be changed by remote control HRC-11. The last action controls.

Channel	Detection range	Hold-time	Daylight sensor	Stand-by time	Stand-by dim level
0	100%	5s	Disable	10s	10%
1	100%	1min	2Lux	5min	10%
2	100%	5min	10Lux	10min	10%
3	100%	5min	30Lux	30min	10%
4	100%	5min	10Lux	0s	Disable
5	100%	5min	30Lux	+∞	10%
6	100%	5min	Disable	+∞	30%
7	100%	10min	2Lux	10min	10%
8	100%	10min	10Lux	30min	10%
9	100%	10min	30Lux	+∞	10%
A	100%	10min	Disable	+∞	30%
B	75%	10min	30Lux	+∞	10%
C	50%	10min	10Lux	+∞	10%
D	100%	30min	50Lux	+∞	10%
E	100%	30min	Disable	+∞	30%
F	100%	5s	2Lux	10s	10%

Settings (Remote Control HRC-11)

ON/OFF Permanent ON/OFF function

Press button "ON/OFF" to select permanent ON or permanent OFF mode.
* Press button "AUTO", "RESET" to quit this mode.
The mode will change to AUTO Mode after power failure.

RESET Reset Settings

Press button "RESET", all settings go back to rotary switch settings.

Shift Shift Button

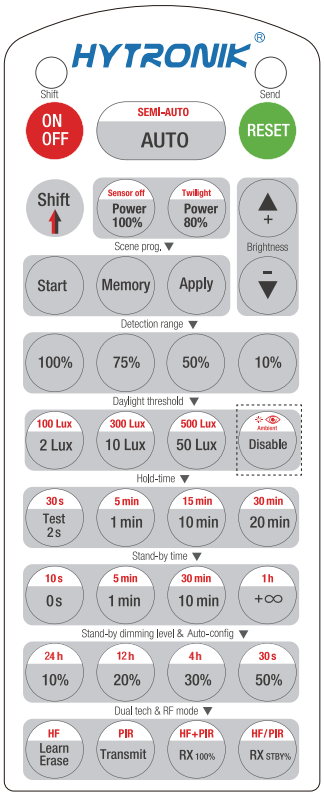
Press button "Shift", the LED on the top left corner is on to indicate mode selection.
All values / settings in RED are valid for 20 seconds.

SEMI-AUTO AUTO AUTO mode

Press button "AUTO" to initiate automatic mode. The sensor starts working and all settings remain as before the light is switched ON/OFF.
Note: the function of Semi-auto is disabled.

Sensor off Power 100% Twilight Power 80% Power output

Press the buttons to select light output at 80% (at initial 10,000 hours) or 100%.
Note: "Sensor off" and "Twilight" functions are disabled.



HRC-11

Brightness +/-

Press the buttons to adjust the light brightness during hold-time.

Scene program - *1-key commissioning*

1. Press button "Start" to program.
2. Select the buttons in "Detection range", "Daylight threshold", "Hold-time", "Stand-by time", "Stand-by dimming level" to set all parameters.
3. Press button "Memory" to save all the settings programmed in the remote control.
4. Press button "Apply" to set the settings to each sensor unit(s).

For example, to set detection range 100%, daylight threshold Disable, hold-time 5min, stand-by time +∞, stand-by dimming level 30%, the steps should be: Press button "Start", button "100%", "Disable", "Shift", "5min", "Shift", "+∞", "30%", "Memory". By pointing to the sensor unit(s) and pressing "Apply", all settings are passed on the sensor(s).

Detection range

Press buttons in zone "Detection range" to set detection range at 100% / 75% / 50% / 10%.

Daylight threshold

Press buttons in zone " Daylight threshold" to set daylight sensor at 2Lux/ 10Lux / 50Lux / 100Lux/ 300Lux/ 500Lux or Disable.

Ambient daylight threshold

1. Press button "Shift", the red LED starts to flash.
2. Press button "Ambient", the surrounding lux level is sampled and set as the new daylight threshold.

Hold-time

Press buttons in zone "hold-time" to set the hold-time at 2s / 30s / 1min / 5min / 10min / 15min / 20min / 30min.

Note: 1. To set hold-time at 30s / 5min / 15min / 30min, press "Shift" button first.

2. 2s is for testing purpose only, stand-by period and daylight sensor settings are disabled in this mode.

*To exit from Test mode, press button "RESET" or any button in "Hold-time".

Stand-by time (corridor function)

Press buttons in zone "stand-by time" to set the stand-by period at 0s / 10s / 1min / 5min / 10min / 30min / 1h / +∞.

Note: "0s" means on/off control; "+∞" means bi-level control, the fixture is 100% on when there is motion detected, and remains at the stand-by dimming level when no presence after motion hold-time.

Stand-by dimming level

Press the button in zone "stand-by dimming level" to set the stand-by dimming level at 10% / 20% / 30% / 50%.

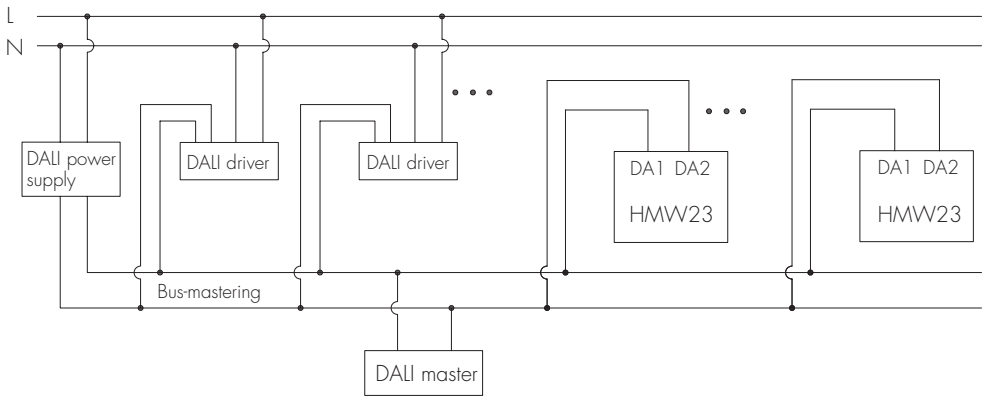
Auto-configuration function

All buttons in this zone are disabled.

Dual tech & RF mode

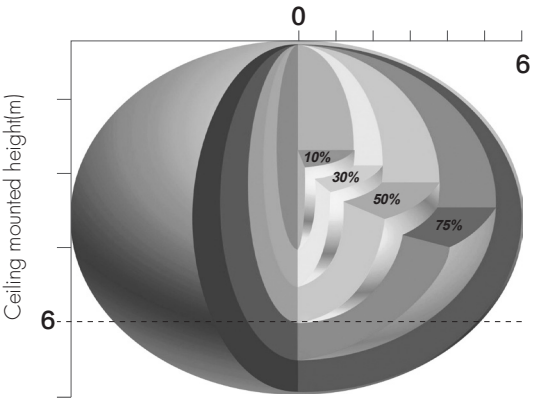
All buttons are disabled.

Wiring Diagram



1. 200 metres (total) max. for 1mm² CSA (Ta = 50℃)
2. 300 metres (total) max. for 1.5mm² CSA (Ta = 50℃)

Detection Pattern



Additional Information / Documents

1. Regarding precautions for microwave sensor installation and operation, please kindly refer to www.hytronik.com/download ->knowledge ->Microwave Sensors - Precautions for Product Installation and Operation

2. Regarding Hytronik standard guarantee policy, please refer to www.hytronik.com/download ->knowledge ->Hytronik Standard Guarantee Policy