Coldstore Door Alarm System
Installation and Operating Instructions

Model	Door Sentry
Reference	manual_full_ csd001_A01.pdf
Revision	A01
Date	10 02 2010

Contents

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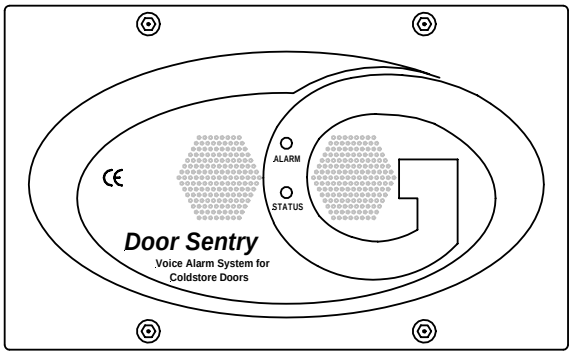
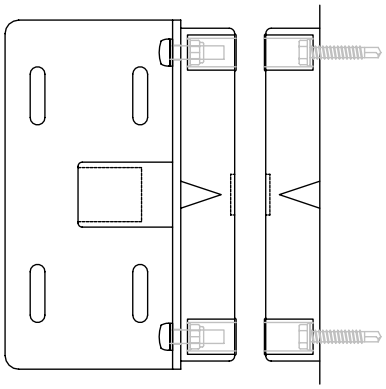
1. System description

The Guardian Door Sentry system comprises a tamperproof wall amounted speech message alarm unit, and a door position switch comprising two sensor modules.

a. The main unit is mains powered, with built in speakers and LED indication of status, it also incorporates interfaces to the door switch sensors, 3rd party alarm systems and data communications.



b. The door position switch comprises two sensor modules, active and passive. The active sensor is electrically connected to the main unit (5M max) and is fitted to the door mullion (or other fixed part of the framing). The passive sensor is fitted to the door edge and aligned such that it is in close (10mm) proximity of the active sensor – when the door is in the closed position.



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2. Supplied Components List

			Main Unit	Active Sensor	Passive Sensor
1	Control unit		1		
2	Active Sensor			1	
3	Passive Sensor				1
4	Blanking Plug			4	4
5	Sensor Bracket Sml			1	
6	Sensor Bracket Lrg			1	
7	Screw 4.8 25 SD		3	1	
8	Screw No10 x 40		3	4	
9	Pan Posi M5 x 20			4	
10	Hex Sec M5 x 12		4		
11	Nyloc Nut M5			4	
12	Flat Washer			12	
13	Wall Plug		3		
14	White Screwcap			4	
15	Conduit Fitting F		2	1	

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3. Installing The Main Unit

a. Provision Of Power Supply

The door sentry system requires a 240Vac 6A rated supply. It should be directly connected to the mains via a protected circuit in an existing coldstore electrical panel or via a fused spur.

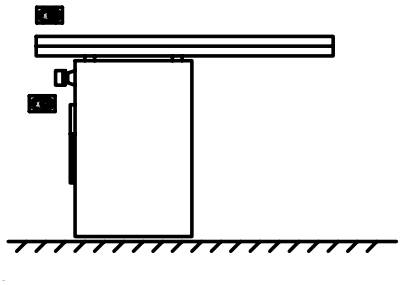
Cable entry can be either top or bottom of the main unit (20mm knockouts) female adapters for 20 mm PVC conduit are provided.

Note mains cable is not provided and should chosen as per site requirements (Minimum 1mm² 250V rating)

b. Placement

The unit is ideally to be positioned closest to the door opening (within 5M of the door position sensors)

A alternative position is above the door track.



Typical LHS placement

Actual RHS placement

c. Fixing

The unit fixes to the wall with 3 screws, after removing the cover, hold the unit against the wall and mark though the holes (note the top two are keyed)

For fixing to blockwork use the 3 No10 x 40 Screws and plugs provided,

For steel skinned panelwork use the 3 25mm Self drilling screws

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4. Installing The Sensor Modules

a. Active Sensor

The active sensor (Which has terminals to the rear) is fitted to a bracket, which is attached to a fixed part of the door framework. Two depths of bracket are provided for best fitment depending on actual door construction.

Temporarily fit the sensor to the bracket (the 20mm hole is for the conduit cable to pass through into the back of the sensor)

Note the bracket can be fitted tucked under the sensor or turned away from it.

Offer the sensor up to position whilst hand holding the passive sensor in a nominal position on the door edge. The sensors should not quite touch when the door is fully closed (5mm gap is ideal). The sensing range is 20mm maximum.

Once a suitable fit is found, remove the sensor and fix the bracket securely in place, using the No10 x 40 screws (plastic screwcaps are provided)

Bracket under

Bracket turned away

Now fit the conduit adapter to the bracket and install conduit to the main unit (top or bottom entry is possible)

Flexible conduit may be used if applicable

Contd

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4. Installing The Sensor Modules

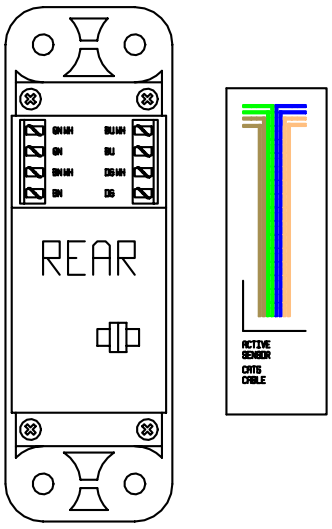
b. Active Sensor - Contd

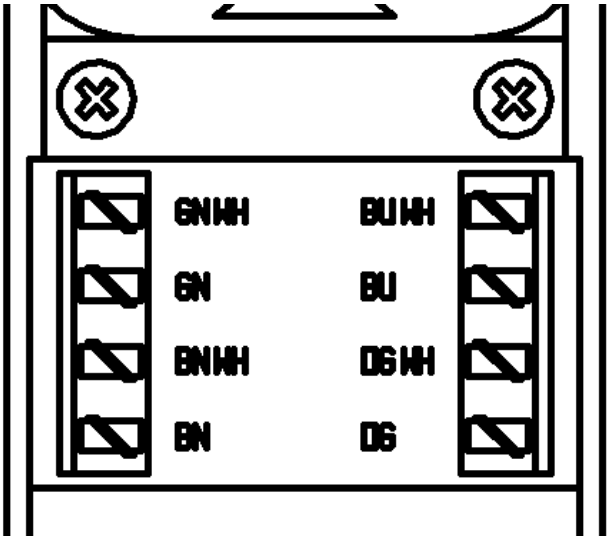
The sensor connection cable can now be pulled through the conduit and terminated at the Active sensor end.

Use only Cat 5 solid core 4 pair cable

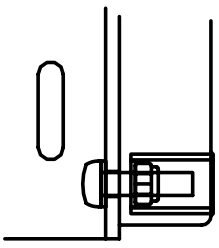
Using a punchdown tool connect each core (8 total) to the Krone blocks.

It is very important that the colour code is followed as damage to the sensor and main unit can occur through mis-connection.





After wiring the Sensor can be fixed to the bracket – Feed the M5 X 20 screws through a washer then the bracket and fit a washer and nyloc nut inside the sensor. When all are secured fit the push home blanking caps.



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4. Installing The Sensor Modules

c. Passive Sensor

The passive sensor is fitted to the door itself, to line up with the previously fitted active sensor.

Use 4 off 4.8 x 25 Self Drilling screw to attach the sensor to the leading edge of the door, when all are secured fit the blanking caps.

If the door design is unusual it is possible to use a bracket with a passive sensor to generate more diverse fitting options. (Additional hardware may be required)

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5. Electrical Connections

a. Main Unit – Essential Connections

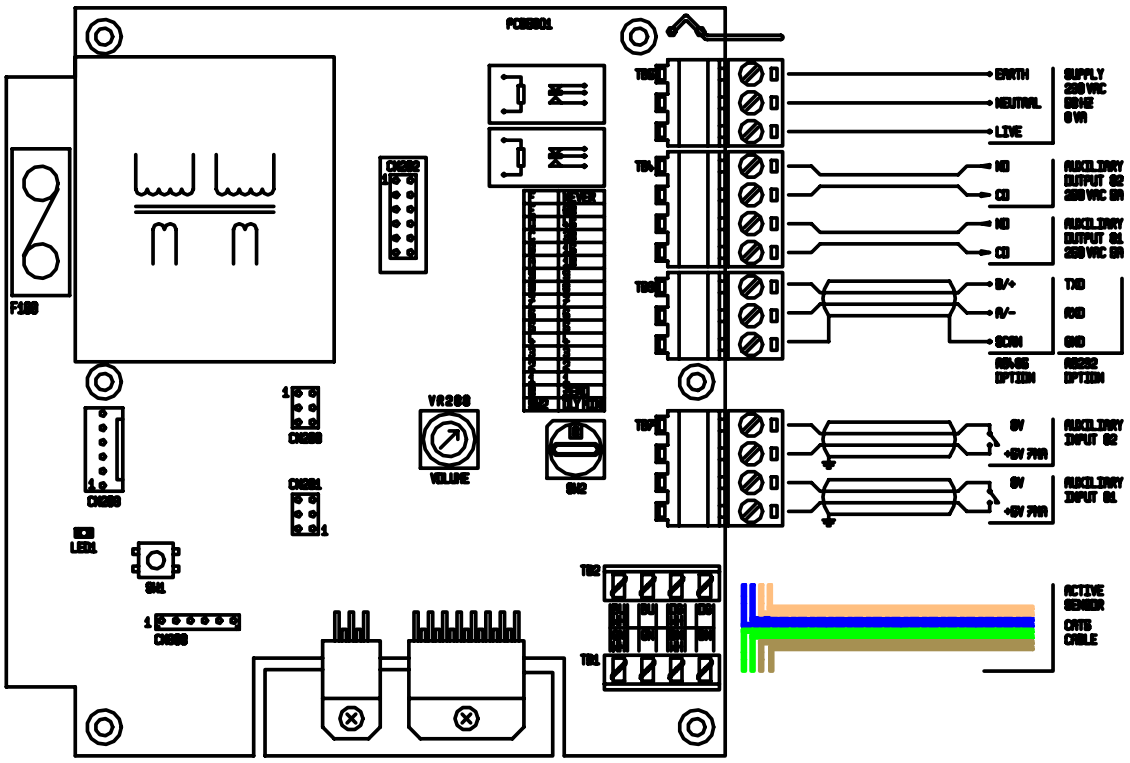
For basic operation only a mains supply and the door sensor need be connected.

Mains connection is to TB5 3 way Pluggable connector.

Sensor Connection is to the TB2 / TB3 Krone punchdown terminals.

It is very important that the colour code is followed as damage to the sensor and main unit can occur through mis-connection.

A connection legend is printed inside the unit.



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5. Electrical Connections

b. Main Unit – Auxiliary Outputs

Two auxiliary relays are available 01 and 02

Connection is via TB4 Pluggable terminal block

Relays are 250V 3A rated, if inductive loads are to be driven then suppression may be required.

The contacts are physically normally open – When used for alarm circuits the relays will be normally energized to provide a fail safe loop.

c. Main Unit – Auxiliary Inputs

Two auxiliary inputs are available 01 and 02

Connection is via TB4 Pluggable terminal block

The 0V terminal is at Earth potential, the positive IP is a 5V current source (Normially 10mA)

Connection should be made using a screened cable to a 3rd party volt free contact

The Inputs are considered active when the loop is closed

LED state indication is provided an the pcb adjacent to the connector.

Note.

Default settings use these inputs as normally closed loops.

If they are not required the inputs must be made de-active by a wiring loop.

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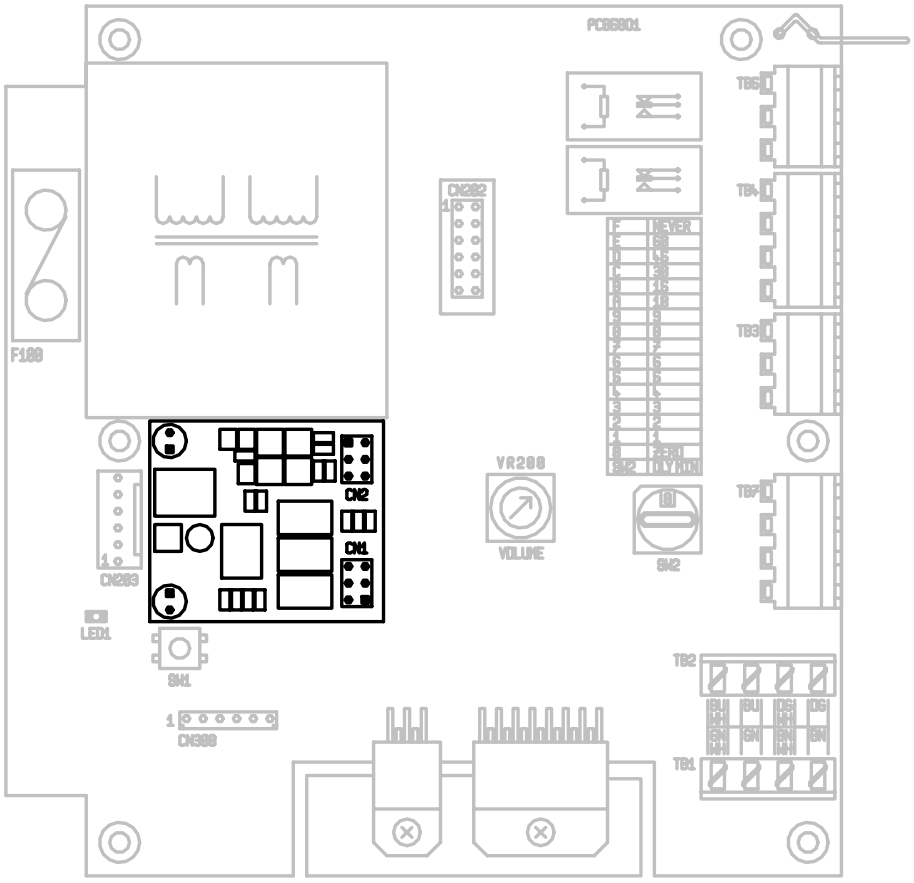
6. Fitting Optional Parts

a. RS485 – Communications Interface

Isolate the electrical supply to the main unit at source.

Remove the four security screws from the front panel, and release the panel by sliding it upwards.

Fit the RS485 module onto the two pin headers below the main transformer, use the supplied self adhesive pillar to provide additional support.



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7. Interfacing to 3rd Party Systems

a. Auxiliary Outputs

The two auxiliary outputs can be used to signal various conditions to 3rd party systems

Operation is software selectable using a communications interface (optional)

Default operation is.

Auxiliary Output	01 -	Normally open – closes if an alarm condition occurs Typical use – Remote alarm lamp
Auxiliary Output	02 -	Normally closed – opens if a alarm condition occurs. Typical use – Remote alarm system

b. Auxiliary Inputs

The two auxiliary inputs can be used to signal various conditions to the main unit.

Operation is software selectable using a communications interface (optional)

Default operation is.

Auxiliary Input	01 -	Normally closed loop – “Person Trapped” voice alarm
Auxiliary Input	02 -	Normally closed loop – “Gas Leak” voice alarm

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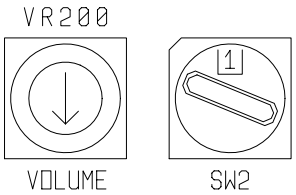
8. Testing the system

a. Basic operation

After installation is complete

Set the “Door alarm open timeout to 1 minute” and the volume control to 50%



Close the coldroom door (Sensors close) and then power up the main unit.

Status should be as follows

Green “Status” LED	On – Steady
Red “Alarm” LED	Off
Auxiliary output 01	Open – No alarm
Auxiliary output 02	Closed – No alarm
Auxiliary input 01	Inactive – Loop closed
Auxiliary input 02	Inactive – Loop closed

Open the door – (Sensors apart)

(The Green “Status” Led will now flash during the 1 minute timeout)
After 1 min the unit will change to alarm status and the following condition

Speech message “The Coldroom is open Please close the door”

Green “Status” LED	Off
Red “Alarm” LED	On - Flashing
Auxiliary output 01	Closed – Alarm
Auxiliary output 02	Open – Alarm

Close the door to reset to normal condition, “thank you message” will play.

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9. Basic Operational settings

Without the RS485 communication interface (Optional). It is only possible to set volume and door open alarm timeout.

a. Volume

Set the volume using VR200 on the main unit pcb to a sufficient level to attract attention.

Note. The level and tone does change considerably when the cover is fitted to the main unit.

b. Timeout

Set the door “open alarm timeout” period to the required delay using SW2 – 16 position rotary switch on the main unit pcb.

Note. After changing the timeout period, the new period will only be activated when the main unit is re-started.

The following timeouts are preset.

SW2	Timeout (Minutes)	
0	Instant	(Testing purposes only)
1	1	
2	2	
3	3	
4	4	
5	5	
6	6	
7	7	
8	8	
9	9	
A	10	
B	15	
C	30	
D	45	
E	60	
F	Never	(Testing purposes only)

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10. Normal operation

a Door status messages

When the coldstore door is closed, or opened for a period less than the timeout, no messages are played and the system is deemed to be in a healthy state.

If the door is left open for a period exceeding the timeout, then an alarm condition is generated, the Red Led will flash - Auxiliary output relays will change state and the following massage is played

"THE COLDROOM IS OPEN . . . PLEASE CLOSE THE DOOR"
Message will repeat every 10 seconds.

Closing the door will reset the alarm condition and the closure message will play

"THANK YOU"

If the door is left open for double the timeout period, then the escalation message is played.

"PRODUCE IS AT RISK . . . PLEASE CLOSE THE DOOR IMMEDIATELY"

Again, closing the door will reset the alarm condition and the closure message will play

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10. Normal operation cont'd

b. System status messages

Incorrect sensor operation, or suspected tamper (no door movement in 72 hours) will generate a fault condition, the fault message is played.

"THERE IS A SYSTEM FAULT . . . PLEASE NOTIFY ENGINEERING"

An open loop on Auxiliary input 01 will generate an alarm condition and cause a specific alarm message to be played.

EMERGENCY . . A PERSON IS TRAPPED IN THE COLDROOM . . PLEASE TAKE ACTION

NOTE – This condition requires a door OPEN condition to clear down.

An open loop on Auxiliary input 02 will generate an alarm condition and cause a specific alarm message to be played.

EMERGENCY . . THERE IS A GAS LEAK IN THE COLDROOM . . DO NOT ENTER . . PLEASE REPORT IMMEDIATELY

This condition will clear when the loop is re-closed.

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11. Communications

An RS485 – Communications Interface can be fitted permanently or temporarily, The following features are then available.

Write to the main unit and set advanced parameters.

Override Local settings for volume or timeout.

Read from the main unit, either its parameters or its live operational status.

Read door operation statistics and download a detailed activity log.

Load messages (eg alternative languages)

Modbus RTU protocol

RS 485 half duplex

2 Wire + (Screen / 0V)

19200 baud 8 n 2

The slave address is set using an internal push button and Led indicator within the main unit.

To set a slave address

Press and hold SW1 unitil the nearby LED is extinguished

Press SW1 repeatedly, one press = address one, five for five etc.

After a 5 second pause, the LED will flash a corresponding number of times to the address entered.

The LED will then remain on as normal operation is resumed.

The default slave address is 1

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12. Modbus Registers

a. Input registers

INPUT REGISTERS	
Register	**Description**
1	Door state 1 = closed, 0 = open
2	Alarm Relay (Normally open)
3	Alarm Relay (Normally closed)
4	Alarm Timer (counts down in seconds to zero)
5	Escalation Timer (Counts down in seconds to zero)
6	System Fault Timer (Counts down in minutes to zero)
7	Bit switch time (in minutes 255 = never alarm)
8	System Fault present :- 0 = ok 1 = fault door always closed eg closed for > 72 hours, 2 = fault input always low when not driven gives immediate system fault
9	Message in play :- 0 = no message, 1 = Alarm message, ***THE COLDROOM IS OPEN . . . PLEASE CLOSE THE DOOR!*** 2 = Escalation message, ***PRODUCE IS AT RISK . . . PLEASE CLOSE THE DOOR IMMEDIATELY!*** 3 = System fault message ***THERE IS A SYSTEM FAULT . . . PLEASE NOTIFY ENGINEERING!*** 4 = Thank you ***THANK YOU..*** 5 = Help message ***EMERGENCY! . . . A PERSON IS TRAPPED IN THE COLDROOM . . . PLEASE TAKE ACTION*** 6 = Gas Leak message ***EMERGENCY! . . . THERE IS A GAS LEAK IN THE COLDROOM . . . DO NOT ENTER . . . PLEASE REPORT IMMEDIATELY!***
10	Green LED state
11	Red LED state
12	Alarm reset timer (secs)
13	Accumulated Door open Hours as % of Run Hours
14	Accumulated Door Alarm Hours as % of Run Hours
15	EEProm Status Bank 1 (0=ok)
16	EEProm Status Bank 2 (0=ok)
17	Auxiliary Input 01 Status (0=open 1=closed)
18	Auxiliary Input 02 Status (0=open 1=closed)

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12. Modbus Registers cont'd

b. Holding Registers

HOLDING REGISTERS:		
Register	**Description**	**default**
1	Digital potentiometer wiper setting (max 60)	31
2	Alarm delay (minutes), if shorter than SW2 time then this will be used (255=Never)	255
3	Alarm reset delay (seconds) Alarm timers are reset only after the door has been closed for a period in secs	15
4	Escalation Alarm delay (minutes to add to Alarm delay)	5
5	System fault delay (minutes)	4320
6	Alarm message repeat (seconds)	10
7	Escalation message repeat (seconds)	30
8	System fault message repeat (seconds)	30
10	Reset all Hours, % and counters (0=no, 1= yes)	0
11	Accumulated Run Hours	Read only
12	Accumulated Door openings	Read only
13	Accumulated Door open Hours	Read only
14	Accumulated Door Alarms	Read only
15	Accumulated Door Alarm Hours	Read only

1001	Activity Log start (current entry in log)	
2024	End of Activity log	

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13. Troubleshooting Guide

a.	No Green Led	- Power to main unit not applied - Internal cable disconnected
b.	Door open message will not stop	- Sensor alignment - Fault on sensor wiring
c.	System fault message is played	- Door open longer than 72 hrs - Fault on sensor wiring
d.	No data communications	- RS485 board not fitted - Incorrect slave address - Wrong data format
e.	Gas / Trapped message	- Inputs must be short if not used
f.	Timeout not correct	- Re-start main unit after changing

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14. Specification

b. Main Unit

Supply	240 Vac 10VA
Sensor	1 X Dedicated 8 wire
Indication	2 X LED
Inputs	2 X 5Vdc 10ma For Voltfree loops
Output	2 X Relay 250Vac 3A rated
Audio	5 W Internal
Speakers	2 X 40mm Internal
Comms	RS485 (Optional)
Size (LWH) mm	245 150 40
Weight	

c. Active Sensor

Range	25mm
Connection	8 Wire Cat 5
Size (LWH) mm	125 40 20
Weight	

d. Passive Sensor

Range	25 mm
Size (LWH) mm	125 40 20
Weight	