SAFEHINGE PRIMERA

Clinical Staff User Manual

Full-door Ligature Alarm

Door Alarm Overview

The Full-door Ligature Alarm has been developed specifically for Mental Health inpatient environments to alert staff of ligature attempts made on doors.

What Does It Do?

Integrating seamlessly into Safehinge Primera (SHP) bedroom doorsets, the alarm turns the door into a large 'weighing scale' sensing additional weight applied during a ligature attempt.

If a ligature is detected an alarm will sound alerting staff to the emergency.

Which Doors Is It Installed On?

See "Appendix A - Site Details" for a floor plan detailing which doors feature a Door Alarm as well as Alarm System labels for each Door Alarm.

Ligature Alarms

What Conditions Will Trigger a Ligature Alarm?

The door must be closed (within 8 degrees of the latched position)
Vertical load applied that exceeds trigger threshold
Load above threshold for 5 seconds (up to 15 seconds if door has been closed for 20 secs)

How Does the Alarm Look and Sound?

When a Ligature is detected the Door Alarm will trigger an Alarm through the staff attack alarm system.

On most systems this will result in an audible alarm and a Room ID displayed on the alarm panel. Some system configurations may also include Over Door Lights to ease identification of the correct room.

The Door Alarm will continue to trigger an Alarm every 15 seconds until the door has been opened fully. You must open the door before cancelling the alarm or it will continue to re-trigger for up to 3 minutes.

For details on your ward's specific configuration see "Appendix B - Alarm System Integration Configuration".

Response to a Ligature Alarm

1. Check alarm display / over door lights to identify which Door Alarm is alarming
2. Go to room and evaluate the situation (Fully open the door to stop alarm re-triggering).
3. Cancel alarm using staff attack alarm system interface

Door Alarm Testing

Regular testing of the Full-door Ligature Alarm is essential to ensure that the system continues to work as intended throughout its service life.

Test tools

Ligature Test Tool - SHC96-203

The Ligature Test Tool is used to apply ligature loads to the door during testing.

Magnet Test Tool - SHC96-217

The Magnet Test Tool is used to enable Test mode and to mute the door buzzer.

Door Alarm Weekly Test (No Audible Alarm)

This test does not trigger an alarm through the Staff Alarm system.
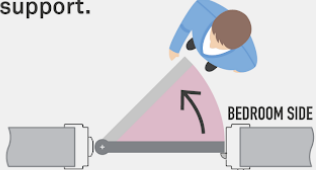Used to test that the Door Alarm system is working, **but does not test the connection to the Staff Alarm system.**
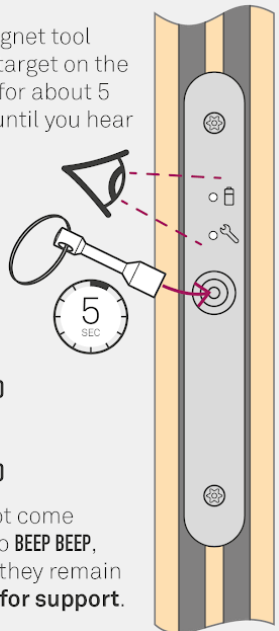
Full System Door Alarm Test (Audible Alarm)

Triggers an audible alarm through the Staff Alarm system, used to prove that the entire system is working as intended.

DOOR ALARM FULL SYSTEM TEST (AUDIBLE ALARM)

SAFEHINGE PRIMERA
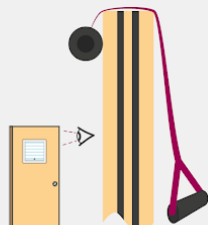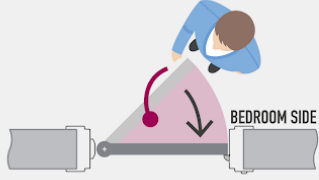
1.
Open the door and look at the door alarm cover plate at the bottom of the door.

If any lights are on, contact SHP for support.

BEDROOM SIDE
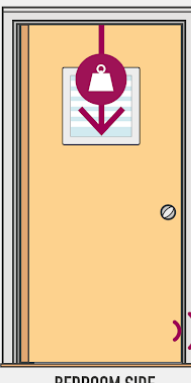
2.
Hold the magnet tool against the target on the metal plate for about 5 seconds or until you hear BEEP BEEP.

5 SEC

3.

"BEEP" "BEEP"

A flashing green light indicates that the door alarm has entered test mode.

● LOW BATTERY

● SYSTEM ERROR

If either light is red, **contact SHP for support** and then continue with the test.

○ NO LED

○ NO LED

If the lights do not come on and there is no BEEP BEEP, repeat Step 2. If they remain off, **contact SHP for support**.

4.
Hook the Ligature Test Tool over the top of the door but do not apply weight to it.

Close the door whilst standing inside the room.

BEDROOM SIDE

5.
After the door has closed, apply a downwards load to the door using the Ligature Test Tool.

Increase the load until you hear a continuous beeping. Hold this load.

BEDROOM SIDE

10 SEC

"BEEP" "BEEP" "BEEP" "BEEP"

6.
After 5 seconds of continuous beeping you will hear BEEP BEEP. Continue to hold the load until the Staff Alarm triggers (around 5 seconds).

7.
The test is now complete. Check that the Dashboard reflects this.

8.
A long, single BEEEEP indicates that the door has exited Test Mode. The lights on the door edge will also turn off.
If support is required please contact SHP.

OMT011   **www.safehingeprimera.com**   REV: 1 (20200731)

Door Alarm Testing Schedule

We recommend that you perform the Door Alarm Only Test on every Door Alarm at least once a week. The dashboard will remind you to complete these tests.

We also recommend that you complete Full System Tests at regular intervals to flush through the entire system.

Your clinical management team is responsible for setting a schedule for these tests.

Automatic Fault Detection

The Full-door Ligature Alarm continually monitors itself for faults that may prevent it detecting a ligature event.

It is possible that a fault could occur that the system is not able to detect automatically. Routine testing of the system is critical to ensuring that any undetected faults are noticed and corrected.

Possible Door Alarm Faults

Fault Name	Fault Description	Re-Trigger Period
Battery Low	Battery has reached 30% capacity.	Will re-trigger every 5% drop in battery capacity.
Connection to Alarm System	The Door Alarm can not confirm it's connection the Alarm System	This fault alert will trigger every 6 hours until it has been resolved.
Sensor Fault	There is a problem with the sensor.	This fault alert will trigger every 6 hours until it has been resolved.

Fault Alerts

If a fault has been detected an alert will be raised through a combination of the staff alarm system, door buzzer, email alerts, and the Dashboard depending on the configuration of your system. Please see "Appendix A - Site Details: Fault Alert Configuration" for details..

Responding to a Fault Alert

FULL DOOR LIGATURE ALARM
OPERATION & PROCESS FLOW

SAFEHINGE PRIMERA

Where was the fault identified?

- Email → Review the Dashboard
- Dashboard

Fault Alert
- Down System Fault
- Down V. Low Battery
- Unknown No Data → If the data has not re-connected after 5 minutes

Maintenance Alert
- Active Low Battery
- Active Test Required → Complete a "Door Alarm Weekly Test (Silent)"

Beeping at the Door

Go to the door that has the fault

Use the magnet tool to mute buzzer if sounding

Complete a "Full System Door Alarm Test"

- Successful Test → Non-urgent response required
- Unsuccessful Test → Inform the Ward Manager and adjust the clinical risk management procedure if necessary → Urgent response required

Email support@safehingeprimera.com with details of the fault and await response

Door Alarm Dashboard

The Dashboard has been developed to support the Full-door Ligature Alarms and provide Clinical and Estates teams with an immediate insight into the status of each Alarm.

The Dashboard should only be viewed from an area where Service Users cannot see the screen.

Each room fitted with a Door Alarm is listed on the Dashboard and the rows are RAG rated (Red, Amber, Green) to provide a quick, visual indication of the status. The Dashboard automatically refreshes and updates every 60 seconds, providing near real-time insights.

Accessing the Dashboard

The Dashboard can be accessed from any device with an internet connection and web browser by visiting: dashboard.shp.help

It is recommended that the Dashboard is displayed permanently on a dedicated screen located in the Staff Office. This set-up will ensure that any member of the Clinical team can notify their colleagues if they see a change in status for a Door Alarm.

It's recommended that the Ward Manager and Estates team check the dashboard at the start and end of a shift and adjust the clinical risk management procedure if necessary or schedule any upcoming maintenance requirements.

Dashboard Status Explained

The different dashboard status, their meanings and recommended actions are defined in the table below:

Colour	Status	Sub-Status	Meaning	Clinical Action
Green	**Active**		The Full-door Ligature Alarm has no known faults and has been tested in the last 7 days.	None Required.
Yellow	**Active**	Test Required	The Full-door Ligature Alarm has no known faults but it has been more than 7 days since it was tested.	Carry out a Test Alarm to ensure it is still working.
Orange	**Active**	Low Battery	The Full-door Ligature Alarm has no known faults but the battery is less than 30%.	Contact Safehinge Primera to arrange new batteries to be fitted within the next 14 days.
Orange	**Unknown**	No Data	The Dashboard is not receiving any data from the Full-door Ligature Alarm so the status is unknown.	Contact Safehinge Primera.
Red	**Down**	Very Low Battery	The battery is less than 5% and will run out within 12-24 hours.	Inform Ward Manager and adjust the clinical risk management procedure if necessary. Contact Safehinge Primera to arrange for an urgent battery replacement.
Red	**Down**	System Fault	There is a critical issue with the Full-door Ligature Alarm and it is not working.	Inform Ward Manager and adjust the clinical risk management procedure if necessary. Contact Safehinge Primera to fix the fault.

Appendix

Appendix A - Site Details

Alarm Names

Door / Room Name	Alarm System Identifier
Bed XYZ	Bed XYZ

Floor Plans

Include marked up floor plans showing which doors are alarmed

Fault Alert Configuration

Alert Type	Configured
Door Buzzer	Muted/Not Muted
Alarm System Fault Alerts	Yes/No
Email Alerts	Yes/No
Dashboard	Yes/No

Appendix B - Alarm System Integration Configuration

FCC WARNING
This device complies with part 15 of the FCC Rules. Operation is
subject to the following two conditions: (1) this device may not cause
harmful interference, and (2) this device must accept any interference
received, including interference that may cause undesired operation.
Any changes or modifications not expressly approved by the party
responsible for compliance
could void the user's authority to operate the equipment.
NOTE: This equipment has been tested and found to comply with the
limits for a Class B digital device, pursuant to Part 15 of the FCC
Rules. These limits are designed to provide reasonable protection
against harmful interference in a residential installation. This
equipment generates, uses and can radiate radio frequency energy and,
if not installed and used in accordance with the instructions, may
cause harmful interference to radio communications. However, there is
no guarantee that interference will not occur in a particular
installation.
If this equipment does cause harmful interference to radio or
television reception,
which can be determined by turning the equipment off and on, the user
is encouraged to try to correct the interference by one or more of the
following measures:
-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different
from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

Warning: Changes or modifications to this unit not expressly approved
by the part responsible for compliance could void the user's authority

to operate the equipment

FULL-DOOR LIGATURE ALARM
PRODUCT DATA SHEET

Detecting ligature attempts across the entire door.

PRODUCT OUTLINE

The Full-door Ligature Alarm has been developed specifically for Mental Health inpatient environments to alert staff of ligature attempts made across the entire bedroom door.

Integrating seamlessly into Safehinge Primera (SHP) bedroom doorsets, the alarm turns the door into a large 'weighing scale' sensing vertical weight changes - addressing the limitations of existing door top alarms.

The current intermittent observation of service users leaves blind spots of, for example, 14 minutes and 50 seconds every 15 minutes - this accumulates to 23hrs 44mins per day of 'blind spots'. The Full-door Ligature Alarm is designed as a supplementary aid to help reduce risk in these 'blind spots' and is not a replacement for good clinical risk assessment and management practices.

The Door Alarm intelligently filters out most false alarms by differentiating between everyday behaviours (such as locking the door) and ligature attempts. With active fault detection, staff are instantly alerted if the system detects a fault condition.

The Door Alarm is connected directly into an existing staff alarm system by an approved installer. Throughout its life, the Door Alarm will require regular simple

health checks by the building occupants to ensure that it is performing consistently. Details or the simple test procedure are available on request. In addition, we strongly recommend entering a Service Level Agreement (SLA) with SHP that will provide regular in-depth maintenance checks and ongoing support for this lifesaving product.

KEY FEATURES

Discreet - only the cover plate is visible to the service user, reducing ligature learning

Active fault detection - the system continuously monitors itself to detect fault conditions, it can then instantly alert ward staff to any problems

Connects to existing Staff Alarm - ligature alarms are sounded and displayed by and responded to via the Staff Alarm system providing continuity for ward staff

Filters false alarms - the algorithm has been developed to detect ligature events whilst minimising false alarms

Wireless Transmitter module - the transmitter unit is wireless, reducing time and disruption required to install

Remote Support and Data Logging - non personally identifiable information data is collected to aid in the maintenance of the Door Alarm. Enabling both remote support capability and the ability to review historical data


Disclaimer

The Full-door Ligature Alarm is designed to provide extra monitoring of the doors it is installed on - it helps monitor the door for certain types of load in the periods between intermittent observation. It is not a substitute for normal supervisory procedures in relation to people at risk nor is its presence a guarantee that self-harm events cannot take place. It is the customer's responsibility to fully assess the suitability of the product for the environment in which it is installed and ensure it is used as one of a range of measures to improve the safety of people deemed to be at risk. The product has a scope of performance as outlined below and, if it is not maintained, actual performance can differ. It is the customer's responsibility to understand and regularly test the door alarm function and then put the necessary procedures in place commensurate with the risk to complement the door alarm coverage.

PRODUCT DIAGRAM – DOOR ALARM

The Door Alarm has two main components, the Transmitter and the Sensing Strap, connected by a cable running within the bottom of the door leaf. The PCB within the Transmitter communicates wireless to the Receivers.

The Door Alarm will be pre-installed into a SHP doorset. The doorset must be installed and maintained by accredited SHP installers and the performance of the Door Alarm must be signed off by the ward manager (or person of similar seniority) during final commissioning.

Transmitter Housing

User Interface

Cover Plate

Sensing Strap
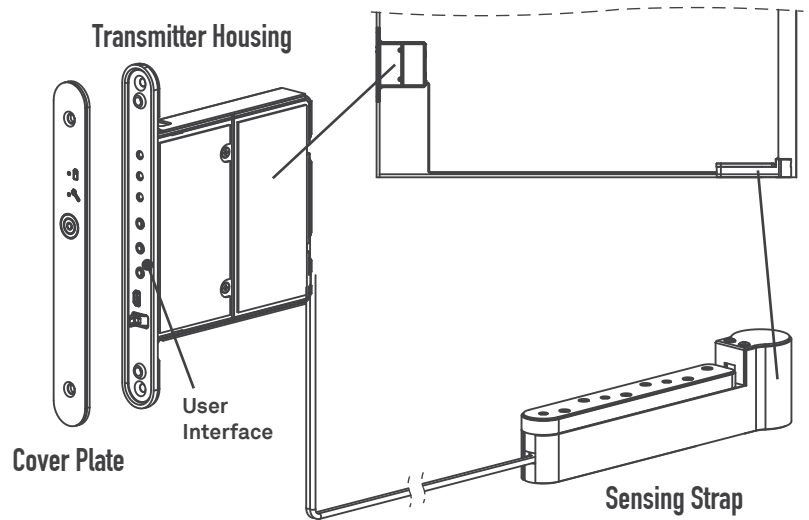
PRODUCT DIAGRAM – DOOR ALARM RECEIVER

The Door Alarm Receiver wirelessly communicates to the Door Alarms, providing a connection point for signal output to the staff alarm.

Door Alarm Receivers should be installed in non-patient areas, typically roof spaces or riser cupboards.
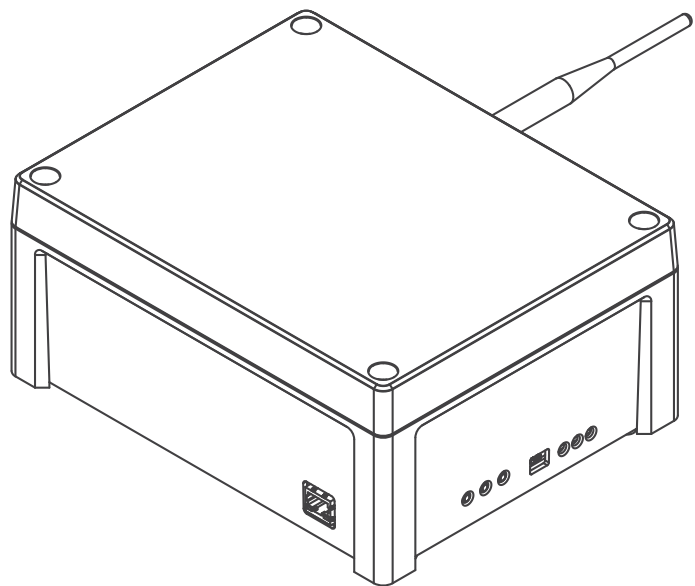
Safehinge Primera Service Level Agreement (SLA)

SHP can provide a SLA program to aid in the maintenance of the Door Alarm. The SLA maintenance programme is highly recommended as an additional service.

Please contact Safehinge Primera for details: info@safehingeprimera.com or 0330 058 0988.

B – Staff Alarm System (Not supplied by SHP)

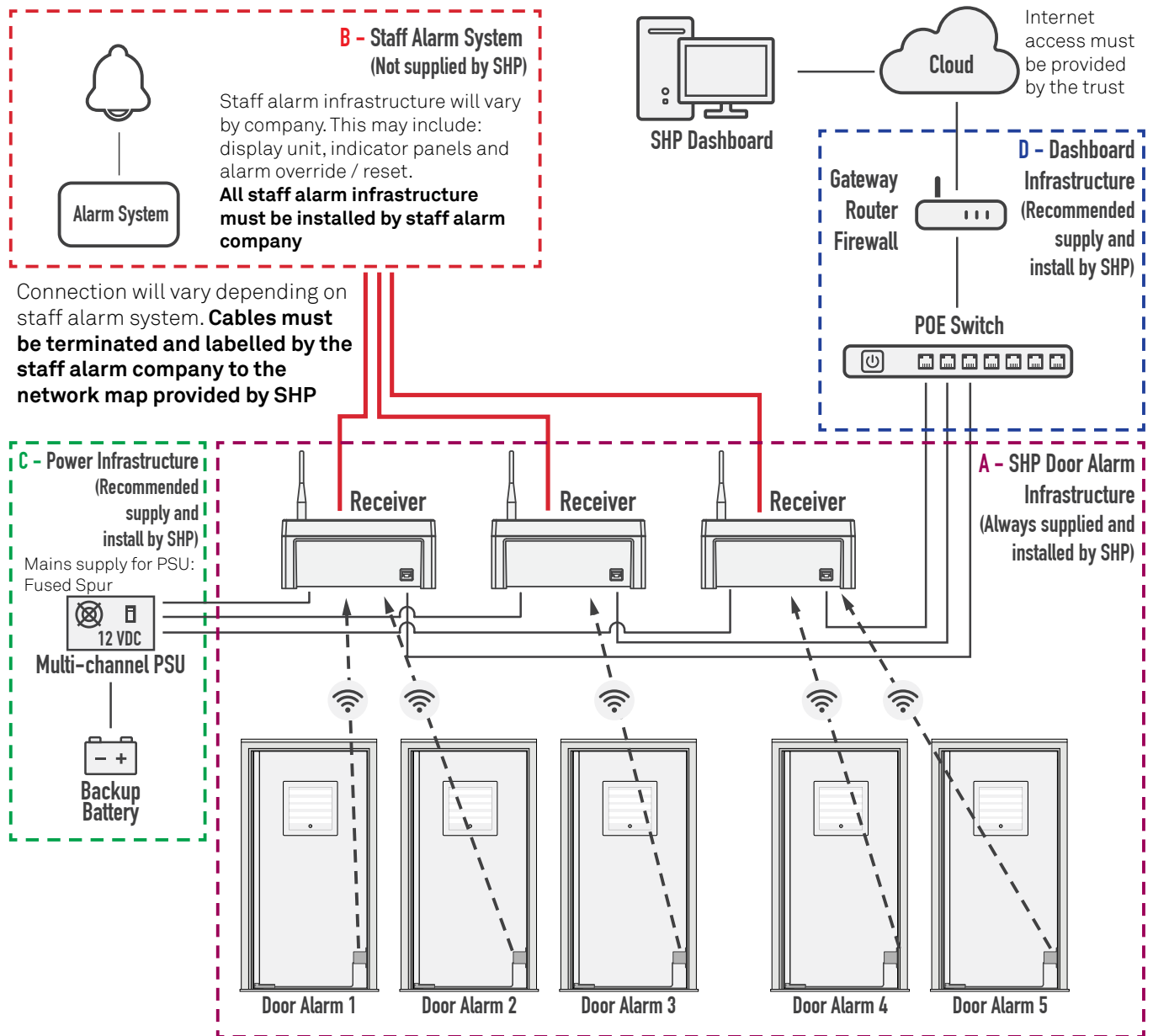Staff alarm infrastructure will vary by company. This may include: display unit, indicator panels and alarm override / reset. **All staff alarm infrastructure must be installed by staff alarm company**

Connection will vary depending on staff alarm system. **Cables must be terminated and labelled by the staff alarm company to the network map provided by SHP**

Alarm System

SHP Dashboard

Internet access must be provided by the trust

Cloud

Gateway Router Firewall

D – Dashboard Infrastructure (Recommended supply and install by SHP)

POE Switch

C – Power Infrastructure (Recommended supply and install by SHP)

Mains supply for PSU: Fused Spur

12 VDC

Multi-channel PSU

Backup Battery

Receiver   Receiver   Receiver

A – SHP Door Alarm Infrastructure (Always supplied and installed by SHP)

Door Alarm 1   Door Alarm 2   Door Alarm 3   Door Alarm 4   Door Alarm 5

Alarm Connection

The Full-door Ligature Alarm system connects directly into existing staff alarms. The Safehinge Primera Receiver physically wires in to the existing alarm system and wirelessly communicates with the Door Alarm installed within the door.

Each Receiver can connect to up to eight doors. The location of each Receiver must be surveyed in advance of installation to ensure a reliable connection to each Door Alarm.

Data Logging

Non-personally identifiable data is collected from each Door Alarm to assist in the maintenance of the system, this includes: door opening and closing events, ligature alarms, and maintenance alerts.

A reliable, wired, internet connection is required.

Cloud computing has been deemed a safe solution to store non-personal and confidential patient data. In line with UK government 'cloud first' policy, all data is hosted within the European Economic area.

TECHNICAL SPECIFICATIONS – TRANSMITTER

Power Input: 9V Alkaline battery pack

Battery Life: 6 - 12 Months (depending on use) **Radio Frequency:** 915.1MHz / 868MHz (US/EU) **Radio Range:** 15 m (depending on building fabrication) **Load Sensitivity:** < 10 Kg

Certification: CE & FCC

Fire Rating: up to FD30

Mechanical Performance: Suitable for Medium Secure Mental Health Wards

TECHNICAL SPECIFICATIONS – RECEIVER

Power Input: 9-36V DC (12 V 1A nominal)

Radio Frequency: 868MHz / 915.1 MHz (EU/US)

Radio Range: 15 m (depending on building fabrication)

I/O Ports: 16 No. dry (Volt Free) relay inputs (NO/NC Configurable)

1No. Ethernet Port

Certification: CE & FCC

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