

GARDiS Controller And Extension Modules

User Manual

UM0120 Issue 2

Foreword

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Cautions and Notes

The following symbols are used in this guide:



CAUTION! This indicates an important operating instruction that should be followed to avoid any potential damage to hardware or property, loss of data, or personal injury.



NOTE. This indicates important information to help you make the best use of this product.

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1. Introduction

Thank you for purchasing your TDSi GARDiS Controller door access control system.

There are 3 main types of GARDiS master controller: -

- **GARDiS 1**
 - 1-door controller with connections for 1-2* readers.
- **GARDiS 2**
 - 2-door controller with connections for 2-4* readers.
- **GARDiS 4.**
 - 4-door controller with connections for 4-8* readers.

The GARDiS controller is operated independently and requires no separate software installation.

Configuration of the access control system is provided to the user via an embedded web server that can be accessed from any compatible web browser.

The GARDiS controller can operate as a master controller with up to 10** extension modules. Extension modules include: -

- **Slave GARDiS controllers** that can allow capacity for up to 44 doors.
- **I/O modules** allowing the monitoring and control of equipment.
- **Wireless IP Locks***.**

More information on these extension modules will also be provided in this manual along with installation guides.

This manual will guide you through the installation of GARDiS controllers.

* The upper limit requires TDSi readers for the Reverse LRC protocol (In/Out Readers). Limited functionality is available with this configuration.

** Licensing dongle is required to allow more doors on the system.

*** Wireless IP Locks is limited to 10 doors.

2. Information and Recommendations

In accordance with the European directive UTE C00-200 incorporating directives 2004/108/CE, GARDiS complies with the following standards:



- NF EN 50081-1 governing electromagnetic radiation
- NF EN 50082-1 governing electromagnetic susceptibility

Wiring Recommendations

Cables used to connect readers, network and other devices must be installed in accordance with the Level 2 (protected environment) instructions of NF EN 61000-4-4 standard.

Installation Recommendations

This product must be installed by a qualified company. Improper installation and use may result in risk of electric shock or fire. Before carrying out the installation, read the technical instructions and follow the product mounting recommendations.

Mains Power Supply Recommendations

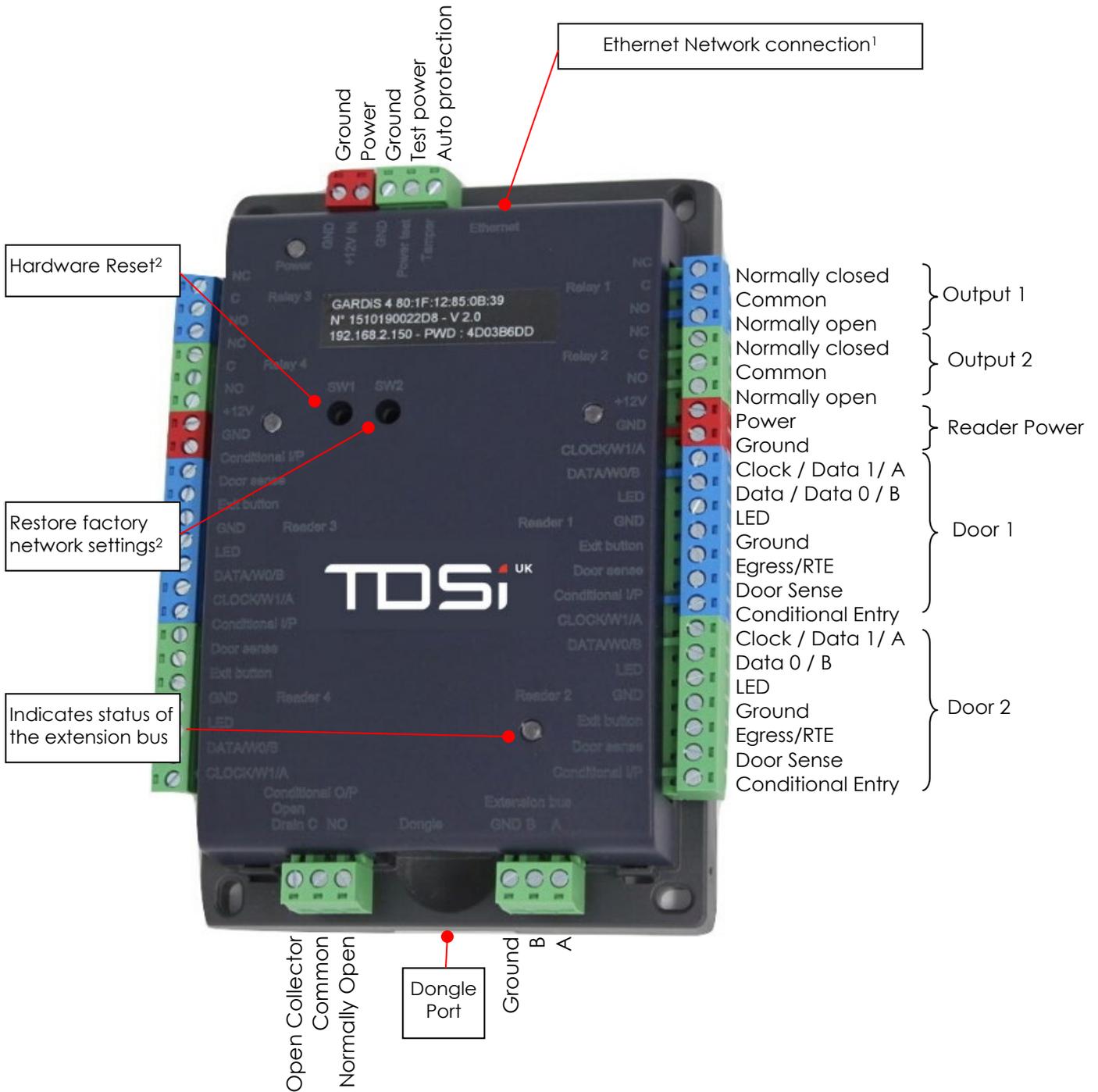


When using mains power supply, once the power is turned off, all the internal capacitors will discharge to a safe level after 60 seconds under normal conditions. However, in the event of a power failure, the discharge may take a much longer time and appropriate precautions must be taken before handling the product.

3. Specification

TDSi Part No.	GARDiS 1 5002-6001 GARDiS 2 5002-6002 GARDiS 4 5002-6004
Dimensions	170 x 116 x 40 mm
Weight	257 g
Operating Environment	0°C to + 50°C, 0 – 95% Relative Humidity (non-condensing)
Power	
Input	9 to 14 Vdc 1A (without PSU) 100-240Vac, 50-60Hz, 1.8A max (PSU) POE+/PoE++ IEEE 802.3at/bt (with PoE module)
Output	PSU: 1 x 13.8Vdc 3A and 1 x 13.8Vdc 2A; Battery Charging: 13.8Vdc, 0.5A
Battery	10.5 to 12.3Vdc 1 x 7Ah Sealed lead acid (optional)
Features	
Max	5000 Credentials
Doors	1,2 or 4 doors
Readers	Up to 2 TDSi readers per reader channel in a read-in read-out configuration. Alternatively, 1 reader per door equipped with industry standard clock & data, Wiegand multiformat or RS 485 output formats.
Inputs	1 per door Additional available with I/O Module
Outputs	Control Relay: 1 A / 12V - 1A / 24v 1 used per installed door GARDIS 1: 2 Outputs GARDIS 2: 3 Outputs GARDIS 4: 5 Outputs
Expansion Options	GARDiS 4+ (4 door); 8 Inputs/8 Outputs module; Wireless IP Locks
Time Groups	128
Anti-Passback	Timed and true
Mantrap Function	Yes
Communications	TCP/IP and RS 485 for extension modules

4. GARDiS Connections



¹ Default IP Address is 192.168.2.150 Subnet Mask 255.255.255.0

² See chapter 14, How to Use the Reset Buttons

4.1 Power Test Connection

This input can be connected to a PSU Power Test output (active if the 220V is lost or if the batter is faulty). **When this input is active, the unit generates an event “Power Supply Failure”.**

4.2 Conditional

This is a configurable input. For example, this can be used to: -

- check an active alarm before allowing a person entry OR
- can be used to check a sensor, such as vehicle present/break glass sensor before allowing entry.

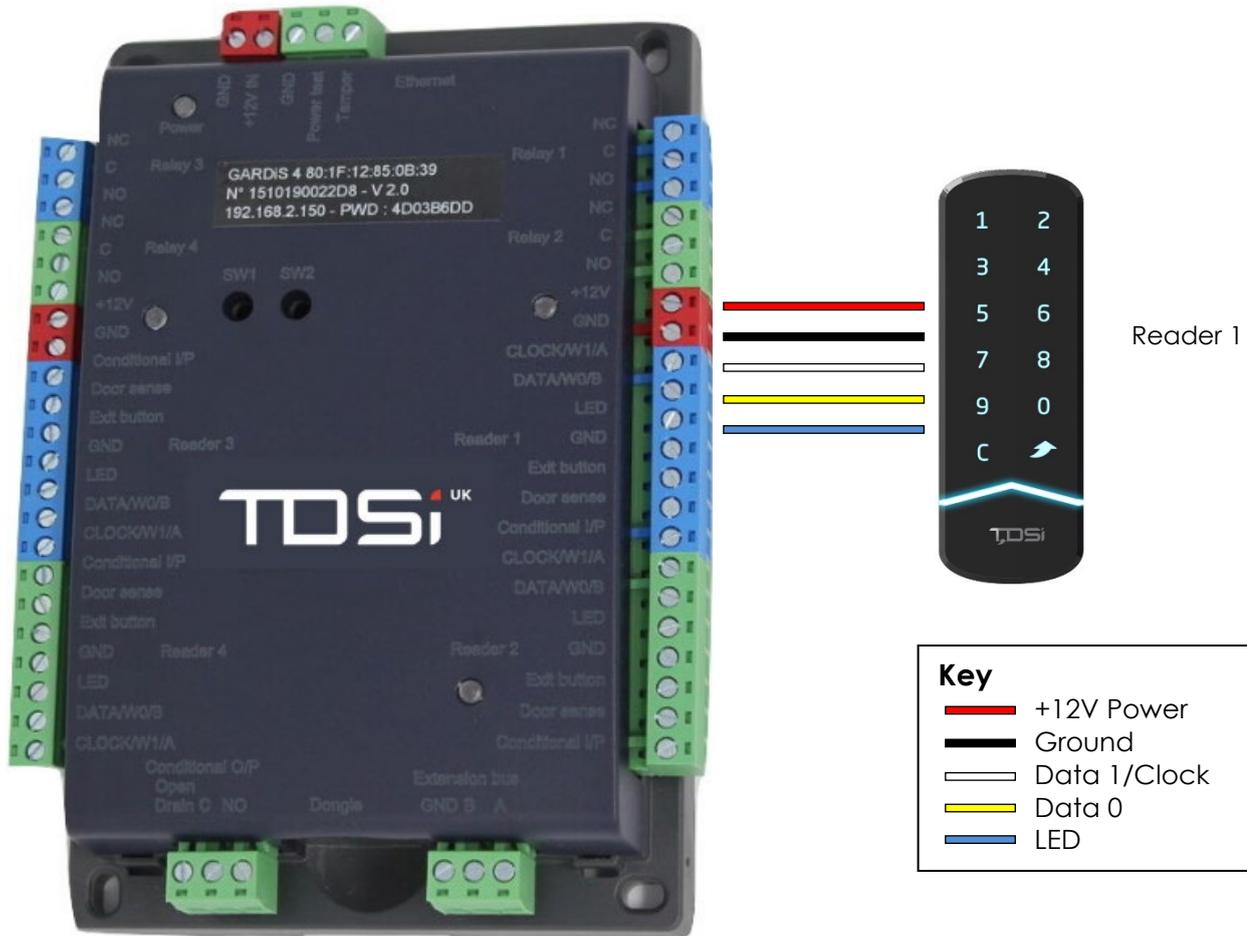
4.3 Conditional O/P

This section has 2 outputs. An open drain and a relay.

These outputs can be set from the cause and effect function. For example, activate the relay for 10 seconds if a person switches on a light.

5. Connecting Reader(s)

This section details how to connect readers/devices using Wiegand or Clock and Data protocol.



Wiegand Formats Supported

26-bit Wiegand, 37-bit Wiegand, Custom Wiegand...

RS485 Readers Supported

OSDP, SSCP

Readers Supported

GARDiS Readers (Reverse LRC protocol can be used for In/Out readers), STid, HID...

Cabling Information

- 5 Conductors (3 pairs recommended)
- Maximum distance: 150m (30m in RS485)
- Cable Type: 0.6mm (Recommended: 6 Core; Belden 9730v, Belden 9503, OS6C24/Alpha 5096/BICC H8124, Screened Alarm Cable)
- **Screen: Recommended**
- Stranded core



If using an external power supply for your readers, ensure to connect the different grounds to the controller.

Do not install cables from readers to controllers near high voltage or high current cables.

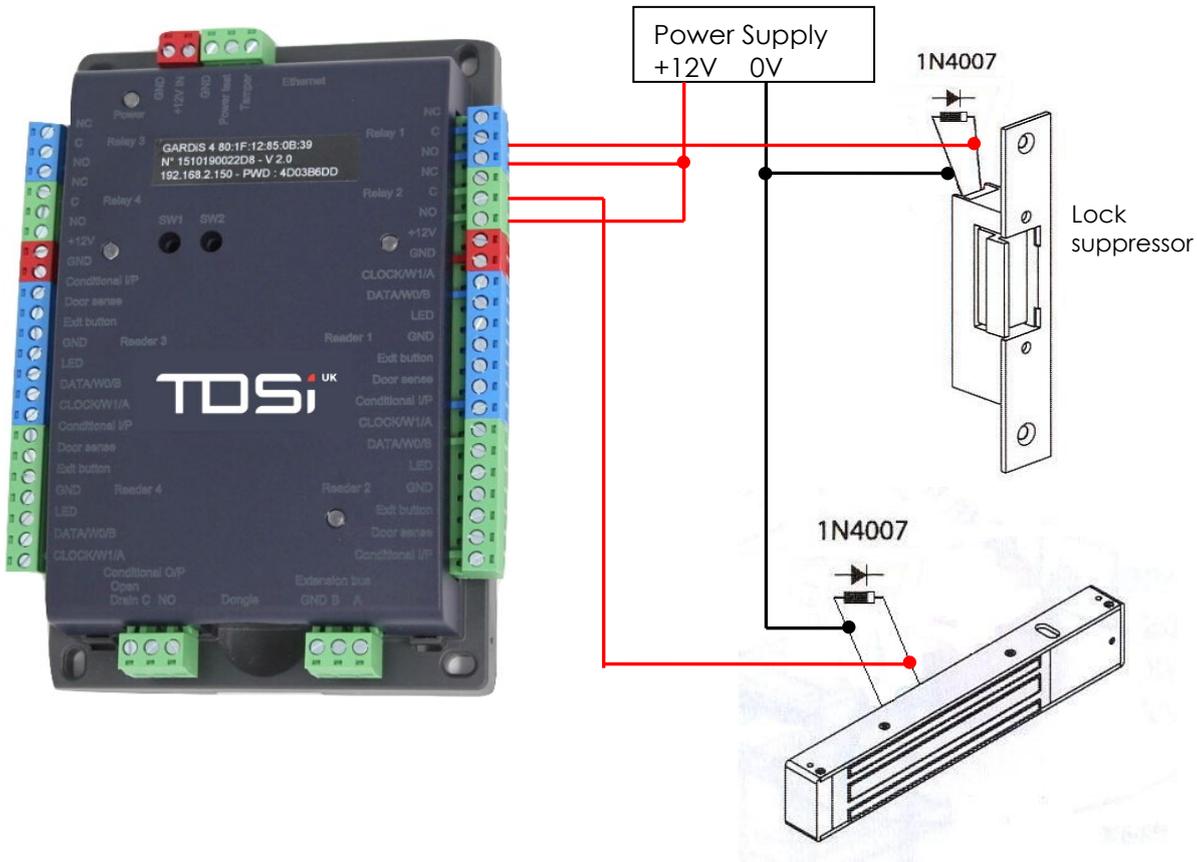


Each reader can be set to a different technology e.g. Reader 1: Wiegand and Reader 2: clock and data.

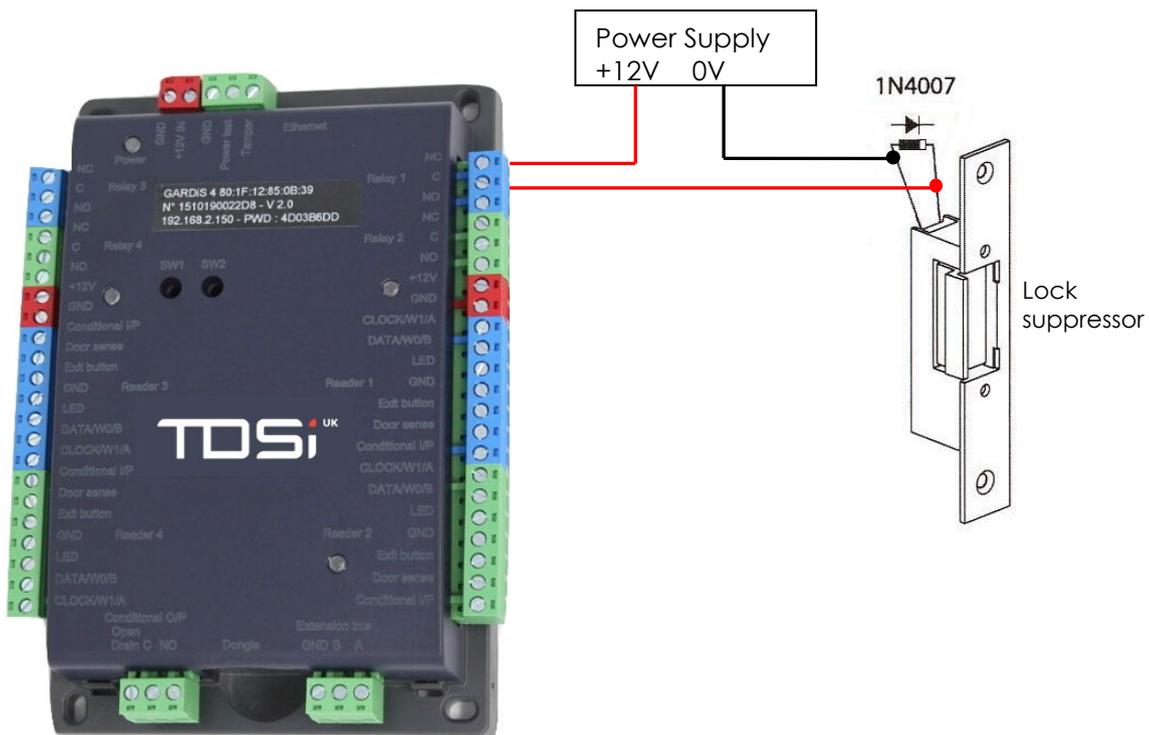
GARDiS Reader Configuration cards are included with each master unit.

6. Connecting Lock(s)

6.1 Fail Safe Electric Strike and Door Magnet



6.2 Connecting Standard Fail Secure Electric Strike



Cabling Information

Use the appropriate cabling for the lock equipment taking into account the distance and voltage requirements. Please contact your cable supplier with your specification for more advice.

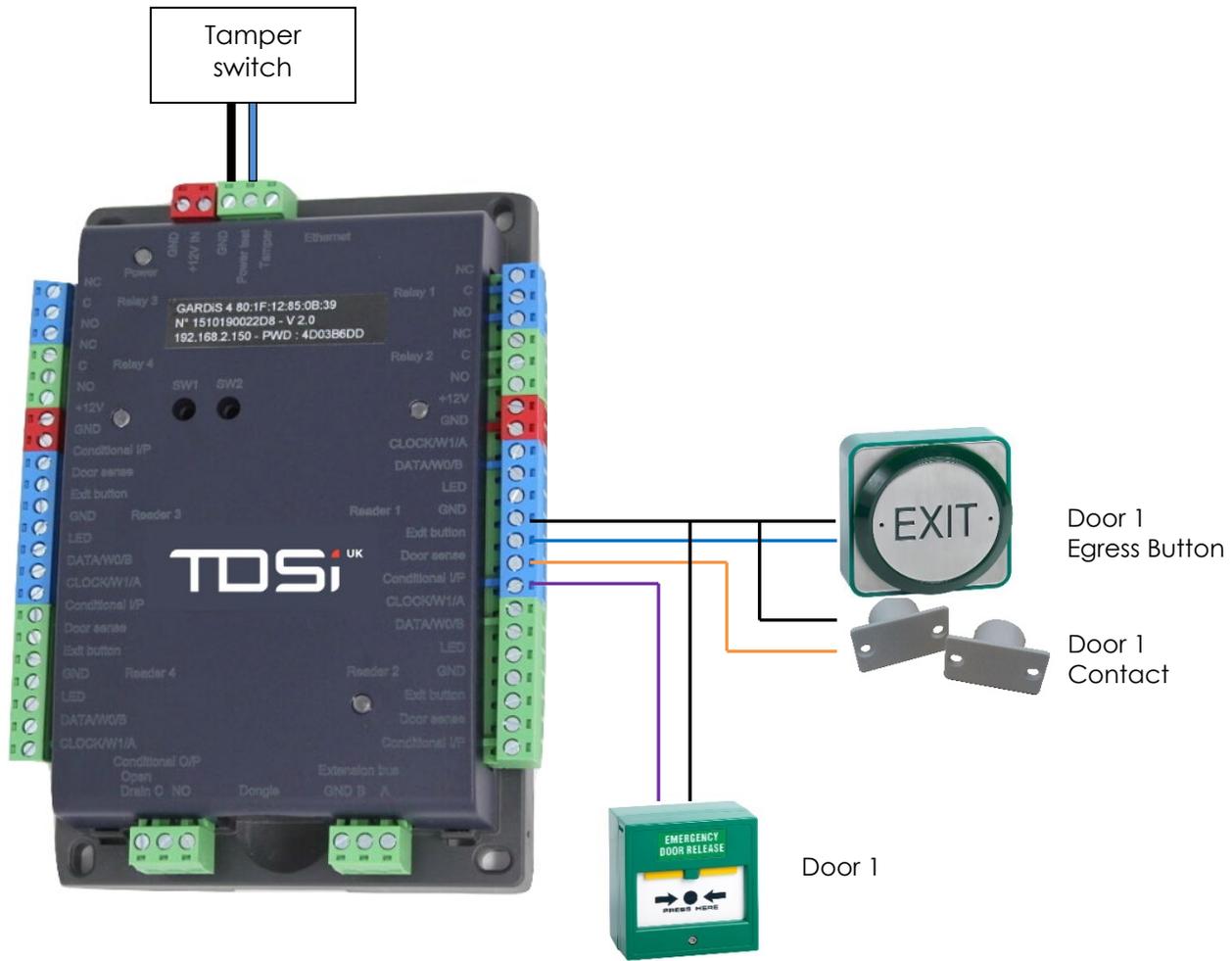


The lock suppressor must be connected as close as possible to the lock to avoid any damage to the controller. A suppressor must be fitted at each lock (see above). Four suitable suppressors (1N4007) are provided with each controller.



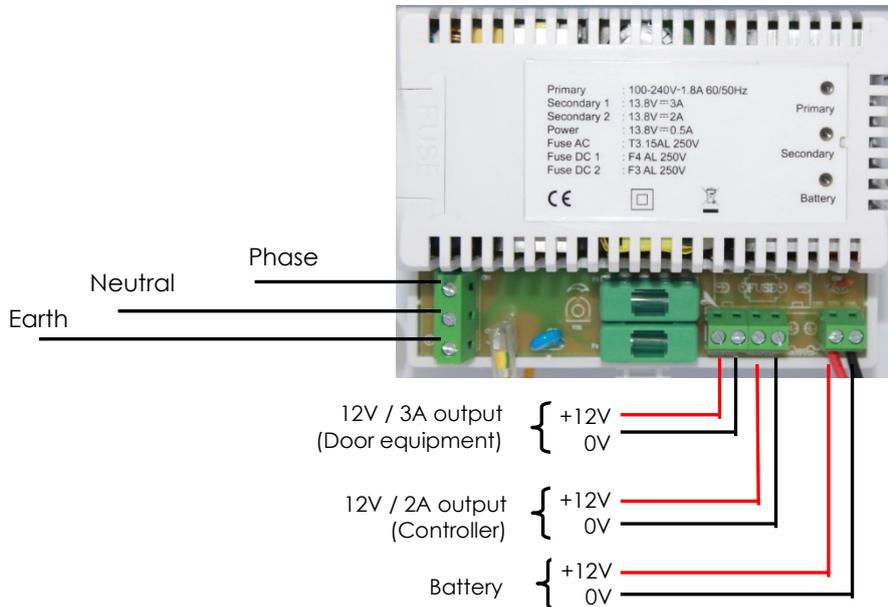
When using an external power supply for the locks, the lock suppressor must be connected as shown on the wiring diagram above. For maximum reliability we recommend the use of separate power supplies for locks. If using one supply for the controller and the lock(s) it controls, no issue should occur provided the supply has sufficient output current and the cabling distances do not result in significant voltage drops. Always run the power to the lock in a separate cable.

7. Connecting Tamper Switch and RTE/Egress Buttons



8. Connecting the Power Supply

Part Number: 5002-6050 Metal Case + PSU Single

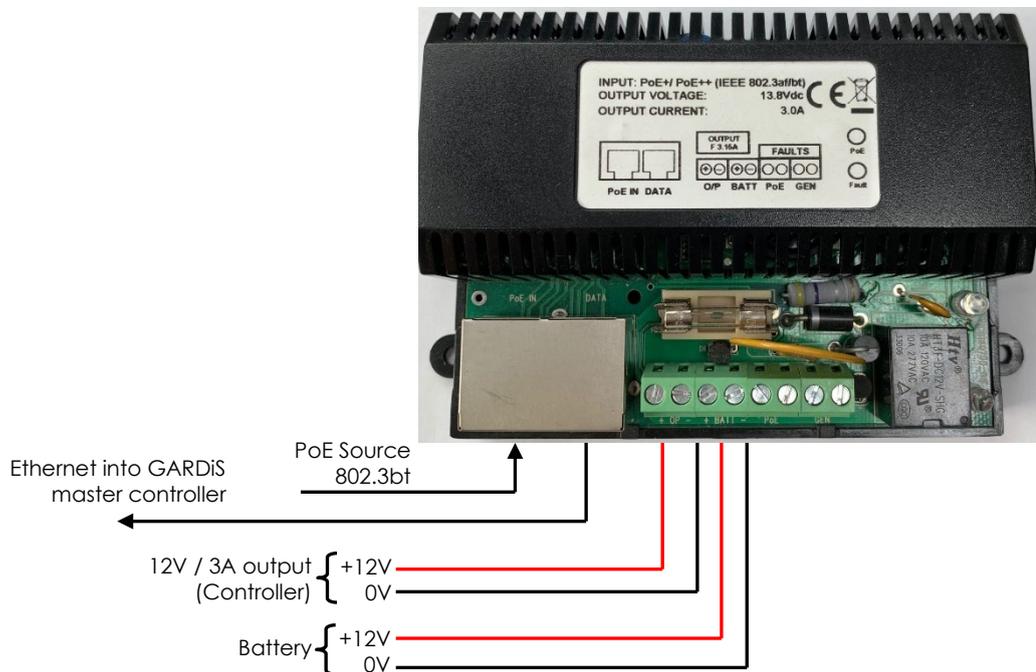


9. Connection POE Power Supply

Part Number: 5002-6051 Metal case + POE Single

It is recommended the 802.3bt is used as standard as the source equipment to the PoE module as this will provide the required current to operate controller and readers. When installing the system, observe the manufacturer's instructions for the source PSE (Power sourcing equipment).

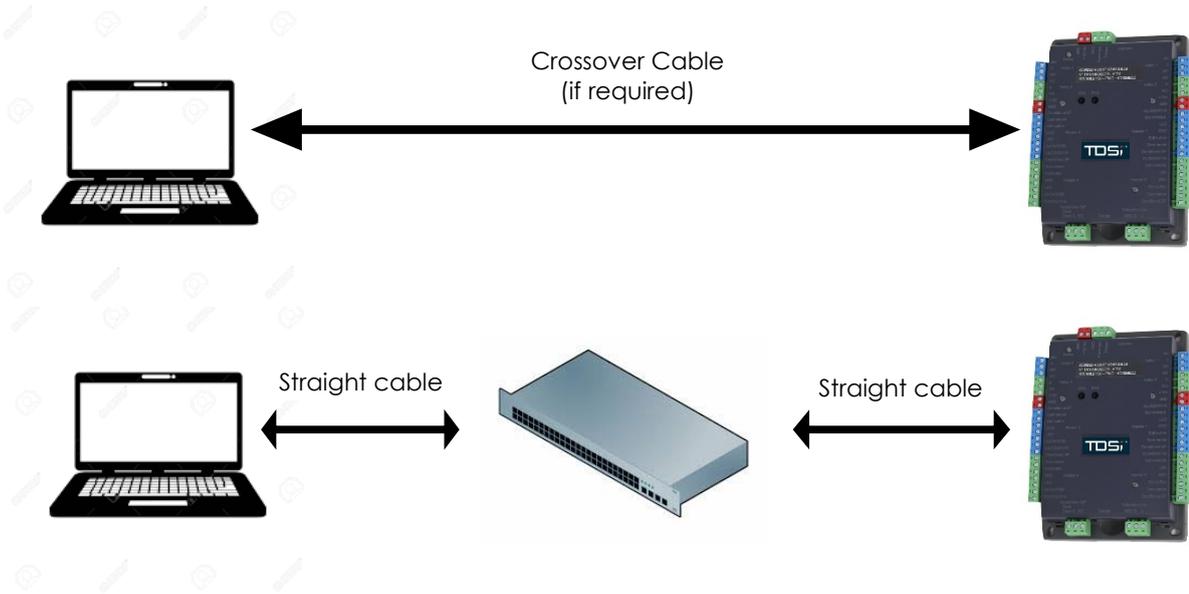
In the event of loss of the PoE source, the green LED light will turn off. Power will continue to be delivered if a backup battery is connected to the system. When installing the controller with an SLA (Sealed Lead Acid) backup battery, the ferrite supplied should be fitted to the red and black leads with a single turn and secured with a cable tie.



10. Connecting a GARDiS Controller to the Ethernet Network

Each GARDiS unit is preconfigured with a default IP Address. This is printed on a sticker on the controller case. Defaults are stated below:

IP Address: 192.168.2.150
 Subnet Mask: 255.255.255.0



To set a different IP Address, you must first connect to the unit using the default values and login to the embedded web server. Launch a web browser and enter the IP Address of the unit. The default logins are below:

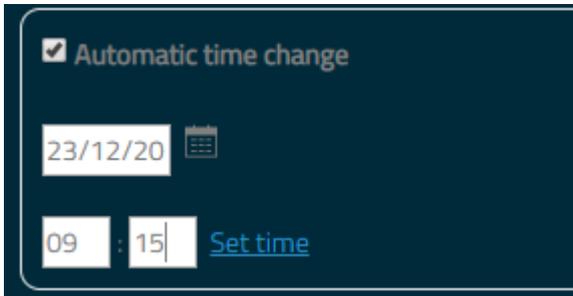
Login: admin
 Password: Located on the label of the unit.



10.1 Set Date and Time

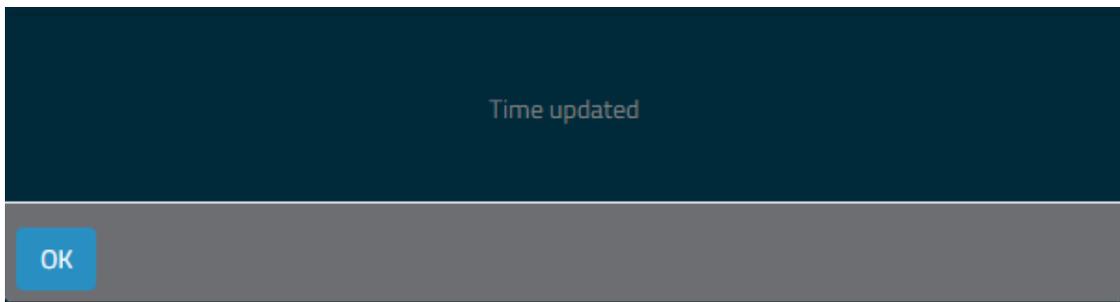
Set the time on the unit to ensure events are reported at the correct time.

Log in to the unit. Go to Site Configuration and select the Date from the calendar. Enter the current time.



The screenshot shows a configuration panel with a dark blue background. At the top, there is a checked checkbox labeled "Automatic time change". Below this, a date input field displays "23/12/20" with a calendar icon to its right. Underneath the date field, there are two time input fields: the first contains "09" and the second contains "15", separated by a colon. To the right of these fields is a blue link labeled "Set time".

Click Set Time.



11. Extending the System

To increase the number of doors or equipment in the system, extension units must be purchased along with a license dongle to insert into the master unit.

The available extensions include the GARDiS 4+ and GARDiS I/O. The extension units may be a mixture of both types of extensions and use the RS485 to daisy chain the units together. A maximum of 10 extension units may be used.

11.1 License Dongle

The dongle will determine the total number of units permitted in the system. The image below shows how to insert the purchased dongle.



11.2 GARDiS 4+ Extension Module

The GARDiS 4+ unit allows the access control system to be extended to contain more doors. The master unit can connect up to a maximum of 10 extension units.

The main differences between a master unit and an extension unit is the master unit contains an ethernet port and conditional triggers terminal block.

TDSi Part No.	GARDiS 4+ 5002-6005
Dimensions	170 x 119 x 40 mm
Weight	282 g
Operating Environment	0°C to + 50°C, 0 – 95% Relative Humidity (non-condensing)
Power	
Input	9 to 14 VDC 1A (without PSU) 100-240Vac, 50-60Hz, 1.8A max (PSU)
Output	PSU: 1 x 13.8Vdc 3A and 1 x 13.8Vdc 2A;
Features	
Doors	4 doors
Readers	Up to 2 TDSi readers per door in a read-in read-out configuration. Alternatively, 1 reader per door equipped with industry standard clock & data, Wiegand multiformat or RS 485 output formats.
Inputs	1 per door
Outputs	Control Relay: 1 A / 12V - 1A / 24v 1 used per installed door
Communications	RS485 to daisy chain to master controller unit

11.2.1 Connecting to Master Controller



Cabling Information

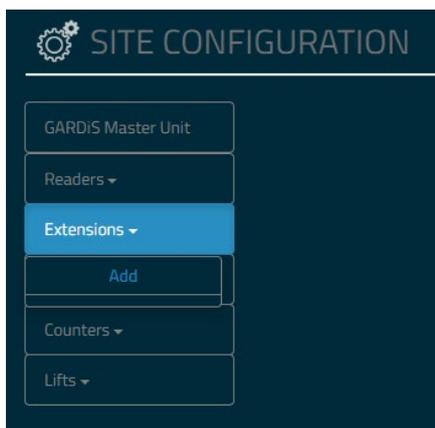
- 2 Conductors (2 pairs recommended)
- Maximum distance: 750m
- Cable Type: 0.6mm (SYT recommended)



Do not install cables near high voltage or high current cables. Use the same pair for the A and B terminal blocks.

11.2.2 Adding the Module using the Embedded Web Server

Connect to the embedded webserver logging into the unit, **click Site Configuration, Extensions, then click add.**



Available extensions:



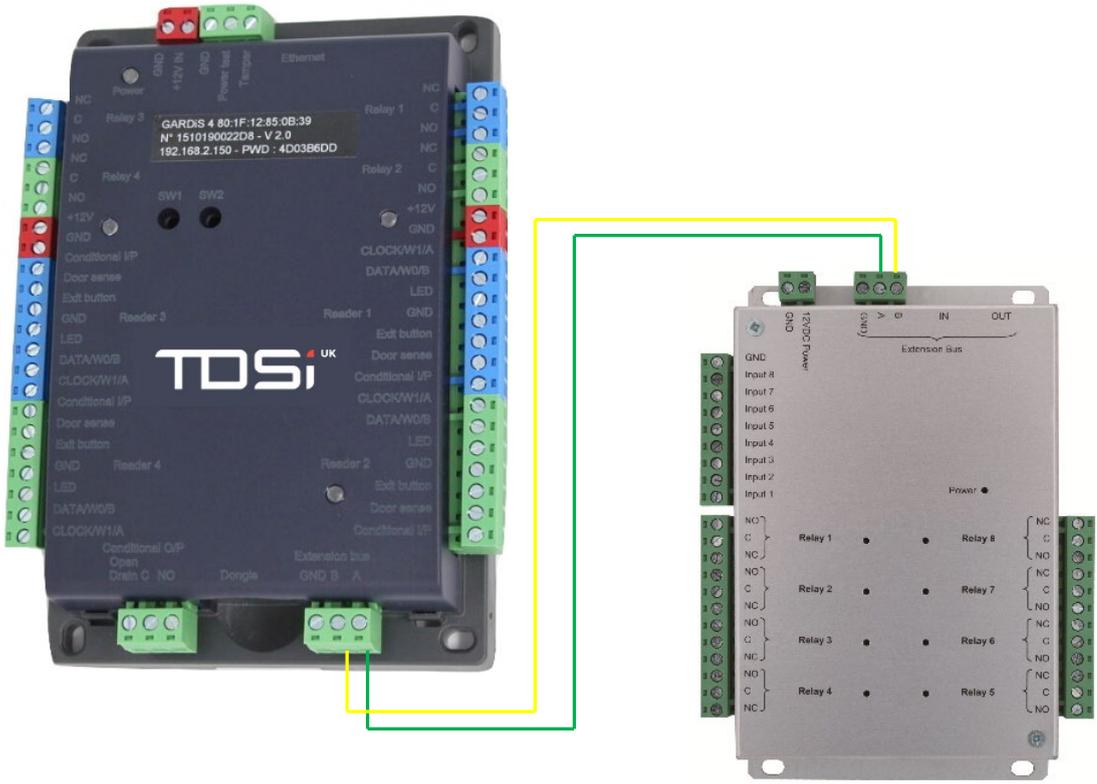
11.3 GARDiS I/O Extension Module

The GARDiS I/O extension modules allows for an additional 8 inputs and 8 outputs to be added to the access control system.

TDSi Part No.	GARDiS IO EXT 5002-6006
Dimensions	157 x 120 x 30 mm
Weight	200 g
Operating Environment	-20°C to + 50°C, 0 – 95% Relative Humidity (non-condensing)
Power	
Input	9 to 14 VDC 1A (without PSU)
Output	1A / 12V – 1A / 24V
Features	
Inputs	8
Outputs	8
Communications	RS485 to daisy chain to master controller unit

The following diagram shows how to connect the GARDiS IO module to a master controller.

11.3.1 Connecting to Master Controller



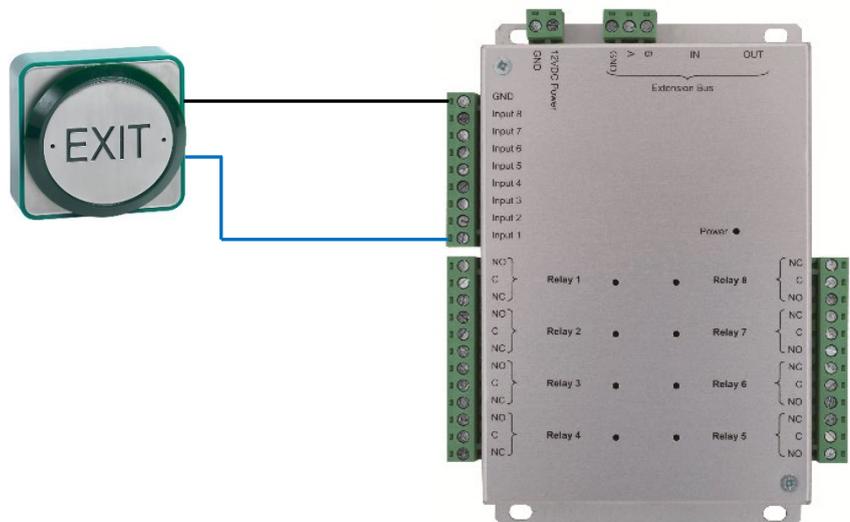
Cabling Information

- 2 Conductors (2 pairs recommended)
- Maximum distance: 750m
- Cable Type: 0.6mm (SYT recommended)



Do not install cables near high voltage or high current cables. Use the same pair for the A and B terminal blocks.

11.3.2 Connecting an Egress Button

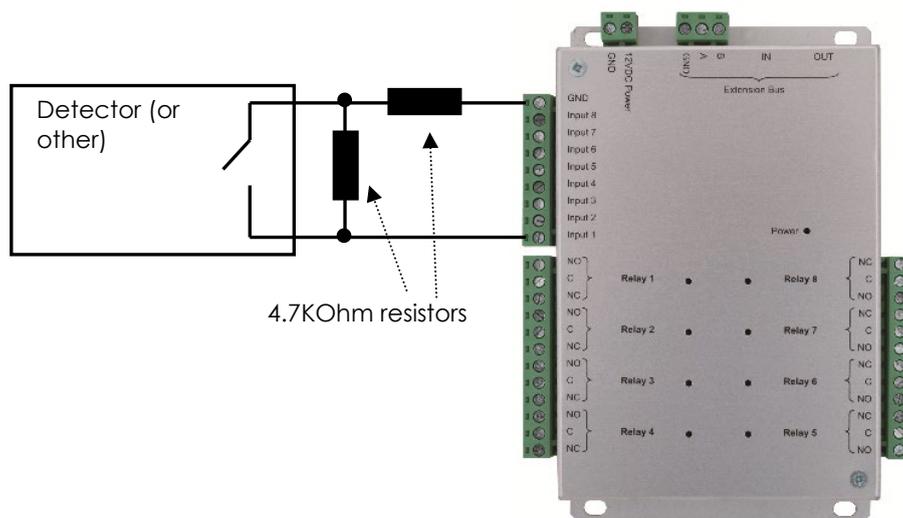


12. How to use 4-State Inputs

A 4-state input can detect the following situations:

- Active input
- Inactive input
- Open circuit (wire cut)
- Short circuit

To use this input type, you must add two 4.7KOhm resistors (supplied with the module) on the wires loop detector (or another device). Refer to diagram below.



For all inputs (2- or 4-state), use module's GND as common. For all outputs, ensure you use supplied lock suppressors if electromagnetic devices are installed (Electric strike, door magnet, relay, etc....)

Each module input can be independently used in 2- or 4-state modes. These modes can be configured from the embedded web server menu.

To adjust the detection level (if using another resistor value) each input can be calibrated as well as adjusting the detection range using the configuration options within the embedded web server.

13. How to Use the Reset Buttons



SW1: Hardware Reset

1. Turn off power
2. Press switch down while returning power to unit
3. Hold down the switch button until the Extension bus blue LED is on (approximately 10 seconds)
4. Release the switch

SW2: Restore factory network settings

1. Turn off power
2. Press switch down while returning power to unit
3. Setting the network mode
 - a. For static IP mode: Release the switch at the first flashing of the extension bus blue LED (approximately 5 seconds)
 - b. For DHCP mode: Release the switch after second flashing of the extension bus blue LED. Please Note: GARDIS 4 Door Controller will flash red.

Do you have any technical questions?

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