GARDiS

Web Embedded Access Control System

Specification

Contents

01. General

Equipment and Materials used shall be Standard Components that are manufactured and available for purchase, along with associated replacement parts for the commercial lifetime of the product from the manufacturer.

All products shall be thoroughly tested by the manufacturer.

All products shall include basic online and telephone support services at no extra cost, along with the option for additional, paid-for remote technical Hardware and Software Support.

The manufacturer will provide a limited warranty for defective items for a period of 5 years from the date of purchase on TDSi Access Control Units and 3 years on TDSi Readers.

02. Purpose

This Document is designed to define and specify the minimum criteria for the design, supply, installation and operation of a GARDiS Access Control System – a modular, web embedded access control system which is fully expandable and upgradable.

03. System Overview

This specification document is designed to provide an understanding of the basic and extended functional features of a Web Embedded Integrated Access Control and Security System operating on a single site and can incorporate Automatic Number Plate Recognition (ANPR), Wireless Locking Systems and Lift Control Integrations.

The Access Control System shall consist of one or more Web Embedded Access Control Units which provide system functionality and administration via it's own embedded server, exclusive of additional software. Alternatively, the same Access Control Units may be operated with additional Browser-based Software to enable additional integrations and functionality including additional Users, Sites and Third-party Software and Hardware which is interfaced using a REST-API.

The system setup shall be configurable in a modular, fully expandable setup, allowing for the addition of a range of supplementary Access Control Units, Extension Modules, Input/Output Modules and Readers at defined entry and exit points.

04. GARDiS Access Control System

The GARDiS Web Embedded Access Control System shall consist of a GARDiS Web Embedded Access Control Unit operating an optimized TDSi Hardware Platform which shall consist of a combination of Readers, Extension Access Control Units and Input/Output Modules.

- The Access Control System shall allow up to 5,000 Access Credentials.
- The Access Control System shall allow storage of up to 15,000 Access Events.
- The Access Control System shall provide capacity for up to 1,000 different Access Groups, allowing for bespoke, specified permissions to defined Credentials on the System.

The GARDiS Web Embedded Access Control Unit shall be operated independently and require no additional software installation, it shall be configured via an embedded web server that can be accessed from any compatible web browser. It shall operate as a Master Access Control Unit which shall allow the addition of up to 10 Extension Modules to be connected.

05. Information & Recommendations

05.1 Approvals

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

05.2 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.

05. 3 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.

06. System Components

06.1 GARDiS Master Web Embedded Access Control Unit

GARDiS Web Embedded Master Access Control Units shall be available in three configurations dependent on the initial number of entry and exit points required by the system.

- **GARDiS 1** (5002-6001)

  1 Door Web Embedded Access Control Unit with connections for 1 or 2 Readers
- **GARDiS 2** (5002-6002)

  2 Door Web Embedded Access Control Unit with connections for 2 to 4 Readers
- **GARDiS 4** (5002-6004)

  4 Door Web Embedded Access Control Unit with connections for 4 to 8 Readers

The GARDiS Access Control Unit (ACU) shall allow the operation of up to 8 Doors with the addition of an Extension Module but without the need for an additional Door License. Additionally, the Master Access Control Unit may be connected to further additional Modules to expand the System up to 44 doors. Expansion of the system in this way shall be enabled through additional Door Licenses which are available in three denominations to expand the system to 10, 20 or 44 Doors respectively. Extended Door Licenses are provided in the form of a Dongle which is inserted into the Master Access Control Unit to enable the additional system functionality.

GARDiS Reader Configuration cards shall be included with each Master Access Control Unit.

06.2 Additional Access Control Modules - Overview

Additional Modules shall allow the system to be expanded in the following ways:

- Additional GARDiS 4 Door Extension Access Control Units shall allow for an expanded system capacity of up to 44 Doors with the addition of the required Hardware and associated Licensing Dongle which is inserted into the Master Access Control Unit to enable the expansion.
- Input/Output (I/O) Modules shall allow the monitoring and control of additional equipment and Wireless IP Locks with the addition of the required Hardware and associated Licensing Dongle which is inserted into the Master Access Control Unit to enable the expansion.
- Extension units may be a mixture of both GARDiS Extension Access Control Units and Input/Output Modules and shall use RS485 cabling to Daisy Chain the units to the Master Access Control Unit.
- The system shall allow a maximum of 10 Extension Units.
- Additional GARDiS 4 Door Extension Access Control Units shall be positioned so that the whole Web Embedded Access Control System contains no more than 750 meters of cable.

* The upper limit of 10 Extension Modules requires TDSi Readers for the Reverse LRC Protocol (In/Out Readers).

06.3 GARDiS 4 Door Extension Access Control Unit

- Additional GARDiS 4 Door Extension Access Control Units shall allow for an expanded system capacity of up to 44 Doors with the addition of the required Hardware and associated Licensing Dongle which is inserted into the Master Access Control Unit to enable the expansion.
- GARDiS 4 Door Extension Access Control Units shall control up to 4 additional Doors
- Additional GARDiS 4 Door Extension Access Control Units shall be connected to the Master Access Control Unit using an RS485 connection.
- GARDiS 4 Door Extension Access Control Units shall feature four fail-over modes
    - **Deny All Credentials** – Deny all credentials presented to the readers.
    - **Accept All Credentials** – Accept all credentials presented to the readers.
    - **Check Site Code** – Accept credentials that match the site code of the readers.
    - **Switch to Unlocked** – Unlock the doors on the slave unit to allow access.

06.4 GARDiS Input/Output (I/O) Module

- GARDiS Input/Output (I/O) Module shall allow an additional 8 inputs and 8 outputs
- GARDiS Input/Output (I/O) Module shall allow 2-State or 4-State Inputs

    2-State Inputs

    - Active Input
    - Inactive Input

    4-State Inputs

    - Active Input
    - Inactive Input
    - Open Circuit (Wire Cut)
    - Short Circuit

- GARDiS Input/Output (I/O) Module shall feature three fail-over modes
    - Keep the previous state
    - Enable all outputs
    - Disable all outputs

- Additional GARDiS Input/Output (I/O) Modules shall be connected to the Master Access Control Unit using an RS485 connection.

06.5 Wireless IP Locks

The GARDiS Web Embedded Access Control System shall also be expandable through the addition of up to 10 Doors using either of the following Wireless IP Locks:

- Assa Abloy Aperio Wireless Locks using an AH-30 Hub to connect to the Master Controller using and RS485 connection.
  OR
- Simons Voss Smart Intego Wireless Locks using a Gateway Node Converter to connect to the Master Controller using and RS485 connection.

Wireless IP Locks shall require the appropriate Hardware and an additional Module license to function as part of the GARDiS Web Embedded Access Control System.

06.6 Access Control Readers

A GARDiS Access Control System shall allow configuration of attached Readers from within the Web Embedded Software. Reader Configuration options shall be as follows:

Reader Type

The required Reader Technology shall be configurable from within the interface.

- Wiegand
- Clock and Data
- OSDP
- SSCP

The Access Control System shall support the following Reader Output Formats:

- Magnetic
- 26-bit Wiegand
- 34-bit Wiegand
- 37-bit Wiegand
- ASR Prox/TDSi Proximity
- OSDP (HID) - GARDiS Controllers only
- SSCP (STid) - GARDiS Controllers only
- Universal Decode (Allows a custom decode for Wiegand formats)

The Access Control System shall support the following Reader Technologies:

- Proximity (125khz fully-passive read-only reading technology based on EM4100/4102/4200)
- MIFARE Classic (13.56mhz)

- MIFARE CSN (13.56mhz)
- MIFARE Plus (13.56mhz)
- MIFARE DESfire (13.56mhz
- MIFARE Sector (13.56mhz)
- MIFARE Sector 4 (13.56mhz)
- Bluetooth Low Energy
- UHF Long Range (Low Band 865 – 868mhz/High Band 902 - 928 mhz)

GARDiS Access Control Units shall support the following Reader Interfaces:

- Magnetic Clock and Data (ABA Track 2 Emulation)
- Multi Protocols RS485 Wiegand (26 and 37 Bit)
- ANSSI/OSDP Level 2 Compliant Secure Readers

The Access Control System shall support up to two TDSi Access Control Readers per Reader Channel in a Read-in Read-out configuration.

Alternatively, the Access Control System shall support one Reader per Door equipped with industry standard Clock and Data, Wiegand Multiformat or RS485 output formats.

07. System Features

GARDiS Web Embedded Access Control

A GARDiS Access Control System shall be able to make use of one or any number of the following features. Some of these features shall be available off-the-shelf while others shall be available following the purchase of an additional Module License and/or additional Hardware.

Accessibility Options

The Access Control System shall feature additional Accessibility customisation options to allow specified Credentials additional time to pass through an Access Point before it is secure again.

Airlock

The Access Control System shall feature an Airlock (Mantrap) function whereby access requires one door to be closed before the next can be opened. This functionality shall be available on any Access Point or Access Points within the same Master/Slave Cluster.

Anti-Passback

The Web Embedded Access Control System shall feature a Local Anti-Passback facility to prevent the sharing of Credentials. Anti-Passback shall operate within any Master/Slave Cluster, or, where an Access Control Unit is operating independently, across the doors connected to that Access Control Unit only.

The Access Control System shall operate two types of Anti-Passback:

- Timed Anti-Passback shall prevent the same Credential from gaining access through an Access Point more than once within a specified period of time. This Credential will, however enable access through a different Access Point within that period.
- True Anti-Passback shall prevent a Credential from gaining access through an Access Point until it has been presented at an Egress Reader from within the associated Slave/Master Cluster.

The Access Control System shall allow the selection of either 'Soft', 'Hard' or 'Timed' Anti-Passback.

- Soft Anti-Passback shall log the Anti-Passback event but still allow Credentials to gain access through the Access Point.
- Hard Anti-Passback shall log the Anti-Passback event and prevent the credential from gaining access through the Access Point.
- Timed Anti-Passback shall allow all Credentials that are subject to Anti-Passback restrictions to have their status reset after a predetermined amount of time has elapsed.

Database Backup

It shall be possible to Back Up the Access Control System Database from within the Access Control Web Embedded Software. The GARDiS Web Embedded Master Controller has a removeable SD Card which shall allow further backup on the connected PC.

Importing Credentials

It shall be possible to import Credentials into the Access Control System using the ISO8859-1 file format. This feature is limited to the import of 100 users at a time.

Lift Control

It shall be possible to enable Lift Control using a GARDiS I/O Module to enable basic lift controls (such as selecting floors) and an additional Module License to enable this functionality. Lift Control shall be available for up to 80 Floors within the GARDiS Access Control System.

Schedules

It shall be possible to create up to 128 schedules for the Access Control System which shall allow different system configurations on different days and at different times. Schedules may be used to restrict or grant access to individual Credentials or whole Access Groups at a granular level depending on predetermined date and time stipulations.

08. Component Specifications

08.1 GARDiS Web Embedded Access Control Unit

Part Numbers

TDSi Part Numbers: 5002-6001 (1-Door GARDiS Web Embedded Access Control Unit)
5002-6002 (2-Door GARDiS Web Embedded Access Control Unit)
5002-6004 (4-Door GARDiS Web Embedded Access Control Unit)

Dimension & Weight Specifications

Product Dimensions: 170 x 116 x 40mm
Product Weight: 257g

Environmental Specifications

Operating Temperature: 0°c to +50°c
Operating Humidity: 0 - 95% Humidity (Non-Condensing)

Power Specifications

Input: 9 - 14 Vdc 1A (without PSU)
100-240 Vac, 50-60Hz, 1.8A max (PSU)
PoE+/PoE++ IEEE 802.3at/bt (with PoE module)

Feature Specifications

Maximum Credentials: 5,000

Event Buffer: 15,000 or 45 Days –whichever threshold is met first

Doors: 1, 2 or 4

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 inputs available with GARDiS I/O Module

Outputs: Control Relay: 1A/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) Extension Access Control Unit
	GARDiS Input/Output (I/O) Module - 8 Inputs/8 Outputs
	Wireless IP Locks
Time Groups:	128
Anti-Passback:	Timed and True
Airlock Function:	Yes
Communications:	TCP/IP and RS485 for Extension Modules

08.2 GARDiS 4 Door Extension Access Control Unit

Part Numbers

TDSi Part Number: 5002-6005

Dimension & Weight Specifications

Product Dimensions:	170 x 116 x 40mm
Product Weight:	257g

Environmental Specifications

Operating Temperature:	0°c to +50°c
Operating Humidity:	0 - 95% Humidity (Non-Condensing)

Power Specifications

Input: 9 - 14 Vdc 1A (without PSU)

Feature Specifications

Doors:	An additional 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 inputs available with GARDiS I/O Module
Outputs:	Control Relay: 1A/12V - 1A/24v
	1 used per Installed Door
	GARDiS 4: 5 Outputs

Expansion Options: GARDiS 4+ (4 door) Extension Access Control Unit

GARDiS Input/Output (I/O) Module - 8 Inputs/8 Outputs

Wireless IP Locks

Communications: RS485 Connection to Master Access Control Unit

08.3 GARDiS Input/Output (I/O) Module

Part Numbers

TDSi Part Number: 5002-6006

Dimension & Weight Specifications

Product Dimensions: 157 x 120 x 30mm

Product Weight: 200g

Environmental Specifications

Operating Temperature: -20°c to +50°c

Operating Humidity: 0 - 95% Humidity (Non-Condensing)

Power Specifications

Input: 9 - 14 Vdc 1A (without PSU)

Feature Specifications

Inputs: 8

Outputs: 8

Communications: RS485 to Daisy Chain to Master Access Control Unit

09. Access Control System Upgrades

The GARDiS Web Embedded Master Access Control Unit firmware shall be upgradable; such upgrades shall be made available by the manufacturer on an ad-hoc basis as dictated by incremental security upgrades and feature additions.

10. Support and Installation

TDSi provide both Free and Chargeable Training and Support and Commissioning Services, for more information please visit tdsi.co.uk/training or contact our Technical Support Department on +44 (0)1202 723535.

TDSi do not supply an Installation Service.

Software Support and Service Agreements are available, details are available upon request, please visit tdsi.co.uk or contact our Technical Support Department on +44 (0)1202 723535.