

1 MICROgarde™ Based Access Control System - Overview

TDSi MICROgarde™ type door controllers offer a fully featured door controller with up to 25,000 card memory.

MICROgarde I™ is capable of controlling 1 door with IN and OUT readers.

MICROgarde II™ is capable of controlling 2 doors with IN and OUT readers using our Reverse LRC protocol.

MICROgarde™ is an intelligent door controller in that all card holder and access rules are stored allowing complete operation should communications to the host communications server be lost. All door controller types feature as standard storage for up to 1,000 events should this situation occur.

MICROgarde™ utilises an 8-bit data, 16-bit address microcontroller, which handles central processing and control. A further microcontroller is fitted which handles low-level and background tasks.

The firmware is flash-upgradeable, providing a means to upgrade the embedded software when available.

A real-time clock (with integral battery backup) is fitted allowing the access decisions to be made and time-stamping of the access events to occur. The clock is updated by the host communications server regularly.

2 Features

2.1 Antipassback

MICROgarde™ door controllers feature antipassback facility across the doors within each controller, preventing sharing of cards. Two types of antipassback are offered:

- Timed antipassback – where the same key may not be used to gain access more than once within a specified period. That key may however be used to gain access via another door within that specified period.
- True antipassback – used where there is both an in and an out reader. The key, once used to gain access cannot be used to gain access again until it is presented at the out reader.
- Zonal antipassback – in conjunction with EXgarde Pro™ V4 software, the same key may not be used to gain access to an inner area within a perimeter zone until it has been validated at the perimeter zone reader(s). This functionality can be spread across a maximum of 100 readers communicating with a single communications host.
- Software Global Antipassback – in conjunction with EXgarde Pro™ V4 software, this is supported across a maximum of 100 readers communicating with a single communications host.

Antipassback is 'hard' whereby an event is logged that antipassback has been infringed and the user is prevented from passing through the door. This is opposed to what is described as 'soft' antipassback whereby only the event is logged but the user is still allowed to pass through the door.

A forgiveness setting allows all cards that are currently subject to antipassback rules to have their antipassback status automatically cleared (either at midnight or midday).

It is not possible to achieve a global antipassback system whereby all doors within the access control system are covered unless our EXgarde Pro™ V4 software is used to a maximum of 100 readers.

2.2 Door Controller – Time Groups

The system allows up to 64 time groups to be configured. Time groups determine when the access groups can gain access to controlled areas.

2.3 Door Controller – Mantrap

MICROgarde™ controllers offer a mantrap feature that requires one door to be closed before another is opened. This functionality is across 2 doors within the same controller.

2.4 Door Controller – Communications

MICROgarde™ door controllers can be connected via an RS-485 network. It is recommended that no more than 20 controllers are connected to one portal on the communications server PC to ensure adequate system performance.

Alternatively, a direct connection can be made (PC to door controller) through an in-built RS-232 port.

MICROgarde™ IP door controllers also feature 10/100 Base TCP/IP port for connection to an Ethernet over a Local Area Network (LAN) or Wide Area Network (WAN). Connection is made via a standard patch lead fitted with an RJ-45 plug. A built-in RS-485 converter allows connection of further units via an RS-485 network.

Should it be required to connect the door controllers using RS-232, a separate RS-232 to RS-485 converter is available providing the facility to do so.

Communications to the MICROgarde™ door controller is conducted at 38,400 baud.

LEDs are fitted to the door controller board providing visual indication of communications activity.

2.5 Door Controller – Enclosure and Design

MICROgarde™ door controllers with an integral power supply are fitted within a steel clamshell type painted enclosure with a single fixing (non-security type). The power supply provides power for both controller and locks.

MICROgarde™ door controllers without an integral power supply are fitted within an ABS plastic box fitted to a steel chassis. These controllers will require a power supply to operate

Cable entry is made through the rear or through 'knock-out' pieces in both the top and bottom of the case.

The enclosure design features earth braid termination springs providing an easy method to terminate cable earth braid.

In the power supply version a visible lens on the front of the enclosure provides indication of power to the door controller.

Adequate mounting space is provisioned allowing for easy installation.

High-quality pluggable 'rising clamp' style connectors are utilised throughout the product for maximum reliability and to ease installation. All connections are marked by a removable terminal label.

2.6 Door Controller – with Power Supply Unit

MICROgarde™ door controllers with power supply feature a high-quality, low noise fully regulated 90 to 264 VAC switched mode 13.8 VDC power supply providing power to both controller board and locks. The power supply is mounted within the enclosure and rated at 3 Amps.

Provision is made for connection and charging of a 7 Ah back-up battery to allow operation of the controller and locks in the event of power failure. Switching between main power to battery power and back is seamless, requiring no user intervention. An event is logged when main power fails.

TDSi does not supply the back-up batteries; these are to be sourced by the installer or project company.

2.7 Door Controller – Memory

MICROgarde™ controllers are classed as intelligent, in that they store all card holders and access rules allowing complete operation should communications to the host communications server be lost. All door controller types feature as standard storage for up to 1,000 events should this situation occur.

However, it is possible to configure the memory partition such that more space is allocated for event retention by decreasing the space allocated for the number of card holders.

Events are automatically uploaded to the host communications server upon communications being restored. No user intervention is required.

The overall memory size is fixed and cannot be upgraded or expanded in any way.

Memory is battery backed so that all data is retained should power to the door controller be lost.

2.8 Door Controller – Programming

Programming of the MICROgarde™ door controller is accomplished through use of the EXguard PRO™ or MICROgarde™ access management PC software.

2.9 Door Controller – Inputs and Outputs

MICROgarde I™ controllers feature 4 inputs per door controller, 2 being used per installed door for connection of a door contact and a request to exit button. The remaining inputs are available for third-party equipment point monitoring. Inputs can be used as either non-supervised or supervised in addition to being able to be configured as normally open or normally closed.

Each MICROgarde™ door controller allows an additional expansion card to be fitted providing further input and output capability. One types of expansion card is available.

- 4 additional inputs and 2 additional output relays.

Inputs can be used to perform secondary tasks within the access control system.

All relays are Form C with contact ratings of 2A at 30 VDC.

2.10 Door Controller – Reader Interface

MICROgarde™ door controllers feature numerous reader interfaces. These include:

- Magnetic clock and data (ABA track 2 emulation)
- Wiegand (26 and 37 bit)
- TDSi Digital Infrared Reader (Microcard)

Any reader with one of the above mentioned reader interfaces can be connected to MICROgarde™ door controllers. However, it should be noted that in the case of Wiegand, the card number reported by the door controller may differ to that printed on the card.

MICROgarde™ controllers feature a ‘self learn’ function that allows the controller to discover the output format of any connected card reader.

3 Door Controller – Specifications

MICROgarde™ door controllers with power supply carry the following specification.

Dimensions	390 x 410 x 90 mm
Weight	7.3 kg
Operating Temperature	-5 °C to +45 °C
Operating Humidity	0 %RH to 95 %RH (non-condensing)
Power Supply Input	90 to 264 VAC, 50 or 60 Hz
Power Supply Output	13.8 VDC, 4 A including battery back-up charging output
Card Holders	5,000 when used with MICROgarde™ PC software
	10,000 when used with EXgarde PRO™ PC software

MICROgarde™ door controllers without power supply carry the following specification.

Dimensions	210 x 135 x 47 mm
Weight	0.6 kg
Operating Temperature	-5 °C to +45 °C
Operating Humidity	0 %RH to 95 %RH (non-condensing)
Power Supply Input	10 to 14VDC 1A
Power Supply Output	N/A
Card Holders	5,000 when used with MICROgarde™ PC software
	10,000 when used with EXgarde PRO™ PC software

4 Door Controller – Approvals

MICROgarde™ door controllers are CE approved™ and carry the CE logo. The product has been tested in accordance with the following Standard:

- EN60950-1: 2001 IT Equipment Safety
- EN55022: 1994 EMC Electromagnetic Emissions
- EN50130-4: 1995 Electromagnetic Immunity

5 Readers – Overview

TDSi supply a number of reader options covering the following technologies

- Contactless EM410x and compatible – EXprox™ and Optica™ models
- Contactless mid range EM410x and compatible – up to 90 cm read range
- Contactless EM410x and compatible panel mount reader
- Contactless MIFARE® serial number reader – in accordance with ISO 14443
- Magnetic swipe - reader
- Digital Infra red Microcard™ reader

5.1 Readers – EXprox™

TDSi EXprox™ readers are contactless, EM410x (and compatible) card readers. Readers are supplied with Magnetic clock and data (ABA track 2) and 26-bit Wiegand outputs.

EXprox™ readers can be supplied in a vandal resistant stainless steel housing providing increased resistance to attack. These readers are designated eXprox VR.

Readers are fully encapsulated and are suitable for external mounting.

5.2 EXprox™ Reader – Specifications

Dimensions	40 x 101 x 18 mm
Weight	205 g (EXprox™) 280 g (EXprox VR™)
Operating Temperature	-20 °C to +55 °C
Operating Humidity	0 %RH to 95 %RH (non-condensing)
Power Supply	5 to 14 VDC, 100 mA maximum
Operating Frequency	125 kHz
Card Technology	EM4102 and compatible
Sounder	Integral with external control
LEDs	Red and Green
Read range	<150 mm (eXprox), <70 mm (eXprox VR)
Output formats	Magnetic stripe ABA track 2 emulation, 26-bit Wiegand

5.3 Readers - MIFARE®

TDSi MIFARE® readers are contactless card readers able to read the serial number from the following card types

- ISO 14443-A: MIFARE® Ultralight MF0 ICU1
- ISO 14443-A: MIFARE® Standard MF1 ICS50 (1 k)
- ISO 14443-A: MIFARE® Standard MF1 ICS70 (4 k)
- ISO 14443-A: MIFARE® DESFire MF3 ICD40

Readers are fully encapsulated and suitable for external mounting.

5.4 MIFARE® Reader - Specifications

Dimensions	42 x 104 x 18 mm
Weight	160 g
Operating Temperature	-5 °C to +60 °C
Operating Humidity	0 %RH to 95 %RH (non-condensing)
Power Supply	6 to 14 VDC, 120 mA maximum
Operating Frequency	13.56 MHz
Card Technology	ISO 14443-A
Sounder	Integral with external control
LEDs	Red and Green with external control
Read range	<50 mm
Output formats	Magnetic stripe ABA track 2 emulation, 26-bit Wiegand

6 Support and Installation

TDSi provide chargeable training and commissioning services. TDSi do not supply an installation service.

Service and Support contracts are also available. Details are available upon request.

7 General – Warranty and Support

Please refer to the general TDSi warranty statement, available on request.