

## System Overview

The Symmetry M2100 is a key feature of an access control system. It provides distributed intelligence, resilience in the event of network failure, and fast response to access requests.

The Symmetry M2100 is a modular range of intelligent controllers that provide very flexible configurations for up to:

- 16 readers
- 96 Monitor Points
- 32 Auxiliary Outputs
- 200,000 Cardholders

The Symmetry M2100 supports communication over a network, hard-wired connections via a PC port and remote dial-up modems. Each Symmetry M2100 Database Unit (DBU) fully supports connection of up to 16 readers and doors. The controllers can be networked using secure, bi-directional, Pseudo-Random supervised communications to form a chain of controllers.

Each chain of Symmetry M2100 controllers communicates with a PC running the feature rich Symmetry Professional or Symmetry Enterprise access control software. The access control software is used to set up the rules of access control, monitor alarms, produce reports and administer one or more facilities.

There can be one or more chains, with up to 32 controllers per chain.

A hand geometry biometric version of the Symmetry M2100 is also available. This allows unparalleled hardware integration with a hand geometry biometric reader. Each Symmetry M2100 controller is capable of storing and authenticating up to 150,000 templates locally. As with the other Symmetry M2100 controllers, the HGU version is fully intelligent and makes authentication and access decisions locally without needing to refer to a host computer. The Symmetry M2100 controller can

eliminate the need for template management systems that require additional training, data entry, wiring, installation and service.

## Communication Schemes

Schemes may be configured as follows:

- LAN network connection using a network interface module option card.
- A hard-wired single chain via an RS 232-to-20mA converter
- Fault tolerant bi-directional communications by connecting the last controller on a chain to a second port of the monitoring PC
- Dial-up via modems, providing low cost management for remote sites requiring centralized administration
- The network card also incorporates a built in RS-232 module to support fallback dial-up of alarms should the network be unavailable. Encryption is also available.

## Reader Technologies & Card Formats

The Symmetry M2100 controller supports a full range of reading technologies including smart card, biometrics, proximity, magnetic stripe and Wiegand (via Wiegand Interface Modules). A number of default card formats are programmed as standard and there is the capability for custom formats to be defined. This is particularly important when integrating existing cards with a new system.



# Symmetry™ M2100 Controller

Access Control & Security Management Solutions

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**4 Door Controller Unit (4DCU/4DCRP)** - controls communications for up to four readers and all associated door hardware. The 4 Door Controller board(s) also incorporates Flash Memory for downloadable firmware.

4 Door Controller option modules include:

**Input/Output Module** – Allows alarms monitoring inputs and programmable output switching to be integrated. Each module provides eight monitor points and four auxiliary relay outputs. Two I/O modules can be fitted to each board. A fully configured Symmetry M2100 fitted with two 4 Door Controllers can therefore support 32 inputs and 16 outputs.

**RS-485 Reader Interface Module** – Enables connection of up to four hand geometry biometric readers in addition to current loop or Wiegand readers

**Wiegand Interface Module (WIM4)** - Enables connection of up to four OEM readers via a Wiegand Electrical Interface

- Alarms Controller (ACU/ACR) provides 24 monitor points and four auxiliary relay outputs. Monitor points can be programmed for 2/3/4/6-state supervision, dependent upon requirements.

- **2 Door Controller Unit (2-DCR)** provides a means of extending a Symmetry M2100 to a maximum of 16 readers. They interface directly with readers and provide all door control inputs and outputs. The 2 Door Controller communicates with its decision making database unit via a twisted pair RS-485 link. The configuration can be cabled in either star or multi-drop, dependent upon installation requirements. In the event of a communications failure between a Database Unit and its Door Controller it can be further configured to verify on Customer Code only, or the doors can be put into a permanent locked or unlocked state. Sufficient spare power is available for up to 400mA per lock.

The 2 Door Controller can be fitted with the following plug-in option boards:

A **WIM 2 board** for connection of up to two Wiegand readers.

An **Input/Output board** for eight monitor points and four auxiliary relay outputs.

**RS-485 Reader Interface Module** for connection of up to two hand geometry biometric readers in addition to two current loop or Wiegand readers.

Sufficient spare power is available for the lock of up to 400mA.

## Symmetry M2100 Connection Capability

A maximum of eight DBU addresses can be connected per Symmetry M2100 DBU.

The maximum number of readers per Symmetry M2100 cannot exceed 16.

TYPE	MAX. NO. OF CONTROLLERS PER DBU	CONNECTION TYPE	FIRMWARE USED	DBU ADDRESSES USED PER CONTROLLER	ENCL. SIZE	SUPPORTED DEVICES	SUPPORTED DEVICES VIA OPTION BOARD	INPUT POWER
DBU	N/A	20ma/RS-232/ TCP/IP	Standard & Biometric, Flash Upgradeable	N/A	1, 2, & 3	4DCU/4DCRP/ 2DCR/ACU/ACR	RS-232 and TCP/IP NIC Modules	12 VDC or 18 VAC* <sup>1</sup>
4DCU	2	Via Ribbon Cable	Standard & Biometric, Flash Upgradeable	2	1 only	4 Readers	16 Inputs 8 Outputs	Via DBU or 18 VAC
4DCRP	4	External via RS-485	Standard & Biometric, Flash Upgradeable	2	3 only	4 Readers	16 Inputs 8 Outputs	12 VDC or 18 VAC
2DCR	8	External via RS-485	Standard & Biometric, Flash Upgradeable	1	2 & 3	2 Readers 2RSI HGU	8 Inputs 4 Outputs	12 VDC 24 VDC or 18 VAC
ACU	2	Via Ribbon Cable	Flash Upgradeable	2	1	24 Inputs 4 Outputs	N/A	VIA DBU
ACR	4	External via RS-485	Flash Upgradeable	2	2 & 3	24 Inputs 4 Outputs	N/A	12 VDC or 18 VAC* <sup>1</sup>

\*<sup>1</sup> NOTE: 18VAC input for DBU, 2DCR and ACR requires integrated enclosure power supply.

## Symmetry M2100 Configurations

A comprehensive range of enclosures is available which provide flexible configuration options. All enclosures are supplied with a removable hinged lockable lid, tamper switch and power indicator as standard. When required, enclosures can contain an integrated power supply which may be used to provide the 12VDC supply for the controller and its associated readers. The enclosure power supply board uses an 18VAC external supply. A battery recharge facility is included, with space within the enclosure to accommodate a 12V 7AH maintenance free rechargeable battery.

### Configuration sizes:

- **CAB-1** (small) can contain any one of the following boards: Database Unit (DBU), 2 Door Controller Remote (2-DCR) or Alarms Controller Remote (ACR)
- **CAB-3** (medium) can contain a selection of the following boards: Database Unit (DBU), DBU and 2 Door Controller (2-DCR) Unit, Two 2 Door Controller Remote (2 x 2-DCR), 2 Door Controller with on board power supply (2-DCRP), 4 Door Controller with on board power supply (4-DCRP) or an Alarms Controller Remote (ACR)
- **CAB-4** (large) can contain a selection of the following boards: Database Unit (DBU) plus any two Units selected from the four Door Controller Unit (4DCU) or Alarms Controller Unit(ACU)



## Symmetry M2100 Main Items

- **The Symmetry M2100 Database Unit (DBU)** contains the system databases and performs the transaction processing and controls system communications.

The DBU is available in four models, supporting 16 readers and 20,000, 50,000, 100,000 and 200,000 cardholders to suit requirements. An eight reader high capacity model supporting 250,000 cardholders is also available. The DBU board incorporates Flash Memory supporting downloadable firmware and allowing firmware enhancements via a PC, simplifying upgrades and minimizing installation time.

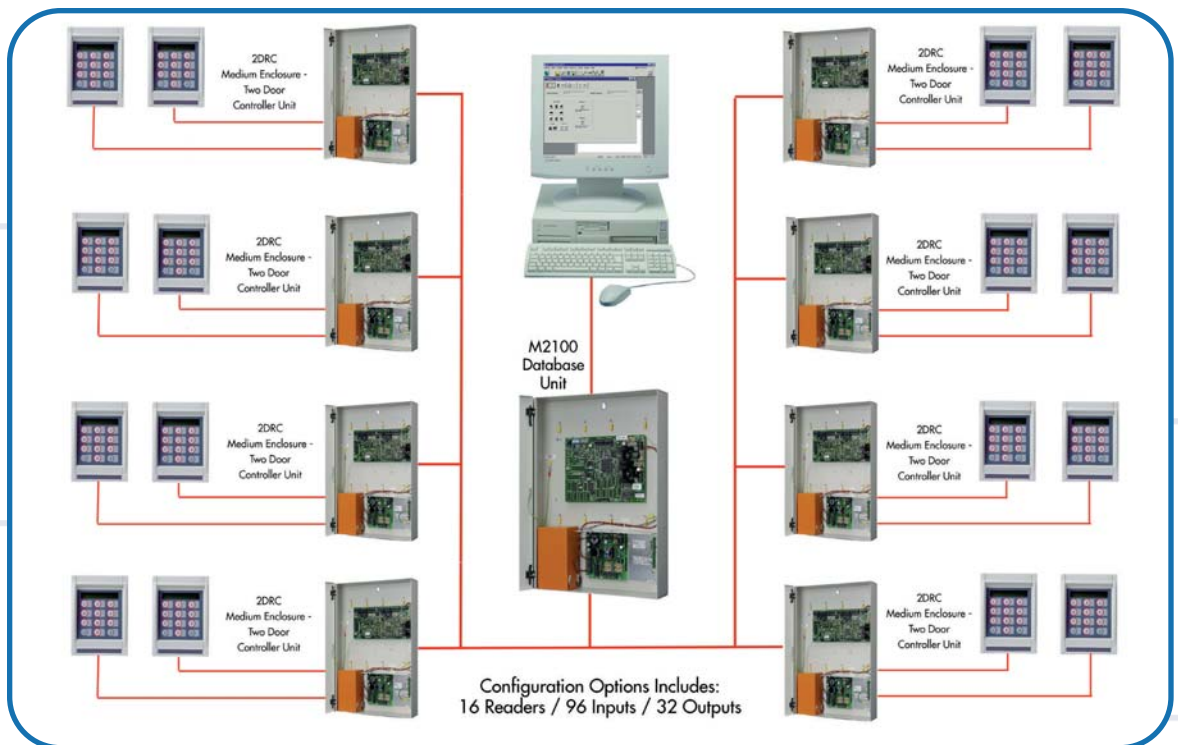
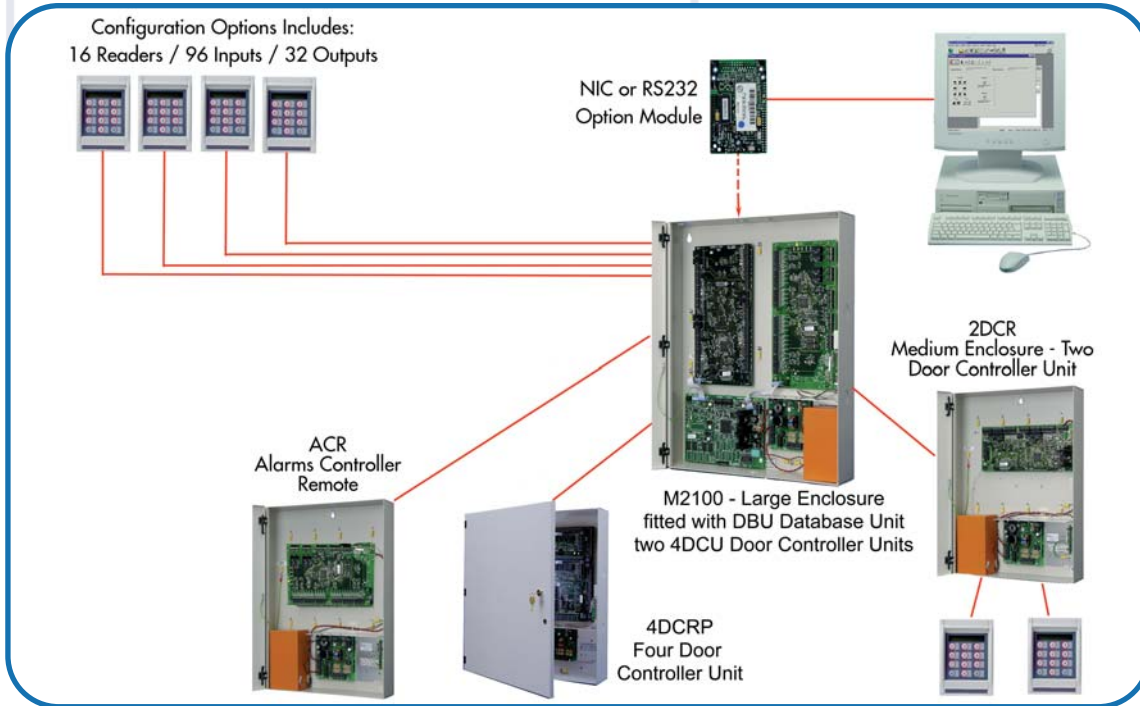
The following options can be plugged into the DBU board when required:

**RS-232 Module** – This module converts the upstream communications port from the secure Pseudo-Random communications to the RS-232 interface, enabling a computer port to directly connect to the first NODE of a chain. The RS-232 module also allows direct connection to a dial-up modem for remote site applications.

**Network Interface Module** – This module is used for TCP/IP network link communications to its controlling PC. The module is fitted to the first Symmetry M2100 DBU in a chain of controllers.

The Network Interface Module also incorporates an integral RS-232 board to support the option of fallback dial-up communications, in the event of network failure, via an external modem. The fallback to dial-up alarms reporting is automatic when a network failure is detected.

## Typical Configurations



## Specifications

### Reader Types Supported

The Symmetry M2100 controller can be used with any of the following readers:

- Series 600/700/800 Readers
- RS-485 RSI Hand Geometry Reader (via RS-485 interface boards)
- Readers with a Wiegand Interface (via Wiegand Interface Modules)

### Enclosure Size

(Symmetry M2100 Controller - Includes Enclosure (mm))

	SIZE 1 (CAB-4)	SIZE 2 (CAB-1)	SIZE 3 (CAB-3)
<b>Width:</b>	19.7" (500)	15.1" (385)	16.5" (420)
<b>Height:</b>	22" (560)	18.7" (475)	21.7" (550)
<b>Depth:</b>	4.1" (105)	3.4" (85)	3.7" (95)

### Power Requirements

- **CAB-1 (small)** - External transformer 18VAC secondary output rated at 75VA. Sufficient power is available per lock up to 400mA.
- **CAB-3 (medium)** - Optional external transformer 18VAC secondary output rated at 75VA. Sufficient power is available per lock up to 400mA.
- **CAB-4 (large)** - External transformer 18VAC secondary output rated at 75VA. Locking devices and peripheral equipment require a suitable independent external power supply.

### Operating Environment

- +32°F to +122°F (0°C to +50°C)
- 15% to 90% humidity, non-condensing

### Transmission Speed (Host Communications)

- Switch-selectable (9600/19200/38400 baud)

### Communication Distances

- DBU to PC/Modem (RS-232) = 50ft (15m)
- DBU Controller board to DBU Controller board (Current Loop) = 3000ft (1000m)
- DBU Controller board to Door/Alarm Controller board (RS-485) = 3000ft (1000m) total line length
- Door Controller board to Current Loop Reader = 3000ft (1000m)
- Door Controller board to Wiegand Reader (via WIM) = 325ft (100m)

### Storage Capacities

- Choice of 20,000, 50,000, 100,000 or 200,000 cardholder memory configurations.
- An eight reader high capacity model supporting 250,000 cardholders is also available.

### Controller Inputs/Outputs

- Reader supply outputs: 12V@200mA max/5V@100mA max
- Reader Ports: 20mA current loop
- Door monitor inputs: 2/3/4 – state supervision
- Exit Request inputs 2/3/4 – state supervision
- Door Release relay outputs: (rated at 30VDC, 3A max)
- Bypass / shunt relay outputs: (rated at 30VDC, 3A max)
- ACU/ACR Inputs: 2/3/4/6 – state supervision

### Option Boards Supported

	DBU	4DCU/RP	2DCR
RS-232 Module	1	N/A	N/A
Network Interface Mod.	1	N/A	N/A
I/O Modules (8in/4out)	N/A	2	1
RS-485 I/F - 4 Reader	N/A	1	N/A
RS-485 I/F - 2 Reader	N/A	N/A	1
WIM-4	N/A	1	N/A
WIM-2	N/A	N/A	1
WIM-1	N/A	N/A	N/A

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