

# multiNODE 2100 Controller

## ACCESS CONTROL & SECURITY MANAGEMENT SOLUTIONS

### AMAG multiNODE 2100 Controller

The multiNODE 2100 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 multiNODE 2100 supports hardwired connections via a PC port, remote dial-up modem reporting or can be configured to communicate over a network link. Each multiNODE 2100 Database Unit (DBU) fully supports connection of up to sixteen 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 multiNODE 2100 controllers communicates with a PC running the feature rich AMAG Professional, Enterprise or Global Edition 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 thirty-two controllers per chain.

A biometrics version of the multiNODE 2100 is also available. This allows unparalleled hardware integration with, for example, a hand geometry reader. Each multiNODE 2100 controller is capable of storing and authenticating up to 150,000 templates locally. As with the other multiNODE 2100 controllers, the biometrics version

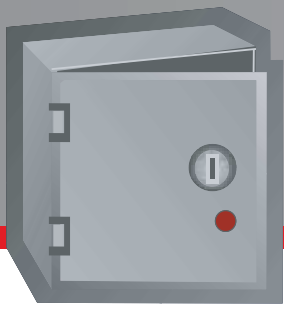
is fully intelligent and makes authentication and access decisions locally without needing to refer to a host computer. The multiNODE 2100 biometrics controller can eliminate the need for template management systems that require additional training, data entry, wiring, installation and service.

### Communications Schemes may be configured as follows:

- A hardwired 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
- Via a network connection, using TCP/IP Protocol or using an integral network interface module option card. The card also incorporates a built in RS232 module to support fallback dial-up of alarms should the network be unavailable. Encryption is also available

### Reader Technologies & Card Formats

The multiNODE 2100 controller supports a full range of reading technologies including Magstripe, Smartcard, Proximity, Biometrics 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.



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### multiNODE 2100 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.

- Size 1 - Large CAB-4 can contain a selection of the following boards: Database Unit (DBU) plus any two Units selected from the 4Door Controller Unit (4DCU) or Alarms Controller Unit (ACU)
- Size 2 - Medium CAB-1 can contain any one of the following boards: Database Unit (DBU), 2 Door Controller Remote (2-DCR) or Alarms Controller Remote (ACR)
- Size 3 - Medium CAB-3 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 onboard power supply (2-DCRP), 4 Door Controller with onboard power supply (4-DCRP) or an Alarms Controller Remote (ACR)
- Size 4 - Small CAB-2 is used for the 1 Door Controller Remote (1-DCR)

### multiNODE 2100 Main Items Description

- The multiNODE 2100 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 8 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:

- RS232 Module – This module converts the upstream communications port (A) from the secure Pseudo-Random communications to the RS232 interface, enabling a computer port to directly connect to the first NODE of a chain. The RS232 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 multiNODE 2100 DBU in a chain of controllers. The Network Interface Module also incorporates an integral RS232 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

- 4 Door Controller Unit (4DCU/4DCRP) - controls communications for up to four (4) 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 (8) monitor points and four (4) auxiliary relay outputs. Two (2) I/O modules can be fitted to each board. A fully configured multiNODE 2100 fitted with two 4 Door Controllers can therefore support 32 inputs and 16 outputs
- RS485 Reader Interface Module – Enables connection of up to four (4) HGU biometric readers in addition to current loop or Wiegand readers
- Wiegand Interface Module (WIM4) - Enables connection of up to four (4) OEM readers via a Wiegand Electrical Interface

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

● 2 Door Controller Unit (2-DCR/2-DCRP) provides a means of extending a multiNODE 2100 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 RS485 link. The configuration can be cabled in either star or multidrop, 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 options boards:

- A WIM 2 board for connection of up to two (2) Wiegand readers
- An Input/Output board for eight (8) monitor points and four (4) auxiliary relay outputs
- RS485 Reader Interface Module for connection of up to two (2) HGU biometric readers in addition to two (2) current loop or Wiegand readers

● 1 Door Controller (1DCRP) installs and operates as for the 2 Door Unit

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

The 1 Door Controller includes as standard:

- Integral RS485 port for connection of one (1) HGU biometric reader in addition to one current loop or Wiegand reader
- Integral general purpose input/output (2 in and 1 out) e.g. for Jetway IDS

The 1 Door Controller can be fitted with an optional plug-in WIM 1 board for connection of up to one (1) Wiegand reader



## multiNODE 2100 Connection Capability

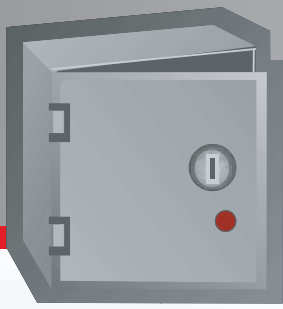
A maximum of eight (8) addresses can be connected per multiNODE 2100 DBU.

The maximum number of readers per multiNODE 2100 cannot exceed 16.

TYPE	MAX. NO OF CONTROLLERS PER DBU	CONNECTION TYPE	FIRMWARE USED	DBU ADDRESSES USED PER CONTROLLER	ENCLOSURE SIZE	SUPPORTED DEVICES	SUPPORTED DEVICES VIA OPTION BOARD	INPUT POWER
DBU	N/A	20ma/RS232/TCPIP	Standard & Biometric, Flash Upgradeable	N/A	Size 1, Size 2 and Size 3	4DCU/4DCRP /2DCR/2DCRP/ 1DCR/ACU/ACR	RS232 and TCP/IP NIC Modules	12VDC or 18VAC*1
4DCU	2	Via Ribbon Cable	Standard & Biometric, Flash Upgradeable	2	Size 1 only	4 Readers	16 Inputs 8 Outputs	Via DBU or 18VAC
4DCRP	4	External via RS485	Standard & Biometric, Flash Upgradeable	2	Size 3 only	4 Readers	16 Inputs 8 Outputs	12VDC or 18VAC
2DCR	8	External via RS485	Standard & Biometric, Flash Upgradeable	1	Size 2 and Size 3	2 Readers 2 RSI HGU	8 Inputs 4 Outputs	12VDC 24VDC or 18VAC*1
2DCRP	8	External via RS485	Standard & Biometric, Flash Upgradeable	1	Size 3	2 Readers 2 RSI HGU	8 Inputs 4 Outputs	12VDC or 18VAC
1DCRP	8	External via RS485	Standard & Biometric, Flash Upgradeable	1	Size 4	1 Reader 1 RSI HGU 2 Inputs 1 Output	N/A	12VDC or 18VAC
ACU	2	Via Ribbon Cable	Flash Upgradeable	2	Size 1	24 Inputs 4 Outputs	N/A	Via DBU
ACR	4	External via RS485	Flash Upgradeable	2	Size 2 and Size 3	24 Inputs 4 Outputs	N/A	12VDC or 18VAC*1

\*1Note: 18VAC input for DBU, 2DCR and ACR requires integrated enclosure power supply.

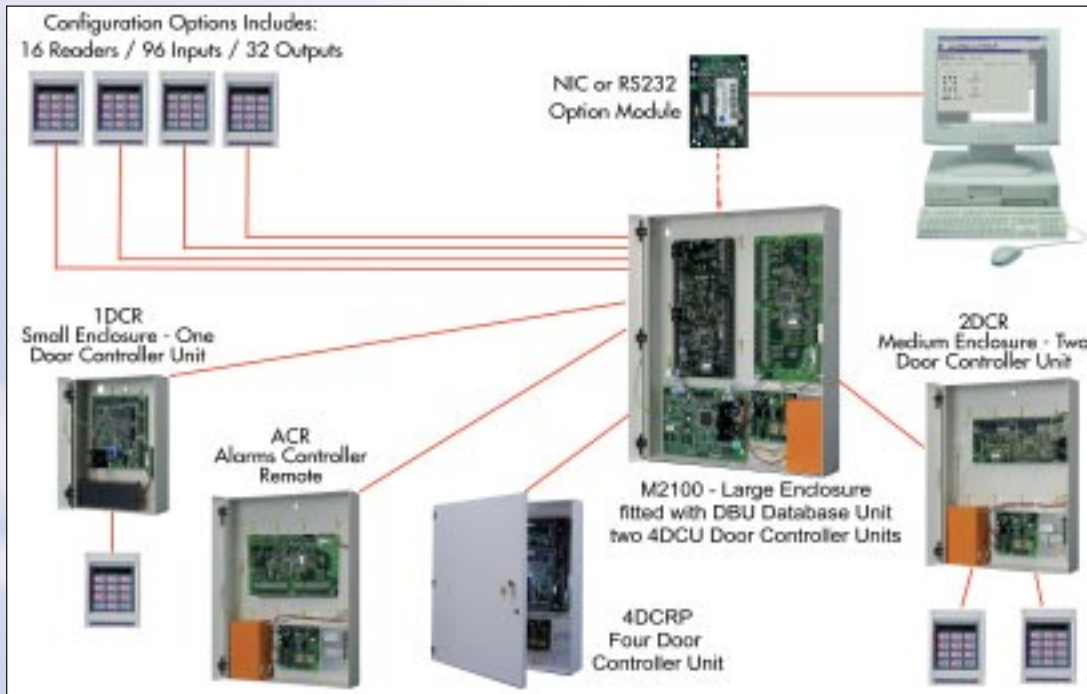




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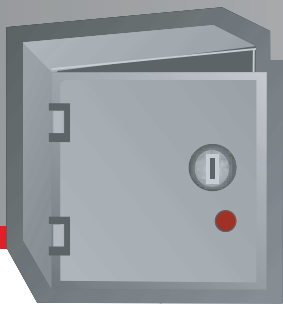
## Typical Configurations



Example configuration showing use of all available main boards



Maximum 16 reader configuration using DBU and eight 2DCR's



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### General Specifications

#### Reader Types Supported

The multiNODE 2100 controller can be used with any of the following readers:

- Series 600/700/800 Readers
- RS485 RSI Hand Geometry Reader (via RS485 interface boards)
- All OEM readers requiring a Wiegand interface (via Wiegand Interface Modules)

multiNODE 2100 Controller - Includes Enclosure (mm)

	Size 1 (CAB-4)	Size 2 (CAB-1)	Size 3 (CAB-3)	Size 4 (CAB-2)
<b>Width:</b>	19.7" (500)	15.1" (385)	16.5" (420)	9.6"(245)
<b>Height:</b>	22" (560)	18.7" (475)	21.7" (550)	12.4"(315)
<b>Depth:</b>	4.1" (105)	3.4" (85)	3.7"(95)	3.4" (85)

#### Operating Environment

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

#### Power Requirements

- **Size 1 enclosure (CAB-4)** - External transformer 18VAC secondary output rated at 75VA. Locking devices and peripheral equipment require a suitable independent external power supply
- **Size 2 enclosure (CAB-1)** - External transformer 18VAC secondary output rated at 75VA. Sufficient power is available per lock up to 400mA
- **Size 3 enclosure (CAB-3)** - Optional external transformer 18VAC secondary output rated at 75VA. Sufficient power is available per lock up to 400mA
- **Size 4 enclosure (CAB-2)** - External transformer 18VAC secondary output rated at 50VA. Sufficient power is available for the lock up to 400mA

#### Transmission Speed (Host Communications)

Switch-selectable (9600/19200/38400 baud)

#### Communication Distances

- DBU to PC/Modem (RS232) = 50ft (15m)
- DBU Controller board to DBU Controller board (Current Loop) = 3000ft (1000m)
- DBU Controller board to Door/Alarm Controller board (RS485) = 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 8 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/4DCRP	2-DCR/P	1-DCR
RS232 Module	1	N/A	N/A	N/A
Network Interface Module	1	N/A	N/A	N/A
I/O Modules (8in/4out)	N/A	2	1	N/A
RS485 I/F – 4 reader	N/A	1	N/A	N/A
RS485 I/F – 2 reader	N/A	N/A	1	N/A
WIM-4	N/A	1	N/A	N/A
WIM-2	N/A	N/A	1	N/A
WIM-1	N/A	N/A	N/A	1



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