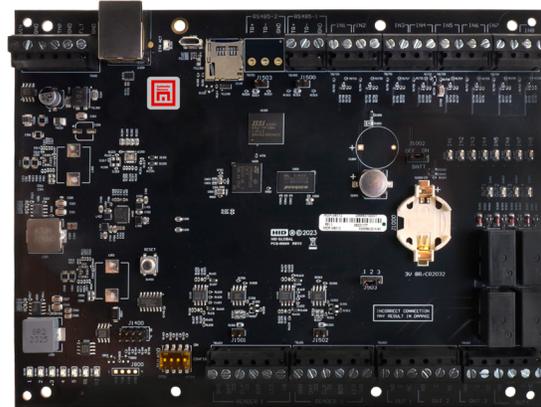


# LNL-M2220

## Intelligent Dual Reader Controller



### Overview

The LNL-M2220 Intelligent Dual Reader Controller (IDRC) provides a single board solution for interfacing one or two doors to an OnGuard® system. In addition, other I/O and reader interface modules can be added on the controller's downstream port to expand its capabilities. The LNL-M2220 controller revolutionizes access control system architecture by allowing Ethernet connection directly from an entry location to the OnGuard server, while still providing the security, functionality, and modularity of LenelS2's proven hardware platform. The LNL-M2220 controller is scalable for any access control application, from the most basic to the most sophisticated. In the event of communication loss, the LNL-M2220 controller allows nearly all local functionality to continue unimpaired until the server connection is restored.

Utilizing its native Ethernet communications and a secure 32-bit processor, the LNL-M2220 controller can communicate upstream to the host computer through its Ethernet port. The controller can store up to 250,000 cardholders in non-volatile flash memory, and supports selective download for larger cardholder databases. The downstream RS-485 two-wire port can be used to connect up to 32 devices (maximum 64 doors).

Two on-board reader ports support Data1/Data0, Clock/Data, Supervised and Unsupervised F2F, Biometric readers and the bi-directional RS-485 Open Supervised Device Protocol (OSDP) communications. Each LNL-M2220 controller supports up to sixteen different card formats. The LNL-M2220 controller includes eight inputs that support normally open, normally closed, supervised, and unsupervised circuits. In addition, four output relays support fail-safe or fail-secure operation.

### Features & Functionality

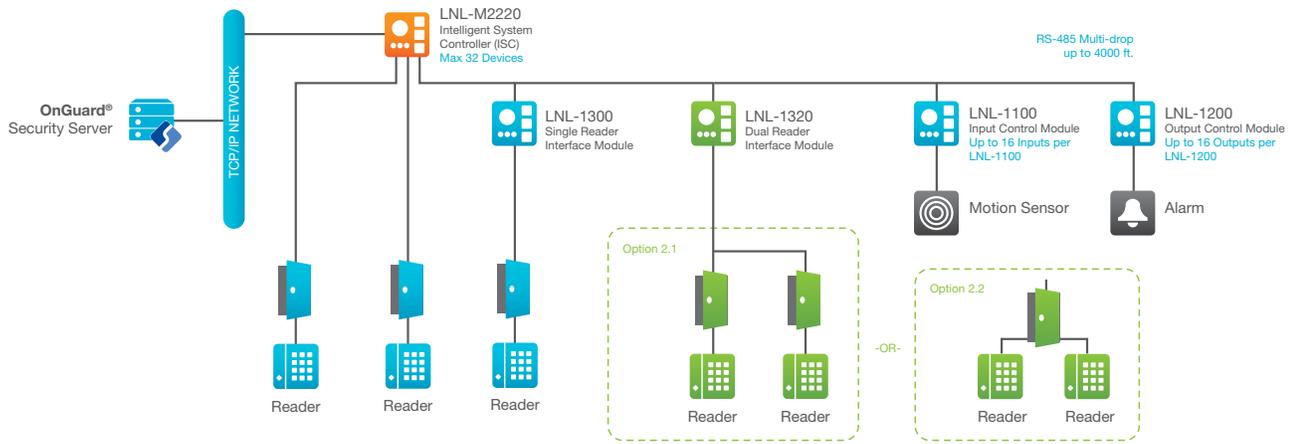
#### Controller Functionality

- DNS device naming through DHCP extended commands
- 6 MB of available on-board, non-volatile flash memory
- Super Capacitor backed, non-volatile storage of 500,000 events
- Configurable option for Data-at-Rest encryption
- Firmware stored in flash memory, background download of firmware updates supported
- Supports up to sixteen badge formats
- Biometric template storage support for OSDP™ Biometric and legacy Bioscrypt® readers
- Optional Secondary NIC, USB port (2.0) with optional adapter
- Enhanced anti-passback capabilities
- Up to 32,000 access level permissions
- Elevator control support for up to 128 floors
- Individual extended held-open and strike times
- Two dedicated inputs for tamper and power failure status
- Advanced Encryption Standard (AES) 256-bit algorithm for communications to LenelS2 Series 3 reader and I/O modules; AES 128 bit encryption to LenelS2 Series 2 reader and I/O modules
- TLS 1.2 / 1.3 communication to OnGuard
- Support for wireless lock communications hubs from ASSA ABLOY Aperio, Schlage AD400, Schlage Engage, and SimonsVoss Gateways

#### Reader Interface Functionality

- Supports Data 1/Data0, Clock/Data, Supervised and Unsupervised F2F and OSDP-compatible RS-485 readers and keypads
- Support for OSDP Biometric template transfer and Secure Channel Encryption
- Door contact supervision (open/closed) and REX push-button monitor for each door
- Strike control and auxiliary output for each door
- Bi-color reader status LED support plus beeper control, or 2-wire LED support
- On-board voltage regulator allows 12 VDC reader power from 24 VDC power source

# System Diagram



## Specifications

The interface is for use in low voltage, Class 2 Circuits only.  
The installation of this device must comply with all local fire and electrical codes.

|                              |                                                                                                                                                      |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Primary Power                | 12 to 24 VDC ± 10%, 500 mA maximum (reader current not included)                                                                                     |
| Reader Ports                 | 600 mA maximum each (add up to 600 mA to primary power current each)                                                                                 |
| Primary Host Communication   | Ethernet: 10-BaseT/100Base-TX                                                                                                                        |
| Secondary Host Communication | USB port (2.0) with optional adapter: pluggable model USB2-OTGE100                                                                                   |
| Serial I/O Device            | One each: 2-wire RS-485, 2,400 to 115,200 bps, asynchronous, half-duplex, 1 start bit, 8 data bits, and 1 stop bit                                   |
| Inputs                       | Eight unsupervised / supervised, standard EOL: 1k/1k ohm, 1% 1/4 watt; two unsupervised inputs dedicated for cabinet tamper and UPS fault monitoring |
| Outputs                      | Four relays: Normally open contact (NO): 5 A @ 30 VDC resistive; Normally closed contact (NC): 3 A @ 30 VDC resistive                                |
| Battery                      | Memory/Clock backup: Super Capacitor (10 days). Optional, 3V Lithium, type BR2330 or CR2330 (battery not included, field installable).               |

### Environmental

|                    |                                                    |
|--------------------|----------------------------------------------------|
| Temperature        | -55° to +85° C, storage<br>0° to +70° C, operating |
| Humidity           | 5 to 95% RHNC                                      |
| Heat Output (BTUs) | at 12 VDC, 20.5 BTU/hr<br>at 24 VDC, 22.9 BTU/hr   |
| Approvals          | FCC Part 15, CE, RoHS, UL 294                      |

### Reader Interface

|                           |                                                                                                                                                                                       |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power (Jumper selectable) | 12 VDC ± 10% regulated, 600 mA maximum each reader (input voltage [VIN] must be greater than 17 VDC) or 12 to 24 VDC ± 10% (input voltage passed through), 600 mA maximum each reader |
| Data Inputs               | TTL compatible, F/2F or 2-wire RS-485                                                                                                                                                 |
| RS-485 Mode               | 9,600 to 115,200 bps, asynchronous, half-duplex, 1 start bit, 8 data bits, and 1 stop bit. Maximum cable length: 2,000 ft. (609.6m)                                                   |
| LED Output                | TTL levels, high > 3 V, low < 0.5 V, 5 mA source/sink maximum                                                                                                                         |
| Buzzer Output             | Open collector, 12 VDC open circuit maximum, 40 mA sink maximum                                                                                                                       |

### Cable Requirements

|                        |                                                                                                    |
|------------------------|----------------------------------------------------------------------------------------------------|
| Power and Relays       | One twisted pair, 18 to 16 AWG                                                                     |
| Ethernet               | CAT-5, minimum                                                                                     |
| TTL Reader             | 18 AWG, depending on length and requirements                                                       |
| Alarm Input            | One twisted pair, 30 ohms maximum, typically 22 AWG @ 1,000 ft. (304.8m)                           |
| RS-485 I/O Device Port | One twisted pair with drain wire and shield, 120 ohm impedance, 24 AWG, 4,000 ft. (1,219m) maximum |
| RS-485 Reader Port     | One twisted pair with drain wire and shield, 120 ohm impedance, 24 AWG, 2,000 ft. (610m) maximum   |

### Mechanical

|            |                                                  |
|------------|--------------------------------------------------|
| Dimensions | 8.0 W x 6.0 L x 1.0 H in. (203.2 x 152.4 x 25mm) |
| Weight     | 9.0 oz. (255g) nominal, board only               |

## Parts and Spare Parts

| Part No.     | Description                                                                                                                                                                       |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LNL-M2220    | 6 MB on-board flash memory available for cardholder database; 500,000 event super capacitor backed RAM for event log.                                                             |
| USB2-OTGE100 | USB-to-Ethernet converter, for LNL X-Series and M-Series Controllers only. Provides optional Secondary NIC connection. Second NIC should be on different subnet than primary NIC. |



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Specifications subject to change without notice.

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