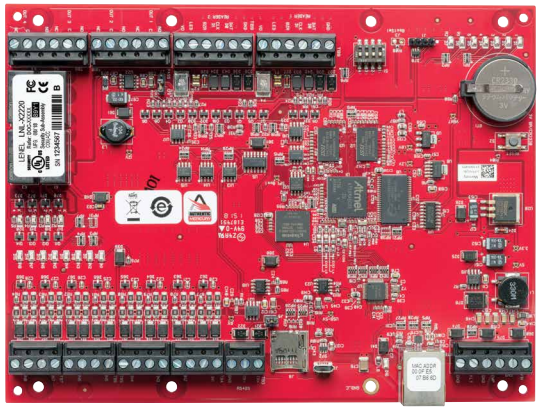
LNL-X2220

Intelligent Dual Reader Controller



Overview

The LNL-X2220 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-X2220 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 Lenel's proven hardware platform. The LNL-X2220 controller is scalable for any access control application, from the most basic to the most sophisticated. In the event of communication loss, the LNL-X2220 controller allows nearly all local functionality to continue unimpaired until the server connection is restored.

Utilizing its native Ethernet communications and an advanced 32-bit processor, the LNL-X2220 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-X2220 controller supports up to sixteen different card formats. The LNL-X2220 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

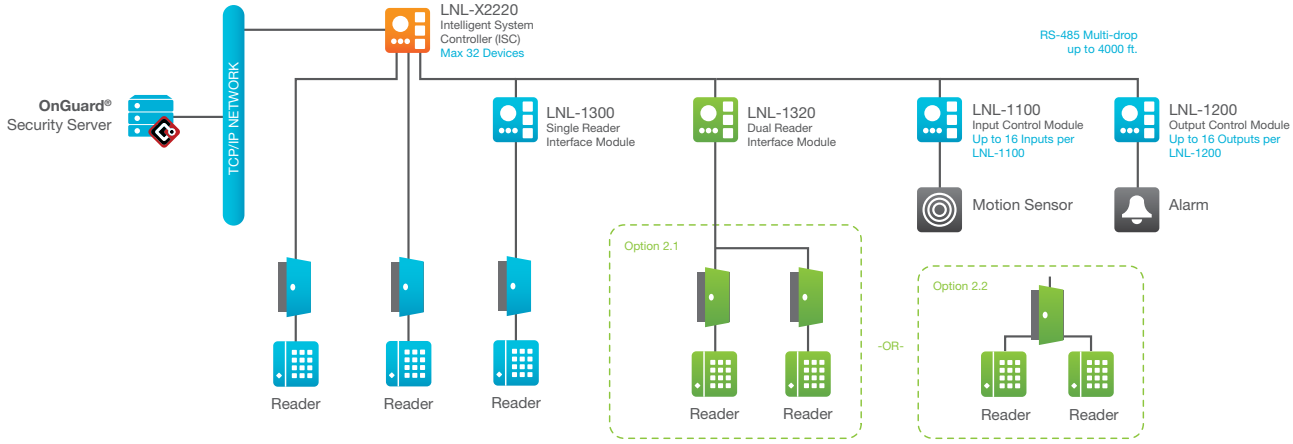
- DNS device naming through DHCP extended commands
- 6 MB of available on-board, non-volatile flash memory
- Battery-backed, non-volatile storage of 50,000 events
- Configurable option for Data at Rest encryption
- Firmware stored in flash memory, background download of firmware updates supported
- Supports 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 Lenel Series 3 reader and I/O modules; AES 128 bit encryption to Lenel Series 2 reader and I/O modules
- AES128 or TLS 1.2 (with AES256 support) communication to OnGuard
- RNDIS support enables USB connection to display controller web configuration pages

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

LNL-X2220

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 (add 600 mA to primary power current)
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
Reader Interface	
Power	12 VDC ± 10% regulated, 300 mA maximum each reader (input voltage [VIN] must be greater than 20 VDC) or 12 to 24 VDC ± 10% (input voltage passed through), 300 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	22 to 16 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
Environmental	
Temperature	-55° to +85° C, storage 0° to +70° C, operating
Humidity	5 to 95% RHNC
Heat Output (BTUs)	at 12 VDC, 20.5 BTU/hr at 24 VDC, 22.9 BTU/hr
Approvals	FCC Part 15, CE, RoHS, UL 294, UL 1076, CAN/ULC 60839-11-1:2016, CSA C22.2 No. 205-1983, cUL/ORD-C1076

Parts and Spare Parts

Part No.	Description
LNL-X2220	6 MB on-board flash memory available for cardholder database; 50,000 event battery backed RAM for event log.
USB2-OTGE100	USB to Ethernet converter, for LNL-X 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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2018/11 (GSP-2716)