CARD ACCESS STANDARDS

Department of Facilities Management 501 20th Street Greeley, CO 80631

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TABLE OF CONTENTS

Universal Requirements	.3
Access Control Components	.3
Door Hardware Electric Panic Devices Electric Strikes Electric Cylindrical Electric Mortise Door Contacts/Switches Request-To-Exit Hinges and Power Transfers.	.4 .4 .5 .5 .5 .5
Wire Requirements	.6
Power Supplies Enclosures Panic Alarms	.6 .6 .6
Physical Location Requirements Access Control Components	.7 .7
Questions / Contacts	.7
Appendices	

LNL-2220	8
LNL-1320	10
MR-10 Mag-Stripe Card Reader	12
Schlage ND Series	13
Schlage L909x Series	15
Sentrol Door Contacts (including the 1078-C preferred door contact)	17
Smartwire Access Control cable	18
Alarm Saf CPS400-UL/CSA	19
Altronix AL400ULX	20

Universal Requirements:

The University's campus-wide Card Access System is designed to provide access control to campus buildings without the need for staff to manually lock and unlock perimeter exits. It can also provide access control to building offices, computer labs, high-security areas, etc. In the case of perimeter control, *each* exterior door must be equipped with the following hardware:

- Fail-secure electric locking device
- Door Position switch (DPS)
- Request-To-Exit (REX)

The primary exterior entrance will be equipped with a mag-stripe card reader. The location of this door is typically determined either by the location of the Knox Box, or by the location of the fire alarm annunciator panel. Secondary doors may also be assigned for card access. This will be determined by the Facilities Management department. All exterior entrances will be equipped with a mechanical key-override for emergency situations. At least one door per entry bank will be required to have a mechanical key. If bank is wider than 4 doors, add an additional cylinder. These cylinders should be at opposite ends of the bank.

Door hardware selection is to be coordinated with Facilities Management. The coordination of the wiring of the door hardware and card access components must be carefully coordinated with hardware, electrical, and card system contractors.

Access Control Components:

The card access system in use on UNC campus is Lenel OnGuard 7.0, a Windows based software application. **No Substitutions are acceptable.** The local integrator is Convergent Technologies. The components typically used by the University consists of the following:

- LNL-2220: The LNL-2220 Intelligent Dual Reader Controller (IDRC) by Lenel 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 LNL-2220's downstream port to expand its capabilities. Utilizing its native Ethernet communications and an advanced 32- bit processor, the LNL-2220 can communicate upstream to the host computer through its Ethernet port. A designated port and static IP address must be must be assigned by the university's IM&T department. The downstream RS-485 two-wire port can be used to connect up to 32 devices (maximum 64 doors).
- LNL-1320: The LNL-1320 provides a vital link between the Intelligent System Controller (LNL-2220) and the card reader attached to the interface. As many as 32 DRI modules can be multi-dropped using RS-485 2-wire or 4-wire communication up to 4,000 feet per port away from the ISC. Each LNL-1320 module is individually addressed for increased reporting capabilities with OnGuard® access control software applications. The LNL-1320 includes eight inputs that support normally open, normally closed, supervised, and non-supervised circuits. In addition, six output relays support fail-safe or fail-secure operation

 MR-10 MS-MR1012 BLK: 12 volt weatherized mag-stripe reader manufactured by Mercury Security.

Door Hardware:

Electric Panic Devices:

The Von Duprin RX 98 QEL electrified panic devices is our standard locking device. Please coordinate with PS900 series power supply.

Schlage L9080 EUL RX is our standard interior locking device.

Electric Strikes:

Electric strikes are no longer being used on new construction. Any use of electric strikes must be previously approved by Facilities Management.

- HES Genesis 9600: This strike is surface-mountable, and jamb preparation is typically limited to drilling 3 holes to accommodate wire and strike installation. The strike voltage is field-selectable at either 12 or 24 volts, and should be set up to utilize 24 volts. In some cases the HES 9600-108 spacer plate (shim) may be needed to mount the strike closer to the latch on the panic device. It is designed to be used with rim-mounted exit devices, and is the preferred device to use for perimeter exits.
- HES 7000-24D: This strike is a lesser alternative to the Genesis 9600. This strike is not surface mountable, and is designed for rim-mounted panic devices. Unlike most other electric strikes (e.g. Von Duprin) two can be installed into a steel center-mullion successfully. Some jamb preparation is required, and steel center-mullions can be ordered prepped to accommodate this strike. This strike is *not* field selectable for voltage, so the 24 volt strike must be specified. Additionally, the HES 7000-783 strike mounting plate must be specified in addition to the strike itself. In some cases the HES 7000-108 spacer plate (shim) may be needed to mount the strike closer to the latch on the panic device.
- HES 1006: This strike is not surface mountable, and is designed for use with standard locksets. Some jamb preparation is required. This strike is field-selectable for voltage, and should be set up for 24 volts. Unlike the Genesis 9600 and 7000, this strike *must* be ordered in fail-secure mode unless otherwise specified. Several strike-plate option kits are available depending on the type of lockset used.
- HES 4500: The 4500C series electric strike is designed for installation in 2" UL 10C firerated frames with 1/2" drywall penetration. The 4500C features a low profile 1-3/8" depth, heavy-duty stainless steel construction. Its strength is derived from a unique keeper pin locking design, enabling the 4500C to exceed the ratings of the frame, door and locking hardware. This strike is not surface mountable, and is designed for use with standard locksets. Some jamb preparation is required. This strike is field-selectable for voltage, and should be set up for 24 volts. Several strike-plate option kits are available depending on the type of lockset used.

 HES 8500: The 8500 series is a fire rated, compact, high performance electric strike featuring a unique concealed design for use with mortise locksets without a deadbolt. Designed for fast, convenient installation, the 8500 installs with little or no modification to the frame. Simply remove the existing strike plate, remove the dust box and install. The 8500 accommodates mortise latchbolts up to 3/4" throw. This strike is field-selectable for voltage, and should be set up for 24 volts. Several strike-plate option kits are available depending on the type of lockset used.

Electrified Cylindrical:

• Schlage ND Series: Electrified cylindrical locksets are primarily used in residential applications.

Electrified Mortise:

• Schlage L909x Series: The electrified mortise is the application of choice for most installations. They are field selectable for voltage, and should be set up for 24volts. They are also field selectable fail safe or fail secure. Most applications will be fail secure unless noted. Locksets should be ordered with request to exit and door position sensor included. The L909x Series electrified mortise comes standard with Allegion Connect, a factory-installed Molex connector system that utilizes quick-connect harnesses and hinges for simplified installation and maintenance. Alternately, the connector can be cut off and the lock installed with traditional wire splicing methods. Note that the Allegion Connect harnesses and hinges are sold separately.

Door Position Switches, DPS:

- Sentrol 1078-C closed-loop recessed door position switch
- Securitron J-1055-04F. We prefer to use the J-1055 magnet in wood doors, with the 1078-C switch in the frame.

Other types of closed-loop door contacts may be used, exceptions to this should be approved by Facilities Management prior to installation. Every effort should be made to use a recessed DPS.

Request-To-Exit REX:

It is preferred that Rex be integrated into the electrified hardware if possible.

• Detection Systems DS-150i Request-To-Exit PIR with Wrap-Around Coverage

Hinges and Power Transfers:

 Electric Hinge (Energy Transfer Monitor Hinge): Command Access ETM6WH BB68600 (Heavy Weight). Wires = 2ea 18ga, 4ea, 26ga). This is UNC's preferred method • Electric Power Transfers: provide edge-mounted power transfer with ten 24-gauge wires. Electric Power Transfers by Facilities Management approval only.

Wire Requirements:

• All Card access wire must be equal to product listed below:

OMNI Cable: G99ACC-08 Yellow Jacket Plenum Rated OD .405" Card Reader: 22 AWG, 3 pair, shielded, White/yellow Lock Power: 18 AWG, 4 conductor, non-shielded, white/purple Door Contact: 22 AWG, 2 conductor, non-shielded, white/green REX/Spare: 22 AWG, 4 conductor, non-shielded, white/red

Power Supplies – Access Control System:

A 12-volt power supply is required for the card access system. The Alarm-Saf CPS400C-UL/CSA is the preferred power supplies for this application. The Altronix AL400ULX UL would be an alternate. All Von Duprin panic devices will require a PS900 series power supply.

Enclosures:

• Lenel CTX and CTX6 enclosures are preferred.

Panic Alarm Hardware:

• Innovonics EN4204R: The Inovonics four zone add-on receiver with relay outputs programs and supervises up to four Inovonics transmitters. This receiver includes Form C relays for each output, allowing connection to any hardwire panel, or stand-alone wireless application.

• Innovonics EN4216MR: The Inovonics 16 zone multi-condition receiver with relay outputs programs and supervises up to 16 single or multiple condition transmitters. This receiver includes Form C relays for each output, allowing connection to any hardwire panel, or standalone wireless application.

• Innovonics EN5040-20T: The EN5040-20T high power repeater with transformer decodes and re-transmits signals from Inovonics transmitters, acting as a range expander for any Inovonics EchoStream transmission that it hears. Several layers of repeaters can be employed to provide coverage of large facilities, multi-story buildings or sites with multiple buildings. The EN5040-20T high power repeater with transformer sends check-in messages every 20 minutes to allow for use in a UL 2560 certified system.

• Innovonics EN1235SF: The Inovonics single-button fixed position hold up transmitter features a rugged design with simple, single-button activation, and a back tamper for tamper protection.

Physical Location Requirements:

The equipment required to operate the Card Access System must be installed in specific locations and environmental conditions. All components are to be installed in accordance with the manufacturer's instructions.

Physical Location Requirements – Access Control head end:

Within the building, space will be needed to accommodate the access control hardware, including the panel, the reader interface devices, and the power supplies.

We need 3' to 4' of clear floor space in front of the above listed panels for working space.

Questions / Contacts:

To Contact vendors for Lenel:

Convergint Technologies 7330 S Alton Way #12 Centennial, CO 80112 (303) 932-0757 www.convergint.com



Intelligent Dual Reader Controller

LNL-2220

Overview

The LNL-2220 Intelligent Dual Reader Controller (IDRC) by Lenel 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 LNL-2220's downstream port to expand its capabilities. The LNL-2220 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-2220 is scalable for any access control application, from the most basic to the most sophisticated. In the event of communication loss, the LNL-2220 allows nearly all local functionality to continue unimpaired until the server connection is restored.

Utilizing its native Ethernet communications and an advanced 32bit processor, the LNL-2220 can communicate upstream to the host computer through its Ethernet port (with a throughput up to eight times greater than the fastest serial connections), or at up to 115.2 Kbps using RS-232 communication directly or through an external dial-up modem. The LNL-2220 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, Bioscrypt RS-485 readers and the bidirectional RS-485 Open Supervised Device Protocol (OSDP) communications. Each LNL-2220 supports up to eight different card formats. The LNL-2220 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

- On-board Ethernet 10/100Base-T port provides up to 8 times greater throughput than serial-to-Ethernet converters. DHCP and fixed IP addressing supported.
- 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
- Firmware stored in flash memory, background download of firmware updates supported
- Supports up to 16 different formats (8 card formats and 8 asset formats)
- Biometric template storage support for Schlage Recognition Systems®, Bioscrypt®, and Identix®.
- Direct connection of Bioscrypt RS-485 devices
- Enhanced anti-passback capabilities
- Up to 32,000 access level permissions
- 255 holidays with grouping, 255 timezones, each with 6 intervals
- Elevator control support for up to 128 floors
- Individual extended held open and strike times (ADA required)
- Up to 9-digit user PIN codes
- 20 status LEDs
- 2 dedicated inputs for tamper and power failure status
- 12 or 24 VDC input power
- Advanced Encryption Standard (AES) 128-bit algorithm for communications

Reader Interface Functionality

- Supports Data1/Data0, Clock/Data and Lenel OSDP-compatible RS-485 readers and keypads
- 4 Form-C relay outputs, 5 A at 30 VDC
- Door contact supervision (open/closed) and REX push-button monitor for each door
- Strike control and auxiliary output for each door
- Bicolor reader status LED support plus beeper control, or 2-wire LED support
- On-board regulator allows 12 VDC reader power from 24 VDC power source





Controller Features

LNL-2220	6 MB On-board flash memory available for cardholder & asset database,	
	50,000 event battery backed RAM for event log	
Dial-Up Modem		
LNL-56KEXT	56 K external modem with cables	
LNL-DC336K	12 VDC-powered/33.6 K external modem	

Specifications

Primary Power (DC or AC)	* The LNL-2220 is for use in low voltage, power-limited, class 2 circuits only.
DC input:	12 or 24 VDC ± 15%. 500 mA maximum
AC input:	12 VAC \pm 15%. 400 mA RMS
Memory and Clock backup	3 V lithium, type BR2325, BR2330, CR2330
Communication Ports	
Primary (Ethernet) Port:	10/100Base-T Ethernet high-speed port
Alternate Upstream Port 1:	RS-232 9600 to 115.2 Kbps async
Downstream Port 2:	RS-485 (2-wire) 9600 to 38.4 Kbps async
Downstream Port 2:	RS-485 (2-wire) 9600 to 38.4 Kbps async
Downstream Port 2: Inputs Tamper and Power Fail Monitors:	RS-485 (2-wire) 9600 to 38.4 Kbps async Unsupervised, dedicated
Downstream Port 2: Inputs Tamper and Power Fail Monitors: Door position, REX, and AUX:	RS-485 (2-wire) 9600 to 38.4 Kbps async Unsupervised, dedicated 8, each programmable as normally open or normally closed, supervised or unsupervised circuits
Downstream Port 2: Inputs Tamper and Power Fail Monitors: Door position, REX, and AUX: Outputs	RS-485 (2-wire) 9600 to 38.4 Kbps async Unsupervised, dedicated 8, each programmable as normally open or normally closed, supervised or unsupervised circuits

Reader Power	
DC output:	12 VDC, 125 mA regulated when 24 VDC powered, or 12 to 24 VDC 125 mA current limited
Reader Port Compatibility	Wiegand Data1/Data0, Magnetic Clock/Data, F/2F single-wire protocol, Bioscrypt RS-485,
	OSDP (Open Supervised Device Protocol RS-485)
Environmental	
Temperature:	Operating: 32° to 158° F (0° to +70° C)
	Storage: -67° to 185° F (-55° to +85° C)
Humidity:	0 to 95% RHNC
Humidity: Mechanical	0 to 95% RHNC
Humidity: Mechanical Dimensions:	0 to 95% RHNC 6 x 5 x 1 in. (152 x 127 x 25 mm)
Humidity: Mechanical Dimensions: Weight:	0 to 95% RHNC 6 x 5 x 1 in. (152 x 127 x 25 mm) 8 oz. (230 g) nominal
Humidity: Mechanical Dimensions: Weight: Approvals	0 to 95% RHNC 6 x 5 x 1 in. (152 x 127 x 25 mm) 8 oz. (230 g) nominal UL 294, CE-marked, RoHS compliant
Humidity: Mechanical Dimensions: Weight: Approvals Supported Readers	0 to 95% RHNC 6 x 5 x 1 in. (152 x 127 x 25 mm) 8 oz. (230 g) nominal UL 294, CE-marked, RoHS compliant Schlage Wireless - WA 5296, WA 5696, WA 5694, WA 993, WRI, WPR

lenel.com

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Specifications subject to change without notice.

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LNL_TS_2220_063014





Dual Reader Interface Module

LNL-1320 Series 2

Overview

Lenel offers a Dual Reader Interface (DRI) module for access control solutions. Most access control card readers, keypads, or readers with keypads that use standard Wiegand Data1/Data0 or Clock/Data communication are supported, as are those that support the bidirectional RS-485 Open Supervised Device Protocol (OSDP). Lock, unlock, and facility code offline access modes are supported on all readers connected to the DRI. Each DRI supports up to eight different card formats as well as issue codes for both magnetic and Wiegand card formats.

The DRI provides a vital link between the Intelligent System Controller (ISC) and the card reader attached to the interface. As many as 32 DRI modules can be multidropped using RS-485 2-wire or 4-wire communication up to 4,000 feet per port away from the ISC. Each DRI module is individually addressed for increased reporting capabilities with OnGuard[®] access control software applications. The DRI includes eight inputs that support normally open, normally closed, supervised, and non-supervised circuits. In addition, six output relays support fail-safe or fail-secure operation.









FEATURES & FUNCTIONALITY

- 12 or 24 VDC power supply
- Supports Data1/Data0, Clock/Data and Lenel OSDP-compatible RS-485 readers and keypads
- Downloadable firmware
- Six Form-C 5 A at 28 VDC relay outputs
- Up to 16 different formats (8 card formats and 8 asset formats)
- Issue code support for magnetic and Wiegand formats
- Door contact supervision (open/closed)
- REX push-button monitor
- Strike control output
- Bicolor reader status LED support and 2-wire LED support
- Beeper control
- · Dedicated tamper and power failure circuits
- Support for offline reader access mode
- On-board jumpers for termination
- On-board regulator allows 12 VDC reader support from 24 VDC power source
- DIP switch-selectable addressing





* See ISC datasheets for specific capacities.

Power Supplies & Enclosures

LNL-AL400ULX	Lenel [®] UL Listed 4A, 110VAC Power Supply – 12VDC 4A output, 115VAC input, continuous supply current with enclosure (15.5" x 12.5" x 4.5"), lock, tamper switch, UPS capable (Battery Optional) UL & CUL Approved
LNL-AL600ULX-4CB6	Lenel UL Listed Power Supply – 12VDC 6A output, 115VAC (1.6 amps) input, continuous supply current with enclosure (24" x 18" x 4.5"), lock, tamper switch, power distribution module, UPS capable (Battery Optional) UL & CUL Approved
ABT-12	Battery Kit - 12VDC, 12 AH battery (PS-12120)

Specifications

Primary Power	12 to 24Vdc ±10%, 550mA maximum (plus reader current) 12Vdc @ 450mA (plus reader current) nominal, 18.41 BTUs 24Vdc @ 270mA (plus reader current) nominal, 22.09 BTUs
Outputs	6 outputs, Form-C, 5A @ 28Vdc, resistive
Inputs	8 unsupervised/supervised, standard EOL: 1k/1k ohm, 1% 1/4 watt 2 unsupervised, dedicated for cabinet tamper and UPS fault monitoring
Reader Interface	Reader power: 12Vdc ±10% regulated, 125mA maximum each reader (jumper selectable and input voltage (VIN) must be 20Vdc mini- mum) or 12 to 24Vdc ±10% (input voltage passed through) 125mA maximum each reader
Reader Port Compatibility	Wiegand Data 1/Data 0 Magnetic Clock/Data F/2F Single Wire Open Supervised Device Protocol
Mechancial	Dimension: 6" (152mm)W x 8" (203mm)L x 1" (25mm)H Weight: 11 oz. (312g) nominal
Environmental Temperature	Operating: 32°F to 158°F (0°C to +70°C) Storage: -67°F to 185°F (-55°C to +85°C)
Humidity	0% to 95% RHNC
Compliance Approvals	FCC Part 15, CE, RoHS, UL 294, UL 1076, ULC CSA-C22.2, CAN/ULC-S319-05, cUL/ORD-C1076

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Specifications subject to change without notice.

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LNL_TS_1320s2_063014



MAGNETIC-STRIPE CARD READERS

MECHANICAL

Reader

1

Case:	Aluminum alloy
Finish:	BLACK Warm gray, textured powder coat
Size:	1.95"W x 1.30"H x 5.5"L (50 mm x 33 mm x 140 mm)
Weight:	10 oz. (285 g) Nominal
Connection:	6 conductor modular connector

ENVIRONMENTAL

Operating Temperature: -40°C to +75°C

Humidity: 95% RHNC, standard 100% (weatherized option)



MR-10 Reader MR-20 Reader with Keypad	MR-12 Reader MR-22 Reader with Keypad	MR-14 Reader MR-24 Reader with Keypad
MR-20 Reader with Keypad Interface: Implements "clock/data" and Wiegand interface formats using the "5-wire" interface common in the access control industry. Data format: Multiple built-in data formats are user selectable via DIP switch. Electrical: Voltage: 5 Vdc or 12 Vdc Current: 20 mA, typical LEDs: Upper LED: red Lower LED: green LED control: single line Applications: The MR-10 and MR-20 readers are especially well suited for use with Access Control Panels.	MR-22 Reader with Keypad Interface: Implements RS-232 interface standard. Data format: 8-bit, no parity, 1 stop bit 9600/1200 baud operation ASCII character set Electrical: Voltage: 12 Vdc Current: 35 mA, typical LEDs: Upper LED: red Lower LED: green Applications: The RS-232 interface makes the MR-12 and MR-22 readers ideal for direct connection to computers for general data entry, time and attendance, and job costing applications.	MIR-24 Reader with Keypad Interface: Implements the "two-wire" configuration of the RS-485 interface standard. Data format: 8-bit, no parity, 1 stop bit 9600 baud operation Interrogation/reply protocol Electrical: Voltage: 12 Vdc Current: 50 mA, typical LEDs: Upper LED: red/green bi-color Lower LED: red/green bi-color Applications: The RS-485 interface allows up to eight MR-14 and MR-24 readers to share a multi-dropped data channel. Access control and time and attendance are some popular
U LISTED	U LISTED	U LISTED



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à

"Simply Advanced"



SCHLAGE

ND Series Electrified cylindrical lock

Overview

The Schlage electrified ND Grade 1 Cylindrical lock has been completely redesigned to offer superior energy efficiency and flexibility in wired electrified applications. Key features include:

- Universal Input Voltage autodetects 12 through 24V DC for installation flexibility
- User selectable Fail Safe/Fail Secure set for EL or EU operation by moving switch on lock chassis
- More flexibility, less inventory one lock supports 12-24V DC, EL or EU applications; RX can be added using RX kit
- Low maximum current draw 0.23 amps (230mA)
 allows up to 8 locks on a single 2 amp power supply
- Low holding current 0.01 amps (10 mA) produces minimal heat, eliminating "hot levers" in electrically locking applications and allowing reliable operation even in poorly ventilated wood doors
- Standard Allegion Connect quick-connect Molex system (can be cut off if traditional wiring splicing preferred)
- Exceeds ANSI A156.2 Series 4000 Grade 1 requirements
- UL listed for 3 hour fire door



Available functions

- Exit function (no cylinders) – ND12DEL: Electrically locking/fail safe
 - ND12DEU: Electrically unlocking/ fail secure
- Storeroom function (outside cylinder)
 ND80PDEL: Electrically locking/fail safe
 - ND80PDEU: Electrically unlocking/ fail secure
- Storeroom Vandlgard¹ (outside cylinder)
 ND96PDEL: Electrically locking/fail safe
 - ND96PDEU: Electrically unlocking/ fail secure
 - ¹ Vandlgard outside trim "freewheels" when locked, providing extra protection against vandalism

Request to Exit

- Order with lock: specify RX in option field
- Order following components to retrofit (compatible with new electrified ND only):
 – switch (p/n N523-194)
 - screw (p/n N523-135)
 - torque plate (p/n N523-131)

Ordering instructions

Order using standard Schlage order form as follows:

ND Series electrif	ied cylindrical lock						
Function	Cylinder	Latch suffix	Trim	Finish	Door	thickness	Options
ND80EU	Р	D	RHO	626	1 3/4"		N523-194
Lock specification	าร						
Function	ND12EL/EU, ND80 Specifying EL or EU prov	EL/EU, ND96 EL/ rides the factory pre-si	EU (see front of et position; setting ca	datashee In easily be c	t for mode hanged in fie	l details) ld by moving a s	witch on the lock chassis.
Cylinder	Standard P (Everest 29) L (Less cylinder) C (Less double cyli Cylinder code N/A for N	nder)	ESIC R (Everest 29 FSI I (Less FSIC) F (Construction F	C) FSIC)	SFIC G (Evere B (Less S BDC (Dis H (Const	st 29 SFIC) SFIC) sposable SFI truction SFIC	C)))
Latch suffix	D for deadlatch fu S for springlatch f	nctions (all mode unctions (ND10 p	els except ND10 p assage, ND30 Pa	bassage, N atio, ND4C	ID30 Patic privacy, N	o, ND40 priva ID44 hospita	cy, ND44 hospital privacy) I privacy only)
Trim	ATH, OME, SPA, RH	HO, TLR					
Finish	605 Bright brass 606 Satin brass 612 Satin bronze		613 Oil rubbed b 619 Satin nickel 625 Bright chron	ronze ne	626 626AM 643e	Satin chrom Satin chrom Aged bronze	ne anti-microbial e
Handing	LH (Left Hand) LR (Left Hand Rev	RH (erse) RR ((Right Hand) Right Hand Reve	erse)			
Door thickness	1 5/8" - 2 1/8" standa	ard; see pricebool	k for additional th	nicknesse	s		
Option	Specify "RX" for R	equest to Exit. Se	e pricebook for a	additional	options.		
Note: Mixed lever desig	gns and finishes available; p	lease see pricebook fo	r details.				
Wire length							
AWG	14	16	18	2	0		

AWG	14	16	18	20	
12 volt	500' (152 m)	300' (90 m)	200' (61 m)	100' (30 m)	
24 volt	Up to 1000' (304	4 m)			

Allegion Connect

The ND Series electrified cylindrical lock comes standard with Allegion Connect, a factory-installed Molex connector system that utilizes quick-connect harnesses and hinges for simplified installation and maintenance. Alternately, the connector can be cut off and the lock installed with traditional wire splicing methods. Note that the Allegion Connect harnesses and hinges are sold separately.



Allegion Connect cables	Door type	
	Hollow metal	Wood
6" wire harness	Con-6	Con-6P
12" wire harness	Con-12	Con-12P
26" wire harness	Con-26	Con-26P
32" wire harness	Con-32	Con-32P
38" wire harness	Con-38	Con-38P
44" wire harness	Con-44	Con-44P
50" wire harness	Con-50	Con-50P
192" wire harness	Con-192	Con-192P
6" extension to power supply	Con-6W	Con-6W

Note: Harness for hollow metal doors have connectors both ends; wood door harness comes w/connector on one-end with crimped pins on other w/attachable connector (required in wood doors due to more narrow cable raceway)

About Allegion

Allegion (NYSE: ALLE) is a global pioneer in safety and security, with leading brands like CISA? Interflex? LCN? Schlage® and Von Duprin? Focusing on security around the door and adjacent areas, Allegion produces a range of solutions for homes, businesses, schools and other institutions. Allegion is a \$2 billion company, with products sold in almost 130 countries. For more, visit **www.allegion.com.**

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www.allegion.com/us





L909x Series

Overview

The Schlage L909x Series is the next generation of electrified mortise lock. The series utilizes the latest technology to offer tremendous utility and flexibility.

- Universal input voltage accepts 12 or 24V DC for installation flexibility
- User selectable fail safe/fail secure changing mode between EL and EU is as simple as flipping a switch on the lock case
- Low maximum current draw 0.4amps allows multiple locks on a single power supply
- Low holding current 0.01 amps produces minimal heat, eliminating "hot levers" in electrically locking applications and allowing reliable operation even in poorly ventilated wood doors
- All-new RX switch monitors the inside lever with enhanced detection level that balances security with lever sensitivity
- New modular RX design RX can be added on at a later time without opening the lock case
- Standard Allegion Connect quick-connect Molex system (can be cut off if traditional wiring splicing preferred)
- UL listed for 3 hour fire door



Available functions

Models without deadbolt

- No cylinders
 L9090: Outside lever EL/EU
 L9091: Both levers EL/EU
- Outside cylinder
 - L9092: Outside lever EL/EU*
 - L9093: Both levers EL/EU
- Inside and outside cylinders
 L9094: Outside lever EL/EU
 - L9095: Both levers EL/EU**

Deadbolt Models

- Outside cylinder, inside thumbturn
 - L9492: outside lever EL/EU
 - L9493: both levers EL/EU
- Inside and outside cylinders
 L9494: Outside lever EL/EU
 - L9495: Both levers EL/EU

Available options

- Request to Exit (RX)
- Latchbolt Monitor (LX)
- Door Position Sensor (DPS) non-deadbolt functions only
- Deadbolt Monitor (DM) deadbolt functions only

*L9092 replaces L9080EL/EU; **L9095 replaces L9082EL/EU

Ordering instructions

Order using standard Schlage order form as follows:

Series mo	rtise indicat	ors			
Function + c	ylinder	Trim	Finish	Handing	Option code
_9092EUP		06A	626	RH	RX, LX, DPS
Lock specif	ications				
Function	L9090EL L9495EL Specifying I	/EU, L9091EL/EU /EU (see front of EL or EU provides the f	J, L9092 datashe factory pre-	EL/EU, L9093EL/E eet for model details -set position; setting can	U, L9094EL/EU, L9095EL/EU , L9492EL/EU, L9493EL/EU, L9494EL/EU, .) easily be changed by moving a switch on the lock case.
Cylinder	P (Everes L (Less c R (Everes Leave cyline	st 29 standard cyl ylinder) st 29 FSIC) der code blank if cyling	linder) der not app	J (Less FSIC) T (Construction FS GD (Everest 29 SF blicable	BD (Less SFIC) IC) BDC (Disposable SFIC) C) HD (Construction SFIC)
Trim	Standard Decorativ Sectiona Escutche	l levers: 01, 02, 03 ve levers: M51, M5 l (rose) designs: eon designs: Lan	8, 05, 06, 2, M53, 1 A, B, C, A d N.	, 07, 12, 17, 18, ACC, A M54, M55, M56, M5 WA (AST lever only)	ST, LAT, LON, MER, OME 7, M61, M62, M63, M81, M82, M83, M84, M85 , MER (MER lever only).
Finish	605 Brig 606 Sati 609 Sati 612 Sati	ht brass n brass n brass, blackene n bronze	d	613 Oil rubbed bro 619 Satin nickel 625 Bright chrome 626 Satin chrome	nze 626AM Satin chrome anti-microbial 630AM Satin stainless 629 Bright stainless steel steel anti-microbial 630 Satin stainless steel 643e Aged bronze
Handing	LH (Left LR (Left	Hand) Hand Reverse)	RH	(Right Hand) (Right Hand Revers	se)
Option	RX (Req available Note: Mes	uest to Exit), LX (e deadbolt model saging indicators are n	Latchbo s). See p ot availabl	lt Monitor), DPS (Do pricebook for addition e for the L909x Series	oor Position Sensor, available non-deadbolt models), DM (Deadbolt Monitor, onal lock options.

Allegion Connect

The L909x Series electrified mortise comes standard with Allegion Connect, a factory-installed Molex connector system that utilizes quick-connect harnesses and hinges for simplified installation and maintenance. Alternately, the connector can be cut off and the lock installed with traditional wire splicing methods. Note that the Allegion Connect harnesses and hinges are sold separately.



Allegion Connect cables	Door type		
	Hollow metal	Wood	
6" wire harness	Con-6	Con-6P	
12" wire harness	Con-12	Con-12P	
26" wire harness	Con-26	Con-26P	
32" wire harness	Con-32	Con-32P	
38" wire harness	Con-38	Con-38P	
44" wire harness	Con-44	Con-44P	
50" wire harness	Con-50	Con-50P	
192" wire harness	Con-192	Con-192P	
6" extension to power supply	Con-6W	Con-6W	

Note: Harness for hollow metal doors have connectors both ends; wood door harness comes w/connector on one-end with crimped pins on other w/attachable connector (required in wood doors due to more narrow cable raceway)

About Allegion

Allegion (NYSE: ALLE) is a global pioneer in safety and security, with leading brands like CISA? Interflex? LCN? Schlage? and Von Duprin? Focusing on security around the door and adjacent areas, Allegion produces a range of solutions for homes, businesses, schools and other institutions. Allegion is a \$2 billion company, with products sold in almost 130 countries. For more, visit **www.allegion.com.**



Recessed

1078 Series

1"DIA. Steel Door With Wire Leads



· Special design for steel mounting

.

- Self-lock mounting
- Rugged construction
- 15/16" dia. hole required
- · UL approved for specific fire doors

ORDERING INFORMATION	Gap Size	Closed Loop	Open Loop	S.P.D.T.	Lead Type
Regular Gap Series	¹ /2" (in steel)	1078	1077 Not ULC Listed	1076	1 foot #22 wire
USTED		the state of the			1. 18 A. 1.
Wide Gap Series	1" (in steel)	1078W	1077W Not ULC Listed	1076W	1 foot #22 wire
USTED			The second s Second second s		
Biased for Higher Security Applications	¹ /2" (in steel)			1076H	1 foot #22 wire
	<>	Tegel A			
Double Pole-Double Throw	³ / ₈ " (in steel)			D.P.D.T. 1076D	1 foot #22 wire
LISTED			1.1 14		

NOTE: Specify natural, grey or mahogany brown For Accessories, see page 101

1078CT Series

Not to scale

3/4"DIA. Steel Door With Wire Leads

1.20" 3.05 cm



- 3/4" diameter for easier drilling in metal
- Self-lock mounting
- Rugged construction
- Attractive, added security of recessed installation

- 1 125" - 2 85 cm -			0 375* 0.952 cm
	0	í j	1 -
	(())	PHE	0 750*
		ſĽ – – –	Ti
	0.950	Magnet Part No. 1921C	
	24100	(included)	
ivor to scale			

ORDERING INFORMATION	Gap Size	Closed Loop	Open Loop	S.P.D.T.	Lead Type
Regular Gap Series	¹ /2" (w/1929 magnet)	1078C1			1 foot #22 wire
Long Gap Series	³ / ₈ " (in steel) (w/1921C magnet)	1078C	1077C Not ULC Listed	1076C	1 foot #22 wire
Wide Gap Series	3/4" (in steel) (w/1921C magnet)	1078CW	1077CW Not ULC Listed	1076CW	1 foot #22 wire
Biased for Higher Security Application	³ /8" (in steel) (w/1921C magnet)			1076CH	1 foot #22 wire

NOTE: Specify natural, grey or mahogany brown For Accessories, see page 101

PART NUMBER 4461030

UL Listed and Rated Type CMP Plenum Composite Cable

364/636 FT SMARTWIRE ACCES	S CONTROL CABLE DEVICE/ZONE A B C D E O 1 2 3 4 5 6 7 8 9
CABLE SPECIFICATIONS	
DESCRIPTION	Elem1:18 AWG 4 Conductor Bare Copper; Elem2: 22 AWG 3 Pair OAS Bare Copper; Elem3:22 AWG 2 Conductor Bare Copper; Elem4:22 AWG 4 Conductor Bare Copper Plenum Composite Cable, C(UL)US CMP
CONDUCTOR	Element 1: 18, Element 2, 3, and 4: 22; All Elements: Stranded Bare Copper
INSULATION	All Elements: .008"
COLOR CODE	Element 1: Black/Red/White/Green; Element 2: Black/Red, White/Green, Brown/Blue; Element 3: Black/Red; Element 4: Black/Red/White/Green
SHIELD	Element 1, 3 & 4: N/A; Element 2: Overall Aluminum Mylar
DRAIN WIRE	Element 1, 3 & 4: N/A; Element 2: 24 AWG 7 Strand Tinned Copper
JACKET	Inner Jackets: All Elements: Low-Smoke PVC .018"; Outer Jacket: Low-Smoke PVC .020"
MARKING	Elem1: LOCK POWER A B C D E 0 1 2 3 4 5 6 7 8 9; Elem2: CARD READER A B C D E 0 1 2 3 4 5 6 7 8 9; Elem3: DOOR CONTACT A B C D E 0 1 2 3 4 5 6 7 8 9; Elem4: REX/SPARE A B C D E 0 1 2 3 4 5 6 7 8 9 Outer Jacket: SMARTWIRE ACCESS CONTROL CABLE DOOR / ZONE A B C D E 0 1 2 3 4 5 6 7 8 9 C(UL)US CMP ROHS MADE IN THE USA
OVERALL DIAMETER	Elem1: .184" Nom.; Elem2: .207" Nom.; Elem3: .126" Nom.; Elem4: .145" Nom; Outer Jacket: .415" Nom.
CABLE WEIGHT	108 Lbs/Mft.
CAPACITANCE	Elem 1: 27 pF/Ft. Nom.; Elem 2: 51 pF/Ft. Nom.; Elem 3 & 4: 20 pF/Ft. Nom.
IMPEDANCE	Elem 1: 70 Ohms/Mft.; Elem 2: 27 Ohms/Mft.; Elem 3 & 4: 94 Ohms/Mft.
TEMPERATURE RATING	0 C to 75 C / 300 Volt

INDUSTRY STANDARDS FLAME RATING AGENCY APPROVALS

Approved For Plenum Use Without Conduit Per NFPA 262 Flame Test NEC Article 800; UL Listed C(UL)US CMP, RoHS Compliant, Made in the USA



All specifications referenced are nominal measurements unless otherwise noted.

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CPS400-UL/CSA POWER SUPPLY/CHARGER

Specifications

Input voltage: 120 VAC

Input current: 1.7 Amp

Ripple: < 0.240VAC p-p

Humidity : 85% @ 30 °C

Visual fault indicators :

DC presence:

Fault Reporting:
 AC Loss

Low Battery
High/Low DC

Mag locks

Card Readers

Proximity readers

12/24 VDC, 4 amp switching power supply is agency listed for access control (UL 294 and CSA Certified). Features include field selectable voltage, power limited output, Form "C" relay fault reporting, visual fault indication and an additional output for Fire Alarm Interface (FAI). Systems integration applications include system power, door strikes, mag locks, card readers and fire alarm interface for emergency exit.

Output voltage: 12/24 VDC, Field selectable

Output current rating: 4 amps continuous

1 Fire Alarm Interface controlled output

Electronically regulated and filtered output

Red LED

Operating Temperature : 0 °C to 50 °C

Maximum Battery Capacity : 14 AH

AC presence: Green LED

1 Standard uncontrolled output

FEATURES AND SPECIFICATIONS

Features

- Visual fault indication
- · Relay Fault Output
- · Class 2, power limited
- Switching technology
- · Controlled current battery charging
- · Additional output for Fire Alarm Interface (FAI)
- Short circuit protection
- Thermal protection
- Reverse polarity protection (PTC)
- UL-294
- CSA
- · Limited lifetime warranty
- Listings
- UL 294
- CSA Certified
- APPLICATONS
- · Fire Alarm Interface for emergency exit
- System power
- Door strikes

MECHANICAL

- Board Dimensions
- 4.25" W x 5.75"L

Cabinet Dimensions/Weight

CPS400C-UL/CSA - 12"W x 12" x 4"H
 13 lbs

ORDER INFORMATION

Order Number	Model Number	Description
01373	CPS400-UU/CSA	12/24V Field Selectable,4 Amps, Board
01366	CPS400C-UL/CSA	12/24V Field Selectable, 4 Amps, Key Lockable Cabinet

AlarmSaf 65A Industrial Way, Wilmington, MA 01887-3499, USA, Voice 978-658-6717, Fax:S78-658-8638, www.alarmsaf.com



AL400ULX - UL Listed, Multi-Agency Approved Power Supply/Charger

Overview:

The AL400ULX power supply converts a 115 VAC / 60Hz input, to a 12 VDC or 24 VDC power limited output, (see specifications). The AL400ULX is UL Listed for fire alarm, burglar alarm, and access control applications.

Specifications:

- UL listed fire, burglar and access control power supply (UL1481, UL603, UL294).
- ULC listed (Underwriters Laboratories Canada).
- NYC Department of Buildings Approved (MEA). •
- California State Fire Marshal Approved (CSFM).
- CSA approved (Canada).
- NFPA 72 compliant.
- Class 2 rated.
- Switch selectable 12VDC or 24VDC power limited output.
- Input 115VAC / 60Hz, 1.45 amp.
- Maximum charge current 1.25 amp.
- 4 amps continuous supply current at 12VDC.
- 3 amps continuous supply current at 24VDC.
- · Filtered and electronically regulated outputs.
- · Built-in charger for sealed lead acid or gel type batteries.
- Automatic switch over to stand-by battery when AC fails.
- AC input and DC output LED indicators.
- AC fail supervision (form "C" contacts).
- · Low battery supervision (form "C" contacts).
- · Short circuit and thermal overload protection.
- Unit is complete with power supply, enclosures, cam lock.
- Includes battery leads.

Enclosure Dimensions: 15.5"H x 12"W x 4.5"D

Power Supply Voltage Output Selections:

Output	Switch Position	
12VDC	SW 1 Closed	
24VDC	SW 1 Open	

Stand-by Specifications:

Output	4 hr. of Stand-by &	24 hr. of Stand-by &	60 hr. of Stand-by &
	5 Minutes of Alarm	5 Minutes of Alarm	5 Minutes of Alarm
12VDC / 40 AH Battery	Stand-by = 4.0 amps	Stand-by = 1.0 amps	Stand-by = 300mA
	Alarm = 4.0 amps	Alarm = 4.0 amps	Alarm = 4.0 amps
24VDC / 12 AH Battery		Stand-by = $200mA$ Alarm = 3.0 amps	
24VDC / 40 AH Battery	Stand-by = 3.0 amps	Stand-by = 1.0 amp	Stand-by = 300mA
	Alarm = 3.0 amps	Alarm = 3.0 amps	Alarm = 3.0 amps

Installation Instructions:

The AL400ULX should be installed in accordance with article 760 of The National Electrical Code or NFPA 72 as well as all applicable Local Codes.

- 1. Mount the AL400ULX in desired location.
- 2. Connect the black and white transformer leads of AL400ULX to a separate unswitched AC circuit (115VAC, 50/60Hz) dedicated to the Fire Alarm System (Fig. 1).

Altronix is not responsible for any typographical errors. Product specifications are subject to change without notice.





- Connect AC power to the black and white flying leads of the transformer. Secure green wire lead to earth ground. (Fig. 1). Use 18 AWG or larger for all power connections (Battery, DC output). Use 22 AWG to 18 AWG for power limited circuits (AC Fail/Low Battery reporting). Keep power limited wiring separate from non-power limited wiring (115VAC / 60Hz Input, Battery Wires). Minimum .25" spacing must be provided.
- Connect devices to be powered to terminals marked [+ DC -] (Fig. 1).
 Note: It is good operating practice to measure and verify output voltage before connecting devices to ensure proper operation of equipment.
- 5. For Access Control applications, batteries are optional. When batteries are not used a loss of AC will result in the loss of output voltage. When the use of stand-by batteries is desired, they must be lead acid or gel type. Connect battery to terminals marked [- BAT +] (*Fig. 1*). Use two (2) 12VDC batteries connected in series for 24VDC operation (battery leads included).
- 6. Connect appropriate signaling notification devices to AC Fail & Low battery (Fig. 1) supervisory relay outputs marked [N.C., C, N.O.].

Maintenance:

Unit should be tested at least once a year for the proper operation as follows:

Output Voltage Test: Under normal load conditions, the DC output voltage should be checked for proper voltage level (see power supply voltage output specifications chart).

Battery Test: Under normal load conditions check that the battery is fully charged, check specified voltage both at battery terminal and at the board terminals marked - BAT + to insure there is no break in the battery connection wires.

Note: Maximum charging current under discharges is 1.00 amp.

Note: Expected battery life is 5 years, however it is recommended changing batteries in 4 years or less if needed.



LED Diagnostics:

Red (DC)	Green (AC)	Power Supply Status
ON	ON	Normal operating condition
ON	OFF	Loss of AC, Stand-by battery supplying power
OFF	ON	No DC output
OFF	OFF	Loss of AC. Discharged or no stand-by battery. No DC output.

Terminal Identification:

Terminal Legend	Function/Description
AC/ AC	Low voltage AC input (28VAC / 175VA). Altronix part # T28140.
+ DC -	12VDC - 4 amps continuous power limited output. 24VDC - 3 amps continuous power limited output.
AC FAIL N.C., C, N.O.	Used to notify loss of AC power, e.g. connect to audible device or alarm panel. Relay normally energized when AC power is present. Contact rating 1 amp @ 120VAC / 28VDC
LOW BAT N.C., C, N.O.	Used to indicate low battery condition, e.g. connect to alarm panel. Relay normally energized when DC power is present. Contact rating 1 amp @ 120VAC / 28VDC
- BAT +	Stand-by battery connections. Maximum charge rate 1.25 amp.

Enclosure Dimensions:

AL400ULX - 15.5"H x 12"W x 4.5"D

