Output Control Module LNL-1200 Series 3 Quick Reference

for rev. D (SN > 2,000,000)
For detailed information, refer to the Hardware Installation Guide, DOC-600.

The LNL-1200 Board

The LNL-1200 processor provides a solution to the host system integrator for output control. The controller has 16 form-C contact relays for load switching. Additionally, two (2) digital inputs are provided for tamper and power fault status monitoring. The processor requires 12 to 24 VDC for power.
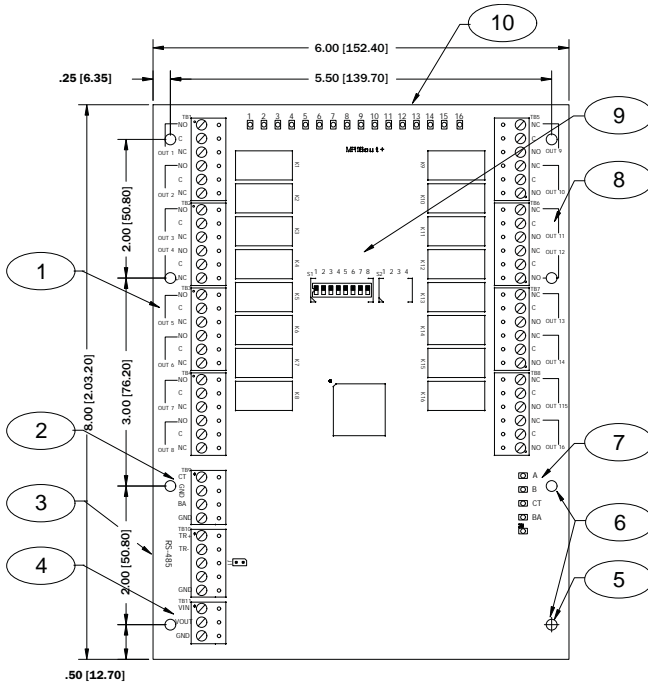

The LNL-1200 Board Callouts

Callout	Description
1	Outputs
2	Tamper and power monitor inputs
3	Serial I/O communication port, RS-485
4	Power in 12 to 24 VDC
5	Eight (8) mounting holes (Ø0.156 [Ø4.0])
6	Earth ground (connection not required)
7	Status LEDs
8	Outputs
9	DIP switches
10	Relay status LEDs

Supplying Power to the LNL-1200

The LNL-1200 requires 12 to 24 VDC for power on TB11. Locate power source as close to the unit as possible. Connect power with a minimum of 18 AWG wires.

Observe POLARITY on VIN!

The VOUT terminal on TB11 is the same as VIN.
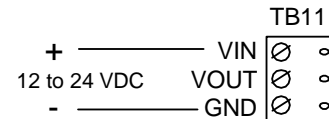
Communication Wiring

The LNL-1200 communicates to a controller via a 2-wire RS-485 interface. The interface allows multi-drop communication on a single bus of up to 4000 feet (1219 m). Use twisted pair (minimum 24 AWG) with shield for the communication line. See Specifications section.

Install RS-485 termination jumper, J1, on the interface boards at each end of the communication line only.


2-Wire RS-485
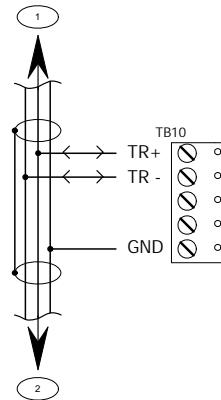
Communication Wiring Callouts

Callout	Description
1	To all other devices on the bus
2	To all other devices on the bus
	ONLY 2-WIRE RS-485 IS SUPPORTED.

Inputs for Cabinet Tamper/Power Fault

Input CT and input BA are used for monitoring cabinet tamper and power failure with normally closed contacts. These two (2) inputs are for contact closure monitoring only, and do not use EOL resistor(s). If these inputs are not used, install a short piece of wire at the input to indicate a safe condition.
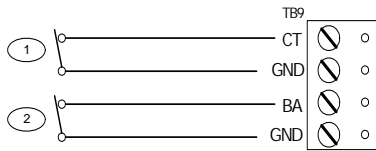

Inputs for Cabinet Tamper/Power Fault Callouts

Callout	Description
1	Cabinet tamper
2	Power fault

Output Relay Wiring

16 Form-C contact relays are provided for controlling door strikes or other devices. Load switching can cause abnormal contact wear and premature contact failure. Switching of inductive loads (strike) also causes EMI (electromagnetic interference) which may interfere with normal operation of other equipment. To minimize premature contact failure and to increase system reliability, a contact protection circuit must be used. The following two (2) circuits are recommended. Locate the protection circuit as close to the load as possible (within 12 inches [30 cm]), as the effectiveness of the circuit will decrease if it is located farther away.

Use sufficiently large gauge of wires for the load current to avoid voltage loss.
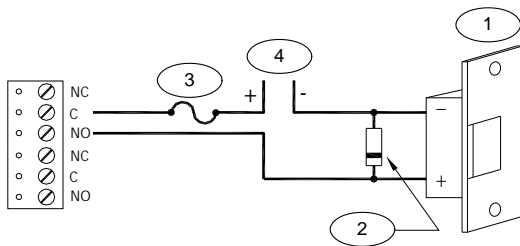
Output Relay Wiring Callouts

Callout	Description
1	DC strike
2	Diode
3	Fuse
4	To DC power source

Diode Selection: Diode current rating: 1x strike current. Diode breakdown voltage: 4x strike voltage. For 12 VDC or 24 VDC strike, diode 1N4002 (100V/1A) typical.

DIP Switch and Jumper Usage

Switches 1 to 5 select the device address. Switches 6 and 7 select the communication baud rate. Switch 8 enables encrypted communication. All other configuration settings are set via the host software.

DIP switch(es)	Used to configure:
1, 2, 3, 4, 5	Device communication address (0-31)
6, 7	Communication baud rate
8	Downstream encryption (available with OnGuard® 2009 or later)

Device Address

Address	DIP switch				
	5:	**4:**	**3:**	**2:**	**1:**
0	off	off	off	off	off
1	off	off	off	off	ON
2	off	off	off	ON	off
3	off	off	off	ON	ON
4	off	off	ON	off	off
5	off	off	ON	off	ON
6	off	off	ON	ON	off
7	off	off	ON	ON	ON
8	off	ON	off	off	off
9	off	ON	off	off	ON
10	off	ON	off	ON	off
11	off	ON	off	ON	ON
12	off	ON	ON	off	off
13	off	ON	ON	off	ON
14	off	ON	ON	ON	off
15	off	ON	ON	ON	ON
16	ON	off	off	off	off
17	ON	off	off	off	ON
18	ON	off	off	ON	off
19	ON	off	off	ON	ON
20	ON	off	ON	off	off
21	ON	off	ON	off	ON
22	ON	off	ON	ON	off
23	ON	off	ON	ON	ON
24	ON	ON	off	off	off
25	ON	ON	off	off	ON

Address	DIP switch				
	5:	4:	3:	2:	1:
26	ON	ON	off	ON	off
27	ON	ON	off	ON	ON
28	ON	ON	ON	off	off
29	ON	ON	ON	off	ON
30	ON	ON	ON	ON	off
31	ON	ON	ON	ON	ON

Communication Baud Rate

Baud rate	DIP switch 6:	DIP switch 7:
38,400 bps	ON	ON
19,200 bps	off	ON
9600 bps	ON	off
115,200 bps	off	off

Bus Encryption

Bus communications	DIP switch 8: (OnGuard 2009 or later)	DIP switch 8: (prior to OnGuard 2009)
Encryption is not required	off	Normal operation
Encryption is required	ON	Not allowed

Jumpers

Jumper	Description
J1	RS-485 termination; install in first and last units, only

All other jumpers are factory use, only.

Status LEDs

Power-up: All LEDs OFF.

Initialization: Once power is applied, initialization of the module begins.

When initialization is completed, LEDs A. B, CT, and BA are briefly sequenced **ON** then OFF.

Run time: After the above sequence, the LEDs have the following meanings:

A LED: Heartbeat and On-Line Status:

- Off-line: 1 second rate, 20% **ON**

- On-line:
  - Non-encrypted communication: 1 second rate, 80% **ON**
  - Encrypted communication: 0.1 sec **ON**, 0.1 sec OFF, 0.1 sec **ON**, 0.1 sec OFF, 0.1 sec **ON**, 0.1 sec OFF, 0.1 sec **ON**, 0.3 sec OFF

A LED: Error Indication:
Waiting for application firmware to be downloaded: 0.1 sec **ON**, 0.1 sec OFF.

B LED: Serial I/O Communication Port Status:
Indicates communication activity on the serial I/O communication port:

CT: Cabinet Tamper
BA: Power Fault

LED 1 through **16**: Illuminate when output relay OUT 1 (K1), OUT 2 (K2) is energized and so on.

Specifications

The LNL-1200 is for use in low voltage, class 2 circuit, only. These specifications are subject to change without notice.

- Primary power: 12 to 24 VDC $\pm$ 10%, 1100 mA maximum

- Relay contacts: 16 Form-C:
  - Normally Open (NO) contact: 5 A @ 30 VDC resistive
  - Normally Closed (NC) contact: 3 A @ 30 VDC resistive

- Inputs: 2 unsupervised, dedicated for cabinet tamper and UPS fault monitoring

- Communication: RS-485, 2-wire: 9600, 19200, 38400, or 115200 bps

- Cable requirements:
  - Power: 1 twisted pair, 18 AWG
  - RS-485: 24 AWG, 120 ohm impedance, twisted pair with drain wire and shield, 4000 feet (1219 m) maximum
  - Inputs:1 twisted pair, 30 ohms maximum
  - Outputs: as required for the load

- Mechanical:
  - Dimension: 6 x 8 x 1 in. (152 x 203 x 25.4 mm)
  - Weight: 14 oz. (400 g) nominal

- Environmental:
  - Temperature: -55 to 85° C storage, 0 to +70° C operating
  - Humidity: 5 to 95% RHNC

UL 294, 7th edition Performance Levels:

Feature	Level
Standby Power	I
Endurance	IV
Line Security	I
Destructive Attack	I

Note: Outputs are Power limited/class 2 when powered by external power limited/class 2 power supply model LNL-AL400ULX or LNL-AL600ULX-4CB6.

Regulatory Information

FCC Compliance

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Liability

It is expressly understood and agreed that the interface should only be used to control exits from areas where an alternative method for exit is available. This product is not intended for, nor is rated for operation in life-critical control applications. LenelS2 is not liable under any circumstances for loss or damage caused by or partially caused by the misapplication or malfunction of the product. LenelS2's liability does not extend beyond the purchase price of the product.

Certifications

For certification information, refer to the hardware documentation for the host application.

Product Warnings and Disclaimers

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