



SmartLock® Controller

INSTALLATION MANUAL

October 2015

Table of Contents

INTRODUCTION	3
• Diodes	4
• Terminal Strips and Cable	5
SPECIFICATIONS	6
SMARTLOCK CONTROLLER LAYOUT	8
• LED Indicators	9
• Mounting	9
RS-485 COMMUNICATIONS WIRING	10
• CLAUSEB Communications Device	10
• CANLAN Network Communications Device	10
• AIR-485 Communications Device	12
READER WIRING	13
• Wiegand Reader	13
• iButton® Reader	14
LOCK OUTPUT RELAY WIRING	15
• DC Electric Strikes	15
• DC MagLocks	16
• AC MagLocks and AC Electric Strikes	17
INPUT WIRING	18
• Exit Button, Handicap Button, Door Contact	18
OUTPUT WIRING	19
• Door Operator, Forced Entry, Door-Held-Open	19
DIP SWITCH	20
• Function	20
• Location	20
• Erase Controller Memory, Diagnostics	21
• Door Contact Bypass Switch Setting	22
CONTROLLER ADDRESS TABLE	23
APPENDIX	25
• CLAU50 Communications Wiring	25
• CLAUSEB2 Communications Wiring	25

CAUTION: EMERGENCY LOCKDOWN

Emergency lockdown functions must operate totally independent of the access control system and must **not** rely on operation of card readers, access control panels, communications networks, communications devices or host software. Cansec accepts no responsibility for direct or consequential damages resulting from the failure of emergency lockdown functions which are dependant in any way on the operation of card readers, access control panels, communications networks, communications devices or host software.

CA-PS123A Specifications Notice:

- When using a pluggable 16 VAC standard 40 VA transformer:
Maximum **Continuous** Current (no battery attached): 2 amps for 12 VDC on the Output.

Maximum **Continuous** Current (battery attached): 1.5 amps for 12 VDC on the Output (battery will be charging when needed).
- Using a wire in 16 VAC standard 75 VA transformer:
Maximum **Continuous** Current (no battery attached): 2.5 amps for 12 VDC on the Output.

Maximum **Continuous** Current (battery attached): 2.0 amps for 12 VDC on the Output (battery will be charging when needed).
- Surge currents need to be taken into account. High current devices like electric strikes and magnetic locks have surge currents which are usually double the running current.
- The CA-PS123A's DC output is fused at 2.5 amps.
- An electrician is not required for installation of this supply.

Introduction

The SmartLock® access control panel is a single door controller with inputs for both entry and exit readers. Readers and card formats supported include Cansec 37, 26 and 35-bit Corporate 1000 Wiegand formats, and Cansec iButton® credentials. Other card formats can be accommodated with the use of **Cansec Protocol Converters** (contact Cansec for further information).

SmartLock controllers with Pro Plus firmware (**SLPPx.x**) only work with SmartLock Pro Plus software.



SmartLock controllers with Pro firmware (**SLPTx.x**) only work with SmartLock Pro, SmartLock Managed Access and SmartLock Surf software.



The SmartLock control panel stores all cardholder data in non-volatile memory to ensure continued operation and security in the event that communications are lost to the host PC. Up to two control panels are easily mounted in a SmartLock enclosure along with a Cansec 12 VDC power supply and a back-up battery.

DIODES

Diodes are **required** for inductive loads such as electric strikes/locks. Failure to use appropriate diodes will void the control panel warranty.

IMPORTANT: In some jurisdictions, the use of a UL approved power supply and connection to the fire alarm system for emergency release may be required. Installers should contact the local authority having jurisdiction to verify the specific requirements. Also, a building permit may be required in some jurisdictions for the installation of maglocks.

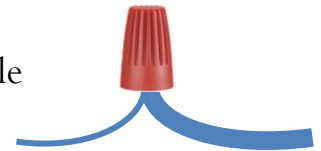
TERMINAL STRIPS AND CABLE

Use Appropriate Cable Thickness

For optimal performance and communication, the terminal strips on the SmartLock control panel are designed to be used with 26 – 18 American Wire Gauge (AWG) stranded, overall-shielded, twisted-pair cable. This is equivalent to Belden 88761 or similar cable.

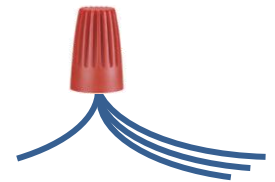
Use MARR Connectors

If you are bringing in cable that is too large for the terminal strip, use a MARR connector (wire nut, marrette, thimble connector, cone connector). Splice the thicker cable to a cable that is the appropriate thickness, and then run the thinner cable to the terminal strip on the control panel.



Use Splices for Parallel Wiring

The terminal strips are designed to allow one cable per hole. If you need to connect multiple cables in a single hole, use a MARR connector (wire nut, marrette, thimble connector, cone connector). Splice multiple cables to a single cable, and then run the single cable to the terminal strip on the control panel.



Complimentary Screwdriver

A standard Cansec screwdriver is included with every control panel for use with terminal strips.



NOTE: Tech Support will only be provided where product installation guidelines have been followed.

Specifications

Power Requirements

- SmartLock[®] Controller: 12 VDC, 50 mA

NOTE: When determining power supply current requirements, you must consider lock and reader current draw if using the same supply for these devices.

IMPORTANT: *In some jurisdictions, the use of a UL approved power supply and connection to the fire alarm system for emergency release may be required. Installers should contact the local authority having jurisdiction to verify the specific requirements. Also, a building permit may be required in some jurisdictions for the installation of magnetic locks.*

NOTE: If a gate operator is being used in place of a lock then an external relay is recommended between the controller and the gate operator. The relay must have a diode installed to prevent “back EMF” from damaging the controller.

Communications Cable (multi-drop configuration)

- RS-485 Cable:22 AWG, Stranded/Shielded, Twisted Pair
609 m (2000 ft) max total length
Belden 88761 or equivalent

On-Board Outputs

- Lock Control: Form “C”, Rated @ 30 VDC, 1A
- Door Operator: Form “C”, Rated @ 30 VDC, 1A
- Forced/DHO Relays: Form “C”, Rated @ 30 VDC, 1A

On-Board Inputs

- Exit Button:Normally Open
- Door Contact:.....Normally Closed
- Door Operator:.....Normally Open

Reader Cable

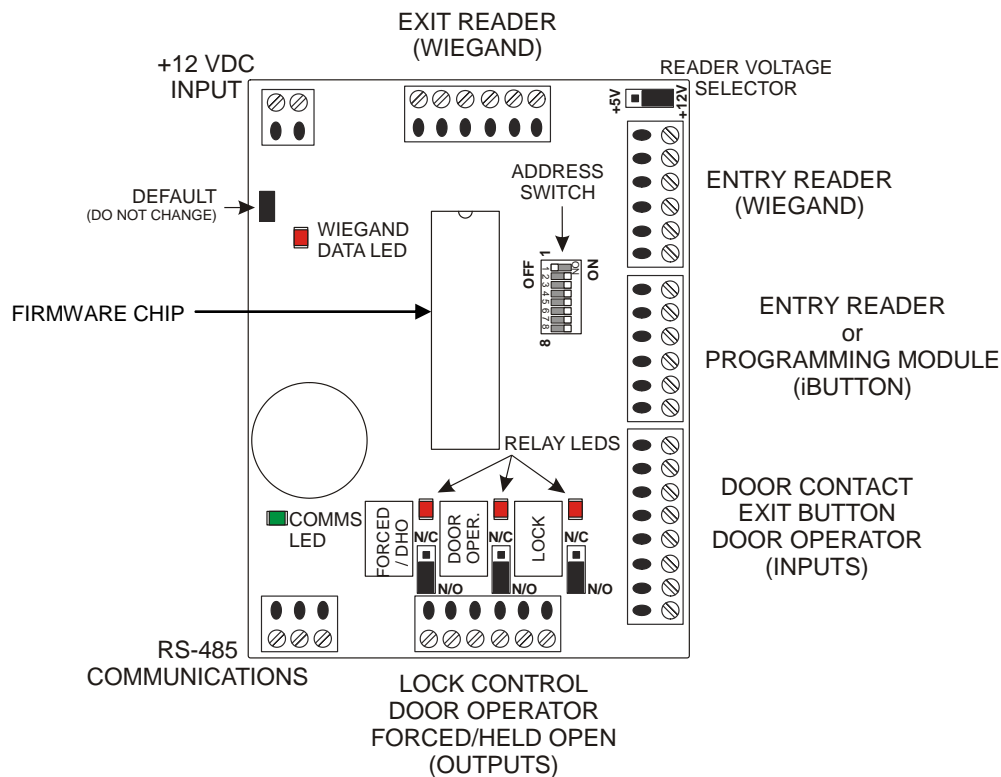
- Wiegand Readers:..... 6 conductor (twisted pair not required)
22 AWG, overall shield
152 m (500 ft) max total length
- iButton® Readers: 6 conductors
22 AWG, shielded or unshielded
15 m (50 ft) max total length

Dimensions & Weight

- Controller Board:84 mm (l) x 65 mm (w)
[3 5/16" (l) x 2 9/16" (w)]
- SmartLock Cabinet:..... 260 mm (l) x 216 mm (w) x 80 mm (h)
[10 1/4" (l) x 8 1/2" (w) x 3 1/8" (h)]
- Weight:2 kg (4.5 lbs)

Specifications subject to change without notice.

SmartLock Controller Layout



Important Notes:

1. Each controller must have a unique address.
Refer to the Controller Address Table.
2. Exit reader must be Wiegand only. Native iButton® reader not supported for exit.
3. Before connecting readers with power ON, make sure **Reader Voltage Selection Jumper** is set to proper voltage for reader, otherwise the reader may be damaged.
4. Do **NOT** connect power to any inputs on the controller.
5. The **Door Contact Input** should be bypassed, **if not used**, by using a jumper wire across the input or setting the switch to ignore the input. *Refer to the Door Contact Bypass Switch Setting.*
6. This controller utilizes “self-resetting” fuses. There are no field-serviceable parts.

LED INDICATORS

1. Relay LEDs turn RED when the corresponding relay is ON or ACTIVATED.
2. The Wiegand data LED is normally ON and briefly flickers when valid Wiegand data is received from the reader. If Wiegand data is not valid or not supported, this LED will stay OFF until the next valid card is read.
3. The communication LED will flicker GREEN while communicating with SmartLock software.

MOUNTING

Up to two SmartLock controllers can be mounted in the SmartLock enclosure along with a Cansec 12 VDC power supply and a backup battery.

RS-485 Communications Wiring

Up to 30 SmartLock access control panels may be connected on an RS-485 bus.

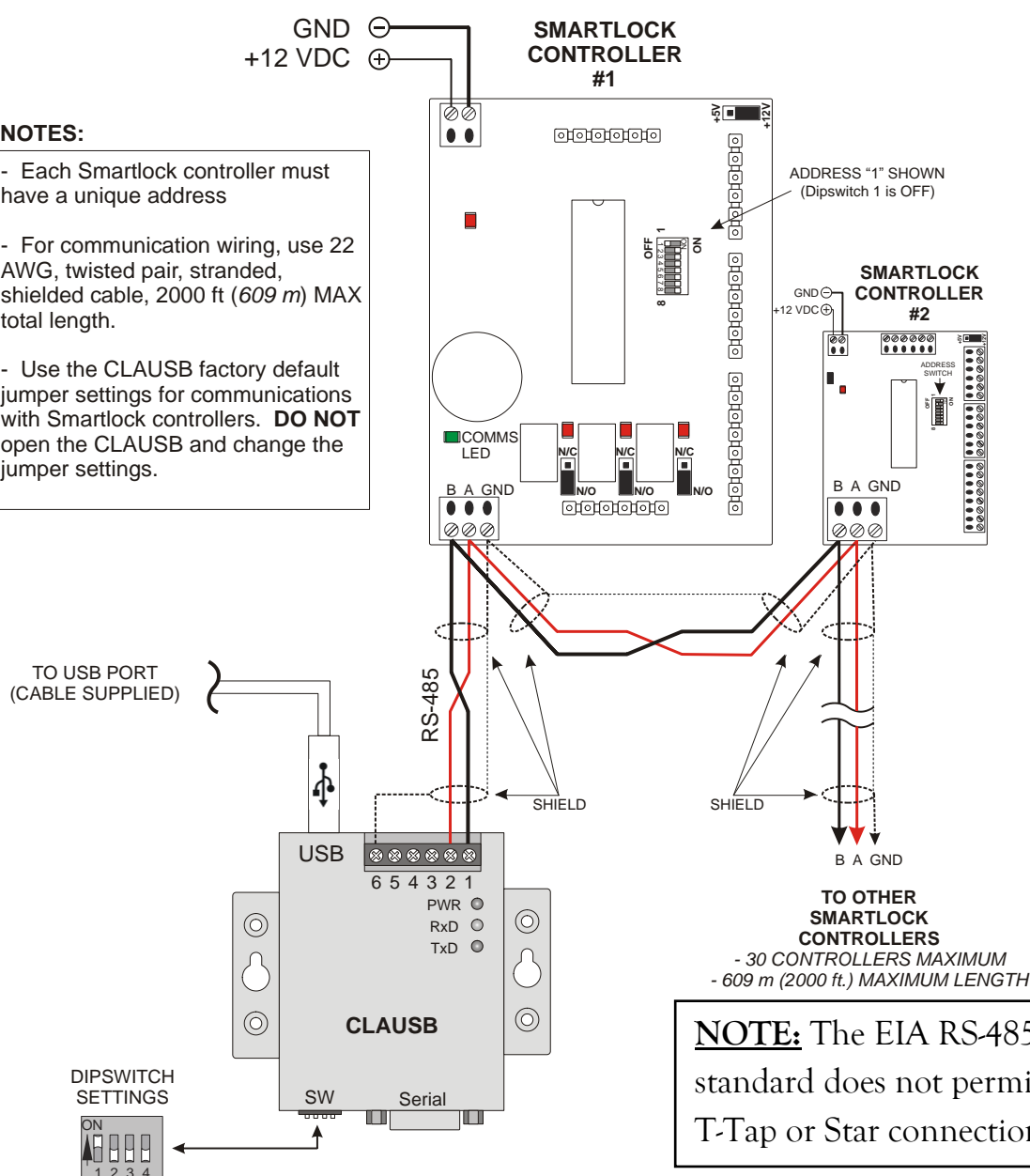
NOTE:

For legacy CLA50 and CLAUSB2 communications device wiring please see *Appendix* section.

CLAUSB COMMUNICATIONS DEVICE

NOTES:

- Each Smartlock controller must have a unique address
- For communication wiring, use 22 AWG, twisted pair, stranded, shielded cable, 2000 ft (609 m) MAX total length.
- Use the CLAUSB factory default jumper settings for communications with Smartlock controllers. **DO NOT** open the CLAUSB and change the jumper settings.



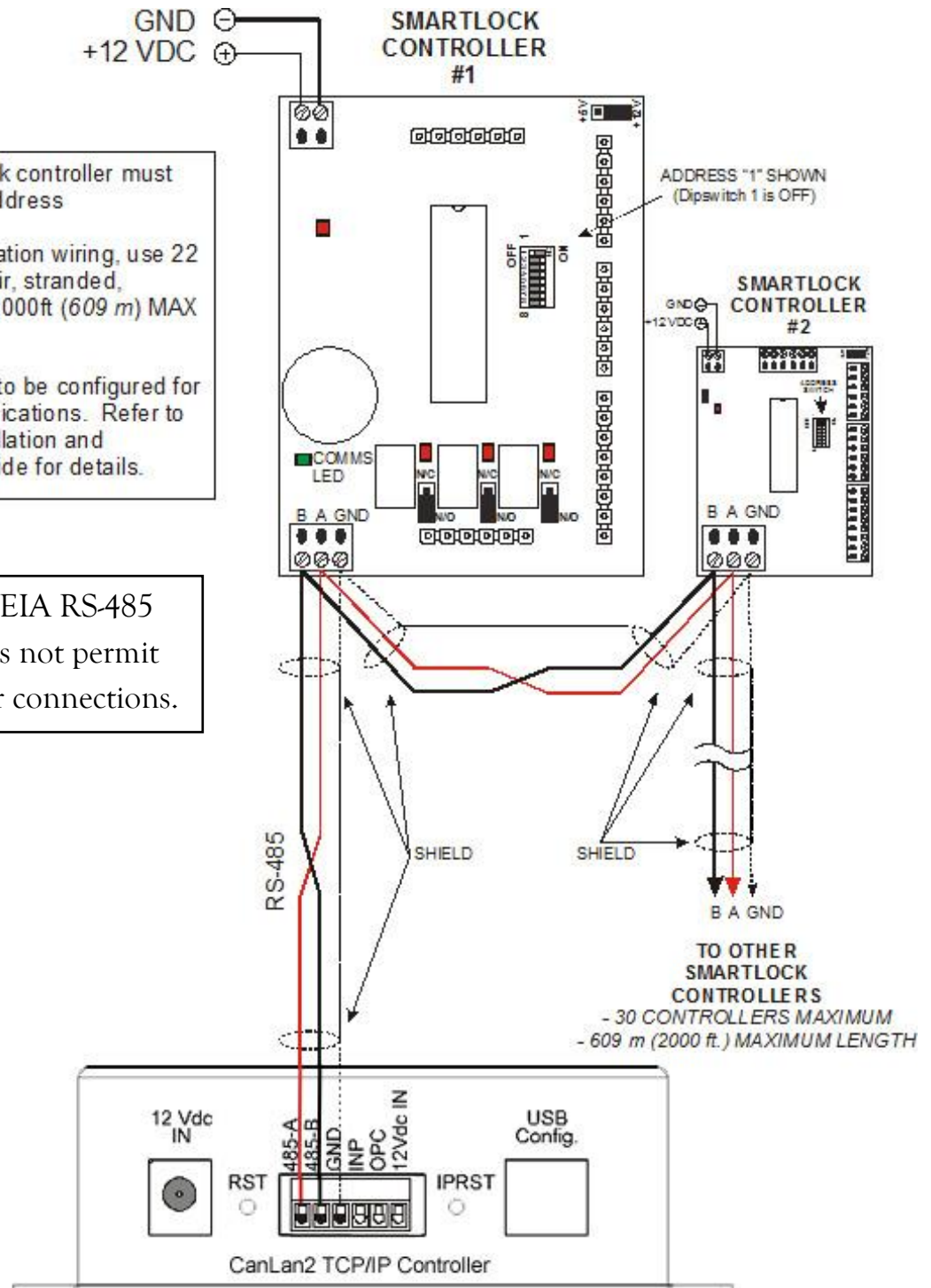
NOTE: The EIA RS-485 standard does not permit T-Tap or Star connections.

CANLAN NETWORK COMMUNICATIONS DEVICE

NOTES:

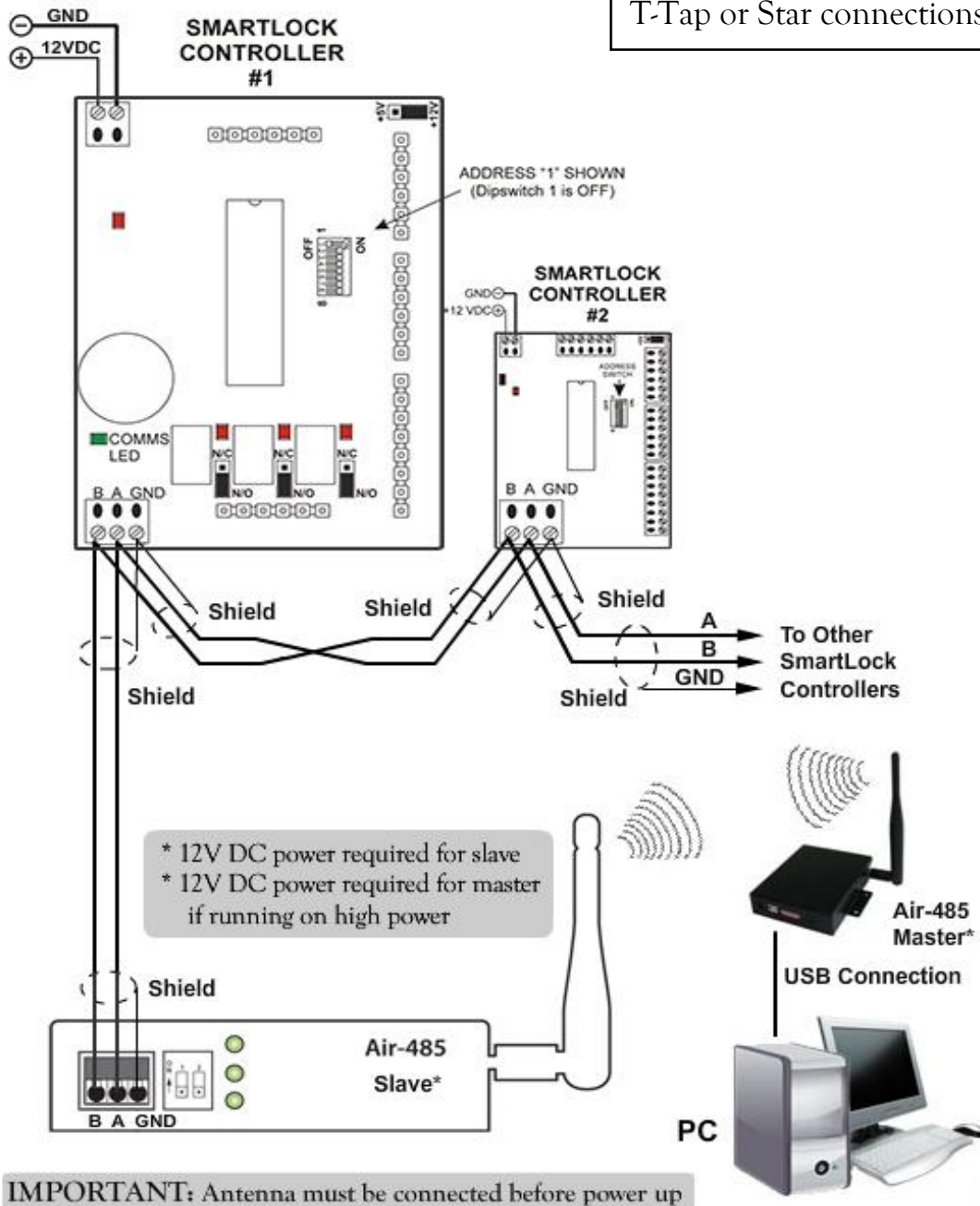
- Each Smartlock controller must have a unique address
- For communication wiring, use 22 AWG, twisted pair, stranded, shielded cable, 2000ft (609 m) MAX total length.
- Canlan needs to be configured for RS-485 communications. Refer to the Canlan Installation and Configuration guide for details.

NOTE: The EIA RS-485 standard does not permit T-Tap or Star connections.



AIR-485 COMMUNICATIONS DEVICE

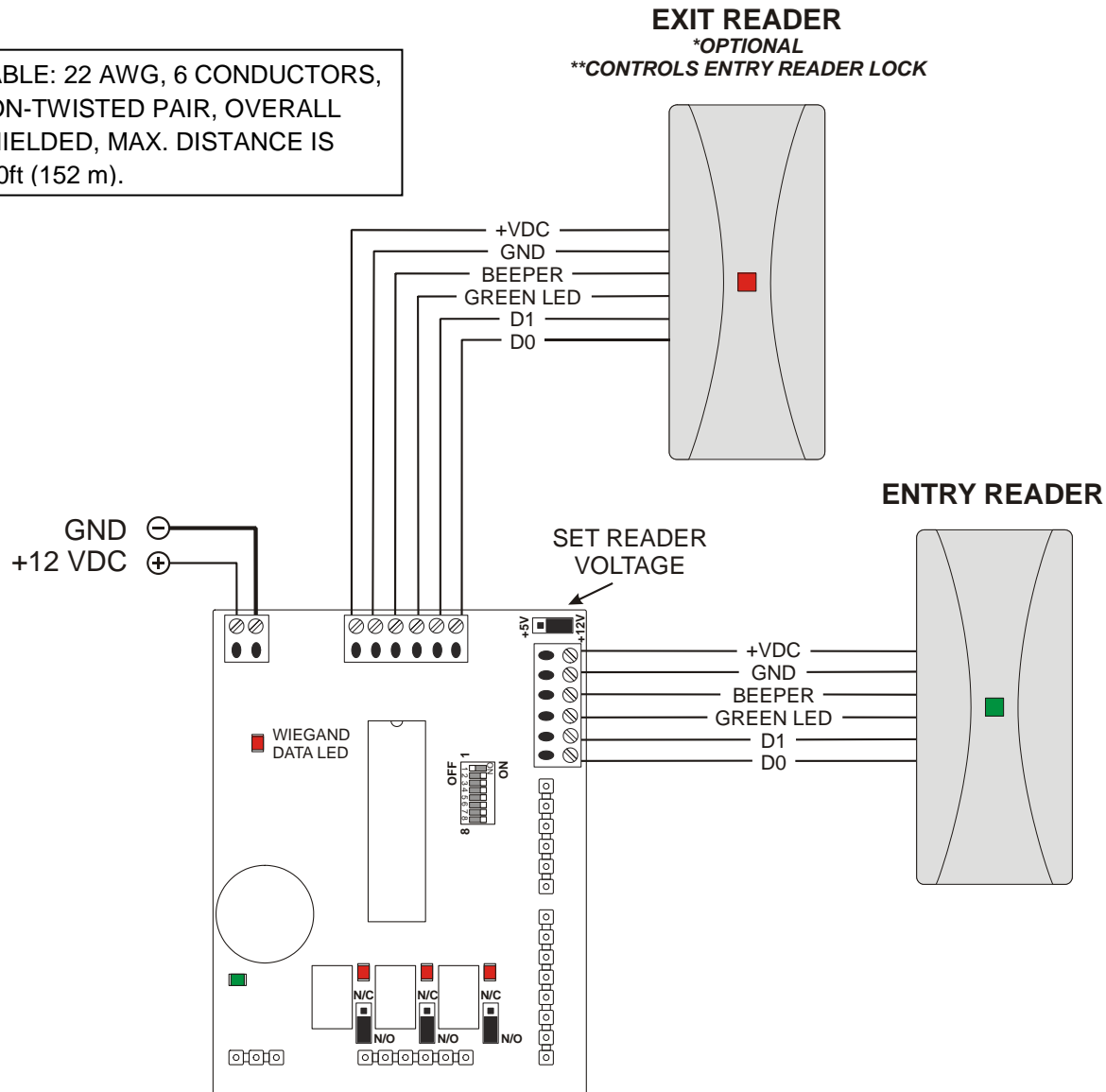
NOTE: The EIA RS-485 standard does not permit T-Tap or Star connections.



Reader Wiring

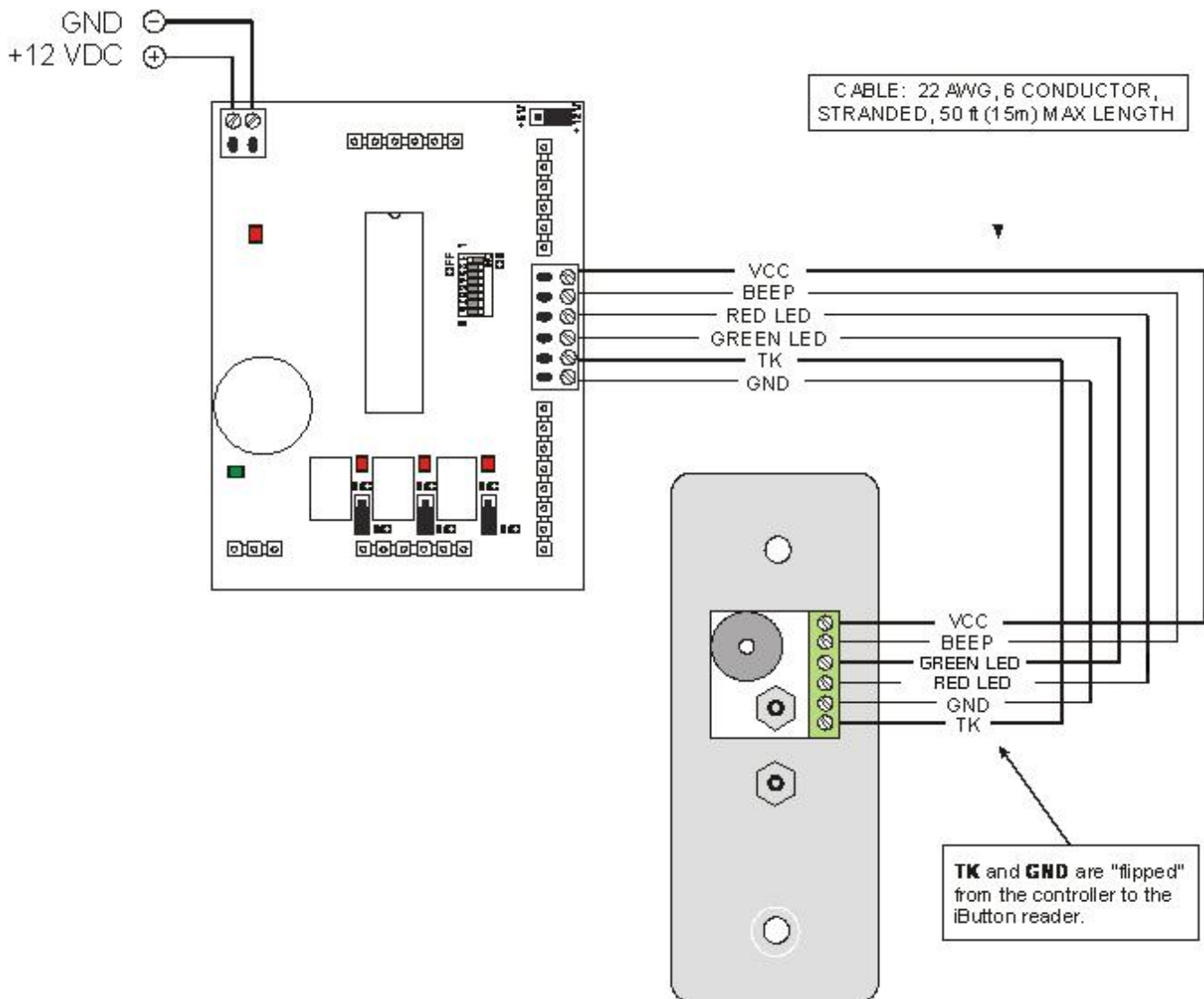
WIEGAND READER

CABLE: 22 AWG, 6 CONDUCTORS,
NON-TWISTED PAIR, OVERALL
SHIELDED, MAX. DISTANCE IS
500ft (152 m).



IMPORTANT: Before applying power to the controller, verify that the reader voltage jumper is set correctly for the reader being connected. Connecting a 5 V reader to a 12 V power supply will damage the reader.

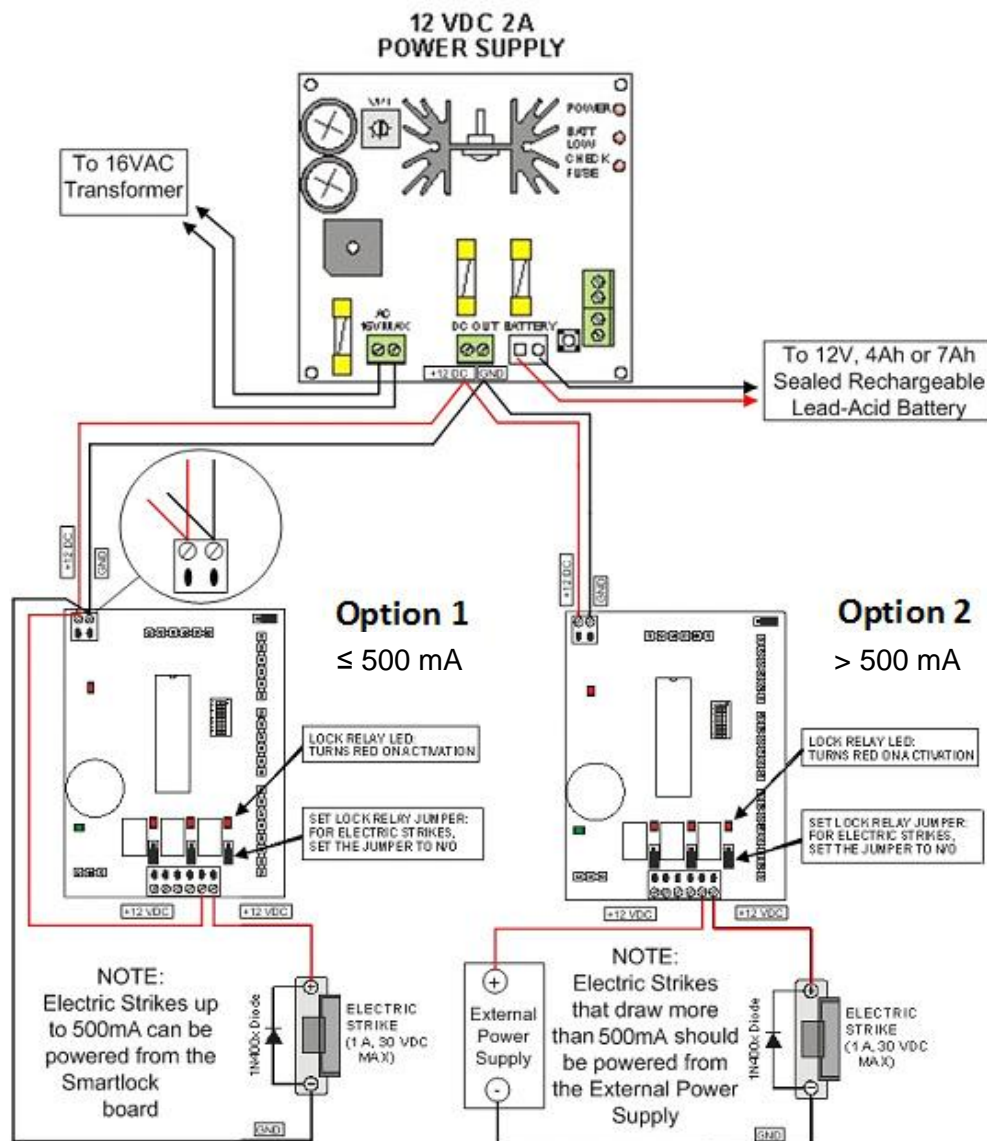
NOTE: The SmartLock[®] controller supports Cansec's 37-bit format as well as standard 26-bit format.



NOTE: Exit reader not supported with SmartLock iButton readers.

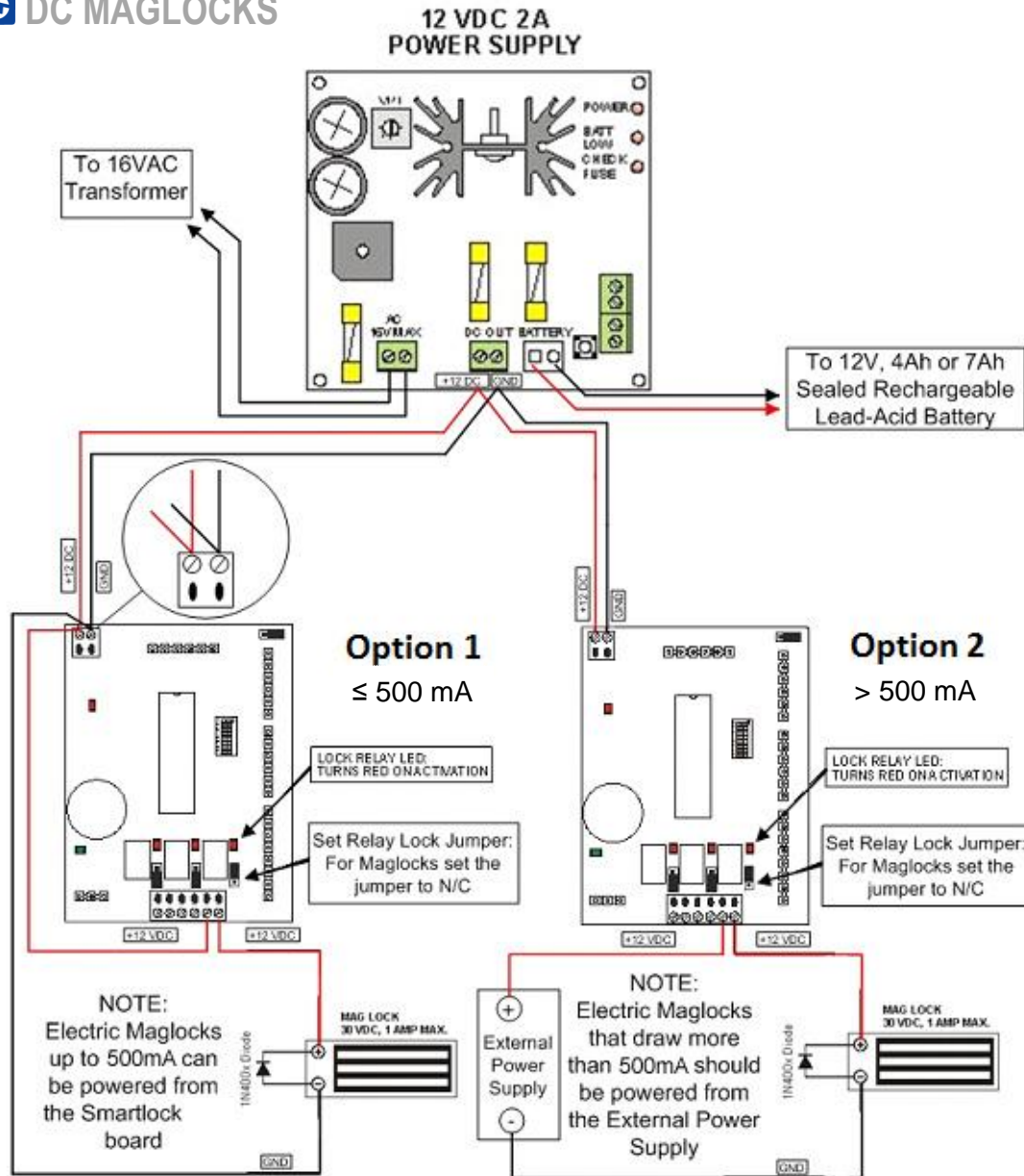
NOTE: If using the SmartLock Connect Programming Module with iButton readers, connect the programming module in parallel with the iButton reader.

Lock Output Relay Wiring



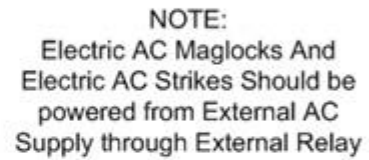
NOTE: Use 1N400x series diode as shown, to prevent “back EMF” from damaging the controller.

DC MAGLOCKS



NOTE: Use 1N400x series diode as shown to prevent “back EMF” from damaging the controller if the maglock is not equipped with sufficient spike and surge protection. Check the maglock specifications for details.

IMPORTANT: In some jurisdictions, the use of a UL approved power supply and connection to the fire alarm system for emergency release may be required. Installers should contact the local authority having jurisdiction to verify the specific requirements. Also, a building permit may be required in some jurisdictions for the installation of maglocks.



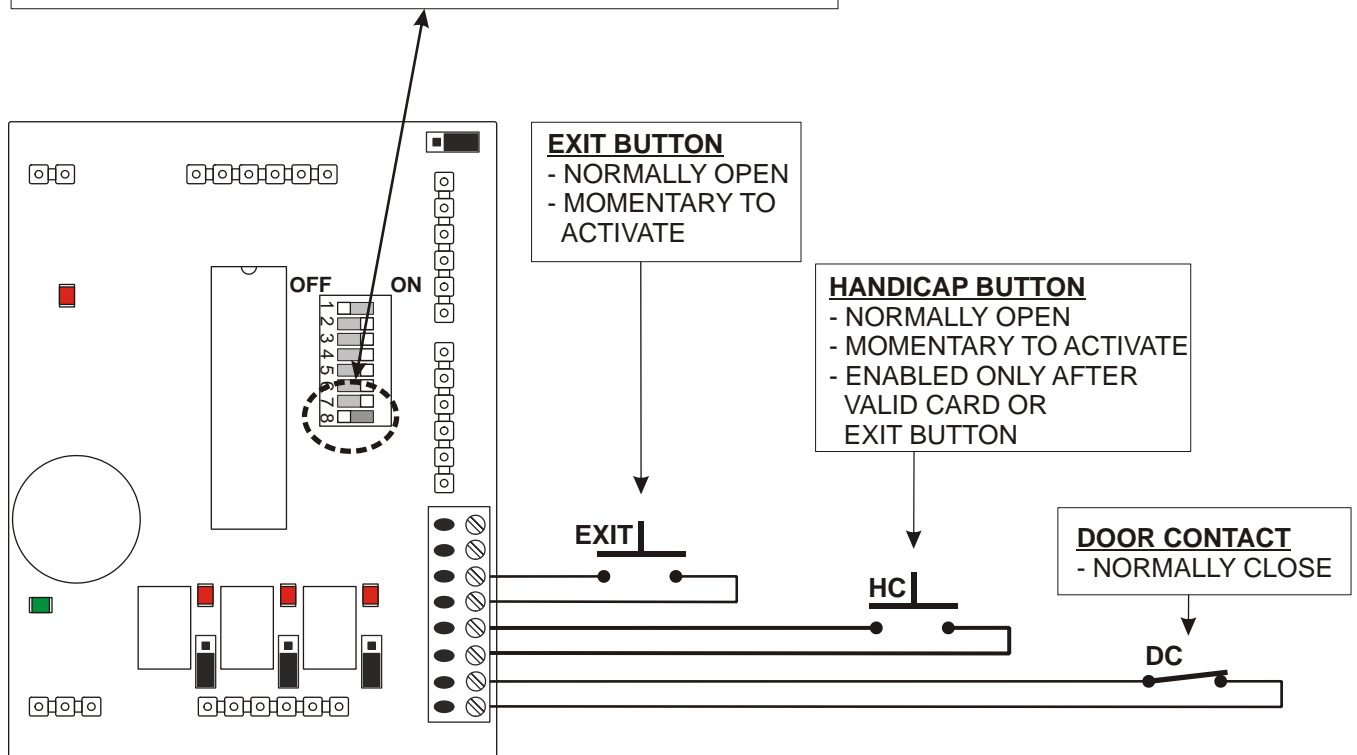
IMPORTANT: In some jurisdictions, the use of a UL approved power supply and connection to the fire alarm system for emergency release may be required. Installers should contact the local authority having jurisdiction to verify the specific requirements. Also, a building permit may be required in some jurisdictions for the installation of maglocks.

Input Wiring

EXIT BUTTON, HANDICAP BUTTON, DOOR CONTACT

IF YOU ARE CONNECTING A DOOR CONTACT
SET DIP SWITCH 8 TO OFF (LEFT)

IF YOU ARE **NOT** CONNECTING A DOOR CONTACT
SET DIP SWITCH 8 ON (RIGHT)



NOTE: DO NOT apply power or attempt to switch any current through these inputs as this will result in damage to the controller.

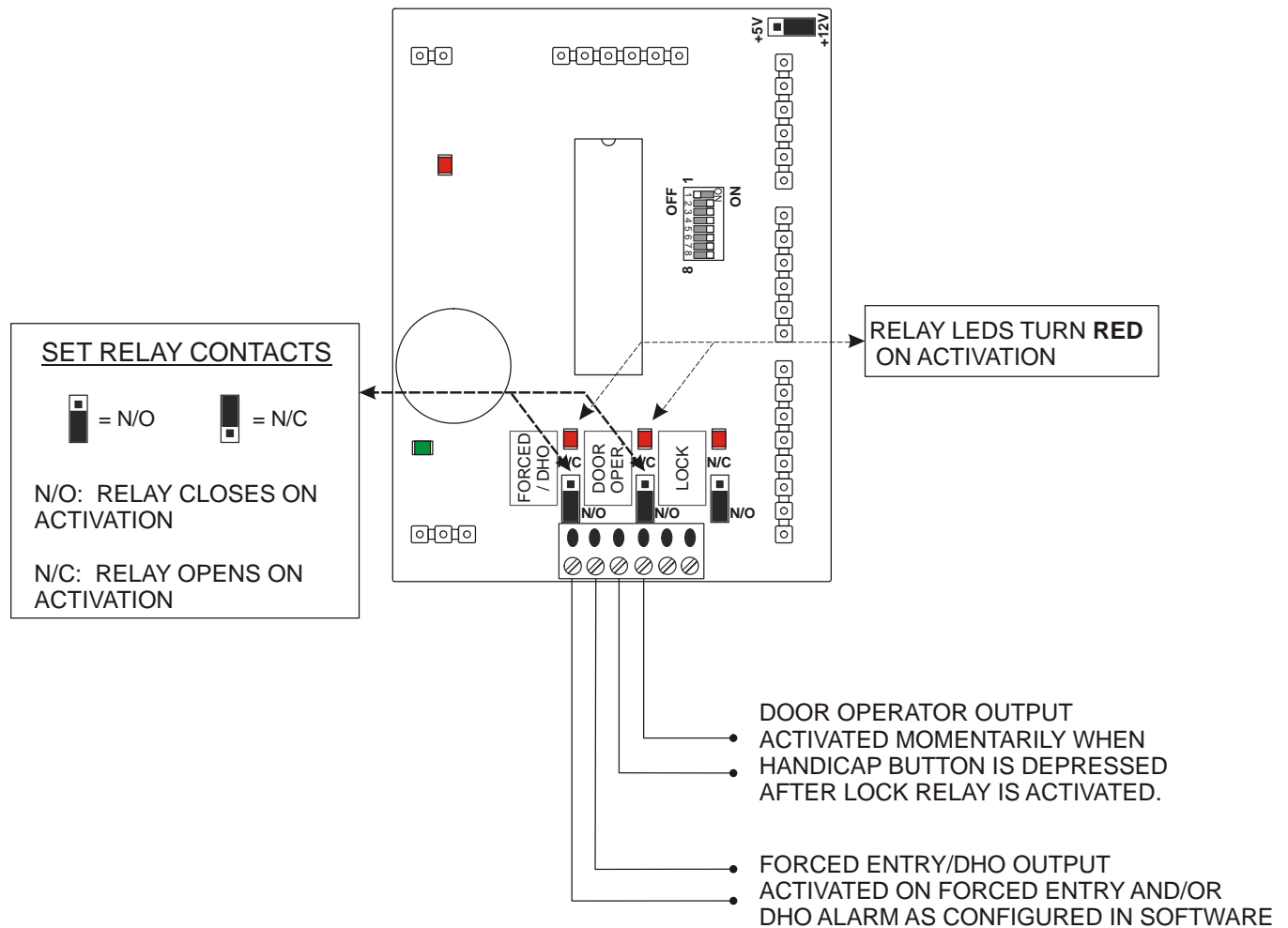
NOTE: If not connecting a door contact, make sure you set switch position 8 to ON (right in orientation shown) to bypass/disable the door contact input. Otherwise, the door will be in alarm condition.

NOTE: Exit Button requires momentary closure to activate relay. Door Contact is used for forced-entry and door-held-open annunciation, and also deactivates the lock relay when the door closes.

Output Wiring

DOOR OPERATOR, FORCED ENTRY, DOOR-HELD-OPEN

Use dry contact relays.



NOTE: Maximum power through any of these relays is 30 VDC at 1 A.

NOTE: Door Operator requires momentary closure to activate relay.

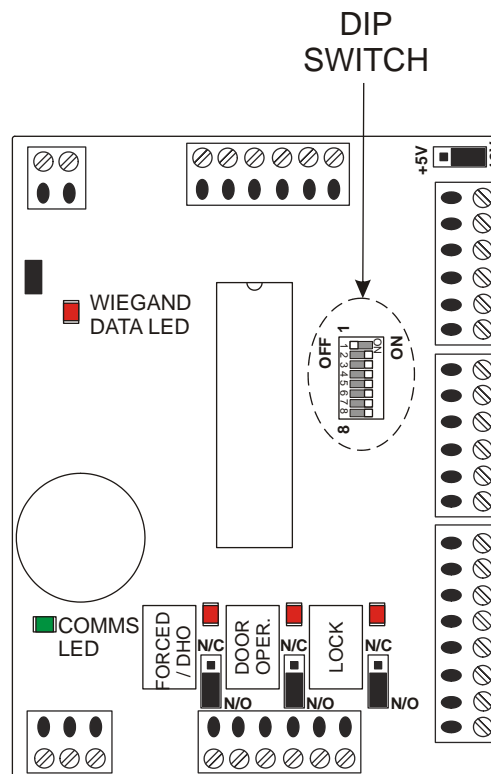
DIP Switch

FUNCTION

The DIP switch is used:

- to erase the controller's memory and run diagnostics
- to set the baud rate
- to enable or bypass the door contact input
- to set the controller address from 1 to 30.

LOCATION



ERASE CONTROLLER MEMORY, DIAGNOSTICS

1. Disconnect communication and device wiring.
2. To erase controller memory (factory default), set all switches to the **OFF** position (left on diagram above).
3. Disconnect power from the board momentarily then re-connect power.
4. The controller's memory will be erased. All three relays will cycle **ON/OFF** once the memory has been cleared. Relay outputs can be verified during this stage.

NOTE: If the relays do not cycle **ON/OFF**, there may be a problem with the unit.

5. Continue to set controller address and door contact bypass switch settings.

SET CONTROLLER BAUD RATE

The default baud rate is 9600 bps with dip switch #7 set to on position. SmartLock Pro, with firmware version 1.56 and up, also supports 38,400 bps. Follow the steps below to adjust the baud rate.

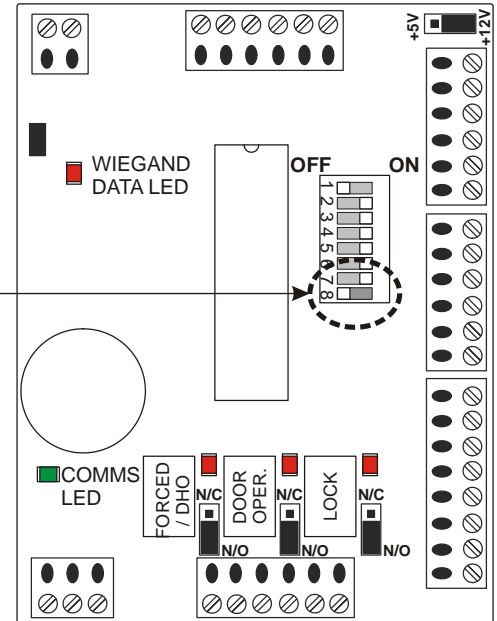
1. Set dip switch #7 to off position to enable 38,400 bps.
2. Ensure that the setting in the software is set to 38,400.

NOTE: Switch setting changes do not take effect until the power is disconnected, then reconnected.

DOOR CONTACT BYPASS SWITCH SETTING

IF YOU ARE CONNECTING A DOOR CONTACT
SET DIP SWITCH 8 TO OFF (LEFT)

IF YOU ARE **NOT** CONNECTING A DOOR CONTACT
SET DIP SWITCH 8 ON (RIGHT)



Door Contact Connected: Set switch 8 **OFF** (**LEFT** on diagram)
Door Contact Not Connected: Set switch 8 **ON** (**RIGHT** on diagram)

NOTE: If door contacts are not installed, but door contacts are enabled on the control panel via switch 8, unlock schedules will fail to take effect.

Controller Address Table

Set the unique address of each controller from 0 to 30 as per the table below. The same address used must be programmed in the software in order to establish communications. Switch setting changes do not take effect until the power is disconnected, then reconnected.

ADDRESS	SW-1	SW-2	SW-3	SW-4	SW-5	SW-6
1	OFF	ON	ON	ON	ON	ON
2	ON	OFF	ON	ON	ON	ON
3	OFF	OFF	ON	ON	ON	ON
4	ON	ON	OFF	ON	ON	ON
5	OFF	ON	OFF	ON	ON	ON
6	ON	OFF	OFF	ON	ON	ON
7	OFF	OFF	OFF	ON	ON	ON
8	ON	ON	ON	OFF	ON	ON
9	OFF	ON	ON	OFF	ON	ON
10	ON	OFF	ON	OFF	ON	ON
11	OFF	OFF	ON	OFF	ON	ON
12	ON	ON	OFF	OFF	ON	ON
13	OFF	ON	OFF	OFF	ON	ON
14	ON	OFF	OFF	OFF	ON	ON
15	OFF	OFF	OFF	OFF	ON	ON
16	ON	ON	ON	ON	OFF	ON
17	OFF	ON	ON	ON	OFF	ON
18	ON	OFF	ON	ON	OFF	ON
19	OFF	OFF	ON	ON	OFF	ON
20	ON	ON	OFF	ON	OFF	ON

ADDRESS	SW-1	SW-2	SW-3	SW-4	SW-5	SW-6
21	OFF	ON	OFF	ON	OFF	ON
22	ON	OFF	OFF	ON	OFF	ON
23	OFF	OFF	OFF	ON	OFF	ON
24	ON	ON	ON	OFF	OFF	ON
25	OFF	ON	ON	OFF	OFF	ON
26	ON	OFF	ON	OFF	OFF	ON
27	OFF	OFF	ON	OFF	OFF	ON
28	ON	ON	OFF	OFF	OFF	ON
29	OFF	ON	OFF	OFF	OFF	ON
30	ON	OFF	OFF	OFF	OFF	ON

NOTES:

1. Switch setting changes do not take effect until the power is disconnected, then reconnected.

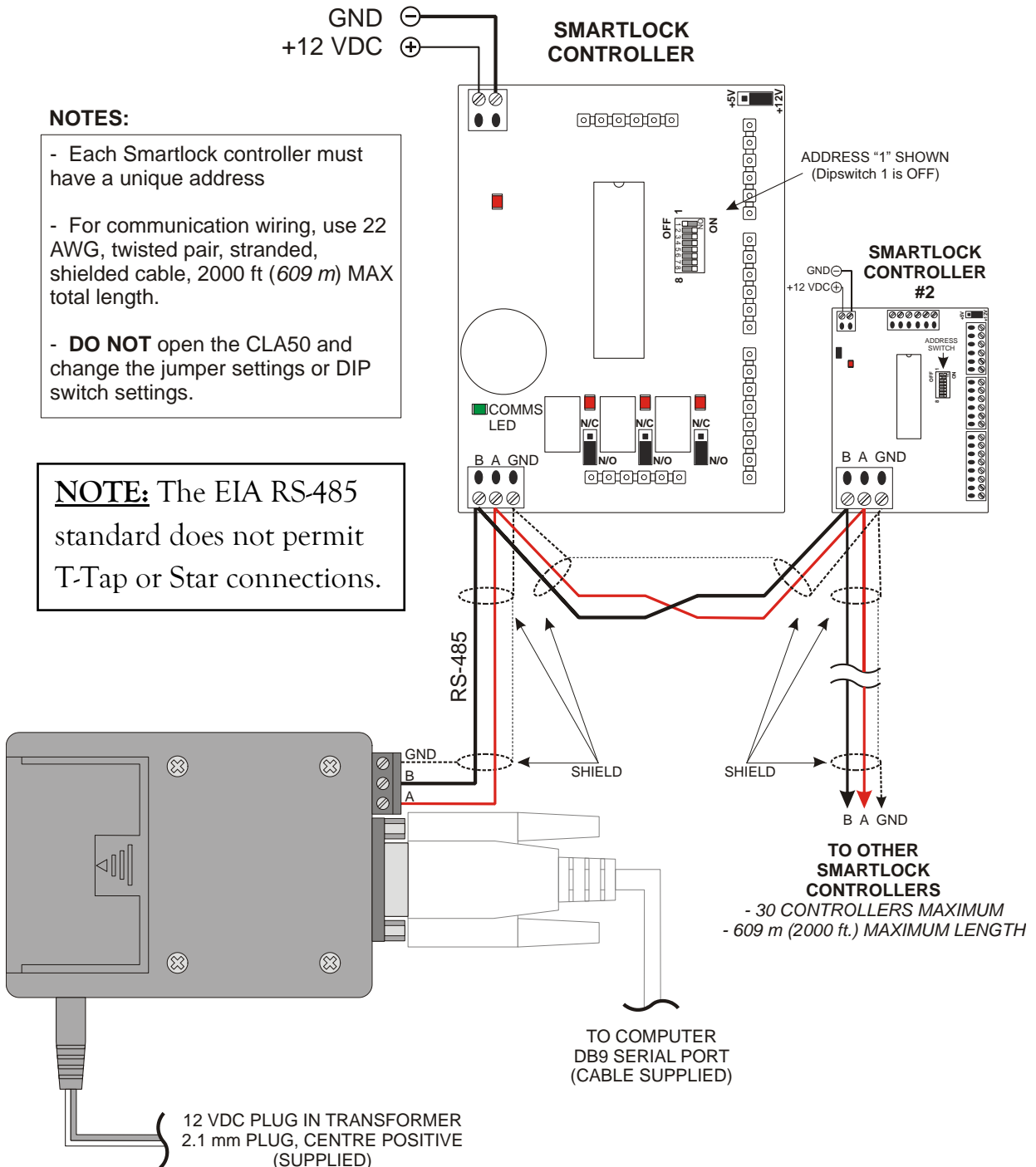
Appendix

CLA50 COMMUNICATIONS WIRING

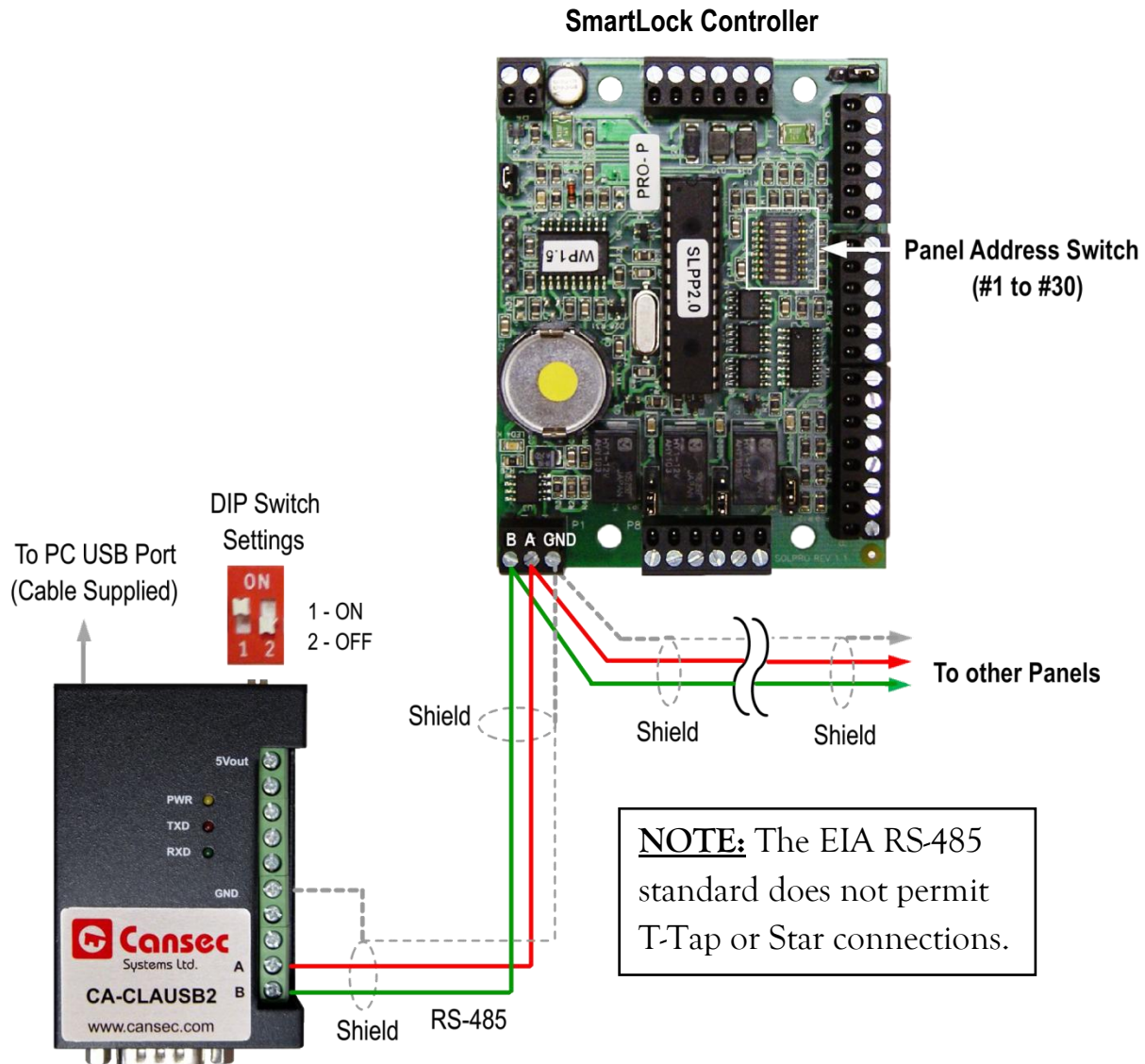
NOTES:

- Each Smartlock controller must have a unique address
- For communication wiring, use 22 AWG, twisted pair, stranded, shielded cable, 2000 ft (609 m) MAX total length.
- **DO NOT** open the CLA50 and change the jumper settings or DIP switch settings.

NOTE: The EIA RS-485 standard does not permit T-Tap or Star connections.



CLAUSB2 COMMUNICATIONS WIRING



® SmartLock is a registered trademark of Cansec Systems Ltd.

® iButton is a registered trademark of Maxim Integrated Products, Inc.