SmartLock

Installation Instructions

Cansec
Systems Ltd.

Cutting edge simplicity

SMARTLOCK
INSTALLATION INSTRUCTIONS

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SMARTLOCK
INSTALLATION INSTRUCTIONS

INTRODUCTION

The SmartLock unit is a single door controller with inputs for both entry and exit readers. Readers and card formats supported include standard 26 bit Wiegand format, 37 bit Wiegand format (Cansec), and Cansec iButton credentials. Other card formats can be accommodated with the use of Cansec Protocol Converters (Contact Cansec for further information). SmartLock controllers can be used with SmartLock Pro, SmartLock Connect, and *SmartLock Online software (*with legacy firmware, controller ordered as CA-SOLCTRL).

The controller 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. The controller comes stand-offs for convenient mounting in a standard double-gang electrical box. Alternately, the SmartLock Cabinet is available that supports two SmartLock controllers, a Cansec 12VDC Power Supply, and a back-up battery.

SPECIFICATIONS*

Power Requirements: .... SmartLock Controller: 12 VDC, 100 mA.

Note: When determining power supply current requirements, you must consider Lock and Reader current draw if using the same supply for these devices.

Communications Cable (Multi-Drop Configuration):

    RS-485 Cable: .... 22 AWG, Stranded, Shielded, Twisted Pair, 609 m *(2000 ft)* Max total length.

Note: Up to 30 Controllers may be connected on an RS-485 bus. An additional 30 controllers can be connected via Cansec's CanLan TCP/IP controller.

On-Board Outputs:

    Lock Control, Door Operator, Forced / DHO Relay Relays: .... Form "C", Rated @ 30 VDC, 1AMP

On-Board Inputs:

    Exit Button: ....Normally Open. Requires <u>momentary</u> closure to activate Lock Relay.
    Door Contact:................................Normally Closed. For Forced Entry and Door Held Open annunciation.
                                             Also deactivates lock relay when door closes.
    Door Operator:................... Normally Open. Requires <u>momentary</u> closure to activate Door Operator Relay.

Reader Cable:

    Wiegand Readers: ....6 conductor (not twisted pair), 22 AWG, overall shield. 152 m *(500 ft)* Max.
    iButton Readers:.....................................6 conductors, 22 AWG, shielded or unshielded. 15 m (50 ft) Max.

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
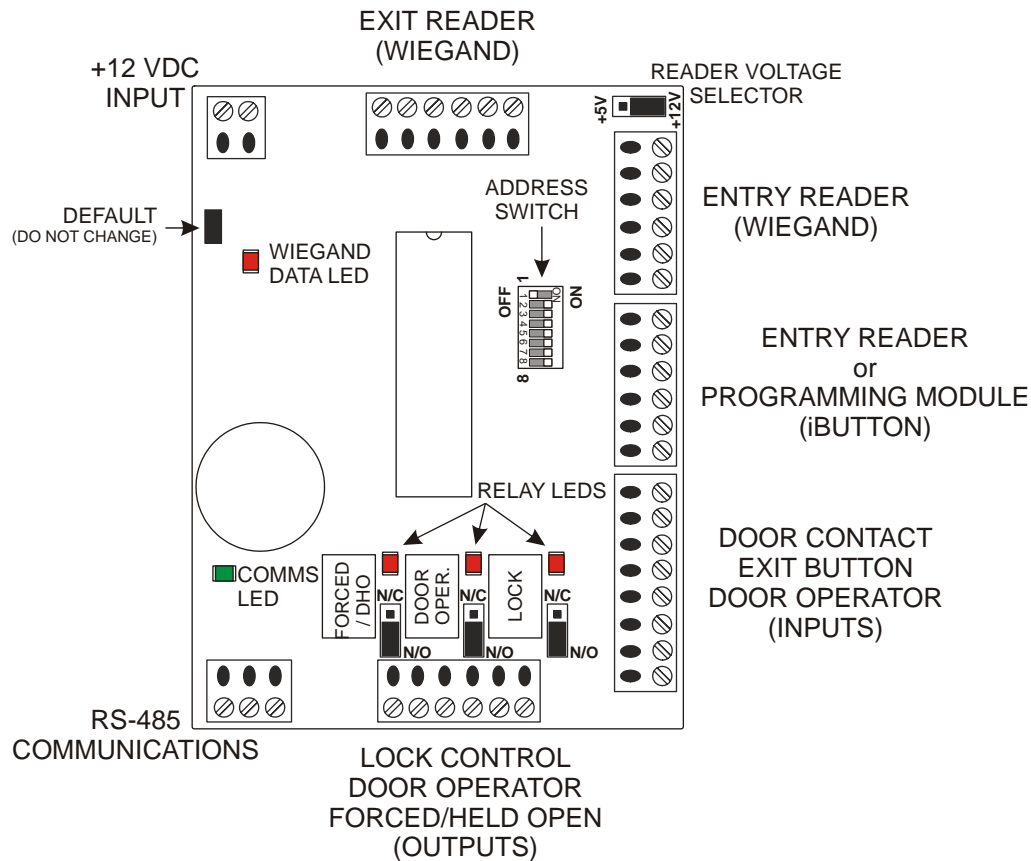
Important Notes:

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 you may damage the reader.
4) Do <u>NOT</u> connect power to any Inputs on the controller.
5) The Door Contact Input should be bypassed <u>if not used</u> by using a jumper wire across the input or by 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 LED's 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 read.
3) The Communication LED will flicker GREEN while communication with SmartLock software.

Mounting:

The controller comes with mounting hardware required to install the controller in a standard "double-gang" electrical box. Optionally, the SmartLock cabinet can be purchased which includes stand-offs and room for two controllers and a Cansec 12VDC power supply. There is also sufficient space in the SmartLock cabinet for a backup battery.
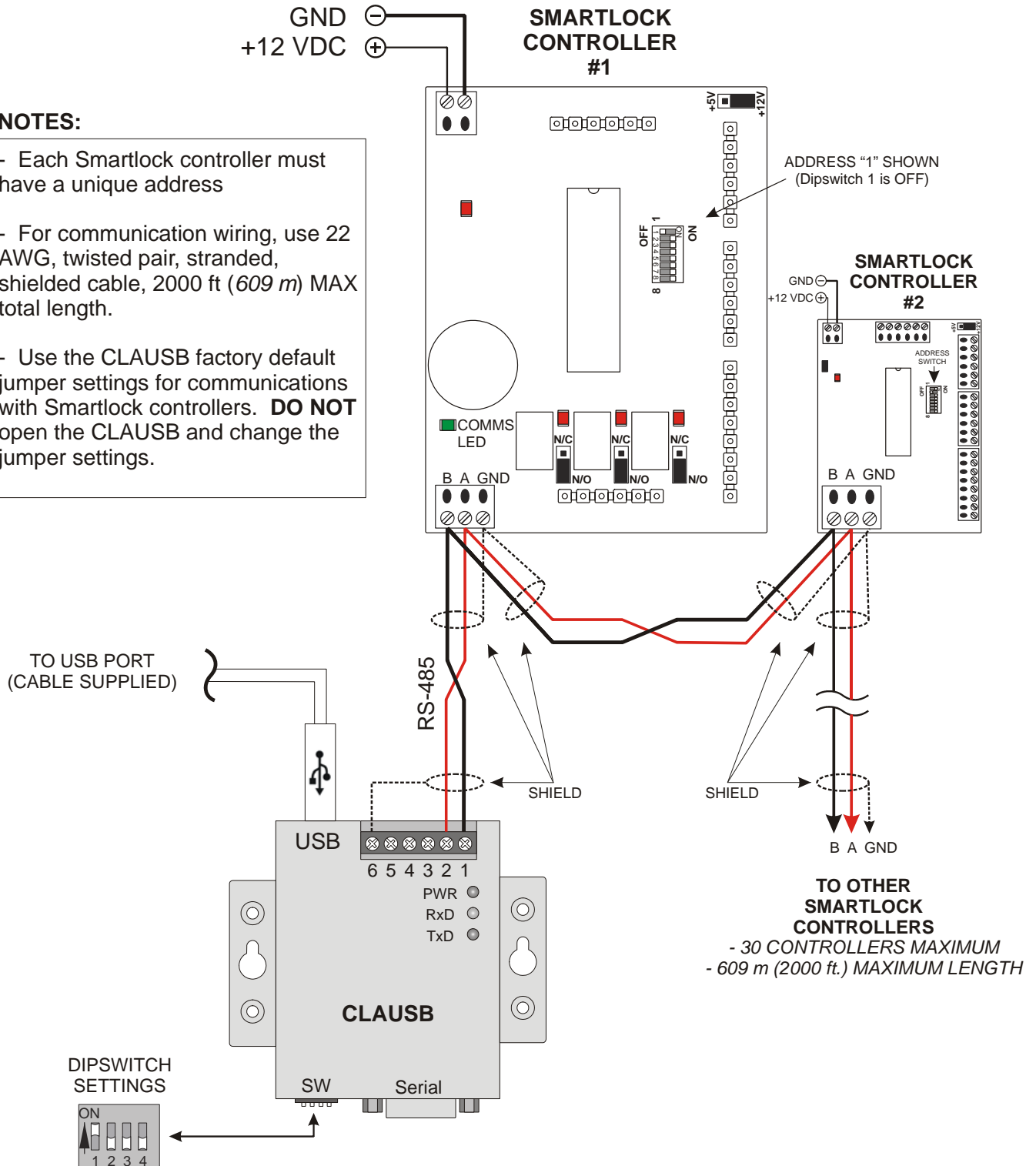
RS-485 COMMUNICATIONS WIRING

USING CLAUSB COMMUNICATIONS DRIVER

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.

GND ⊖
+12 VDC ⊕

SMARTLOCK CONTROLLER #1

+5V / +12V

ADDRESS "1" SHOWN
(Dipswitch 1 is OFF)

OFF / ON

SMARTLOCK CONTROLLER #2

GND ⊖
+12 VDC ⊕

ADDRESS SWITCH
OFF / ON

COMMS LED

N/C   N/C   N/C
N/O   N/O   N/O

B A GND

B A GND

RS-485

TO USB PORT
(CABLE SUPPLIED)

SHIELD   SHIELD

B A GND

TO OTHER SMARTLOCK CONTROLLERS
- 30 CONTROLLERS MAXIMUM
- 609 m (2000 ft.) MAXIMUM LENGTH

USB

6 5 4 3 2 1

PWR
RxD
TxD

CLAUSB

DIPSWITCH SETTINGS

ON
1 2 3 4

SW   Serial

USING CANLAN TCP/IP CONTROLLER

GND ⊖
+12 VDC ⊕

SMARTLOCK CONTROLLER #1

+5V / +12V

ADDRESS "1" SHOWN
(Dipswitch 1 is OFF)

OFF / ON
1 2 3 4 5 6 7 8

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.

GND ⊖
+12 VDC ⊕

SMARTLOCK CONTROLLER #2

ADDRESS SWITCH

COMMS LED

N/C N/C N/C
N/O N/O N/O

B A GND

B A GND

RS-485

SHIELD

SHIELD

B A GND

TO OTHER SMARTLOCK CONTROLLERS
- 30 CONTROLLERS MAXIMUM
- 609 m (2000 ft.) MAXIMUM LENGTH

CANLAN TCP\IP CONTROLLER

SMARTLOCK
INSTALLATION INSTRUCTIONS
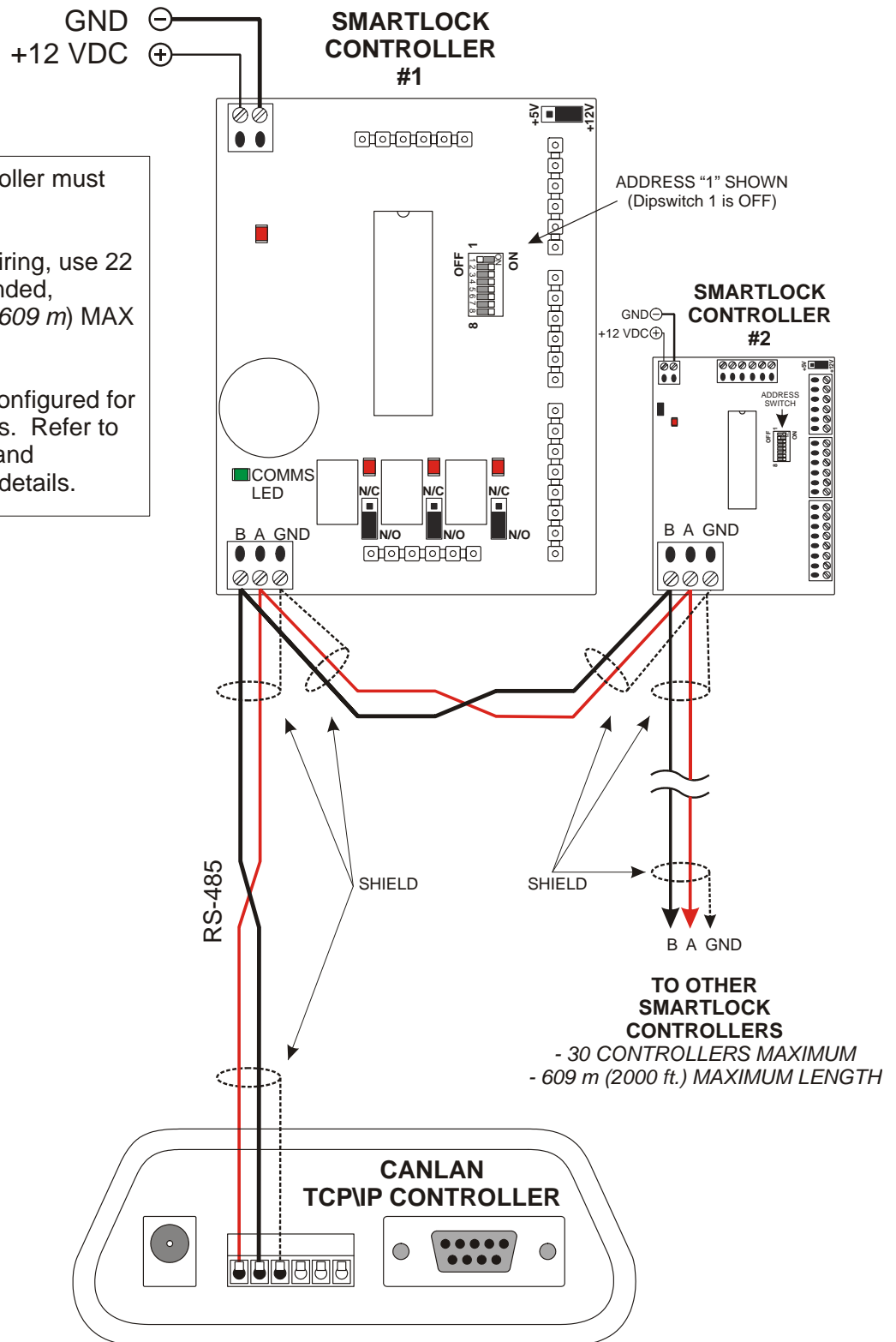
TYPICAL DIAL-UP MODEM CONFIGURATION (SmartLock Connect Only)

CLA50

RS-485
TO CONTROLLERS

CANSEC MODEMS

CUSTOM MODEM CABLE
PART # CA-SOMOCAB
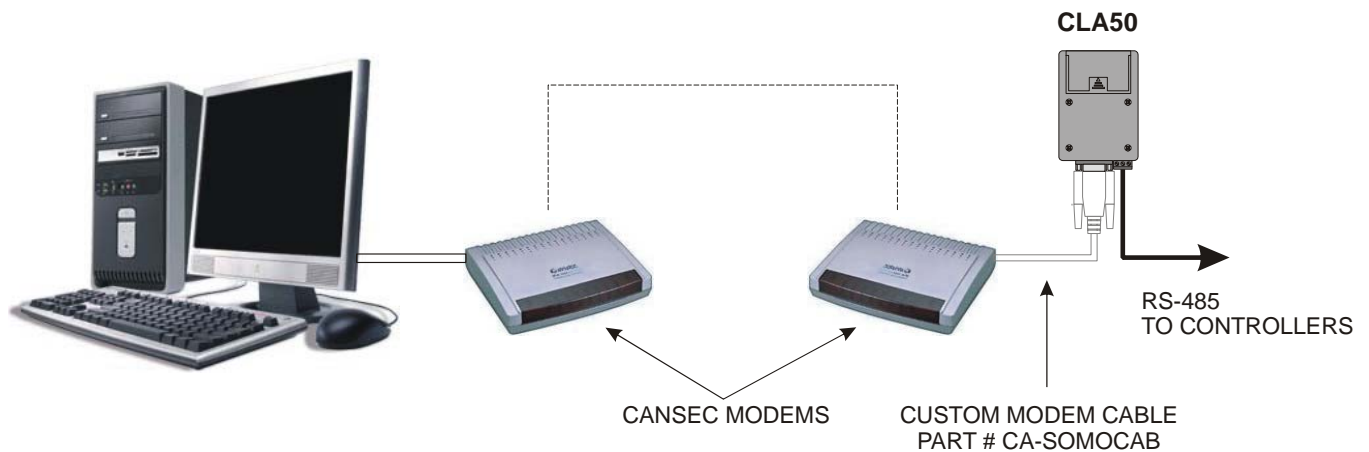
DIAL-UP CONFIGURATION REMOTE END WIRING (SmartLock Connect Only)

12 VDC PLUG IN
TRANSFORMER
2.1 mm PLUG,
CENTRE POSITIVE
(SUPPLIED)

CLA50

GND ⊖
+12 VDC ⊕

SMARTLOCK
CONTROLLER
#1

ADDRESS "1" SHOWN
(Dipswitch 1 is OFF)

+5V   +12V

OFF 1

8   ON

GND ⊖
+12 VDC ⊕

SMARTLOCK
CONTROLLER
#2

ADDRESS
SWITCH

COMMS
LED

N/C   N/C   N/C

N/O   N/O   N/O

B A GND

B A GND

A B GND

SHIELD

SHIELD

RS-485

SHIELD

SHIELD

B A GND

CANSEC MODEM

CUSTOM
MODEM CABLE
PART # CA-SOMOCAB

**TO OTHER
SMARTLOCK
CONTROLLERS**
*- 30 CONTROLLERS MAXIMUM
- 609 m (2000 ft.) MAXIMUM LENGTH*
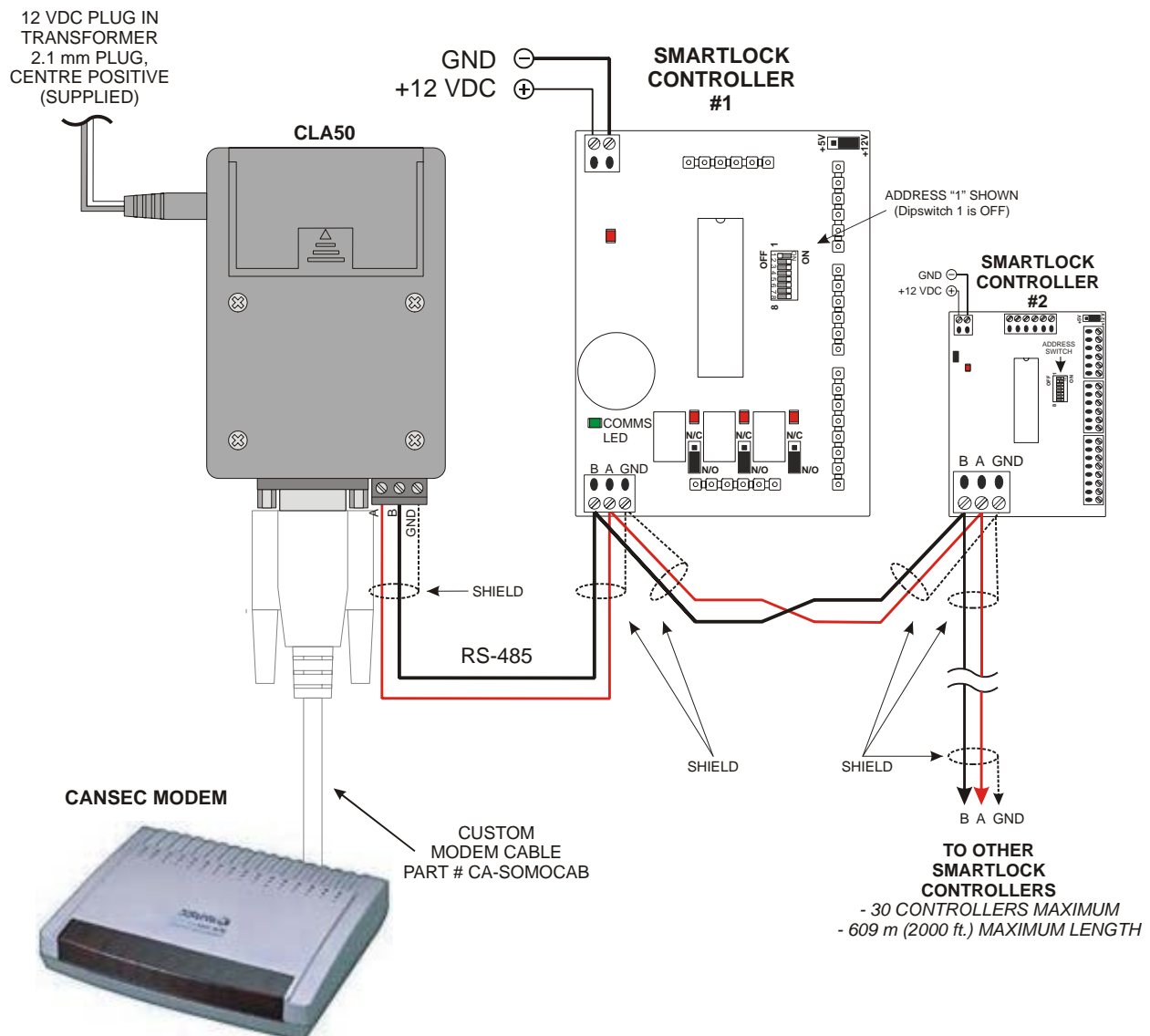
WIEGAND COMPATIBLE READER WIRING

EXIT READER
OPTIONAL
***CONTROLS ENTRY READER LOCK**

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

+VDC
GND
BEEPER
GREEN LED
D1
D0

ENTRY READER

GND ⊖
+12 VDC ⊕

SET READER VOLTAGE

+5V   +12V

+VDC
GND
BEEPER
GREEN LED
D1
D0

WIEGAND DATA LED

OFF   ON
1 2 3 4 5 6 7 8

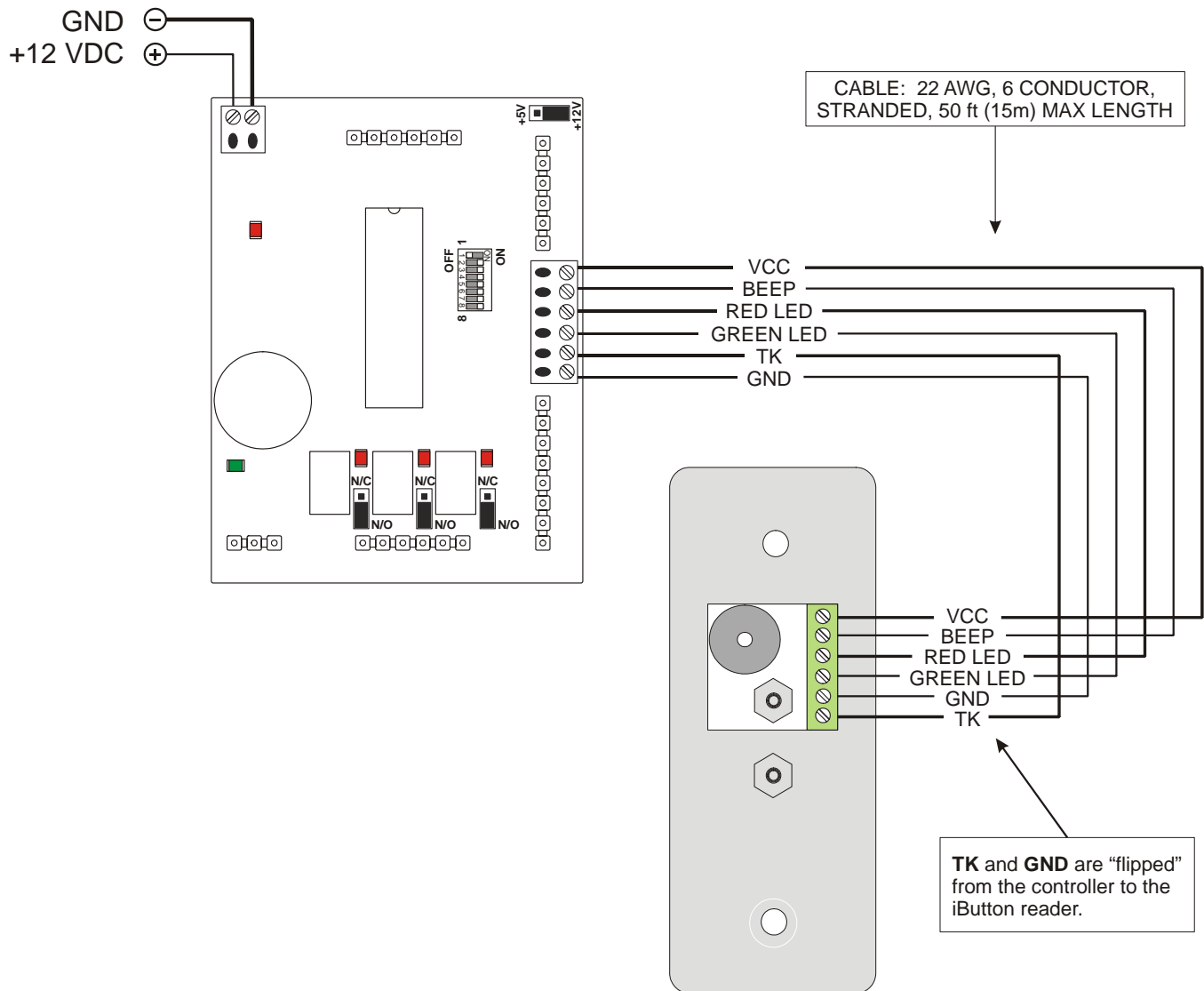N/C   N/C   N/C
N/O   N/O   N/O
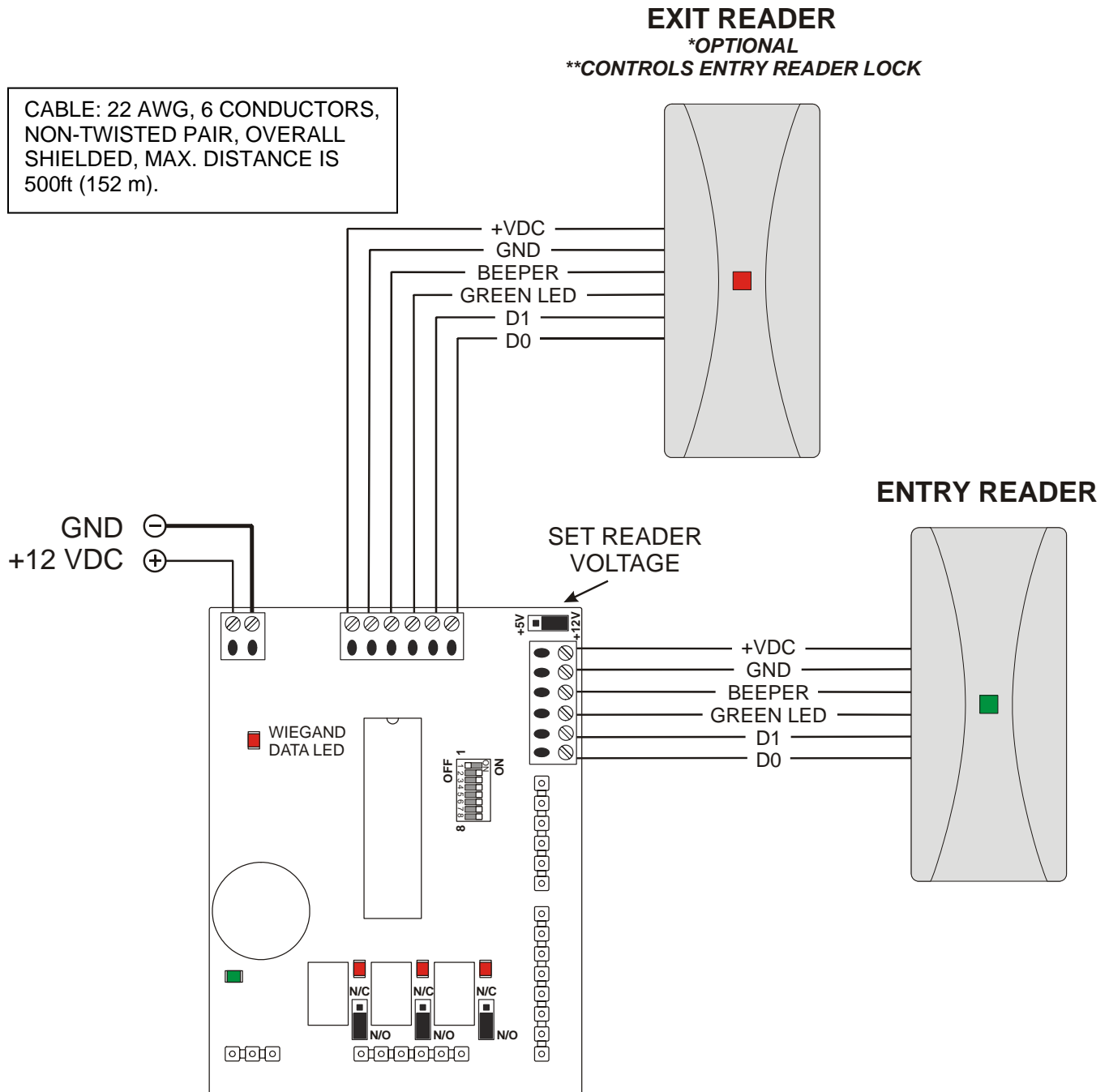
IMPORTANT: Before applying power to the controller, verify that the Reader Voltage Jumper is set correctly for the reader being connected. Connecting a 5V reader to 12V will damage the reader.

Note: The SmartLock controller supports Cansec's 37 Bit format as well as standard 26 Bit format.

IBUTTON READER WIRING

GND ⊖
+12 VDC ⊕

CABLE: 22 AWG, 6 CONDUCTOR, STRANDED, 50 ft (15m) MAX LENGTH

VCC
BEEP
RED LED
GREEN LED
TK
GND

VCC
BEEP
RED LED
GREEN LED
GND
TK

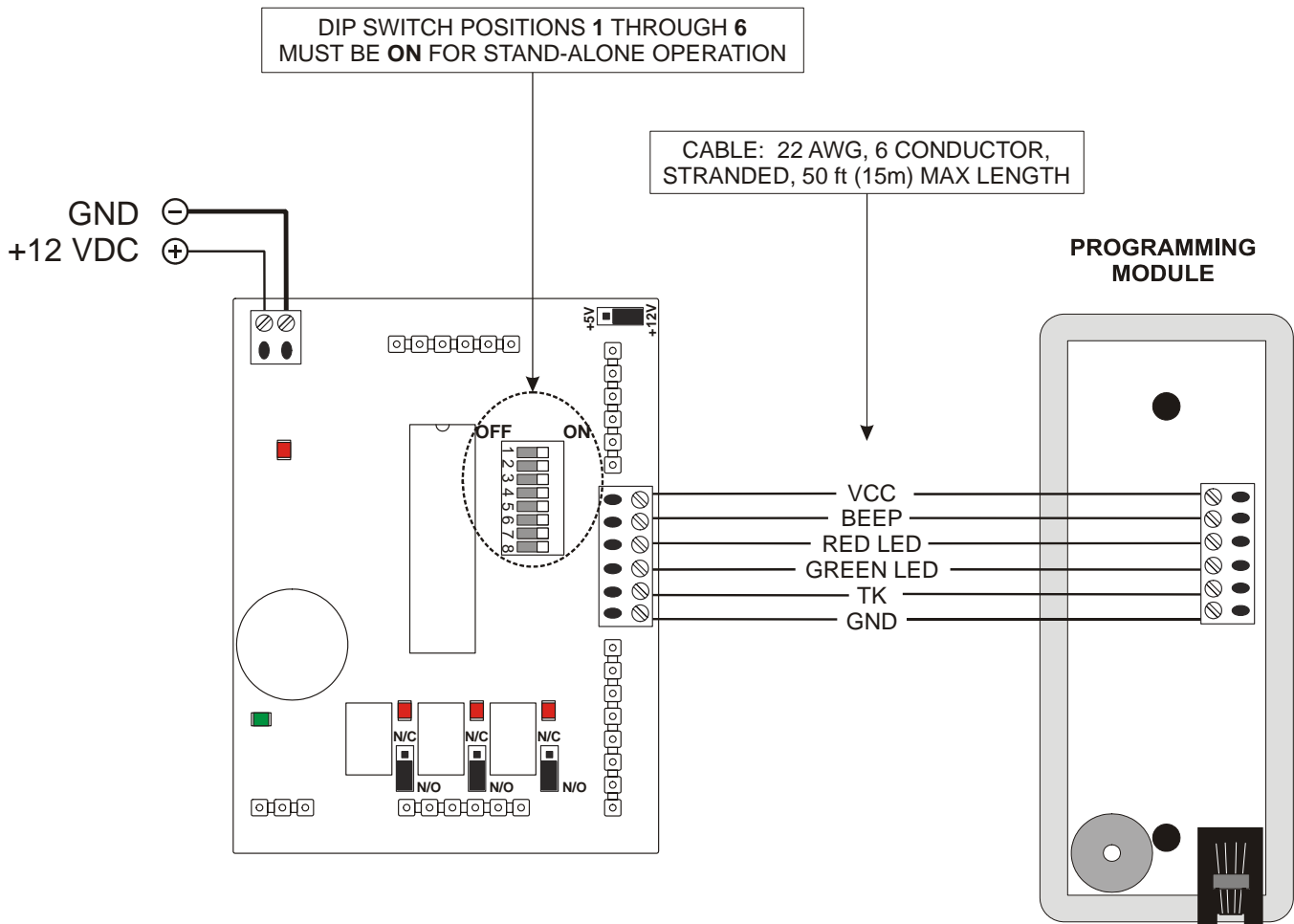**TK** and **GND** are "flipped" from the controller to the iButton reader.

Notes:

1. Exit Reader not supported with SmartLock iButton Readers.

2. If using SmartLock Connect Programming Module with iButton Readers, connect the Programming Module in parallel with the iButton reader.

STAND-ALONE PROGRAMMING MODULE WIRING (SmartLock Connect Only)

DIP SWITCH POSITIONS **1** THROUGH **6**
MUST BE **ON** FOR STAND-ALONE OPERATION

CABLE: 22 AWG, 6 CONDUCTOR,
STRANDED, 50 ft (15m) MAX LENGTH

GND ⊖
+12 VDC ⊕

PROGRAMMING MODULE

OFF   ON

VCC
BEEP
RED LED
GREEN LED
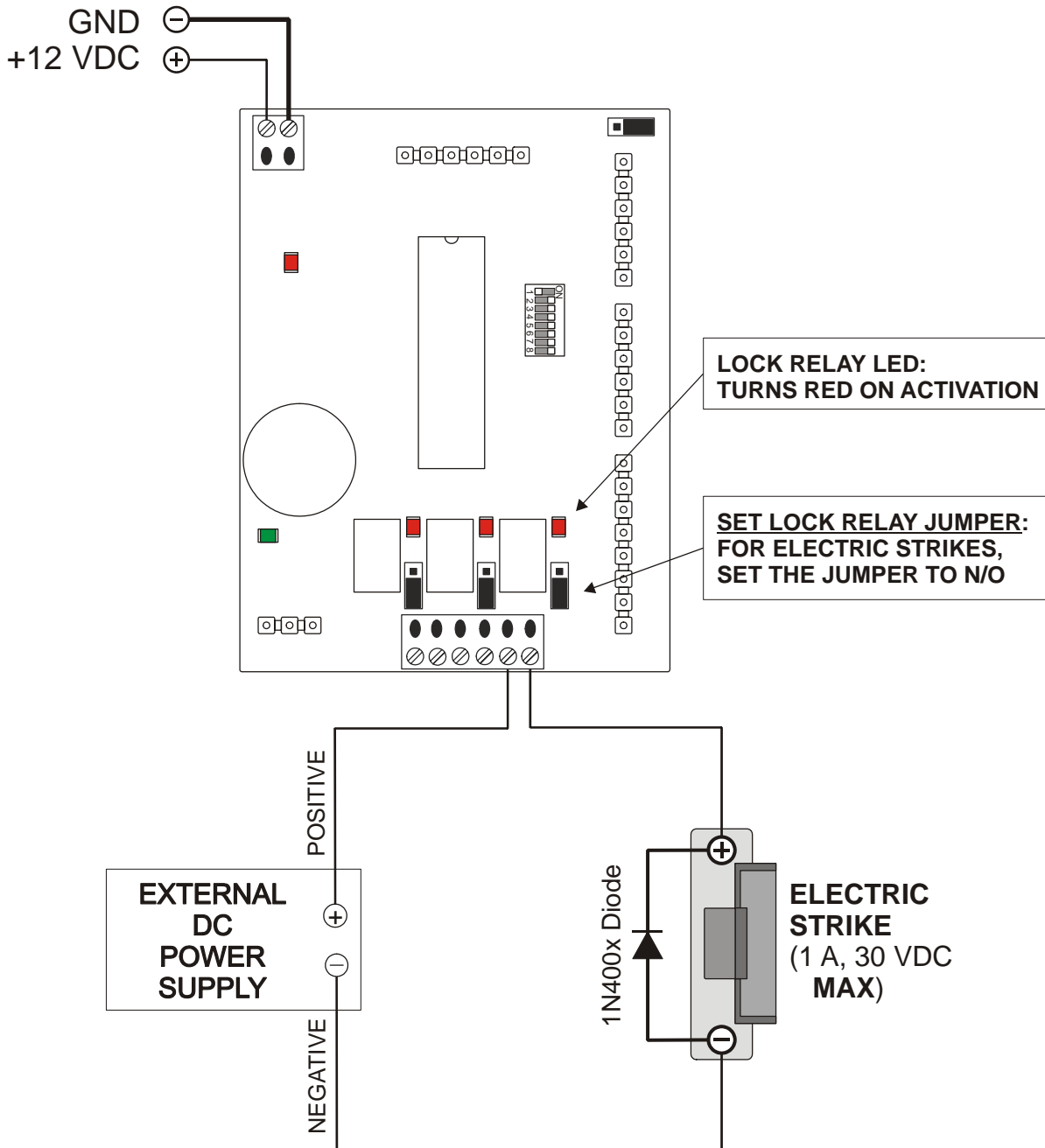TK
GND

N/C   N/C   N/C
N/O   N/O   N/O

Notes:

1. The Stand Alone Programming Module must be installed within 50 ft. of the controller in a location accessible for programming using the Portable Program Key.

2. The Programming Module should be installed on the secure side of the door in a dry location.

3. If an iButton Reader is being used, wire it to the same reader port in parallel with the programming module.

4. The Programming Module comes in a plastic box. Drill the required holes for mounting and feed the cable through the cable feed-through.

5. See the Operator Guide for complete instructions on programming using the Portable Program Key.

LOCK OUTPUT RELAY WIRING

ELECTRIC STRIKES

GND ⊖
+12 VDC ⊕

LOCK RELAY LED:
TURNS RED ON ACTIVATION

SET LOCK RELAY JUMPER:
FOR ELECTRIC STRIKES,
SET THE JUMPER TO N/O

POSITIVE

NEGATIVE

EXTERNAL
DC
POWER
SUPPLY

1N400x Diode

ELECTRIC
STRIKE
(1 A, 30 VDC
MAX)

Note: Use 1N400x Series Diode as shown to prevent "Back EMF" from damaging the controller.

MAGLOCKS

GND ⊖
+12 VDC ⊕

LOCK RELAY LED:
TURNS RED ON ACTIVATION

SET LOCK RELAY JUMPER:
FOR MAG LOCKS,
SET THE JUMPER TO N/C

POSITIVE

NEGATIVE

EXTERNAL
DC
POWER
SUPPLY

⊕
⊖

1N400x Diode

MAG LOCK
30 VDC, 1 AMP MAX.

⊕
⊖
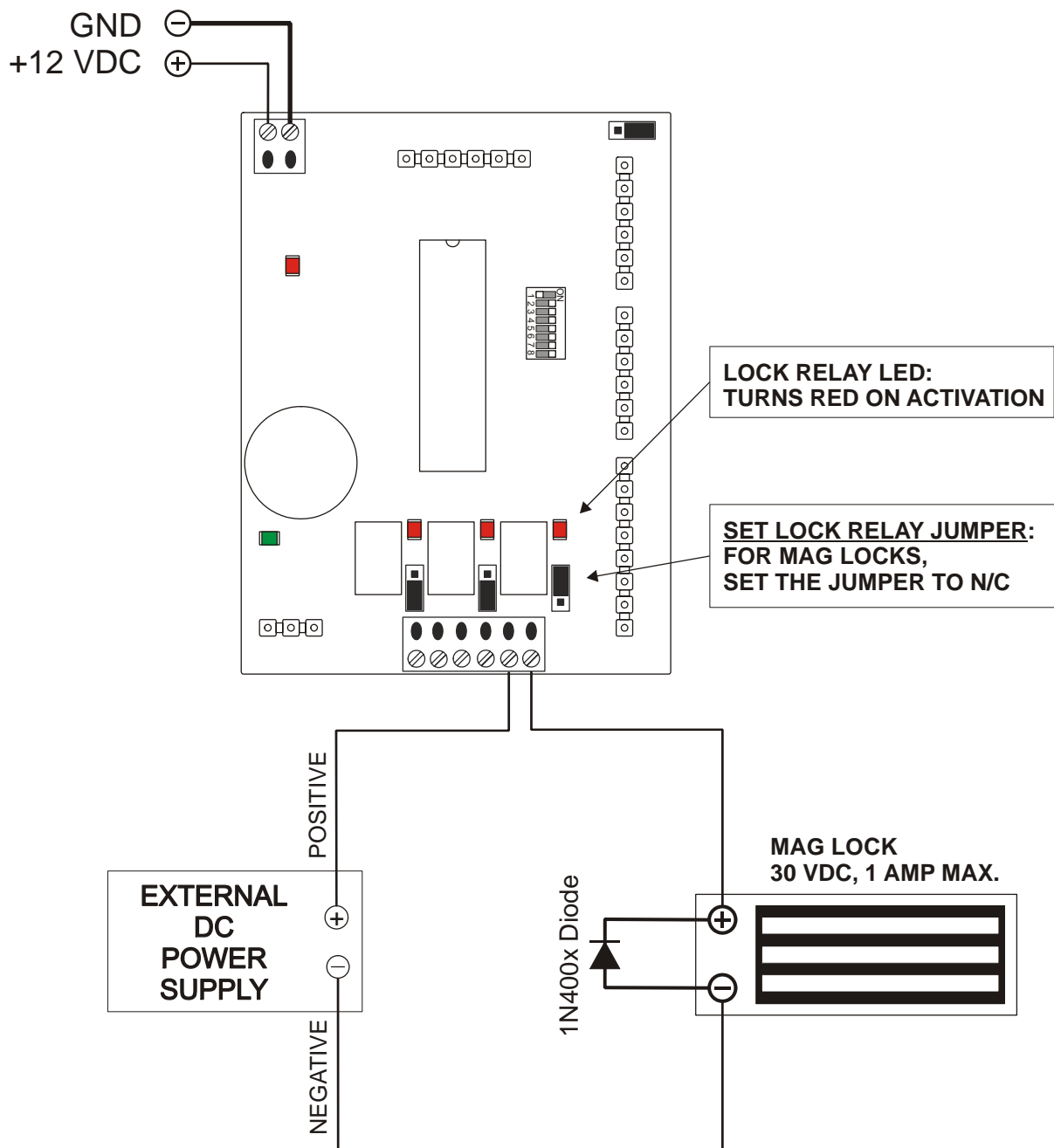
Note: Use 1N400x Series Diode as shown to prevent "Back EMF" from damaging the controller if the maglock isn't equipped with sufficient spike and surge protection. Check the maglock specifications for details.
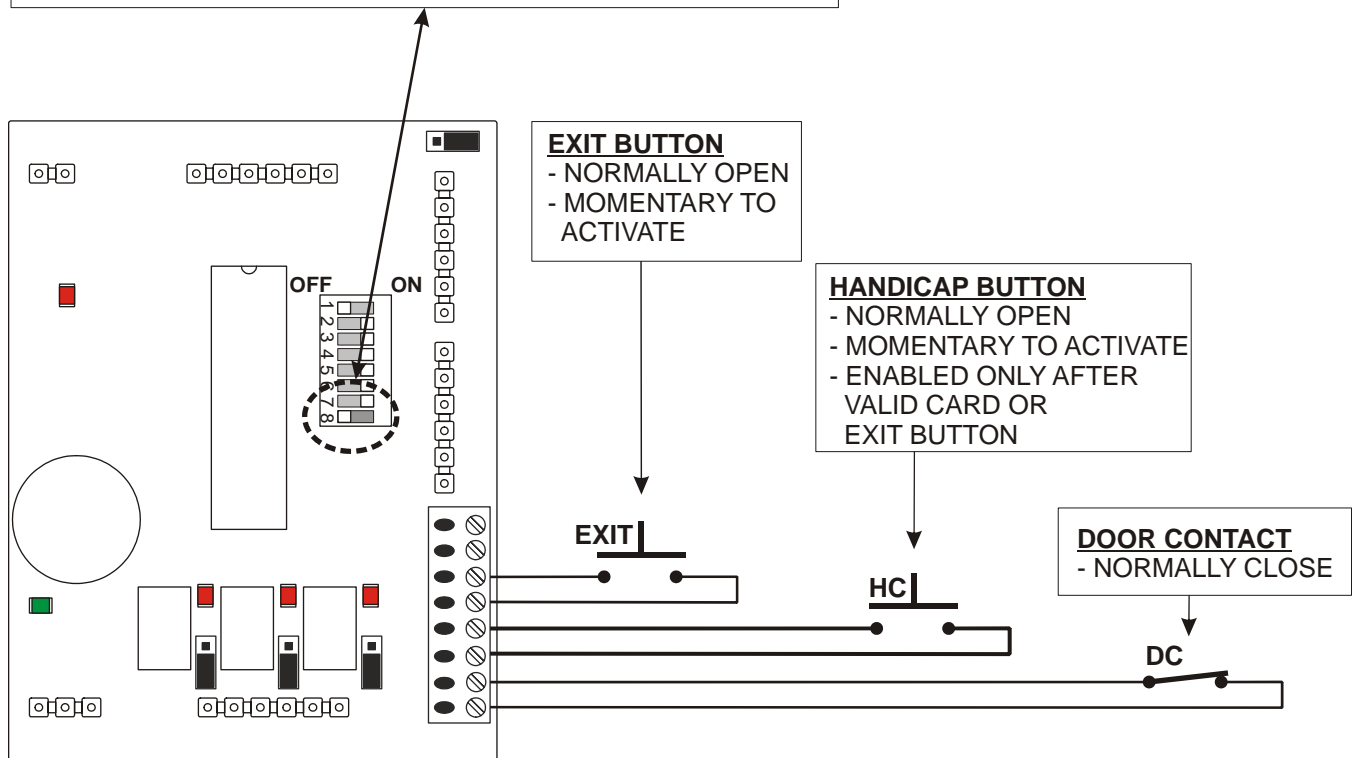
IF YOU ARE CONNECTING A DOOR CONTACT
SET DIP SWITCH 8 TO OFF (LEFT)

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

OFF   **ON**
1 2 3 4 5 6 7 8

EXIT BUTTON
- NORMALLY OPEN
- MOMENTARY TO
  ACTIVATE

HANDICAP BUTTON
- NORMALLY OPEN
- MOMENTARY TO ACTIVATE
- ENABLED ONLY AFTER
  VALID CARD OR
  EXIT BUTTON

DOOR CONTACT
- NORMALLY CLOSE
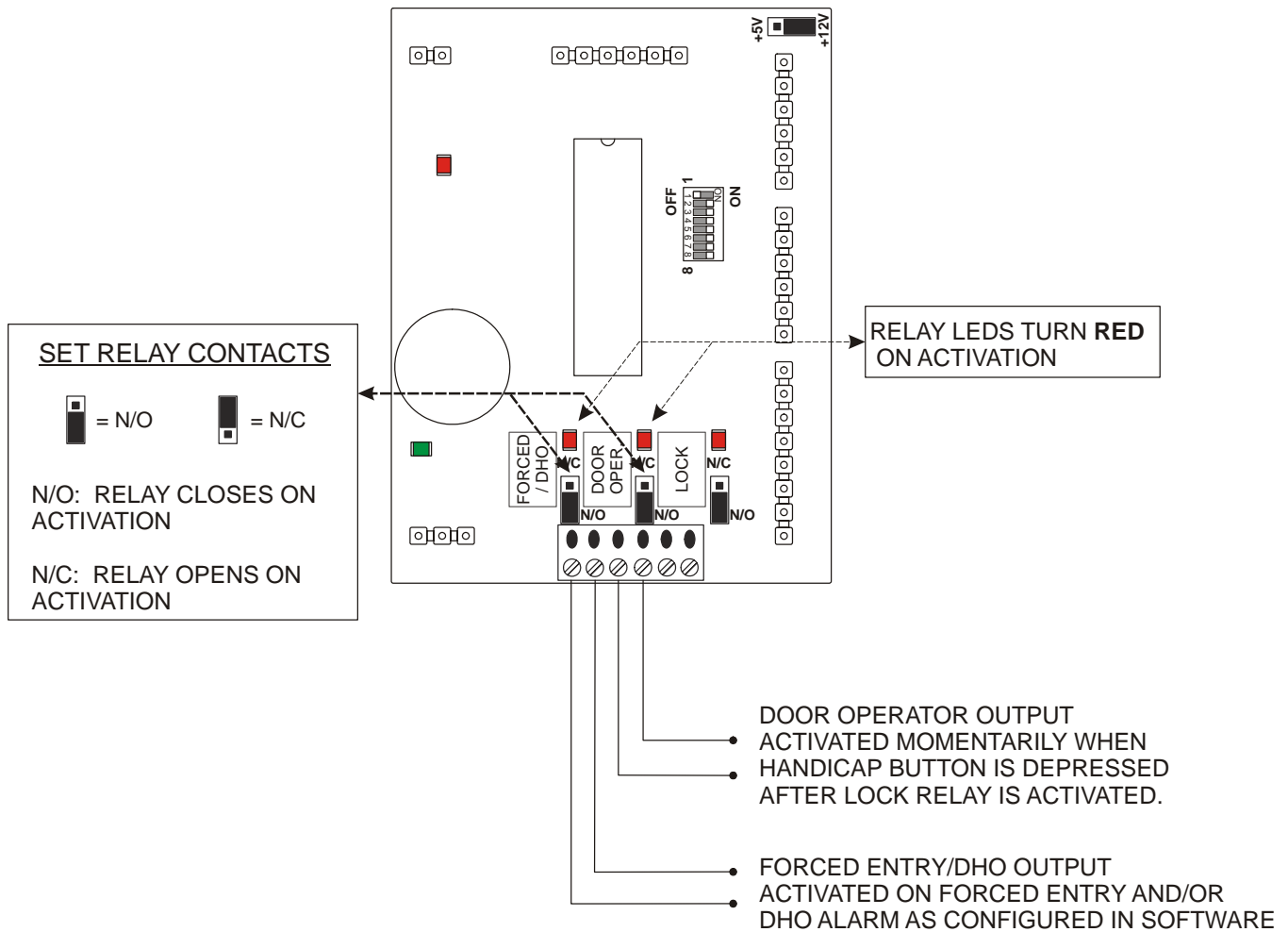
EXIT

HC

DC

Notes:

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

If not connecting a Door Contact, make sure you set Switch Position 8 to ON (right in orientation show) to bypass/disable the door contact input. Otherwise, the door will be in alarm condition.

RELAY LEDS TURN **RED** ON ACTIVATION

SET RELAY CONTACTS

█ = N/O   █ = N/C

N/O: RELAY CLOSES ON ACTIVATION

N/C: RELAY OPENS ON ACTIVATION

FORCED / DHO

DOOR OPER.

LOCK

N/C   N/C   N/C

N/O   N/O   N/O

DOOR OPERATOR OUTPUT ACTIVATED MOMENTARILY WHEN HANDICAP BUTTON IS DEPRESSED AFTER LOCK RELAY IS ACTIVATED.

FORCED ENTRY/DHO OUTPUT ACTIVATED ON FORCED ENTRY AND/OR DHO ALARM AS CONFIGURED IN SOFTWARE

Note: Maximum power through any of these relays is: 30 VDC @ 1 Amp.
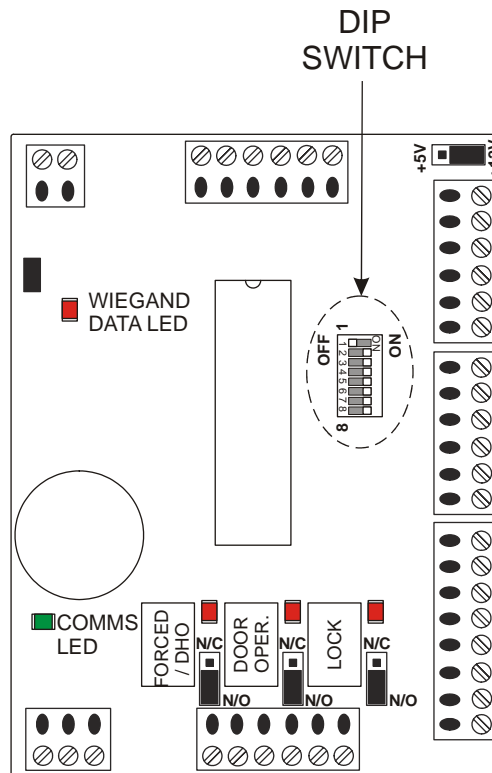
DIP SWITCH SETTINGS

The DIP Switch is used for the following:

      a.   To erase the controller's memory and run diagnostics
      b.   To Enable or Bypass the Door Contact Input
      c.   To set the controller address from 0 to 60. (0 for Stand-Alone only)

LOCATION OF DIP SWITCH

ERASING THE CONTROLLER MEMORY AND DIAGNOSTICS

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

Note: Switch setting changes do not take effect until the power is disconnected, then reconnected.
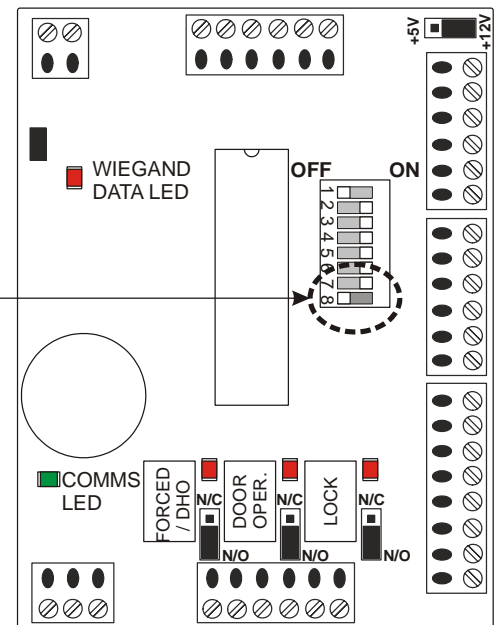
DOOR CONTACT BYPASS SWITCH SETTING

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)

1. Locate DIP Switch Position 8 using the diagram above.
2. Set Switch Position 8 accordingly:

   Door Contact <u>Connected</u>:   Set Switch 8 OFF (LEFT on diagram)
   Door Contact <u>Not Connected</u>:   Set Switch 8 ON (RIGHT on diagram)

SETTING ADDRESS FOR STAND-ALONE OPERATION (SmartLock Connect)

To Enable stand-alone operation and programming using the "**SmartLock Connect Stand Alone Programming Module**", set the controller Switch Settings as follows:

1. Locate DIP Switch Position 8 using the diagram above
2. Set Switch Positions 1 through 6 to the ON position (address 0)
3. Set Switch Position 8 to Enable/Disable Door Contact Input

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

SMARTLOCK
INSTALLATION INSTRUCTIONS

CONTROLLER ADDRESS TABLE

Set the unique address of each controller from 0 to 60 as per the table below. Address "0" is used for ALL stand-alone units to be programmed using SmartLock Connect software. For SmartLock, 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
STAND-ALONE 0	ON	ON	ON	ON	ON	ON
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
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

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ADDRESS	SW-1	SW-2	SW-3	SW-4	SW-5	SW-6
29	OFF	ON	OFF	OFF	OFF	ON
30	ON	OFF	OFF	OFF	OFF	ON
31	OFF	OFF	OFF	OFF	OFF	ON
32	ON	ON	ON	ON	ON	OFF
33	OFF	ON	ON	ON	ON	OFF
34	ON	OFF	ON	ON	ON	OFF
35	OFF	OFF	ON	ON	ON	OFF
36	ON	ON	OFF	ON	ON	OFF
37	OFF	ON	OFF	ON	ON	OFF
38	ON	OFF	OFF	ON	ON	OFF
39	OFF	OFF	OFF	ON	ON	OFF
40	ON	ON	ON	OFF	ON	OFF
41	OFF	ON	ON	OFF	ON	OFF
42	ON	OFF	ON	OFF	ON	OFF
43	OFF	OFF	ON	OFF	ON	OFF
44	ON	ON	OFF	OFF	ON	OFF
45	OFF	ON	OFF	OFF	ON	OFF
46	ON	OFF	OFF	OFF	ON	OFF
47	OFF	OFF	OFF	OFF	ON	OFF
48	ON	ON	ON	ON	OFF	OFF
49	OFF	ON	ON	ON	OFF	OFF
50	ON	OFF	ON	ON	OFF	OFF
51	OFF	OFF	ON	ON	OFF	OFF
52	ON	ON	OFF	ON	OFF	OFF
53	OFF	ON	OFF	ON	OFF	OFF
54	ON	OFF	OFF	ON	OFF	OFF
55	OFF	OFF	OFF	ON	OFF	OFF
56	OFF	ON	ON	OFF	OFF	OFF
57	ON	OFF	ON	OFF	OFF	OFF
58	OFF	OFF	ON	OFF	OFF	OFF
59	ON	ON	OFF	OFF	OFF	OFF
60	OFF	ON	OFF	OFF	OFF	OFF

Notes:

1. Switch setting changes do not take effect until the power is disconnected, then reconnected.
2. All stand-alone units must be addressed as "0".

APPENDIX

CLA50 COMMUNICATIONS WIRING

GND ⊖
+12 VDC ⊕

SMARTLOCK CONTROLLER

+5V ☐ +12V

ADDRESS "1" SHOWN
(Dipswitch 1 is OFF)

OFF 1
ON
1 2 3 4 5 6 7 8

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.

GND ⊖
+12 VDC ⊕

SMARTLOCK CONTROLLER #2

ADDRESS SWITCH
ON
OFF

☐ COMMS LED

N/C   N/C   N/C
N/O   N/O   N/O

B A GND

B A GND

RS-485

GND
B
A

SHIELD

SHIELD

B A GND

TO OTHER SMARTLOCK CONTROLLERS
- 30 CONTROLLERS MAXIMUM
- 609 m (2000 ft.) MAXIMUM LENGTH

TO COMPUTER
DB9 SERIAL PORT
(CABLE SUPPLIED)

12 VDC PLUG IN TRANSFORMER
2.1 mm PLUG, CENTRE POSITIVE
(SUPPLIED)