SCHLAGE
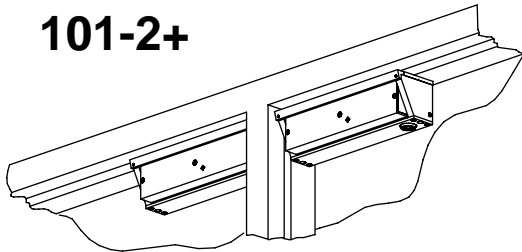
101+
DELAYED EGRESS
MAGNETIC LOCKING SYSTEM
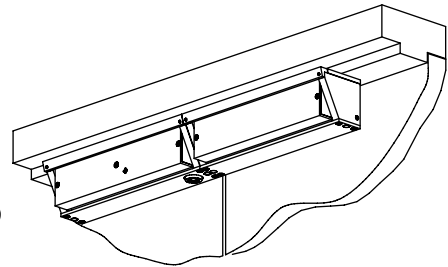
**PUSH UNTIL ALARM SOUNDS.
DOOR WILL OPEN IN 15 SECONDS.**

101-2+

101+DB

PLEASE READ ALL INSTRUCTIONS PRIOR TO INSTALLING THE ELECTROMAGNETIC LOCK.
HANDLE THE EQUIPMENT CAREFULLY, DAMAGING THE MATING SURFACES OF THE
ELECTROMAGNET OR THE ARMATURE MAY REDUCE LOCKING EFFICIENCY.

IMPORTANT! Manual is intended to be kept for programming, maintenance, and troubleshooting purposes. *Retain manual after installation.* Present manual to facility manager upon completing installation.

Schlage Lock Company
575 Birch Street
Forrestville, CT 06010
technical support: 866-322-1237
email: SESsupport@irco.com
web: www.irsupport.net

IR **Ingersoll Rand**
Security Technologies

GENERAL DESCRIPTION: The electromagnet mounts rigidly to the door frame header. The armature mounts to the door. The armature is designed to pivot about its center compensating for door misalignment. When the door is closed the energized magnet will bond with the armature, providing auxiliary locking force. If the opening is fire rated, the door must be secured positively with a mechanical latching device, in addition to the magnetic lock, in accordance with local authority having jurisdiction. Locknetics manufactures fire rated mechanical latching devices. The electronically controlled 101+ series magnetic locks described in this manual share the same access control circuitry in all models. With optional access control input devices (SelectEntry keypads or TouchEntry Key readers) the locks can hold up to 150 codes standard for access, toggle, lockout, or special function keys. Dry contact inputs allow for fire alarm tie in and remote release/reset capabilities. This manual covers the mechanical installation, wiring, and manual programming aspects of the locks. For computer programming, see information provided with the software package you will be using.

THIS MANUAL COVERS THE FOLLOWING MODELS:

101+
Delayed Egress magnet. Delayed egress is initiated by a rocker switch which is actuated by pushing on the door. By setting dipswitches, an auxiliary switch, such as an exit device or pushbutton, can be used as well. (See dipswitch/terminal layout on page 9.) The nuisance delay can be set from 0-3 seconds in the standard unit (fixed at 1 second in the BOCA unit). The delay time is generally fixed at 15 seconds, but, with approval of the local authority having jurisdiction, can be set to 30 seconds in the standard unit.

101-2+
Delayed Egress magnet for double doors. Two locks with separate housings, used in applications involving vertical rods or a mullion. This unit has the same features as the 101+ but one magnet houses a complete controller (master unit) while the other unit has a small interface board for connection to the master unit (slave unit.)

101DB
Delayed Egress magnet for double doors. Two locks in one housing, used in applications involving double doors without vertical rods or a mullion. This unit has the same features as the 101+.

DESCRIPTION OF OPTIONS:

ATR: Audit Trail Retrieval uses computer programming and interrogation of the lock to store and retrieve time-stamped events such as access, alarm, and reset functions and the time that they occur. 100 events standard (500 with the MX500 option).

BOCA: Some areas adhere to this life safety code for delayed egress. The nuisance delay is fixed at one second and the delayed egress time at 15 seconds. After delayed egress has been initiated and the door opened, the alarm will automatically reset after 30 seconds. If the door is opened within the 30 seconds the timer will restart.

DSM: Door Status Monitor will provide status of door with or without power applied. It works by a small permanent magnet, attached to the armature plate (inside an aluminum block) activates a reed switch located inside the magnetic lock. It is important that the template information be followed carefully to ensure good alignment between the magnet and the switch.

MBS: Magnetic Bond Sensor will provide status of the lock (locked or unlocked) with or without power applied. It works by way of a factory-calibrated reed switch located inside the magnetic lock which senses the strength of the magnetic field. If the voltage is too low or there is some kind of foreign material between the magnet and armature the MBS output will show a poor bond (even though it may not be possible to force the door open by hand). It is important that the template information be followed carefully as poor alignment between he magnetic lock and the armature can cause a poor bond.

MX500: Allows the storage of up to 500 TouchEntry Keys. Will also store the last 500 audit trail events.

PWM: "Power Miser" option. The magnetic lock uses significantly less current so more locks can be loaded onto a power supply. There is a reduction of holding force to 1200 lbs. as a result of the different magnetic coil used. PWM models can only be operated at 12 volts.

SEC: Security Alarm will sound the onboard horn and close alarm relay contacts if the door is forced open. It will require a manual reset to silence the alarm. If the door is propped open, or after it is propped open for a selectable time period the lock will sound the onboard horn and close alarm relay contacts. When the door closes again, the horn will become silent and the alarm will return to its normal (N.O.) state. Anti tailgate is also in effect: the door will relock as soon as it closes, even if the relock time delay has not yet transpired.

TECHNICAL SPECIFICATIONS:

	STANDARD MODELS:	**PWM MODELS:**
Dual Voltage:	12 or 24 volts AC or DC (Automatic Selection)	12 volts AC or DC (Automatic Selection)
Max. Current:	0.8 Amps @ 12 Volts (DC)	0.4 Amps @ 12 Volts (DC) ONLY
	0.5 Amps @ 24 Volts (DC)	**101-2+ and 101+DB MODELS:**
		12 volts AC or DC (Automatic Selection)
		0.8 Amps (total for both magnets) @ 12 Volts (DC) ONLY

Outputs:

Alarm:	**(standard)** N.O. 1.0 Amp resistive load at 30V	**Alarm:**	**(standard)** N.O. 1.0 Amp resistive load at 30V
DSM:	**(optional)** SPDT 200mA @ 12V, 100mA @ 24V	**DSM:**	**(optional)** SPDT 200mA @ 12V, 100mA @ 24V
MBS:	**(optional)** SPDT 1.0 Amp resistive load at 30V	**MBS:**	**(optional)** SPDT 1.0 Amp resistive load at 30V

Audible: 91 dB @ 2 feet

Mechanical Holding Force:	1500 pounds	1200 pounds

| **Listings:**	**UL SA8954 Special Locking Arrangements**	**MEA 100-99-E, 113-94-E**
	UL R12092 Builders Hardware - Auxiliary Locks	**CSFM 3774-0544:105**

PRE-INSTALLATION CONSIDERATIONS

USE OF DELAYED EGRESS LOCKS: Local codes generally require the signage, provided with the product, to be posted on or near the door. Consult local authority having jurisdiction prior to any installation involving the use of delayed egress products to ensure life safety compliance.
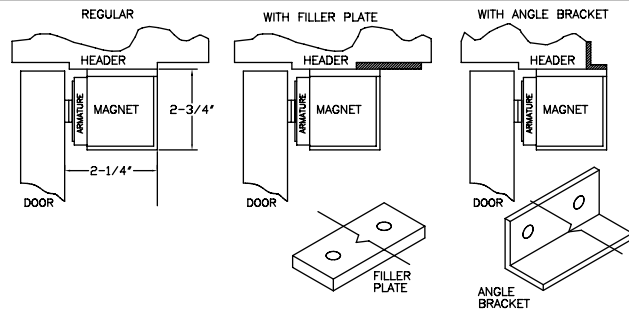
101-2+: When installing 101-2+ models, it does not matter which magnet (master or slave) gets installed on which leaf of the opening. It will be necessary to run at least four conductors between the two. Approximately 24" of wire is included as built by the factory. If it is necessary to extend the wires be sure that a good connection is made.
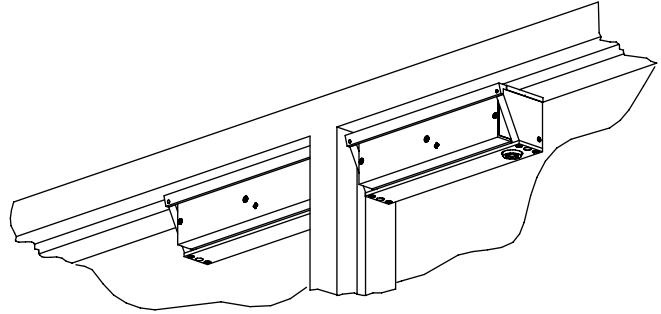
The electromagnet should be mounted as near to the frame strike jamb as possible to provide maximum holding force. EXCEPTION: If there is other equipment such as flush bolt(s) or vertical rod exit device(s) the magnetic lock and its armature can be shifted accordingly. It should, however, be mounted as close to the strike side jam as possible without interfering with the operation of the other equipment. Visually check the mounting location to assure that the unit will mount without interference.

LHR **RHR**

FRAME STRIKE JAM
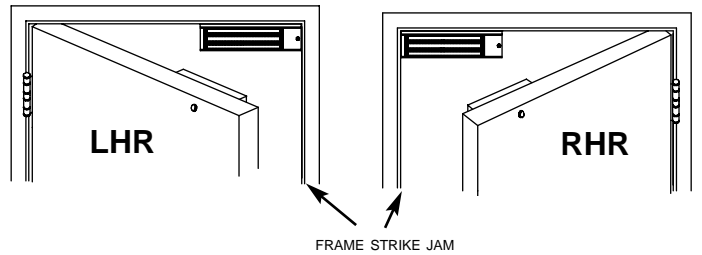
Frame conditions may require the use of filler plates and/or angle brackets. These items are available from Locknetics. In some cases it may be necessary to fabricate custom brackets or filler plates to make a secure installation.

REGULAR WITH FILLER PLATE WITH ANGLE BRACKET

HEADER HEADER HEADER

ARMATURE MAGNET 2-3/4"
ARMATURE MAGNET
ARMATURE MAGNET

2-1/4"

DOOR DOOR DOOR

FILLER PLATE

ANGLE BRACKET

Wiring for the electromagnet must enter the top of the unit through the wire access hole drilled in the frame header (see template). Be certain provisions can be made to bring the wire through the header into the top of the unit.
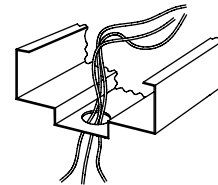
Use proper mounting screws for your door frame. For light-gauge metal door frames, self tapping screws may be used. If the door frame is heavy-gauge metal, machine screws may be necessary and the holes will have to be tapped. *Caution: It is very important to make sure that magnet is secured to the structure of the opening. It is the responsibility of the installer to provide structural reinforcement sufficient to ensure a safe installation.*

	PAN HEAD	FLAT HEAD
MACHINE SCREWS		
SELF-TAPPING SCREWS		

Armature mounting hardware is for door thickness of 1-3/4 inches. Sex nuts for thicker doors are available from your distributor. For reinforced metal doors the sex nut is not required. Note that it is very important that the hardware used in mounting the armature is installed correctly. The instructions show clearly how this must be done. If not done properly, the lock will not function as designed.
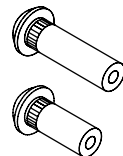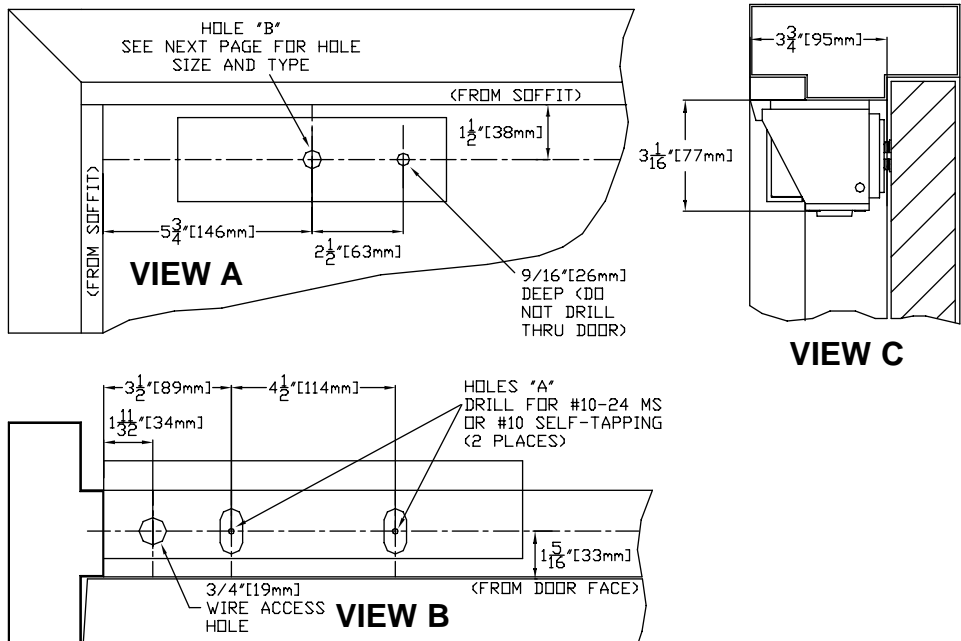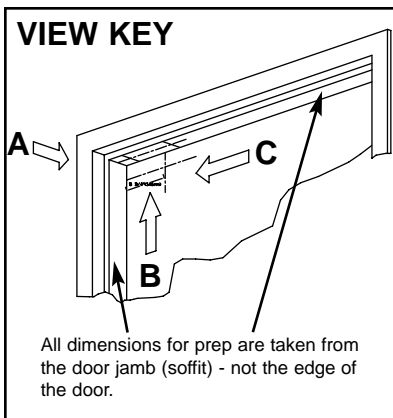
INSTALLATION PROCEDURE

1. PREP DOOR AND FRAME (FOR STANDARD AND 101-2+ UNITS):

The paper template is the preferable way to prepare the door and frame. If for any reason it is not available, use the dimensions shown below to mark the centerlines of the holes. *Note that the layout is not symmetrical with respect to the centerline of the armature.* For 101-2+ units, it does not matter which (master or slave) magnet is installed on which door. Make sure that wiring can be pulled from one magnet to another. Prep may be shifted to accommodate vertical rod exit devices if necessary.

A.   The door should be closed and latched. You should be at the "push" side. Locate the paper template and fold it along the perforated line with the printed sides facing each other. Place the template against the frame stop and the door. Tape template in place.

B.   On the frame stop mark the location of holes "A" from the template. For heavy gauge or reinforced frames, drill and tap for #10-24 thread. For standard frames, drill 5/32" dia. for #10 self tapping screws. Locate and drill the 3/4" dia. wire hole. (The 3/4" dia. hole is oversized to the 5/8" dia. mounting plate hole to allow the full range of adjustability.)

C.   On the doors, mark the locations of all holes. Drill (2) 1/4" dia. holes per template for armature guide pins. Armature mounting hole "B" is determined by the door type (see below).

LH or RHR

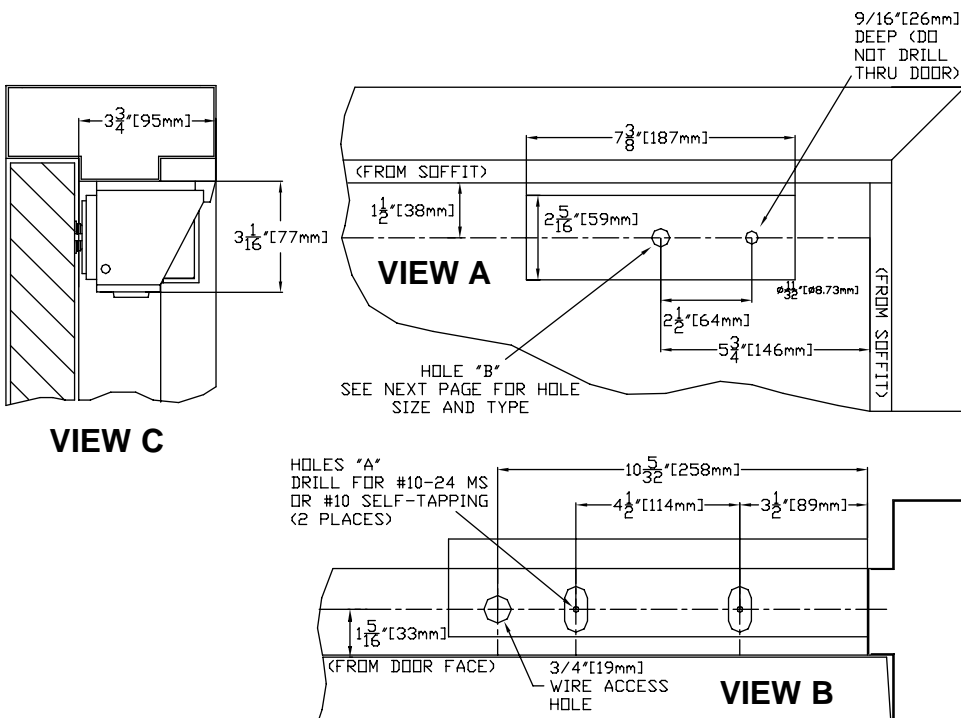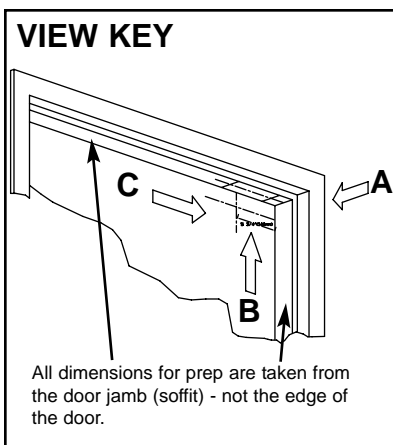## RH or LHR

1. PREP DOOR AND FRAME (FOR 101+DB UNITS):

The paper template is the preferable way to prepare the door and frame. If for any reason it is not available, use the dimensions shown below to mark the centerlines of the holes. *Note that the layout is not symmetrical with respect to the centerline of the armature. The parting centerline of the doors should be used as the center of the door and frame prep.*

PARTING LINE OF DOORS

$1\frac{1}{2}$"[38mm]

$2\frac{1}{2}$"[63mm]

$2\frac{1}{2}$"[63mm]

HOLE "B"
SEE BELOW FOR HOLE
SIZE AND TYPE

$5\frac{25}{32}$"[147mm]

$5\frac{23}{32}$"[145mm]

9/16"[26mm] DEEP
BOTH DOORS
(DO NOT DRILL THRU DOOR)

$11\frac{1}{2}$"[292mm]

$11\frac{1}{2}$"[292mm]

$10\frac{5}{32}$"[258mm]

8"[203mm]

8"[203mm]

$3\frac{1}{2}$"[89mm]

$3\frac{1}{2}$"[89mm]

$1\frac{3}{8}$"[35mm]

$1\frac{5}{16}$"[33mm]

3/4"[19mm]
WIRE ACCESS
HOLE

3/4"[19mm]
WIRE ACCESS
HOLE

HOLES "A"
DRILL FOR #10-24 MS
OR #10 SELF-TAPPING
(4 PLACES)
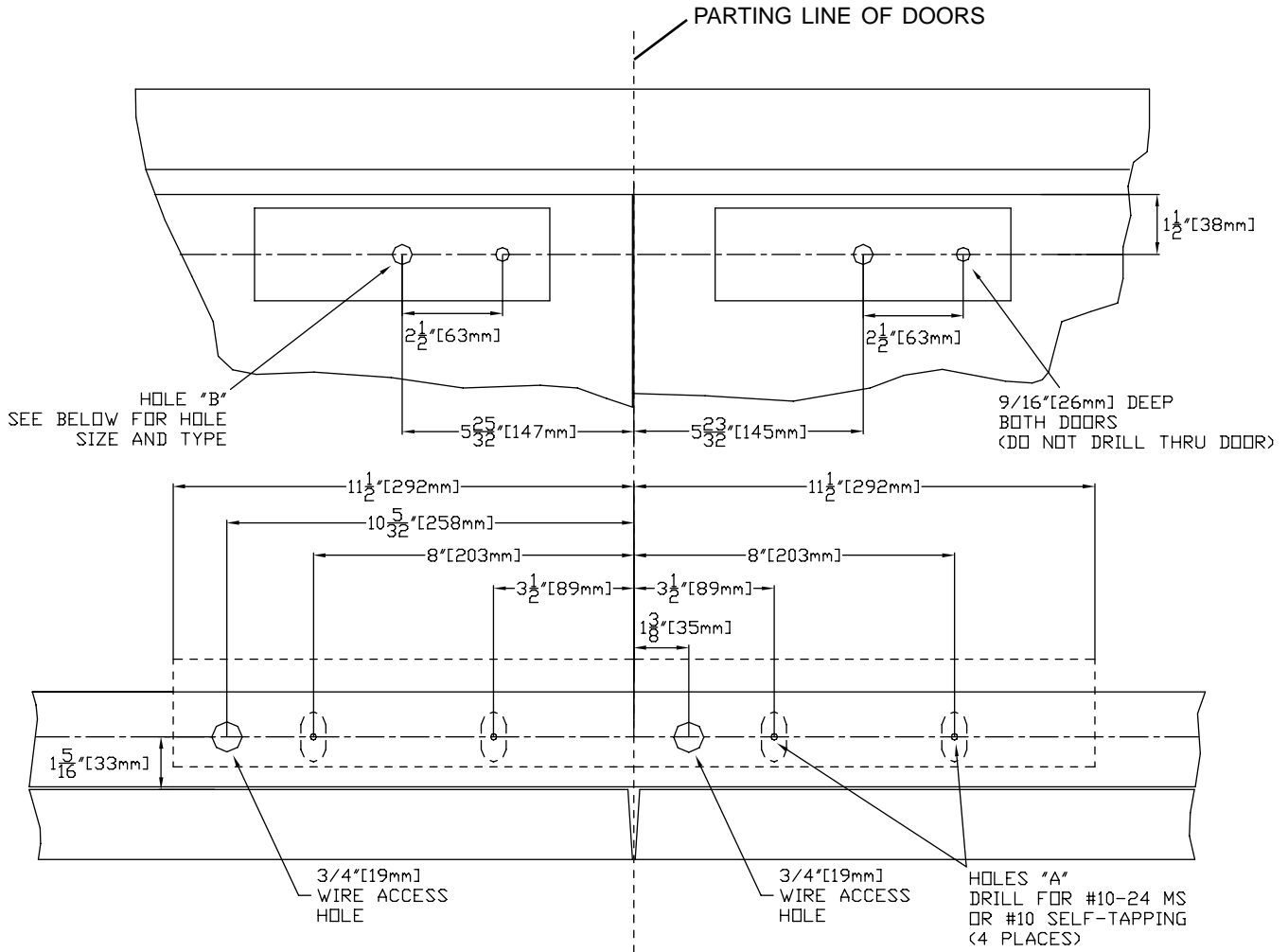
ARMATURE MOUNTING HOLE INFORMATION (ALL MODELS):

HOLE "B" FOR MOUNTING ARMATURE IS DETERMINED BY DOOR TYPE:

WOOD DOOR

SEX NUT

TAPERED
WASHER

STAR LOCKING
WASHER

FLAT WASHER (WOOD DOORS ONLY)

DRILL 1/2" DIA
THRU HOLE.

REINFORCED METAL DOOR

DRILL AND TAP
FOR 5/16-18
MACHINE
SCREW.

HOLLOW METAL DOOR

HEX KEY

1. DRILL 11/32" DIA.
HOLE THROUGH
DOOR.

2. DRILL 1/2" DIA. HOLE
INTO SKIN OF DOOR ON
SEX NUT SIDE ONLY. DO
NOT DRILL THROUGH
DOOR.
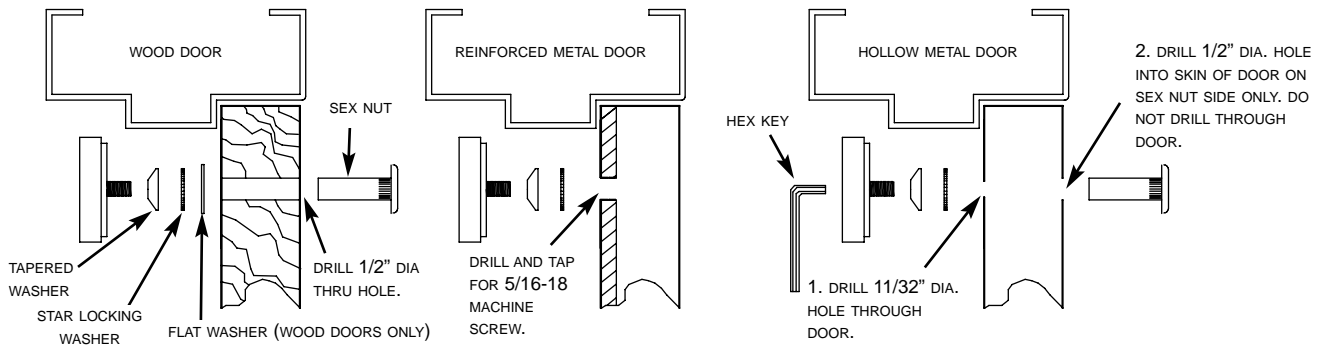
2. MOUNT ARMATURE TO DOOR

Assemble using hardware provided in the order shown. All hardware shown must be used except where noted. *Note that the <u>tapered washer</u> must be placed with the pointed side facing away from the door and toward the armature. It MUST be used for proper operation.* Use hex key to tighten the armature mounting bolt. For solid core and hollow metal doors, gently tap sex nut into position with a rubber mallet before mounting armature assembly. *Proper use of hardware will allow armature to pivot slightly after securely tightening the mounting screw. This is normal, and necessary to allow armature to mate properly with magnet.*

CAUTION:
Failure to secure armature to door may result in serious injury to door user. For proper operation, safety and security, sex nut / bolt assembly, washers and spacers must be assembled in the order illustrated and securely tightened 1/8 to 1/4 turn past hand tight.

TAPERED WASHER

STAR LOCKING WASHER

ARMATURE

FLAT WASHER (WOOD DOORS ONLY)

DSM BLOCK (OPTIONAL. REQUIRED ON MODELS WITH DSM, SEC, AND/OR BOCA OPTIONS)

SEX NUT
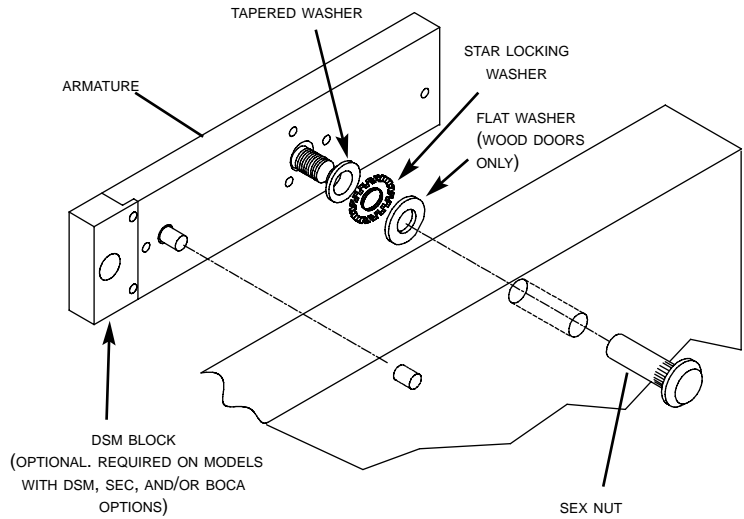
3. ATTACH MOUNTING PLATE AND ALIGNING TEMPLATE TO HEADER

Slotted holes and counterbore should face downward. Mount to the frame using (2) #10-24 x ½" pan head machine screws, or (2) #10 x 3/4" pan head self-tapping screws, and #10 flat washers. Tighten screws just tight enough to allow shifting the plate during adjustment. Install plastic aligning template onto mounting plate using flat head machine screws. Note the direction of the door face.

DOOR

101+DB
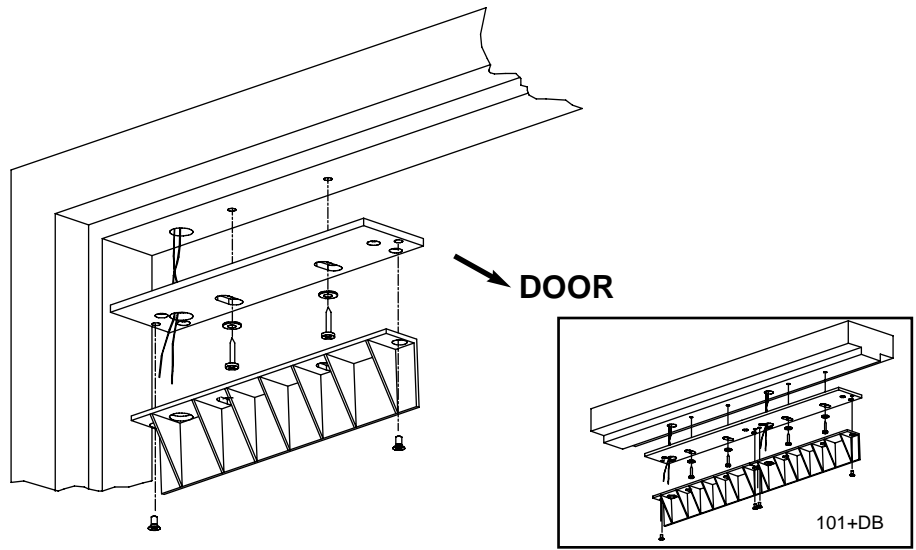
4. ALIGN PLATE TO ARMATURE USING PLASTIC ALIGNING TEMPLATE

Close door. Push template/mounting plate assembly toward door until it comes against the armature leaving no gap. Tighten pan head screws completely. Mark the position of the mounting plate. Remove plastic alignment template from the mounting plate without moving the mounting plate. Remove plastic template.

NO

YES

PUSH HERE TO CLOSE GAP

GAP

NO GAP
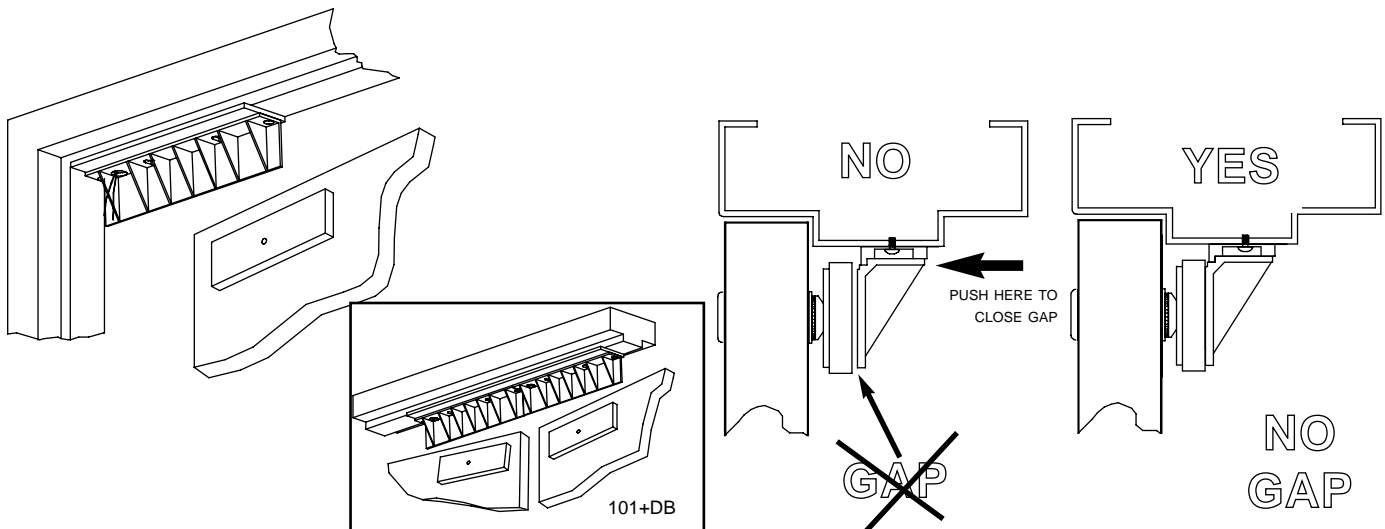
101+DB

5. SECURE MOUNTING PLATE

Using the Mounting Plate as a template, drill the four (or eight for 101+DB) remaining mounting holes.

If using #10 self-tapping, flat-head screws drill 5/32" dia. holes and drive four screws tight.

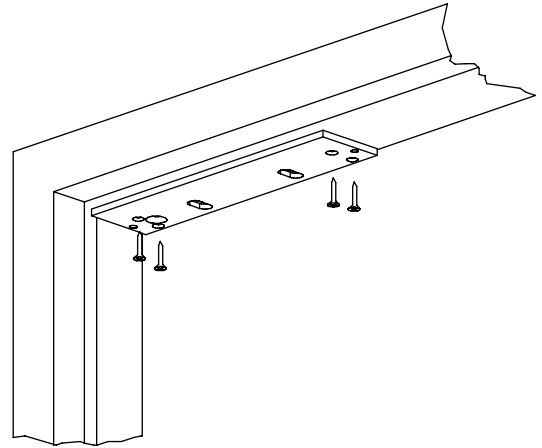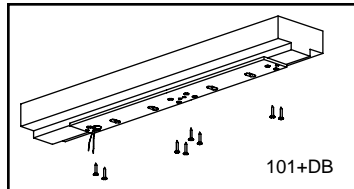If using #10-24 flat head machine screws, drill and tap for #10-24 threads and tighten four screws.

CAUTION: If the frame is wood it is critical that the screws used secure the mounting plate to the *structure* of the frame. It is the responsibility of the installer to provide sufficient reinforcement for a safe installation.

101+DB

6. SECURE MAGNET TO MOUNTING PLATE

Install the electromagnet to the mounting plate using the two 1/4-20 x 2" socket head cap screws with a hex key. Firmly tighten the screws. Pass wiring through hole in top of magnet and through access hole on circuit board side of magnet as shown below. Drive in anti-tamper plugs using a rubber mallet. (It is advisable to wait until the magnet is wired and tested before installing anti-tamper plugs in case the magnet position must be adjusted.)

NOTE: For 101-2+ see wiring information on page 11 to wire between units.

101+DB
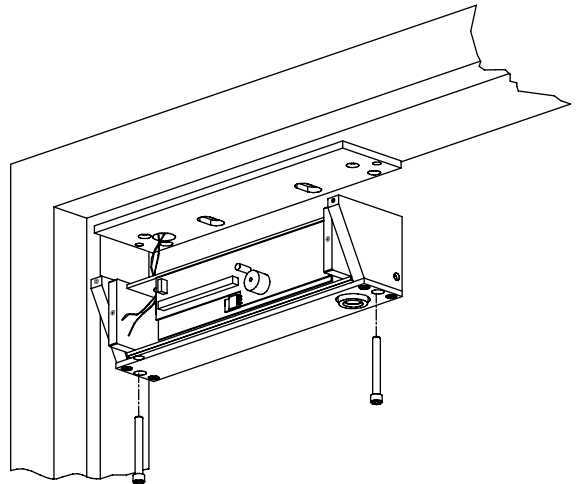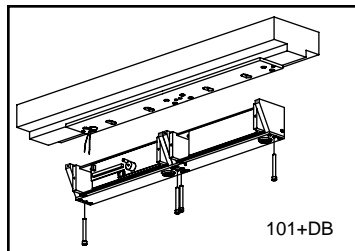
7. MAKE FINAL WIRING CONNECTIONS, SET DIPSWITCHES, AND PROGRAM LOCK
(SEE WIRING AND PROGRAMMING BEGINNING ON PAGE 8)

Refer to the wiring and programming section of this manual. If wiring and programming is to be done by someone else(besides the person doing the mechanical installation) please make sure that this manual is given to that person. DO NOT DISCARD THIS MANUAL. IT IS IMPORTANT THAT IT BE GIVEN TO THE OWNER OR BUILDING MAINTENANCE MANAGER FOR REFERENCE AFTER INSTALLATION.

8. FASTEN ELECTRONICS COVER AND LOCK GUARD

After wiring and programming (or if it is to be done later) fasten the electronics cover(s) and lock guard(s) to the magnet. After verifying that the unit works correctly install anti-tamper plugs, if desired. Note that they will need to be drilled out if the lock must be removed or adjusted.

101+DB
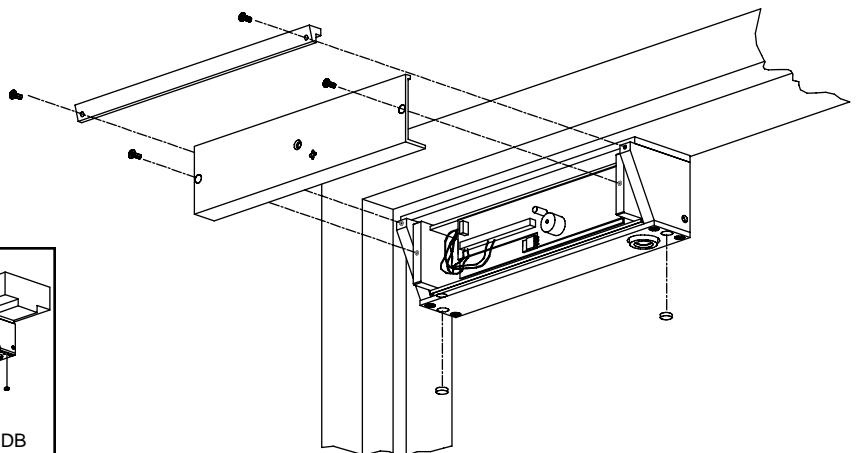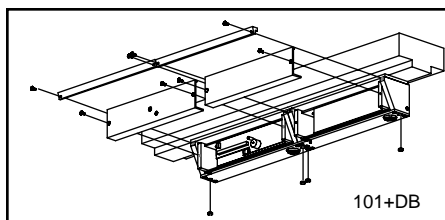
PC BOARD LAYOUT AND FEATURES:

Connect wiring to main terminal strip. If the unit is to be used with a KP70+ series keypad or TR83/84 TouchEntry Key reader (and the required 100CAB adapter cable) or a TR80 or TR81 see the wiring information on page 12 and the programming information starting on page 14. After wiring, time delay setting, initialization and programming have been completed, secure the cover onto the lock.

See next page (9)for terminal layouts and dipswitch settings. Not all terminals will be used in all cases. Note that to get the correct outputs the correct options must have been ordered and the dipswitches set properly.

IMPORTANT: DO NOT APPLY POWER UNTIL ALL CONNECTIONS HAVE BEEN MADE AND DIPSWITCHES SET AND VERIFIED.

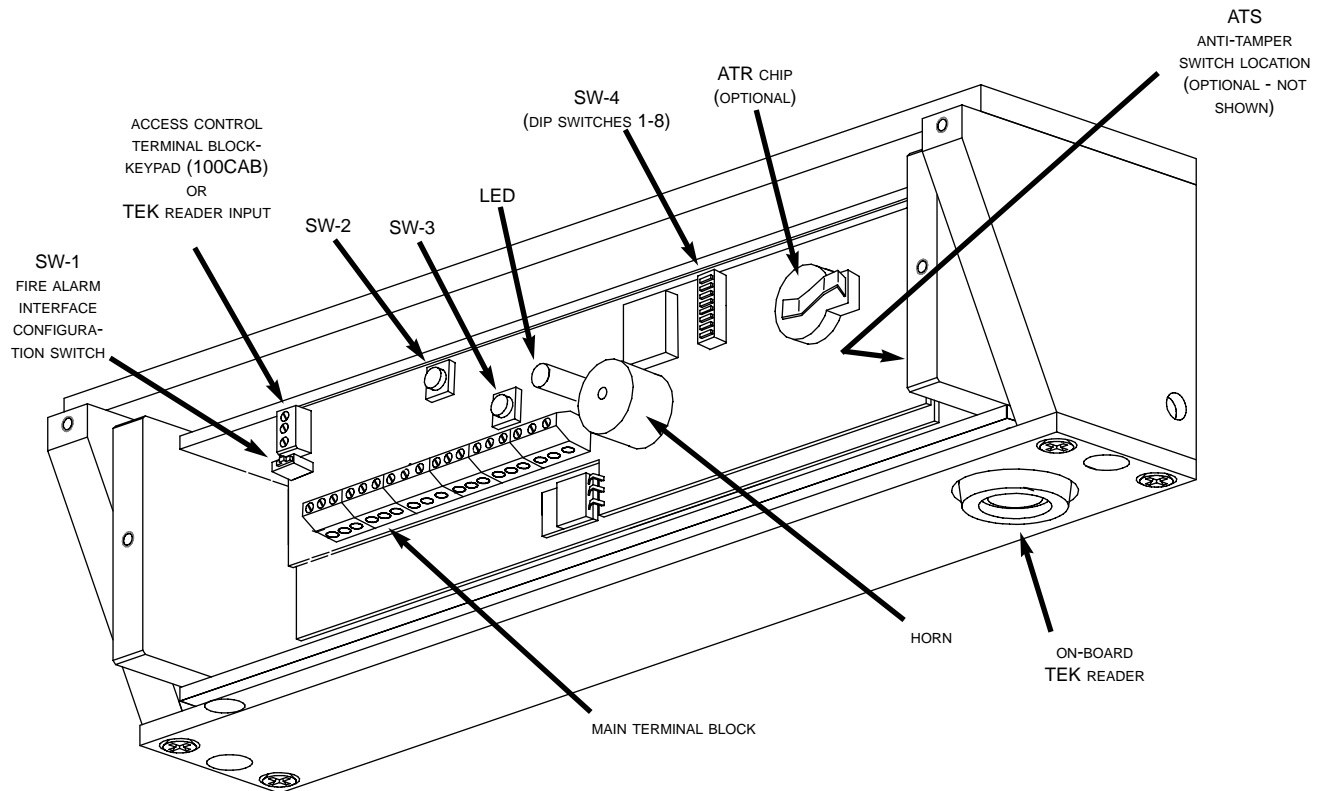|	
SW-1	Fire Alarm Interface dipswitch. Configures whether there is a normally open or a normally closed input from the fire panel (see next page for setting dipswitches).
SW-2/SW-3	These switches are used to set the various time delays and for memory reset. (See "Time delay settings" on page 14.)
SW-4	This bank of 8 dipswitches is used to configure various features of the system. See next page for setting dipswitches. Note that they are numbered from 1 (on the bottom) to 8 (on the top) and Left is ON and right is OFF.
Main Terminal Block	This terminal block has 18 screw terminals. See page 10 for description of terminal functions and wiring information.
Access Control Terminal Block	Used to interface Locknetics 3-wire cable/keypad system (100CAB adapter cable with keypad) or to hook up a TR80 or TR81 TouchEntry Key reader.
Horn	Provides local audible indication of alarm status and programming signals. (See chart on page 20 "Table of Outputs".)
LED	Tri-color LED (red, yellow, green) used to provide local visual indication of alarm status. (See chart on page 20 "Table of Outputs".)
On-Board TEK reader	If TouchEntry keys are to be used for egress control and alarm reset the on-board TEK reader is provided.
ATR chip/socket	(Requires computer management) The ATR option provides a record of past access, alarm, and reset events along with the time and person. If the chip must be added in the field, it must be installed in the socket with the larger side facing away from the PC board. Once installed, memory will need to be erased before the lock will recognize the chip. See page 14 for memory reset information.
ATS (Anti-Tamper Switch)	The ATS option monitors the status of the electronics cover. When the cover is removed, the unit goes into alarm. It can be reset by leaving the cover off and then removing the power to the lock. Cover can be reinstalled after the alarm stops. (NOTE: on 101+DB and 101-2+ models, the ATS on the slave unit is not wired directly into the PC board. Instead, it has form C contacts with flying leads.)

CONFIGURE FIRE ALARM INTERFACE DIPSWITCH (SW-1) FOR CORRECT TYPE OF INPUT.

A dry contact is required. It can be normally open or normally closed. If no direct connection is to be made, configure the input for normally open (SW-1 to RIGHT).

SW-1 FIRE ALARM INPUT: To configure interface to terminals 3&4 on main terminal block.	SW-1 TO RIGHT FOR N.O. OR NO CONNECTION:	SW-1		X
	SW-1 TO LEFT FOR N.C. CONNECTION:		X	

CONFIGURE THE SW-4 DIPSWITCHES TO SET THE FUNCTIONS OF THE SYSTEM.

Power should not be applied at this time. Note that dipswitches 4 and 6 are specifically for the SEC option. Also note that dipswitch 7 must be "on" for the lock to automatically lock when powered up, or after a fire alarm condition. If it is off, the lock will remain unlocked, with the LED green, when power is applied. In order to lock it, a reset input or valid code or TEK will be required after power up or after a fire alarm condition.

SW-4 DIPSWITCH SETTINGS	SWITCH #	ON	OFF
NUISANCE ALERT: Horn sounds when door pushed to alert people that door is armed. Avoids false alarms.	8	ENABLED	DISABLED
AUTOMATIC RELOCK: Door locks upon power up or after fire alarm. If set to OFF: manual reset required.	7	ENABLED	DISABLED
DOOR FORCED / DOOR PROPPED ALARM (SEC OPTION ONLY)	6	ENABLED	DISABLED
UNLOCK ALERT: Horn sounds whenever door is unlocked (and still has power applied to it).	5	ENABLED	DISABLED
ANTI-TAILGATE (SEC OPTION ONLY): When door closes it immediately relocks (cancels time delay).	4	ENABLED	DISABLED

CONFIGURE HOW THE DELAYED EGRESS EVENT IS TO BE TRIGGERED, USING DIPSWITCHES 2 & 3	BY ON-BOARD ROCKER SWITCH ONLY (DEFAULT)	3		X
		2		X
	BY ROCKER SWITCH OR AUXILIARY INPUT	3	X	
		2		X
	BY ROCKER SWITCH AND AUXILIARY INPUT	3		X
		2	X	
	DELAYED EGRESS DISABLED.	3	X	
		2	X	

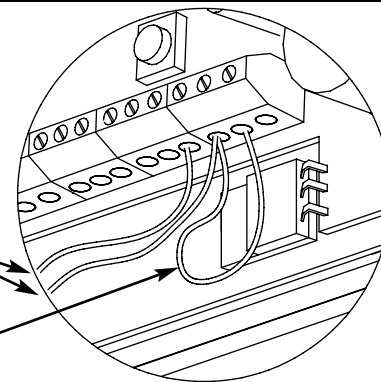| EGRESS DELAY TIME: This is the time that the door will remain locked and in alarm before it unlocks.	1	30 SEC.	15 SEC.

MAIN TERMINAL BLOCK:

1

2

POWER INPUT: Apply 12 or 24 volts (AC or DC). The lock will adjust for input.
IMPORTANT NOTES:
a. PWM and double units (101-2+ and 101+DB can ONLY accept 12 volts)
b. Polarity does not matter in this case

3

4

FIRE ALARM INPUT: Apply a normally closed or normally open dry contact from fire panel or other emergency system. Be sure that the wiring complies with authority having jurisdiction. Note that SW-1 (located on PC board) may have to be configured for proper operation. (See page 9)
IMPORTANT! DO NOT APPLY POWER TO TERMINALS 3 & 4 OR DAMAGE MAY RESULT.

5

6

AUXILIARY INPUT: This terminal is used in cases where it is desired that an additional device (such as an exit device) be used in addition to or instead of the on-board rocker switch to initiate the delayed egress cycle. Apply a normally open dry contact to terminals 5 & 6 which closes when activated, thereby shorting 5 to 6. The SW-4 dipswitches 2 & 3 will need to be set for proper operation. (See page 9).
IMPORTANT! DO NOT APPLY POWER TO TERMINALS 5 & 6 OR DAMAGE MAY RESULT.

7 (C)

8 (NO)

ALARM OUTPUT: Terminals 7 & 8 close when an alarm condition exists. The following conditions will close the output: delayed egress alarm condition, fire alarm condition, 20 wrong keypad entries, delete (user) with alarm, door forced (SEC only), door propped (SEC only). Note that during the nuisance delay (grace period before the delayed egress cycle begins) the alarm contacts do not change state, even if the on-board horn is sounding.

9 (NO)

10 (C)

11 (NC)

DSM OUTPUT (REQUIRES DSM OPTION): Door Status Monitor. "Normal" refers to the door being open. When the door is closed, the contacts change state.

12 (NO)

13 (C)

14 (NC)

MBS OUTPUT (REQUIRES MBS OPTION): "Normal" here refers to the magnet being unlocked. When the magnet is properly locked, the contacts change state. If they do not, there are several possible causes: low voltage, dirt or debris between the magnet and armature, damage to the mating surfaces, or improper alignment between the armature and magnet.

15

16

REQUEST TO EXIT INPUT: Apply a normally open dry contact which closes, shorting 15 and 16, when activated. When the request to exit device is released, the lock will relock after the relock time delay (See page 14 to adjust).
IMPORTANT! DO NOT APPLY POWER TO TERMINALS 15 & 16 OR DAMAGE MAY RESULT.

17

18

ALARM CONDITION RESET INPUT: Apply a normally open, momentary, dry contact which closes, shorting 17 and 18, when activated. This input will reset an alarm condition (except for a fire alarm condition, which is controlled by the status of the input on terminals 3 &4). If the lock is in delayed egress alarm (but before it actually unlocks) and a reset input is entered, it will cancel the remaining delayed egress time and unlock but still remain in alarm. An additional contact closure event will be required in this case in order to reset the lock back to the locked condition and cancel the alarm condition. This is because delayed egress is required to be an irreversible sequence of events resulting in the door becoming unlocked. Once the door unlocks the alarm condition can be reset to the locked position.
IMPORTANT! DO NOT APPLY POWER TO TERMINALS 17 & 18 OR DAMAGE MAY RESULT.

WIRING TRICK: if using a keyswitch, card reader or other dry-contact input device where there is only one set of contacts available, the following trick can be used: place a jumper across terminals 16 and 17 and put the N.O. input across terminals 15 & 16. This will allow one set of input contacts to both release and reset the lock, depending on the condition.
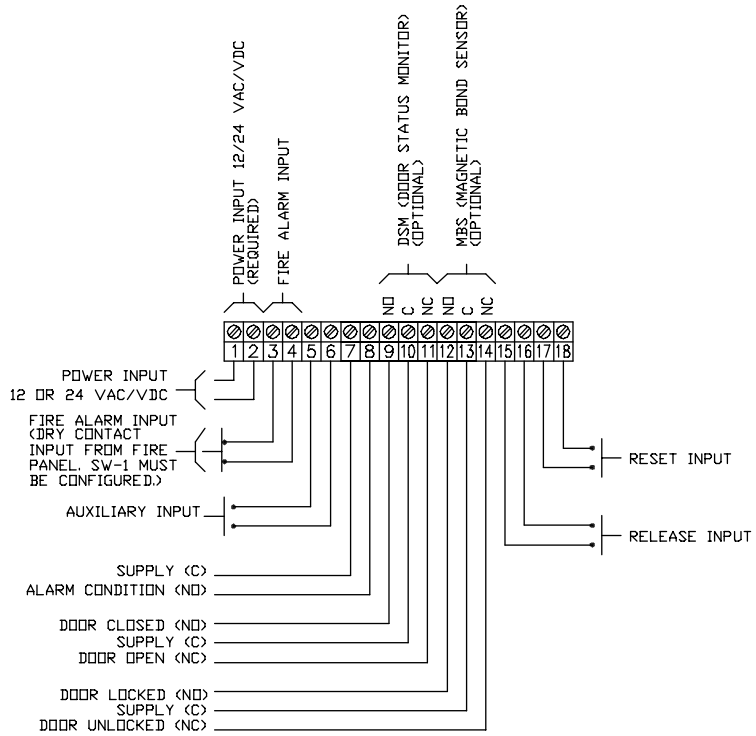
N.O. INPUT FROM CARD READER, BUTTON, ETC. ON TERMINALS 15 & 16
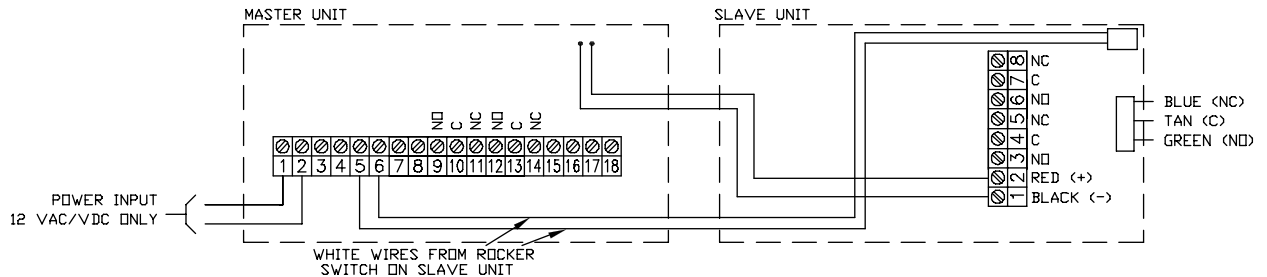
JUMPER ON TERMINALS 16 & 17

101+ BASIC WIRING:

POWER INPUT 12/24 VAC/VDC (REQUIRED)

FIRE ALARM INPUT

DSM (DOOR STATUS MONITOR) (OPTIONAL)

MBS (MAGNETIC BOND SENSOR) (OPTIONAL)

| NO | C | NC | NO | C | NC |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |

POWER INPUT 12 OR 24 VAC/VDC

FIRE ALARM INPUT (DRY CONTACT INPUT FROM FIRE PANEL. SW-1 MUST BE CONFIGURED.)

AUXILIARY INPUT

RESET INPUT

RELEASE INPUT

SUPPLY (C)
ALARM CONDITION (NO)

DOOR CLOSED (NO)
SUPPLY (C)
DOOR OPEN (NC)

DOOR LOCKED (NO)
SUPPLY (C)
DOOR UNLOCKED (NC)

101-2+ and 101+DB REQUIRED WIRING:

On the 101-2+ model the flying leads provided for wiring between units can be extended as required. Make sure that a good connection is made. The anti-tamper switch(ATS option) for the slave unit has flying leads whereas the ATS for the master unit is wired directly to the PC board and will sound the on-board alarm.
On 101+DB units, do not change or modify the factory-installed wiring.

MASTER UNIT

SLAVE UNIT

| NO | C | NC | NO | C | NC |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |

8	NC
7	C
6	NO
5	NC
4	C
3	NO
2	RED (+)
1	BLACK (-)

BLUE (NC)
TAN (C)
GREEN (NO)

POWER INPUT 12 VAC/VDC ONLY

WHITE WIRES FROM ROCKER SWITCH ON SLAVE UNIT

101-2+ DOOR STATUS(DSM):

MASTER UNIT

| NO | C | NC | NO | C | NC |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |

SUPPLY (C)
BOTH DOORS CLOSED (NO)
EITHER OR BOTH DOORS OPEN (NC)

SLAVE UNIT

8	NC
7	C
6	NO
5	NC
4	C
3	NO
2	RED (+)
1	BLACK (-)

101-2+ LOCK STATUS (MBS):

MASTER UNIT

| NO | C | NC | NO | C | NC |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |

SUPPLY (C)
BOTH DOORS LOCKED (NO)
EITHER OR BOTH DOORS UNLOCKED (NC)

SLAVE UNIT

8	NC
7	C
6	NO
5	NC
4	C
3	NO
2	RED (+)
1	BLACK (-)

WIRING OF LOCKNETICS KEYPADS/TOUCHENTRY KEY READERS

Up to two Locknetics keypads or TouchEntry Key readers can be hooked up to a 101+ or 101-2+ system for access control and alarm reset input.
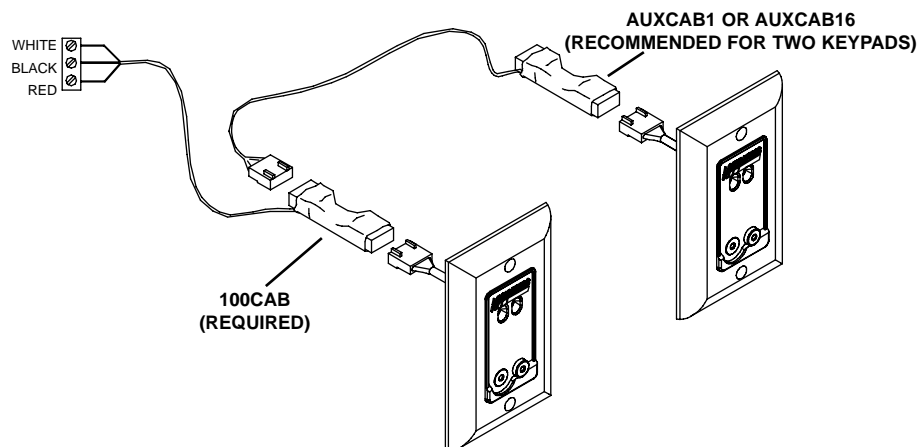Any keypad or TR83/TR84 hook up requires a 100CAB adapter cable. The three-wire 100CAB allows the keypad to be initialized to the lock or allows the TR83/TR84 to be properly connected. Using the 770CAB (a Locknetics 12-wire adapter cable) does not work! Only one 100CAB can be used. Two keypads or TR83/TR84 readers can be plugged into a single 100CAB. If the installation requires more distance between the two keypads/readers, an AUXCAB1 or AUXCAB16 can be used to extend the keypad/reader cables.

If the installation involves TR80 or TR81 TouchEntry Key readers then the two readers must be wired in parallel. 80CAB adapter cables can be used.

**KP70+
HOOK-UP**

WHITE
BLACK
RED

**AUXCAB1 OR AUXCAB16
(RECOMMENDED FOR TWO KEYPADS)**

**100CAB
(REQUIRED)**

**TR83/TR84
HOOK-UP**

WHITE
BLACK
RED

**AUXCAB1 OR AUXCAB16
(RECOMMENDED FOR TWO KEYPADS)**

**100CAB
(REQUIRED)**

**TR80/TR81
HOOK-UP**

WHITE
BLACK
RED

**80CAB
(REQUIRED)**
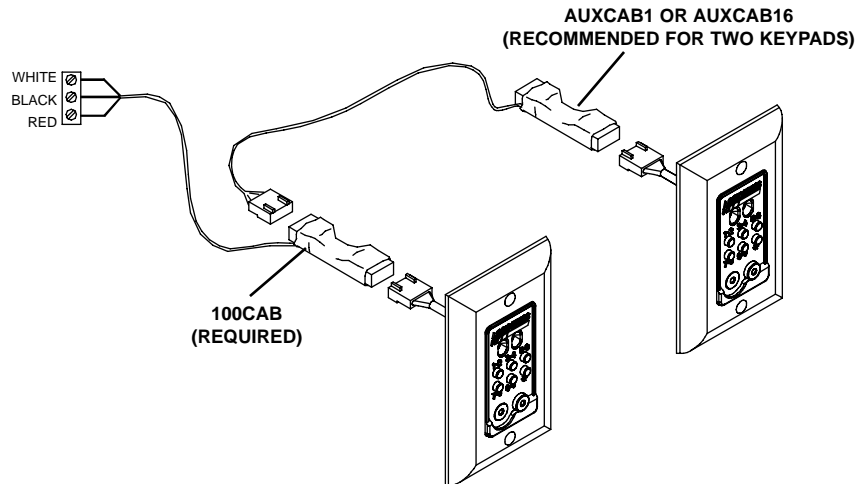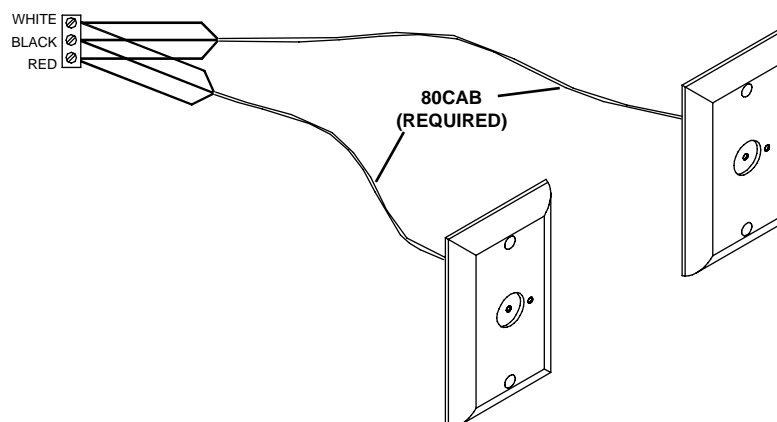
MANUAL PROGRAMMING OF TIME DELAYS:

RELOCK TIME DELAY (factory default: 8 seconds)

The amount of time the lock is de-energized after release by entering a valid code/TEK or
Programmable 1-30 seconds.

- A. Set SW4 dipswitch #6 to OFF (if it is on).
- B. Press and release SW2. The LED will begin flashing GREEN .
- C. Thereafter, press SW3 once for each second of relock delay desired.
  (ex. 3 presses equals 3 seconds-15 presses equals 15 seconds-Up to 30 seconds)
  Each SW3 activation will cause the LED to flash RED and the horn to beep .
- D. Press SW2 and the relock delay will be stored in non-volatile memory.
- E. Return SW4 dipswitch #6 to its original position (if you moved it in step A).

NOTES:
1. Not pressing SW3 between pressing SW2 will set the relock time delay to zero seconds. This will cause the lock not to unlock with a momentary contact closure or valid code or TEK. A TIME DELAY OF MORE THAN ONE SECOND IS RECOMMENDED.
2. Models with the SEC option include the anti-tailgate feature. If SW4-4 is on, the lock will relock immediately when the door closes even if the time delay has not yet expired.

NUISANCE DELAY (factory default: 1 second)

The amount of time the door must be pushed before triggering the *DELAYED EGRESS CYCLE*
Programmable 0 - 3 seconds. (BOCA Units are fixed at 1 second.)

- A. Press and release SW3, the LED will begin flashing RED.
- B. Thereafter, press SW2 once for each second of nuisance delay desired, up to 3 seconds maximum.
  Each SW2 activation will cause the LED to flash GREEN and the horn to beep .
- C. Press SW3 and the nuisance delay will be stored in non-volatile memory.

NOTES:
1. To program nuisance delay to zero, eliminate Step B.
2. Setting nuisance delay to zero will allow the lock to go into delayed egress the instant the door is pushed. This may prove inconvenient in some applications.

DOOR PROPPED DELAY (factory default: 60 seconds)

The amount of time the door must be propped open (after normal release time delay has ended) before triggering the alarm. The alarm will clear as soon as the door closes again. Programmable 0 - 120 seconds.

- A. Set SW4-6 to ON (if it is off).
- B. Press and release SW2, the LED will begin flashing YELLOW.
- C. Thereafter, press SW3 once for each second of propped delay desired, up to 120 seconds maximum.
  Each SW3 activation will cause the GREEN LED to flash and the horn to beep .
- D. Press SW2 and the door prop delay will be stored in non-volatile memory.
- E. Leave SW4-6 ON to enable door propped alarm.

NOTES:
1. To program door propped delay to zero, eliminate Step B.
2. Setting the door propped delay to zero will cause the lock to go into alarm the instant that the normal time delay has ended, if the door is still open.

ERASE MEMORY (MEMORY RESET)

Memory may be erased to conveniently return to default time delay settings or if an error was made.

- A. Press and hold SW2 until a single beep is heard. Release SW2.
- B. Quickly press SW2 three times, three beeps will sound.
- C. Another 3 beeps will sound in about 10 seconds indicating the memory is erased.

NOTES:
1. All programmed codes and keys will be erased. Factory default codes and time settings will be restored.
2. Keypads using a 100CAB (for direct connection to 101+ lock) will need to be initialized again.

TO CREATE MASTER TEK (FOR USE WITH COMPUTER PROGRAMMING)

The master TEK is used to initialize programming (like a password to access programming mode).

    A. Set SW4 dipswitch #1 to ON (if it is off).
    B. Press and hold SW3 until two beeps are heard.
    C. Touch a TEK key to the reader within ten seconds. The lock will indicate acceptance with two beeps. This will be the Master TEK.
    D. Return SW4, #1 to its original position.

NOTES:

    1.   Refer to instructions included with the programmer/software that you will use to program for more information regarding programming.
    2.   The Master TEK is used for initiating programming. It will not unlock the door.
    3.   Unlike some other Locknetics products, creating a master TEK will not delete the factory default codes. They must be manually deleted.

"SYSTEM 7" PROGRAMMING:

This procedure will allow up to seven TouchEntry Keys to be programmed into a lock equipped with a TouchEntry Key reader of SelectEntry Keypad. Keys will be of the Normal Access type and will unlock the unit for the relock time delay. The TEKs will also reset the lock if it is in an alarm condition.

    A. Set SW4-1 to OFF (if it is on)
    B. Press and hold SW3 until you hear two beeps. Release SW3.
    C. Touch each of the TEKs to the reader. Two quick beeps will sound each time a key has been accepted.
    D. After entering up to seven TEKs wait 10 seconds for programming to end. One quick beep will indicate that programming has ended.
    E. Return SW4-1 to its original position, if required.

NOTE: Whenever new "System 7" TEKs are entered, the old ones are erased. Also, whenever computer programming is done, or memory is erased, all "System 7" TEKs are erased.

KEYPAD/100CAB INITIALIZATION (REQUIRED TO ENABLE KEYPAD TO FUNCTION)

It is necessary to initialize the keypad/100CAB any time that the memory is erased.

    A. Set SW4 dipswitch #1 to ON.
    B. Press and hold switch SW3 for two quick beeps of the audible..
    C. Push each button in order, starting with the 1-2 button, and including the *.
        * *Wait for LEDs to stop flashing before pushing next button.*
        * *Waiting for longer than 7 seconds will terminate initialization.*
    D. After the last button is pressed, the audible will beep three times and the LEDs will flash indicating that programming has ended.
    E. Return SW4 dipswitch #1 to its original position.

DEFINITION OF CODE/TEK FUNCTIONS AND FACTORY DEFAULTS:

FACTORY DEFAULT	
MASTER 97531	Allows access to programming functions. Will not release lock.
NORMAL ACCESS 13579	Unlocks lock for relock time delay. Will reset lock in alarm condition.

ONE-TIME ACCESS   No factory default. This type of code/TEK will allow access only once. It will then become deleted from memory.

SUPERVISED ACCESS   No factory default. This type of code/TEK allows access only when used with another Supervised Access Code/TEK. The second code/TEK must be entered within five seconds of the first one. The order that they are entered does not matter.

MANUAL PROGRAMMING - KEYPAD

When manually programming the 101+ model lock, using a keypad, the keypad must first be initialized. It is a recommended that the factory default Master Code be changed. Doing so will delete all factory default codes and ensure the security of the system. After entering the Master code the LEDs on the keypad will flash. They will also flash each time that * is entered. Wait for the LED to stop flashing before entering the next sequence.

TO CHANGE MASTER CODE
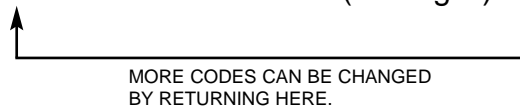Master Code *...7 *...New Master Code (5-8 digits)*...New Master Code *

TO ADD NORMAL ACCESS CODES - Will unlock door for relock time delay period. Will also reset lock after an alarm condition.

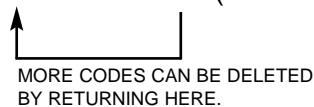Master Code *...3 *...New Code (3-5 digits) *...* (to end)

UP TO 150 NEW CODES CAN BE
ADDED BY RETURNING HERE.
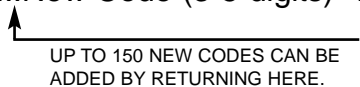
TO CHANGE CODES
Master Code *...1 *...Old Code*...New Code (3-8 digits) *...* (to end)

MORE CODES CAN BE CHANGED
BY RETURNING HERE.

TO DELETE CODES
Master Code *...5 *...Old Code *...* (to end)

MORE CODES CAN BE DELETED
BY RETURNING HERE.

TO DELETE CODES WITH ALARM/ATR NOTICE:
Codes will be not be allowed to function but will remain in memory. When the code is used, the lock will go into alarm, the alarm relay will close, the audible will sound and the LED will illuminate red. The door will not unlock. It will stay in alarm until a valid user code, TouchEntry Key or reset input will silence the alarm. If the ATR option is present and the unit was programmed by computer, an access attempt will show in the audit trail.

Master Code *...55 *...Old Code *...* (to end)

MORE CODES CAN BE DELETED
BY RETURNING HERE.
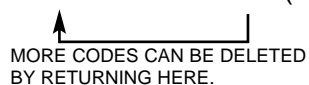
TO ADD TOGGLE CODES (Note that a three digit function code '131' sets the function of the user code)

UP TO 150 NEW CODES CAN BE ADDED BY RETURNING HERE.

Master Code   *...33*...131*...New *Access* Code   (3-8 digits)   *   ...* (to end)

TO ADD LOCKOUT CODES (Note that a three digit function code '115' sets the function of the user code)

UP TO 150 NEW CODES CAN BE ADDED BY RETURNING HERE.

Master Code   *...33*...115*...New *Access* Code   (3-8 digits)   *   ...* (to end)

TO ADD ONE-TIME ACCESS CODES (Note that a three digit function code '113' sets the function of the user code)

UP TO 150 NEW CODES CAN BE ADDED BY RETURNING HERE.

Master Code   *...33*...113*...New *Access* Code   (3-8 digits)   *   ...* (to end)

TO ADD SUPERVISED ACCESS CODES (Note that a three digit function code '117' sets the function of the user code)

UP TO 150 NEW CODES CAN BE ADDED BY RETURNING HERE.

Master Code   *...33*...117*...New *Access* Code   (3-8 digits)   *   ...* (to end)

TO CHANGE FUNCTION/CODES

Master Code   *...11*...Old Code *... **X Y Z** *...New(or same) Code (3-8 digits) *...* (to end)

New or Same
3-digit function
code. See above.

MANUAL PROGRAMMING - TOUCHENTRY

When manually programming the 101+ model lock for TouchEntry Keys, a programmer (either the TEP1 or TEP2) must first be initialized. Only one programmer can be initialized to a particular lock. A Master TEK must also be initialized at the same time as the programmer and will be used to enter the programming mode. See steps below. After entering the Master TEK the green LED on the TouchEntry Key reader will flash. It will also flash each time that ∗ is entered. Wait for the LED to stop flashing before entering the next sequence. The TEP1 and TEP2 programmers are intended to simulate a keypad.

PROGRAMMER INITIALIZATION TEP1 AND TEP2

    A. Set SW4 dipswitch #1 to ON.
    B. Press and hold switch SW2 for two quick beeps of the audible..
    C. Touch a TEK key up to the reader. (This TEK will be initialized as a MASTER TEK.)
    D. Touch each TEK of the TEP1 to the reader in the following order(two beeps of the
       audible will sound indicating acceptance of each key.)
        (For TEP2 plug communication plugs into ports and push each button in order)
            ∗ *Wait for LEDs to stop flashing before touching next key or pushing next button.*
            ∗ *Waiting for longer than 7 seconds will terminate initialization.*
    E. After the last key/button is entered, the audible will beep three times and the LEDs will
       flash indicating that programming has ended.
    F. Return SW4 dipswitch #1 to its original position.

TO ADD NORMAL ACCESS TEKS - Will unlock door for relock time delay period. Will also reset lock after an alarm condition.

Master TEK...3 ∗...New PIN(3-8 digits)∗...New Access TEK...∗ (to complete)

UP TO 150 NEW TEKs CAN BE
ADDED BY RETURNING HERE.

TO DELETE TEKs

Master TEK...5 ∗...Old PIN∗...∗ (to end)

MORE TEKs CAN BE DELETED BY
RETURNING HERE.

TO DELETE TEKs (WITH ALARM/ATR NOTICE): TEKs will be not be allowed to function but will remain in memory.

When the TEK is used, the lock will go into alarm, the alarm relay will close, the audible will sound and the LED will illuminate red. The door will not unlock. It will stay in alarm until a valid user code, TouchEntry Key or reset input will silence the alarm. If the ATR option is present and the unit was programmed by computer, an access attempt will show in the audit trail.

Master TEK...55 ∗...Old PIN∗...∗ (to complete)

MORE TEKs CAN BE DELETED
BY RETURNING HERE.

TO ADD TOGGLE TEKs (Note that a three digit function code '131' sets the function of the user TEK)

UP TO 150 NEW TEKs CAN BE ADDED BY RETURNING HERE.

Master TEK ...33∗...131∗...New PIN(3-8 digits)∗...New *Toggle* TEK ...∗ (to end)

TO ADD LOCKOUT TEKs (Note that a three digit function code '115' sets the function of the user TEK)

UP TO 150 NEW TEKs CAN BE ADDED BY RETURNING HERE.

Master TEK ...33∗...115∗...New PIN(3-8 digits)∗...New *Lockout* TEK ...∗ (to end)

TO ADD ONE-TIME ACCESS TEKs (Note that a three digit function code '113' sets the function of the user TEK)

UP TO 150 NEW TEKs CAN BE ADDED BY RETURNING HERE.

Master TEK ...33∗...113∗...New PIN(3-8 digits)∗...New *One-time Access* TEK ...∗ (to end)

TO ADD ONE-TIME ACCESS TEKs (Note that a three digit function code '117' sets the function of the user TEK)

UP TO 150 NEW TEKs CAN BE ADDED BY RETURNING HERE.

Master TEK ...33∗...117∗...New PIN(3-8 digits)∗...New *One-time Access* TEK ...∗ (to end)

TO CHANGE FUNCTION AND/OR PIN

Master TEK ...11∗...Old PIN∗... **X Y Z** ∗...New(or same) PIN (3-8 digits) ∗...∗ (to end)

New or Same
3-digit function
code.See above.

TABLE OF INDICATORS (LED/AUDIBLE)

The table below is intended to provide all possible indications and states which can be encountered under normal operation. Note that some conditions or features are only available on certain models or when certain options are included.

DESCRIPTION OF INDICATORS			
CONDITION	**LED INDICATOR**	**AUDIBLE**	**ALARM RELAY STATE (TERM.7&8)**
STANDARD FEATURES			
LOCK SECURE	OFF	OFF	OPEN
LEGAL RELEASE INPUT	STEADY GREEN	OFF	OPEN
LOW INPUT VOLTAGE	OFF	SLOW BEEP	OPEN
DURING NUISANCE DELAY	STEADY YELLOW	OFF(DEFAULT) (SET BY SW4-8)	OPEN
DURING DELAYED EGRESS	FLASHING RED	BEEPING	CLOSED
AFTER DELAYED EGRESS	STEADY GREEN	STEADY TONE	CLOSED
ANTI-TAMPER ALARM IF LOCK COVER IS REMOVED (ON MASTER UNIT ONLY – SLAVE ATS HAS FLYING LEADS)	STEADY RED	STEADY TONE	CLOSED
SWITCH SELECTABLE FEATURES			
SW4-5 "ON" =UNLOCK ALARM WHENEVER LOCK IS UNLOCKED	STEADY GREEN	STEADY TONE	OPEN
SW4-8 "ON" = HORN WILL SOUND DURING NUISANCE ALERT	STEADY YELLOW	ON	OPEN
OPTIONAL SWITCH SELECTABLE FEATURES SEC (SECURITY ALARM OPTION) REQUIRED			
SW4-6 "ON" DOOR PROPPED OPEN ALARM DOOR IS HELD OPEN PAST RELOCK TIME	FLASHING GREEN	BEEPING	CLOSED
SW4-6 "ON" DOOR FORCED OPEN ALARM DOOR OPENED WITHOUT VALID RELEASE SIGNAL	FLASHING RED	BEEPING	CLOSED
PROGRAMMING INDICATIONS			
RELOCK DELAY PROGRAMMING ACTIVE	FLASHING GREEN	OFF	OPEN
DOOR PROPPED OPEN DELAY	FLASHING YELLOW	OFF	OPEN
WHILE PRESSING SW3 0R SW2 TO SET RELOCK AND DOOR PROPPED DELAYS	RED	CHIRP	OPEN
NUISANCE DELAY PROGRAMMING ACTIVE	FLASHING RED	OFF	OPEN
WHILE PRESSING SW2 TO SET NUISANCE DELAY	GREEN	CHIRP	OPEN

OVERALL DIMENSIONS

101+
101-2+

101+DB
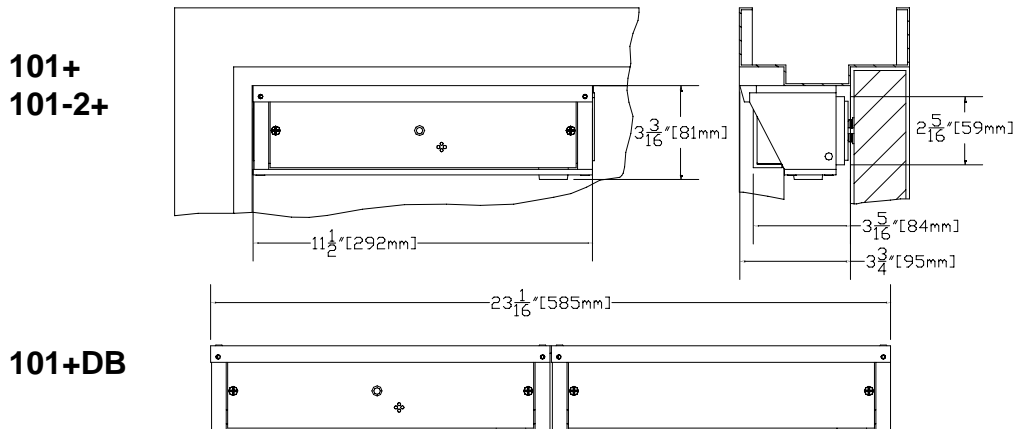
ERROR CODES:

If an error is made while manually programming a lock, an error code indication will be indicated at the TouchEntry Key reader or keypad. The LED(s) will flash several times. Count the number of flashes and refer to the chart below for diagnosis.

ERROR CODES			
NUMBER OF FLASHES	ERROR	NUMBER OF FLASHES	ERROR
2	Code entered too long. Code length cannot exceed 8 digits.	6	Invalid command.
3	Memory full – too many codes/TEKs entered	7	Code does not exist. (For "Delete With Alarm/ATR" only)
4	Master code cannot be deleted, only changed.	8	Code too short. Minimum master code 5 digits. Minimum user code 3 digits.
5	Second entry of master code does not match first. Master code not changed.	9	Not a unique code/TEK.

TROUBLE SHOOTING:

Some common problems associated with the installation of the 101+ series can be easily recognized and corrected:

Problem:	Possible Solution:
Lock has power but won't lock.	Fire alarm not connected or dipswitch SW-1 not in correct position. SW4-7 not ON (set switch, LED (on lock) is Green. Remove and re-apply power). (See page 9)
Lock won't go into delayed egress.	Check dipswitch settings (p.9). Armature washers not installed properly (p.5) Magnet not properly aligned with armature. (p.6) Wrong screws used to secure mounting bracket. (Check if magnet can pivot.)
Goes into delayed egress upon powerup.	Armature washers not installed properly (p.5) Improper alignment between magnet and armature (p.6)
Lock can be pushed open with minimal resistance.	Magnet/Armature/washers not installed properly (p.5-6).
Lock "hums" or vibrates noisily when energized.	Magnet/Armature/washers not installed properly (p.5-6).
Lock "beeps" every several seconds.	Low voltage alert. Check voltage at terminals 1&2. It must be at least 12.00 volts or 24.00 volts or slightly higher.
Lock won't accept programmed codes/TEKs. LED(s) flash once quickly.	Relock time delay set to 0 sec. (p.10) Keypad not initialized (p.12).
MBS doesn't change state when locked.	Low voltage. Mechanical misalignment. Debris between lock and armature. Armature/magnet not installed properly (p.5-6).
DSM/SEC option not working properly.	End-Block on armature not aligned with DSM/SEC switch(s).

MAINTENANCE

It is not recommended that the magnet be painted (unless ordered with in iridite primer). If the unit must be painted it is important that the mating surfaces of the magnet and armature not be painted. The TouchEntry Key reader, and LED must not be painted either. The electromagnet and armature are plated for corrosion resistance and require little maintenance. For maximum performance the following service should be done to both the armature and electromagnet as required: Clean the mating surfaces of the electromagnet and armature with a non-abrasive cleaning pad, apply a light coating of silicon lubricant and wipe with a clean dry cloth.