Matrix III General Swing / Slide SETTINGS Overview

MAXIMUM **MAX** CONTROLS
www.max.us.com

Maximum Controls LLC.
10530 Lawson River Ave
Fountain Valley, Ca 92708
Tel: (949) 699-0220

DIP-Switches

				DUAL GATE APPLICATION PRIM ONLY SETTING
MODE B Switches 1	Open Relay Pulsed	OFF	**Open Relay ON** when gate open	
		ON	**Open Relay Pulsed** when gate open	
2	Solenoid Control Relay	OFF	**For Maglock:** Mag lock relay will trigger **BEFORE** closed limit is reached	
		ON	**For Solenoid:** Mag lock relay will trigger **AFTER** closed limit is reached	
3	Slider Gate Speed Select MAX 1700FS ONLY	OFF	**12 in per sec**	
		ON	**18 in per sec** fast gate speed	
4	No freeze on limit (SLIDER ONLY)	OFF	**Freeze** motor on limit	X
		ON	**Don't freeze** motor on limit, unless back-drive slider	
5	MAX RHINO OR	OFF	**OFF** MAX RHINO ONLY	
		ON	**ON for ALL** operators except for MAX RHINO	
6	All other operators	OFF	**OFF** for MAX RHINO ONLY	
		ON	**ON for ALL** operators except for MAX RHINO	

|				
MODE A Switches 1	Battery Beep Mode	OFF	**No beeping** when ONLY battery power and gate is in motion.	
		ON	Beeping when **ONLY** battery power and gate is in motion.	
2	Gate in Motion Alert	OFF	**No alarm** while gate in motion	
		ON	Alarm while **gate in motion**	
3	Strobe Light Control	OFF	**No** strobe light control	X
		ON	Strobe light control using **Tamper relay** N.O./Com	
4	Anti-Tailgate	OFF	**No Anti-Tailgate**	X
		ON	Anti-Tailgate **ON**-closing gate will pause if tailgate attempted	
5	Close Tamper Detect	OFF	**No** Close Tamper Detect	
		ON	Trigger Tamper Relay **(alarm for slider only)**	
6	Stop Input Polarity	OFF	Stop Input **NO**-connect to GND to activate	
		ON	Stop Input **NC**-disconnect from GND to activate	
7	Open Relay Polarity	OFF	Open Relay **CLOSED** when gate is open	
		ON	Open relay **OPEN** when gate is open	
8	Wireless Pri/Sec Link	OFF	**Wired** Pri/Sec link	X
		ON	**Wireless** Pri/Sec link	
9	UL Closing Photo Anti-tailgate (PHOTO CLS NC input)	OFF	UL Closing Photo **Normal operation**	X
		ON	UL Closing Photo **Anti-tailgate** wired to PHOTO CLS NC input **ONLY**	
10	Reserved	OFF	**MUST be OFF**	
		ON	**DO NOT** turn ON	

ERD Sensitivity Setting

IMPORTANT: Adjust the ERD to avoid injury as well as to minimize vehicle damage.

- 16 sensitivity setting positions for **EACH** direction.
- **NO** mechanical hard stops for knobs.
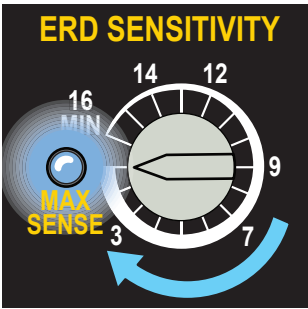
A. Turn knob until blue LED lights up. Maximum sensitivity reached, **Position 1** - Too sensitive for most gates.
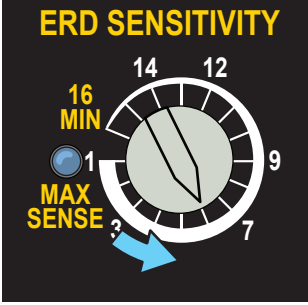
B. Turn knob **counter-clockwise** to reduce gate sensitivity while testing ERD until desired results is attained. (LED remains OFF for all but position 1)

If alarm sounds while adjusting ERD, press **STOP BUTTON** to shut-off alarm.

NOTE: Cycle the gate 3 or 4 times to make sure that the ERD sensor does not **falsely trigger**.

ODB Port Black Box

1. Plug MAX USB flash drive into **OBD port** on circuit board. OBD LED will flash while file is downloading. Remove flash drive after LED stops flashing (up to 5 minutes to download).

MAX Flash Drive / Smart Phone / Computer
USB Phone Adapter Required
OR
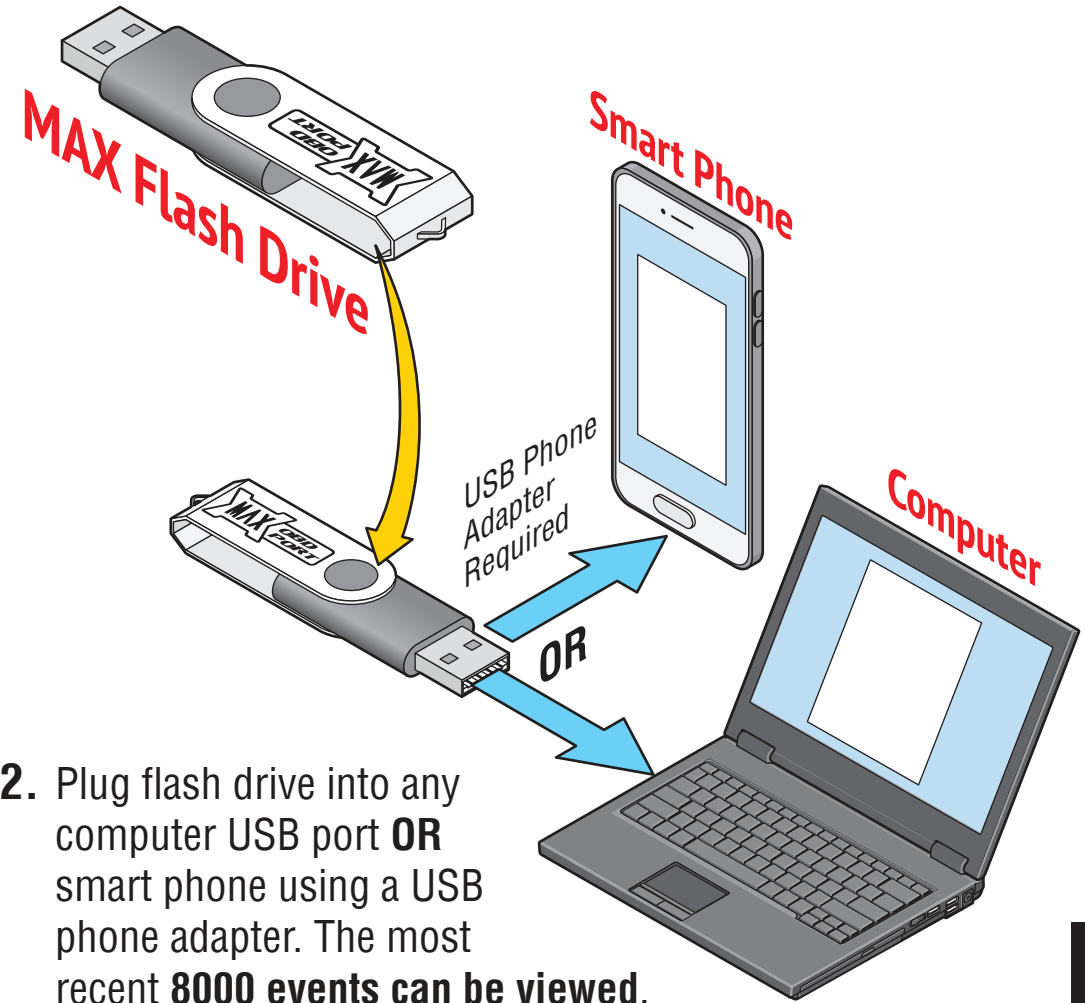
2. Plug flash drive into any computer USB port **OR** smart phone using a USB phone adapter. The most recent **8000 events can be viewed**. No special software required.

Quick Close

Turned OFF - **Close timer** will close the gate at its selected time.

Turned ON - (In-ground loops required) **OPENING** gate will stop and close after vehicle clears **safety loop, preventing UNAUTHORIZED entry.**

Solar Mode

Turned OFF - AC input Power **ONLY**.

Turned ON - Solar panels **installed**. Unit draws minimum power to extend battery life.
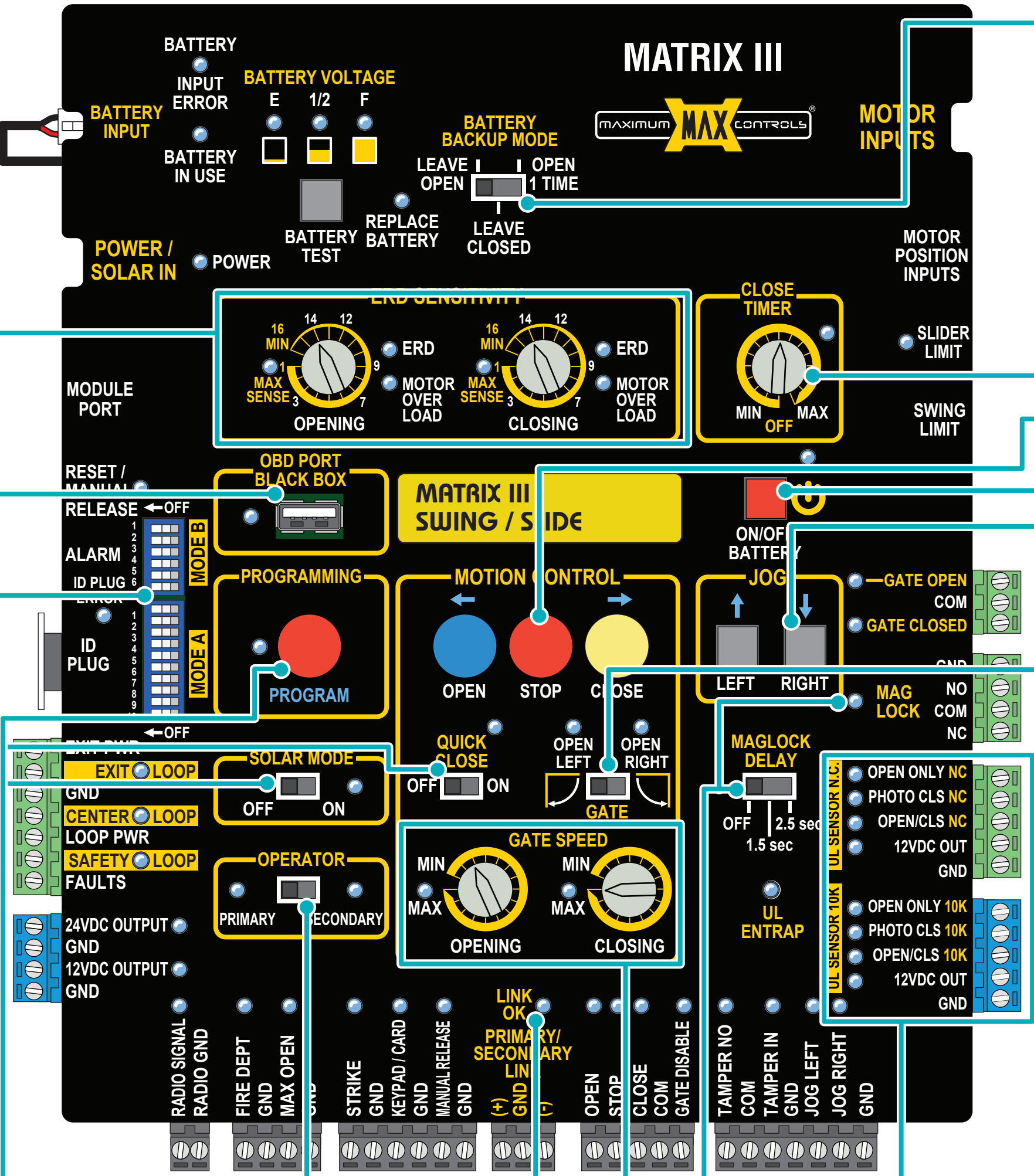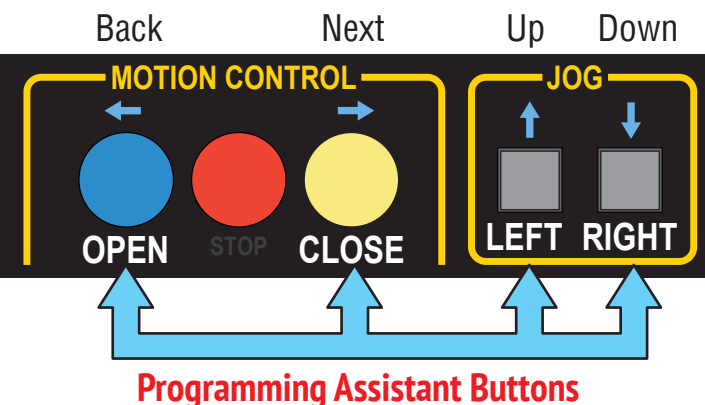
Program Button

To enter **PROGRAM** mode, **press and hold PROGRAM** button for 5 seconds. Follow instructions on-screen using the 4 buttons shown at left to program with. Press ONLY **PROGRAM** button **again** to end programming when finished.

PROGRAM INSTRUCTIONS ARE ON SCREEN

In PROGRAM mode, you can do the following:
- Scroll through most recent errors.
- View input voltage (DC voltage).
- View average current gate consumption.
- View cycle count.
- Program date and time.
- Turn on/off other advanced features.

Back Next | Up Down
MOTION CONTROL | JOG
OPEN STOP CLOSE | LEFT RIGHT

Programming Assistant Buttons

BATTERY / BATTERY INPUT / INPUT ERROR / BATTERY IN USE
MATRIX III
MAXIMUM MAX CONTROLS
BATTERY VOLTAGE E 1/2 F
BATTERY BACKUP MODE LEAVE OPEN / OPEN 1 TIME / LEAVE CLOSED
MOTOR INPUTS
POWER / SOLAR IN POWER
BATTERY TEST / REPLACE BATTERY
MOTOR POSITION INPUTS
MODULE PORT
ERD SENSITIVITY 16 MIN 14 12 9 MAX SENSE 3 / ERD / MOTOR OVER LOAD OPENING / 16 MIN 14 12 9 MAX SENSE 3 / ERD / MOTOR OVER LOAD CLOSING
CLOSE TIMER MIN MAX OFF
SLIDER LIMIT
SWING LIMIT
RESET / MANUAL RELEASE / ALARM / ID PLUG / MODE B / MODE A
OBD PORT BLACK BOX
MATRIX III SWING / SLIDE
ON/OFF BATTERY
PROGRAMMING PROGRAM
MOTION CONTROL OPEN STOP CLOSE
JOG LEFT RIGHT
GATE OPEN COM / GATE CLOSED
ID PLUG / MODE A
QUICK CLOSE OFF ON
OPEN LEFT / OPEN RIGHT
GATE / **MAG LOCK** NO COM NC
GATE OPEN COM / GATE CLOSED
SOLAR MODE OFF ON
GATE SPEED MIN MAX / MIN MAX OPENING CLOSING
MAGLOCK DELAY OFF 2.5 sec 1.5 sec
OPERATOR PRIMARY SECONDARY
UL ENTRAP
EXIT LOOP / GND / CENTER LOOP / LOOP PWR / SAFETY LOOP / FAULTS
OPEN ONLY NC / PHOTO CLS NC / OPEN/CLS NC / 12VDC OUT / GND
LINK OK / PRIMARY / SECONDARY LINK
OPEN ONLY 10K / PHOTO CLS 10K / OPEN/CLS 10K / 12VDC OUT / GND
24VDC OUTPUT / GND / 12VDC OUTPUT / GND
RADIO SIGNAL / RADIO GND / FIRE DEPT / GND / MAX OPEN / STRIKE / KEYPAD/CARD / MANUAL RELEASE / GND / OPEN / STOP / CLOSE / COM / GATE DISABLE / TAMPER NO / COM / TAMPER IN / GND / JOG LEFT / JOG RIGHT / GND

Battery Back-Up Mode

LEAVE OPEN - After a power failure, gate will continue to operate until battery power is drained. At this point, the next open command, gate will remain **OPEN**. Gate will **automatically** close after AC power is restored if close timer is ON.

LEAVE CLOSED - After a power failure, gate will continue to operate until battery power is drained. At this point, gate will remain **CLOSED**.

OPEN 1 TIME - After a power failure, gate **automatically OPENS** and **REMAINS OPEN**. When power is restored, gate will **automatically** close.

Close Timer

1st click clockwise - Knob at MIN: 1/2 sec...
2nd click clockwise: 1 sec...
3rd click: 4 sec...
4th click: 8 sec... etc up to 60 sec. MAX.
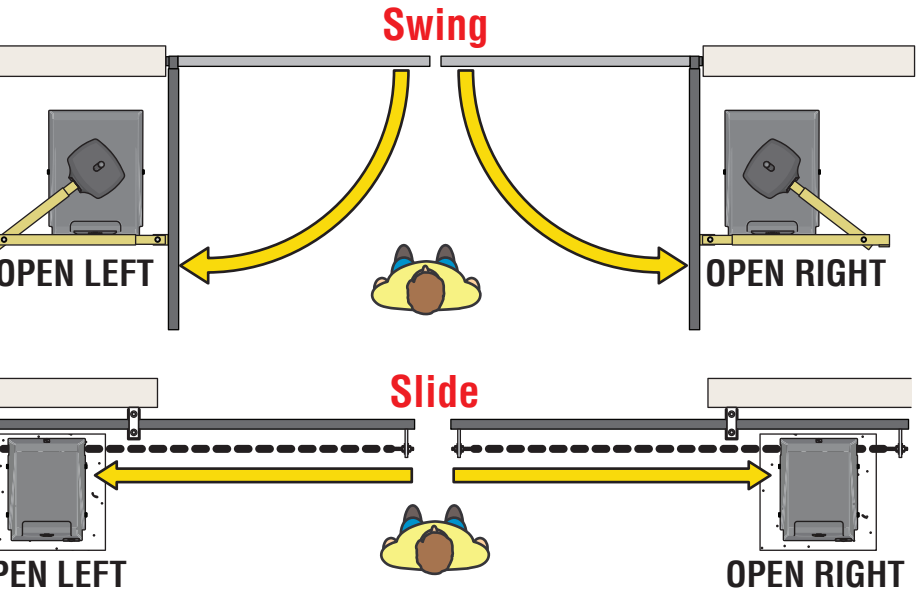**LED turns ON for MAX setting ONLY**

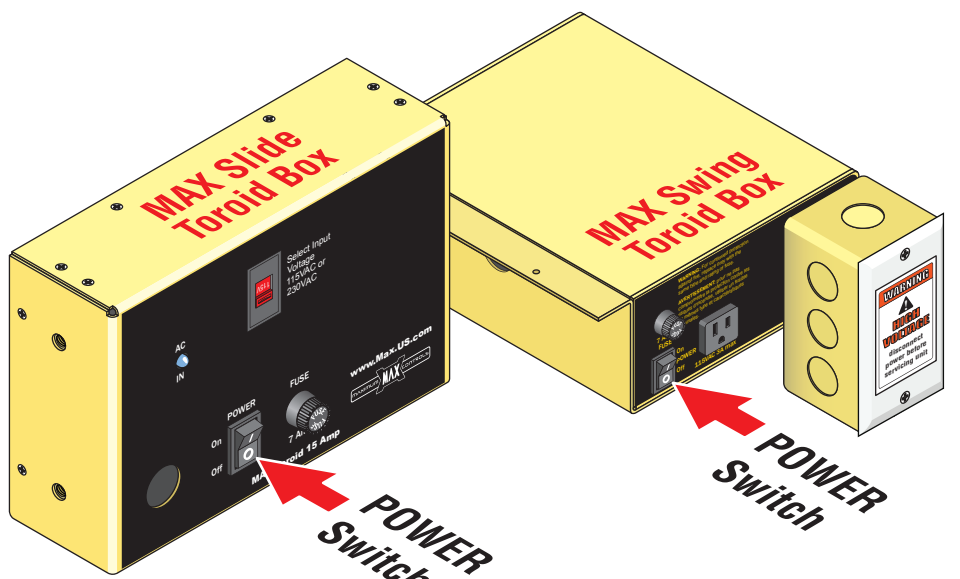## Alarm Reset for Swing Operator
Press STOP Button to shut-off alarm

Jog Buttons

Push and **HOLD** to Open or Close (release button to stop gate). Helps when "Fine tuning" gate limit positions.

GATE OPEN COM / GATE CLOSED

Turn off ALL Power

IMPORTANT: This procedure must be followed whenever **ALL** power must be turned **OFF** on operator.

1 Turn OFF **POWER** Switch on MAX Toroid Box. Battery power will **remain ON**.

2 Press and HOLD the **RED ON/OFF BATTERY** button until beep is heard, then release button.

MAX Slide Toroid Box / MAX Swing Toroid Box / POWER Switch

ON/OFF BATTERY

Gate Opening Direction

Swing
OPEN LEFT / OPEN RIGHT

Slide
OPEN LEFT / OPEN RIGHT

Operator Switch

PRIMARY - Single operator installed.
SECONDARY - Dual operators installed.
NOTE: PRIMARY board settings will override secondary board settings if a conflict occurs when dual operators are installed.

Link OK LED

Dual Gate Operators **ONLY**
ON - Good communication between operators.
OFF - NO communication between operators.

Gate Speed

After gate positions have been "Learned", the gate will cycle at the speed set on " GATE SPEED" settings.

GATE SPEED MIN MAX / MIN MAX OPENING CLOSING
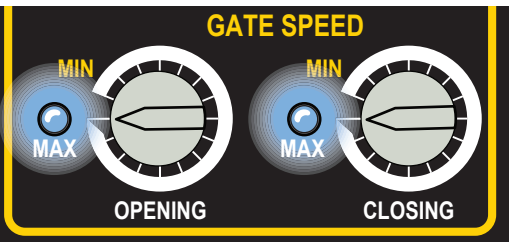
Typically set to MAX, LEDs ON.

Maglock Delay

Turned OFF - **NO** Maglock installed.

Set to 1.5 sec or 2.5 sec - You **MUST** select a time delay when using a maglock. Maglock power disengages 1.5 sec **or** 2.5 sec **before** gate starts opening.
Dual Gate Operators using Maglock: Primary gate opens **FIRST**. Install maglock accordingly to account for this.

MAGLOCK LED (Monitors Maglock):
ON - Locked
OFF - Unlocked
Flashing - Problem with Maglock Power.

MONITORED UL sensors Input

SWING: Sensors wired to the **PHOTO CLS NC ONLY** will "**AUTOMATICALLY** be **MONITORED**" (Factory default).
SLIDE: Sensors wired to the **PHOTO CLS NC** AND **OPEN ONLY NC** will "**AUTOMATICALLY** be **MONITORED**" (Factory default).
All other inputs **MUST** be learned before they will be monitored.

UL 325 2018 Standard

SWING: A minimum of **ONE** Entrapment protection sensor **MUST** be installed or operator will **NOT** function.
SLIDE: A minimum of **TWO** Entrapment protection sensors **MUST** be installed, **ONE** in **EACH** direction of gate travel or operator will **NOT** function.
They **MUST** be **MONITORED** and **NORMALLY CLOSED (N.C.)/10K.** All entrapment zones should be protected by **MONITORED** sensors.

Sensor Learn Mode:

1. Press and **HOLD** the **STOP** button & then the **OPEN** button together until beeping is heard, learn mode begins. **DO NOT** press the **OPEN** button before the **STOP** button or learn mode will **NOT** begin (no beeping).

2. LEDs **WILL** turn ON for each detected "**UNLEARNED**" sensor that has been wired to the inputs. If a sensor's LED is **NOT** on, that sensor has a problem and it **MUST** be corrected before continuing.
   Possible problems:
   - Photocells are out of alignment
   - Photocells are wired wrong - N.C. or N.O. depending on which photocells are used.
   - Sensor is bad
   When all LEDs are **ON** that should be **ON**, proceed to next step.

3. Press **STOP** button again within 5 min. to learn sensors and end learn mode, beeping stops. Wired "**Unlearned**" Inputs will now be **MONITORED**.
   NOTE: If **STOP** button is not pressed within 5 min., learn mode terminates. If no "**UNLEARNED**" sensors are detected then factory default setting is restored (Inputs will **NOT** be Monitored).

MOTION CONTROL — OPEN STOP CLOSE

OPEN ONLY NC / PHOTO CLS NC / OPEN/CLS NC / 12VDC OUT / GND — **Factory learned** (SLIDE ONLY) / **Factory** learned / "**Unlearned**" input

OPEN ONLY 10K / PHOTO CLS 10K / OPEN/CLS 10K / 12VDC OUT / GND — "**Unlearned**" input / "**Unlearned**" input / "**Unlearned**" input

MOTION CONTROL — OPEN STOP CLOSE

Matrix III General Swing / Slide WIRING Overview

MAXIMUM **MAX** CONTROLS
www.max.us.com

Maximum Controls LLC.
10530 Lawson River Ave
Fountain Valley, Ca 92708
Tel: (949) 699-0220

Batteries
Two 12VDC
Batteries-7Ahr

MATRIX III

BATTERY
INPUT ERROR
BATTERY VOLTAGE
E 1/2 F
BATTERY IN USE
BATTERY INPUT
POWER / SOLAR IN
POWER

BATTERY BACKUP MODE
LEAVE OPEN / OPEN 1 TIME
LEAVE CLOSED

BATTERY TEST   REPLACE BATTERY

MOTOR INPUTS

MOTOR POSITION INPUTS
SLIDER LIMIT
SWING LIMIT

AC Power Selector Switch (located on back)

230V
AC Power Selector Switch (located on back)

CAUTION:
If input AC power selector switch is set to **115V** but input power is actually **230 V**, 7 Amp Fuse will blow.

MAX Slide Toroid Box
MAX Swing Toroid Box

To Toroid Box

Manual Release Gate Shut-Off
(Slide ONLY)

Alarm Reset
(Slide ONLY)
Press Button to shut-off alarm

Alarm

ID Plug
Specific for operator model **REQUIRED**.
Slide   Swing

Choose:
Single Phase 115VAC
OR
Single Phase 230VAC

MODULE PORT

RESET / MANUAL RELEASE ←OFF
ALARM
ID PLUG ERROR
ID PLUG
MODE B
MODE A

EXIT PWR ←OFF

ERD SENSITIVITY
16 MIN 14 12 9 ERD
MAX SENSE 3 7 MOTOR OVER LOAD
OPENING
16 MIN 14 12 ERD
MAX SENSE 3 7 MOTOR OVER LOAD
CLOSING

CLOSE TIMER
MIN OFF MAX

OBD PORT BLACK BOX

MATRIX III SWING / SLIDE

ON/OFF BATTERY

PROGRAMMING
PROGRAM

MOTION CONTROL
OPEN STOP CLOSE

JOG
LEFT RIGHT

GATE OPEN
GATE CLOSED

Gate Status Monitoring Device

Solenoid Lock
Gnd
Power - +
NO

Maglock
Power - + +

Bi-parting gates using locks: Primary gate opens **FIRST**. Install lock accordingly to account for this.

AC Power Input
115 **OR** 230VAC Single Phase Input Power Wire

Line (Black)   Line (Black)
Neutral (White)   Neutral (White)
Chassis (Green)   Chassis (Green)

Power Terminal

⚠ **DANGER** HIGH VOLTAGE!

Proper Ground
Proper grounding of gate operator is required for LIGHTNING PROTECTION in lightning prone areas.

EXIT ●LOOP
GND
CENTER ●LOOP
LOOP PWR
SAFETY ●LOOP
FAULTS

Factory Wired

SOLAR MODE
OFF   ON

OPERATOR
PRIMARY   SECONDARY

QUICK CLOSE
OFF   ON

OPEN LEFT   OPEN RIGHT
GATE

MAGLOCK DELAY
OFF 2.5 sec
1.5 sec

UL SENSOR N.C.

GATE SPEED
MIN MAX   MIN MAX
OPENING   CLOSING

MAG LOCK
GND
NO
COM
NC

UL ENTRAP
UL SENSOR 10K

OPEN ONLY NC
PHOTO CLS NC
OPEN/CLS NC
12VDC OUT
GND

12 VDC OUT Monitored   Power

Opening Direction

NC

Normally Closed Photocells

IMPORTANT: Photocells **MUST** be in alignment or fault will occur.

OPEN ONLY 10K
PHOTO CLS 10K
OPEN/CLS 10K
12VDC OUT
GND

Power

NC

Closing Direction

IMPORTANT: NC MONITORED sensors **MUST** be powered by the **12VDC OUT** on the UL Sensor N.C.

Min 12 AWG, 600 volt insulated wire
within 3 ft of the gate operator

Chassis Ground   Chassis Ground

Grounding Rod

24VDC OUTPUT
GND
12VDC OUTPUT
GND

250 mA Max.

12 VDC **OR** 24 VDC Radio Power

12V Power

RADIO SIGNAL
RADIO GND
FIRE DEPT
GND
MAX OPEN
GND
STRIKE
GND
KEYPAD/CARD
GND
MANUAL RELEASE
GND
PRIMARY/SECONDARY LINK
(+) GND
OPEN
STOP
CLOSE
COM
GATE DISABLE
TAMPER NO
COM
TAMPER IN
GND
JOG LEFT
JOG RIGHT
GND

LINK OK
PRIMARY/SECONDARY LINK
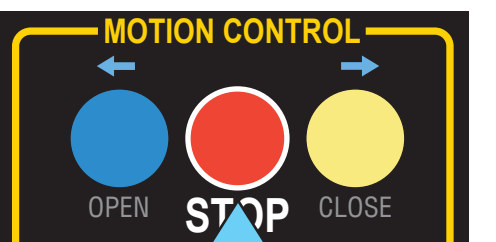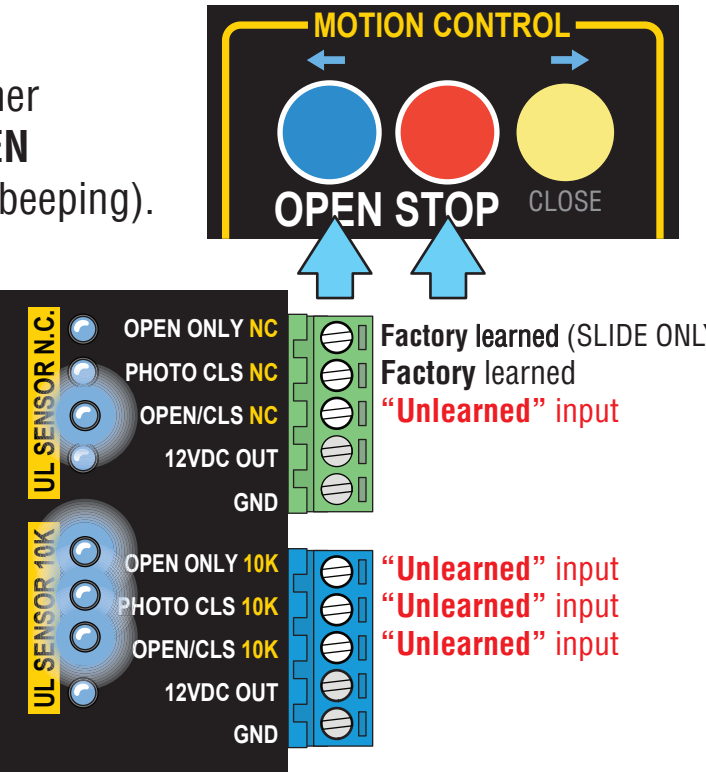
Opening Direction

SWING: A minimum of **ONE** Entrapment protection sensor **MUST** be installed or operator will **NOT** function.

SLIDE: A minimum of **TWO** Entrapment protection sensors **MUST** be installed, **ONE** in **EACH** direction of gate travel or operator will **NOT** function.

They **MUST** be MONITORED and NORMALLY CLOSED (N.C.)/10K. All entrapment zones should be protected by MONITORED sensors.

Stand-Alone Keypad less than 200 mA

3-Wire Radio
4-Wire Radio

Radio Signal
Radio Signal
Radio Gnd

Electronic Gate Open/Close
(Slide ONLY - Factory Wired)
(Swing terminal available for device connection)

Gnd
Jog Right
Jog Left

Gnd
Tamper IN   Motion Sensor

10K Sensing Edges

Closing Direction

Loop Detector Rack

EXIT   CENTER   SAFETY

Safety Loop   Center Loop Swing ONLY   Safety Loop

Exit Loop

In-Ground Loops

(Swing ONLY)

Safety loops wired in series.

External Loop Detectors
Wire directly to 7-PIN terminal

External Loop Detector

Emergency OPEN
(Overrides gate disable switch Slide ONLY)
NO
Gnd
FIRE DEPT

MAX OPEN
(Overrides gate disable switch Slide ONLY)
NO
Gnd

Telephone Entry   **Separate** power for devices if required.

Dry Contact NO
Gnd

Key Switch   Card Reader   Keypad

Dry Contact NO
Gnd

Key Switch

Manual Release
Gnd
Manually Releases Gate
(Slide ONLY)

Security Camera

Gate Disable
Com

Com
Close
Stop
Open

Gnd
Tamper NO

Warning Light   Power

Siren   Power

Existing Building Alarm System

Gate Disable Switch   Timer

3-Button Control Station Dry Contact

Com
Stop
External Alarm Reset Button Dry Contact
PRESS TO RESET

RS-485 Communication

NOTES:
DO NOT select the **PULSED** output option for Loop Detectors.

DO NOT set Loop Detectors to **HIGH** sensitivity to avoid false trigger.

EDI Loop Detector

EDI Loop Detector Low Current Draw

Plug-In Loop Detectors

Swing   Slide

Secondary Gate Operator

Matrix III Overview-Rev 4