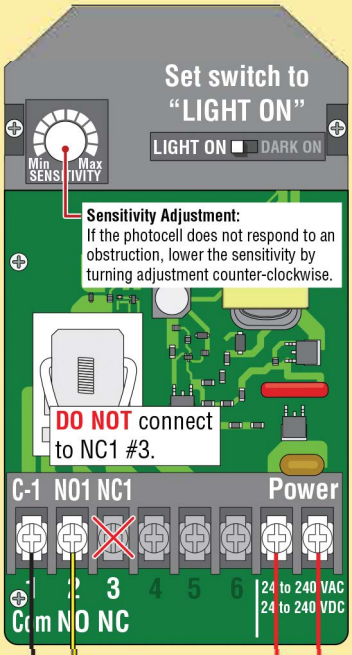
COMMONLY USED SAFETY SENSORS

OMRON E3K-R10K4

Photocell (Reflector) CLOSING Direction

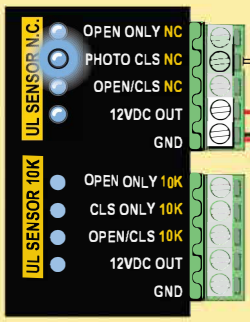
NOTE: To meet the UL 325 2018 standard, Type B1 Non-Contact sensor entrapment protection device MUST be MONITORED by the gate operator.



NOTE: DO NOT use 10K Resisitor included with photocell.

Installation Steps:

1. Set switch to "LIGHT ON"
2. Wire 12V power to photocell
3. Wire **PHOTO CLS NC** to photocell **NO1**
   Wire **GND** to photocell **C-1**
4. Align photocell to reflector
5. Adjust sensitivity



OK to use 12VDC

PHOTO CLS NC

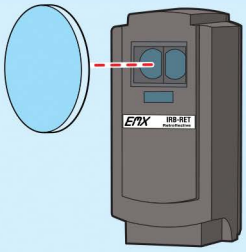
12VDC OUT
Polarity does **NOT** matter

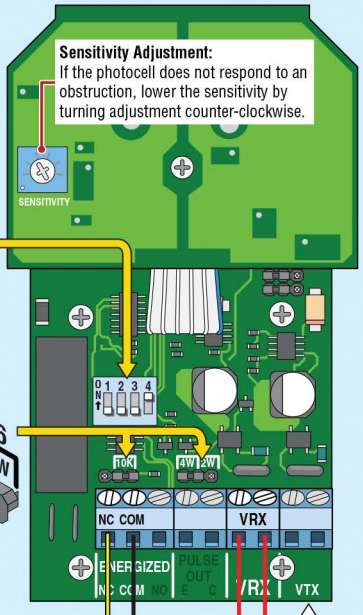
GND

IMPORTANT: Photocell **MUST** be in alignment with reflector or fault will occur.

EMX IRB-RET

Photocell (Reflector) CLOSING Direction

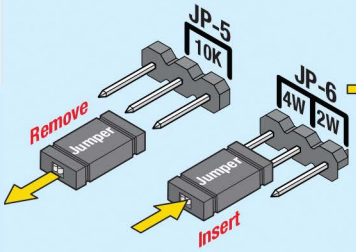




DIP-Switches

1 - OFF
2 - OFF
3 - OFF
4 - ON

NOTE: Power must be cycled when switches are changed.



IMPORTANT: Photocell MUST be powered by MATRIX III or it will **NOT** be **MONITORED**.

NOTE: To meet the UL 325 2018 standard, Type B1 Non-Contact sensor entrapment protection device MUST be MONITORED by the gate operator.

Installation Steps:

1. Set DIP-switches
2. Remove jumpers JP-5 and JP-6
3. Wire 12V power to photocell (**VRX**)
4. Wire Matrix III **PHOTO CLS NC** to photocell **NC (Energized)**
   Wire Matrix III **GND** to photocell **COM (Energized)**
5. Align photocell to reflector
6. Adjust sensitivity

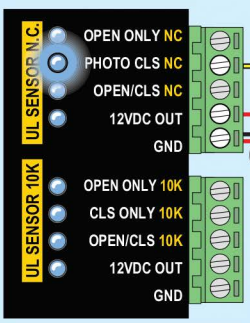


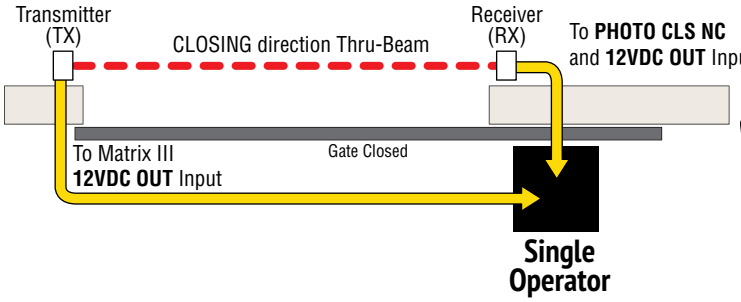
PHOTO CLS NC

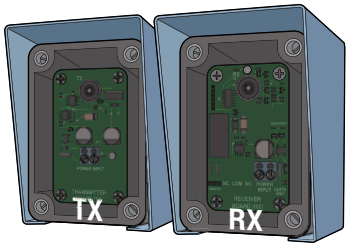
GND

12VDC OUT
Polarity does **NOT** matter

Power NOTE: If photocell does **NOT** function using **VRX** power input, connect power to **VTX** input instead.

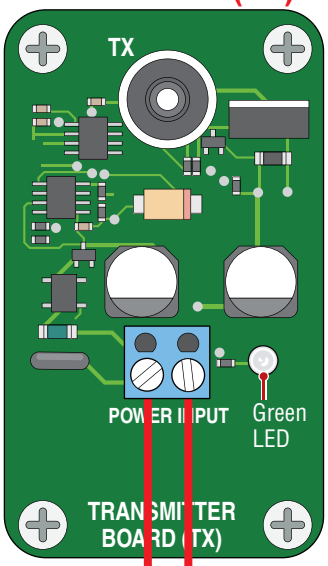
EMX IRB-MON Photocell (Thru-Beam) CLOSING Direction Single Gate Operator





IMPORTANT: Photocells **MUST** be in alignment or fault will occur. Green LED will remain **ON** receiver when in proper alignment.

Transmitter (TX)



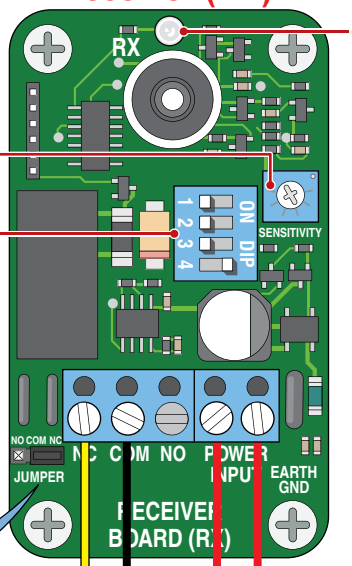
Installation Steps:

1. Set DIP-switches on receiver.
2. Install jumper on receiver.
3. Wire Matrix III **12VDC OUT** power to receiver.
4. Wire **PHOTO CLS NC** to receiver photocell **NC.** Wire Matrix III **GND** to receiver photocell **COM.**
5. Wire **12V** Matrix III power to transmitter.
6. Align photocells.
7. Adjust sensitivity on receiver.

Receiver (RX)

Sensitivity Adjustment: If the photocell does not respond to an obstruction, lower the sensitivity by turning adjustment counter-clockwise.

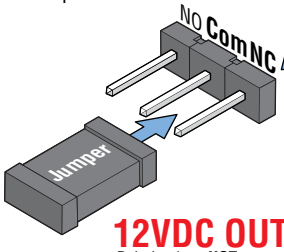
Green LED



DIP-switches: 1, 2, 3 are **OFF.** Switch 4 is **ON** If trouble occurs, try turning switch 4 OFF.

NOTE: Power must be cycled when switches are changed.

Jumper **MUST** be on Com-NC.



IMPORTANT: Photocells MUST be powered by Matrix III or they will **NOT** be **MONITORED**.

12VDC OUT
Polarity does **NOT** matter

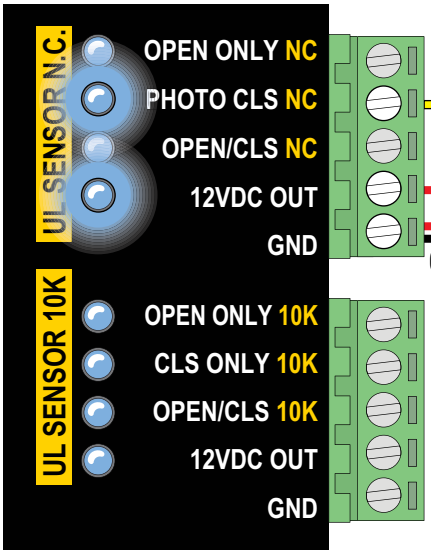


PHOTO CLS NC - Normally Closed

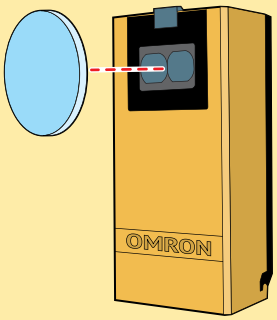
GND - Common

NOTE: To meet the UL 325 2018 standard, Type B1 Non-Contact sensor entrapment protection device MUST be MONITORED by the gate operator.

OMRON E3K-R10K4 WIRING FOR MAX PRO

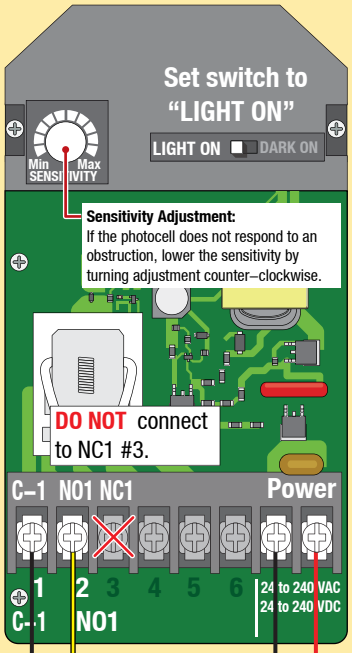
UL325-2016

NORMALLY CLOSED (NC) Wiring to E3K Photocell



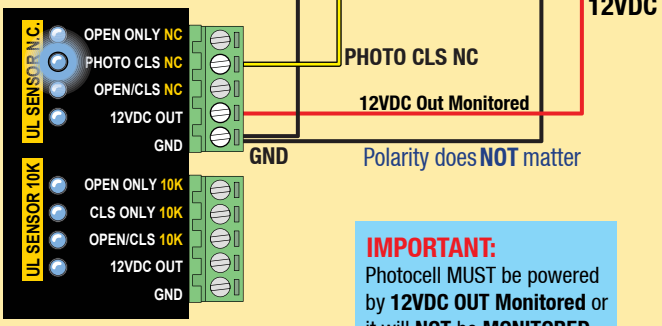
CLOSING Direction Photocell (Reflector)

NOTE: To meet the UL 325 2016 standard, Type B1 Non–Contact sensor entrapment protection device MUST be MONTORED by the gate operator.



Installation Steps:

1. Set switch to "LIGHT ON"
2. Wire 12V power to photocell
3. Wire **PHOTO CLS NC** to photocell **NO1**
   Wire **GND** to photocell **C–1**
4. Align photocell to reflector
5. Adjust sensitivity

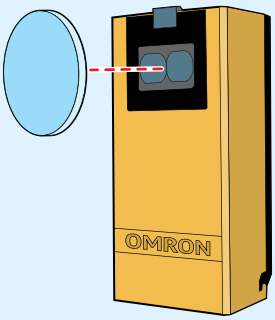


IMPORTANT:
Photocell MUST be powered by **12VDC OUT Monitored** or it will **NOT** be **MONITORED.**

NOTE: DO NOT use 10K Resistor included with photocell.

UL325-2018

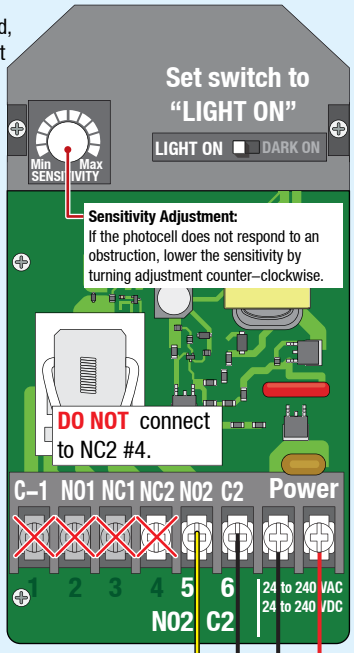
NORMALLY CLOSED (NC) Wiring to E3K Photocell



CLOSING Direction Photocell (Reflector)

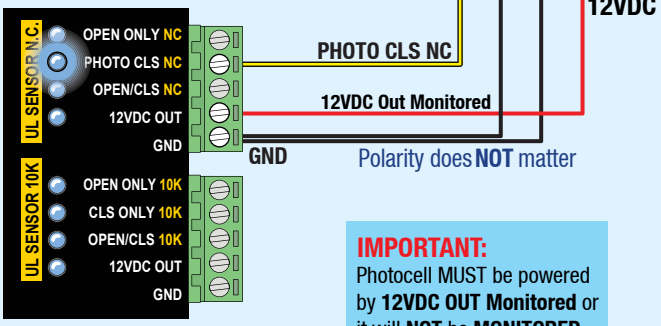
UL 2018 Label on packaging

NOTE: To meet the UL 325 2018 standard, Type B1 Non–Contact sensor entrapment protection device MUST be MONTORED by the gate operator.



Installation Steps:

1. Set switch to "LIGHT ON"
2. Wire 12V power to photocell
3. Wire **PHOTO CLS NC** to photocell **NO2**
   Wire **GND** to photocell **C2**
4. Align photocell to reflector
5. Adjust sensitivity



IMPORTANT:
Photocell MUST be powered by **12VDC OUT Monitored** or it will **NOT** be **MONITORED.**

For 10K Resistor E3K Photocell wiring see next page

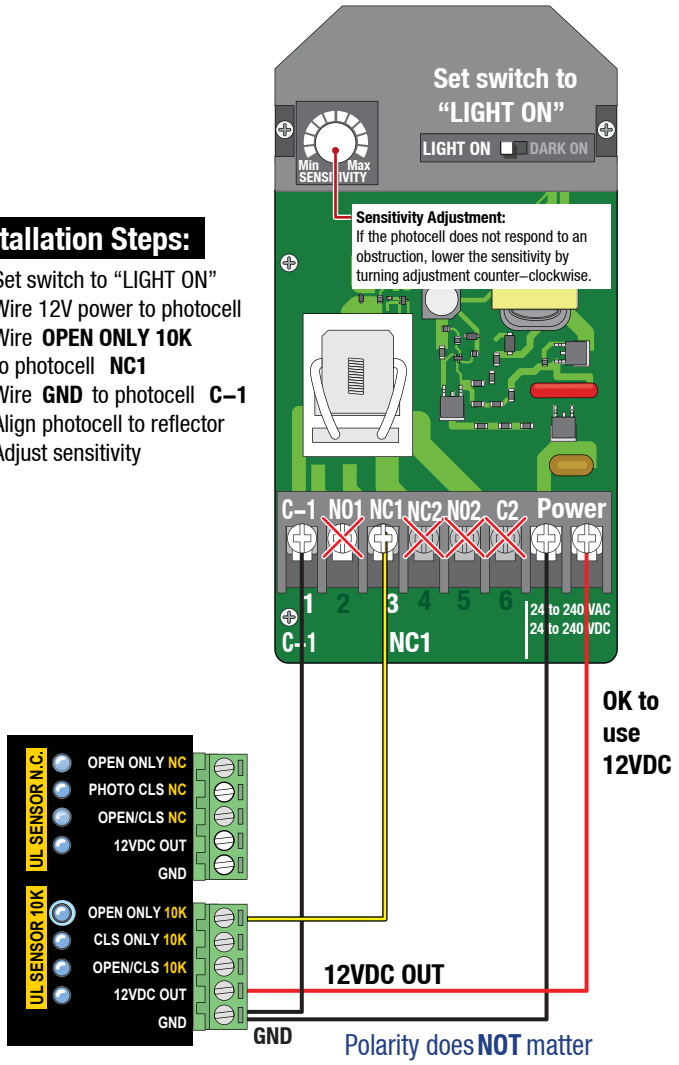
OMRON E3K-R10K4 WIRING FOR MAX PRO

UL325-2018

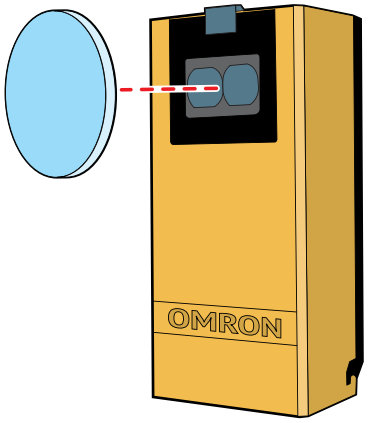
10K Resistor wiring to E3K Photocell

Installation Steps:

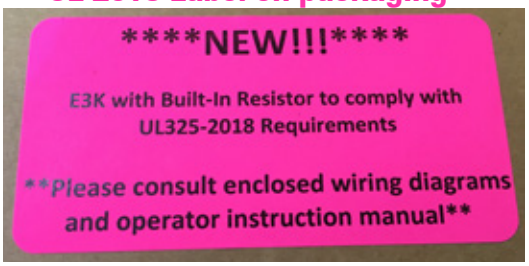
1. Set switch to “LIGHT ON”
2. Wire 12V power to photocell
3. Wire **OPEN ONLY 10K** to photocell **NC1**
   Wire **GND** to photocell **C–1**
4. Align photocell to reflector
5. Adjust sensitivity



OPENING Direction Photocell (Reflector)



UL 2018 Label on packaging

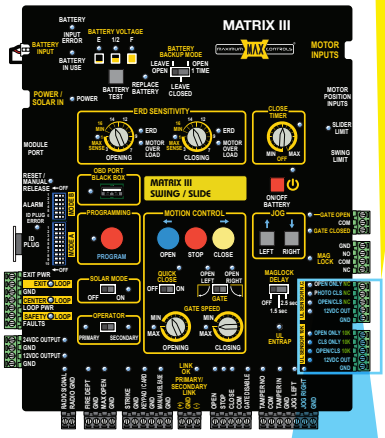


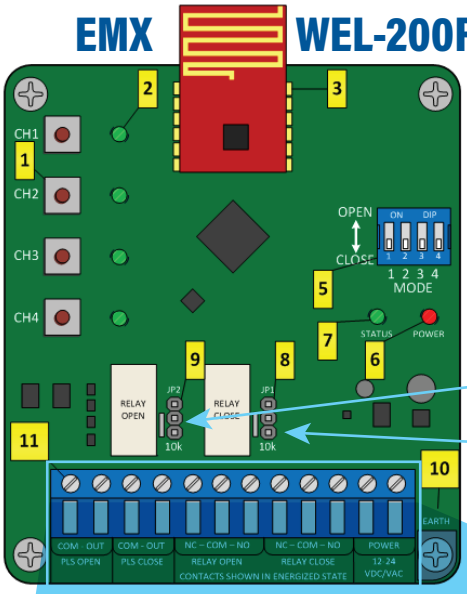
NOTE: To meet the UL 325 2018 standard, Type B1 Non–Contact sensor entrapment protection device MUST be MONITORED by the gate operator.

EMX WEL-200 Wiring Guide
FOR MAX PRO SERIES

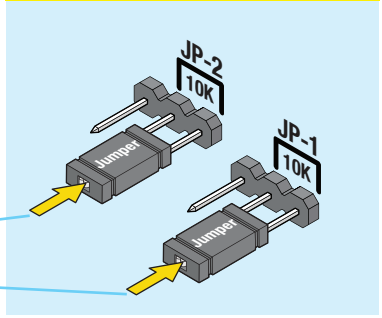
www.gatemax.ca

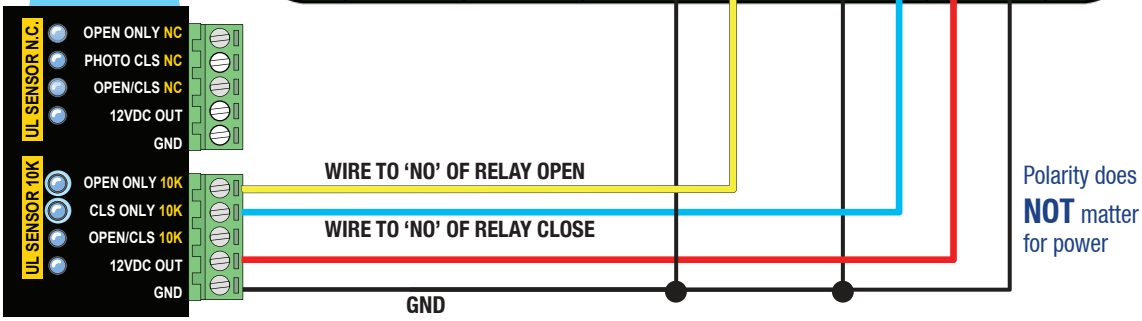
1 WIRE WEL-200R OPEN & CLOSE RELAYS TO MATRIX III 10K SENSOR INPUTS





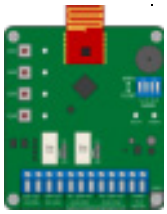
2 INSERT BOTH JUMPERS IN 10K POSITION





CONNECTING RECEIVER (WEL-200R) TO TRANSMITTER (WEL-200T)

Connecting is a two step process. First, on the receiver, press and hold the channel assignment switch until the green status LED begins rapidly flashing, then release; this will clear any existing assignment for that particular channel. Hold down the connection switch on the transmitter. If it is not currently connected to a receiver, it will begin flashing rapidly until successfully connecting. Detailed instructions are given below.



NOTE: If there are no existing connections, the ***receiver's*** status LED will blink rapidly while it is finding a clean operating frequency (this can last a few seconds)
After initialization, the system status LED will flash on/off once every 2 seconds

STEPS

1

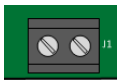
Set each channel to the desired OPEN/CLOSE direction function using the MODE dip switch **If a DIP switch is in the OPEN position, then that channel will trigger the OPEN Relay on receiver. Otherwise, it will trigger the CLOSE Relay.**

2

Install 2 AA Lithium batteries in the ***WEL-200T (transmitter)***

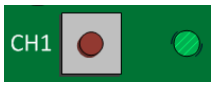
The green LED on the transmitter will quickly flash 2x every two seconds

3



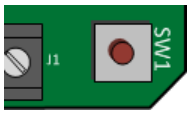
Install a properly terminated edge to the ***transmitter*** (8.2k or 10k termination)

4

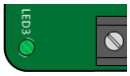


On the ***receiver***, hold down the desired channel assignment switch until all four channel LED's activate and the system status LED begins flashing rapidly, then release the switch.

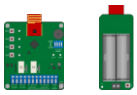
5



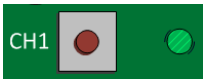
On the ***transmitter***, hold down the connection switch (next to the terminal block)
The LED on the ***transmitter*** will begin flashing rapidly after ~4 seconds



Upon successful connection, the LED will flash once every two seconds
If the ***transmitter*** fails to connect, it will return to its initial state, with the LED flashing twice every two seconds. If this occurs, repeat steps above.

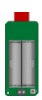


TESTING



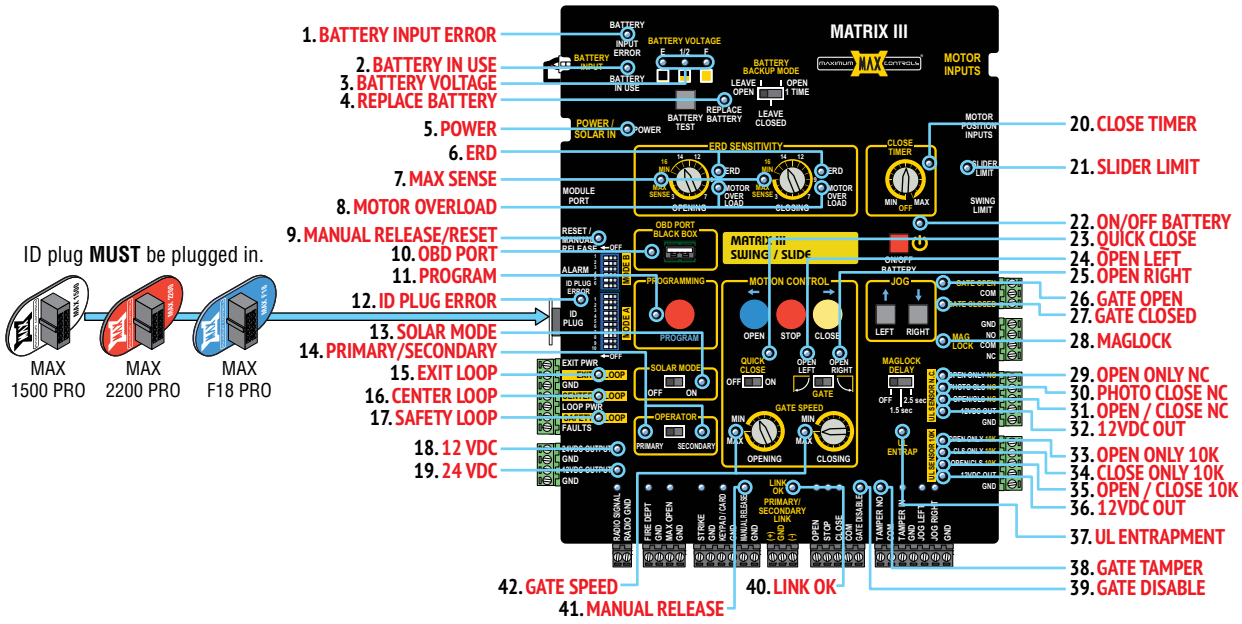
Without activating the edge, observe the channel status LED, it should be OFF.

When the edge is activated, the ***receiver*** channel status LED will turn on and the corresponding OPEN/CLOSE direction output will activate. The ***transmitter*** status LED will blink once every *second* when the edge is activated.



If the channel does not exhibit this behavior, double check the edge wiring/termination and transmitter batteries.

MATRIX III LED TROUBLESHOOTING



Matrix III LED Problem Condition	Normal LED	Solution(s) for Problem Condition
"BATTERY IN ERROR" LED is ON.	1	• "BATTERY Plug" not plugged in to "BATTERY IN" port.
"BATTERY IN USE" LED is ON	OFF 2	• AC power is lost, operator is in battery back-up mode. • Check if Toroid box AC POWER ON/OFF SWITCH is ON. • Measure power input DC voltage on Matrix 1 ("24V/GND" - 2-pin black connector), (expected reading 34 VDC if AC on, 25VDC if on battery back-up).
"BATTERY VOLTAGE (E 1/2 F)" LEDs, only "E" is ON.	OFF 3	• Battery is very LOW. Check if AC power ON/OFF switch is ON. If so, check AC power.
"REPLACE BATTERY" LED is ON.	OFF 4	• Battery needs to be replaced if BATTERY TEST fails and "REPLACE BATTERY" LED is ON.
"BATTERY IN USE" and "POWER" LED are FLASHING	OFF / ON 2 / 5	• Battery not plugged in to BATTERY INPUT port.
PRIMARY Matrix III "LINK OK" LED is OFF	ON 40	• Check if limit sensors are plugged into PRIMARY MATRIX III "SLIDER LIMIT" input.
SECONDARY Matrix III "LINK OK" LED is OFF	ON 40	• Check wiring between PRIMARY RS485 (+,-, gnd) and SECONDARY RS485 (+,-, gnd) terminals, connect [(+) to (+)], [(-) to (-)] and [GND to GND]. • Check if limit sensors are plugged into SECONDARY Matrix III "SLIDER LIMIT" input.
"UL Entrap" LED is ON	ON 37	• An entrapment event has occurred, check if an entrapment sensor was triggered (see if PHOTO CLS, OPEN ONLY, or OPEN/CLS LEDs are on).
"ERD" LED is FLASHING	ON 6	• An ERD event may have occurred. Check for gate obstruction. • ERD sensitivity is too high for application. Re-adjust ERD setting, (see 8).
"PHOTO CLS" LED is ON "CLS ONLY 10K" LED is ON	OFF 30 / 34	• Sensor on PHOTO CLS or CLS ONLY 10K inputs (photocell or edge) may have detected an obstruction while closing gate. • Photocell on PHOTO CLS or CLS ONLY 10K inputs is misaligned with reflector.
"PHOTO CLS" LED is flashing "CLS ONLY 10K" LED is flashing	OFF 30 / 34	• Sensor on PHOTO CLS or CLS ONLY 10k inputs (photocell or edge) may not be wired properly, (see 5). • Sensor is NOT a N.C. monitored sensor that is UL325 2018 compliant. • Sensor might need to be re-learned. • Sensor is damaged or malfunctioning.
"OPEN ONLY" LED is ON	OFF 29 / 33	• Sensor on OPEN ONLY input (photocell or edge) may have detected an obstruction while cycling gate. • Photocell on OPEN ONLY input is misaligned with reflector.
"OPEN ONLY" LED is FLASHING	OFF 29 / 33	• Sensor on OPEN ONLY input (photocell or edge) may not be wired properly, (see 5). • Sensor is NOT a N.C. monitored sensor that is UL325 2018 compliant. • Sensor on OPEN ONLY is damaged or malfunctioning. • Sensor might need to be re-learned.
"MAX SENSE" LED is ON	OFF 7	• MOST sensitive setting for ERD entrapment detection. Select a less sensitive setting (recommend level 10 thru 16)
"MANUAL RELEASE/RESET" LED is ON but manual release is not working	OFF 9 / 41	• Connected external device to MANUAL RELEASE input is not working, check wiring. replace device.
"OBD PORT" LED is FLASHING	OFF 10	• Up to 8000 event history and error codes are being downloaded to connected flash drive. Up to 5 min.
"PROGRAM" LED is FLASHING	OFF 11	• Program button has been pressed and programming mode is active. Press button again to leave programming mode.

Table continued on next page

MATRIX III LED CONTINUED

Matrix III LED Problem Condition	Normal LED	Solution(s) for Problem Condition
"ID PLUG" LED is FLASHING and board beeping	OFF 12	• Insert ID PLUG module that is tethered to chassis into "ID PLUG" connector.
"SOLAR MODE" LED is ON	OFF 13	• Operator is being powered by solar panel ONLY.
"OPEN/CLS" LED is ON	OFF 31	• Sensor on OPEN/CLS input (photocell or edge) may have detected an obstruction while opening or closing gate.
"OPEN/CLS" LED is FLASHING		• Photocell on OPEN/CLS input is misaligned with reflector. • Sensor on OPEN/CLS input (photocell or edge) may not be wired properly, (see 5). • Sensor is NOT a N.C. monitored sensor that is UL325 2018 compliant. • Sensor on OPEN/CLS is damaged or malfunctioning. • Sensor might need to be re-learned.
"MOTOR OVERLOAD" LED is ON	OFF 8	• Check if gate is binding against catch post or bracket in opened or closed position. • Check if gate moves manually with low resistance throughout its full range of motion. • Check if chain is installed inline with idle wheels in both OPEN and CLOSED positions.
"EXIT" LOOP LED is FLASHING or constantly ON	OFF 15	• Loop fault condition: Check if EXIT loop wires are connected into to loop input connector properly. • Check if loop detector is inserted properly in Loop Rack slot. • Set unique loop detector frequency for each loop detector used. • Loop Detector might be defective. Replace defective loop detector. NOTE: RENO loop detector LED's flash as default, but function normally (ignore the flashing).
"SAFETY" LOOP LED is FLASHING or constantly ON	OFF 17	• Loop fault condition: check if SAFETY loop wires are connected into to loop input connector properly. • Check if SAFETY loops are wired in series. • Check if loop detector is inserted properly in Loop Rack slot. • Set unique loop detector frequency for each loop detector used. • Loop Detector might be defective. Replace defective loop detector. NOTE: RENO loop detector LED's flash as default, but function normally (ignore the flashing).
"GATE DISABLE" LED is ON	OFF 35	• Check if "Gate Shut-off" switch is ON, Turn it OFF. If it is OFF, cycle the switch (ON then OFF). • Check if the chain is dropped. If so, gate is disabled for safety. Re-install chain and cycle the "Gate Shut-off" switch (ON then OFF) to enable operator. • Check if an external device is triggering GATE DISABLE input. Disconnect devices individually to determine possible false triggering of GATE DISABLE.
"MAG LOCK" LED is FLASHING	OFF 28	• Maglock power is lost. Check if maglock power transformer is wired properly or needs to be replaced. • Switch is set to delay but no maglock is connected. Set switch to OFF
"GATE TAMPER" LED is FLASHING	OFF 34	• Gate was manually moved off of its CLOSED position causing Tamper Relay to trigger for few seconds.
"12VDC" LED is OFF. "24VDC" LED is OFF	ON 18 or 19	• Check for a short in wiring to connected device. DO NOT power external keypads or telephone entry to this port (only use for radio receiver / photocell).
"SLIDER LIMIT" LED is ON	OFF 21	• Only ON if factory installed plug is plugged in. Re-install plug into SWING LIMIT connection for swing gate operator.
"ON/OFF BATTERY" LED is OFF	ON 22	• Batteries are turned OFF. Turn toroid box AC POWER switch ON and batteries automatically turn ON.
"QUICK CLOSE" LED is ON	OFF 23	• Quick Close feature is turned ON. If this feature is not desired, turn quick close OFF.
"GATE SPEED" LEDs are ON but gate moves slowly.	ON 42	• Check if OPEN and CLOSE Limits have been learned. Refer to "Learn Gate Positions" (see 7). • ONLY Maximum settings will turn LEDs ON. All other settings, LEDs remain OFF.

Transmitter Solutions iGaze RE Wireless Edge Transceiver Wiring Diagram

www.gatemax.ca

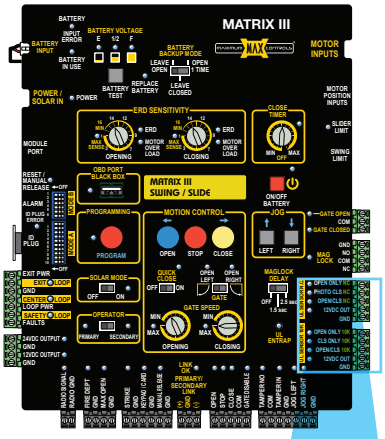
TRANSMITTER
TCOO900

RECEIVER
RCOO900

QUICK START GUIDE

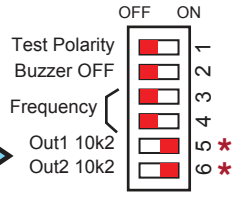
BELOW IS THE MOST COMMON INSTALLATION

DIP SWITCH LEGEND:
DIP SWITCH= RED



DIPSWITCHES 5 & 6 MUST BE ON FOR 10K PORT

RCOO900 (receiver) - 10kΩ output on both relay 1 and relay 2.

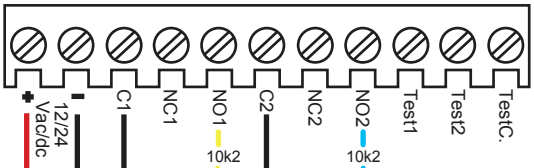


Output relay
0.5A a 42.4Vac
1A a 30Vdc

ROO900

Buzzer

Programming/
Reset Key

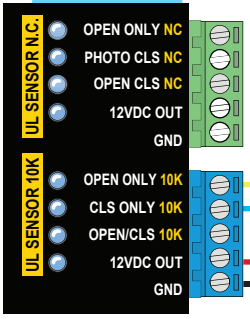


WIRE TO 'NO' OF RELAY OPEN

WIRE TO 'NO' OF RELAY CLOSE

To Operator

To Operator



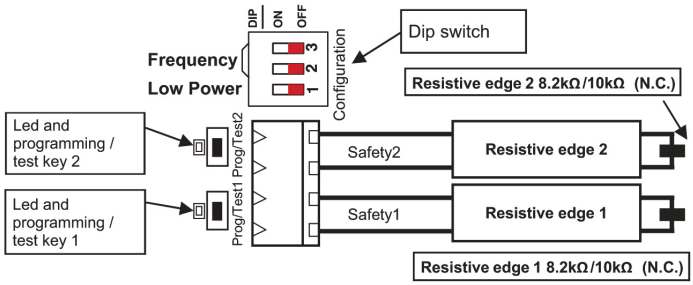
GND

Transmitter Solutions iGaze RE
Wireless Edge Transceiver Wiring Diagram

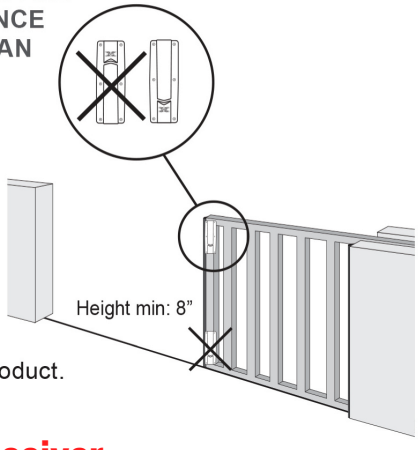
BELOW IS THE MOST COMMON INSTALLATION

DIP SWITCH LEGEND:
DIP SWITCH= RED

TCOO900 (transmitter) - Both safety edges are 8.2kΩ or 10kΩ resistive



MOUNT THE TCOO900 AS HIGH AS POSSIBLE AND IN SUCH WAY AS THERE ARE NO OBSTACLES IN THE DIRECTION OF THE RCOO900 AND IN SUCH A WAY AS THE MAXIMUM DISTANCE BETWEEN THE TWO DEVICES IS LESS THAN 60 FEET (MAX 20 METERS / 60 FEET).



WARNING: install the TCOO900 at a minimum height of 8” from the ground. Keep the installation area clean of debris which can effect the normal operation of the system.

NOTE: Transmitter Solutions is not responsible for any damage caused by an improper, incorrect, or unintended use of the product.

For pairing Transmitter and Receiver, please refer to the Transmitter Solutions manual.