

OPERATING INSTRUCTIONS

WEL-200™

WIRELESS EDGE LINK



4564 Johnston Parkway, Cleveland, Ohio 44128

P. 800 426 9912 F. 216 518 9884

Sales Inquiries: salesupport@emxinc.com

Technical Support: technical@emxinc.com

www.emxinc.com



Cautions and Warnings 2

Specifications 3

Product Overview 4

Controls and Indicators 5

Connections 7

Installation and Operation 8

Troubleshooting 11

Ordering Information 15

Copyright Notice

All rights reserved. Unless otherwise stated, the material within this document is copyright of EMX Industries Inc. No part may be reproduced, in whole or in part, without the specific written permission of EMX Industries Inc.

Cautions and Warnings



1. *Read and follow all operating and Installation instructions.*
2. *Always follow gate operator manufacturer installation instructions regarding installation of type B2 devices to the operator.*
3. *Disable the gate so it is unable to move.*

The WEL transmitter is designed for connection to a single edge.



NEVER CONNECT MORE THAN ONE EDGE TO A SINGLE TRANSMITTER!

When multiple edges are required, connect each edge to a separate WEL transmitter for safe operation.

Refer servicing to qualified service personnel.

IMPORTANT:

This product is an accessory or part of a system. Always read and follow the manufacturer's instructions for the equipment before connecting this product. Comply with all applicable codes and safety regulations. Failure to do so may result in damage, injury or death.

Regulatory Information



FCC ID: 0A3MRF89XAM9A

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



UL File: E315703

The WEL-200 is designed for use with Entrapment Protection Type B2 devices per the 2018 UL325 standard. This system meets the UL325 requirements for N.C., 10K resistive, 4-wire pulsed monitoring methods.

Specifications

	WEL-200R	WEL-200T
Operating Range	Up to 200 ft. (line of sight)	
Operating Frequency	915MHz	
Response Time	100ms	
Power/Fault Indicator	Red power LED/green channel LED	Green transmit/status LED
Channel Status Indicator	Green LED	NA
Channel mode selection switch	Assign each channel to OPEN/CLOSE function	NA
Outputs	<ul style="list-style-type: none"> • OPEN direction relay: Form C contacts (NO, COM, NC) • CLOSE direction relay: Form C contacts (NO, COM, NC) • OPEN direction - 300Hz pulsed: Open collector transistor output (opto-isolated) • CLOSE direction - 300Hz pulsed: Open collector transistor output (opto-isolated) 	NA
Resistive termination	10K ohm across NO contact (jumper selectable)	NA
Power protection	Thermal fuse, MOV	Thermal fuse
Environmental Rating	NEMA 4X	
Power Supply	12-24 VAC/VDC	3-3.6 VDC (2x AA batteries) (ANSI 15-LF, IEC-FR14505 (FR6))
Battery life	NA	2 years at 25°C
Current Draw	50 mA	NA
Operating Temperature	-40°...60°C (-40°...140°F)	
Dimensions (L x W x H)	140mm (5.5") x 34mm (1.3") x 90mm (3.5")	180mm (7.0") x 32mm (1.3") x 67mm (2.6")
Weight	200g (7 oz.)	170g (6 oz.)
Connections	12 terminals (18-26AWG)	2 terminals (18-26AWG)

Product Overview



Figure 1 - WEL-200T (transmitter)

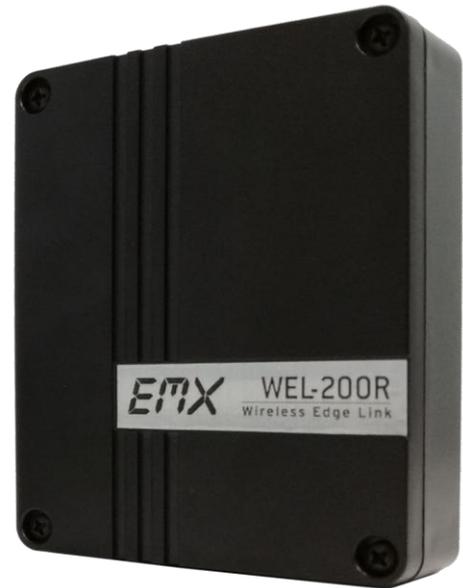


Figure 2 - WEL-200R (receiver)

The EMX WEL-200 system provides a complete wireless solution for interfacing sensing edges with gate and door operators, while ensuring compliance with 2018 UL325 monitoring standards. Each transmitter can run for up to two years on two AA lithium batteries. The receiver connects with up to four transmitters, with separate relay and pulse outputs for open and close edge functionality.

With enhanced diagnostic features, the WEL-200R will make installation and maintenance easy and reliable. Feedback is provided for all fault modes, including edge open and short conditions, low battery, and failed transmitters.

Receiver

1. Channel assignment switches

- Assigns a wireless transmitter to the specified channel

2. Channel status indicators

- Indicates current status of each channel

3. Wireless transceiver module

- Wireless radio used to communicate with transmitters

4. Not used

5. Open/close direction assignment switch

- Assigns channel to either open or close direction output function

6. Power indicator

- On constantly when receiver is powered up

7. Status indicator

- Shows current system status

8. "Close" direction relay termination jumper

- Terminates the COM/NO terminals with a 10k resistor when jumper is placed in the lower position

9. "Open" direction relay termination jumper

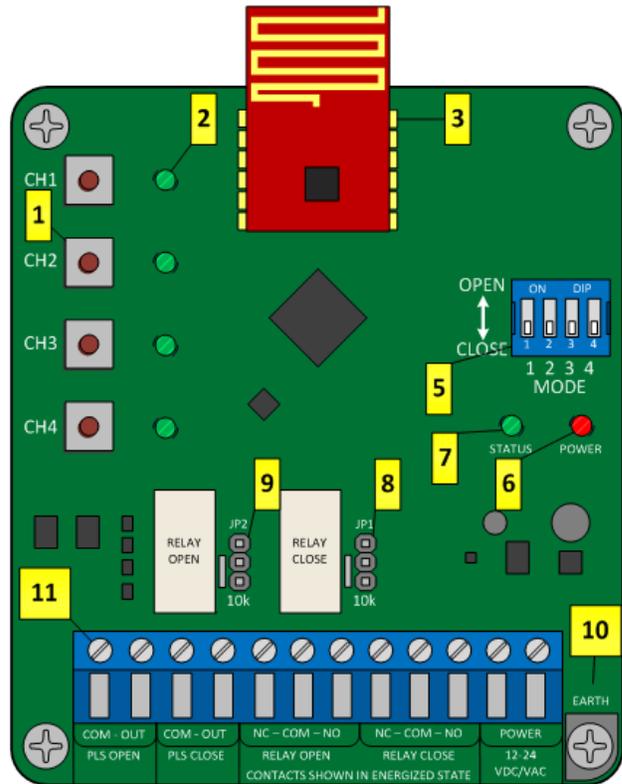
- Terminates the COM/NO terminals with a 10k resistor when jumper is placed in the lower position

10. Earth ground

- Connection point for earth ground

11. Terminal block

- Receiver I/O (see Table 1 in **Connections**)



Transmitter

1. Batteries

- Use two AA lithium batteries, 1.5V (ANSI 15-LF, IEC-FR14505 (FR6)) for the best performance and longest life. Observe polarity indication on the battery holder.

2. Transmitter status LED

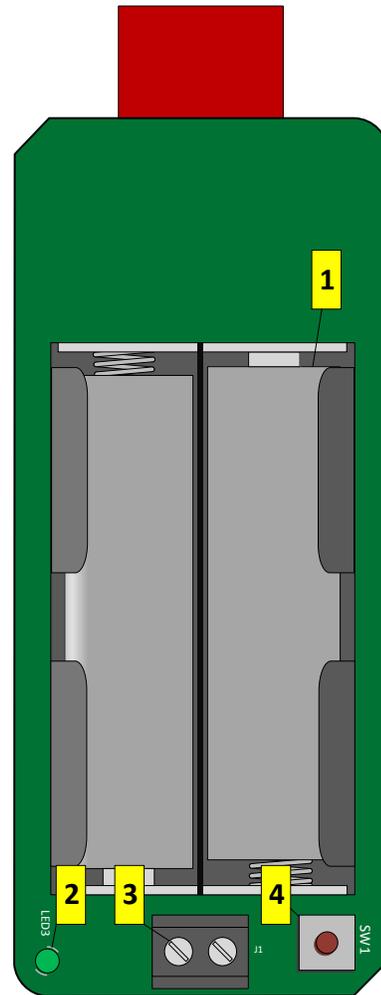
- Blinks twice every two seconds if not connected, once if connected
- Blinks once every second when edge is activated

3. Terminal block

- Interface for safety edge

4. Connection switch

- Connects/disconnects transmitter from receiver



Connections

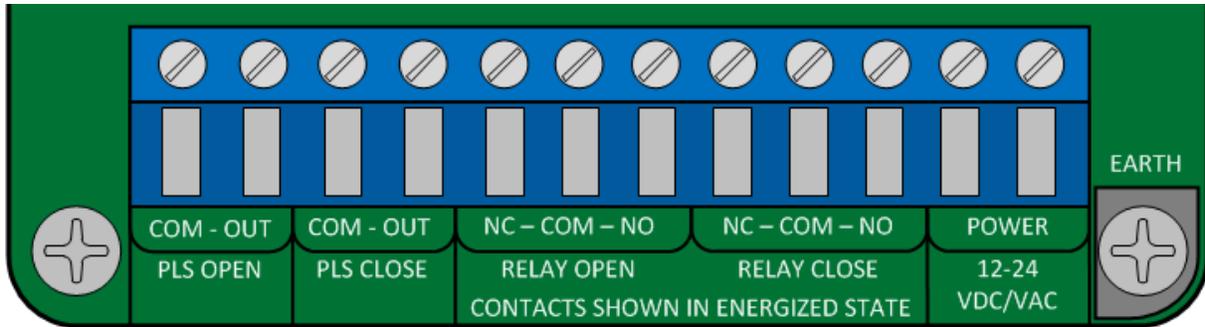


Table 1: RECEIVER CONNECTIONS

Terminal	Function	Description
1	PLS OPEN COM	Signal common connection for OPEN direction
2	PLS OPEN OUT	Pulsed output for OPEN direction (300/0 Hz)
3	PLS CLOSE COM	Signal common connection for CLOSE direction
4	PLS CLOSE OUT	Pulsed output for CLOSE direction (300/0 Hz)
5	RELAY OPEN NC	Normally closed connection for OPEN direction
6	RELAY OPEN COM	Common connection for OPEN direction
7	RELAY OPEN NO	Normally open connection for OPEN direction
8	RELAY CLOSE NC	Normally closed connection for CLOSE direction
9	RELAY CLOSE COM	Common connection for CLOSE direction
10	RELAY CLOSE NO	Normally open connection for CLOSE direction
11/12	POWER	12-24 VDC/VAC power input (non-polarized)
EARTH	EARTH	Earth ground connection

Installation and Operation

1. Receiver Installation

The receiver enclosure can be mounted to the exterior of an operator using four (4) #8 machine screws, washers, lock washers, and nuts. Ideally, it should be placed in direct line-of-sight with the transmitters, with no obstructions between the WEL-200R and the WEL-200T.

1. Mount the receiver.
2. Determine the monitoring method required by the operator.
3. Remove the cover. If the monitoring method is using relay contacts, then set the internal DIP switch settings for each channel to either OPEN or CLOSE direction relay function depending on the location of each edge.
4. For 10K resistive monitoring, place the jumper in the 10K position for both OPEN and CLOSE direction relays.
5. Pulse outputs are available for open collector pulse type monitoring.
6. Wire the appropriate output to the operator. Proper installation for cable grip, see below.
7. Connect the power to power terminals.

Mounting extended with antenna above edge of the operator

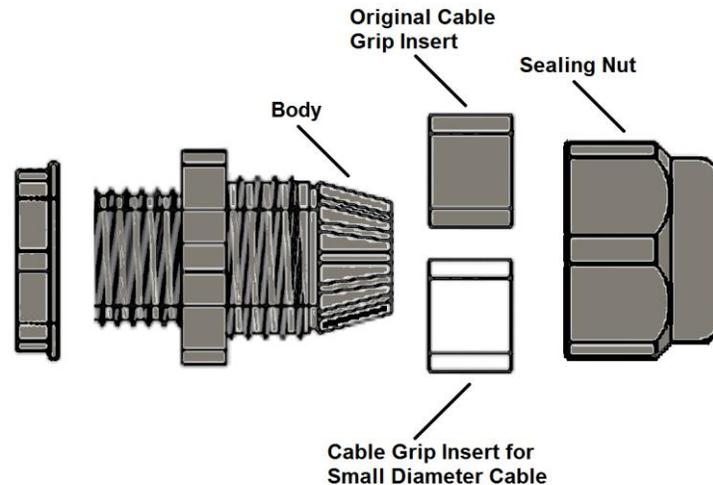


NOTE: It is recommended to place the RX in a location where there is clear, line of site, between the RX and all of its TXs. This can be accomplished by extending the top of the RX approximately 1" above the top edge of the operator, mounting on top of the operator, or on a side that is in line of site with both edge transmitters.

CABLE GRIP INSTALLATION for both transmitter and receiver

The cable grip provides a NEMA 4X rating. To maintain a watertight seal follow these instructions:

- a. Cable must be 0.181 – 0.312 (4.6 – 7.9mm) diameter for proper seal using the cable grip insert as supplied. A separate white insert is provided when using cables sizes 0.069 – 0.187 (1.8 -4.7mm). To maintain a watertight seal, use only round cables, do not use individual wires or any cable that is not round.



1. Remove sealing nut.
2. Remove dark insert from body (compression fingers) and replace with white insert.
3. Hand-tighten the sealing nut to secure.
 - a. Hand-tighten the sealing nut as far as possible. Hold the body hex stationary with a wrench. Using a second wrench, tighten the sealing nut to 40 in. lbs. until the cable is securely held in place.
 - b. If the cable has different diameter point the cable ingress down to prevent water penetration.

2. Connecting

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.



2.1. Apply 12-24 VDC/VAC to the **WEL-200R (receiver)**, wait for initialization to complete¹

2.1.1. 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)

2.1.2. After initialization, the system status LED will flash on/off once every 2 seconds



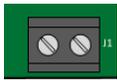
2.2. Set channel to the desired OPEN/CLOSE direction function using the MODE dip switch



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



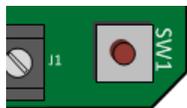
2.3.1. The green LED on the transmitter will quickly flash 2x every two seconds



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



2.5. 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.²



2.6. On the **transmitter**, hold down the connection switch (next to the terminal block)³



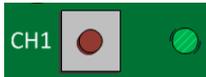
2.6.1. The LED on the **transmitter** will begin flashing rapidly after ~4 seconds

2.6.2. Upon successful connection, the LED will flash once every two seconds

2.6.3. 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 step 2.6. If the transmitter will not connect, proceed to the troubleshooting section.



2.7. Testing



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



2.7.2. 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.



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

Notes

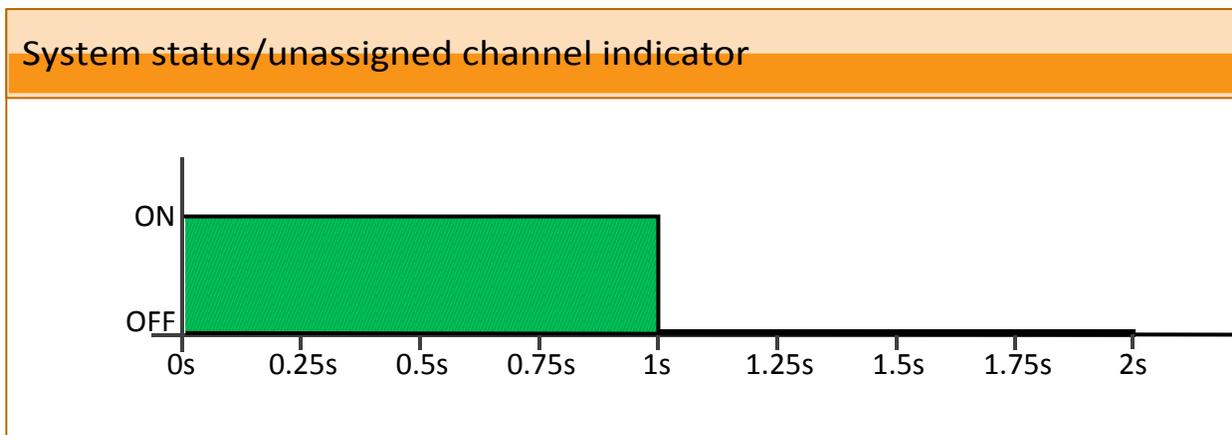
1. If channel 1 and 4 switches are pressed simultaneously during power up, the receiver will perform a factory reset and clear all programmed channels.
2. Channel assignment mode will exit under the following conditions:
 - a. Successful connection to a transmitter
 - b. 60 second timeout
 - c. User selected exit
 - i. Pressing channel 1 and 4 switches simultaneously for more than 2 seconds
3. **To remove a connection from the transmitter, hold down the connection button. The LED will turn on solid for several seconds, and then blink twice every 2 seconds when disconnected.**

Troubleshooting

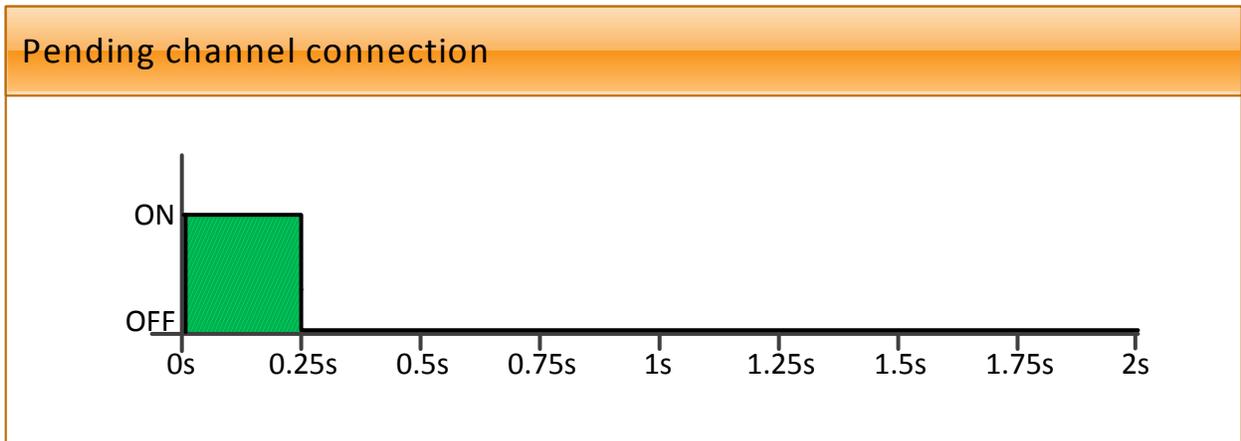
Under normal operation, the WEL-200R **STATUS** indicator LED will flash once every two seconds. This is referred to as a cycle (one second on/one second off). Any fault that occurs will cause the associated open/close output to change state. Output state refers to the output assigned to the channel via the OPEN/CLOSE switch on the receiver. The main faults indicated by each channel LED are as follows:

Channel LED Diagnostics			
Symptom	Possible cause	Solution	Output state
LED is on, regardless of edge state	Edge resistance is below normal, edge wires are shorted	Make sure the edge is terminated with the proper termination resistance (3k to 12k), check wires for damage	Relay NO/COM connected; pulse output: 0 Hz*
LED flashes 2x per cycle (0.25 seconds on, 0.25 seconds off)	Edge resistance above normal, improper connection, damaged wires	Make sure the edge is terminated with the proper termination resistance (3k to 12k)	Relay NO/COM connected; pulse output: 0 Hz*
LED flashes 3x per cycle	Transmitter batteries low	Replace batteries with type listed in specifications	Normal operation
LED flashes 2x (0.5 seconds on, 0.5 seconds off)	Transmitter batteries are discharged; transmitter is damaged/inoperable	Replace batteries with type listed in specifications; replace transmitter	Relay NO/COM connected; pulse output: 0 Hz*

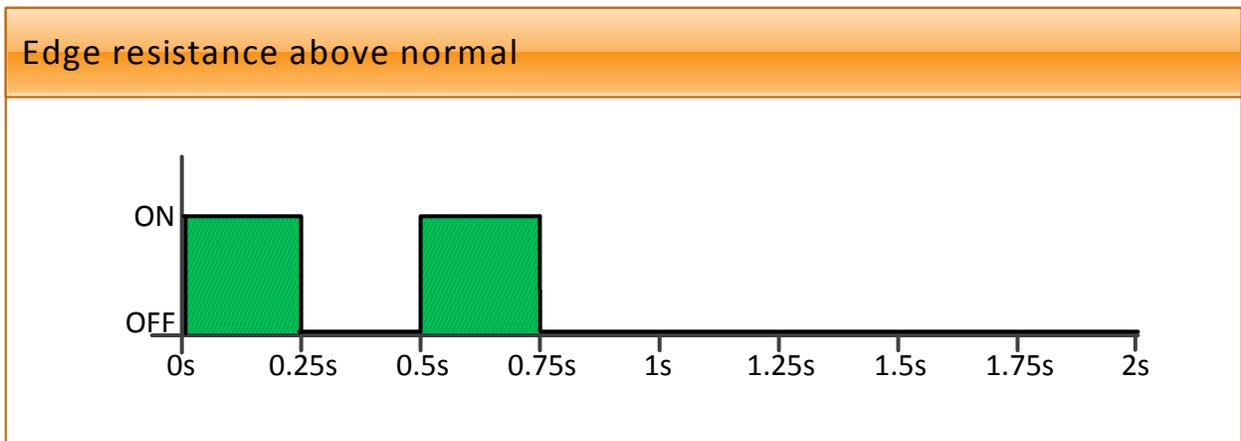
The system status LED (next to the power LED) can be used to compare the flashes. The LED for an unassigned channel will flash at the same rate as the status LED.



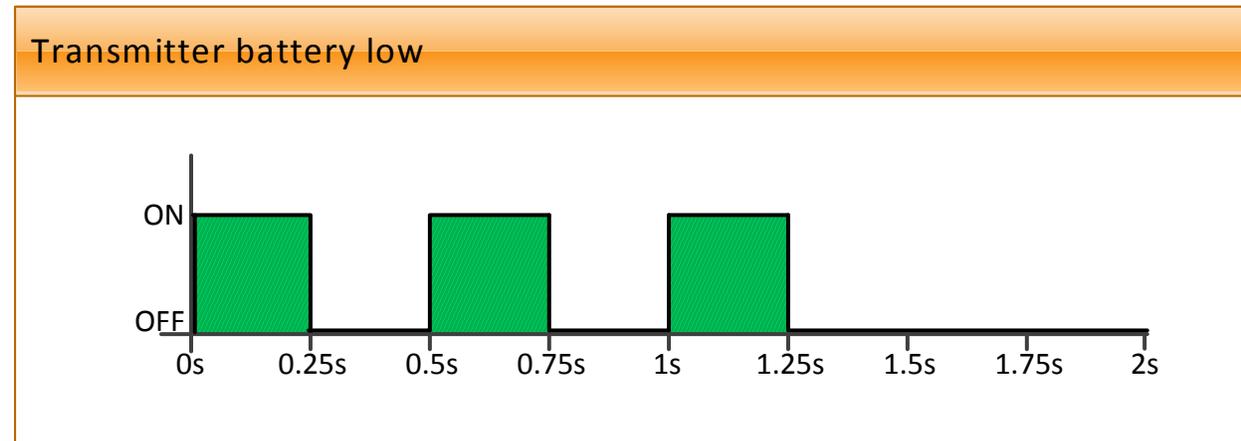
When channel assignment mode is entered, the active channel's LED will turn on for 0.25 seconds, once per cycle.



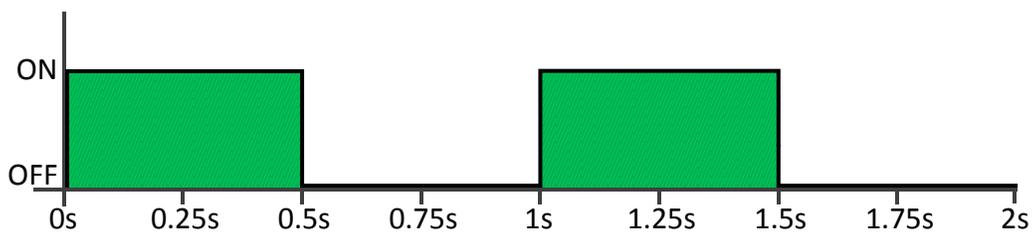
If the edge resistance is above normal, due to lack of/improper termination or cable damage, the offending channel's LED will turn on for 0.25 seconds, 2x per cycle.



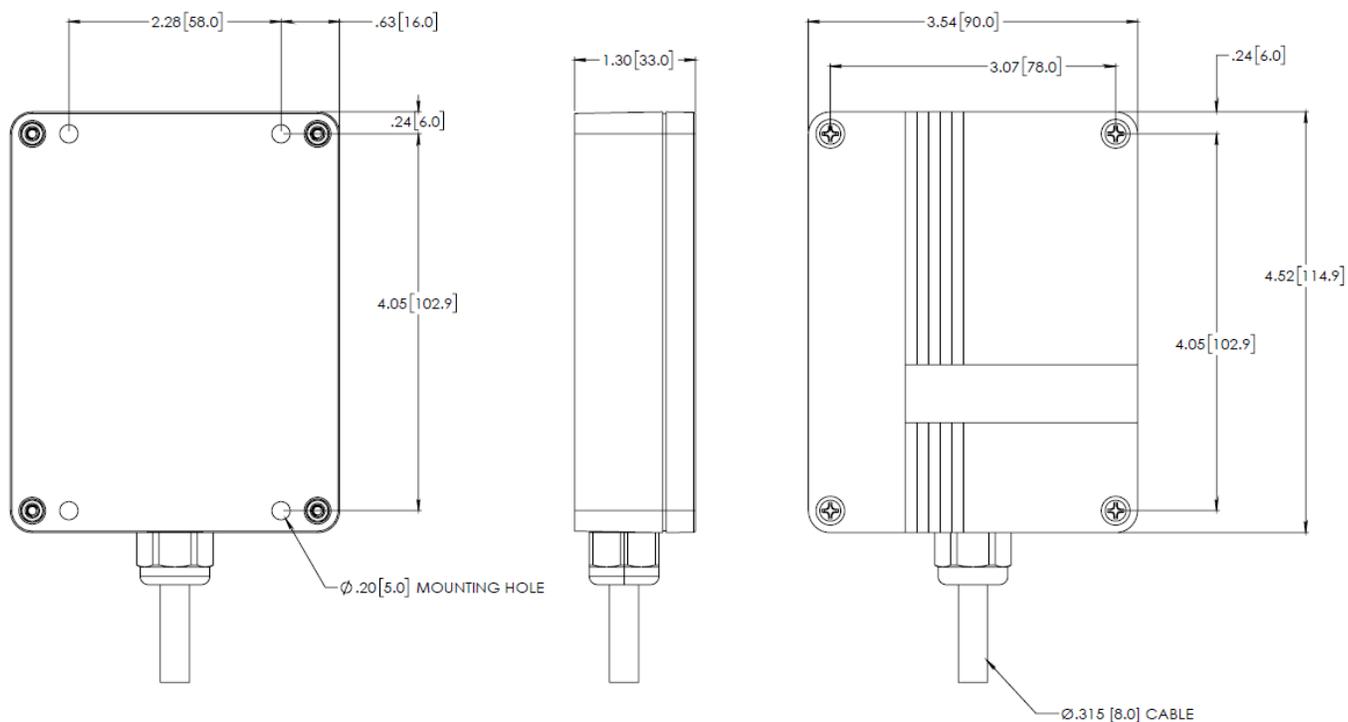
If the transmitter batteries fall below their ideal operating voltage, the LED for its assigned channel will turn on for 0.25 seconds, 3x per cycle.



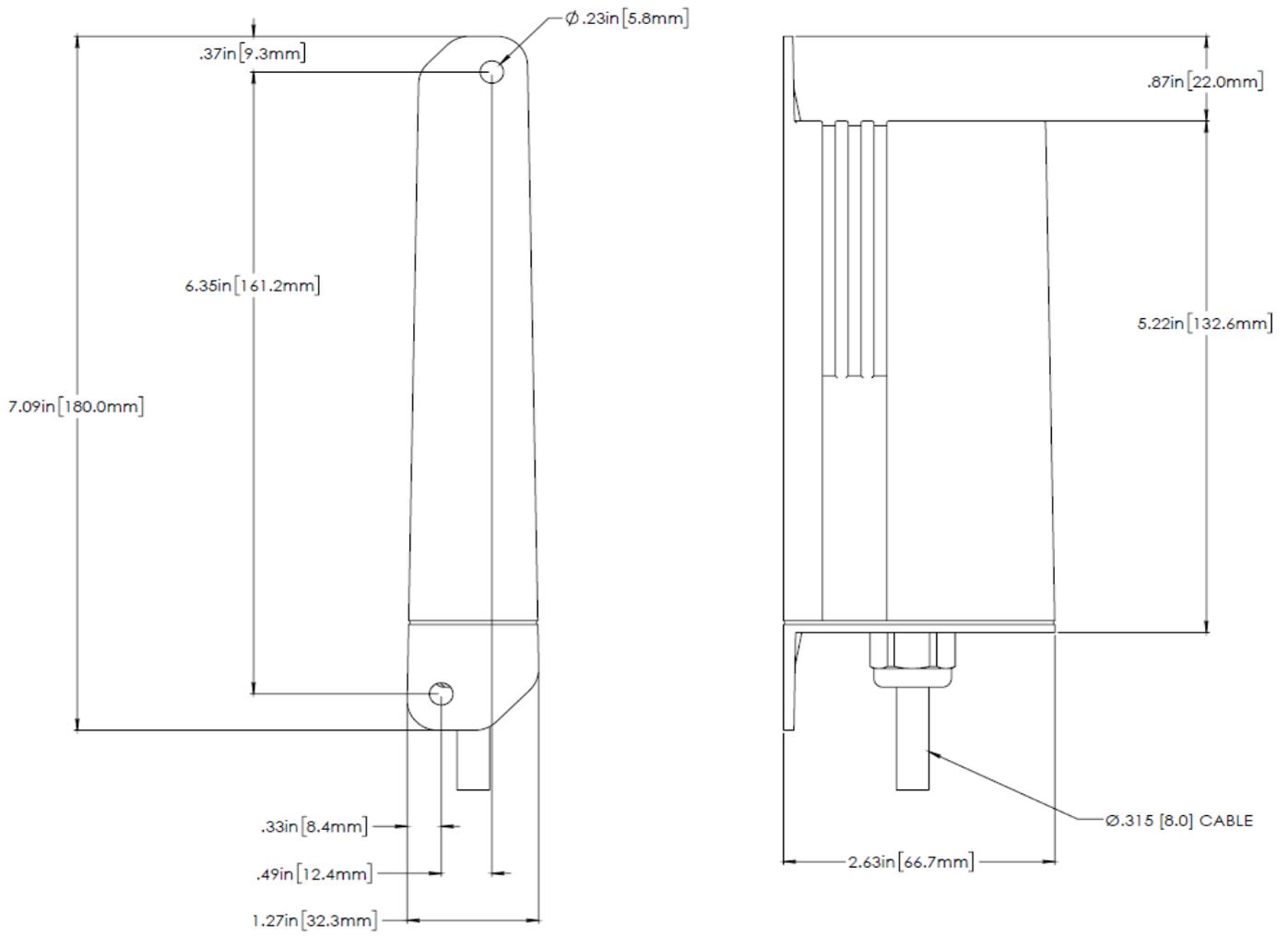
Transmitter is inactive



Dimensional Outline: Receiver



Dimensional Outline: Transmitter



Ordering Information

WEL-200K **Wireless edge link kit, 1 transmitter and 1 receiver**

WEL-200T **Wireless edge link transmitter**

WEL-200R **Wireless edge link receiver**

Warranty

EMX Industries Incorporated warrants all products to be free of defects in materials and workmanship for a period of two years under normal use and service from the date of sale to our customer. This warranty does not cover normal wear and tear, abuse, misuse, overloading, altered products, damage caused by incorrect connections, lightning damage, or use other than intended design.

There is no warranty of merchantability. There are no warranties expressed or implied or any affirmation of fact or representation except as set forth herein.

EMX Industries Inc. sole responsibility and liability, and the purchaser's exclusive remedy shall be limited to the repair or replacement at EMX Industries option of a part or parts found not conforming to the warranty. In no event shall EMX Industries Inc. be liable for damages, including but not limited to damages resulting from non-conformity, defect in material or workmanship.

Effective date: January 1st, 2002



BLANK PAGE

BLANK PAGE



4564 Johnston Parkway
Cleveland, Ohio 44128
United States of America
www.emxinc.com

Technical Support: (216) 834-0761
technical@emxinc.com

Sales: (216) 518-9888
Fax: (216) 518-9884
salesupport@emxinc.com



Revision 2.0
3-1-19