

# Quick Start Guide for the Limitless™ WLS Series Single Switch Adapter

*Issue 1**Used in conjunction with the Limitless™ WPMM or WDRR Series***50081314**

## **⚠ WARNING** **PERSONAL INJURY**

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

**Failure to comply with these instructions could result in death or serious injury.**

## **⚠ WARNING**

Honeywell does not recommend using devices for critical control applications where there is, or may be, a single point of failure or where single points of failure may result in an unsafe condition. It is up to the end-user to weigh the risks and benefits to determine if the products are appropriate for the application based on security, safety and performance. Additionally, it is up to the end-user to ensure that the control strategy results in a safe operating condition if any crucial segment of the control solution fails. Honeywell customers assume full responsibility for learning and meeting the required Declaration of Conformity, Regulations, Guidelines, etc. for each country in their distribution market.

## **⚠ WARNING** **RF EXPOSURE**

To satisfy FCC RF exposure requirements for mobile transmitting devices, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operation at closer than this distance is not recommended. The antenna used for this transmission must not be co-located in conjunction with any other antenna or transmitter.

**Failure to comply with these instructions could result in death or serious injury.**

## **⚠ WARNING**

The WLS Single Switch Adapter must be installed in accordance with the requirements specified in this document in order to comply with the specific Country Communication Agency requirements (i.e., FCC, IC, ETSI, ACMA, etc.). See Section 3 of the Installation and Technical Manual as this requires choosing the correct Country Use Code and thus allowable antenna and/or cable usage.

## **CAUTION**

Power to the WLS Single Switch Adapter should not be applied (ensure battery is removed) during installation of antenna as damage could occur to the WLS Single Switch Adapter electronics.

# Limitless™ WLS Series Single Switch Adapter

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This WLS Single Switch Adapter quick start installation guide provides basic installation instructions for the WLS Single Switch Adapter used in conjunction with a Limitless™ Wireless Panel Mount Monitor (WPMM) or a Limitless™ Wireless DIN Rail Receiver (WDRR). If necessary, refer to the WLS, WDRR or WPMM Installation and Technical Manual for further detailed information regarding installation.

## 1.1 Antenna Connection

### **⚠ WARNING**

#### **RF EXPOSURE**

To satisfy FCC RF exposure requirements for mobile transmitting devices, a separation distance of 20 cm [7.87 in] or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operation at closer than this distance is not recommended. The antenna used for this transmission must not be co-located in conjunction with any other antenna or transmitter.

**Failure to comply with these instructions could result in death or serious injury.**

### **CAUTION**

Power to the WLS Single Switch Adapter should not be applied (ensure battery is removed) during installation of antenna as damage could occur to the WLS Single Switch Adapter electronics.

**The antenna and antenna guard are packaged separately and thus will need to be assembled to the WLS Single Switch Adapter.**

A **direct mount antenna** (either straight or tilt & swivel) can be easily mounted by threading the mating RP-SMA plug of the antenna to the RP-SMA jack on the WLS Single Switch Adapter. Tighten the connection until finger tight. Then, attach the antenna guard by simply threading the guard finger tight onto the threaded base with the RP-SMA connector.

A **remote mount antenna** requires the use of an extension cable to allow the antenna to be mounted in a different location than the WLS Single Switch Adapter location. The extension cable will need to have one end with a RP-SMA plug connector which will mate with the WLS Single Switch Adapter connector jack under the same mounting procedure as the direct mount antenna. The other end of the extension cable will need to mate with antenna connector directly or it may be integral to the particular remote mount antenna chosen.

## 1.2 End User Switch Connection

A WLS Single Switch Adapter requires the use of an end-user supplied switch that is electrically connected to the WLS Single Switch Adapter. The switch design must be SPDT (Form C) low-energy contact design (i.e. gold contacts), capable of reliably controlling a 30 mA @ 3.6 Vdc electrical load. The electrical connections are made using the M12 micro-connector supplied with the WLS Single Switch Adapter along with the end-user supplied connector with three-wire mating cable (see Figure 1 as an example). Another electrical connection option for the WLS Single Switch Adapter Series utilizes an end-user supplied three-wire electrical cable routed through a cable grip on the WLS Single Switch Adapter and connected to an internal electrical connector (see Figure 3 as an example.).

**Electrical connections:** Special code BT1 or BT2 in the WLS Single Switch Adapter part number: User supplied connector with three-wire mating cable for use with WLS Single Switch Adapter M12 micro-connector.

The user-supplied electrical connector/cable must mate with Molex p/n: 1200700056 (Brad Harrison p/n: 8R3A00A18A120).

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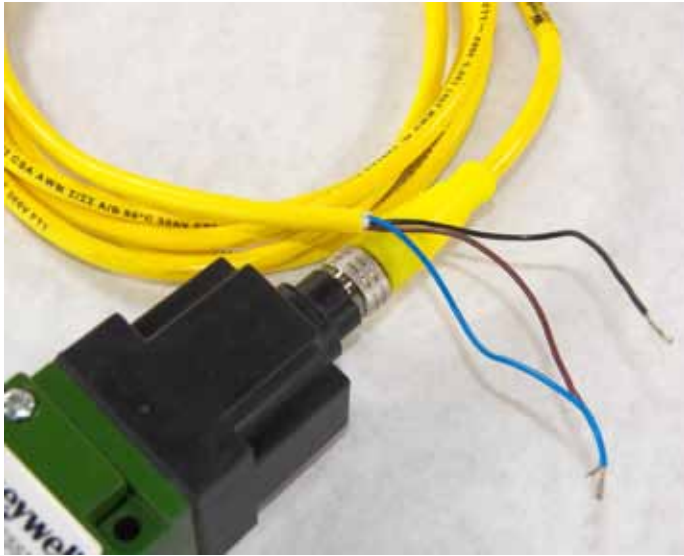
Step 1: Each conductor color in the user-supplied cable needs to be connected to the end-user supplied switch as follows (see Figure 1 as an example):

**BROWN** wire: Connect to **common** terminal of the user-supplied switch

**BLACK** wire: Connect to **normally open** terminal of the user-supplied switch

**BLUE** wire: Connect to **normally closed** terminal of the user-supplied switch

Figure 1. Limitless™ WLS Single Switch Adapter BT1 & BT2 Conductor to Switch



Step 2: Connect the mating connector w/cable to the WLS Single Switch Adapter M12 connector and then tighten connector (see Figure 2)

Figure 2. WLS Single Switch Adapter BT1 & BT2 Connector to Mate Cable



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Special code BT3 or BT4 in the WLS Single Switch Adapter part number: End-user supplied three-wire electrical cable routed through a cable grip on the WLS Single Switch Adapter and connected to an internal electrical connector.

The user supplied electrical cable must have the following characteristics:

- Cable diameter: 2,5 mm to 8,0 mm [0.10 in to 0.32 in]
- Cable length: 3 m [9.84 ft] max.
- Wire gauge: 18 AWG to 26 AWG
- Wire strip length: 5,0 mm [0.197 in]

Step	Action
1	Remove the four (4) mounting screws and the WLS Single Switch Adapter plastic head and route the user-supplied cable through the WLS-SS cable grip. Do not tighten the cable grip at this time. See Figure 3 (page 4).
2	Connect the three (3) user-supplied wires to the user-supplied switch terminal (common, normally open, and normally closed). See example in Figure 4 (page 5).
3	Connect the user-supplied switch (common, normally open, and normally closed) wires to the same labeled internal connector (COM, NO, NC) of the WLS Single Switch Adapter. See example in Figure 5 (page 5).
4	Re-install WLS Single Switch Adapter plastic head as the cable is gently pulled through the cable grip so an excess amount of cable is not inside the WLS Single Switch Adapter plastic head. Torque the four (4) mounting screws on the WLS Single Switch Adapter plastic head to 1,36 N-m to 1,8 N-m [12 in-lb to 16 in-lb]. See Figure 3 (page 4).
5	Tighten cable grip nut to secure cable. See Figure 3 (page 4).

**Figure 3. WLS Single Switch Adapter BT3 & BT4 Plastic Head Screws, Cable Grip, and User-supplied Cable**



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Figure 4. WLS Single Switch Adapter BT3 & BT4 Switch Term and Wires

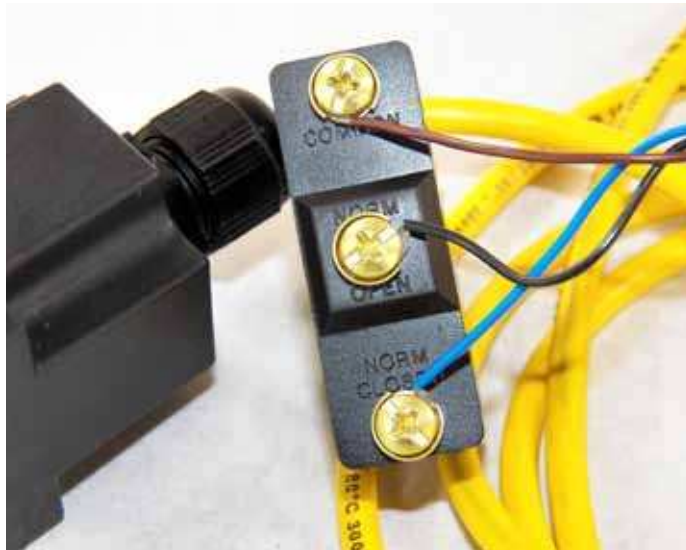


Figure 5. WLS Single Switch Adapter BT3 & BT4 WECO Connector Term and Wires



## 1.3 Battery Connection Procedure

### **⚠ WARNING**

#### **RISK OF DEATH OR SERIOUS INJURY FROM EXPLOSION OR FIRE**

Connection and disconnection of the batteries should only be performed in a non-hazardous area. The batteries used in this device may present a risk of fire or chemical burn if mistreated. Do not recharge, disassemble, heat above 100 °C [212 °F], or incinerate.

**Failure to comply with these instructions could result in death or serious injury.**

### **⚠ WARNING**

#### **RISK OF DEATH OR SERIOUS INJURY FROM EXPLOSION OR FIRE**

If WLS Single Switch Adapter is to be returned to Honeywell for any reason, the battery **MUST** be removed prior to shipping. Dispose of used batteries promptly per local regulations or the battery manufacturer's recommendations. Keep away from children. Do not disassemble and do not dispose of in fire.

**Failure to comply with these instructions could result in death or serious injury.**

### **STOP ATTENTION**

#### **RISK OF DEATH OR SERIOUS INJURY FROM EXPLOSION OR FIRE**

Use only the following 3.6 V lithium thionyl chloride (Li-SOCI<sub>2</sub>) battery (non-rechargeable), size 2/3 AA. No other batteries are approved for use in the WLS Single Switch Adapter.

- Uniwell, DEV-10-0009
- Green Energy, ER14335M
- Honeywell, WBT1

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## WLS Single Switch Adapter battery activation (see Figures 6 and 7):

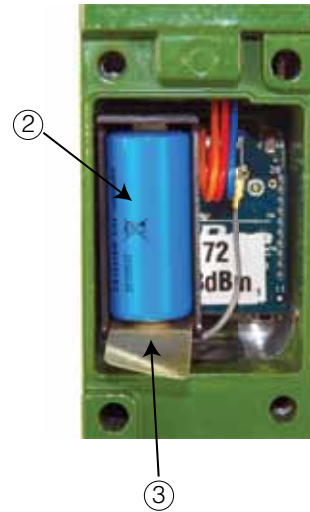
Tools required: Slotted or Phillips screwdriver

Step	Action
1	If applicable, remove the two screws ① on the housing cover.
2	Using a finger, press down slightly on the battery top ② and remove the battery insulator ③. Insure that the battery is properly seated and making good contact.
3	Replace cover and retighten screws or immediately proceed to Section 1.4 Pairing Mode.

Figure 6. Limitless™ WLS Single Switch Adapter Housing



Figure 7. Limitless™ WLS Single Switch Adapter Battery and Insulator



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## 1.4 Pairing Mode

Pairing is required to initiate and establish an RF communication link between each single WLS Single Switch Adapter and a single WPMM or WDRR. The WLS Single Switch Adapter will be shipped from the factory with two identification labels (1) that are recommended to be completed and applied to the WLS Single Switch Adapter housing during the pairing mode. As there are up to 16 WLS Single Switch Adapter devices that can be paired to a single WPMM or WDRR, these labels will be used to identify the WLS Single Switch Adapter in the sequence of #1 to #16. The initial WLS Single Switch Adapter paired to the WPMM or WDRR will be Sequence #1; the second WLS Single Switch Adapter paired will be Sequence #2 and so on. If replacing a WLS Single Switch Adapter that has been purged (as applicable, see section 6.5 of the WPMM Installation and Technical Manual or Section 7.3 of the WDRR Installation and Technical Manual), identify the correct replacement Sequence # on the identification labels.

**Pairing steps when using a WPMM:** The battery will need to be activated in the WLS Single Switch Adapter and proper power applied to the WPMM (green ② LED illuminated) before proceeding with this pairing procedure. Once the pairing is completed, the WLS Single Switch Adapter selected will only communicate with the WPMM it was paired to and no other device.

Step	Action
1	Completely read this procedure before starting in order to understand the timing of events that need to be performed.
2	WLS Single Switch Adapter: Remove (if required) the two screws ① on the housing cover (See Figure 3, page 4) of the WLS Single Switch Adapter and locate the function button ⑦ to be used in Step 4.
3	WPMM: Press the Function button ④ on WPMM (See Figure 4, page 5) for more than four seconds and less than eight seconds at which time the green ② and yellow ③ LEDs will be flashing which indicates to release the function button immediately as it has entered the pairing mode.
4	WLS Single Switch Adapter: Within a 30 second interval of Step 3, depress the WLS Single Switch Adapter switch function button ⑦ (See Figure 10, page 8) and hold depressed for more than one second and less than 12 seconds at which time the orange ⑧ LED turns on. While in pairing mode, the orange led will flash on for 100 ms every second. The orange ⑧ LED flashes three times 100 ms on, 100 ms off when pairing succeeds. If pairing does not succeed, the orange ⑧ LED will turn off and user will need to repeat steps starting with Step 3.
5	WPMM: Successful pairing will be indicated by the green ② and yellow ③ LEDs (See Figure 9, page 8) ceasing to flash and remaining on for a few seconds before turning off. A short buzzer beep will also occur.
6	To confirm proper pairing between the WLS Single Switch Adapter and WPMM, actuate the user-supplied switch, and the red LED ⑤ should illuminate along with a buzzer sound.
7	Record the WLS Single Switch Adapter Sequence # on identification labels ⑥ and apply to the WLS Single Switch Adapter housing in desired locations (See Figure 11, page 8).
8	Repeat Steps 2-7 to add additional WLS Single Switch Adapter units switches. Up to 16 WLS Single Switch Adapters can be paired to a single WPMM.

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Figure 8. Limitless™ WLS Single Switch Adapter Housing



Figure 10. Limitless™ WLS Single Switch Adapter with Function Button Depressed



Figure 9. Limitless™ WPMM Housing



NOTE: Use a blunt object, such as a paper clip to actuate the function switch ⑦.

Figure 11. Limitless™ WLS Single Switch Adapter Label Placement





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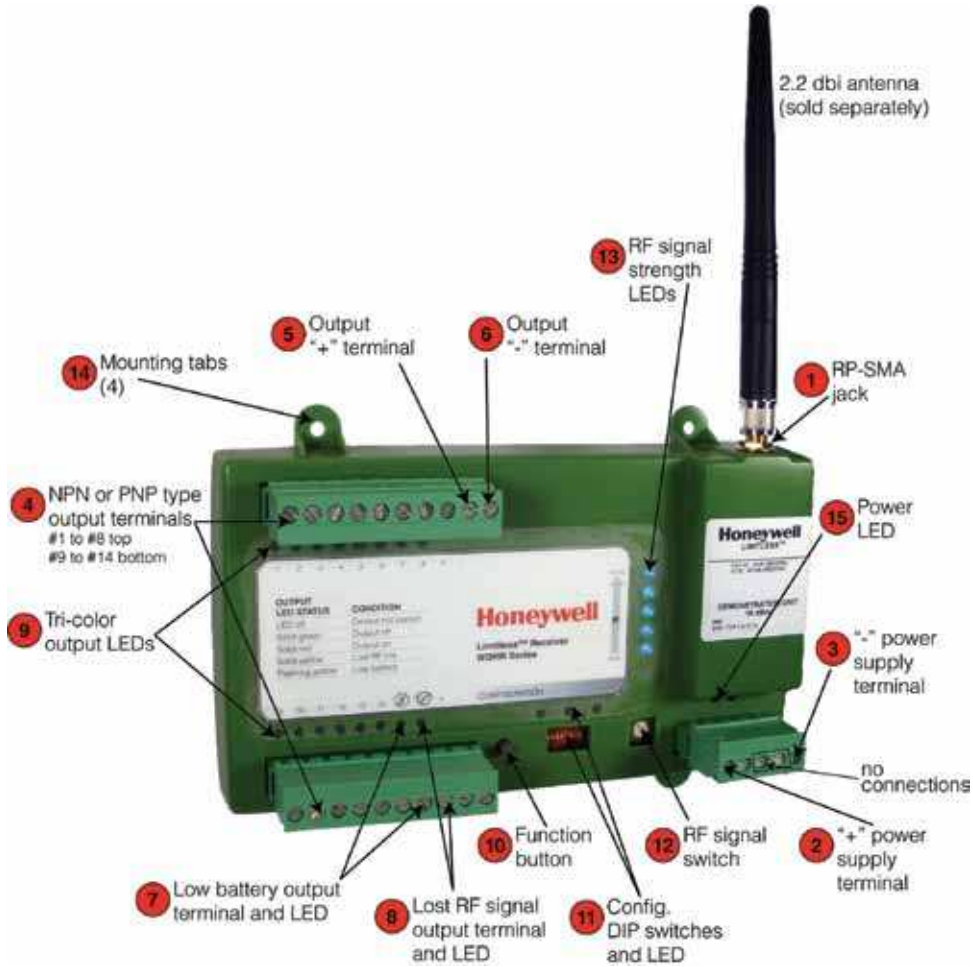
**Pairing Steps when using a WDRR (see Figure 9):** The battery will need to be activated in the WLS Single Switch Adapter and proper power applied to the WDRR (green ② LED illuminated) before proceeding with this pairing procedure. Once the pairing is completed, the WLS Single Switch Adapter selected will only communicate with the WDRR it was paired to and no other device.

Step	Action
1	Completely read this procedure before starting in order to understand the timing of events that need to be performed.
2	WLS Single Switch Adapter: Remove (if required) the two screws ① on the housing cover (See Figure 8, page 8) of the WLS Single Switch Adapter and locate the function button ⑦ (see Figure 10) to be used in Step 4.
3	WDRR: Press the Function button ⑩ on WDRR (See Figure 12, page 10) for more than four seconds and less than eight seconds at which time the green and yellow LEDs ⑪ (see Figure 12, page 10) will be flashing which indicates to release the function button immediately as it has entered the pairing mode.
4	WLS Single Switch Adapter: Within a 30 second interval of Step 3, depress the WLS Single Switch Adapter function button ⑦ (See Figure 10, page 8) and hold depressed for more than one second and less than 12 seconds at which time the orange ⑧ LED turns on (see Figure 10, page 8). While in pairing mode, the orange ⑧ LED will flash on for 100 ms every second. The orange ⑧ LED flashes three times 100 ms on, 100 ms off when pairing succeeds. If pairing does not succeed, the orange ⑧ LED will turn off and user will need to repeat steps starting with Step 3.
5	WDRR Receiver: Successful pairing will be indicated by the green and yellow LEDs ⑪ (see Figure 12, page 10) ceasing to flash and remaining on for a few seconds before turning off. The specific Tricolor Output LED will also turn on.
6	To confirm proper pairing between the WLS Single Switch Adapter and WDRR, actuate the user supplied switch, and the Tricolor Output LED ⑨ (see Figure 12, page 10) should turn on to indicate the proper output status.
7	Record the WLS Single Switch Adapter Sequence # on identification labels ⑥ and apply to the WLS Single Switch Adapter housing in desired locations (See Figure 11, page 8).
8	Repeat Steps 2-7 to add additional Limitless™ switch. Up to 14 WLS Single Switch Adapters can be paired to a single WDRR.

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Figure 12. Limitless™ WDRR Housing



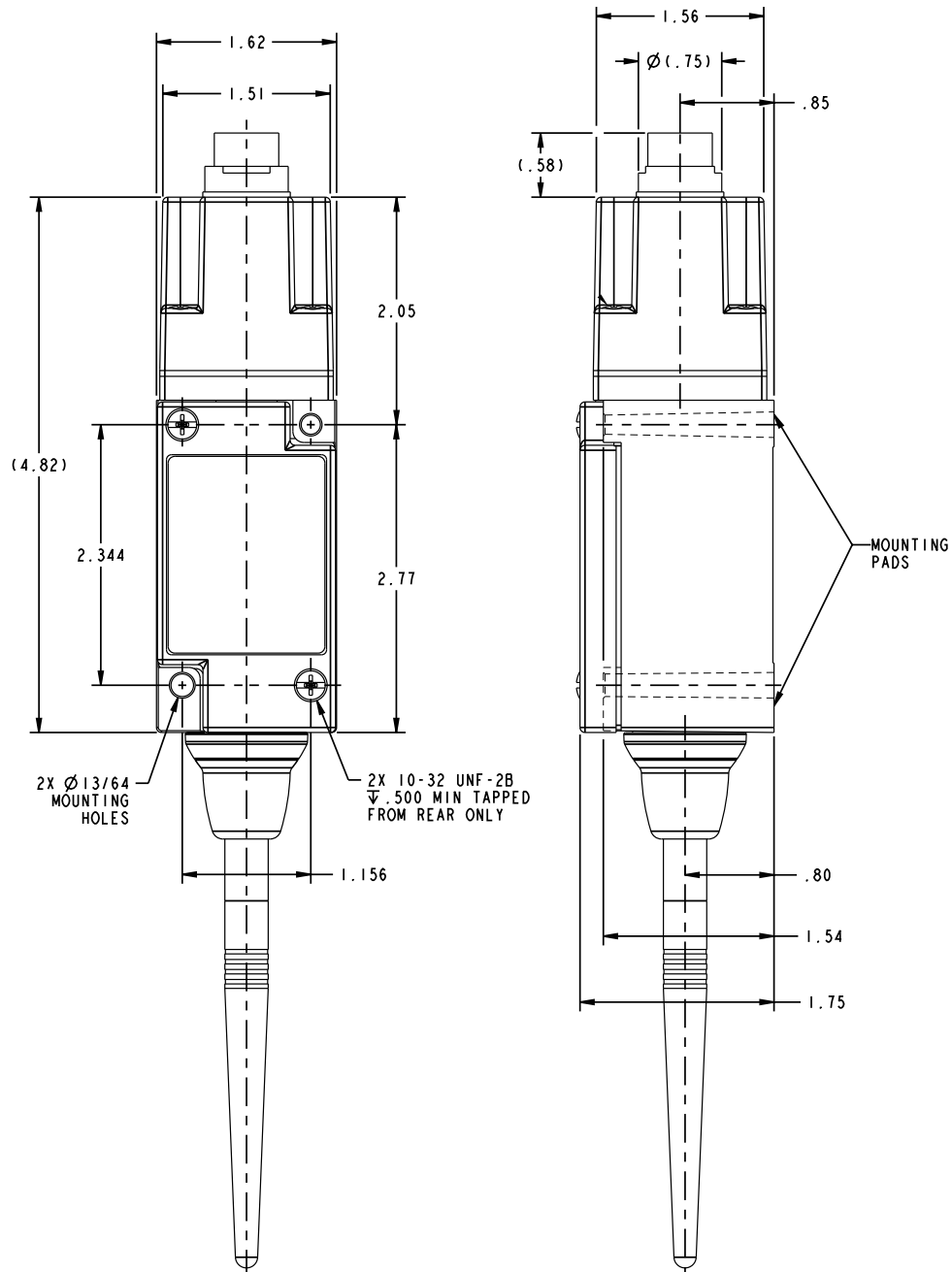
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## 1.4 WLS Single Switch Adapter Mounting

**Mounting:** The WLS Single Switch Adapter housing has two slotted mounting holes that will accept a M5 or #10 size screw and it also has two 10-32 UNF tapped holes for mounting from the back.

Figure 13. Limitless™ WLS Single Switch Adapter Mounting Hole Diagram



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## 1.5 Antenna Adjustment

The antenna of the WLS Single Switch Adapter and WPMM or WDRR should be oriented with respect to each other such that they are parallel. This will in most cases allow the longest range and highest RF communication link/signal. The least RF signal is normally in a direction in-line with the top of the antenna, so it is best to avoid having the antennas pointed directly toward each other, or directly away from each other. An acceptable RF signal is also indicated by the RF signal strength LEDs on the WDRR; see the WDRR Installation and Technical Manual for further information.

**Figure 14. Limitless™ WLS Single Switch Adapter and WPMM in Parallel**



### **⚠ WARNING**

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## WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

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50081314-1-EN IL50 GLO  
December 2012  
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