



# Wireless Heavy Duty Limit Switch (WLS Series)

## Limitless™ Switch

### DESCRIPTION

The new Limitless™ product line combines the best of MICRO SWITCH™ Heavy Duty limit switches with the latest commercial off-the-shelf wireless technology. Wireless-enabled limit switches can be used for position sensing and presence/absence detection for an endless number of applications.

### FEATURES

#### Wireless design

- Radio (license-free and global): WPAN 802.15.4, 2.4 GHz, point-to-point
- FCC 15, IC, ACMA & ETSI
- EMI Immunity
- Up to 305 m [1000 ft] communication range when used with a Limitless™ wireless monitor or receiver module (sold separately)
- Reliable, flexible, and secure wireless transmission
- Standard replaceable battery with ultra-low power consumption
- Direct or remote mount antenna options

#### Mechanical design

- IP67; NEMA 1, 3, 4, 6, 6P, 12, 13
- Unique all-metal drive train
- Twin shaft seals (rotary)
- Zinc head and body are phosphate treated and epoxy finished making it less susceptible to effects from environmental exposure
- Captive head and body screws
- Full complement of operating heads and levers
- Chemical resistant fluorocarbon seals (optional)

### POTENTIAL APPLICATIONS

- |                                |                                 |
|--------------------------------|---------------------------------|
| • Valve position               | • Construction/Ag machines      |
| • Crane boom/jib/skew position | • Conveyors                     |
| • Lifts                        | • Remote or temporary equipment |
| • Material handling            | • Movable machinery             |
| • Presses                      | • Grain diverters or flaps      |
|                                | • Door position                 |
|                                | • Hose attachment verification  |
|                                | • Specialty machines            |

The Limitless™ Series is especially beneficial for remote monitoring applications where wiring or wire maintenance is not physically possible or economically feasible. Combining this greater flexibility with proven harsh duty packaging can result in increased efficiencies and improved safety for machines, equipment, OEMs, and operators.

### SWITCH BENEFITS

- Built on field-proven MICRO SWITCH™ HDLS heritage
- Operating head rotary tested in excess of 50 million cycles for enhanced reliability
- Diaphragm seal between head and body cavity provides sealing protection
- Twin shaft seals protect head and internal components from corrosion and debris
- Sintered bronze bearings provide extended mechanical life

### APPLICATION BENEFITS

- Enables wireless presence/absence detection in applications/ machinery where wiring is challenging or not feasible
- Integration of existing wireless technology with the superior reliability of Honeywell MICRO SWITCH™ limit switch series
- Ability to reconfigure and network multiple switches or point-to-point personalized addresses, thus easily allowing adding, subtracting, or relocating Limitless™ switches
- Reduces installation/maintenance costs with no wires, conduit, strain relief, clips, connectors, or connection boxes
- Output options
  - Panel mount monitor: visual, audible (buzzer), NPN output
  - DIN-mount receiver: visual, NPN/PNP (relay, CAN, Ethernet, Profibus available in the future)
- Consumes ultra-low power to prolong battery life (replaceable)
- Long-range signal of 305 m/1000 ft line-of-sight in North America
- RF board operating in 2.4 GHz globally license-free frequency band; WPAN 802.15.4
- EN 50041 metal enclosure; IP67; NEMA 1, 3, 4, 6, 6P, 12, 13
- Full complement of operating heads and levers, as well as monitor/receivers and accessories

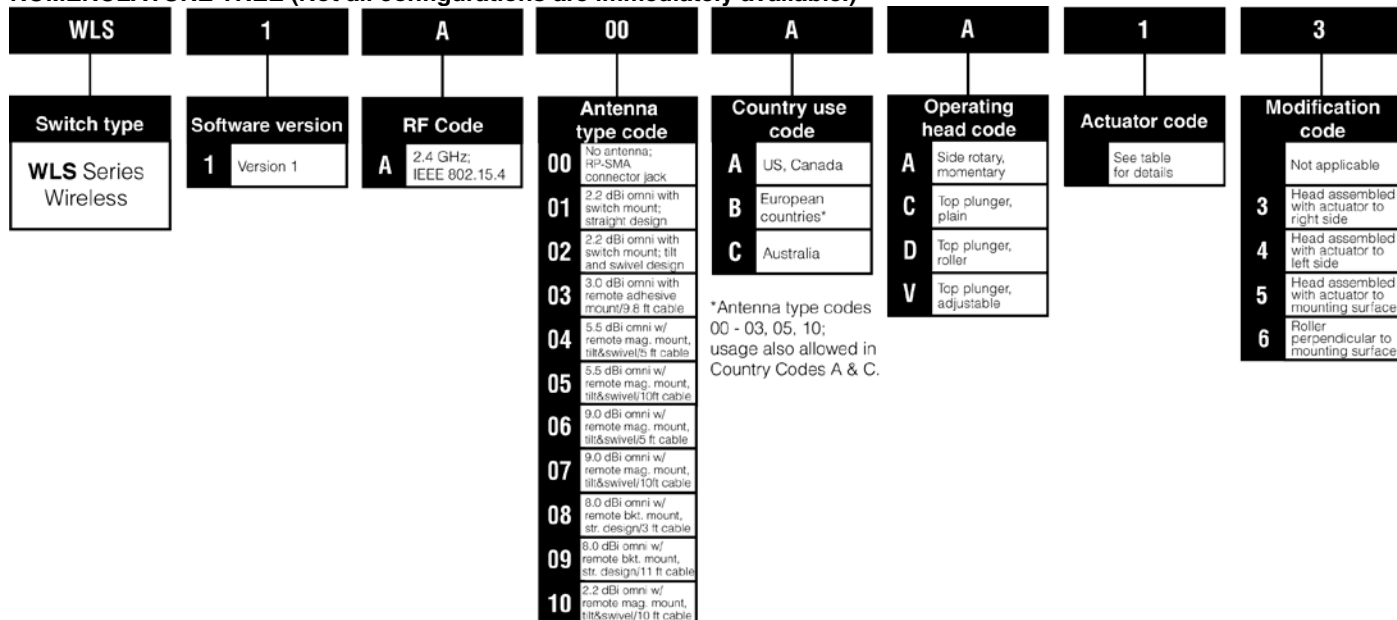
# Limitless™ WLS Series

Description	Parameter
Series name	WLS Series
Product type	Limitless™ Heavy Duty Limit Switches
Availability	Global, license-free bands
Operating characteristics	Reference WLS installation drawing
Actuator	Side rotary, top plunger, top roller plunger, top adjustable plunger
Lever type	Many rotary lever options available
Housing material	Zinc head and body are phosphate treated and epoxy finished
Housing type	WLS
Radio	WPAN 802.15.4; 2.4GHz
Antenna type	Direct or remote mount antenna options; omni directional
Signal range	305 m [1000 ft] clear line of sight between Limitless™ switch and monitor/receiver when using 2.2 dBi integral antenna
Battery	3.6 Vdc Lithium Thionyl Chloride; 2/3 AA size (Est. life >1yr) Manufactured by Uniwell, part number DEV-10-0009
Sealing	IP67; NEMA 1, 3, 4, 6, 6P, 12, 13
EMC	Latest applicable standards: EN 300 328, V1.7.1; EN 61326-1 (2006); EN 301 489-1, V1.8.1; EN 301 489-17, V2.1.1
Shock	IEC 60068-2-27; half sine, 10 g, 6 mS, 3 axis
Vibration	IEC 60068-2-6; 10-500Hz w/ 0,35 mm peak-to-peak, 58-500 Hz- 5g
Operating temperature	-40 °C to 85 °C [-40 °F to 185 °F]
Agency approvals and standards	FCC 15.247 Industry Canada RSS 210 ETSI, CE mark ACMA, C-Tick mark
UNSPSC code	20142601
UNSPSC commodity	20142601
Sealed	Industrial

\* Actual range will vary depending upon antennas, cables, and site topography.

# Wireless Heavy-Duty Limit Switches

**NOMENCLATURE TREE (Not all configurations are immediately available.)**

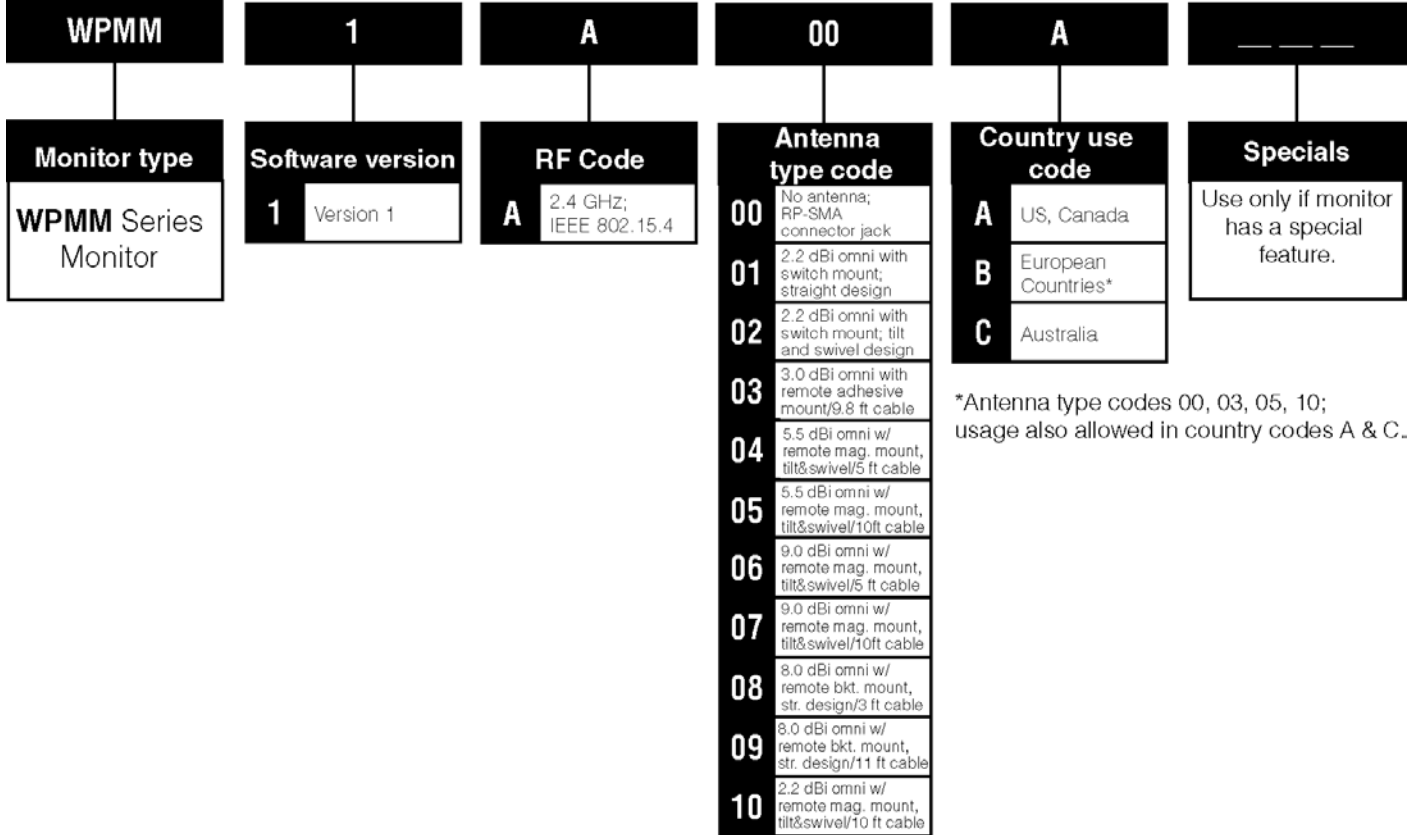


**ACTUATOR CODE TABLE**

Code	Material	Roller Dia. (in)	Roller Width (in)	Roller mounting	Code	Material	Roller Dia. (in)	Roller Width (in)	Roller mounting
<b>Fixed 1.5 inch radius</b>					<b>Yoke - 1.5 in radius</b>				
1	Rollerless	n/a	n/a	n/a	3A	Nylon	0.75	0.25	Front/Back
1A	Nylon	0.75	0.25	Front	3B	Steel	0.75	0.25	Front/Back
1B	Steel	0.75	0.75	Front	3D	Steel	0.75	0.25	Front/Back
1C	Nylon	0.75	0.25	Back	3E	Nylon	0.75	0.25	Back/Front
1D	Steel	0.75	0.25	Back	3M	Nylon	0.75	1.25	Back/Front
1F	Nylon	1.0	0.50	Front	3P	Steel	0.75	0.25	Back/Back
1G	Nylon	1.5	0.25	Front	3S	Nylon	0.75	0.25	Back/Back
1J	Nylon	1.0	0.50	Back	3J	Steel	0.75	0.25	Back/Front
1L	Ball bearing	0.75	0.25	Back	<b>Rod</b>				
1M	Nylon	0.75	1.30	Back	4	Hub only	n/a	n/a	n/a
1N	Steel	0.75	1.25	Front	4M	Alum, 5.5 in	n/a	n/a	n/a
1P	Nylon	0.75	0.50	Front	4N	Stainless, 13 in	n/a	n/a	n/a
<b>Adjustable 1.5 in to 3.5 in radius</b>					4R	Spring Wire, 12 in	n/a	n/a	n/a
2	Rollerless	n/a	n/a	n/a	4V	Flex cable, 4.8 in	n/a	n/a	n/a
2A	Nylon	0.75	0.25	Back	<b>Offset - 1.5 in radius</b>				
2B	Steel	0.75	0.25	Back	5	Rollerless	n/a	n/a	n/a
2C	Nylon	0.75	0.25	Front	5A	Nylon	0.75	0.25	Back
2D	Steel	0.75	0.25	Front	5B	Steel	0.75	0.25	Back
2E	Nylon	0.75	1.30	Front	5C	Nylon	0.75	0.25	Front
2J	Nylon	1.0	0.50	Front	5D	Steel	0.75	0.25	Front
2K	Nylon	1.5	0.50	Front	5E	Nylon	0.75	0.50	Front
2L	Ball bearing	0.75	0.25	Front	5K	Nylon	1.5	0.25	Front
2M	Nylon	2.0	0.25	Front	<b>Short fixed - 1.3 in radius</b>				
2N	Nylon	0.75	0.50	Front	9A	Nylon	0.75	0.25	Front
					9B	Steel	0.75	0.25	Front
					9C	Nylon	0.75	0.25	Back
					9D	Steel	0.75	0.25	Back

# Limitless™ WLS Series

## Monitor Nomenclature

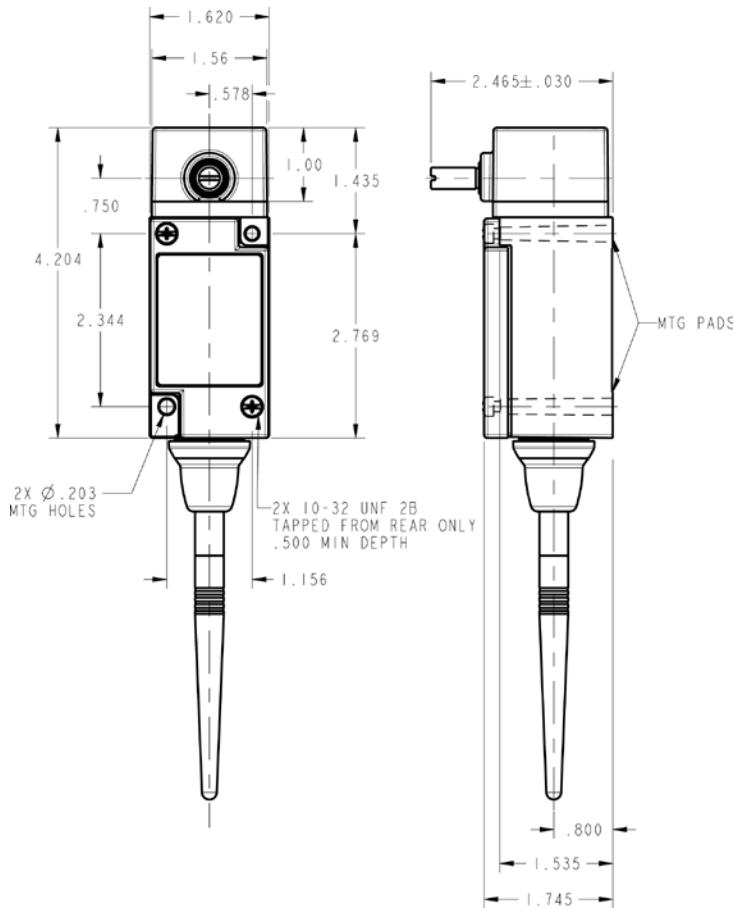


\*Antenna type codes 00, 03, 05, 10; usage also allowed in country codes A & C.

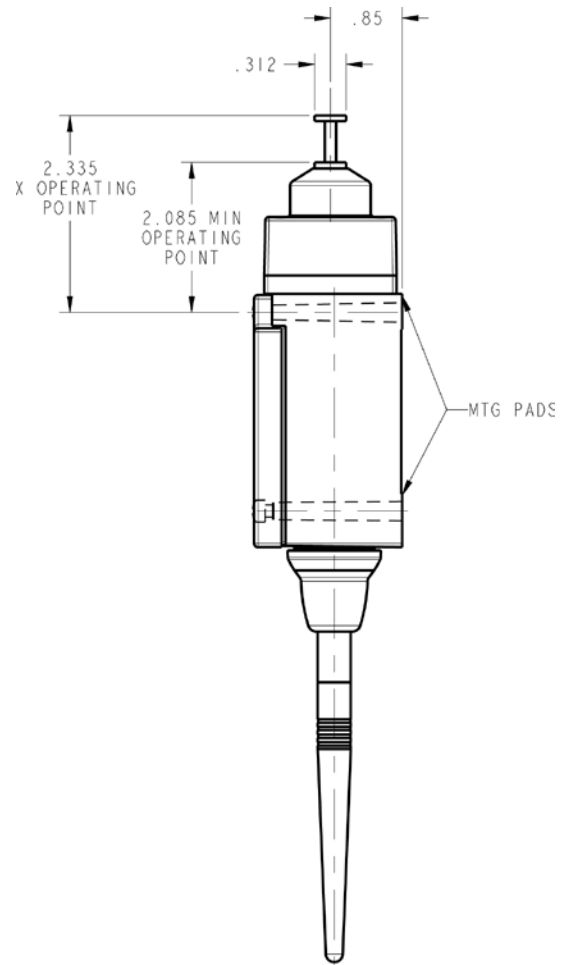
# Wireless Heavy-Duty Limit Switches

## DIMENSIONS

### Side Rotary Momentary Head



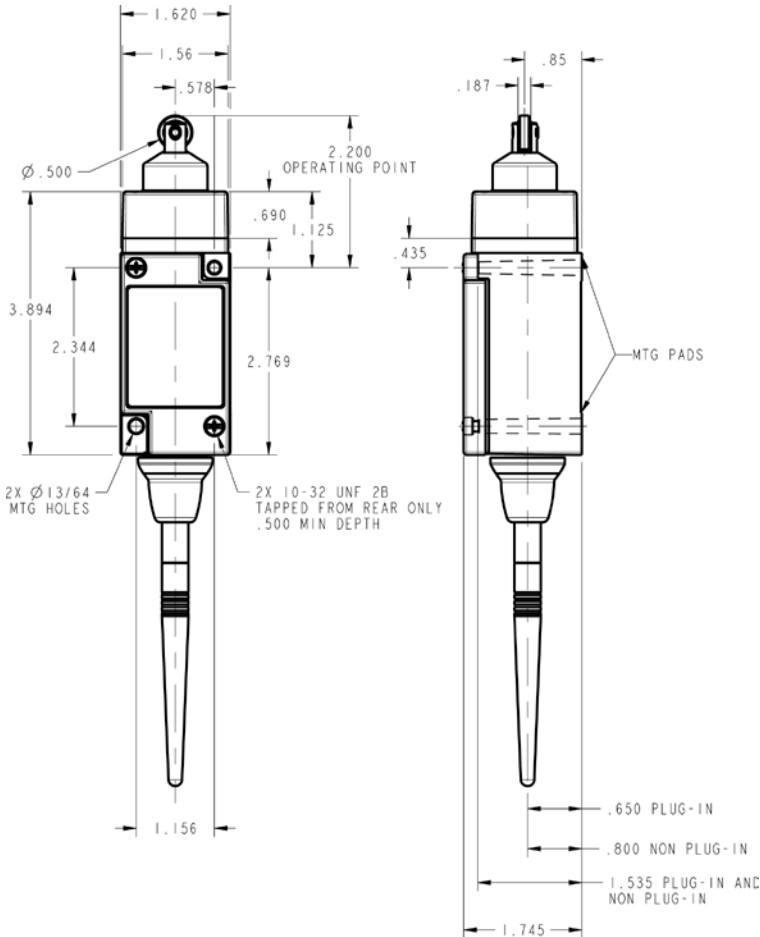
### Top Adjustable Plunger Head



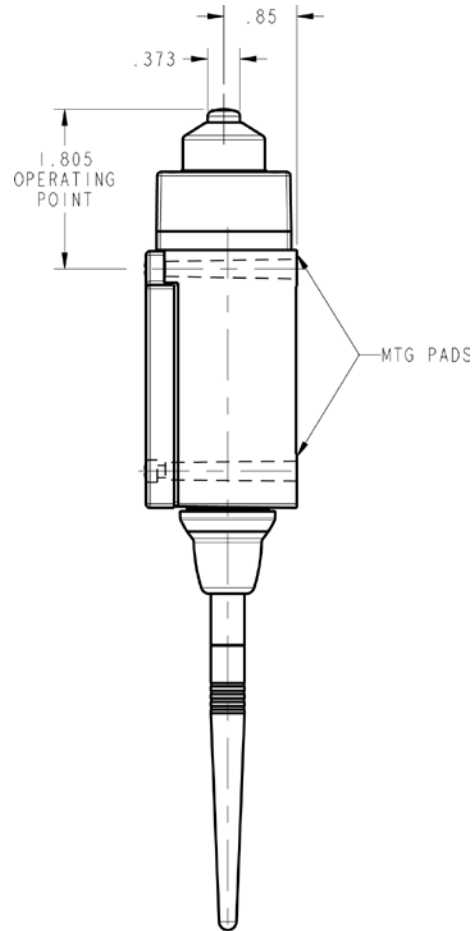
# Limitless™ WLS Series

## DIMENSIONS

Top Roller Plunger Head



Top Plunger Head


















## STANDARD WLS LISTINGS

Part Number	Description
WLS1A01AA1A	Limitless™ heavy-duty limit switch, 2.2 dBi straight antenna, US/Canada, momentary action, side rotary, fixed 1.5 in lever with nylon roller
WLS1A01AA1B	Limitless™ heavy-duty limit switch, 2.2 dBi straight antenna, US/Canada, momentary action, side rotary, fixed 1.5 in lever with steel roller
WLS1A01AA2A	Limitless™ heavy-duty limit switch, 2.2 dBi straight antenna, US/Canada, momentary action, side rotary, adjustable 3.5 in lever with nylon roller
WLS1A01 AA2B	Limitless™ heavy-duty limit switch, 2.2 dBi straight antenna, US/Canada, momentary action, side rotary, adjustable 3.5 in lever with steel roller
WLS1A01AC	Limitless™ heavy-duty limit switch, 2.2 dBi straight antenna, US/Canada, top plunger
WLS1A01AD	Limitless™ heavy-duty limit switch, 2.2 dBi straight antenna, US/Canada, top roller plunger
WLS1A02AA1A	Limitless™ heavy-duty limit switch, 2.2 dBi tilt/swivel antenna, US/Canada, momentary action, side rotary, fixed 1.5 in lever with nylon roller
WLS1A02AA1B	Limitless™ heavy-duty limit switch, 2.2 dBi tilt/swivel antenna, US/Canada, momentary action, side rotary, fixed 1.5 in lever with steel roller
WLS1A02AA2A	Limitless™ heavy-duty limit switch, 2.2 dBi tilt/swivel antenna, US/Canada, momentary action, side rotary, adjustable 3.5 in lever with nylon roller
WLS1A02AA2B	Limitless™ heavy-duty limit switch, 2.2 dBi tilt/swivel antenna, US/Canada, momentary action, side rotary, adjustable 3.5 in lever with steel roller
WLS1A02AC	Limitless™ heavy-duty limit switch, 2.2 dBi tilt/swivel antenna, US/Canada, top plunger
WLS1A02AD	Limitless™ heavy-duty limit switch, 2.2 dBi tilt/swivel antenna, US/Canada, top roller plunger

# Wireless Heavy-Duty Limit Switches

## WLS Series Available Levers

<b>LCZ51A</b> Fixed rotary lever, nylon roller, front	<b>LCZ51B</b> Fixed rotary lever, steel roller, front	<b>LCZ51C</b> Fixed rotary lever, nylon roller, back	<b>LSZ51D</b> Fixed rotary lever, steel roller, back	<b>LSZ53A through D</b> Yoke lever, nylon and steel rollers, front and back placement	<b>LSZ55A through D</b> Offset lever, nylon and steel rollers, front and back placement
					
<b>LSZ52A-D</b> Adj. lever, nylon and steel roller, front and back placement	<b>LSZ52J</b> Adj. lever, 1.0 in nylon roller	<b>LSZ52K</b> Adj. lever, 1.5 in nylon roller	<b>LSZ54M</b> 5.5 inch aluminum rod	<b>LSZ60</b> One-way roller lever	<b>LSZ61</b> 6 inch loop
					
<b>LSZ68</b> 12 inch rod with spring	<b>LSZ54R</b> 12 inch spring wire	<b>LSZ54N</b> 13 inch stainless steel rod			
					

# Limitless™ WLS Series

## ACCESSORIES NOMENCLATURE

### Antenna Nomenclature

WAN	01	RSP	---
<b>Antenna type</b>	<b>Antenna type code</b>	<b>Connector Code</b>	<b>Specials</b>
WAN Series Antenna	<b>01</b> 2.2 dBi omni; straight design <b>02</b> 2.2 dBi omni; tilt & swivel des. <b>03</b> 3.0 dBi omni with adhesive mount & 9.8 ft cable <b>04</b> 5.5 dBi omni;*** tilt & swivel des. <b>05</b> 9.0 dBi omni;*** tilt & swivel des. <b>06</b> 8.0 dBi omni w/ bracket, straight des. 1 ft cable	<b>RNJ</b> Reverse polarity N jack** <b>RSP</b> Reverse polarity SMA plug	Use only if antenna has a special feature.

\*\* Only used with 06 antenna type code  
 \*\*\* Limited outdoor exposure. Protects against direct rain, salt, snow, ice, etc.

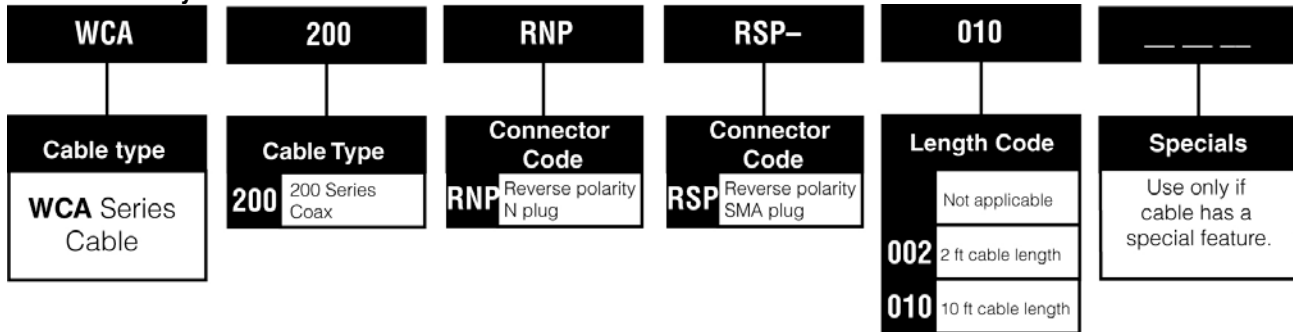
### Limitless™ Antennas

WAN01RSP Straight Design Direct Mount Connector	WAN02RSP Tilt and Swivel Design, Direct Mount Antenna	WAN05RSP with WAMM100RSP-005 Tilt and Swivel Design, Magnetic Mount Antenna	WAN03RSP Flat Design, Adhesive Mount Antenna	WAN06RNJ Straight Design, Bracket Mount Antenna
				



# Wireless Heavy-Duty Limit Switches

## Cable Assembly Nomenclature

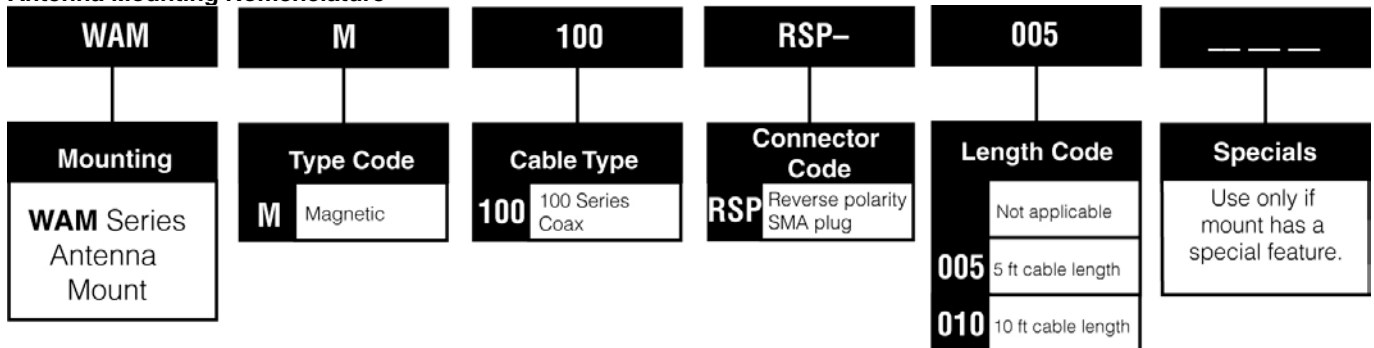


### Limitless™ Cable Accessories

#### WCA200RNP-RSP-002/010 Cable Assembly



## Antenna Mounting Nomenclature



### Limitless™ Panel Mount Accessories

#### WAMM100RSP-005/010 Magnetic Antenna Mount



# Limitless™ WLS Series

## STANDARD ACCESSORIES

Part Number	Description
WAN03RSP	Flat wireless antenna with 3 dBi gain, reverse polarity SMA plug, adhesive mount with 10 ft of cable
WAN06RNJ	Straight wireless antenna with 8 dBi gain, reverse polarity N jack, bracket mount with 1 ft of cable
WAN01RSP	Straight wireless antenna with 2.2 dBi gain, reverse polarity SMA plug, connector mount (RP-SMA)
WAN02RSP	Tilt/swivel wireless antenna with 2.2 dBi gain, reverse polarity SMA plug, connector mount (RP-SMA)
WAN04RSP	Tilt/swivel wireless antenna with 5.5 dBi gain, reverse polarity SMA plug, connector mount (RP-SMA)
WAN05RSP	Tilt/swivel wireless antenna with 9 dBi gain, reverse polarity SMA plug, connector mount (RP-SMA)
WCA200RNPRSP-002	200 Series coax cable assembly, reverse polarity N plug, reverse polarity SMA plug, 2 ft of cable
WCA200RNPRSP-010	200 Series coax cable assembly, reverse polarity N plug, reverse polarity SMA plug, 10 ft of cable
WAMM100RSP-005	Magnetic antenna mounting, 100 Series coax cable, reverse polarity SMA plug with 5 ft of cable
WAMM100RSP-010	Magnetic antenna mounting, 100 Series coax cable, reverse polarity SMA plug with 10 ft of cable

## **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**

### **MISUSE OF DOCUMENTATION**

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

**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.

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

## **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.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

## **SALES AND SERVICE**

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact your local sales office or:

**E-mail:** [info.sc@honeywell.com](mailto:info.sc@honeywell.com)

**Internet:** [www.honeywell.com/sensing](http://www.honeywell.com/sensing)

### **Phone and Fax:**

Asia Pacific	+65 6355-2828
	+65 6445-3033 Fax
Europe	+44 (0) 1698 481481
	+44 (0) 1698 481676 Fax
Latin America	+1-305-805-8188
	+1-305-883-8257 Fax
USA/Canada	+1-800-537-6945
	+1-815-235-6847
	+1-815-235-6545 Fax

Sensing and Control  
Honeywell  
1985 Douglas Drive North  
Golden Valley, MN 55422  
[www.honeywell.com](http://www.honeywell.com)

002332-2-EN IL50 GLO Printed in USA  
October 2010  
Copyright © 2010 Honeywell International Inc. All rights reserved.

# Honeywell