![Chipsmall logo]

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Limitless™ Wireless DIN Rail Receiver
WDRR Series

002337

Issue 3

DESCRIPTION

The WDRR Series is a reliable DIN Rail or panel-mountable receiver that is designed to receive a wireless signal from a Limitless™ digital input. The WDRR receiver then communicates the Limitless™ digital input status (i.e., switch open or closed) to a PLC (programmable logic controller) or any host controller capable of NPN/PNP-type inputs. The WDRR has been tested with a PLC and Modbus™ coupler from three different manufacturers which also allows providing a Modbus/TCP output. Honeywell's wireless solutions can save up to 60 % compared to traditional wired solutions by eliminating the need for conduit, connectors, and wire while significantly reducing installation and labor costs.

Accommodating up to 14 Limitless™ digital inputs, the WDRR Series is for applications requiring multiple wireless inputs. These inputs communicate to a PLC or host controller via NPN or PNP-type output, along with RF communication and battery diagnostics. Blue LEDs give visual confirmation that the system is wirelessly connected.

VALUE TO CUSTOMERS

- **Visual confirmation:** Visual feedback with LEDs denoting actuation, low battery, RF signal loss, and pairing
- **Cost-effective:** Helps reduce installation and maintenance costs with no wires, conduit, strain relief, clips, connectors, connection boxes, etc.
- **Configurable:** Ability to reconfigure and network multiple interfaces, or point-to-point with personalized addresses, allows for adding, subtracting, or relocating Limitless™ inputs easily

FEATURES

- Visual feedback with LEDs denoting actuation, low battery, RF signal loss, and pairing
- Ability to produce Modbus/TCP (coupler required) output
- Can monitor up to 14 Limitless™ digital inputs on a single device
- FCC 15.247 (US), IC RSS 210 (Canada), ETSI, CE mark (Europe), COFETEL (Mexico), ACMA (Australia), WPC (India), KCC (Korea), ANATEL (Brazil), IDA (Singapore), and SRCC (China) approvals
- IP20 sealing
- Designed with combination of DIN Rail or through-hole mount for installation ease

POTENTIAL APPLICATIONS

- Valve position
- Lifts
- Material handling
- Presses
- Conveyors
- Remote or temporary equipment
- Safety shower/eye-wash stations
- Grain diverters or gates
- Door or gate position
- Hose attachment verification
- Specialty machines
- Construction/ag machines
- Crane boom/jib/skew position
- Moveable machinery

DIFFERENTIATION

- Ability to produce Modbus/TCP (coupler required) output

PORTFOLIO

The WDRR Series is part of the Limitless™ Series of receivers and monitors, including the WMPR Multi-Protocol Receiver and WPMM Monitor.

Limitless™ Wireless DIN Rail Receiver, WDRR Series

Table 1. Specifications

Characteristic	Parameter
Series name	WDRR Series
Product type	Limitless™ wireless din-rail receiver
Housing material	Flame retardant ABS (Acrylonitrile Butadiene Styrene)
Housing type	DIN Rail or through-hole mount design, 3,5 mm [#6] machine screws
Housing size	88,9 mm H x 152,4 mm W x 38,1 mm D [3.5 in H x 6 in W x 1.5 in D] ref.
Radio type	WPAN 802.15.4, 2.4 GHz
Communication agency approvals/certificates*	FCC 15.247: United States of America IC RSS 210: Canada COFETEL: Mexico ETSI, CE mark: European countries ACMA, C-TICK: Australia WPC: India KCC: Korea ANATEL: Brazil IDA: Singapore SRRC: China
Antenna connection/type	RP-SMA jack for direct mount or remote antenna options; omni-directional standard
Indication	Configuration LEDs: green, yellow, red Output LEDs: green, yellow, red RF signal LEDs: blue
Signal range	1000 ft** [305 m]** clear line of sight between Limitless™ input and receiver when using 2.2 dBi integral antenna
Supply voltage	10 Vdc to 28 Vdc
Supply current	500 mA max.
Output type	selectable NPN-type current sinking or totem pole (current sinking); PNP-type current sourcing or PNP totem pole (current sourcing); selectable normally open/closed *** Modbus/TCP output
Output voltage	supply voltage minus 1.4 Vdc
Load current	10 mA max.
Leakage current	100 mA max.
Voltage drop	2.0 Vdc max. @ max. load @ 25 °C [77 °F]
Reverse polarity protection	Yes
Sealing	IP20
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 Hz to 58 Hz with 0,75 mm peak-to-peak, 58-500 Hz @ 5g
Operating temperature	-20 °C to 85 °C [-4 °F to 185 °F]

* Honeywell is continuing to add new Country Communication Agency Approvals as opportunities and requirements are established.

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

*** Honeywell has tested three different Modbus™ couplers offered by WAGO, Beckhoff Automation, and Automation Direct that will convert the NPN/PNP output to a Modbus/TCP output. A test summary and detailed layout can be found here.

🛑 **CAUTION**

The WDRR receiver offers optimal performance when paired with Limitless™ inputs that have a firmware version of 7170 or a greater number (i.e., FW7170 will be printed on the Limitless™ input label). If the Limitless™ input is paired with older firmware (FW7170 or a lesser number), the WDRR may exhibit delayed responses under simultaneous operation.

Limitless™ Wireless DIN Rail Receiver, WDRR Series
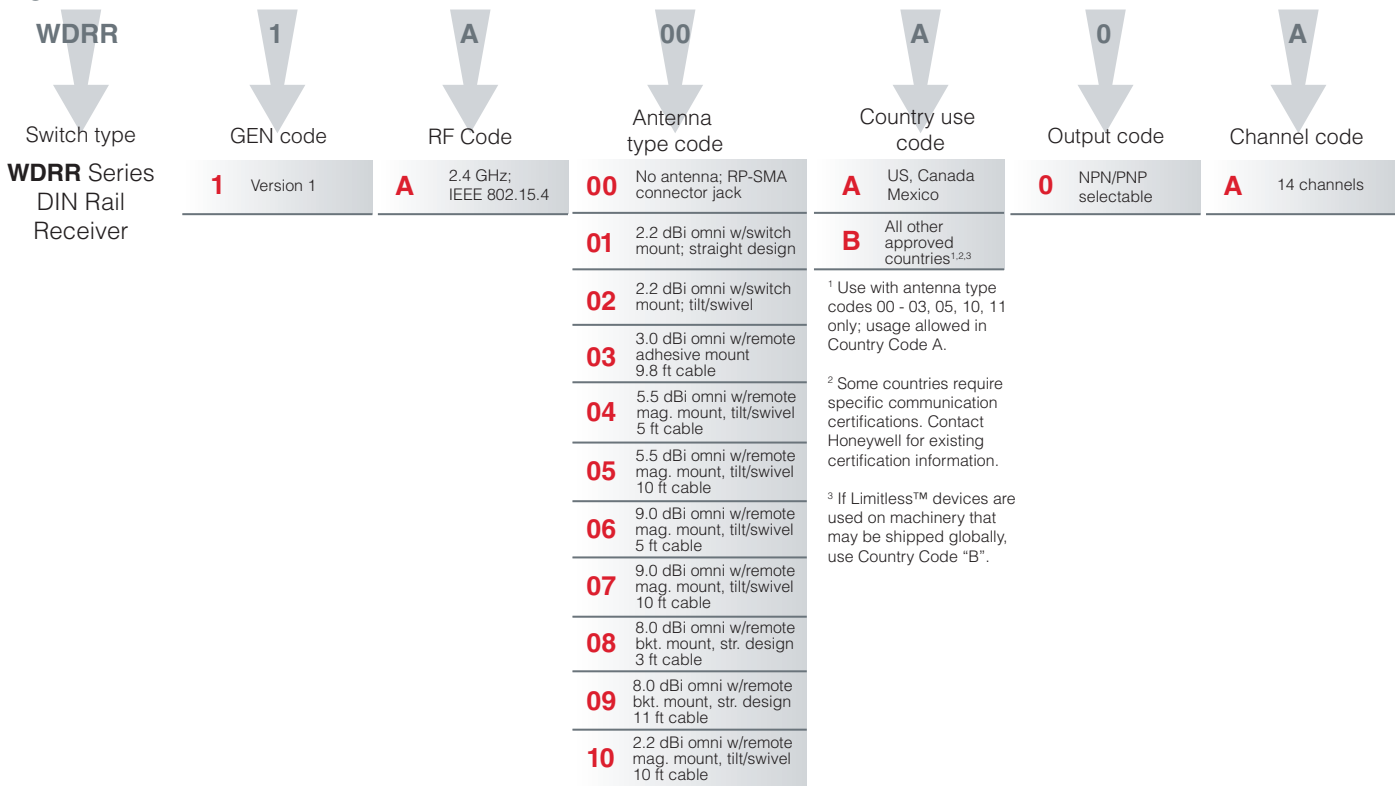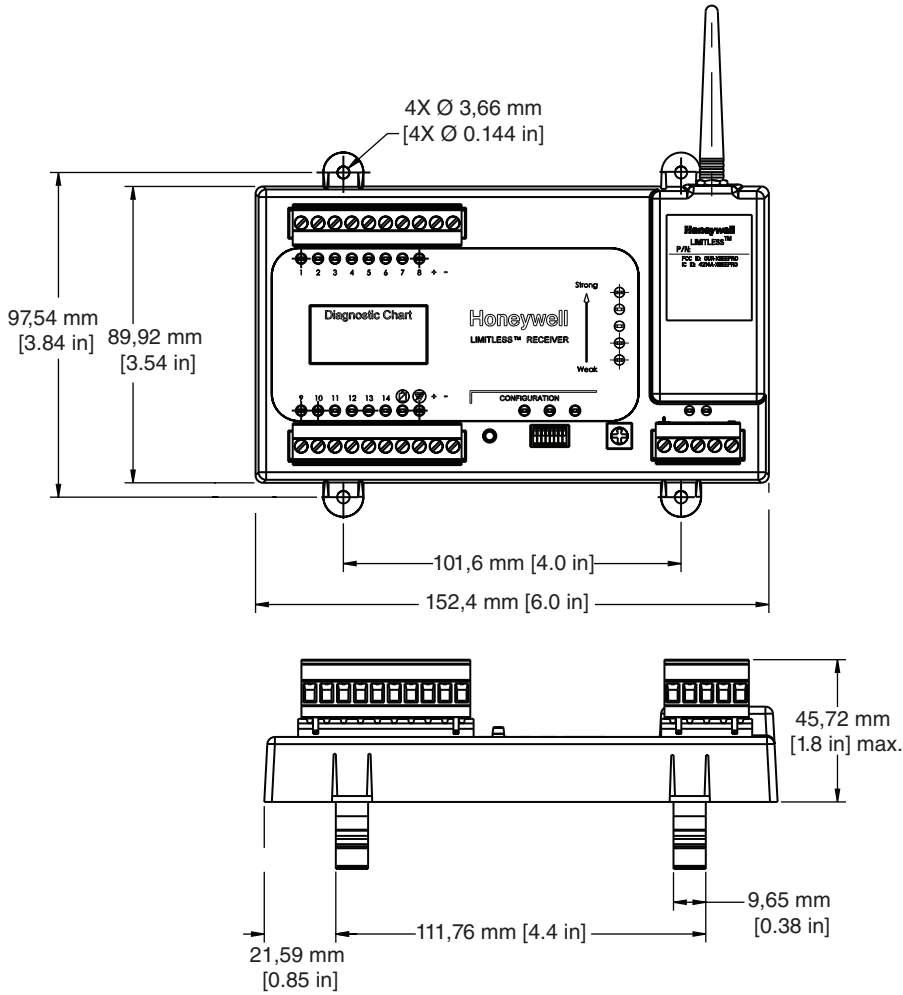
Figure 1. Product Nomenclature and Order Guide

WDRR	1	A	00	A	0	A
Switch type	GEN code	RF Code	Antenna type code	Country use code	Output code	Channel code

WDRR Series DIN Rail Receiver	**1** Version 1	**A** 2.4 GHz; IEEE 802.15.4	**00** No antenna; RP-SMA connector jack	**A** US, Canada Mexico	**0** NPN/PNP selectable	**A** 14 channels

Antenna type code:

Code	Description
00	No antenna; RP-SMA connector jack
01	2.2 dBi omni w/switch mount; straight design
02	2.2 dBi omni w/switch mount; tilt/swivel
03	3.0 dBi omni w/remote adhesive mount 9.8 ft cable
04	5.5 dBi omni w/remote mag. mount, tilt/swivel 5 ft cable
05	5.5 dBi omni w/remote mag. mount, tilt/swivel 10 ft cable
06	9.0 dBi omni w/remote mag. mount, tilt/swivel 5 ft cable
07	9.0 dBi omni w/remote mag. mount, tilt/swivel 10 ft cable
08	8.0 dBi omni w/remote bkt. mount, str. design 3 ft cable
09	8.0 dBi omni w/remote bkt. mount, str. design 11 ft cable
10	2.2 dBi omni w/remote mag. mount, tilt/swivel 10 ft cable

Country use code:

Code	Description
A	US, Canada Mexico
B	All other approved countries[1,2,3]

[1] Use with antenna type codes 00 - 03, 05, 10, 11 only; usage allowed in Country Code A.

[2] Some countries require specific communication certifications. Contact Honeywell for existing certification information.

[3] If Limitless™ devices are used on machinery that may be shipped globally, use Country Code "B".

Table 2. WDRR Order Guide

Part Number	Description
WDRR1A00A0A	Limitless™ DIN Rail receiver, no antenna, US/Canada/Mexico
WDRR1A02A0A	Limitless™ DIN Rail receiver, 2.2 dBi omni antenna with integral mount (tilt/swivel), US/Canada/Mexico
WDRR1A03A0A	Limitless™ DIN Rail receiver, 3.0 dBi omni antenna with remote adhesive mounting with 9.8 ft cable, US/Canada/Mexico
WDRR1A05A0A	Limitless™ DIN Rail receiver, 5.5 dBi omni antenna (tilt/swivel design) with remote magnetic mounting with 10 ft cable, US/Canada/Mexico
WDRR1A00B0A	Limitless™ DIN Rail receiver, no antenna, for use in all other approved countries
WDRR1A02B0A	Limitless™ DIN Rail receiver, 2.2 dBi omni antenna with integral mount (tilt/swivel), for all other approved countries
WDRR1A03B0A	Limitless™ DIN Rail receiver, 3.0 dBi omni antenna with remote adhesive mounting with 9.8 ft cable, for use in all other approved countries
WDRR1A05B0A	Limitless™ DIN Rail receiver, 5.5 dBi omni antenna (tilt/swivel design) with remote magnetic mounting with 10 ft cable, for use in all other approved countries

Limitless™ Wireless DIN Rail Receiver, WDRR Series

Figure 2. Product Dimensions

4X Ø 3,66 mm
[4X Ø 0.144 in]

97,54 mm
[3.84 in]

89,92 mm
[3.54 in]

Diagnostic Chart

Honeywell
LIMITLESS™ RECEIVER

Strong

Weak

CONFIGURATION

101,6 mm [4.0 in]

152,4 mm [6.0 in]

45,72 mm
[1.8 in] max.

9,65 mm
[0.38 in]

111,76 mm [4.4 in]

21,59 mm
[0.85 in]

Limitless™ Wireless DIN Rail Receiver, WDRR Series

Table 3. Antenna Listings

The WDRR Series can be ordered without an antenna by using the "00" Antenna Type Code in the part number. Antennas may be ordered separately using the part numbers below.

	Part Number (if ordered separately)	Antenna Design	Antenna Gain (dBi)	Connector/Mounting	Dimensions
	WAN01RSP	straight	2.2	RP-SMA plug/direct mount	Ø 9,91 mm x 112,78 mm L [Ø 0.39 in x 4.44 in L]
	WAN02RSP	tilt/swivel	2.2	RP-SMA plug/direct mount	Ø 9,91 mm x 112,78 mm L [Ø 0.39 in x 4.44 in L]
	WAN03RSP	flat	3.0	RP-SMA plug/adhesive mount	Ø 7,87 mm x 22,1 mm W x 4,57 mm D [Ø 0.31 in x 0.87 in W x 0.18 in D] 3 m [9 ft] cable
	WAN05RSP*	tilt/swivel	9.0	RP-SMA plug/direct mount	Ø 12,7 mm x 384,05 mm L [Ø 0.50 in x 15.12 in L]
	WAN06RNJ*	straight	8.0	RP-N jack/bracket	Ø 33,5 mm x 427,9 mm L [Ø 1.32 in x 16.85 in L]
	WAN07RSP	straight	0.0	RP-SMA plug/direct mount	Ø 8,0 mm x 30 mm L [Ø 0.32 in x 1.18 in L]
	WAN09RSP	low profile mobile	3.0	RP-SMA plug/magnetic	Ø 76,2 mm x 115 mm L [Ø 3.0 in x 4.54 in L] 3,05 m [10 ft] cable
	WAN10RSP	straight	5.0	RP-SMA plug/magnetic	Ø 76,2 mm x 230,1 mm L [Ø 3.0 in x 9.06 in L] 4,57 m [15 ft] cable
	WAN11RSP*	low profile mobile dome	4.0	RP-SMA plug/thru-hole screw	Ø 39 mm x 42,4 mm L [Ø 1.54 in x 1.67 in L]

* Not allowed for use with Country Code "B" Limitless™ products

ADDITIONAL MATERIALS

The following associated literature is available on the Honeywell web site at sensing.honeywell.com:

- Product installation instructions
- Product range guide
- Limitless™ product brochure
- Video: Dr. Larry on Limitless™ Wireless Solutions
- White Paper: Limitless™ Switches Offer Unlimited Benefits
- Technical Note: WDRR NPN/PNP conversion to Modbus/TCP output
- Product application-specific information
  - Application Flyer: Fume Hood Sash Management
  - Application Flyer: Safety Shower/Eyewash Station Alarm Solutions (WBX Series)
  - Application Note: Crane Jib/Two Block Assembly
  - Application Note: Limitless™ Wireless Solutions in Anti-Two Block Warning Systems for Cranes, Stationary and on Trucks
  - Application Note: Limitless™ Wireless Solutions in Industrial Tank Level Monitoring
  - Application Note: Limitless™ Wireless Solutions on Automotive Factory Floors
  - Application Note: Limitless™ Wireless Solutions on Hangar Doors
  - Application Note: Sensors and Switches for Industrial Manual Process Valves
  - Application Note: Sensors and Switches in Mobile Cranes
  - Application Note: Sensors and Switches Used in Valve Actuators and Valve Positioners

Find out more

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifica-tions, pricing or name of the nearest Authorized Distributor, contact your local sales office. To learn more about Honeywell's sensing and control products, call **+1-815-235-6847 or 1-800-537-6945,** visit **sensing.honeywell.com,** or e-mail inquiries to **info.sc@honeywell.com**

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⚠ 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.

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.

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