



Model: ZZxD-Nx-xR series

## Wireless Modbus I/O

### Modular and Customizable Wireless Replacement!

#### Introduction

**Wireless Modbus I/O - flexible enough to fit your applications.** Zlinx plug-n-play modular units from B&B Electronics combine traditional Modbus RTU remote analog and discrete I/O with built-in wireless connectivity - reducing cost, simplifying installation and support. Wireless RTU serves as Modbus slave RTU in radio-based SCADA systems, or as a peer-to-peer communication platform.

#### Features

##### DIN Rail Package

3 Ranges Available

##### Active Repeaters

##### Modular

##### 10-48 VDC Power Input

##### Wide Temperature/ Industrial Grade

##### Modbus Compatible

Easy installation; conserves panel space (versus panel mount modems).

Short, Medium, Long range. Don't spend more money on longer distance radios if you don't need the distance.

Place I/O modules where they need to go, by the sensors. With repeater built-in functionality (-MR and -LR models only), you can build up a security path for all your critical communications.

Customize it to your application. Just snap on your I/O and you're ready to go.

Rugged input power circuit allows insertion to most control power configurations. Can utilize industrial power supply.

Meets most indoor or outdoor applications. Rugged circuitry prevents signal degradation versus lower temperature rated wireless devices.

Interface using industry standard Modbus protocol. Connect to Wonderware, Labview or other Modbus compatible software. Allows data to be brought directly into most PLC systems.

#### Base Modules

Model No.	Frequency	Radio Power	RF Range (indoor/outdoor with included antenna)	I/O			
				DI	DO	AI	AO
ZZ24D-NA-SR	2.4 GHz	100 mW	Up to 91 m (300ft)/Up to 1.6 km (1 mi)	2	2	2	2
ZZ24D-NB-SR	2.4 GHz	100 mW	Up to 91 m (300 ft) /Up to 1.6 km (1 mi)	4	4	0	0
ZZ24D-NA-MR	2.4 GHz	50 mW	Up to 183 m (600 ft)/Up to 4.8 km (3 mi)	2	2	2	2
ZZ24D-NB-MR	2.4 GHz	50 mW	Up to 183 m (600 ft)/Up to 4.8 km (3 mi)	4	4	0	0
ZZ9D-NA-MR	900 MHz	100 mW	Up to 457 m (1500 ft)/Up to 11.3 km (7 mi)	2	2	2	2
ZZ9D-NB-MR	900 MHz	100 mW	Up to 457 m (1500 ft)/Up to 11.3 km (7 mi)	4	4	0	0
ZZ9D-NA-LR	900 MHz	1W	Up to 914 m (3000 ft)/Up to 22.5 km (14 mi)	2	2	2	2
ZZ9D-NB-LR	900 MHz	1W	Up to 914 m (3000 ft)/Up to 22.5 km (14 mi)	4	4	0	0

#### I/O Expansion Modules

Model No.	Digital Inputs	Digital Outputs	Analog Inputs	Analog Outputs
ZZ-8DI-DC	8			
ZZ-8DO-T		8		
ZZ-4DI4DO-DCT	4	4		
ZZ-4AI			4	
ZZ-4AO				4
ZZ-2AI2AO			2	2
ZZ-8DO-R		8 (relays)		
ZZ-4RTD1			4 (RTD)	

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## Software Options

Model No.	Description
ZZ-PROG1	Programming module with cable
ZZ-PROGKIT	Programming module, cable and software CD

## Specifications

Operating Systems Supported:	Windows ME/98/2000/XP
Dimensions:	1.15 x 3.65 x 5 in (2.92 x 9.27x 12.7 cm)
Expansion Feature:	1 base module and up to 6 expansion modules
<b>Radio Properties</b>	
Short Range (SR) Option:	Up to 300 ft indoors / 1 mile outdoors (LOS)
Medium Range (MR) Option:	Up to 1500 ft indoors / 7 miles outdoors (LOS)
Long Range (LR) Option:	Up to 3000 ft indoors / 14 miles outdoors (LOS)
Antennas:	For 2.4 GHz models: 4.25 inch omni-directional rubber duck antenna. PN: ZZ24D-ANT1 For 900 MHz models: 6.5 inch omni-directional rubber duck antenna. PN: ZZ9D-ANT1 (RPSMA connector for db gain antennas)
<b>LED Indicators</b>	
Receive Signal Strength Indicator:	Tri-color LED (Off = no signal, Red = weak, Yellow = OK, Green = Strong)
RF Data Indicator:	Green LED (blinks with TD or RD data traffic, Off = no data traffic)
Local Bus Data Indicator:	Green LED (blinks with TD or RD data traffic, Off = no data traffic)
Power Indicator:	Red LED
I/O Connectors:	Removable screw terminal (2, 4 or 8 position) block, 3.5 mm spacing
<b>Digital Inputs</b>	
Voltage Range:	0 to 48 VDC
Low Voltage (0):	0.8 V maximum
High Voltage (1):	4.0 V minimum
Pull up/down current:	38 uA
Frequency Input:	Two DI inputs per module software selectable as Frequency Counters, 0 to 5 kHz range
<b>Digital Outputs</b>	
Voltage Range:	10 to 45 VDC (for sourcing outputs), 0 to 48 VDC (for sinking outputs)
Open Source:	40 mA per output
<b>Analog Inputs/Outputs</b>	
Ranges:	0 to 10 VDC or 0 to 20 mA
Resolution:	12 bit
Input Accuracy:	0.2 % full scale reading typical
Output Accuracy:	0.27 % full scale reading typical
AI Load Resistance:	100 Mega Ohms when configured for voltage input 250 Ohms when configured for current input
AO Max Output Current:	1 mA when configured for voltage output
AO Max Load:	450 Ohms when configured for current output
Input Protection:	Oversupply to 2x max input voltage
Power Supply Voltage Requirements:	<b>Sourcing modules:</b> 10 VDC to 46 VDC, 24 VAC ± 10% <b>Sinking modules:</b> 10 VDC to 48 VDC, 24 VAC ± 10%
Power Supply:	Not included
Base Module Power Connector:	Removable screw terminal (2) block, 3.5 mm spacing
<b>Relay Outputs</b>	
Number of relays:	8
Type:	C (normally open and normally closed)
Output Connection:	3.5mm removable terminal block (2 per output)
Common connection:	3.5mm removable terminal block (1 per bank of 4 output)
Ratings:	250VAC @ 8A, 30VDC @ 5A (maximum per bank of 4 as grouped on the label)
<b>RTD Inputs</b>	
Number of RTD:	4
Wire configuration:	2, 3, and 4 wire
Type:	PT100*, PT1000*, Cu10** *Optimized for temperature coefficient of 385 **Optimized for temperature coefficient of 427
Input Connection:	3.5mm removable terminal block (4 per output)
Temperature range:	PT100 = -200 to 650°C PT1000 = -200 to 100°C Cu10 = -100 to 260°C
Resolution:	0.1°C across -40 to 85°C
Accuracy @ 25°C:	±0.5°C typical
Accuracy -40 to 85°C:	±2.0°C maximum



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Power Consumption - Base Modules	
ZZ24D-NA-SR	10W
ZZ24D-NB-SR	10W
ZZ24D-NC-SR	10W
ZZ24D-ND-SR	10W
ZZ24D-NA-MR	9.5W
ZZ24D-NB-MR	9.5W
ZZ24D-NC-MR	9.5W
ZZ24D-ND-MR	9.5W
ZZ9D-NA-MR	9.5W
ZZ9D-NB-MR	9.5W
ZZ9D-NC-MR	9.5W
ZZ9D-ND-MR	9.5W
ZZ9D-NA-LR	13.1W
ZZ9D-NB-LR	13.1W
ZZ9D-NC-LR	13.1W
ZZ9D-ND-LR	13.1W
ZZ9D-NA-LR-AU	13.1W
ZZ9D-NB-LR-AU	13.1W
ZZ9D-NC-LR-AU	13.1W
ZZ9D-ND-LR-AU	13.1W

Power Consumption - Expansion Modules:	
ZZ-4AI	1.0W
ZZ-4AO	1.1W
ZZ-2AI2AO	1.2W
ZZ-8DI-T	0.4W
ZZ-8DO-T	15.8W
ZZ-8DO-T1	1.1W
ZZ-4DI4DO-DCT	8.1W
ZZ-4DI4DO-DCT1	1.0W
ZZ-8DO-R	3.2W
ZZ-4RTD1	0.4W

**Additional Specifications**

Operating Temperature:

- 40 to 80 °C (- 40 to 176 °F), - 40 to 65 °C (- 40 to 149 °F) for ZZ-8DO-R ONLY

Storage Temperature:

- 40 to 85 °C (- 40 to 185 °F)

Humidity:

10% to 90% R.H. non-condensing

Enclosure Rating:

IP30

Mounting:

DIN rail mount, 35 mm

CD-ROM Disc:

Zlinx I/O Manager; PDF of Zlinx I/O User Manual; PDF of Quick Start guide

Certifications:

FCC: Part 15 Class A

CISPR (EN55022) Class A

EN61000-6-1 Generic Standards for Residential, Commercial &amp; Light Industrial

EN61000-4-2 ESD

EN61000-4-3 RFI

EN61000-4-4 EFT

EN61000-4-5 Surge

EN61000-4-6 CI

EN61000-4-8 Power Frequency Magnetic

EN61000-4-11 Voltage Dips &amp; Interruptions

## Accessories and Replacement Parts:

ZZ-DIN1 DIN clip and spring for all ZZ products, 4 spare screws for enclosure

ZZ-TB1 Removable terminal block for all ZZ modules and shroud cover for local bus

ZZ24D-ANT1 2.4 GHz band antenna

ZZ9D-ANT1 900 MHz band antenna

ZZ-PROGKIT Programming Module and CD with Zlinx 1/0 Manager software and hardcopy of Quick Start Guide

ZZ-PROG1 Programming Module and hardcopy of Quick Start Guide

195M-SLSW-24 Antenna cable

**Programming Module ZZ-PROG1**

Power Source:

Supplied through local bus connector from powered base module

Power Consumption:

5 VDC @ 40 mA max

LED Indicators:

Power ON: Red LED illuminated steady

Local Bus:

Data present on TD or RD line – Green LED blinks

Serial Connector:

DB-9F 9 pin D-type female connector (configured as DCE)

Interface Lines Supported:

RS-232 - TD, RD, RTS, CTS, DTR, DSR, DCD, GND

Serial Data Rates Supported:

115200 bps

Parity:

None

Data Bits:

8

Stop Bits:

1

Flow control:

None

Cable:

Gray straight-through DB9M to DB9F, 6 foot (included – Part No. 9PAMF6 recommended)

Local Bus Connection:

14 pin dual row 2mm connector

Temperature:

Operating: -40°C to 85°C

Storage: -40°C to 85°C

Dimensions

1.15 x 3.65 x 5 in (2.92 x 9.27x 12.7 cm)

Operating Humidity:

10 to 90% non-condensing



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