DEVELOPER KIT
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HNIO-241A
HNIO-241AR
HNIO-241AX

2.4GHz Analog/ Digital I/O Wireless Modem

Features:
- ***Full multi-point, bi-directional operation***
- ***2 analog and 2 digital channels***
- ***Fully configurable through DIP switches***
- ***Frequency hopping spread spectrum***
- ***Class I Div 2 certified***
- ***2.4GHz***
- ***Operates over input voltage range of +9Vdc to +30Vdc making it suitable for battery and solar power sources***

Benefits:
- ***Ability to confirm remote status***
- ***Operate multiple devices from one modem***
- ***Reliable performance in high RF noise environments***
- ***Deploy in a wide variety of locations***
- ***Useful for industrial and outdoor applications with a -40°C to +70°C operating temperature range and certified for hazardous location use***

2.4GHz Analog/Digital I/O Wireless Modem

Providing multi-point, bidirectional communications, two 4 – 20mA outputs, two NO contacts, and Class I Div 2 certification, the HNHN 2.4GHz spread spectrum wireless analog/digital I/O modems are the ideal solution for industrial and commercial monitoring and control applications. All HNIO modems include RFM frequency hopping spread spectrum radio technology that has been field-proven to provide reliable, robust wireless communications in harsh RF environments.

General Specifications

RF Frequency	2401 - 2471 MHz
Licensing	Unlicensed under FCC Part 15, ETSI 300.328
Modulation	GFSK
Transmit Power	+8dBm/+18dBm (@ RF connector) software selectable; +14dB/+24dBm with integral patch antenna
Receive Sensitivity	-93dBm for 10-5 BER; -99dBm with integral pathc antenna
RF Channels	75
RF Data Rate	460Kbps
I/O	2 – 4-20mA current loop receivers (12 bit ADC) 2 – Opto-isolated digital inputs 0-30V 2 – 4-20mA current loop transmitters (16 bit DAC) 2 – SPST (Form A) relays (NO;COM) 1 – SPST relay (NO; COM) RF link 1 – RS-232 D9 serial port
Operating Voltage	+9Vdc – +30Vdc
Operating Temperature	-40°C to +70°C

Mechanical Specifications

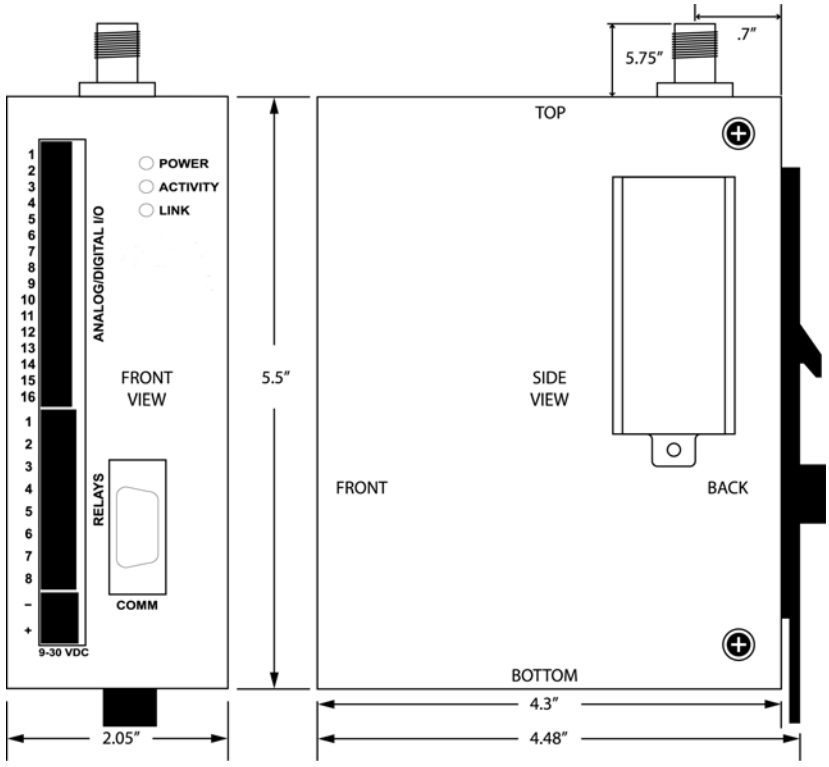
Model	HNIO-241A	HNIO-241AR	HNIO-241AX
Enclosure Material	ABS	ABS (network interface unit) Polycarbonate NEMA 4X (remote radio unit)	ABS (network interface unit) Polycarbonate NEMA 4X (remote radio unit)
Enclosure Size	138 x 108 x 47	201 x 144 x 53 (network interface unit) 130 x 79 x 35 (remote radio unit)	201 x 144 x 53 (network interface unit) 130 x 79 x 35 (remote radio unit)
Antenna Type	2dBi included	3dBi integral patch	2dBi included
Antenna Type	Reverse TNC	n/a	Reverse TNC

Connector Pinout

Pin 1 - RFLink NO
Pin 2 - RFLink COM
Pin 3 - Input1 +
Pin 4 - Input1 -
Pin 5 - Input2 +
Pin 6 - Input2 -
Pin 7 - Input3 +
Pin 8 - Input3 -
Pin 9 - Input4 +
Pin 10 - Input4 -
Pin 11 - IN A
Pin 12 - IN B
Pin 13 - OUT A
Pin 14 - OUT B
Pin 15 - GND
Pin 16 - GND

Connector2 Pinout

Pin 1 - Relay1 NO
Pin 2 - Relay1 COM
Pin 3 - Relay2 NO
Pin 4 - Relay2 COM
N.C.
N.C.
N.C.
N.C.



Flexible I/O

The HNIO-241A modem provides two 4 – 20mA inputs, two 4 – 20mA outputs, two opto-isolated digital inputs, and two 250VAC 5A NO relay contacts. Offering full bidirectional operation, the 2 analog inputs on one end are repeated on the 2 analog outputs of the second modem while the analog inputs of the second radio are repeated on the analog outputs of the first modem – simultaneously. Similarly, the digital inputs on one modem control the relay contacts of the other modem. Each base radio can connect up to four remote radios. Four base radios can be located together.

Fully Configurable

The HNIO-241A is fully configurable through DIP switches. Configurable options include edge or level triggered inputs, positive or negative activation signals (selectable per channel), frequency of transmission from continuous to once every 45 minutes, and an RF link interruption fail-safe mode. A third NO relay contact indicates RF link status.

Industrial Networking

The HNIO-241A is designed for industrial and outdoor applications with a -40°C to +70°C operating temperature range. The HNIO-241A can operate over an input voltage range of +9Vdc to +30Vdc making it suitable for battery and solar power sources. The HNIO-241A is Class I Div 2 certified for hazardous location use. The standard DIN-rail enclosure or optional six inch cabinet allows easy installation whatever the application. The HNIO-241AR and HNIO-241AZ are external versions where the remote radio is housed in a separate NEMA 4X rated enclosure with either an integral patch antenna or a reverse TNC antenna connector.

FHSS Technology

The frequency hopping spread spectrum technology used in the HNIO-241A has been powering a wide variety of mission-critical industrial applications for years and embodies extensive experience in spread spectrum radio design. With superior immunity to jamming and multipath fade, RFM FHSS technology transmits data over the air at a crisp 460.8Kbps rate providing short latencies and plenty of bandwidth. Operating in the 2.4GHz band, the HNIO-241A can be deployed license-free worldwide.