Y401-1111-L LoRa Wireless Analog and Digital I/O Module Specification



- User Manual

1. Overview

Y401-1111-L is a point-to-point LoRa wireless I/O pair. Each module provides 1 AI, 1 AO, 1 DI and 1 DO. The analog channels carry 4–20 mA signals; the digital output is an SPDT relay. Each device transfers its input signals to the corresponding outputs on the other device. Analog and digital channels operate independently.

Direction	Analog signal	Digital signal
A to B	A AI → B AO	A DI → B relay

Direction	Analog signal	Digital signal
B to A	B AI → A AO	B DI → A relay

The pair is supplied preconfigured for normal operation. The wireless link is half-duplex; transmission delay varies with site conditions.

2. Ordering Information

A standard system consists of two Y401-1111-L devices. Each has the same I/O complement. See the selection guide for other configurations.

3. Key Features

- Bidirectional analog and digital signal transfer over one point-to-point link
- 4–20 mA active current input and active current output
- Dry-contact or NPN input and changeover relay output
- Reverse-polarity protection and 35 mm DIN rail mounting

4. Technical Specifications

Wireless

Parameter	Specification
Communication	LoRa, point-to-point, half-duplex
Range	Up to 5 km in open areas; actual range depends on antenna installation, obstructions and interference
Antenna	SMA connector; 470 MHz magnetic-mount antenna option

Parameter	Specification
Antenna operating band	410.125 to 493.125 MHz

Electrical

Parameter	Specification
Supply	9 to 36 V DC
Maximum power consumption	Approx. 2 W
Analog input	1 × 4–20 mA, active current source; source voltage at least 10 V; maximum input current 24 mA
Input acquisition accuracy	≤ ±0.3 mA
Analog output	1 × 4–20 mA, active constant-current output; load ≤ 500 ohms
Output error	≤ ±0.3 mA
Digital input	1 passive dry-contact or NPN input
Digital output	1 SPDT relay, 277 V AC / 5 A or 28 V DC / 5 A
Terminals	5.08 mm pitch pluggable terminals

Input accuracy and output error are separate limits, not a guaranteed end-to-end accuracy. At 20 mA, a 500 ohm load alone requires 10 V; verify output headroom at the selected supply voltage and total load.

5. Interfaces and Indicators



Viewed from the front, the terminal positions run left to right. Follow the markings on the device.

Position	Upper row	Lower row
1	Power –	AO+ current output
2	Power +	GND, analog output return
3	AI+ current input	NO, relay normally open
4	DI, digital input	COM, relay common
5	COM, shared input return	NC, relay normally closed

The upper COM is the return for AI and DI; the lower COM belongs to the relay. Do not assume galvanic isolation between power and signal circuits.

Indicator	Meaning
Work	On after startup

Indicator	Meaning
Link	On when connected, off when disconnected; flashing indicates abnormal communication
AI Input	On when input current is detected
AO Output	On when output current is produced
DI Input	On when DI and upper COM are closed
DO Output	On when relay NO and lower COM are connected; off when NC and COM are connected

6. Mechanical and Environmental

Parameter	Specification
Dimensions	Manufacturer's enclosure table: 87.5 × 42.5 × 59 mm; dimension drawing: 43 × 111 × 59 mm (width × overall height × depth)
Weight	Approx. 100 g
Mounting	35 mm DIN rail
Operating temperature	−20 to +75 °C
Operating humidity	10% to 90% RH, non-condensing

The table and drawing use different height and width values. Confirm dimensions against the actual device before designing a tight enclosure.

7. Installation and Wiring

Use the user manual for analog and digital wiring, pairing and configuration, and commissioning.

AI accepts an active current source; AO connects to a compatible passive current receiver. The upper COM is the shared input return; the lower COM is the relay contact common. DI accepts a voltage-free contact or NPN output. Relay contacts require a separate load supply. Observe the electrical limits above.

8. Important Notes

- The half-duplex wireless link has variable delay and is unsuitable for guaranteed timing or as the sole emergency-stop/personnel-safety path.
- Input acquisition accuracy and output error are separate limits, not a stated end-to-end accuracy. Output loading also depends on supply headroom.
- The manufacturer does not specify the analog or relay output state or timeout during link loss. Test link loss and recovery with control loads isolated and provide independent protection for the process.
- Contact YenGear for replacement or re-pairing instructions.

- **Manufacturer**: Hunan YenGear Tech Co., Ltd.
- **Email**: hi@yengear.com
- **Website**: www.yengear.com