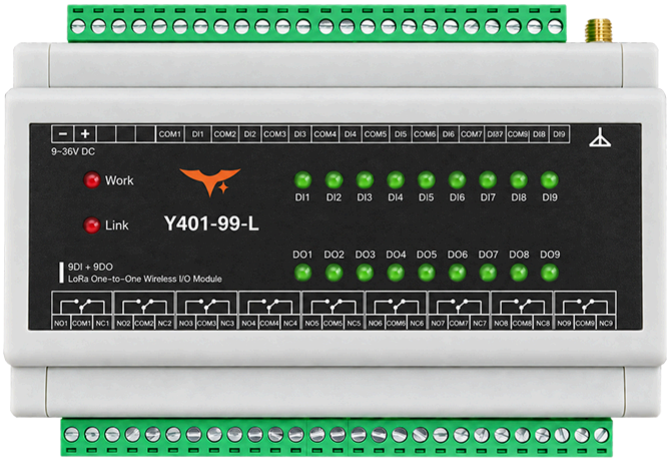
Y401-99-L LoRa Wireless I/O Module Specification



- User Manual

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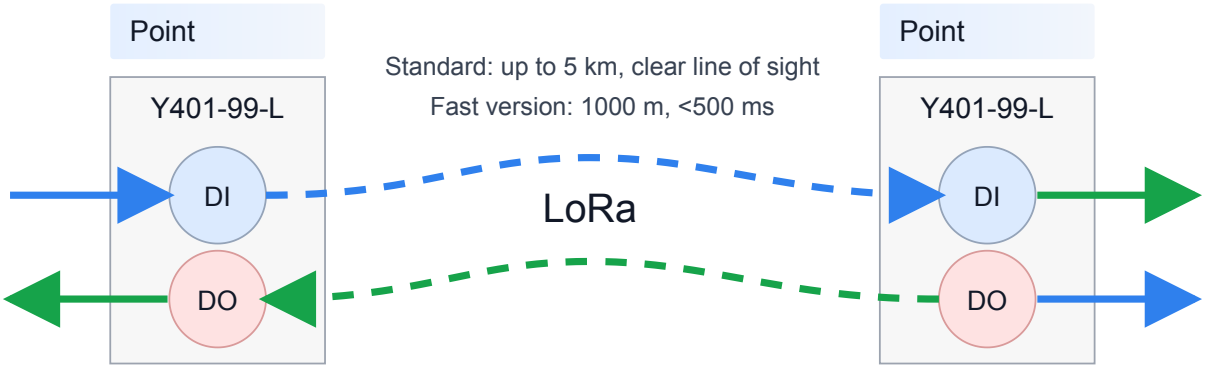
1. Overview

The Y401-99-L is a nine-channel point-to-point wireless I/O terminal based on LoRa wireless communication. A matched pair contains two bidirectional modules. Each module provides nine digital inputs and nine relay outputs. Each input state is transmitted to the corresponding output channel on the other module.



Operating Logic

- A dry-contact closure or NPN open-collector signal on Device A `DI` activates the corresponding `DO` relay on Device B.
- When the input returns to its open state, the corresponding remote relay resets.
- Bidirectional operation: the same logic applies from Device B to Device A.

Channel Mapping

Device A	Device B
Channel 1 input	Channel 1 output
Channel 2 input	Channel 2 output
Channel 3 input	Channel 3 output
Channel 4 input	Channel 4 output
Channel 5 input	Channel 5 output
Channel 6 input	Channel 6 output

Device A	Device B
Channel 7 input	Channel 7 output
Channel 8 input	Channel 8 output
Channel 9 input	Channel 9 output

Communication Loss

If wireless communication is lost, the receiver retains the last relay output states for approximately 80 seconds. If communication has not recovered by then, the relay outputs automatically reset to the de-energized (OFF) state. The normally open (`NO` – `COM`) contacts open.

2. Ordering Information

Model Configuration

`Y401-99-L` is a one-to-one LoRa pair. The two digits, `99`, specify the digital I/O count on the two sides: each device has 9 DI and 9 DO.

A fast communication version is available with a communication distance of 1000 m and latency below 500 ms. Specify the required version when ordering.

For the full code and examples, see Model Naming.

Matched Pair

A standard pair consists of two matched Y401-99-L modules. Both modules can transmit and receive. The antenna interface uses an SMA female connector; a 470 MHz magnetic-mount antenna is an available antenna option.

3. Key Features

- Nine corresponding input/output signal paths in each direction

- Private point-to-point LoRa communication
- Dry-contact/NPN inputs and relay outputs
- Pluggable field terminals

4. Technical Specifications

Wireless

Parameter	Specification
Communication technology	LoRa wireless communication
Standard-version range	Up to 5 km in open areas with clear line of sight
Fast-version range	1000 m
Fast-version latency	Less than 500 ms
Antenna connector	SMA female connector, external thread and center socket
Antenna option	470 MHz magnetic-mount antenna

Electrical

Parameter	Specification
Supply voltage	DC 9 to 36 V
Max. power consumption	3 W
Input channels	9 x NPN input / dry-contact switch
Input activation	Short the input terminal to COM for a dry-contact input
Output channels	9 x relay output
Output rating	AC 250 V 5 A / DC 28 V 5 A
Terminal type	5.08 mm pitch pluggable terminal block
Operating temperature	-20 to +85 degC

Parameter	Specification
Operating humidity	10% to 90% RH, non-condensing

5. Interfaces

Interface	Description
Antenna	SMA female connector for the LoRa antenna
Power	DC 9 to 36 V input
Input	9-channel NPN or dry-contact input
Output	9-channel relay output
Terminal	5.08 mm pitch pluggable terminal block

6. Mechanical and Environmental

Parameter	Specification
Dimensions	56 × 109 × 160 mm
Standard weight	Approx. 910 g
Operating temperature	-20 to +85 degC
Operating humidity	10% to 90% RH, non-condensing

7. Installation and Wiring

Use the Y401 digital I/O user manual for power, input, and relay wiring, paired operation and replacement, and nine-channel commissioning.

Disconnect power before inserting or removing pluggable terminals. Follow the channel and contact markings on the supplied module.

8. Important Notes

1. The standard version supports up to 5 km in open areas with clear line of sight. The fast communication version has a communication distance of 1000 m and latency below 500 ms. Actual performance depends on installation, obstructions, interference, and site conditions.
2. Never apply voltage directly to a DI terminal.
3. Relay ratings are maximum ratings. Select the external contactor, protection, and suppression components for the actual load.
4. The wireless link is not intended to be the sole emergency-stop, personnel-safety, or hard-real-time control path.

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