LFMB Series

Modbus to Optical Fiber Converter(for ring networks)

- Support modbus
- IP30 protection, 35mm DIN-Rail
- Fault intelligent cut function
- Two power supply redundancy
- Industrial design, no fan, low power consumption,
- Strong anti magnetic interference, anti radiation
- Support ring networks topology

Introduction

The LFMB Series is industrial optical fiber communication product designed specially for modbus remote transmission. By converting modbus cable communication to optical fiber communication, to realize signal Photoelectric isolation and isolate completely electrical interference, at the same time, extend the transmission distance,increase the number of nodes and change the modbus network topology.

The LFMB1 series contains one fiber optic transceiver and one electrical interface, and is suitable for point to point topology networks. The LFMB2 series contains two fiber optic transceiver and one electrical interface, and is suitable for daisy chain, star and redundant ring topology networks. The LFMB1 and LFMB2 can form more complex network topology structure. The products have fault intelligent cut function, when one section of modbus network has failure, other section can not be affected.

This series of products are made by our original proprietary technology, data transparent transmission, switch the direction of data automatically, without any of the settings. Support all modbus speeds, rate adaptation. Solves the problem of the high rate and long distance transmission. The products with multimode fiber can transmit 2KM, with single-mode fiber is capable of transmitting 20KM. The products can complete modbus data transmission reliably, and inherit and keep all the advantages of the modbus, achieve a high-rate and long distance transmission, electric and ground isolation and reduce interference. The products solve the problem of electromagnetic interference, ground loop interference and lightning damage. At the same time,the products have the following advantages: industrial design,low power consumption,isolation protection, fault intelligent cut, relay alarm output, IP30 protection,aluminum case,35mm DIN-rail installation, wide power supply(DC10-36V)input, dual redundancy power supply etc.

1. Support modbus rates(2.4K-128K), DIP switch setting, Protocol type transmission, nanosecond signal delay
2. Multimode fiber/Single-mode fiber(optional), multimode transmission:2KM, single-mode transmission:20KM, ST/SC/FC(optional)

3. Support various optical fiber network topologies: point to point, star type, chain type, redundant ring, which can be combined into more complex network topology structure
4. Electrical interface supplied by independent power supply module, completely isolated wire loop between modbus and the equipment; at the same time adopt photoelectric isolated technology, separate internal communication and data signal interference, effectively protect communication equipment from power ground loop and surge
5. Electric interface provides 1500W anti lightning surge protection of every line, 15KV electrostatic protection, prevention of total interference, and self-recovery over-current protection function
6. Has the fault intelligent cut function, intelligent monitoring, optical fiber link state power monitoring, automatic alarm function
7. Rich LED status indicator, all-round display modbus and fiber running state
8. Two independent power supply redundancy, wide power supply(DC10-36V), DC1500V power supply isolation, with 1A reverse connection protection function
9. Industrial design, no fan, low power consumption, strong anti magnetic field, anti radiation and anti interference function
10. Corrugated metal case with high strength,IP30 protection,35mm DIN-Rail

Specification

Electrical interface

Interface type: DB9 Fe-male, compliant with EN 50170 PART1 standard

Data rate: 2.4K—128KBit/s,DIP switch setting

Signal delay(electrical port):<11bit

Offer 1500W anti lightning surge protection, 15KV electrostatic protection, prevention of total interference, and self-recovery over-current protection function

Wire Terminal Resistance: None

Optical interface

Fiber type: Multimode 50/125 um、62.5/125 um、100/140um/ Single-mode 8.3/125 um、9/125um、10/125um, one port/two port(Optional)

Fiber interface: ST/SC/FC(OPTIONAL),ST(standard)

Wave length: Multimode 1310nm; Single-mode 1310nm

Transmission distance:Multimode 0-2KM; Single-mode 0-20Km，more distance is optional

Error rate:$<10^{-9}$

Power and Protection

Input Voltage:DC24V(DC10V-36V)

Input Current:100mA@24V

Voltage protection: offer L1+/M/L2+ reverse connect protection

Current protection: 1A(short-circuit protection)

Relay alarm output: electrical port fault and fiber link fault alarm output

Contact rating:DC30V@1A, AC120V@1A

Environmental

Operating Temperature: -10 to 70℃ (-40℃ to85℃ optional)

Ambient Relative Humidity: ≤ 95% (non-condensing)

Storage Temperature: -45℃ to 85℃

Mechanical

Dimensions:136mm×52mm×105mm (H×W×D)

Casing: IP30 protection, Aluminum metal case with high strength

Installation: 35mm DIN-Rail

Weight :800g

Industrial standard

EMI：EN55022 1998, Class A

EMS：

EN61000-4-2 (ESD), Criteria B, Level 4

EN61000-4-3 (RS), Criteria A, Level 2

EN61000-4-4 (EFT), Criteria B, Level 4

EN61000-4-5 (Surge), Criteria B, Level 2

EN61000-4-6 (CS), Criteria B, Level 2

En61000-4-8 (PFMF), Criteria A, Level 3

Freefall：IEC 60068-2-32

Topology structure

This series of products support various optical fiber network topologies: point to point network, daisy chain network, star network and ring network topology

Applications

Electric power, transportation, energy, monitoring and industrial control and so on.

Order Information

Model	Specifications	unit
LFMB1-S	Industrial modbus to optical fiber converter, (support point to point),one electrical port, one optical fiber port, single-mode fiber(0-20KM),more distance is optional),ST/SC/FC optional	pcs
LFMB1-M	Industrial modbus to optical fiber converter, (support point to point),one electrical port, one optical fiber port, Multimode fiber(0-2KM),ST/SC/FC optional	pcs
LFMB2-S	Industrial modbus to optical fiber converter (support point to point,daisy chain, star and ring network topology),one electrical port, two optical fiber ports, single-mode fiber(0-20KM),more distance is optional),ST/SC/FC optional	pcs
LFMB2-M	Industrial modbus to optical fiber converter, (support point to point,daisy chain, star and ring network topology),one electrical port, two optical fiber ports, multimode fiber(0-2KM),ST/SC/FC optional	pcs