

**PROFIBUS Fiber Module**






**LM520**

**User manual**

**IM19H49-E**














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Symbol Definition	
	<b>WARNING:</b> Indicates information that a potentially hazardous situation which, if not avoided, could result in serious injury or death.
	<b>RISK OF ELECTRICAL SHOCK:</b> Indicates information that Potential shock hazard where HAZARDOUS LIVE voltages greater than 30V RMS, 42.4V peak, or 60V DC may be accessible.
	<b>ESD HAZARD:</b> Indicates information that Danger of an electro-static discharge to which equipment may be sensitive. Observe precautions for handling electrostatic sensitive devices
	<b>ATTENTION:</b> Identifies information that requires special consideration.
	<b>TIP:</b> Identifies advice or hints for the user.

## Security& Caution Symbols

The following table lists Security& Caution symbols used on equipments.

No.	Symbol	Description
1		Direct current (DC)
2		Alternating current (AC)
3		Ground (Earth) terminal
4		Protective earth (ground) terminal
5		Reference ground (Earth) terminal
6		Frame or chasis
7		Equipotentiality
8		On (power)
9		Off (power)
10		Caution, risk of electric shock
11		Caution, hot surface
12		Caution, risk of danger
13		Electrostatic sensitive devices (ESD)

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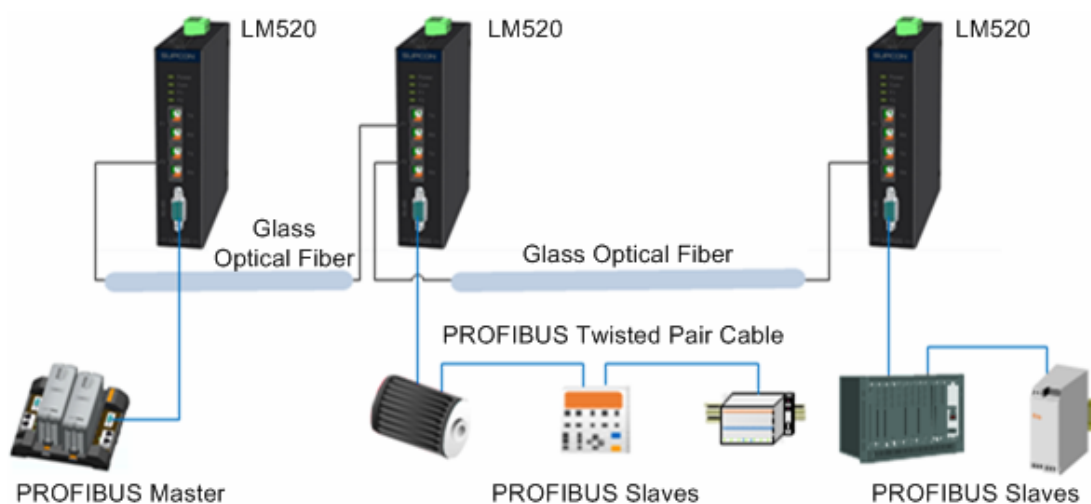
# PROFIBUS Fiber Module LM520

## Section 1 Overview

PROFIBUS fiber module LM520 is applied to single-mode fiber PROFIBUS network. In fiber network, LM520 is used for the signal conversion between electrical PROFIBUS (RS-485) and fiber PROFIBUS. Meanwhile it improves signal quality by signal shaping and regeneration. Based on the unique technological superiority of fiber transmission, the modules can be either integrated to current PROFIBUS network or used to build a new PROFIBUS network.

LM520 adopt standard DIN guide rail installation, redundant 24 VDC power supply improves the reliability of module and the industrial design make modules work well in both control cabinet and field.

A typical structure of fiber network with LM520 as Figure 1-1 shows.



**Figure 1-1 Network Structure**

## Section 2 Technical Specifications

Parameters	Description
<b>Basic Parameters</b>	
Baud Rate	9.6k~1.5Mbps including 45.45kbps (PROFIBUS-PA)
Signal Delay	0.6bit Time
<b>Electrical Interface</b>	
Amount	1
Interface Type	9 pin Sub-D, female
<b>Fiber Interface</b>	
Amount	2
Interface Type	SC
Fiber Type	9/125μm Glass Fiber
Wave Length	1310nm
Transmit Power	>-14dBm
Receive Sensitivity	<-33dBm
Transmission Distance	0~20km
<b>Power Interface</b>	
Interface Type	4-core pluggable terminal, interval 5.08
Supply Voltage	24VDC±10%
Power Dissipation	Maximum 3W
<b>Structure</b>	
Installation Method	Standard 35mm DIN Guide Rail
Boundary Dimension(Width*Height*Depth)	(32*135*125) mm
Weight	500g
Protection Grade	IP30
<b>Environment</b>	
Work Temperature	(-20~70) °C
Storage Temperature	(-40~80) °C
Work Humidity	(10~90) %RH, Without Condensation
Storage Humidity	(5~95) %RH, Without Condensation

## Section 3 Instructions

### 3.1 Outline Structure

LM520 module includes: 1 RS-485 electrical interface which is compliant with PROFIBUS standard, 2 groups of single-mode fiber interface with SC connector, 1 group of power interface port, a group of DIP switch, a ground screw and a group of running status Pilot LEDs. Using LM520 can build bus, star and mixed fiber network topologies. The following diagram is structure dimension diagram of LM520 module which unit is mm.

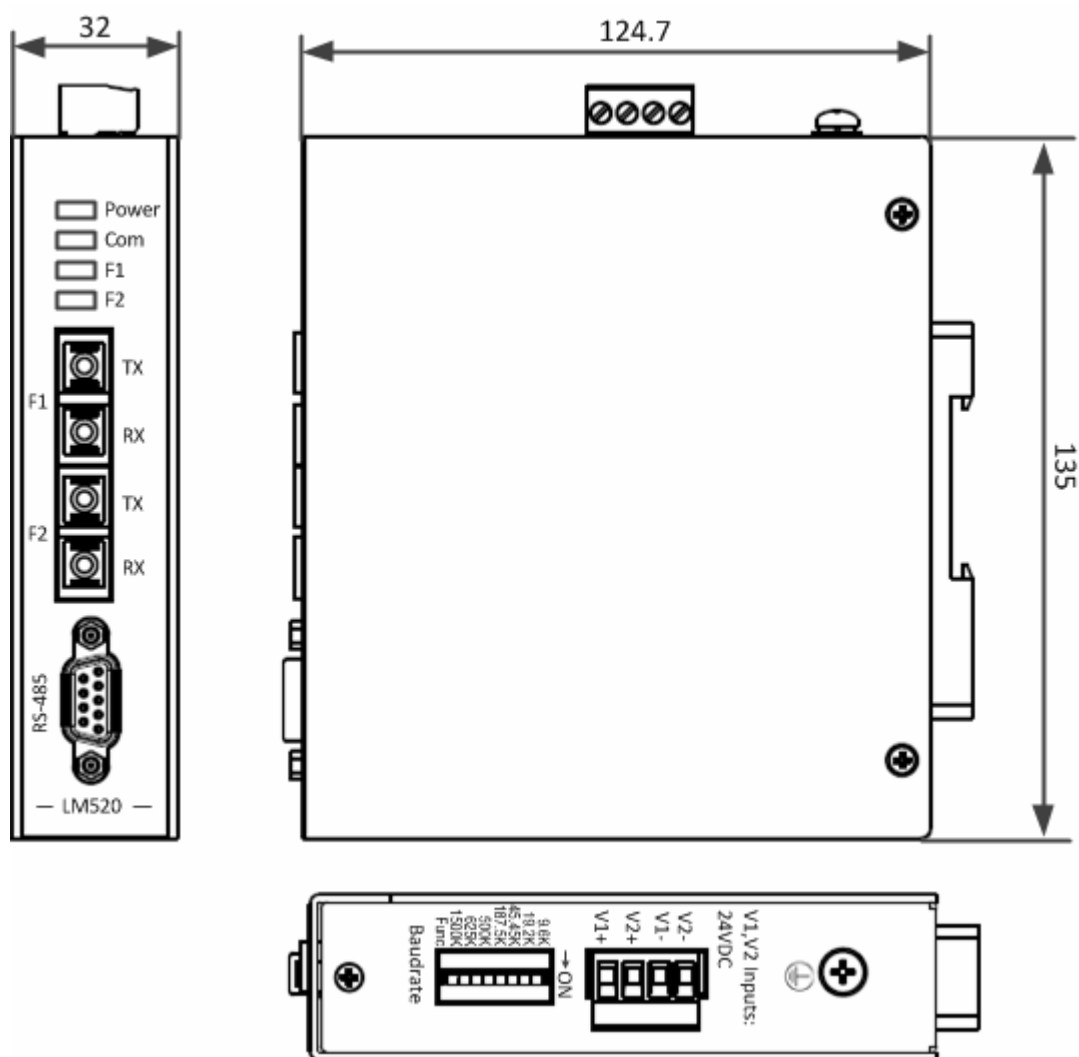



Figure 3-1 Module Outline Figure

### 3.2 Interface Description

Identification		Description
Baudrate	9.6k	ON to set baud rate as 9.6kbps, effective after restarting
	19.2k	ON to set baud rate as 19.2kbps, effective after restarting

Identification		Description
	45.45k	ON to set baud rate as 45.45kbps, effective after restarting
	187.5k	ON to set baud rate as 187.5kbps, effective after restarting
	500k	ON to set baud rate as 500kbps, effective after restarting
	625k	ON to set baud rate as 625kbps, effective after restarting
	1500k	ON to set baud rate as 1500kbps, effective after restarting
	Func	Reserved, must set as OFF
V1,V2 Inputs: 24VDC	V2-	Channel 2 Power Negative
	V1-	Channel 1 Power Negative
	V2+	Channel 2 Power Positive
	V1+	Channel 1 Power Positive
F1	TX	Fiber Port 1 Transmit
	RX	Fiber Port 1 Receive
F2	TX	Fiber Port 2 Transmit
	RX	Fiber Port 2 Receive
RS485		RS-485 Electrical Interface
		Protect Ground Terminal

### 3.3 Instructions of LED Indicators

*Table 3-1 Instructions of LED Indicators*

LED Indicator	F1(Green)	F2(Green)	COM(Green)	POWER(Green)
Meanings Status	Fiber Port 1 Signal Receive Indicator	Fiber Port 2 Signal Receive Indicator	RS-485 Communication Indicator	Power Indicator
Flashing	Received	Received	Input Data	--
ON	--	--	--	Normal
OFF	No Received	No Received	No Data Input	Abnormal Or Fault

### 3.4 Instructions of DIP Switch

The top of module indicates a group of 8-bit DIP switch for setting baud rate of module. When setting some baud rate, the correspond DIP is set as ON and the other 7 bits must be set as OFF. Then it will be effective after power on or restart.

### 3.5 Instructions of Wiring

#### 3.5.1 Connect to Power

As Figure 3-1 shows, the top of module indicates 4 power wiring terminals (V1+, V2+, V1-, V2-) for connecting 2-channel redundant 24 VDC power.

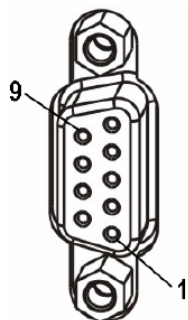
The maximum section of wire allowed to connect the module is 2.5mm<sup>2</sup>. The wires with sections of



1mm<sup>2</sup> or 1.5mm<sup>2</sup>, the wire stripping length of 8mm and the tightening torque of (0.5~0.6)Nm are recommended.

### 3.5.2 PROFIBUS-DP Bus Wiring Method

PROFIBUS-DP bus interface as Figure 3-2 shows.



**Figure 3-2 DP Interface**

DP bus interface pin description as follow shows:

**Table 3-2 Description of Bus Interface Pin**

No.	DP	Description
1	Empty	Empty
2	Empty	Empty
3	RXD0/TXD0-P	Signal Positive
4	Empty	Empty
5	GND	Power Negative
6	VCC	Power Positive
7	Empty	Empty
8	RXD0/TXD0-N	Signal Negative
9	Empty	Empty

### 3.5.3 Fiber Wiring Method

LM 520 fiber interface adopts standard SC square interface. It should connect TX of a module with RX of the other module by fiber link.

### 3.5.4 Instructions of Grounding

The top of module includes a grounding screw for safety grounding.

## Section 4 Revision

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*Table 4-1 Retrofit list of the version*

Document Version	Applicable Module Version	Remarks
V1.0(20180413)	LM520 V10.10.00	