

HighTek HK-9002/9003

Active RS232/422/485 Fiber Converter

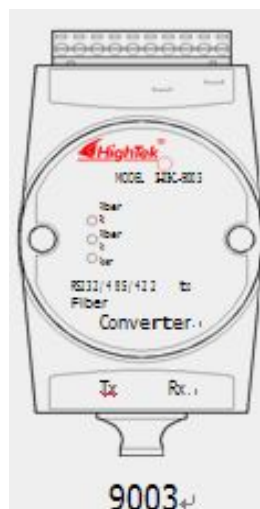
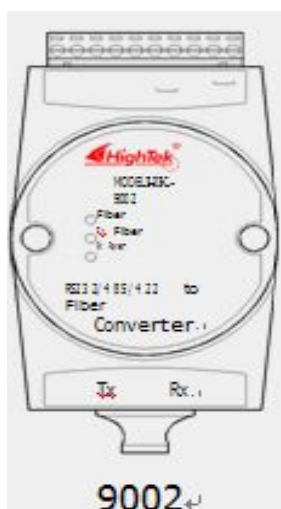
User Manual

I. Overview

Product Type	Electrical Interface	Fiber Interface
HK-9002	RS232/S485/422	Single mode(SC)
HK-9003	RS232/S485/422	Multimode(SC)

HighTek HK-9002/9003 (hereinafter referred as 900X series) active RS232/RS422/RS485 fiber optic converter can convert serial data signal (RS232/422/485 signal) into an optical signal and transmitted through the fiber. 900X products adopt industrial module, supporting wall mount, desktop, stack-mounted, industrial rail mounting and other installation methods. Fiber-optic interface uses SC type, RS232/422/485 signal and external DC power supply connected with 900X through 10 holes terminal. Transmitting RS232 signal via optical transmission through the 900X, you can not only overcome the disadvantages of traditional RS232 signal such as short transmission distance and poor anti-interference ability, but also solve the electromagnetic interference, ground loop interference as well as lightning and power surge problems, greatly improving data communication reliability, security and confidentiality. RS422/RS485 interface provided by 900X can easily be connected with RS422/RS485 devices. The product can be widely used in various industrial controls, power, banking and other higher-quality data communication required applications with electromagnetic interference, static electricity, lightning, ground potential difference.

II. Product shape and terminals defined



Description:

There are three LED indicators on 900X front panel. Among them, the red LED "Power" (light) indicates the power status energized normal, green light "Fiber Tx" (blinking) indicates signal transmission from the electrical interface RS232/422/485 end to the fiber end, green light "Fiber Rx" (blinking) indicates signal transmission from the optical fiber end to electrical interface RS232/422/485 end. When no communication, "Fiber Tx" and "Fiber Rx" is not light.

III. Characteristics and parameters

Characteristics	HK-9002	HK-9003
Power	Vpp (+9V~24VDC) or 5VDC	
Electrical interface	RS232/RS485/RS422 and power supply is 10-hole terminal	
Rate	0~115.2Kbps	
Electrical interface	SC	
Applicable fiber	9/125um signal mode	62.5/125um 50/125um multi-mode
wavelength	1310nm	850nm
Transmit power	-15dbm	
Sensitivity	-32dbm	
length	20KM	2KM
BER	≤10 ⁻⁹	
Dimensions	Standard industrial module	
weight	200g	
Working TEM	-20℃~+70℃	
Relative humidity	0~95%	

IV. Connection with Equipment

HK-9002/9003 and the device connection

Connect to 232 device		Connect to 422 device		Connect to 485	
900X	232	900X	422	900X	485
TXD	RXD	T+	R+	A	A
RXD	TXD	T-	R-	B	B
SG	SG	R+	T+		
		R-	T-		

When the RS232 device type is DTE or DCE as well as the form of connector are DB9 or DB25 connector, pin definitions as below:

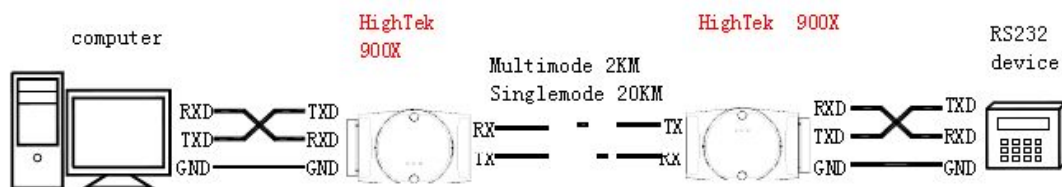
	Signal	DB25	DB9
DTE	TXD	2	3
	RXD	3	2
	GND	7	5
DCE	TXD	3	2
	RXD	2	3
	GND	7	5

Description:

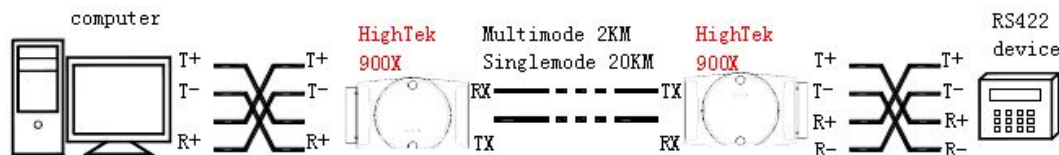
Generally speaking, computers are DTE digital terminal equipment, while devices can be directly connected with computer via RS232 interface are regarded as DCE (digital communication devices). There are some RS232 devices with non-DB25/DB9 interfaces but the other types of connector, such as terminals, then just directly connect your RS232 devices with corresponding pin of 900X's RS232 end in accordance with the above mentioned method.

V. Application examples

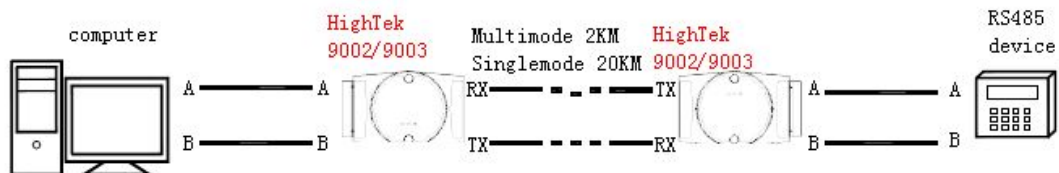
1. Use HK-9002/9003 to extend communication distance of RS232



2. Use HK-9002/9003 to extend communication distance of RS422



3. Use HK-9002/9003 to extend communication distance of RS485



VI. Power HK-9002/9003

HK-9002/9003 has two external DC power input terminals, respectively +5VDC and VPP, you can choose either one of them according to the actual use of voltage range provided by DC voltage. If your power supply is +5V DC, then you can power from +5VDC terminal; If your DC supply voltage range within +9 ~ 24V, then you can power from VPP terminals.

Note:

1. Do not apply power above 6V to the +5VDC terminal, otherwise it may cause permanent damage to HK-9002/9003!
2. Do not apply power above 30V to the VPP terminal, otherwise it may cause permanent damage to HK-9002/9003!

VII. Using caution

★ Power Wiring Precautions

Power supply of HighTek HK-9002/9003 is optional from DC9 ~ 24V or DC5V, remember not to connect DC9 ~ 24V power supply to DC5V terminals, as it may cause permanent damage to the 900X.

★ Fiber Interface Considerations

Please keep SC fiber optic seat and SC connector clean, when not use please plug with the rubber stopper.

VIII. Common Faults and Troubleshooting

1. Data communication is unsuccessful:
 - A. Check the RS232 interface is connected correctly;
 - B. Check the RS422/RS485 interface is correctly connected;
 - C. Check the power wiring is correct (when the power is connected correctly , the red Power LED will light);
 - D. Check the fiber optic SC connector is fully inserted into the socket SC.
2. Data loss or garbled:
 - A. Testing data communications equipment at both ends of the data rate, whether the format consistent;
 - B. If you have 485 lines long and there are echoes , try adding the line ends 120 ohm matching resistor;
 - C. When using the RS485 communication mode, if it is due to different manufacturers, the 485 pin definitions are different; you can try swapping the A and B.