SC09FPCR 1/2S 1/2F

Profibus DP to Fiber Repeater / Redundant Converter

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Summary

This series is designed for industrial grade Profibus-DP Optical Fiber Repeater. It supports Profibus-DP protocol, support DIP switch for setting communication rate, 1 or 2 Profibus-DP bus, Redundancy optical fiber ring network. When fiber optic has error somewhere, the system will rebuild the network link within 20ms and guarantee the normal system communication. The system will recover automatically after the troubleshooting. The product is Industrial grad with IP40 protection, DIN rail mounting, DC (9 to 36v) power input, support optical fiber link failure and bus error alarm output, dual redundant power input and isolation protection. Operating Temperature of -40 to 75☐C.

Characteristic

- Support 1 to 2 Profibus-DP ports.
- Support 1 to 2 Fiber Optic Ports, ST connector (SC, FC Optional)
- Support optical fiber link failure and Profibus bus error alarm output and LED indication
- Support DIP switch for setting communication rate
- Support Redundancy optical fiber ring network, recovery time＜20ms
- DC 9 to 36V dual redundant power input, With DC1500V voltage isolation and reverse polarity protection
- IP40 protection, , 35mm DIN-Rail Installation
- Operating Temperature : -40 to 75☐C

Ring Network

SC09FPCR Networking topology can achieve 1. point to point communication, 2. Chain network, 3. Star network, 4. Redundant dual networks and fiber optic ring network with self-healing protection

Conditions Tested for :

- IEC61000-4-2(ESD): Power ±2KV Contact, ±15KV Air, Relay ±2KV Contact, ±15KV Air, Data Cable ±15KV Air
- IEC61000-4-4(EFT):Power ±4KV, Data Cable ±4KV
- IEC61000-4-5(Surge):Power ±2KV CM/ ±1KV DM, Relay±2KV CM/ ±1KV DM
- IEC60068-2-27(Shock)
- IEC60068-2-32(Free Fall)
- IEC61000-6-2(General Industrial Standard)
- EN50121-4 (rail transit)

Overall Dimension

Top view

Front view
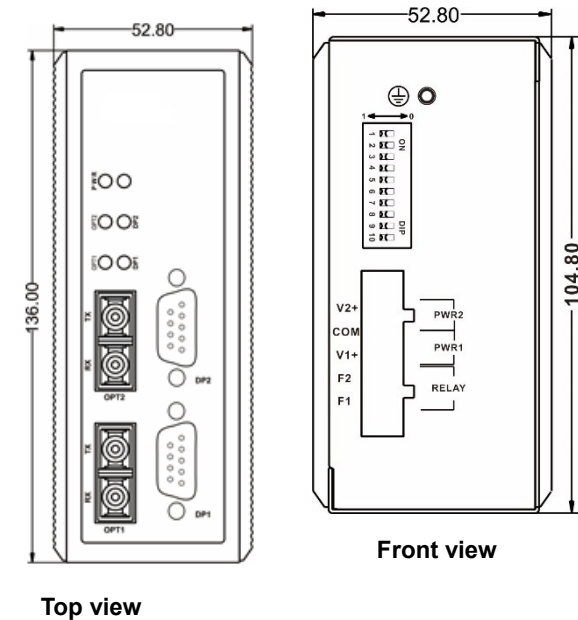
LED Indicators

LED	state	Description	Alarm
PWR	Off	Non-connect or error	No
	Green	Power is ok	No
	Red	Power Error	No
OPT1-2	Off	Non-connect or error	No
	Red	1. No optical signal. 2. Optical port fault.	Yes
	Red blink	Optical failure, but data is being sent	Yes
	Green	Fiber link is normal	No
	Green Blink	Fiber link is normal, have data	No
DP1-2	Off	Ni Profibus Signal	No
	Red	1. No data received within 2 seconds. 2. Wrong setting.	Yes
	Red Blink	DP port fault but data being sent	Yes
	Green	DP port is normal	No
	Green Blink	DP port is normal, Receiving data	No

Terminal Resistor

The Terminal resistors of the two ends of line should be on the state of "ON", the ones of intermediate node should be on the state of " OFF".
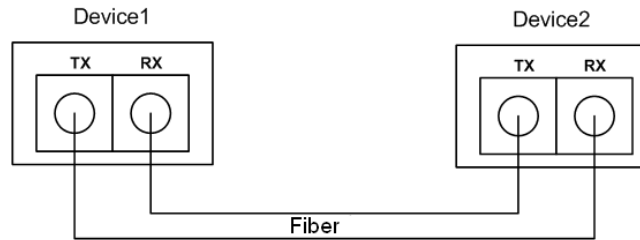
Connection

1. DP port wiring methods : 9-pin Sub-D socket connector.

| Profile	Pin	Signal type	Definition
	1	Shield	Shield
	2	-	-
	3	RxD/TxD-P	Data line B
	4	-	-
	5	Ground	Data reference potential(ground)
	6	+5V Output	Supply voltage（+5V）
	7	-	-
	8	RxD/TxD-N	Data line A
	9	-	-

2. Fiber connection methods:

The RX connect to other side TX, and TX to RX accordingly. SC09FPCR 1S 1F is one fiber port device, suitable for point-to-point connection, SC09FPCR 1S 2F is dual fiber port device, suitable for bus network topology, one optical port (OPT1) to connect with front-end equipment, the other optical port (OPT2) with back-end equipment, optical fiber must be with cross connection.

3. Power connection as shown in the figure below, this device supports dual redundant input, V1+, V2+. COM is –ve terminal with double power input sharing.
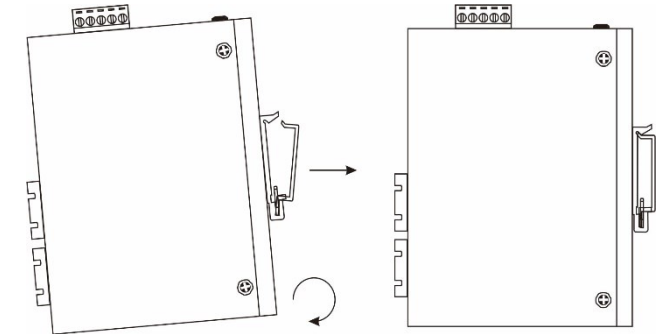4. Relay alarm output connection: F1, F2 in normal open.
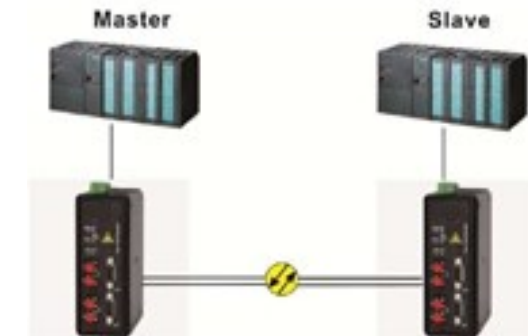5. When alarm, make F1, F2 both contacted in series with external alarm circuit (e.g., buzzer, etc.).
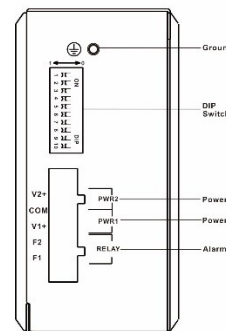
DIN-Rail Installation

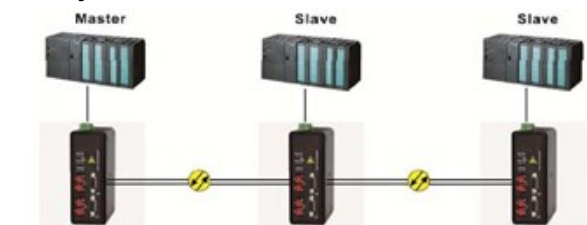SC09FPCR 1/2S 1/2F has 35mm DIN-Rail installation, the installation steps as shown in the pic.
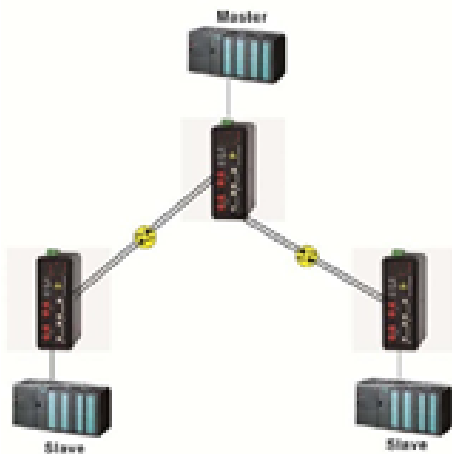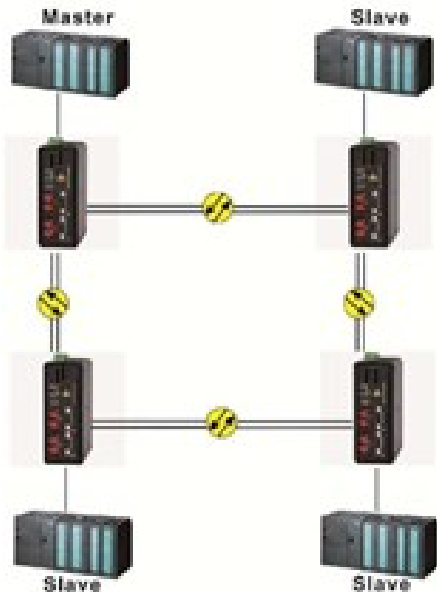

Typical Application

Point to Point

Daisy Chain

Star Topology

Redundancy optical fiber ring network topology

Baud rate switch settings

SW	Function
S1	=1(default)　enable OPT1 Fiber port alarm output =0 disable OPT1 Fiber port error alarm output
S2	=1(default)　enable OPT2 Fiber port alarm output =0 disable OPT2 Fiber port error alarm output
S3…S6	=0000　set DP1 bus rate as 9.6Kbps =0001　set DP1 bus rate as 19.2Kbps =0010　set DP1 bus rate as 45.45 Kbps =0011　set DP1 bus rate as 93.75Kbps =0100　set DP1 bus rate as 187.5Kbps =0101　set DP1 bus rate as 500Kbps =0110　set DP1 bus rate as 1.5Mbps =0111　set DP1 bus rate as 3Mbps =1000　set DP1 bus rate as 6M bps =1001　set DP1 bus rate as 12M bps =1111　set DP1 bus rate in Auto
S7…S10	=0000　set DP2 bus rate as 9.6Kbps =0001　set DP2 bus rate as 19.2Kbps =0010　set DP2 bus rate as 45.45Kbps =0011　set DP2 bus rate as 93.75Kbps =0100　set DP2 bus rate as 187.5Kbps =0101　set DP2 bus rate as 500Kbps =0110　set DP2 bus rate as 1.5Mbps =0111　set DP2 bus rate as 3Mbps =1000　set DP2 bus rate as 6M bps =1001　set DP2 bus rate as 12M bps =1111　set DP2 bus rate in Auto