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Self-healing Dual Fiber Serial Converter, Model SC12FS SH I

Serial communication has distance limitations. Breakages in multi drop connections lead to loss in data making it unsuitable for critical communication. The SC12FS SH I is a Self-Healing RS232/RS485/422 to Dual - Full Duplex Fiber port converter forming a Redundant Optical Fiber ring. Instead of multi dropping Serial devices on RS485, you can effectively multi drop them on Fiber, giving you the advantage of Redundancy, distances as large as 100 km instead of 1.2Km, as well offering immunity to various types of noise and increase the dependability of data.

A communication failure is sensed, if any of the Slave node fails or the Power goes off or there is a break in fiber etc. If the primary path breaks, the communication continues unhindered from the Redundant path. The communications model is one Master and multiple Slaves. It is easy to structure a network of Star, Daisy Chain or Loop type. You need at least 3 converters to form a ring

Specifications

Ports

Serial * 1	: RS232/RS485/RS422
Serial Port Connector	: 7 pin Screw type connectors
Baud Rate	: 300bps to 115.2Kbps
Fiber * 2	: Full Duplex
Code error rate	: below 10^{-9}
Wavelength	: SM :1310 (default) / 1550 nm, MM :1310 (default) / 850 nm
Cable	: SM : 09/125 µm, MM : 62.5/125 µm or 50/125 µm
Fiber Connectors	: ST, SC or FC. Select any one.
Distance	: MM 2 to 5km. SM 20km. Longer distances are available as options in SM
Tx Power	: -8.5dBm
Sensitivity	: -35 dBm
Code	: HDB3

Power

Power supply	: Options: DC 12, 24, 48 OR 110-370V DC OR 230V AC (Range 85 to 265V)
	: Dual Redundant in DC 12, 24, 48V Option only
	: Reverse Polarity Protection for DC
Power	: <2W
Alarm Relay	: Relay: 24V DC 1 Amp. Normally Off for Power failure.

Mechanicals

Dimensions	: 110mm × 97mm ×33mm
Weight	: 500 gm
Mounting	: DIN Rail
Enclosure Classification	: IP40

Operating Conditions

Working temperature	: -20 to +75°C
Storage temperature	: -40 to +85°C
Relative humidity	: 95% non-condensation

Protection

MTBF	: Better than 100,000 hours
ESD Protection:	: 15 KV ESD Surge Protection for all signals
Isolation Protection	: 2.5KV Optical Isolation for Power and Serial Port
Surge Protection	: 600W on RS485 lines

LED Indicators

PWR 1, 2	: Power 1 & 2	Tx / RxA	: A Data Send/Receive, Green
MASTER	: Master station, Red	Tx / RxB	: B Data Send/Receive, Green
SUB	: Slave station, Green	TXD	: Serial port Data Send, Green
LOOPA	: Fiber port A receiving, Green	RXD	: Serial port Data Receive, Green
LOOPB	: Fiber port B receiving, Green		

(Loop A & Loop B LED status can be used to derive the Optical connection / Loop back test.)

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DIP Switches:
DIP switches are for the configuration of the Master and Slave units and to add a 120 Ohm termination resistor on RS-485 port.

Power Supply connection						
PIN	1	2	3	4	5	6
Signal	V1+	V1-	RY+	RY-	V2+	V2-
Signal type	DC12V, DC24V, DC48V DC110-370V AC85-265V		Alarm Relay		DC12V, DC24V, DC48V	

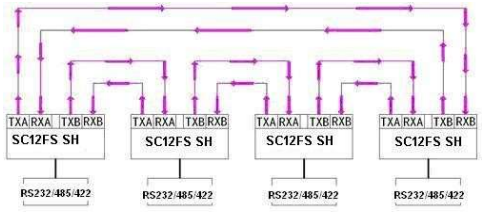
RS-232/485/422 terminal connection							
PIN	1	2	3	4	5	6	7
Signal	TX+(A+)	TX-(B-)	RX+	RX-	GND	TXD	RXD
Signal Type	RS-422/RS-485		RS-422		RS-232		

Approvals

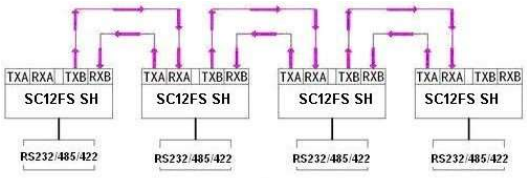
IEC 60950-1 / EN 60950-1: Safety
EN55032: Conducted & Radiated Disturbances
IEC 61000-3-2 Harmonic Current Emission
IEC 61000-3-3 Voltage Fluctuations & Flicker
EN55024

IEC 61000-4-2
IEC 61000-4-3
IEC 61000-4-4
IEC 61000-4-5
IEC 61000-4-6
IEC 61000-4-8
IEC 61000-4-11

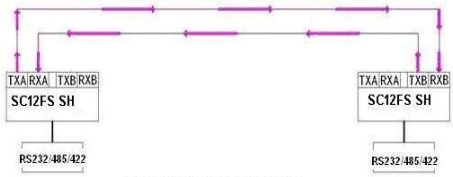
CONNECTION ARCHITECTURES



Ring network connection



Chain network connection



Point-to-point connection

Model Selection Code: SC12FS-SH-I M/SXXX YY ZZZZ

SC12FS SH	: Base Model for Self Healing Serial to Dual Fiber Converter
I	: Isolated Serial Ports
M/S	: M : Multimode. S : Singlemode
XXX	: Distance for SM: 020/040/060 Km. 20Km is default for Singlemode
YY	: Connector: SC/ST/FC
ZZZZ	: A230 = 230V AC. Range 85 to 265V AC : D220 = 220V DC. Range 110 to 370V DC : D12 = 12V DC, D24 = 24V DC, D48 = 48V DC (This option is with Redundant supplies)