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SAN TELEQUIP
Connecting. Converting. Leading!

Document Name: User Manual for Self-Healing Serial to Fiber Converter Model SC12 FS SHI

The SC12FS SHI is used to transmit the RS232 / RS485 / RS422 signal by the fiber optic ring network at a high rate, over long distances, offering immunity to various types of noise and increasing the dependability of data.

The communications system model of SC12FS SHI is one Master to multiple Slaves.
It is easy to structure a network of Star, Chain and Loop type.

It is a Self-Healing product. When any of Slave nodes fails or the Power is cut off or there is a break in fiber etc, the communication shifts to the alternate loop & resumes normal communication, through the normal loop, once the fault is restored.

For forming a Ring, you need at least 3 converters else it is a Point to Point communication

Specifications :

Ports

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

Power

Power supply	: Options: DC 12 (9-18V), 24 (18 to 36V), 48 (36 to 72V), 110-370V AC 110 to 270V
	: Dual Redundancy for DC 12, 24 & 48V DC Inputs
Power	: <2W
Relay	: Alarm Relay: 24V DC 1 Amp

Mechanicals

Dimensions	: 144mm × 97mm ×33mm
Weight	: 500 gm
Mounting	: DIN Rail

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 (Optional)
Isolation Protection	: 2.5KV Optical Isolation for Power and Signals (Optional)
Surge Protection	: 600W on RS485 lines

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DIP Switch & LED's details :

DIP Switch Details:

1. DIP switch 1: In the entire loop, 1 Converter has to be set as Master & other Converters as Slaves. Select Master with MAIN as ON and select Slave with SUB ON.
2. DIP switch 2: To add 120Ω termination resister across RS485 interface /Port.

DIP NUMBER	ON/OFF	FUNCTION
1	ON	Master (MAIN)
	OFF	Slave (SUB)
2	ON	With 120 Ω Terminations
	OFF	Without 120 Ω Terminations

LED Details:

10 LED's Indication on Front Facia

LED Name	LED Colour	ON/OFF	LED FUNCATION
PWR1 (Primary Power)	Red	ON	SC12FS SHI is Powered ON
		OFF	No Power to SC12FS SHI
PWR 2 (Secondary Power)	Red	ON	SC12FS SHI is Powered ON
		OFF	No Power to SC12FS SHI
SUB	Green	ON	SUB (Slave) mode selected
MAIN	Red	ON	MAIN (Master) mode selected
LOOPB	Green	ON	Fiber signal is detected with another SC12FS SHI
T/RXB	Green	Blink	
LOOPA	Green	ON	Fiber signal is detected with another SC12FS SHI
T/RXA	Green	Blink	
RXD	Green	Blink	Data Received from Fiber Port
TXD	Green	Blink	Data Received from RS232 /RS485/RS422

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	

Serial Port Pin Details

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-232		

Connections:

RS232 Connection: Connect the TX of the converter to the RX of the external equipment and RX to the TX, GND to the GND

Signal of SC12FS SHI	Will Connect to
TXD	RX
RXD	TX
GND	GND

RS485/422 connection: RS485 / 422 is auto selectable. Pin 1 (T+) and Pin 2 (T-) are used for RS485, and pin 1,2,3,4 are used for RS422.

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Signal of SC12FS SHI	Will Connect to
TX+ (A+)	RX+ of your device
TX- (B-)	RX- of your device
RX+	TX+ of your device
RX-	TX- of your device

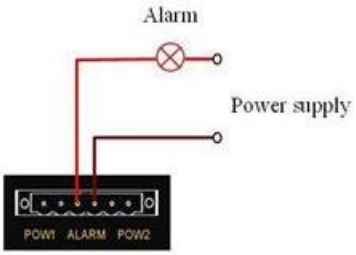
For RS485 2 Wire

Signal of SC12FS SHI	Will Connect to
TX+ (A+)	TX+ of your device
TX- (B-)	TX- of your device

Important: It is necessary to add a matching resistance of 120 Ohm both at the start & at the end of the RS485 loop. (By turning on the switch 2)

Fiber connection: To construct a self-heal loop, the fiber network must be constructed as A to B and B to A, TX to RX and RX to TX. In a self-heal loop network of 2 fibers there can be only one master station but several slave stations. Following is a sample connection.

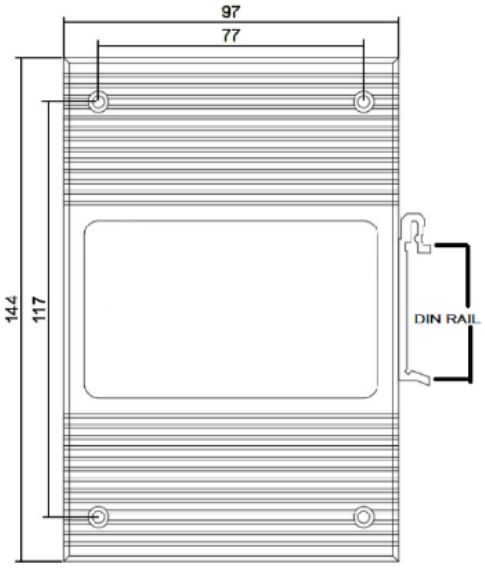
Power:



Options: DC 12, 24, 48,110-370V, AC 85 to 265V
Dual Redundant (DC 12, 24, 48).
Please be very careful about the polarity.

Alarm Relay: During a supply failure the Relay with a load capacity of 1A (24VDC) can be used to generate an Alarm. Relay is normally off.

Dimensions



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CONNECTION ARCHITECTURES