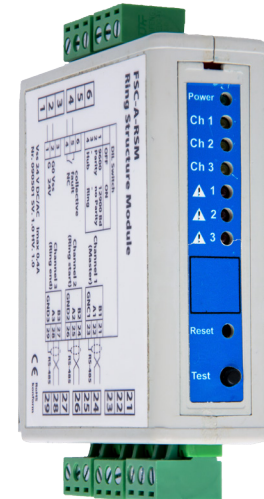


Ring Structure Module. Save RS-485 hub and repeater module for the change of the standard bus topology into a star or ring topology.



Content

Section (continuation)	Page	Section (continuation)	Page
Range of Application	1	Test Button	3
Function	1	Terminal Layout	3
Technical Data FSC-A-RSM	2	Connection Examples	4
Dip Switch Settings	3		

Range of Application

- The RSM is an intelligent 3 channel hub driver for RS-485 networks.
- The Ring Structure Module can change a standard bus topology into a star or ring topology.
- All channels are monitored at any time in regards to any cable short circuits.
- The ring mode protects the system against data loss in case of a cable interruption.
- Thanks to the galvanic isolation, maximum safety can be achieved in case of disturbance in the network.
- The Ring Structure Module can be used to extend existing RS-485 networks.

Function

The state of the art Ring Structure Module has been developed especially for RS-485 networks used in building management systems. The realization of a star or ring topology network is very easy and guarantees highest flexibility in the applications. The maximum cable length for each of the channels is up to 1'200 m. All channels are constantly monitored in regards to short circuits or cable interruptions. If used as a hub the RSM is acting as star point. It allows the realization of a one cable RS-485 line with a ring-like behavior. Channel 1 serves as input channel (from the master or main controller), channel 2 and 3 are start and end point of the ring. All RS-485 channels are galvanically isolated between each other. This enables a high interference suppression and isolation in the network. In case of a short circuit in one of the channels, all other channels are not affected. Alarm indications are visually saved. By that, detection of sporadic interferences is possible. One potential free contact indicates collective alarm message. With the test button the integrity of the bus line can be checked even without communication.

Technical Data FSC-A-RSM

Nominal Voltage	20-26 V AC, 19-36 V DC
Power Consumption	max. 4 W
LED Display	7 LEDs for:
	- power / ring mode (green)
	- communication Ch1, Ch2, Ch3 (yellow)
	- alarm clarm Ch1, Ch2, Ch3 (red)
RS-485 Channels	3 channels galvanically isolated
	max. 1000 V
Quantity of Slaves	per line max. 253 for 1/8 load,
	or 30 participants with 1/1 load
Cable Length	max. 1'200 m per channel
Settings	- 9600 baud rate, 19200 baud rate, 1 stop bit
	- parity (10-11 bit per byte)
	- hub / ring mode
Delay of Signal	approx. 1/2 bit
Line Termination	channel 1 - internal without line termination
	channels 2, 3 - internal 120 ohm line termination
Potential Free Contact	collective alarm message, NC 230 V / 1 A
Ambient Temperature	0°C up to +40°C
Humidity Test	20-90% RH, non-condensing
Protection Degree	IP20
Connections	plug-in connections max. 1.5 mm ²
Dimensions	(W x H x D) 27 x 107 x 89 mm
Mounting Instructions	standard rail 35 mm
	DIN EN 50022-35
	This device fulfills all requirements of the CE mark

Dip Switch Settings

Default settings are underlined:

- 1) **OFF= 9600 baud rate** ON= 19200 baud rate
- 2) **OFF = Parity Bit** (11Bit = Modbus RTU) ON= no Parity Bit (10Bit)
 1 Start + 8 Data + 1 Parity + 1 Stop = 11
 Modbus RTU should always have 11 Bit Frame
 If it is not working try ON
- 3) OFF = no functionality
- 4) OFF = Hub (repeater function) **ON= Ring Mode**
 Connection:
 Channel 1 = Master (without line termination 120 ohm)
 Channel 2 = Ring start (internal 120 ohm)
 Channel 3 = Ring end (internal 120 ohm)

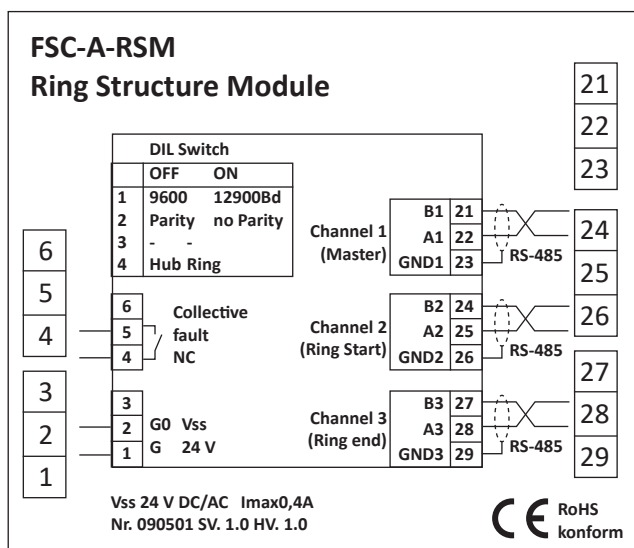
Change in settings will only be active after power interruption or through confirmation via reset button (5 s).

The RSM changes to hub mode after a ring failure. The alarm LEDs are blinking, collected message contact opens. Communication continues. Through pressing the reset button (5 s) this situation is being reset.

Test Button

Through pressing the test button, the connection parity of the ring can be tested without communication.

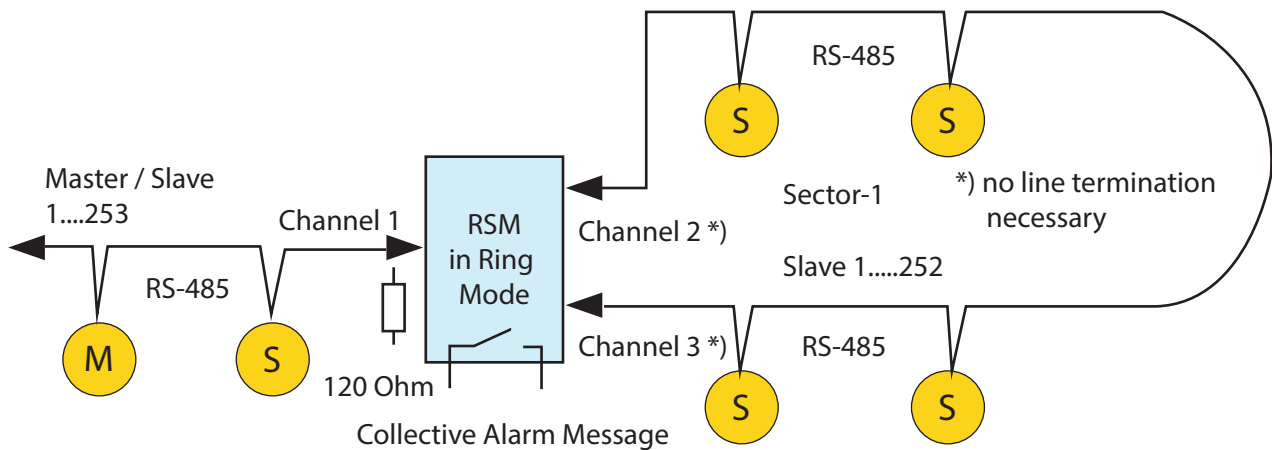
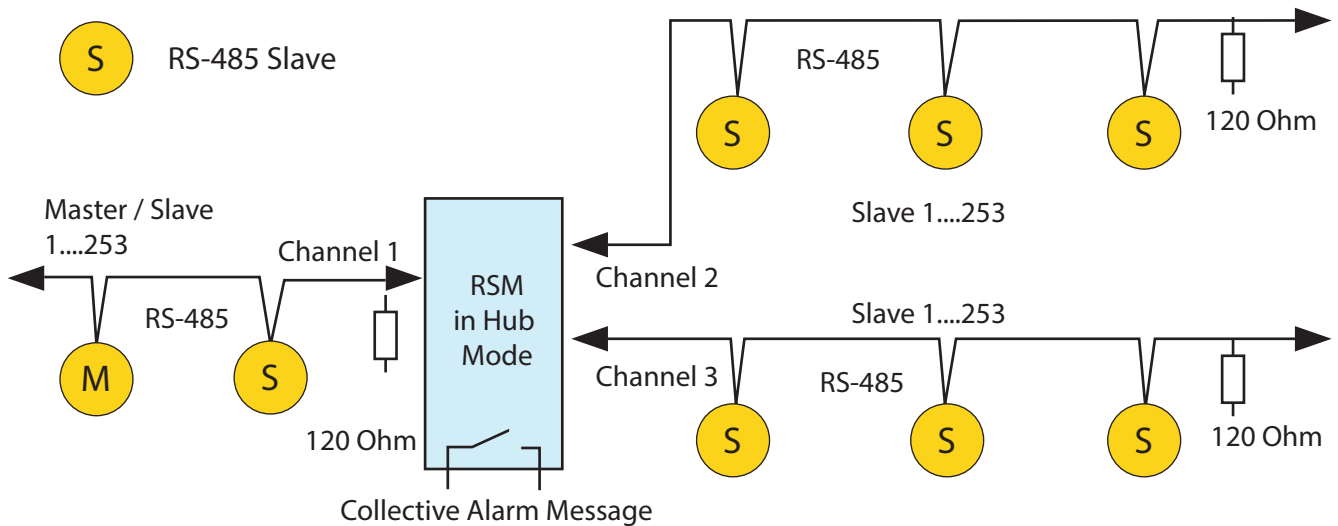
Terminal Layout



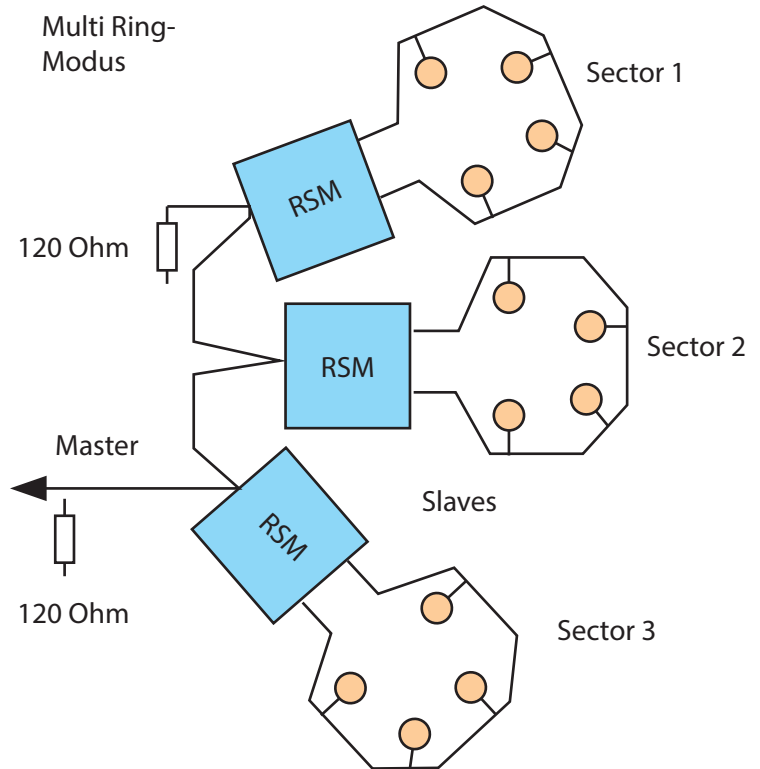
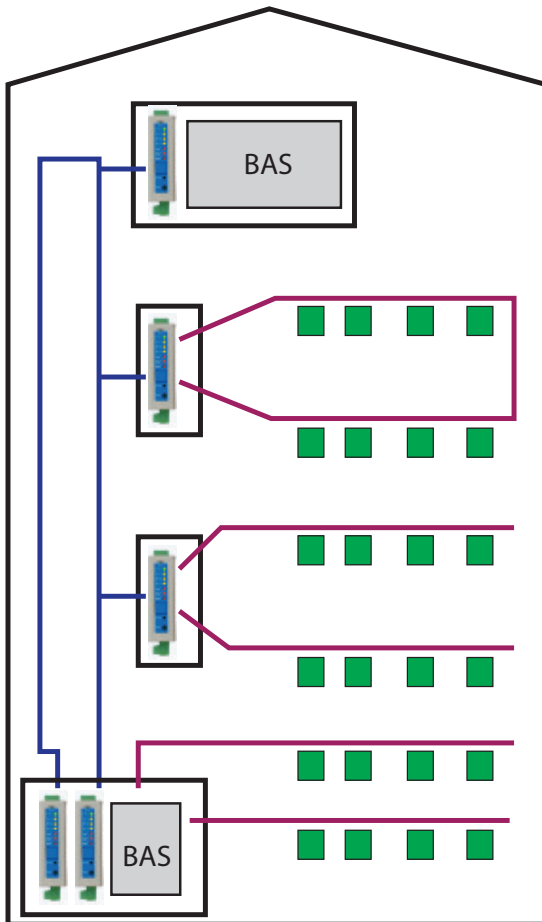
Connection Examples

M RS-485 Master

S RS-485 Slave



Connection Examples



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