

LSS



PROFIBUS-DP Repeater **Type 1 to 1 and 1 to 5** (with optional level converter module)

The LSS Profibus-DP Repeaters 1 to 1 and 1 to 5 are used to couple two or a maximum of six Profibus-DP bus segments. When passing through the repeater, the data signals are regenerated in amplitude, bandwidth, and edge steepness.

It has a total of 2 (for the 1 to 1 repeater) or 6 connection areas for the bus segments, which are galvanically isolated from each other. Each segment connection area has two screw terminals for connecting the bus cable including shielding, a termination switch and a yellow LED to indicate bus activity. Various operating modes can be selected via a mode selector switch.

For the use of Profibus-DP signals in industrial rail systems, segment 2 of the LSS Profibus-DP repeater 1 to 1 can be equipped with an optional level converter module. With the repeater 1 to 5 all segments 2 to 6 can be equipped with such a module.

LSS level converters are used to process an existing Profibus signal so that it can be transmitted via these rail systems.

In particular, the transmission level is increased. This raises signal-to-noise ratio. This reduces the influence of interference between signal rails on the one hand and between signal rails and conductor rails on the other. This means that data signals and load currents can be transmitted simultaneously via an industrial rail system.

Technical Specifications:

	Circuit board 1 to 1	Circuit board 1 to 5
CPU	ALTERA FPGA Cyclone III	
PROFIBUS Connectors	2 PHOENIX CONTACT 2 pin screw terminals with clamping of the cable shield	6 x via PHOENIX CONTACT 2 pin screw terminals with clamping of the cable shield
	1 SUB D-9 connector (female) directly coupled with segment 1	
Operation	<ul style="list-style-type: none"> - Operating mode selector - Termination switch in each segment 	
Indication	3 LED to indicate operating voltage	
	2 LED per segment (bus activity)	6 LED per segment (bus activity)
Power supply	18 – 36 V DC via PHOENIX CONTACT connector 3 pin, 5,08mm pitch	
Power consumption	3 W (while using level converter max. 20W)	
Operating temperature	0 °C – 60 °C (not condensed)	
Ambient temperature	0 °C – 45 °C	
RoHS	Approval	
Design	For mounting on standard DIN rail	
Dimensions (W x H x D)	280 x 90 x 45 mm	140 x 90 x 45 mm
	280 x 90 x 60 mm (using LSS level converter)	140 x 90 x 60 mm (using LSS level converter)
Weight	180 g	404 g
Order number	5300	5301
Optional	LSS level converter	
Power supply	By base board	
Power consumption	3W per level converter	
Weight per device	35 g	
Order number	5311	

Designs:



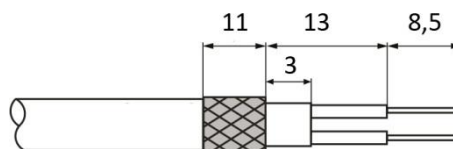
Order no.: 5300 with level converter



Order no.: 5301 with cable clamps

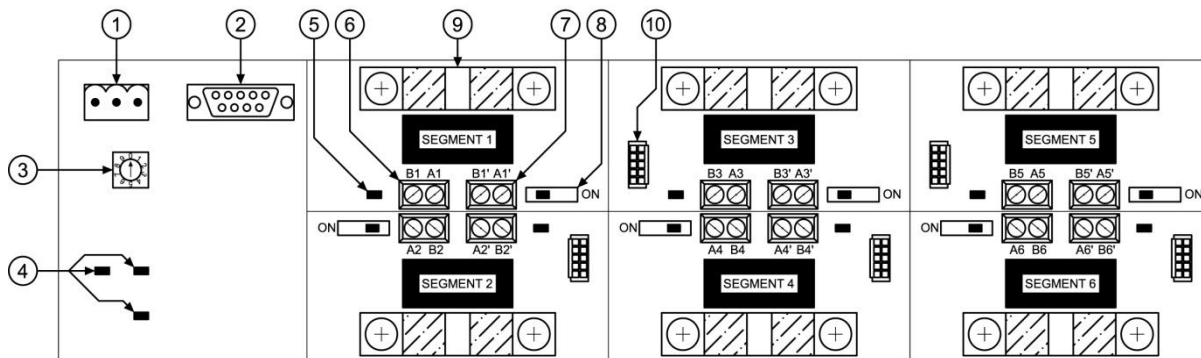
Connect the bus cable

Connect the Profibus-DP bus cable to the RS 485 Repeater as follows:



1. Cut the Profibus-DP cable to the required length.
2. Isolate the Profibus-DP cable as shown in the figure.
3. The shield braid should be wrapped around the cable and secured with copper tape. The shield clamp will later be used as a strain relief and shield intercepting element, while providing a secure connection to the cable shield.
4. Connect the same coloured wires (green/red for Profibus-DP bus cable) to the same connector A or B (e.g. always connect connector A with green wire and connector B with red wire).
5. Fasten the shield clamps so that the shield is blank under the shield clamp.

View from above and marking:



1	Power Supply	1	2	3
		+ 24 V DC	- 24 V DC	PE
2	SUB-D 9 connector (female) for Profibus-DP (coupled with segment 1)			
3	Rotary switch for operating modes			
4	LED for indication of the operating voltage			
5	LED for indication of the bus activity			
6	Profibus-DP connection			
7	Terminable Profibus-DP connection			
8	Termination switch			
9	Cable shield mounting			
10	Connection level converter			

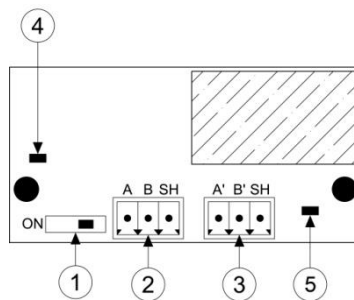
Operation mode selector:

	0	Reserved for future applications
	1	Segments 2 to 6 are separated from data traffic
	2	Reserved for future applications
	3	Reserved for future applications
	4	Reserved for future applications
	5	Baud rate set to [500 kbit/s]
	6	Baud rate set to [1,5 Mbit/s]
	7	Baud rate set to [3 Mbit/s]
	8	Baud rate set to [6 Mbit/s]
	9	Baud rate set to [12 Mbit/s]

The optional level converter module



View from above and marking:

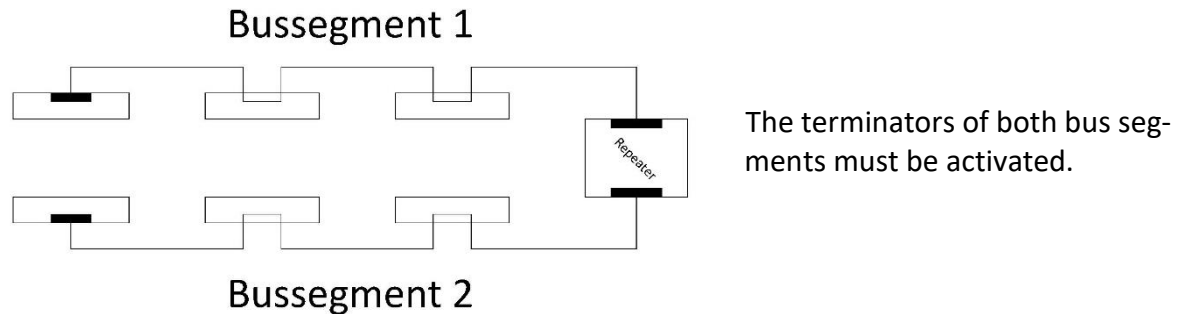


1	Termination switch
2	Profibus-DP connection
3	Terminable Profibus-DP connection
4	LED for indication of the operating voltage
5	LED for indication of the bus activity

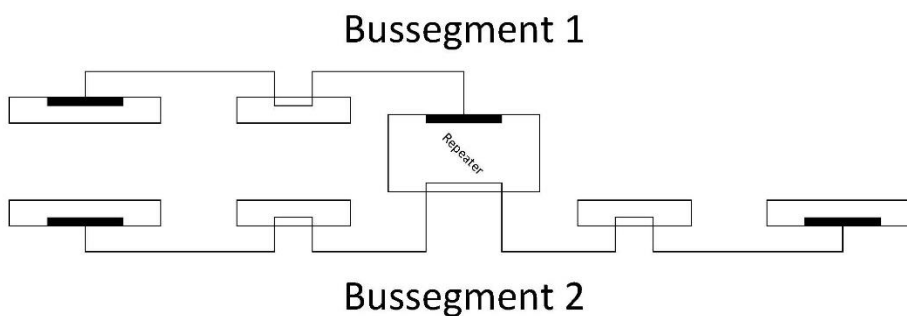
Note: When a level converter module is used, the bus connections are no longer available in the segment area where the level converter module is placed!

Possibilities to integrate the Profibus-DP repeater into a bus system

1. Both bus segments are terminated

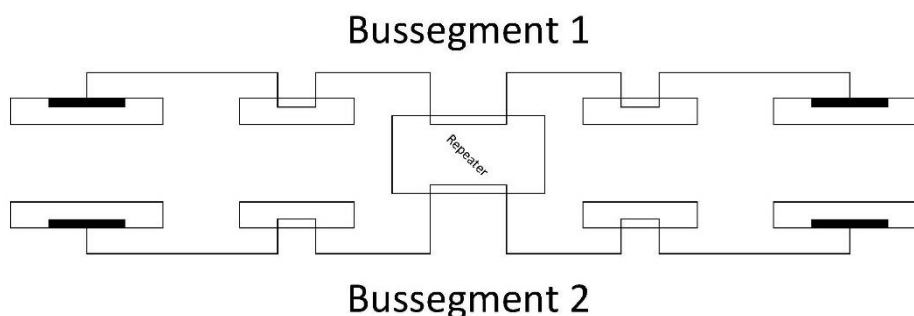


2. Bus segment 1 is terminated; bus segment 2 is looped through



The terminator of bus system 1 must be activated and deactivated in bus system 2.

3. Both bus segments are looped through



The terminators of both bus segments must be deactivated.