

I/O adapter 520ADD03

Connections and settings

Application, characteristics and technical data have to be taken from the hardware data sheet:

520ADD03 data sheet 1KGT 150 904

Operation

The I/O adapter 520ADD03 is used to connect more than 16 RTU520 I/O modules to an I/O bus with RS485 or fiber optic connection in RTU520 or RTU540.

The adapter is also used to extend the WRB I/O bus for decentralized I/O applications up to 2 km distance and if distances of more than 30 cm between the I/O adapters are required.

In addition the I/O adapter 520ADD03 is used to connect RTU520 I/O modules to an RTU560.

The I/O adapter is always used together with the power supply unit 520PSD01.

Processing Functions

The I/O adapter is the first adapter in a DIN rail-mountable I/O assembly which starts with a new virtual rack number.

The adapter converts the SPB I/O bus (serial peripheral bus) with electrical RS485 or fiber optical connection to the WRB I/O bus.

The module is available in two versions (rubrics):

- R0001: RS485
- R0002: glass fiber optical, 840 nm


Settings

The virtual rack address will be set by DIP switch S1. Examples for virtual rack address settings can be found in Fig. 8 to Fig. 10.

Setting of rack address with switch S1

	Rack No	S1-1	S1-2	S1-3
ON 1	1	Off	Off	Off
OFF 2	2	On	Off	Off
OFF 3	3	Off	On	Off

	Rack No	S1-1	S1-2	S1-3
	4	On	On	Off
	5	Off	Off	On
	6	On	Off	On
	7	Off	On	On

	Parameter name	Default	Parameter location
Rack		1 (range: 1... 7)	I/O assembly

The virtual rack address must be the same as the address selected by S1 on 520ADD03. The same virtual rack address is selected for all I/O assemblies connected to 560ADD03 by the WRB I/O bus.

In RTU configurations without 520ADD03 the virtual rack address 1 has to be selected.

Signaling

The module has two green LEDs for signaling the activity on the I/O bus.

Connections

The RTU520 I/O modules are connected to the WRB I/O bus via connector X1. The WRB I/O bus to the next I/O adapter is connected to X2 (see Fig. 2 and Fig. 4).

The SPB I/O bus RS485 is available on the connectors X4 and X5 (R0001). Alternative the fiber optical connection can be used on the connectors X6 to X9 with 520ADD02 R0002.

RS485 SPB I/O bus connector X4 and X5

X4-1 X5-1	X4-2 X5-2	X4-3 X5-3
TB	TA	Shield

The usage of the adapter 520ADD03 within an RTU520 DIN rail configuration is shown in Fig. 8.

The usage of the adapter 520ADD03 within an RTU540 DIN rail configuration is shown in Fig. 9.

The principle usage of the adapter 520ADD03 within an RTU560 is shown in Fig. 10.

ADVICE

To prevent damage on the connected modules de-energize the system before plugging or unplugging the I/O bus connectors.

ADVICE

Do not change the physical SPB I/O bus medium (electrical, fiber optical) more than once within one RTU I/O bus configuration. Otherwise communication failures due to signal delay effects can occur.

ADVICE

To prevent unintended disconnection of the I/O bus connectors end stops (e. g. BAM3 1SNK900001R0000) shall be used at both ends of the I/O assembly.



Figure 1: 520ADD03 R0001 front plate

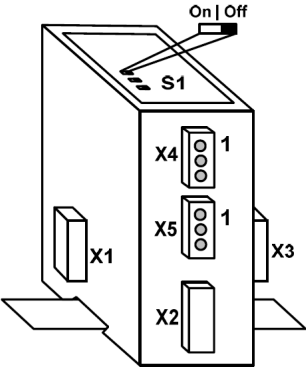



ABB AG		520ADD03 R0001							
	X1	X2	X4	S1 Rack address					
	Output to I/O	Output to AD	RS485 1 TB 2 TA 3 GND	Rack	S1-1	S1-2	S1-3		
				1	off	off	off		
				2	on	off	off		
		X3	X5	3	off	on	off	 	
	Input from PSU	RS485 1 TB 2 TA 3 GND	4	on	on	off			
			5	off	off	on			
6			on	off	on				
7			off	on	on				

Figure 2: 520ADD03 R0001 label



Figure 3: 520ADD03 R0002 front plate

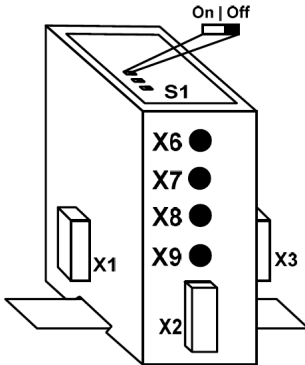



ABB AG		520ADD03 R0002						
	X1	X6	X7	S1 Rack address				
	Output to I/O	Fiber TX Input	Fiber RX Input	Rack	S1-1	S1-2	S1-3	
				1	off	off	off	
	X2	X8	X9	2	on	off	off	
	Output to AD	Fiber TX Output	Fiber RX Output	3	off	on	off	
				4	on	on	off	
				5	off	off	on	
X3			6	on	off	on		
Input from PSU			7	off	on	on		

Figure 4: 520ADD03 R0002 label

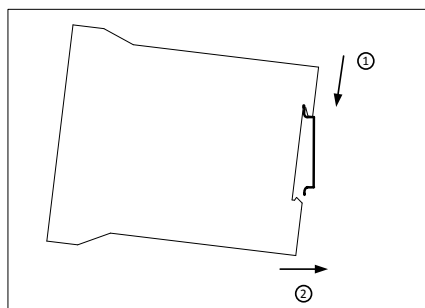


Figure 5: RTU520 DIN rail mounting - step 1

- 1 Insert upper edge into DIN rail and push downwards
- 2 Push lower edge towards DIN rail and snap in the module

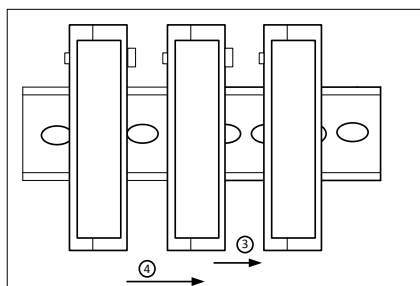


Figure 6: RTU520 DIN rail mounting - step 2

- 3 + 4:
- Shift one module connector into the other starting from right to left

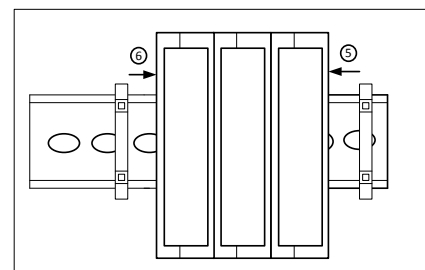


Figure 7: RTU520 DIN rail mounting - step 3

- 5 + 6:
- Mount end stops at the left and right side

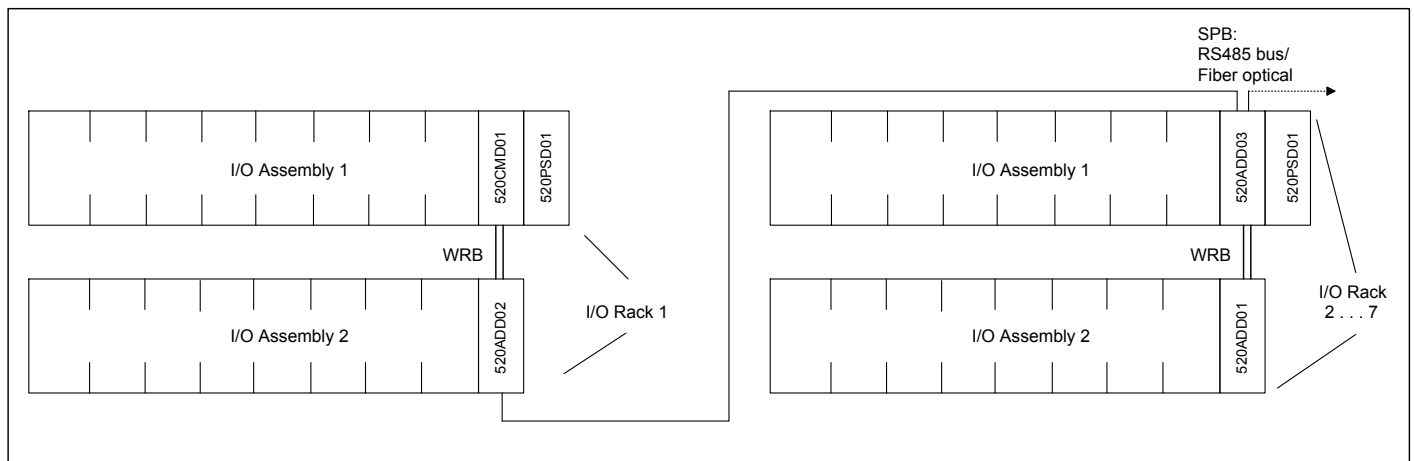


Figure 8: 520ADD03 used in RTU520 with extension I/O

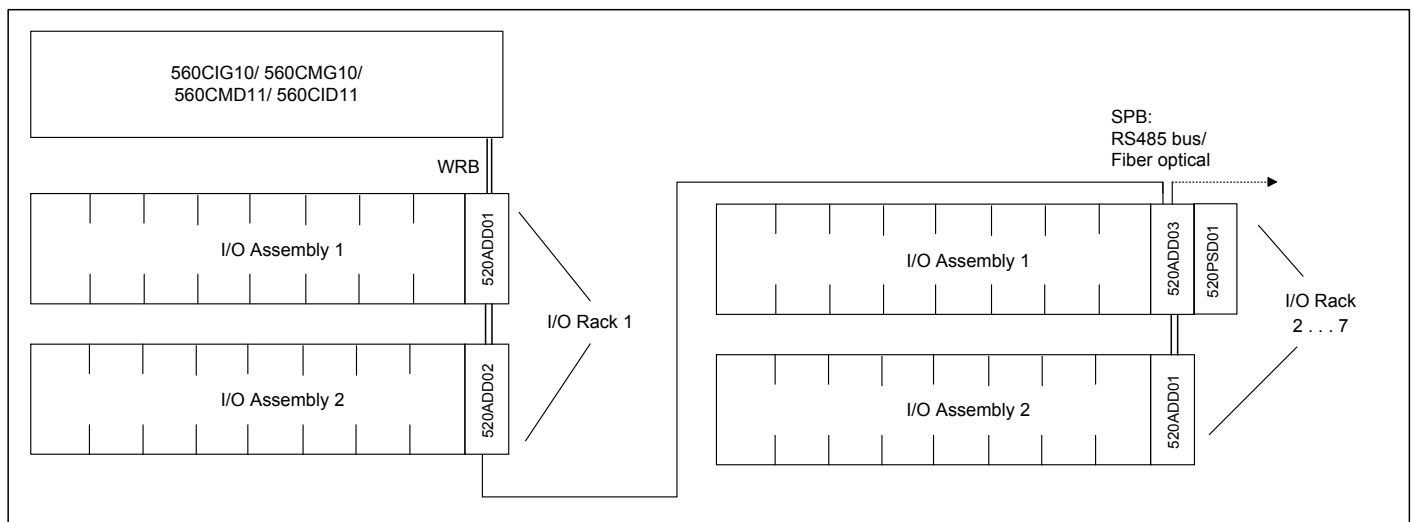


Figure 9: 520ADD03 used in RTU540 (560CIG10/ 560CMG10/ 560CMD11/ 560CID11)

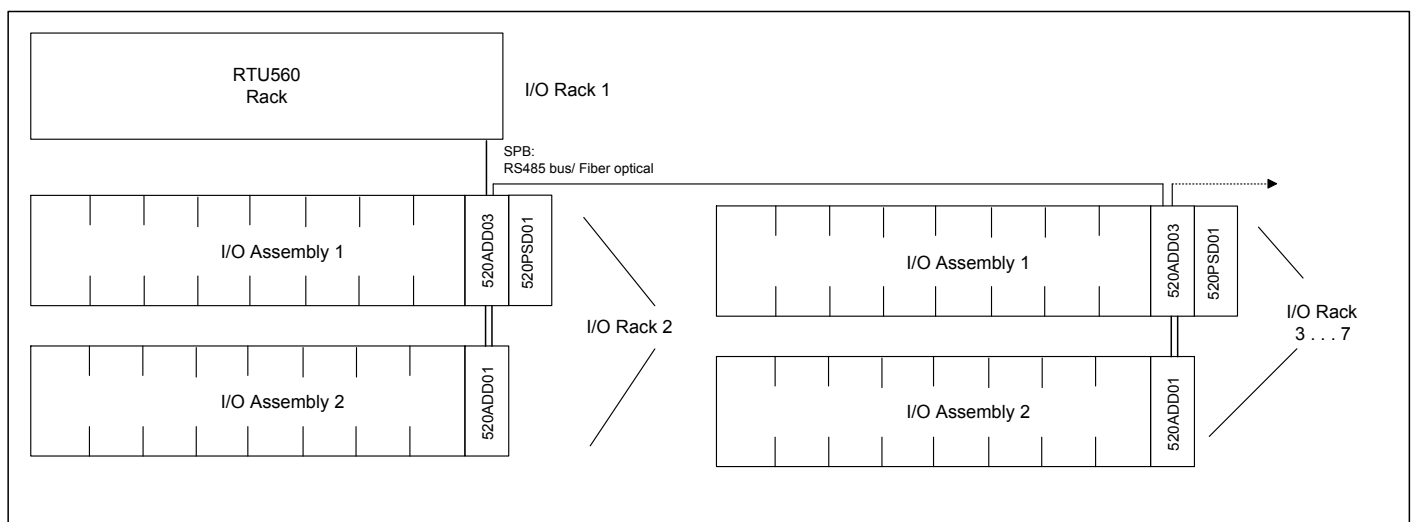


Figure 10: 520ADD03 used in RTU560 with RTU520 I/O modules



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