

# I/O adapter 520ADD02

## Connections and settings

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

520ADD02 data sheet 1KGT 150 871

### Operation

The I/O adapter 520ADD02 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 520ADD02 is used as a stand-alone module to connect RTU560 I/O modules (e. g. 23BE40, 23BE50, 23BA40) to an RTU540.

### Processing Functions

The I/O adapter is connected to the WRB I/O bus (wired OR bus) and generates the addresses for the connected I/O modules within the I/O assembly automatically. The I/O adapter is always the last adapter unit within the virtual I/O rack 1.

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


The module is available in two versions (rubrics):

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

### Settings

The jumper S1 is used to change the start address of the first I/O module connected to the 520ADD02. In position 2-3 an offset is calculated to the start address. So it is possible to add up to 8 I/O modules to the previous I/O assembly (see Fig. 8 and Fig. 9). In RTU500 configuration the parameter "8/8 addressing mode" has to be selected.

If max. 4 I/O modules are connected to the previous I/O assembly the jumper S1 is in position 1-2 (see Fig. 10). Thus no offset is added. This configuration is only possible with RTU540. In the RTU500 configuration the parameter "4/4/4/4 addressing mode" has to be selected at the I/O assembly.

 Parameter name	Default	Parameter location
<b>Addressing mode</b>	8/8	I/O assembly
<ul style="list-style-type: none"> <li>– 8/8: upto 8 I/O modules per I/O assembly, maximum 2 I/O assemblies per virtual I/O rack</li> <li>– 4/4/4/4: upto 4 I/O modules per I/O assembly, maximum 4 I/O assemblies per virtual I/O rack (not used with RTU520)</li> </ul>		

### 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 previous adapter or a communication module is connected at X2 via the WRB I/O bus. (see Fig. 2 and Fig. 4)

The RS485 SPB I/O bus is available on connector X3. In parallel the fiber optical output can be used (see notice below).

#### RS485 SPB I/O bus connector X3

X3-1	X3-2	X3-3
TB	TA	Shield

The usage of the adapter 520ADD02 within an RTU520 DIN rail configuration is shown in Fig. 11.

The usage of the adapter 520ADD02 within an RTU540 DIN rail configuration is shown in Fig. 12 and Fig. 13.

#### 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: 520ADD02 R0001 front plate

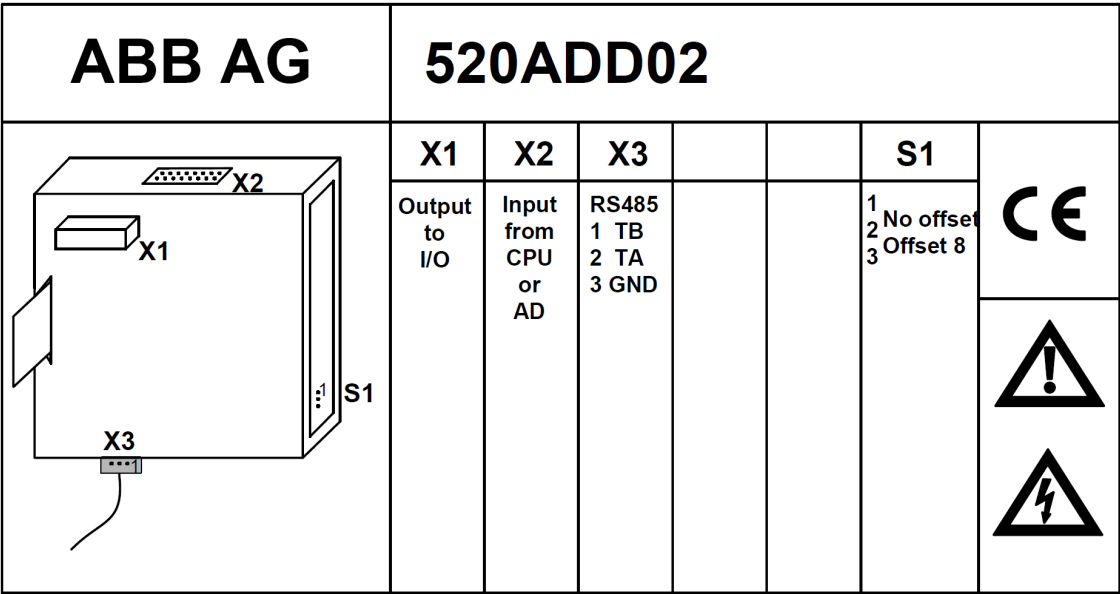


Figure 2: 520ADD02 R0001 label



Figure 3: 520ADD02 R0002 front plate

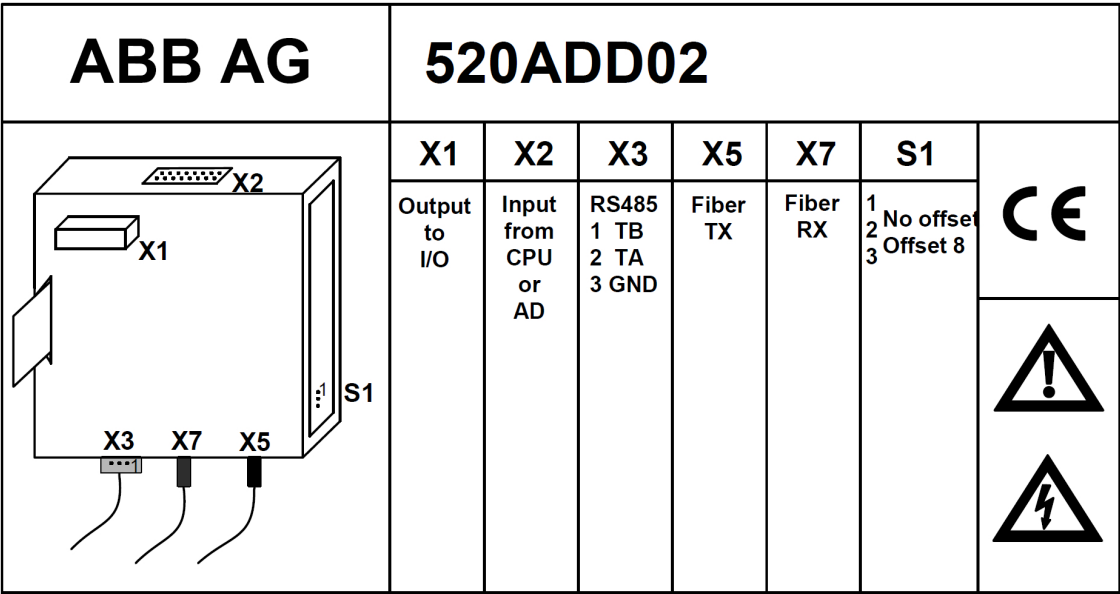


Figure 4: 520ADD02 R0002 label

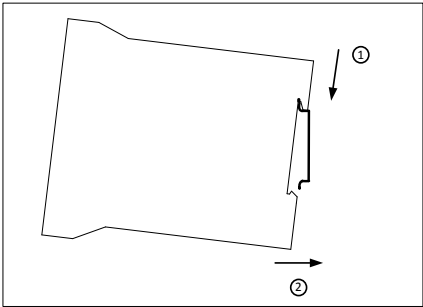


Figure 5: RTU520 DIN rail mounting - step 1

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

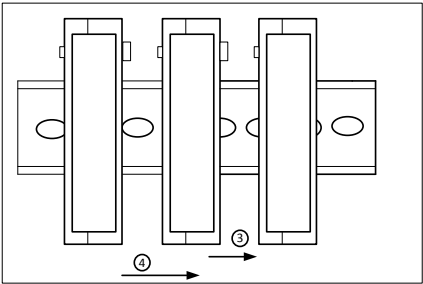


Figure 6: RTU520 DIN rail mounting - step 2

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

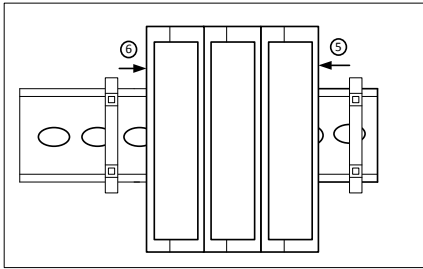


Figure 7: RTU520 DIN rail mounting - step 3

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

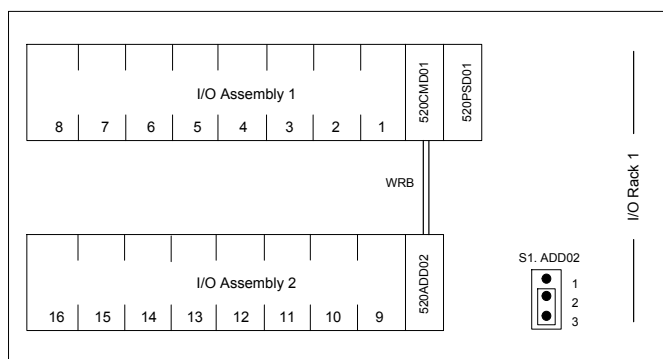


Figure 8: 520ADD02 used in RTU520 with 8 I/O module configuration

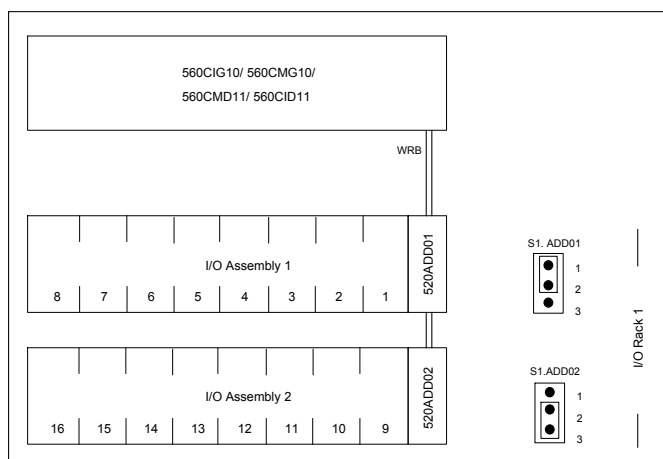


Figure 9: 520ADD02 used in RTU540 with 8 I/O module configuration

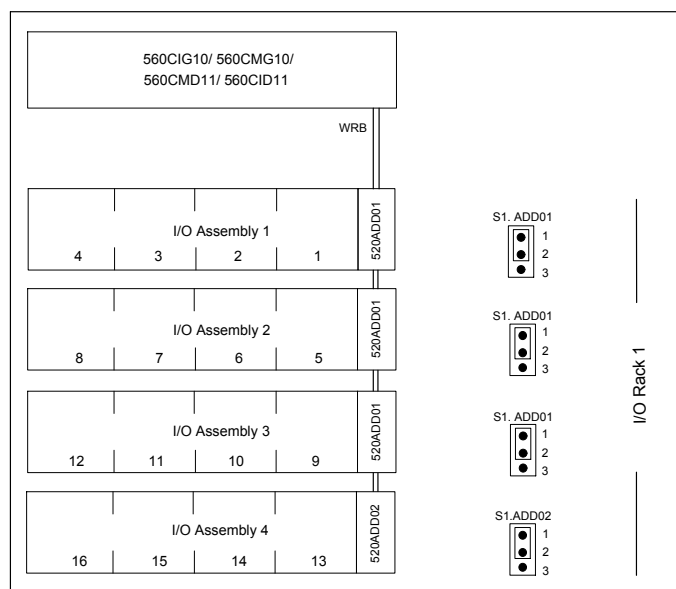


Figure 10: 520ADD02 used in RTU540 with 4 I/O module configuration

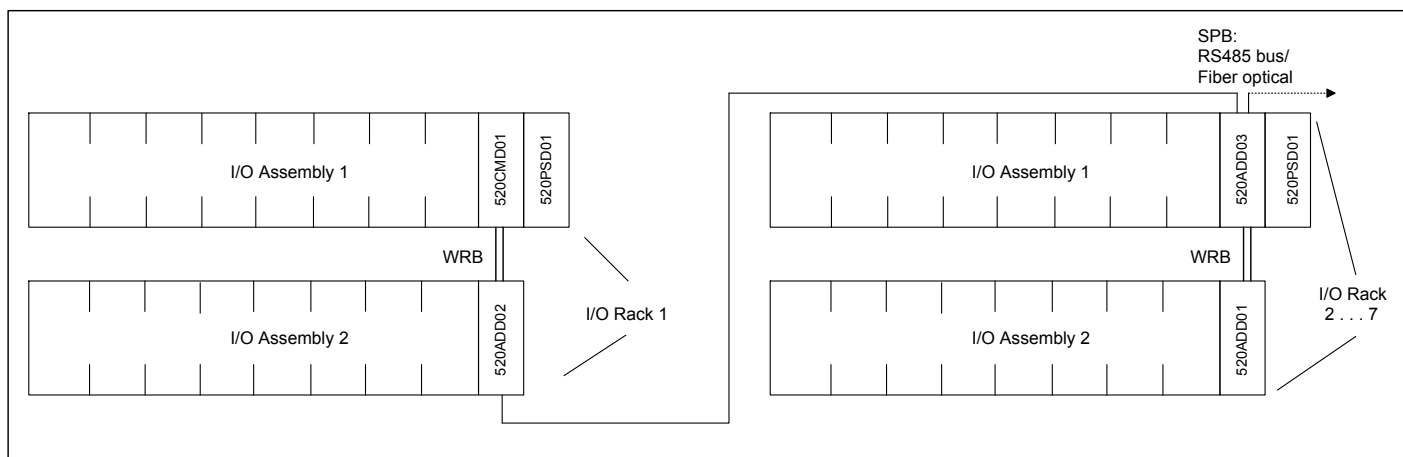


Figure 11: 520ADD02 used in RTU520 with extension I/O

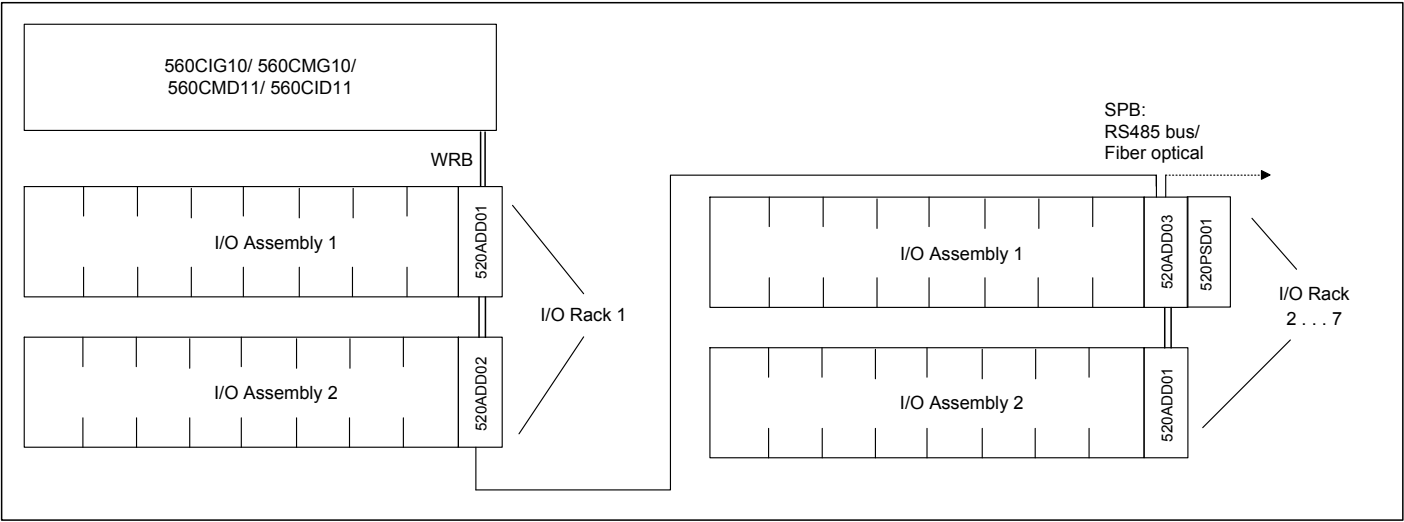


Figure 12: 520ADD02 used in RTU540 (560CIG10/ 560CMG10/ 560CMD11/ 560CID11)

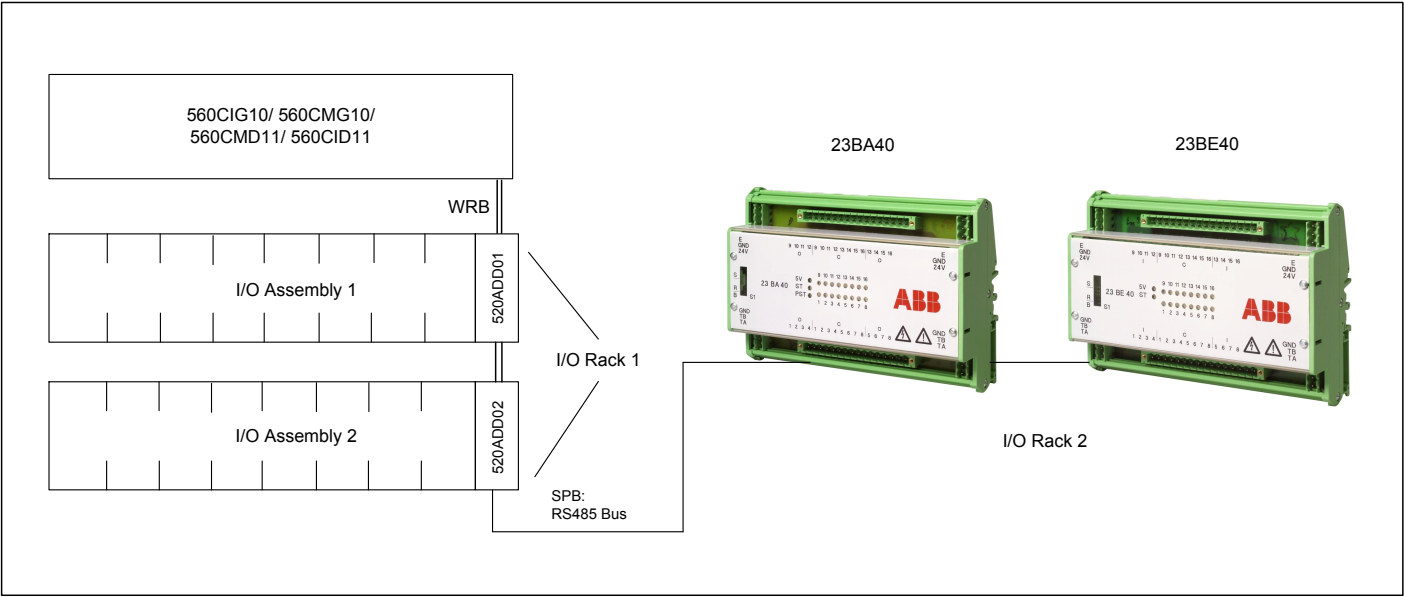


Figure 13: 520ADD02 used in RTU540 with 23BA40/ 23BE40



**Note:**

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