Remote Terminal Units - Connections and Settings

I/O adapter 520ADD03

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.

<table>
<thead>
<tr>
<th>Rack No</th>
<th>S1-1</th>
<th>S1-2</th>
<th>S1-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Off</td>
<td>Off</td>
<td>Off</td>
</tr>
<tr>
<td>2</td>
<td>On</td>
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</tr>
<tr>
<td>3</td>
<td>Off</td>
<td>On</td>
<td>Off</td>
</tr>
<tr>
<td>4</td>
<td>On</td>
<td>On</td>
<td>Off</td>
</tr>
<tr>
<td>5</td>
<td>Off</td>
<td>Off</td>
<td>On</td>
</tr>
<tr>
<td>6</td>
<td>On</td>
<td>Off</td>
<td>On</td>
</tr>
<tr>
<td>7</td>
<td>Off</td>
<td>On</td>
<td>On</td>
</tr>
</tbody>
</table>

Table 1: Setting of rack address with switch S1

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 520ADD03 by the WRB I/O bus.

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

ADVICE
Please restart the system to activate the new address.

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.

<table>
<thead>
<tr>
<th>X4-1</th>
<th>X4-2</th>
<th>X4-3</th>
<th>X5-1</th>
<th>X5-2</th>
<th>X5-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB</td>
<td>TA</td>
<td>Shield</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: RS485 SPB I/O bus connector X4 and X5

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.
<table>
<thead>
<tr>
<th>ADVICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ADVICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>
Figure 1: 520ADD03 R0001 front plate

Figure 2: 520ADD03 R0001 label

Figure 3: 520ADD03 R0002 front plate

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

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