Remote Terminal Units - Connections and settings

Analog output 520AOD01
RTU520 product line

Application, characteristics and technical data have to be taken from the hardware data sheet:
520AOD01 data sheet 1KGT 150 813

Operation
The 520AOD01 board has two analog output channels, which can be configured individually to one of the following parameters:
- ± 2.5 mA
- ± 5 mA
- ± 10 mA
- ± 20 mA (4... 20 mA)
- ± 1.25 V DC
- ± 2.5 V DC
- ± 5 V DC
- ± 10 V DC

The output format unipolar, bipolar or live zero (4 ... 20 mA) can be configured by software parameters.

<table>
<thead>
<tr>
<th>Parameter name</th>
<th>Default</th>
<th>Parameter location</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASO: Output signal range</td>
<td>20 mA</td>
<td>ASO, FSO – PDP parameters</td>
</tr>
<tr>
<td>FSO: Output signal range</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Use the output signal range configuration parameter to specify the hardware setting of the analog output module.

Output signal range for 100%.
Value range 2.5, 5, 10 and 20 mA.

<table>
<thead>
<tr>
<th>Parameter name</th>
<th>Default</th>
<th>Parameter location</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASO: Output signal type</td>
<td>Bipolar</td>
<td>ASO, FSO – PDP parameters</td>
</tr>
<tr>
<td>FSO: Output signal type</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Value range: Bipolar, Unipolar or Live Zero

Unipolar: Value range between 0 and 65535,
Bipolar: Value range between -32768 and 32767

Processing functions
The micro-controller on the module processes all time critical tasks of the parameterized processing functions. Moreover it carries out the interactive communication with the RTU I/O bus. All configuration data and processing parameters are loaded by the communication unit via the RTU I/O bus.

Settings
The output range of both channels will be defined by the DIP switches S1 and the jumpers S2 (channel 2) and S3 (channel 1).

The DIP switch S1 sets the maximum voltage/ current output range.

Jumper S2 and S3 select the output type:
- S2 / S3 at Position 1-2: Current Output
- S2 / S3 at Position 2-3: Voltage Output

<table>
<thead>
<tr>
<th>Parameter name</th>
<th>Default</th>
<th>Parameter location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current (mA)</td>
<td>Channel 1</td>
<td>Channel 2</td>
</tr>
<tr>
<td>2.5</td>
<td>Off</td>
<td>Off</td>
</tr>
<tr>
<td>5</td>
<td>On</td>
<td>Off</td>
</tr>
<tr>
<td>10</td>
<td>Off</td>
<td>On</td>
</tr>
<tr>
<td>20</td>
<td>On</td>
<td>On</td>
</tr>
</tbody>
</table>

Table: DIL switch S1 with current output (S2 / S3 at Position 1-2)

<table>
<thead>
<tr>
<th>Parameter name</th>
<th>Default</th>
<th>Parameter location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage (V)</td>
<td>Channel 1</td>
<td>Channel 2</td>
</tr>
<tr>
<td>1.25</td>
<td>Off</td>
<td>Off</td>
</tr>
<tr>
<td>2.5</td>
<td>On</td>
<td>Off</td>
</tr>
<tr>
<td>5</td>
<td>Off</td>
<td>On</td>
</tr>
<tr>
<td>10</td>
<td>On</td>
<td>On</td>
</tr>
</tbody>
</table>

Table: DIL switch S1 with voltage output (S2 / S3 at Position 2-3)

Signaling

LED ERR
The module monitors and checks the own functionality as well as the dialog via the I/O bus. Detected errors are indicated by the red LED ERR on the front plate and transmitted via the I/O bus to the communication unit (CMU). Additional diagnostic messages are available using the Web-Server on the CMU.

The LED ERR indicates module errors or I/O bus errors:
- module runs initialization procedure
- module is performing a cold or warm start
- module has detected a memory error (RAM or Flash)
- micro-controller is faulty
- no dialog via the I/O bus for at least 2 minutes. The module is not polled by the CMU.

Connections
I/O bus connection
The module is connected to the RTU I/O bus via the connectors X1 and X2.
ADVICE
To prevent damage on the connected modules de-
energize the system before plugging or unplugging
the I/O bus connectors.

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.

Process connections
The process signals are connected to the screw
terminals X3 and X4.

The electronic circuits on the process side are supplied
by an external voltage input $U_E (V_{in})$. The voltage input
$U_E$ is connected at X5.

For the operation of the module addition 24 V DC
($U_E$) is required (e. g. from 560PSU40/41). This
voltage $U_E$ has to be supplied from external and
wired to the $U_E$ connector.
1. Insert upper edge into DIN rail and push downwards
2. Push lower edge towards DIN rail and snap in the module

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

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