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

520PTD01  1KGT 150 817

**Operation**

The board 520PTD01 is used to measure up to six inputs, that are wired with a two or four wire circuit PT100 temperature element.

**Processing functions**

The micro controller controls the A/D converter and reads the digitized analog measured value (see Figure 1). The configuration parameters are loaded by the communication unit.

**Input signal conversion**

The input signals will be connected by the screw terminal block X3 to X5 (see Figure 2). The input channels are not potential isolated from the internal power supply.

The 520PTD01 transmits the measured value with 12 bit to the CMU. Scaling to the transmission protocol presentation is done by the CMU.

Two internal measuring channels of the 520PTD01 perform an automatic zero calibration at each cycle. The result is used by the A/D converter as a rating factor.

**Settings**

**Input signal range**

The 520PTD01 board has a fixed input range of ± 200 °C.

**Configuration of line-frequency**

Information about the line-frequency is requested for the A/D-conversion. The configured line-frequency is valid for all six channels.

<table>
<thead>
<tr>
<th>Line-frequency</th>
<th>Conversion time per input</th>
<th>Scan cycle per board</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 Hz</td>
<td>70.0 ms</td>
<td>560 ms</td>
</tr>
<tr>
<td>50 Hz</td>
<td>80.0 ms</td>
<td>640 ms</td>
</tr>
<tr>
<td>16.6 Hz</td>
<td>220 ms</td>
<td>1760 ms</td>
</tr>
</tbody>
</table>

**Connections**

The serial peripheral bus will be connected to X1/X2.

⚠ De-energize the system, before plugging or unplugging these connectors.
Factory calibration
An on-site calibration of the A/D converter is not necessary.
The 520PTD01 is calibrated for all channels and measuring ranges at the factory.

Signaling
The board monitors and checks its functionality as well as the dialog via the peripheral bus. Detected errors are indicated and/or transmitted by the board through:
- the red LED ‘ST’
- diagnostic messages
- process signal messages (signal status)

LED ‘ST’
The red LED indicates board errors, peripheral bus errors or A/D converter errors.
The LED indicates:
- board runs initialization procedure
- board is performing a cold- or warm start
- board has detected a memory error (RAM or EPROM)
- micro-controller faulty
- no transmission via the peripheral bus for at least 2 minutes. The board is not polled by the PBP of CMU.
- A/D converter faulty

Each configured measuring value will be indicated faulty by the CMU for the listed errors.
Figure 1: Function Block Diagram 520PTD01, connection with 4 wires

Figure 2: Position of the connection elements

<table>
<thead>
<tr>
<th>X1</th>
<th>X2</th>
<th>X3</th>
<th>X4</th>
<th>X5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output to I/O</td>
<td>Input from I/O or AD</td>
<td>1</td>
<td>PT1-1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>PT1-2</td>
<td>2</td>
<td>PT3-2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>PT1-3</td>
<td>3</td>
<td>PT3-3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>PT1-4</td>
<td>4</td>
<td>PT3-4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>PT2-1</td>
<td>5</td>
<td>PT4-1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>PT2-2</td>
<td>6</td>
<td>PT4-2</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>PT2-3</td>
<td>7</td>
<td>PT4-3</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>PT2-4</td>
<td>8</td>
<td>PT4-4</td>
<td></td>
</tr>
</tbody>
</table>

Max. Output voltage: 10VDC
Note:
We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB AG does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents - in whole or in parts - is forbidden without prior written consent of ABB AG.

Copyright© 2013 ABB
All rights reserved