Siemens TIA Portal with CPX I-Port Master for IO Link Devices

Basic steps for commissioning the CPX-CTEL-2-M12-5POL-LK with our SDAT-MHS-M80-1L-SA-E-0.3-M8 in the TIA Portal are described in this application note.

CPX-CTEL-2-M12-5POL-LK,
SDAT-MHS-M80-1L-SA-E-0.3-M8,
CPX-FB34,
IM151-8F PN/DP CPU
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1 Components/Software used

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<th>Type/Name</th>
<th>Version Software/Firmware</th>
<th>Date of manufacture</th>
</tr>
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<tbody>
<tr>
<td>CPX-CTEL-2-M12-5POL-LK</td>
<td>Rev 2</td>
<td>--</td>
</tr>
<tr>
<td>SDAT-MHS-M80-1L-SA-E-0.3-M8</td>
<td>Rev 2</td>
<td>--</td>
</tr>
<tr>
<td>CPX-FB34</td>
<td>Rev 23</td>
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<td>IM151-8F PN/DP CPU</td>
<td>FW 3.2.8</td>
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<tr>
<td>TIA Portal</td>
<td>V13 Update 4</td>
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</tbody>
</table>

Table 1.1: 1 Components/Software used

1.1 Utilised manuals

SDAT-MHS-DE manual:


CPX-CTEL-LK-DE manual:

2 Introduction

2.1 The CPX-CTEL-2-M12-5POL-LK I-Port Master for IO-Link devices

The CPX-CTEL...-LK has 2 communication ports (X1 & X2):

![Communication ports diagram]

And thus up to two IO-Link devices can be connected per interface. The I/O length of the connected device is determined with the DIL switch at the side.

![I/O length setting table]

Figure 2.0: Communication ports

Figure 2.1: I/O length setting
2.2 The SDAT-MHS-M80-1L-SA-E-0.3-M8

The SDAT-MHS-M80-1L-SA-E-0.3-M8 is an IO-Link V1.1 position transmitter with a process data width of 2 bytes.

Figure 2.2: SDAT-MHS...

2.3 Why can the CPX-CTEL...-LK communicate with the SDAT-MHS...?

To a certain extent, IO-Link 1.1 master characteristics have been incorporated into the CPX-CTEL...-LK. If a 1.1 IO-Link device such as the SDAT-MHS... is connected, it will function. As a prerequisite, the device must not require IO-Link specification 1.1 characteristics for IO-Link communication, which are not incorporated into the CPX-CTEL...-LK.

<table>
<thead>
<tr>
<th>Rough IO-Link overview</th>
</tr>
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<tbody>
<tr>
<td><strong>IO Link V1.0</strong></td>
</tr>
<tr>
<td>COM1: 4.8 kBaud</td>
</tr>
<tr>
<td>COM2: 38.4 kBaud</td>
</tr>
<tr>
<td>Optional: COM3: 230.4 kBaud</td>
</tr>
<tr>
<td>Class A/B port</td>
</tr>
<tr>
<td>Not implemented</td>
</tr>
</tbody>
</table>

Table 2.0: Rough overview, IO-Link specification
3 Installation

3.1 How do I connect the CPX-CTEL...-LK to the SDAT-MHS...?

Figure 3.0: IO-Link connection
4 Commissioning the TIA Portal

4.1 Installation of the Profinet GSDML in the TIA Portal

The CPX GSDML file can be found in the Festo Support Portal:


Figure 4.0: Support Portal, GSDML
After downloading, it’s installed via the TIA Portal:

![Image of installing the GSDML](image1)

**Figure 4.1: Installing the GSDML**

### 4.2 Hardware configuration of the CPX valve terminal

After creating a new TIA Portal project and installing the CPX GSDML, the Festo Profinet valve terminal can be configured.

- First of all, drag and drop the correct CPX entry into the network to this end.

![Image of drag and drop](image2)

**Figure 4.2: Drag and drop**
Then conduct module configuration:

**Recommendation:** Use CPX-FMT software to compare the configuration.

There’s only one SDAT-MHS... at port 1, so that only two I/O bytes are occupied.

**Note**
Details concerning successful Profinet commissioning are included in the CPX-Profinet manual: [http://www.festo.com/net/SupportPortal/Files/349007/548759g1.pdf](http://www.festo.com/net/SupportPortal/Files/349007/548759g1.pdf)
4.3 Online test

After successful project downloading, no more errors are apparent in the TIA Portal online mode:

![Online Test](image.png)

Figure 4.5: Online

Compliance of the SDAT values in the TIA Portal with FMT can be additionally checked using a TIA “watch table”.

![Watch Table](image2.png)

Start with address %IW1, because SDAT-MHS... has been mapped there as a submodule. See 4.3

45 hex = 69 dec
C0 Hex = 192 dec

Figure 4.6: TIA “watch table” and FMT