C3 I20 T11 / T30 / T40 ObjektManager
1 introduction

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1 introduction

1.1 Product liability

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1.1.5 Product monitoring liability
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1.2 Device assignment

1.2.1 This manual applies to the following devices:
- Compax3S025V2 + supplement
- Compax3S063V2 + supplement
- Compax3S100V2 + supplement
- Compax3S025V2 + supplement
- Compax3S063V2 + supplement
- Compax3S100V2 + supplement
- Compax3S150V2 + supplement
- Compax3S015V4 + supplement
- Compax3S038V4 + supplement
- Compax3S075V4 + supplement
- Compax3S150V4 + supplement
- Compax3S300V4 + supplement
- Compax3H050V4 + supplement
- Compax3H090V4 + supplement
- Compax3H125V4 + supplement
- Compax3H155V4 + supplement

1.2.2 With the supplement:
- F10 (Resolver)
- F11 (SinCos®)
- F12 (linear and rotary direct drives)
- I20
- T11
- T30
- T40
1.2.3 and the Master plc:
- SIMATIC S7-300 or
- SIMATIC S7-400
- with integrated PROFIBUS DP Master (e.g. CPU315-2DP)

2 purpose of the Block

2.1 overview

<table>
<thead>
<tr>
<th>Absolute Symbol</th>
<th>Comment</th>
<th>Vers</th>
<th>Date</th>
<th>Device</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>FB41 C3ObjectManager</td>
<td>C3 I20 T11 / T30 / T40 Manager for reading and writing objects</td>
<td>V0.1</td>
<td>2004-04-29 07:44:16 PM</td>
<td>C3 I20 T11 / T30 / T40</td>
<td>Objects read / write</td>
</tr>
</tbody>
</table>

2.2 restrictions and application

The block is for backup and restore of the object list of the C3 in the S7. In the object list are all parameters and actual data included. If the areas PLC-programme and CAM-data (only T40) are also saved: a complete backup and restore is possible! This makes sense by exchange (defect) devices or serial set-ups. However, this is called also:

*The same variation of the C3 as well as the same Firmware state must be used with the "backup" and "Restore".*

The FB41 uses PKW-interface, is suitable therefore for all PPO types with PKW. Because other FBs use as well PKW interface: this has the consequence:

*It may communicate in each case only one FB via this interface!*

*The FB41 may be only activated with disabled drive.*

3 adjustment

3.1 Compax3 Configuration

With C3ServoManager few following adjustments:
At folder:
- \Communication \ PROFIBUS DP - node settings
- [PLC -> Compax3] The input tags are up to the user.
- [Compax3 -> PLC] The output tags are up to the user.
- [Operation Mode Settings]
Acyclic process data channel / Parameter channel
Select with "PKW"

Error response on fieldbus failure is up to user.

At folder:
\ Communication \ scaling factors Y2/Y4
Scaling factors (only T30 / T40) are up to the user.

3.2 **Compax3 Hardware**

DIP-Switch: Bus address
Bus plug: `ON / OFF` Bus termination resistance

3.3 **3.3 SIMATIC - HW Config**

Correlated to PPO-Type (see pic 1 communication - PROFIBUS DP node settings - shown in C3-Manager wizard) use the type at SIMATIC - HW Config

![SIMATIC HW Config](image)

**pic 1 SIMATIC - HW Config**

Edit the Start address of PKW (here 256) in Instance Variable `<nLaddr>` (DB41.DBW10).

3.4 **Application interface of "C3ObjektManager"**

3.4.1 Schematic drawing for in- and output

![Schematic](image)
### 3.4.2 Declaration of In- and Output

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Declaration</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>bExecute</code></td>
<td>IN</td>
<td>BOOL</td>
<td>Start transfer with positive flank, must True during the whole transfer (put back with <code>bDone</code> = 1)</td>
</tr>
<tr>
<td><code>bDirection</code></td>
<td>IN</td>
<td>BOOL</td>
<td>= 0 Upload, = 1 Download</td>
</tr>
<tr>
<td><code>iDBNumMC</code></td>
<td>IN</td>
<td>INT</td>
<td>Upload: first free DB number in the loading memory, all together are required at present 6 DBs to save the object list. Download: first DB Number in the loading memory with object list (from Upload).</td>
</tr>
<tr>
<td><code>iDBNumCopyRAM</code></td>
<td>IN</td>
<td>INT</td>
<td>Number of the DB to copy (8,000 bytes) needs to be put in from the user like the example!</td>
</tr>
<tr>
<td><code>bExDataTransfer</code></td>
<td>IN</td>
<td>BOOL</td>
<td>= 0 integrated PROFIBUS DP interface (communication with SFC14 / SFC15)</td>
</tr>
<tr>
<td><code>bCommErr</code></td>
<td>OUT</td>
<td>BOOL</td>
<td>= 1 communication error (from SFC14 / SFC15)</td>
</tr>
<tr>
<td><code>bDBCcopyRAMErr</code></td>
<td>OUT</td>
<td>BOOL</td>
<td>DB for copying not available or too small (&lt; 8,000 bytes), error message SFC24 bDBCcreateMCErr</td>
</tr>
<tr>
<td><code>bDBCreateMCErr</code></td>
<td>OUT</td>
<td>BOOL</td>
<td>DB cannot be created in the loading buffer, error message SFC82, (only Upload)</td>
</tr>
<tr>
<td><code>bDBReadMCErr</code></td>
<td>OUT</td>
<td>BOOL</td>
<td>DB cannot be read from the loading buffer, error message SFC83 (only Download)</td>
</tr>
<tr>
<td><code>bTransErr</code></td>
<td>OUT</td>
<td>BOOL</td>
<td>Format command error when transmitting to C3</td>
</tr>
<tr>
<td><code>bDone</code></td>
<td>OUT</td>
<td>BOOL</td>
<td>the transmission is finished (only when <code>bExecute</code> = 1)</td>
</tr>
<tr>
<td><code>bAborted</code></td>
<td>OUT</td>
<td>BOOL</td>
<td>transmission was in progress during <code>bExecute</code> was reset</td>
</tr>
<tr>
<td><code>bBusy</code></td>
<td>OUT</td>
<td>BOOL</td>
<td>transmission in progress</td>
</tr>
<tr>
<td><code>nLaddr</code></td>
<td>STATIC</td>
<td>WORD</td>
<td>= 0100hex (=256dex) Start address C3 Slave at HW Config, necessary with &lt;bExdataTransfer&gt; = 0</td>
</tr>
<tr>
<td><code>StC3PKWlnDint.nPKE</code></td>
<td>STATIC</td>
<td>Word 4</td>
<td>Local input area for external CP</td>
</tr>
<tr>
<td><code>StC3PKWOutDint.nPKE</code></td>
<td>STATIC</td>
<td>Word 4</td>
<td>Local output area for external CP</td>
</tr>
</tbody>
</table>

### 3.4.3 sequence of process data

setting of inputs of the block

- `<nLaddr>` (Parameter from HW Config)
- `<bDirection>` (Upload or Download)
- `<iDBNumMC>` (pointer to first Data block: this and 5 following DBs are generated with Upload; at Download this blocks need to exist)
### 3.5 3.5 settings for external Master

- the function block is only possible with S7 plc with integrated PROFIBUS DP Master: Without the block is not suitable.
- If this interface is used for another purpose and the connection to C3 should be realised with an external communication processor (cp342-5) the function block is possible to be used with following settings:
  - For running the CP 342-5 there are to functions: FC1 / FC2 (DP_SEND / DP_RECV, out of SIMATIC Standard library).
  - Put at DP_SEND the global output area, and at DP_RECV the global input area.
  - attention! These global areas included the data's of all bus slaves.
  - The local field of C3 must be transferred to the field at DB41 (e.g. via SFC20 BLKMOV).
  - The local input and output field could be identified with SIMATIC - HW Config.
  - Correlated to PPO-Type (see pic 1 communication - PROFIBUS DP node settings - is shown in C3-Manager wizard) use the type at SIMATIC - HW Config .

### 4 Application example

#### 4.1 Overview of the connection:

Connection between one plc SIMATIC S7 300 as PROFIBUS DP Master and one drive C3 I20 T30 as PROFIBUS DP Slave.

#### 4.2 Cyclic channel (PZD)

The in- and output parameters are not used in this application. It is. Up to the user to fill in the parameters he needs. This project only uses the PKW channel.

#### 4.3 Acyclic channel (PKW)

Via the 8 Byte PKW interface are all object of C3 read and saved in the flash of the s7, respectively read from s7 flash and transferred to the C3. so you've the possibility to put the complete configuration from one drive to another.
There's no validation of data before transferring from s7 flash to c3. So it is up to the user to make sure that the parameters are correct interpreted: the source and destination must be the same type of drive: (equal power stage, equal motor etc.)!

4.3.1 sequence

1. Singe settings at the function block:
   - DBW12 <nLaddr>
     Setting of the start address from SIMATIC hardware configuration. (First analogue address of PKW)
   - DBW2 <iDBNumMC>
     From the function block are automatically data blocks produced from this address: (here 202)
   - DBW4 <iDBNumCopyRAM>
     DB No. Of user DBs to save uploaded data in CPU (RAM)
   - DBX6.0 <bExDataTransfer>
     Only for CP342-5 activate

2. Activate of command „Backup“
   - DBX 0.1 <bDirection>
     Select „false“ for read
   - DBX 0.0 <bExecute>
     Select „true“ for start
   - DBX 8.5 <bDone>
     Wait until this is „true“. (It depends on c3 firmware version the bus frequency and the s7 CPU how much time is needed: e.g. few minutes).

3. Activate of command „Restore“
   - DBX 0.1 <bDirection>
     Select „true“ for write
   - DBX 0.0 <bExecute>
     Select „true“ for start
   - DBX 8.5 <bDone>
     Wait until this is „true“. (It depends on c3 firmware version the bus frequency and the s7 CPU how much time is needed: e.g. few minutes).