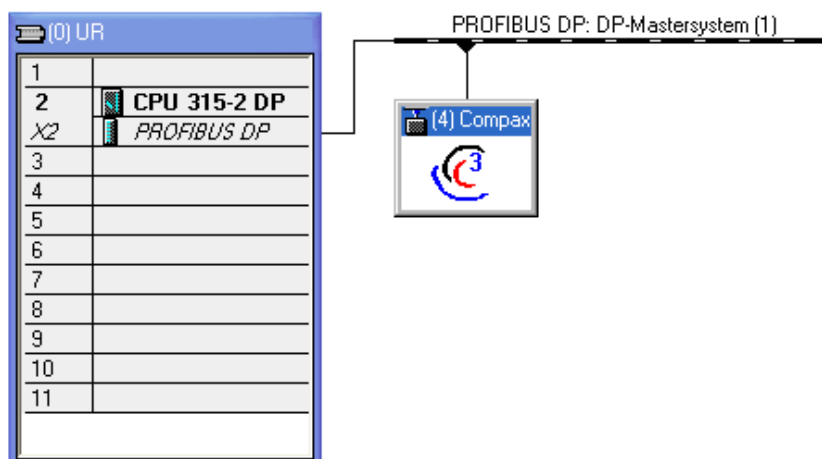


Last update: 06.02.2008 Klaus Zimmer  
Application example:

# C3 I20 T11 / T30 / T40 ObjektManager



February 08

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<b>1</b>	<b>introduction</b>	<b>4</b>
1.1	Product liability	4
1.1.1	<i>Nonwarranty clause</i>	4
1.1.2	<i>Product monitoring liability</i>	4
1.1.3	<i>Right to make changes</i>	4
1.1.4	<i>Warranty Disclaimer</i>	4
1.1.5	<i>Product monitoring liability</i>	4
1.1.6	<i>Limitation of Liability</i>	5
1.1.7	<i>Copyright</i>	5
1.2	Device assignment	5
1.2.1	<i>This manual applies to the following devices:</i>	5
1.2.2	<i>With the supplement:</i>	5
1.2.3	<i>and the Master plc:</i>	6
<b>2</b>	<b>purpose of the Block</b>	<b>6</b>
2.1	overview	6
2.2	restrictions and application	6
<b>3</b>	<b>adjustment</b>	<b>6</b>
3.1	Compax3 Configuration	6
3.2	Compax3 Hardware	7
3.3	3.3 SIMATIC - HW Config	7
3.4	Application interface of "C3ObjektManager"	7
3.4.1	<i>Schematic drawing for in- and output</i>	7
3.4.2	<i>Declaration of In- and Output</i>	8
3.4.3	<i>sequence of process data</i>	8
3.5	3.5 settings for external Master	9
<b>4</b>	<b>Application example</b>	<b>9</b>
4.1	Overview of the connection:	9
4.2	cyclic channel (PZD)	9
4.3	Acyclic channel (PKW)	9
4.3.1	<i>sequence</i>	10

# 1 introduction

## 1.1 Product liability

### 1.1.1 Nonwarranty clause

Parker Hannifin - Automation Group - does not give any guarantee that the modules for SIMATIC S7 at hand will function properly under all conditions. From today's point of view there is generally no Software that will work properly under all conditions and requirements. The manufacturer therefore shall not be liable for direct and indirect damages of all kinds caused by the use of the software modules, even if the modules are used in accordance with the description in the manual at hand.

### 1.1.2 Product monitoring liability

Parker Hannifin - Automation Group - try, within the scope of the product monitoring liability, to identify and describe dangers arising from the use of our software modules. Due to the complexity and our limited insight into the plants of the end customers, where also products of other manufacturers are integrated, we can, however, not identify all possible dangers. Furthermore, not all properties of the software modules are described in this manual.

### 1.1.3 Right to make changes

Parker Hannifin - Automation Group - claims the right to update the manual and the software modules at any time without advance notice. Software modules may also be blocked without advance notice if dangers are detected, that endanger the proper functioning of the modules. We are not liable to eliminate errors immediately or provide new functions on customer's request.

### 1.1.4 Warranty Disclaimer

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### 1.1.7 Copyright

This manual and the accompanying software modules contain information which is a spiritual property of the author. The authorised user commits to use this information exclusively for the operation with C3 positioning controller and their integration. The duplication and disclosure of the documentation or from extracts needs to be permitted separately. Duplication of the software modules is permitted for the purposes of a data protection.

## 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

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

### 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.

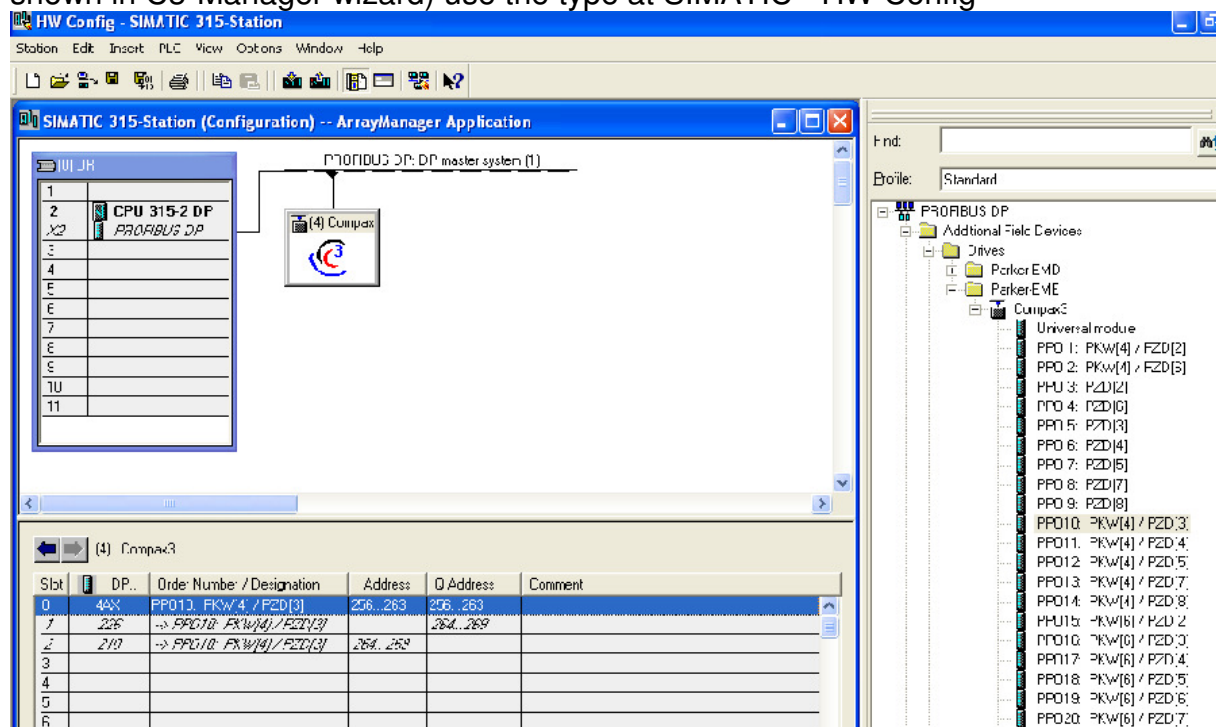
### 3.2 Compax3 Hardware

DIP-Switch: Bus address

Bus plug: ``ON / OFF`` Bus termination resistance

### 3.3 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



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

DB41



	EN		ENO	
DBX0.0	bExecute		bCommErr	DBX8.0
DBX0.1	bDirection		bDBCopyRAMErr	DBX8.1
DBW2	iDBNumMC		bDBCreateMCErr	DBX8.2
DBW4	iDBNumCopyRAM		bDBReadMCErr	DBX8.3
DBX6.0	bExDataTransfer		bTransErr	DBX8.4
			bDone	DBX8.5
			bAborted	DBX8.6
DBW12	nLaddr		bBusy	DBX8.7
DBX12.0 Word 4	stC3PKWInDint.nPKE		stC3PKWOutDint.nPKE	DBX20.0 Word 4

### 3.4.2 Declaration of In- and Output

Parameter	Declaration	Type	Description
<b>bExecute</b>	IN	BOOL	Start transfer with positive flank, must True during the whole transfer (put back with bDone =1)
<b>bDirection</b>	IN	BOOL	=0 Upload, =1 Download
<b>iDBNumMC</b>	IN	INT	Upload: the first free DB number in the loading memory, all together are required at present 6 DBs to save the object list. Download: the first DBnumber in the loading memory with object list (from Upload).
<b>iDBNumCopyRAM</b>	IN	INT	Number of the DB to copy (8,000 bytes) needs to be put in from the user like the example!
<b>bExDataTransfer</b>	IN	BOOL	=0 integrated PROFIBUS DP interface (communication with SFC14 / SFC15) =1 external PROFIBUS DP interface (communication with FC1 / FC2)
<b>bCommErr</b>	OUT	BOOL	=1 communication error(from SFC14 / SFC15)
<b>bDBCopyRAMErr</b>	OUT	BOOL	DB for copying not available or too small (<8,000 bytes), error message SFC24 bDBCreateMCErr
<b>bDBCreateMCErr</b>	OUT	BOOL	DB cannot be created in the loading buffer, error message SFC82, (only Upload)
<b>bDBReadMCErr</b>	OUT	BOOL	DB cannot be read from the loading buffer, error message SFC83 (only Download)
<b>bTransErr</b>	OUT	BOOL	Format command error when transmitting to C3
<b>bDone</b>	OUT	BOOL	the transmission is finished (only when bExecute=1)
<b>bAborted</b>	OUT	BOOL	transmission was in progress during bExecute was reseted
<b>bBusy</b>	OUT	BOOL	transmission in progress
<b>nLaddr</b>	STATIC	WORD	= 0100hex (=256dez) Start address C3-Slave at HW Config, necessary with <bExdataTransfer> = 0
<b>StC3PKWInDint.nPKE</b>	STATIC	Word 4	Local input area for external CP
<b>StC3PKWOutDint.nPKE</b>	STATIC	Word 4	Local output area for external CP

### 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)



- <iDBNumCopyRAM> (pointer to Data block: No. of DB this needs to exits in the PLC)
- <bExecute> set
- <bDone> wait for TRUE

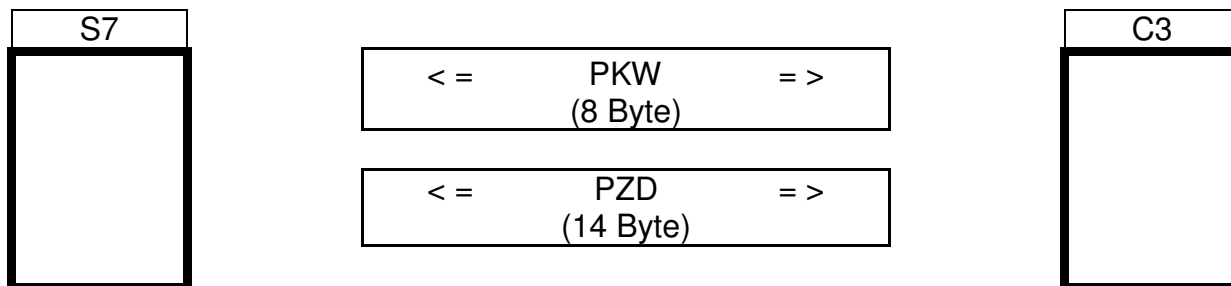
### 3.5 3.5 settings for external Master

- 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 t 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.

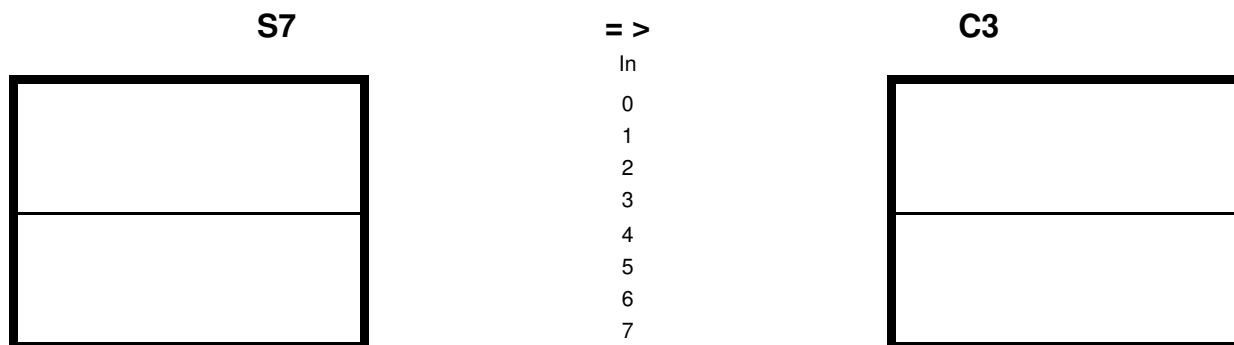


### 4.2 cyclic channel (PZD)

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. single 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).