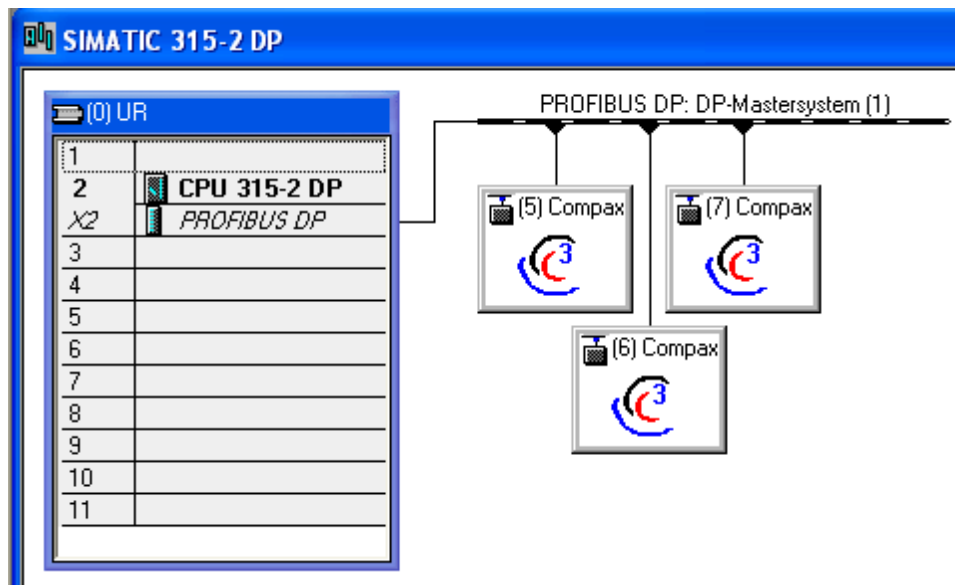


Last update: 13.03.2007 Klaus Zimmer  
Application example:

# C3 I20 T11 VelocityProfile



March 07

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# 1 introduction

## 1.1 Product liability

### 1.1.1 Nonwarranty clause

Parker EME 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 EME 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 EME 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

While efforts were made to verify the accuracy of the information contained in this documentation, Parker expressly disclaims all warranties with regard to this application note, including, but not limited to, the implied warranties of merchantability and fitness of a particular purpose. Parker does not warrant, guarantee, or make any representation regarding the use or the results of the use of this application note in terms of correctness, accuracy, or reliability. The contents of this application note are subject to change without notice. Parker will publish updates and revisions of this document as needed. The documents supersede all previous versions.

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### 1.1.6 Limitation of Liability

You agree that Parker shall not be liable to you under this agreement for any damages, including without limitation any lost profits, or any consequential, incidental, or punitive damages arising out of the use or inability to use this application note and related documents, or for any claim by another party. You agree and hold Parker harmless for all claims and damages from any third party as a result of their use or inability to use any product that you develop based on this application note and the products and/or services documented herein.

## 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

## 2 Purpose

This application is showing the first steps to run a C3 I20 with SIMATIC S7 300. The selection is:

*//Communication/Speed control operating mode*

the speed is alternating with two speed values.

**Be careful:**

**"the drive is automatically started - no start or failure reset is necessary"**

the application is only possible for rotary axis (linear axis are strictly forbidden).

All necessary information for C3 and S7 are included. The commands and The messages are shown in a SIMATIC variable table.

### 2.1 Input and output (HMI)

#### 2.1.1 No inputs

There are no inputs necessary: the drive is running without any human help: all following descriptions of in and output are only optional

#### 2.1.2 Input (S7 => C3)

<b>Symbol</b>	<b>Address</b>	<b>Type</b>	<b>Comment</b>
<b>C3 Add 5 E0</b>	E 57.0	BOOL	Compax3 Slave 5 E0
<b>C3 Add 5 E1</b>	E 57.1	BOOL	Compax3 Slave 5 E1
<b>C3 Add 5 E2</b>	E 57.2	BOOL	Compax3 Slave 5 E2
<b>C3 Add 5 E3</b>	E 57.3	BOOL	Compax3 Slave 5 E3
<b>C3 Add 5 E4</b>	E 57.4	BOOL	Compax3 Slave 5 E4
<b>C3 Add 5 E5</b>	E 57.5	BOOL	Compax3 Slave 5 E5
<b>C3 Add 5 E6</b>	E 57.6	BOOL	Compax3 Slave 5 E6
<b>C3 Add 5 E7</b>	E 57.7	BOOL	Compax3 Slave 5 E7
<b>C3 Add 6 E0</b>	E 67.0	BOOL	Compax3 Slave 6 E0
<b>C3 Add 6 E1</b>	E 67.1	BOOL	Compax3 Slave 6 E1
<b>C3 Add 6 E2</b>	E 67.2	BOOL	Compax3 Slave 6 E2
<b>C3 Add 6 E3</b>	E 67.3	BOOL	Compax3 Slave 6 E3
<b>C3 Add 6 E4</b>	E 67.4	BOOL	Compax3 Slave 6 E4
<b>C3 Add 6 E5</b>	E 67.5	BOOL	Compax3 Slave 6 E5
<b>C3 Add 6 E6</b>	E 67.6	BOOL	Compax3 Slave 6 E6
<b>C3 Add 6 E7</b>	E 67.7	BOOL	Compax3 Slave 6 E7
<b>C3 Add 7 E0</b>	E 77.0	BOOL	Compax3 Slave 7 E0
<b>C3 Add 7 E1</b>	E 77.1	BOOL	Compax3 Slave 7 E1
<b>C3 Add 7 E2</b>	E 77.2	BOOL	Compax3 Slave 7 E2
<b>C3 Add 7 E3</b>	E 77.3	BOOL	Compax3 Slave 7 E3
<b>C3 Add 7 E4</b>	E 77.4	BOOL	Compax3 Slave 7 E4
<b>C3 Add 7 E5</b>	E 77.5	BOOL	Compax3 Slave 7 E5
<b>C3 Add 7 E6</b>	E 77.6	BOOL	Compax3 Slave 7 E6
<b>C3 Add 7 E7</b>	E 77.7	BOOL	Compax3 Slave 7 E7

Functions :

E0 and E1 hold from sequence (both low means restart the sequence)  
 E2 increase speed by 50 %  
 E3 decrease speed by 33 %

### 2.1.3 Output (S7 <= C3)

<b>Symbol</b>	<b>Address</b>	<b>Type</b>	<b>Comment</b>
<b>C3 Add 5 A0</b>	A 57.0	BOOL	Compax3 Slave 5 A0
<b>C3 Add 5 A1</b>	A 57.1	BOOL	Compax3 Slave 5 A1
<b>C3 Add 5 A2</b>	A 57.2	BOOL	Compax3 Slave 5 A2
<b>C3 Add 5 A3</b>	A 57.3	BOOL	Compax3 Slave 5 A3
<b>C3 Add 6 A0</b>	A 67.0	BOOL	Compax3 Slave 6 A0
<b>C3 Add 6 A1</b>	A 67.1	BOOL	Compax3 Slave 6 A1
<b>C3 Add 6 A2</b>	A 67.2	BOOL	Compax3 Slave 6 A2
<b>C3 Add 6 A3</b>	A 67.3	BOOL	Compax3 Slave 6 A3
<b>C3 Add 7 A0</b>	A 77.0	BOOL	Compax3 Slave 7 A0
<b>C3 Add 7 A1</b>	A 77.1	BOOL	Compax3 Slave 7 A1
<b>C3 Add 7 A2</b>	A 77.2	BOOL	Compax3 Slave 7 A2
<b>C3 Add 7 A3</b>	A 77.3	BOOL	Compax3 Slave 7 A3

A0 speed low is active  
 A1 speed high is active  
 A2 speed was increased by 50 %  
 A3 speed was decrease by 33 %

## 2.2 Input and output (C3 - S7)

### 2.2.1 Input (S7 => C3)

<b>Symbol</b>	<b>Address</b>	<b>Type</b>	<b>Comment</b>
<b>C3 Add 5 Velocity</b>	AD 52	DWORD	Compax3 Slave 5 Velocity
<b>C3 Add 6 Velocity</b>	AD 62	DWORD	Compax3 Slave 6 Velocity
<b>C3 Add 7 Velocity</b>	AD 72	DWORD	Compax3 Slave 7 Velocity
<b>C3 Add 5 Out STW1</b>	AW 50	WORD	Compax3 Slave 5 STW1
<b>C3 Add 5 Out Word 3</b>	AW 56	WORD	Compax3 Slave 5 Output Word 3
<b>C3 Add 6 STW1</b>	AW 60	WORD	Compax3 Slave 6 STW1
<b>C3 Add 6 Out Word 3</b>	AW 66	WORD	Compax3 Slave 6 Output Word 3
<b>C3 Add 7 STW1</b>	AW 70	WORD	Compax3 Slave 7 STW1
<b>C3 Add 7 Out Word 3</b>	AW 76	WORD	Compax3 Slave 7 Output Word 3

### 2.2.2 Output (S7 <= C3)

<b>Symbol</b>	<b>Address</b>	<b>Type</b>	<b>Comment</b>
<b>C3 Add 5 Inp DWORD 0</b>	ED 50	DWORD	Compax3 Slave 5 Input DWORD 0
<b>C3 Add 5 Inp DWORD 1</b>	ED 54	DWORD	Compax3 Slave 5 Input DWORD 1
<b>C3 Add 6 Inp DWORD</b>	ED 60	DWORD	Compax3 Slave 6 Input DWORD

0		D	0
<b>C3 Add 6 Inp DWORD 1</b>	ED 64	DWORD	Compax3 Slave 6 Input DWORD 1
<b>C3 Add 7 Inp DWORD 0</b>	ED 70	DWORD	Compax3 Slave 7 Input DWORD 0
<b>C3 Add 7 Inp DWORD 1</b>	ED 74	DWORD	Compax3 Slave 7 Input DWORD 1
<b>C3 Add 5 ZSW1</b>	EW 50	WORD	Compax3 Slave 5 ZSW1
<b>C3 Add 5 Inp Word 1</b>	EW 52	WORD	Compax3 Slave 5 Input Word 1
<b>C3 Add 5 Inp Word 2</b>	EW 54	WORD	Compax3 Slave 5 Input Word 2
<b>C3 Add 5 Inp Word 3</b>	EW 56	WORD	Compax3 Slave 5 Input Word 3
<b>C3 Add 6 ZSW1</b>	EW 60	WORD	Compax3 Slave 6 ZSW1
<b>C3 Add 6 Inp Word 1</b>	EW 62	WORD	Compax3 Slave 6 Input Word 1
<b>C3 Add 6 Inp Word 2</b>	EW 64	WORD	Compax3 Slave 6 Input Word 2
<b>C3 Add 6 Inp Word 3</b>	EW 66	WORD	Compax3 Slave 6 Input Word 3
<b>C3 Add 7 ZSW1</b>	EW 70	WORD	Compax3 Slave 7 ZSW1
<b>C3 Add 7 Inp Word 1</b>	EW 72	WORD	Compax3 Slave 7 Input Word 1
<b>C3 Add 7 Inp Word 2</b>	EW 74	WORD	Compax3 Slave 7 Input Word 2
<b>C3 Add 7 Inp Word 3</b>	EW 76	WORD	Compax3 Slave 7 Input Word 3

## 2.3 steps to run the application

### 2.3.1 check the motor

the motor must be able to run in cycles (mechanic adjustment for linear axis is not possible)

### 2.3.2 check the configuration

- The motor needs to be able
- the C3 configuration is made for one special motor. You need to select your motor.
- The communication needs to be configured with PPO6:
  - inputs
    - With "speed control"
    - CW1
    - N\_commanded\_b
  - dig. Outputs
    - Output
      - sw1
      - NACTUAL\_B
    - Digital inputs
- Adjust the regular parameters (stiffness..)

### 2.3.3 check the plc - configuration

the plc needs to be updated with your plc order number

### 2.3.4 plc programme

the programme needs to be downloaded



### 2.3.5 connections

connect bus and motor cable

Be careful the motor is running immediately as soon as you plugged the cables.