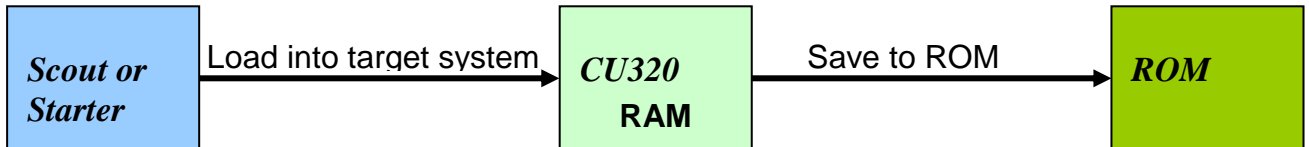


# SINAMICS LAB HMI (ProTool) Interface

## Exercise: Configuration of the drive unit with Servo control with an HMI (ProTool) Interface

Using the training-case SINAMICS S120

**Task 1:** Online / Offline configuration of a SIMOTION SCOUT / STARTER – project and download to the target system



NOTE:

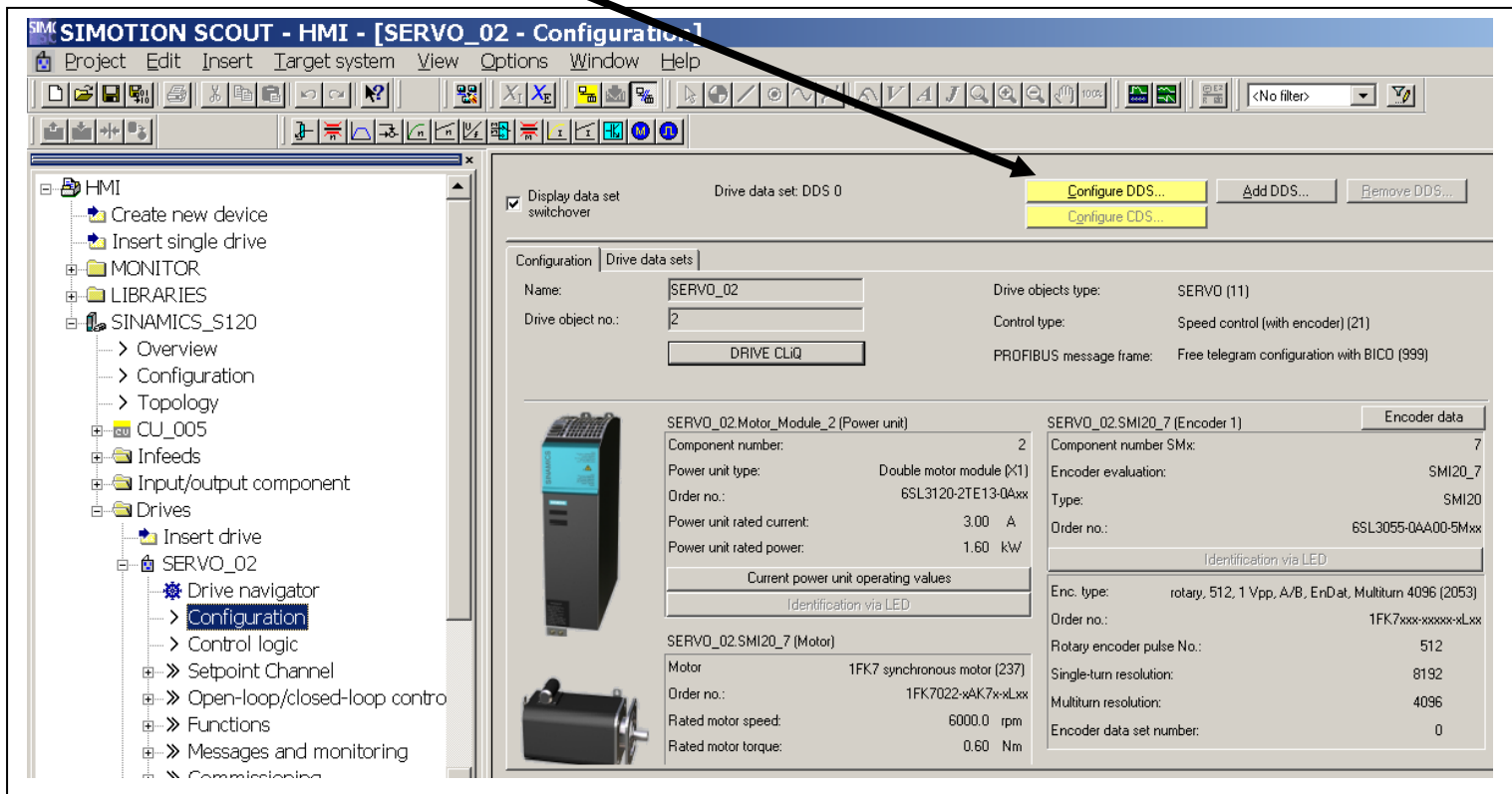
This HMI lab can be started from the SERVO lab #1 as a starting point.

Open your completed Lab #1 and Save As HMI

Offline configuration of SERVO\_02

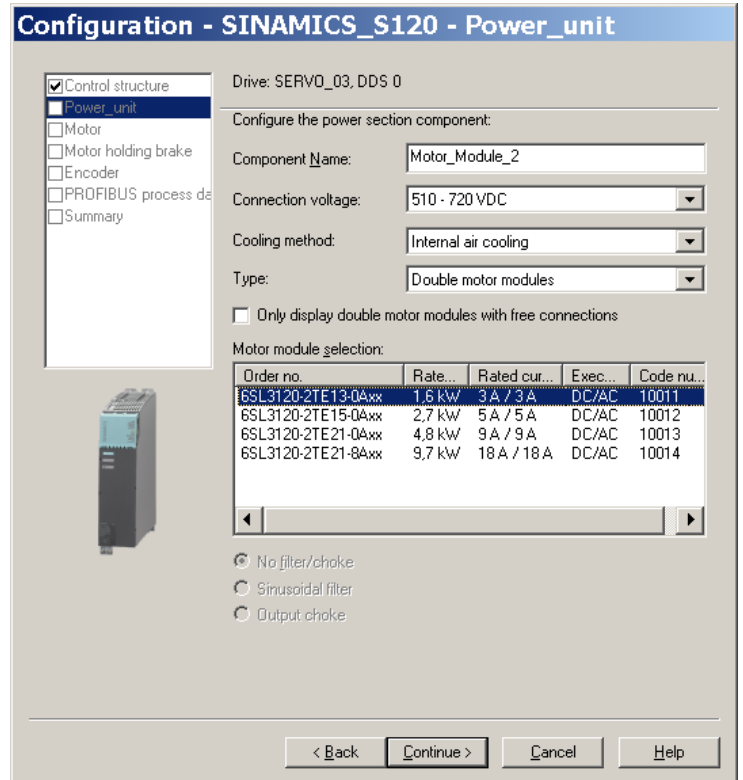
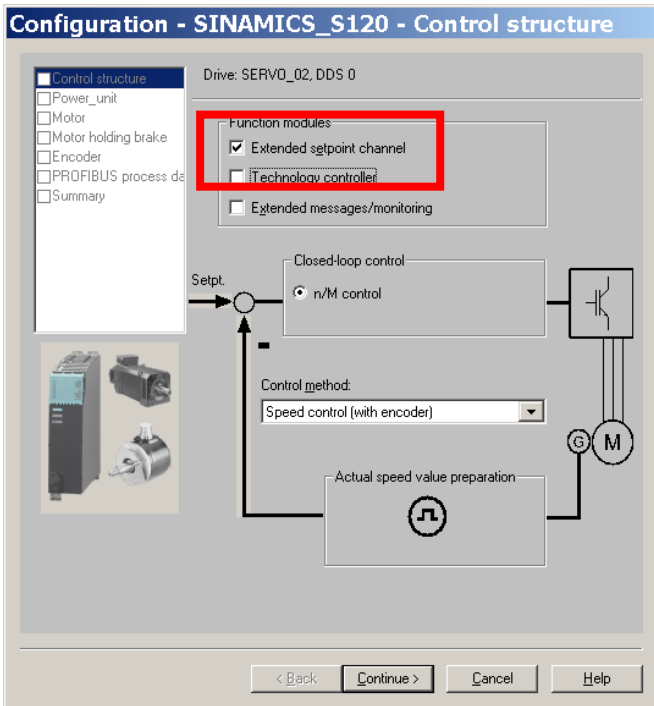
Double Click [ Configuration ]

Click [ Configure DDS ]



This lab requires the use of Extended Setpoint Channel to address the speed setpoints via the HMI.

**Configure DDS sequence:**



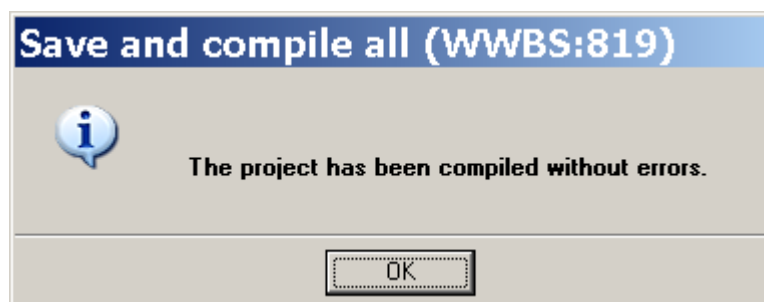
**Select [ Continue ]**

**Select [ Continue ]**

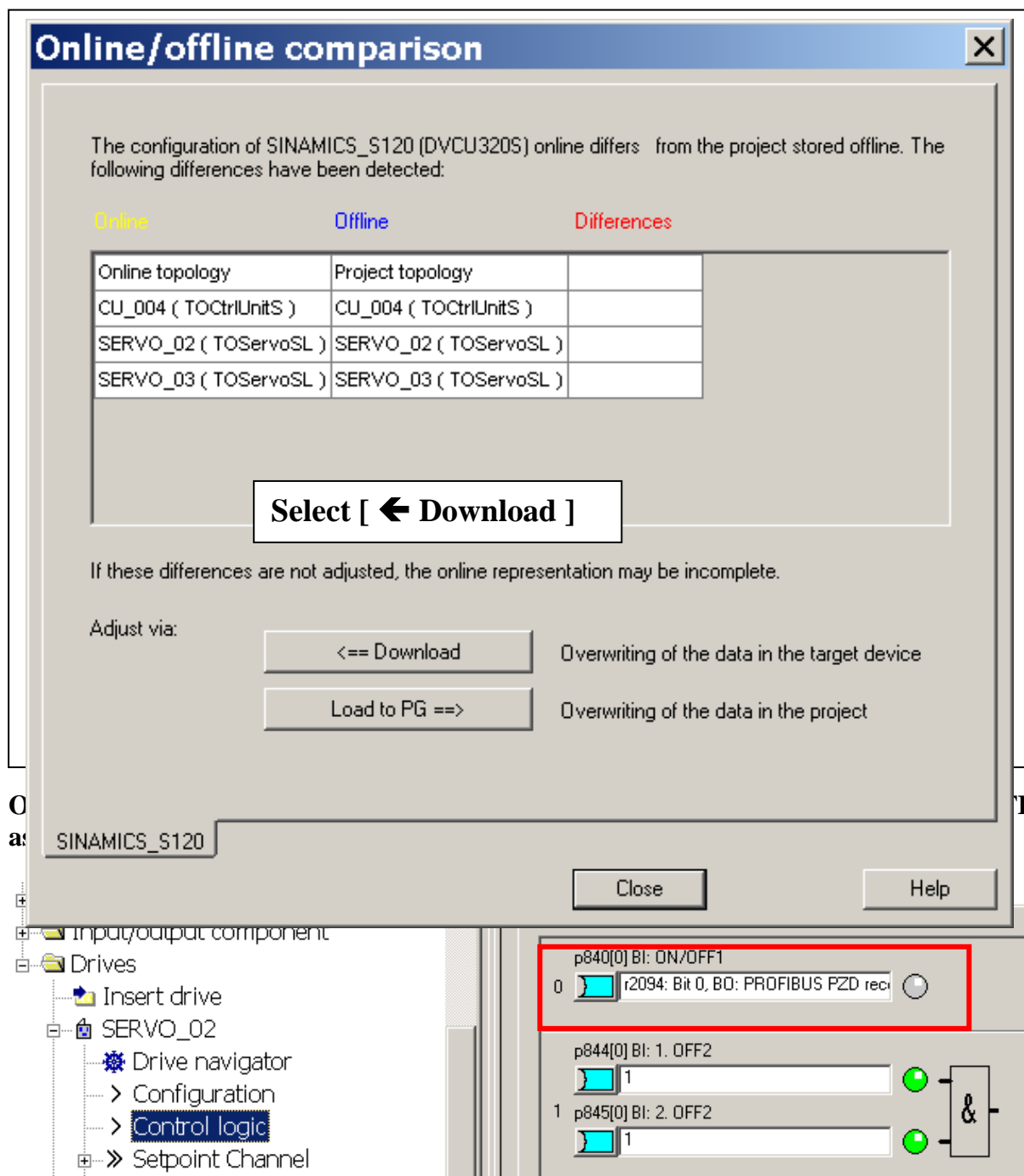
Accept all the remaining configurations as set up from Lab #1 exercise.

Repeat this same configuration [ Extended setpoint channel ] for SERVO\_03

**Save and compile**



Go back Online 



**Online/offline comparison**

The configuration of SINAMICS\_S120 (DVUCU320S) online differs from the project stored offline. The following differences have been detected:

Online	Offline	Differences
Online topology	Project topology	
CU_004 ( TOCtrlUnits )	CU_004 ( TOCtrlUnits )	
SERVO_02 ( TOServoSL )	SERVO_02 ( TOServoSL )	
SERVO_03 ( TOServoSL )	SERVO_03 ( TOServoSL )	

**Select [ ← Download ]**

If these differences are not adjusted, the online representation may be incomplete.

Adjust via:

<== Download      Overwriting of the data in the target device

Load to PG ==>      Overwriting of the data in the project


SINAMICS\_S120

Close      Help


Input/output component

- Drives
  - Insert drive
  - SERVO\_02
    - Drive navigator
    - Configuration
    - Control logic**
    - Setpoint Channel


p840[0] BI: ON/OFF1

0  r2094: Bit 0, BO: PROFIBUS PZD rec

p844[0] BI: 1. OFF2

1  1

1 p845[0] BI: 2. OFF2

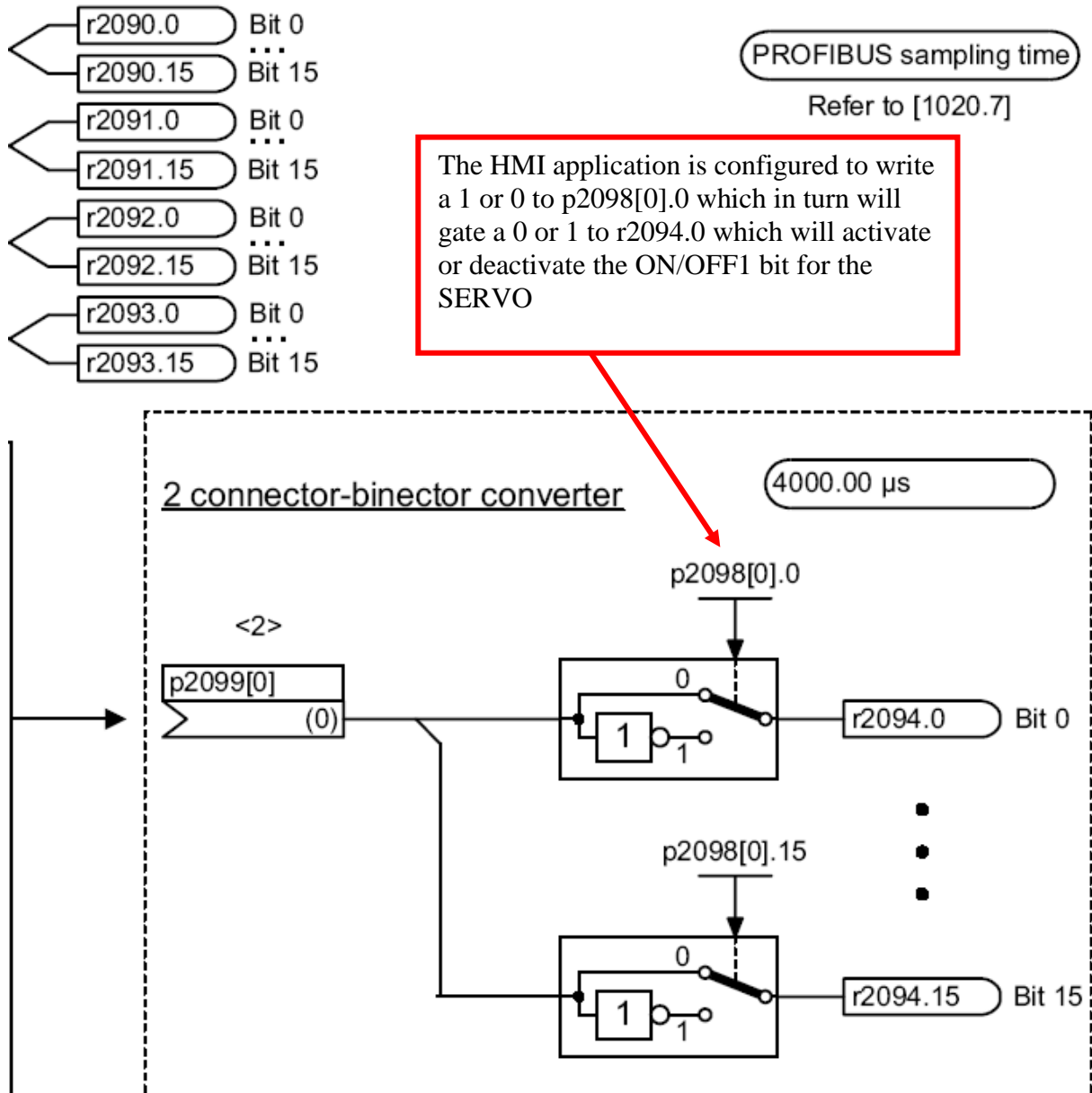
1  1

This was selected based on the Function Diagram:

Figure 2-54 2460 - Receive telegram, free interconnection via BICO (p0922 = 999)

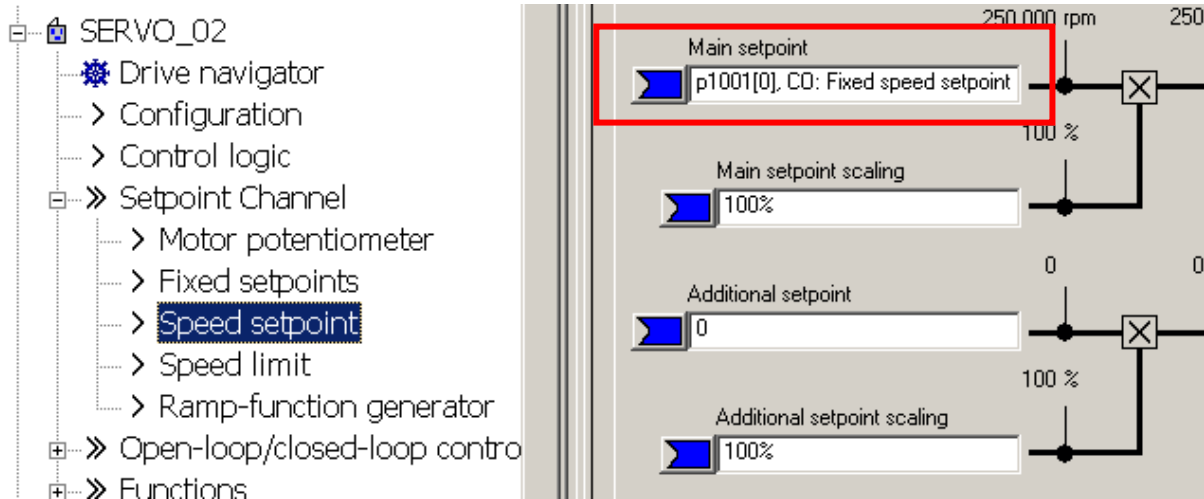
The next page shows the connection between the parameter written to by the HMI and the r2094 parameter selected by p840[0] BI: ON/OFF1

This is an excerpt from the Function Diagrams of the S120 Manual:



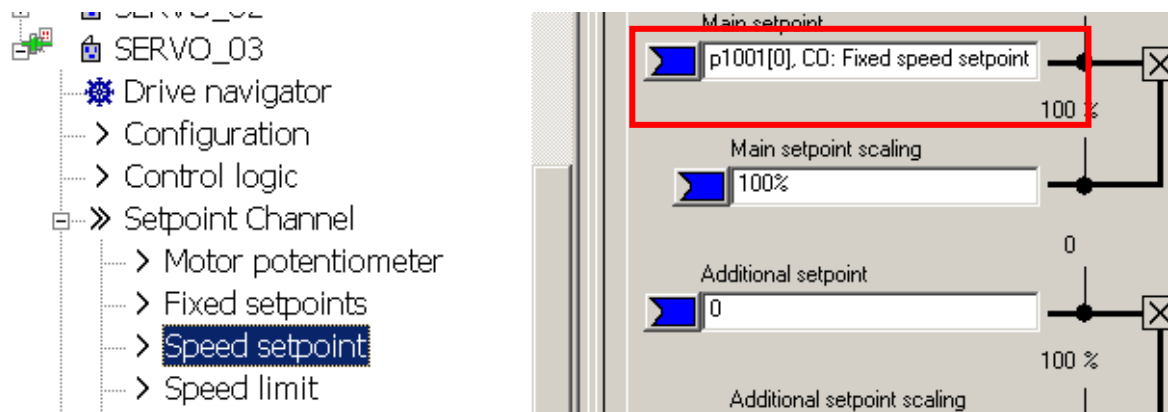
The above function diagram can be viewed on page 2-777 of the Parameter List & Functions Sinamics manual: SINAMICS\_S\_Listenhandbuch\_0605\_eng.pdf

Open the >> Setpoint Channel – Speed Setpoint configuration for SERVO\_02



**Select p1001[0], CO; Fixed speed setpoint**

Open the >> Setpoint Channel – Speed Setpoint configuration for SERVO\_03



**Select p1001[0], CO; Fixed speed setpoint**

NOTE:

The p1001[0] parameter selected for SERVO\_02 and p1001[0] are unique for PROFIBUS mapping. The next section details how the HMI will send data to the p1001[0] (REAL) registers using the PROTOCOL interface.

ProTool Tag Addressing for communications with Sinamics is accomplished through drive objects. The Sinamics demo has three drive objects.

**Drive Objects:**

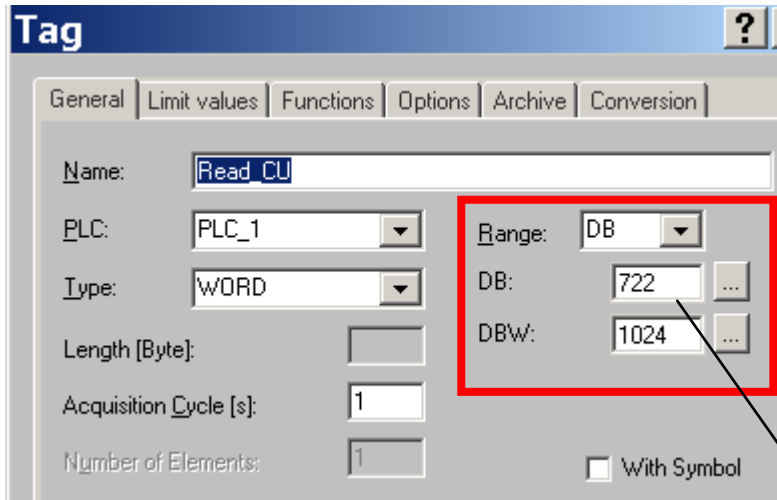
- 1** Drive Object 1 = CU320  
**DBW : Data Block Word 1024**
- 2** Drive Object 2 = Sinamics Drive 1  
**DBW : Data Block Word 2048**
- 3** Drive Object 3 = Sinamics Drive 2  
**DBW : Data Block Word 3072**



**The in feed module (SLM) does not count as a drive object.**

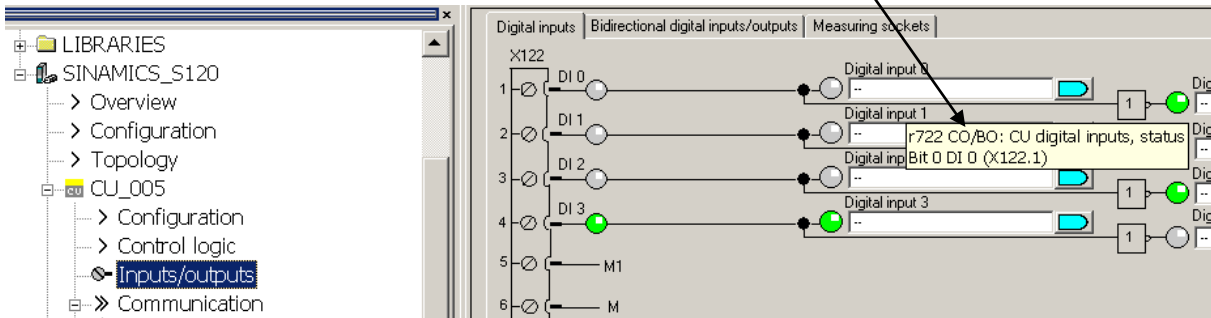
## Example Tag configuration for Drive Object 1 : CU320

- 1 Drive Object 1 = CU320  
DBW : Data Block Word 1024



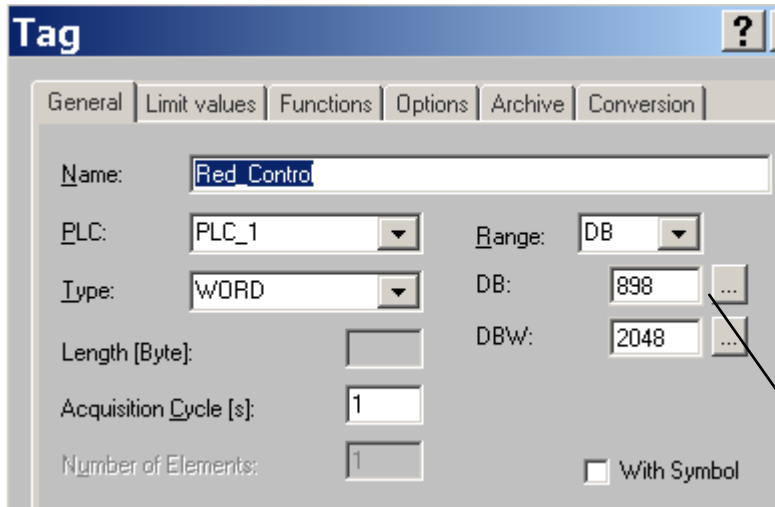
Drive Object 1 = CU320  
DBW : Data Block Word 1024

The CU320 Digital inputs are mapped into parameter 722. The ProTool tag is configured as:  
Range: DB  
DB: 722  
DBW: 1024



## Example Tag configuration for Drive Object 2 : SERVO\_02

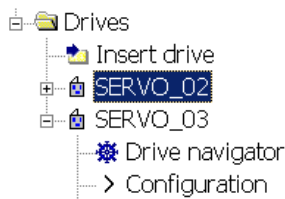
2 Drive Object 2 = Sinamics Drive 1  
DBW : Data Block Word 2048



Drive Object 2 = SERVO\_02  
DBW : Data Block Word 2048

SERVO\_02 Control Word is parameter 898

Range: DB  
DB: 898  
DBW: 2048\*\*\*\*



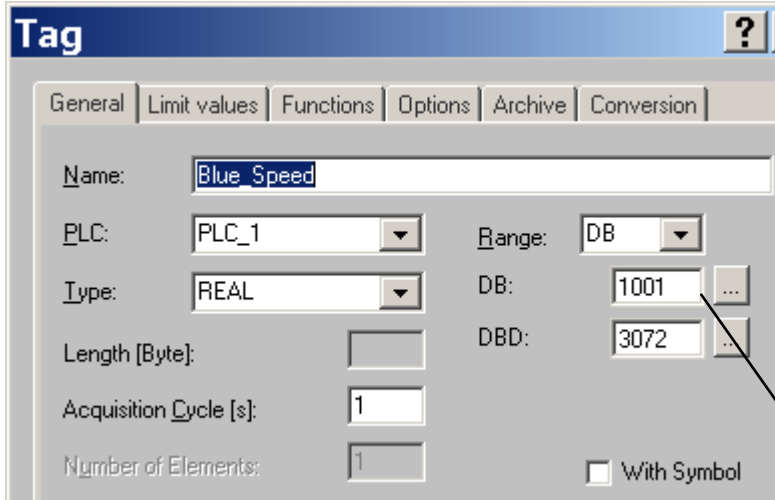
p862			Power module ON delay	0
r863	+		CO/BO: Drive coupling status word/control word	0H
p864			BI: Infeed operation	
r896	+		BO: Parking axis, status word	0H
p897			BI: Parking axis selection	
r898	+		CO/BO: Control word sequential control	147EH
r899	+		CO/BO: Status word sequential control	2231H
p922			PROFIBUS PZD telegram selection	Free telegram CC
p925			PROFIBUS clock synchronous sign-of-life tolerance	1

\*\*\*\*Above Indicia in example is = 0. DBW will equal 2048 + Indicia # (0).  
For example--- for Indicia 1 the DBW value would be 2049.



### Example Tag configuration for Drive Object 3 : SERVO\_03

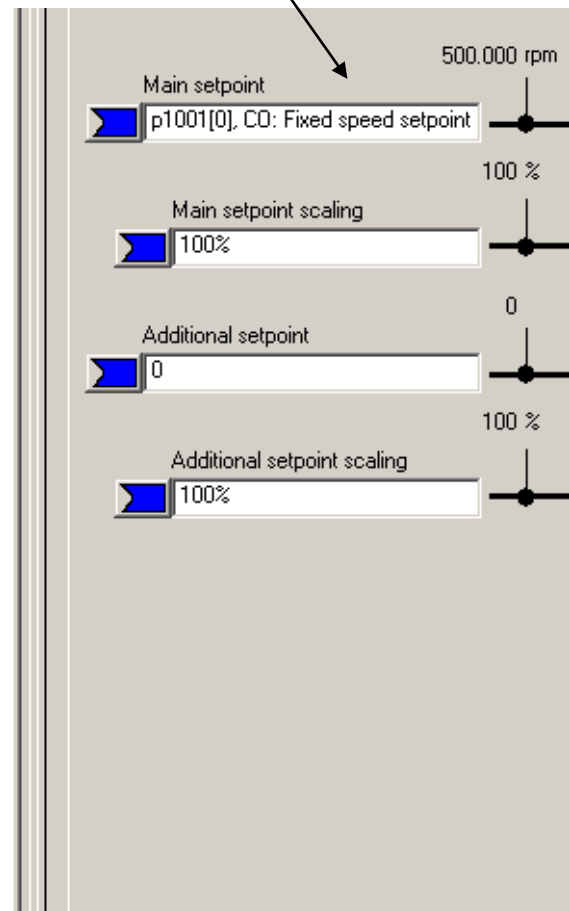
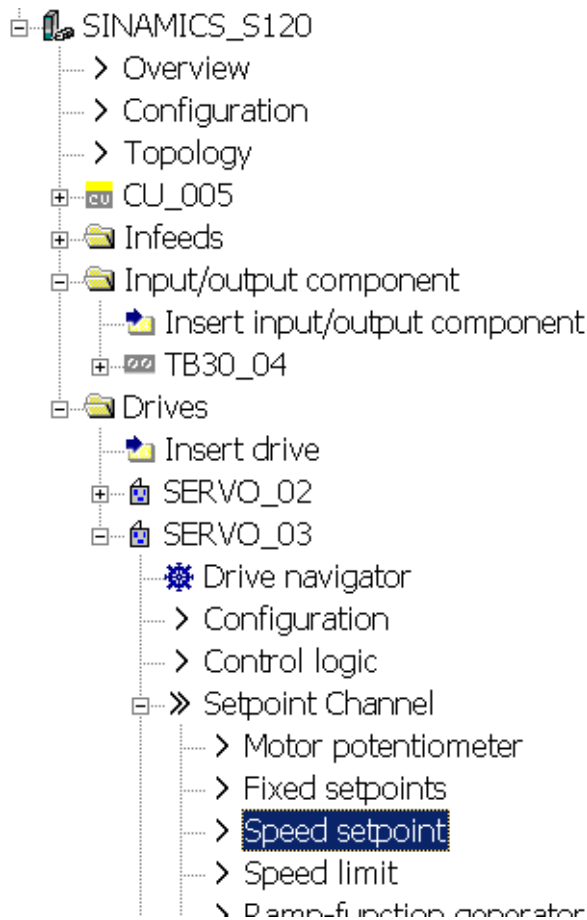
**3** Drive Object 3 = Sinamics Drive 2  
**DBW : Data Block Word 3072**



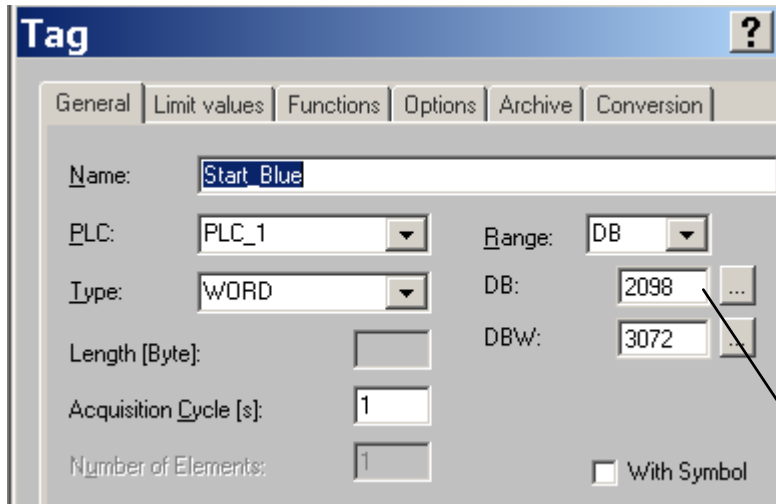
Drive Object 3 = SERVO\_03  
**DBW : Data Block Word 3072**

**SERVO\_03 Speed set point is mapped to parameter 1001**

**Range: DB**  
**DB: 1001**  
**DBW: 3072**



### Example Tag configuration for Drive Object 3 : SERVO\_03



Drive Object 3 = SERVO\_03  
DBW : Data Block Word 3072

SERVO\_03 p840(0) BI: ON/OFF1 is mapped (via a gate) through p2098 onto r2094

Range: DB  
DB: 2098  
DBW: 3072

