Welcome to the CoDeSys training module for the DCS800, ABB DC drives.
If you need help navigating this module, please click the Help button in the top right-hand corner. To view the presenter notes as text, please click the Notes button in the bottom right corner.
After completing this module, you will be able to

- Connect a value coming from fieldbus with CoDeSys and control the drive by Main Control Word.

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Field bus with DCS800

- For communication between field bus and DCS800 there is a field bus adapter needed
- This adapter will be connected with Slot 1 on CON-4
- Values packed in word will be transmitted and can be written in parameters to control the drive
- Receive and transmit data is possible
- Parameter groups 90…93 must be used to share data to the right drive control parameter
Exercise 12: Field bus control

- In several cases the drive will be controlled by field bus
- Then the drive is controlled with main control word (parameter 7.01)
- But there is any problem when 1 bit of main control word will be triggered by a digital input
- Now the data from field bus must be manipulated with CoDeSys and the one bit from the digital input must be considered

<table>
<thead>
<tr>
<th>bit</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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</thead>
<tbody>
<tr>
<td>source</td>
<td>DI</td>
<td>FB</td>
<td>FB</td>
<td>FB</td>
<td>FB</td>
<td>FB</td>
<td>FB</td>
<td>FB</td>
<td>FB</td>
<td>FB</td>
<td>FB</td>
</tr>
</tbody>
</table>

DI: digital input
FB: field bus
Configure hardware

- Open DriveWindow light or DriveWindow
- Set parameter 90.04 → 19.01
- Now data from field bus will be written in group 19.01
- The next step is to read this data from 19.01 into CoDeSys
- Then state of digital inputs must be read

<table>
<thead>
<tr>
<th></th>
<th>01 DsetXVal1</th>
<th>02 DsetXVal2</th>
<th>03 DsetXVal3</th>
<th>04 DsetXplus2Ya1</th>
<th>05 DsetXplus2Ya2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1901 N/A 0</td>
<td>0 N/A 0</td>
<td>0 N/A 0</td>
<td>0 N/A 0</td>
<td>0 N/A 0</td>
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<tr>
<td></td>
<td>9999</td>
<td>9999</td>
<td>9999</td>
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</tbody>
</table>
Configure CoDeSys

- Open CoDeSys (DCS800 target)
- Define a new project
- Paste needed function blocks
  - ParGet (parameter 19.01)
  - DigIn (read digital input 1)
  - ParSet (parameter 7.01)
- Configure task configuration
- Download the program
- Test it!
Configure CoDeSys

- Check your declaration window
- Check your task configuration
- Download and save the program on the Memory Card
Test the application

- If you don’t have a field bus connection, write in parameter 19.01, e.g. 65535 (FFFF-Hex)
- Now change state of digital input 1 and look to parameter 7.01
- There you can see changing bit 0
Key points of this module is to connect the fieldbus data with CoDeSys and 7.01 Main Control Word.
Additional information

- Links to related information
  - 3S-software.com
  - DC-Drive-News (Intranet)

- Additional references
  - Application Manual (3ADW000 199)
  - Firmware Manual (3ADW000 193)
  - Hardware Manual (3ADW000 194)
  - Training Material
Glossary

- **CoDeSys**
  Controller Development System (software tool)

- **Memory Card**
  Flash memory

- **DriveWindow Light**
  Software Tool for commissioning and maintenance using AC/DC

- **Target**
  Interface between Drive and CoDeSys tool

- **Control Builder**
  Whole system with software and hardware

- **PLC_PRG**
  Main program which is used in all applications

- **POU**
  Program Organization Unit

- **Library**
  It includes function blocks which are given or designed by other users
Thank you for your attention. You may now go ahead and move on to the next unit.