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1 Introduction

This documentation describes the steps to create a simple CP400PB (Panel Builder 400) project. The description includes hardware, configuration and programming of CP405/CP408 and AC500-eCo in order to communicate with each other.

2 Before You Start

2.1 Hardware Connection

Before you start, following equipments should be prepared:

1. Personal Computer
2. 24V DC power supply
3. AC500-eCo PM554
4. TA562-RTC (RS485 serial adapter for COM2 interface)
5. CP405/CP408 control panel
6. TK504 (PLC programming cable for COM2)
7. USB programming cable type A to type B (Between CP405/CP408 and PC)
8. TK407 communication cable (Between AC500-eCo and CP405/CP408)
9. PS501 Control Builder Plus installation (TK504 driver included)
10. CP400PB (Panel Builder400) installation (USB programming cable type A to type B driver included)

Make sure all above listed items are available, then follow the steps below.
1. Connect CP405/CP408 (5) with AC500-eCo (3). Pinning of TK407 (8) is shown below.

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<tr>
<th>Pin</th>
<th>Description</th>
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<tr>
<td>3</td>
<td>RxD/TxD-P</td>
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<tr>
<td>8</td>
<td>RxD/TxD-N</td>
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2. Connect CP405/CP408 (5) with PC (1).

3. Connect AC500-eCo (3) with PC (1) with TK504 (6).

4. Connect 24VDC power supply (2) to CP405/CP408 (5) and AC500-eCo (3).
System requirements for using CP400PB (Panel Builder 400):

- Driver will be installed automatically for:
  - Windows 2000™ SP4
  - Windows XPTM SP2
  - Windows Server 2003™
  - Windows Vista™
- Driver needs to be installed manually, see Chapter 2.2:
  - Windows 7™

2.2 Software Installation

Install the driver for panel in Windows 7 system as below.

1. Install CP400PB (Panel Builder 400) and CBP (Control Builder Plus) software. For further details, please see AC500-eCo Starter Kits: 2CBA125031M0201

2. After USB programming cable is plugged in PC for the first time, Windows will detect it automatically. Right click ABB CP40x HMI to update the software.
3. Browse the driver software.

4. Finish the installation.

5. Check if driver is installed correctly in Device Manager.

Choose whether Win32bit or Win64bit, depending on your computer system.
3 Application Examples - Data Display

Open Panel Builder software to configure the setting on CP400PB.

1. Open CP405/CP408 configuration environment and create a new project.

2. Input project name and location. Then click Next.

3. Choose corresponding CP405/CP408 type. Then click Next.

4. Set ABB Modbus RTU as communication service. Then click Next.
5. Configure the **Link parameter** of CP405/CP408, which shall be consistent with the used parameter settings in AC500-eCo.
6. Draw a text label and edit the current text.

7. Draw a numeric display label to display the data received from AC500-eCo. Choose the data type (Monitored variable type), display type and monitor address.
8. Draw and specify a numeric display label to display the data sent to AC500-eCo.

9. Draw and specify a numeric display label to display the error record (how many times data received from AC500-eCo is not equal to data send to AC500-eCo).
10. Double click **Screen 1** and check **Cycle Macro**, the Cycle Macro will be running continuously while the **Screen 1** is open.

11. Write **Cycle Macro** to perform data exchange operation.

12. Compile the application.
13. Click **Download** icon and select the link before downloading.

14. Program in CoDeSys.

```
PROGRAM PLC_PRG
VAR

  Datasend ATiMV0.11: INT;
  Datasreceive ATiMV0.10: INT;
  Errornum ATiMV0.510: INT; (*point to the numeric displayed labels defined at CP409*)
  datatransfer INT;
  step INT;
  tempdata INT =123;
  Delay: TON;
END_VAR

CASE step OF
  0:
  Datasreceive =tempdata; (*give a temp valid to communication data*)
  Delay(step:=2000)
  IF datatransfer:=2000 THEN
    datatransfer :=datatransfer+1;
  ELSE
    datatransfer :=0;
  END_IF
  Datasend :=datatransfer;
  step :=1;

  1:
  Delay(step:=TRUE PT:=1000) (*delay, wait for HMI to execute the program *)
  IF Delay.O THEN
    IF Datasend :=Datasreceive THEN (*If no problem, the data can be covered by gradually added value, otherwise it will keep temp value*)
      Errornum :=Errornum+1;
    END_IF
    step :=0;
  END_IF
END_CASE
```
15. Set AC500-eCo Communication parameters.

16. Login, download and run the program to AC500-eCo.

17. CP405/CP408 panel display after a few minutes.
# 4 Revision History

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