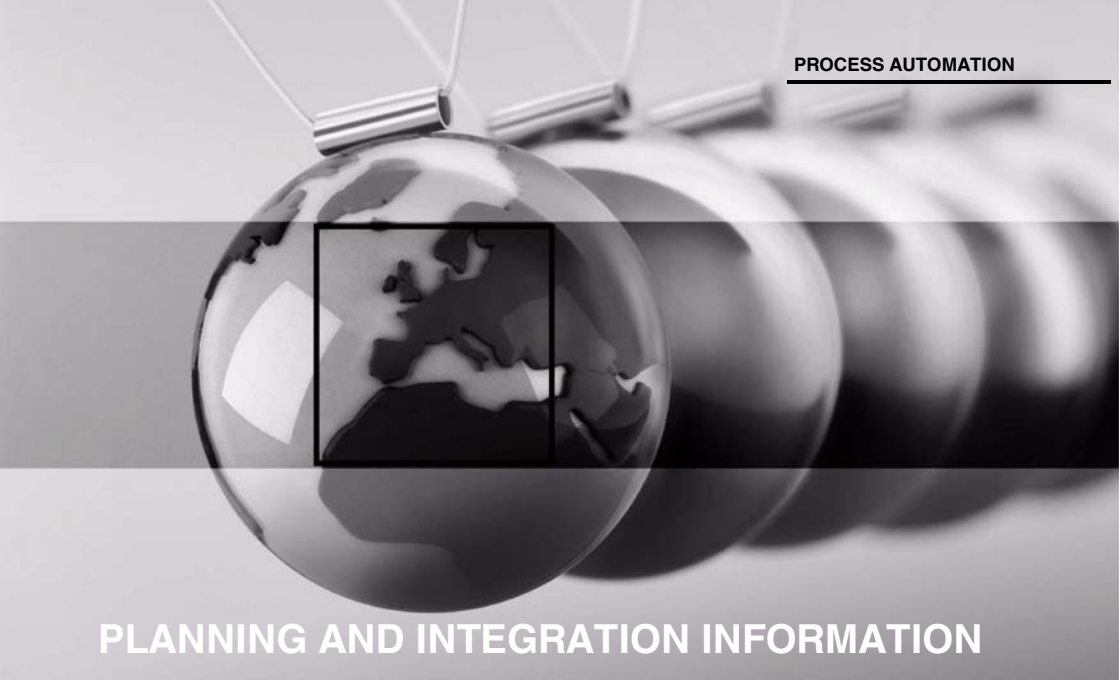

PLANNING AND INTEGRATION INFORMATION

LB8106*

Integration in Honeywell Experion® Process Knowledge System (PKS)

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PROTECTING YOUR PROCESS

With regard to the supply of products, the current issue of the following document is applicable: The General Terms of Delivery for Products and Services of the Electrical Industry, published by the Central Association of the Electrical Industry (Zentralverband Elektrotechnik und Elektroindustrie (ZVEI) e.V.) in its most recent version as well as the supplementary clause: "Expanded reservation of proprietorship"

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1 Introduction

This document describes how to integrate the GSE file of the LB Remote I/O System into the Honeywell Experion® Process Knowledge System (PKS) and how to make the I/O data usable in the C300 controller via configuration in the **Control Builder**.

This document provides system-related information that is not included in the manual of the device itself.

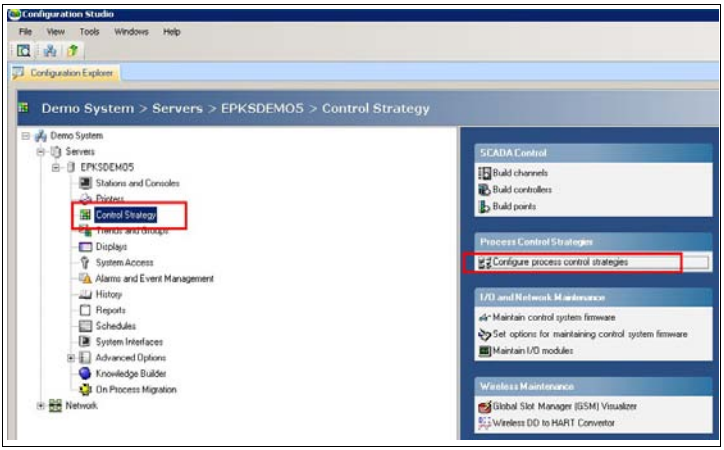
Software and Hardware Revisions

Product Name	Revision
Honeywell Experion® Process Knowledge System	Release 400/410
LB8106*	FW 6.27
GSE file `CGV61711.gse`	V 1.11

2 Configuration of the PROFIBUS Gateway Module (PGM)

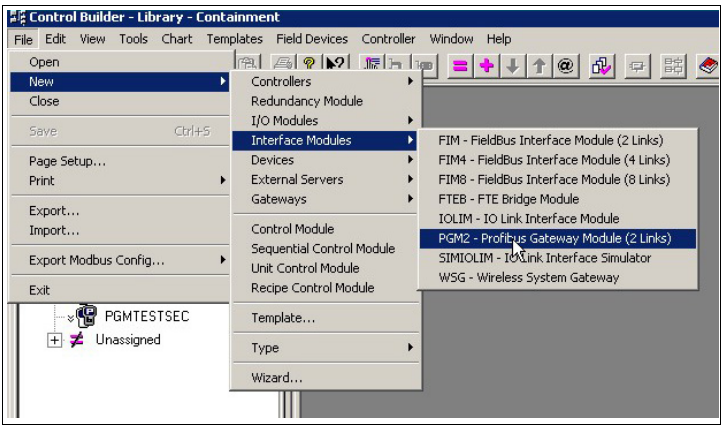
Add a PROFIBUS Gateway Module to the Control Builder

1. Open the **Configuration Studio** and choose **Control Strategy**.
2. Choose **Configure process control strategies** in the right window pane.

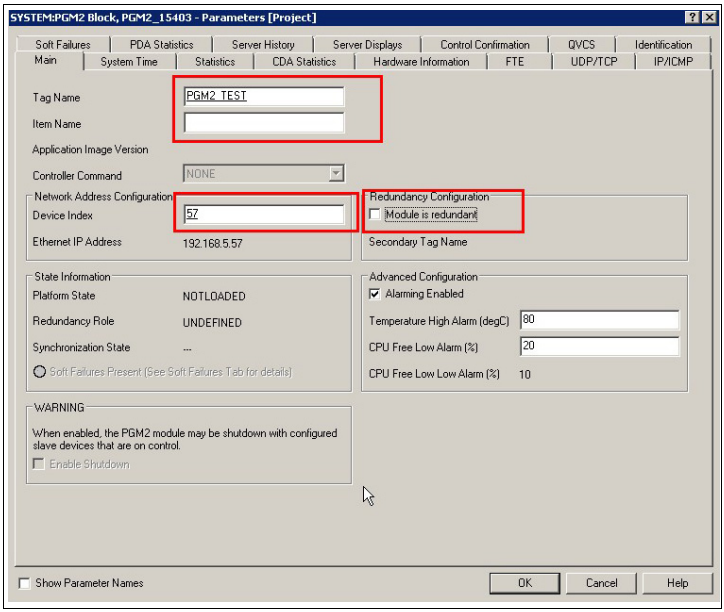


↳ The **Control Builder** opens.

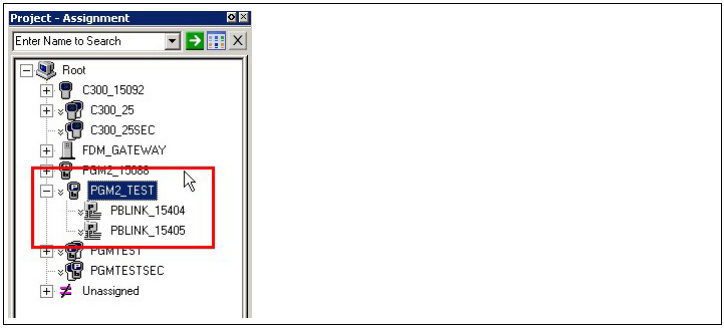
3. To add a PROFIBUS gateway module with two links, choose **File > New > Interface Modules > PGM2 - Profibus Gateway Module (2 Links)** in the menu of the **Control Builder**.



4. Enter a **Tag Name** and the **Device Index** of the PROFIBUS gateway module. In general, the device index is the last octet of the IP address, which must match the number adjusted with the switches on the module.
If the module is used in redundant configuration, activate the **Module is redundant** check box.
Note that the device index of a non-redundant module or of the primary PROFIBUS gateway module is an odd number and the device index of the backup PROFIBUS gateway module in a redundant installation is the next higher even number. For example, if the device index of the primary PROFIBUS gateway module is 57, the device index of the redundant PROFIBUS gateway module is 58.



↳ The PROFIBUS gateway module appears in the **Project** window of the **Control Builder**. Note that the tag name of the PROFIBUS gateway module and the PB links can be changed at any time.



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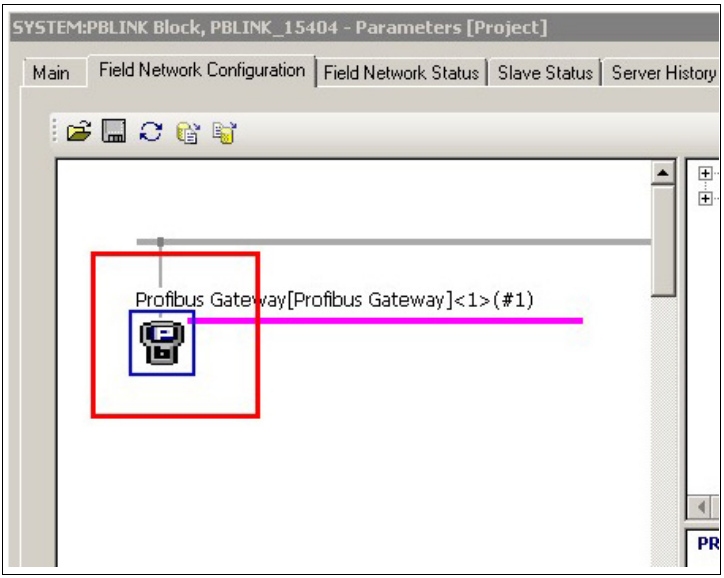
Configure the PROFIBUS Gateway Module

Note!

This operation must be repeated for each PB link.

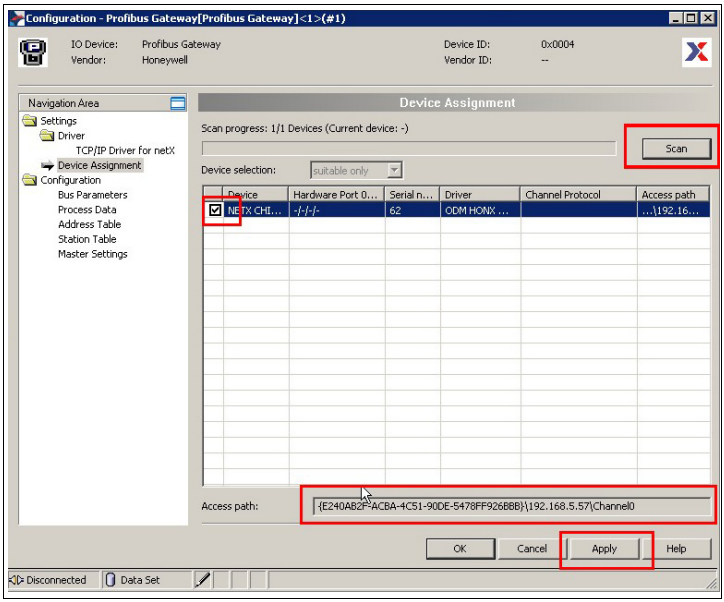
1. Double-click the PB link in the **Project** window of the **Control Builder**.

   ↳ The **Parameters** window appears.
2. Choose the **Field Network Configuration** tab.
3. Double-click the PROFIBUS Gateway.



↳ The **Configuration** window appears.

4. Click **Scan** in the **Configuration** window.
After the access path has been found, activate its check box in the first column and click **Apply**.



5. To close the window, click **OK**.

   ↳ If the compare parameters function is enabled in the preferences of the **Control Builder**, the **Compare Parameters** window appears. If so, you can close this window by clicking **OK**.

If the scan is not working correctly, this might have the following reasons:

- The firmware of the control firewall (CF9) is too old. In order to support PROFIBUS gateway modules, the firmware version "CC" or newer is required.
- The field unit and the PROFIBUS gateway module must be within a visible IP address range. This means that the subnet mask must allow direct exchange of IP packages between the field unit and the PROFIBUS gateway module.

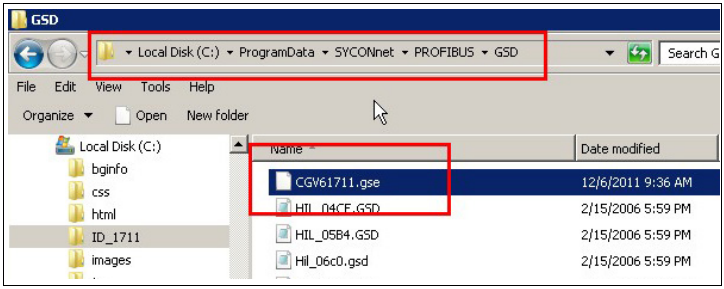
3 Configuration of the PROFIBUS Slave

3.1 Import GSE File in Device Catalog

Import GSE File

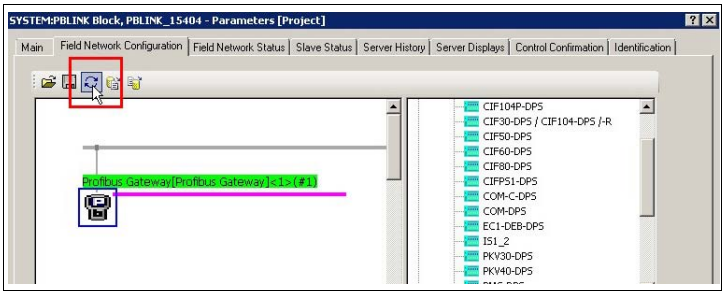
The first step in order to integrate a PROFIBUS slave into a PROFIBUS master system is the integration of the GSE file of the slave into the engineering system of the master application.

1. Copy the GSE file of the PROFIBUS slave in the following directory: `C:\ProgramData\SYCONnet\PROFIBUS\GSD`
   Because the device catalog is updated automatically with the content of this directory, it is sufficient to copy the GSE file in this directory.
   In general, this is a hidden directory. We recommend that you enter the path manually in **Address** field of your file explorer or that you activate the display of hidden directories in the system settings of your operating system.



2. To display the slaves with their correct pictures, copy the corresponding image files into this directory as well:
   `C:\ProgramData\SYCONnet\PROFIBUS\GSD`
3. Double-click the PB link in the **Project** window of the **Control Builder**.

   ↳ The **Parameters** window appears.
4. Choose the **Field Network Configuration** tab.
5. Click the **Refresh** icon in the **Parameters** window of the PROFIBUS gateway module to update the device catalog.



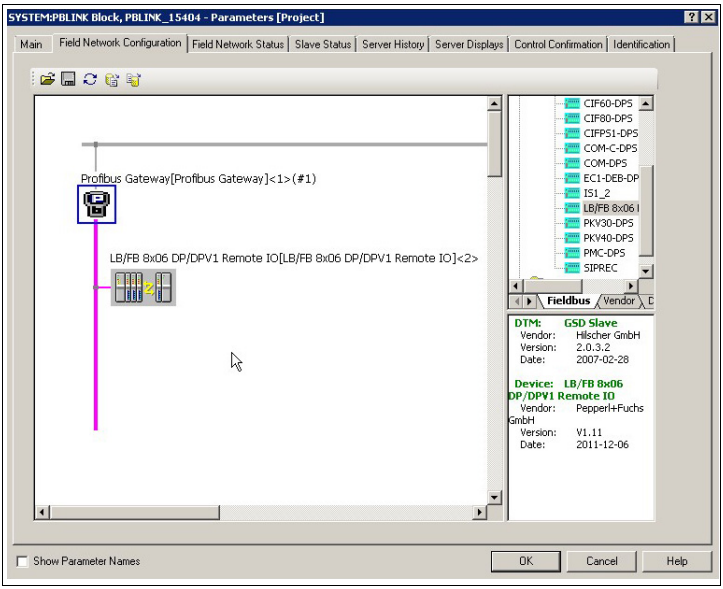
↳ The GSE file has been imported into the device catalog.

3.2 Add a PROFIBUS Slave to the Network

Once the GSE file has been imported into the device catalog and the PROFIBUS slave is listed in the catalog, it can be added to the PROFIBUS line.

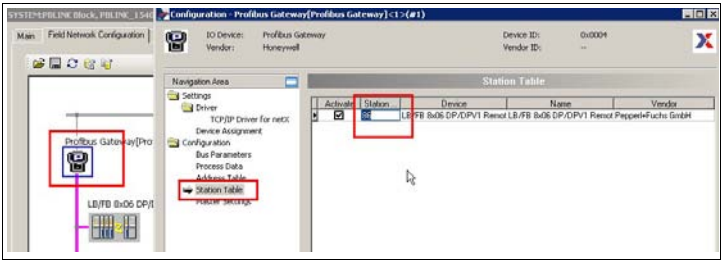
Add a PROFIBUS Slave

1. Drag the PROFIBUS slave from the device catalog and drop it on the PROFIBUS line in the left window pane.



↳ The field unit is added to the PROFIBUS line and the address is defined automatically.

2. Nevertheless you can define the address for the PROFIBUIS slave manually. To do so, double-click the PROFIBUS gateway to open the **Configuration** window. Then choose **Configuration > Station Table** and enter the address of the PROFIBUS slave in the **Station Address** column. See chapter 3.7



3. Click **Apply** to apply the new address to the PROFIBUS slave and click **OK** to close the window.

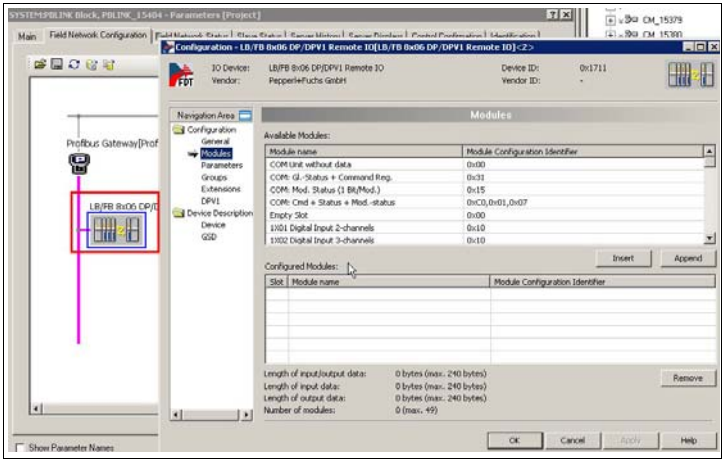
3.3 Configuration of the Remote I/O Module Structure

Define the Structure of the Remote I/O Modules

1. Double-click the PROFIBUS slave.

   ↳ The **Configuration** window opens.

2. Choose **Configuration > Modules.**. This window enables you to define the structure of the remote I/O modules of the PROFIBUS slave.



3. To configure a remote I/O module, select a module from the **Available Modules** list and click **Insert** to add the selected module to the **Configured Modules** list.
4. Click **Apply** to confirm the current structure and click **OK** to close the window.

Note!

Note the following guidelines when setting up the structure of the remote I/O modules:

- All GSE-based configurations use single width modules. Thus, double width modules that occupy two slots must be configured like a single width module, followed by an empty slot. Note that the last slot must not be an empty slot. If the last remote I/O module is a double width module, it is configured like a single width module and the following empty slot is omitted.
- The configuration must start with the com unit, no matter if it is used with or without diagnostic data.
- On backplanes that contain a second slot for a redundant com unit, slots 1 and 2 must be configured as empty slots and the numbering of the remote I/O modules starts with slot 3. For example, the redundant base backplane LB9022A provides 22 slots for remote I/O modules, numbered from 3 to 24.
- Because the numbering of the PROFIBUS master starts with module number 1 instead of 0, there is a module offset between the numbering in the PROFIBUS configuration of the master and the module numbering used on the Pepperl+Fuchs backplanes.

3.4 Rename Net Tags for Process Data of the PROFIBUS Master

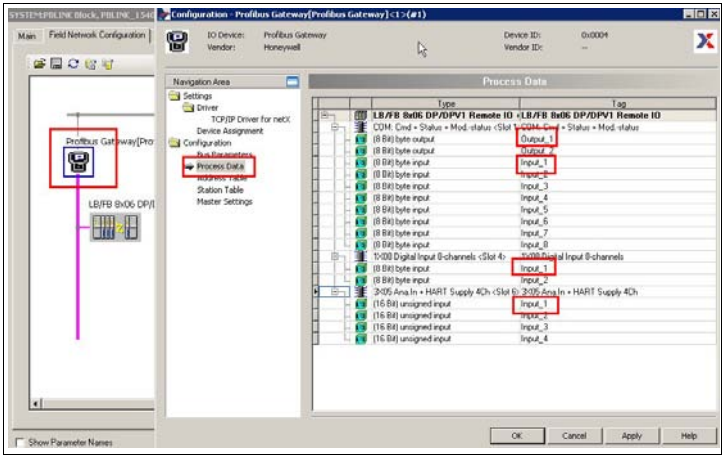
Note!

This section applies only to release version 400 of the Honeywell Experion® Process Knowledge System (PKS). The numbering of the process data for each module always starts with **Input_1** respectively **Output_1**, depending on the type of the remote I/O module. These marks are called net tags.

Rename Net Tags

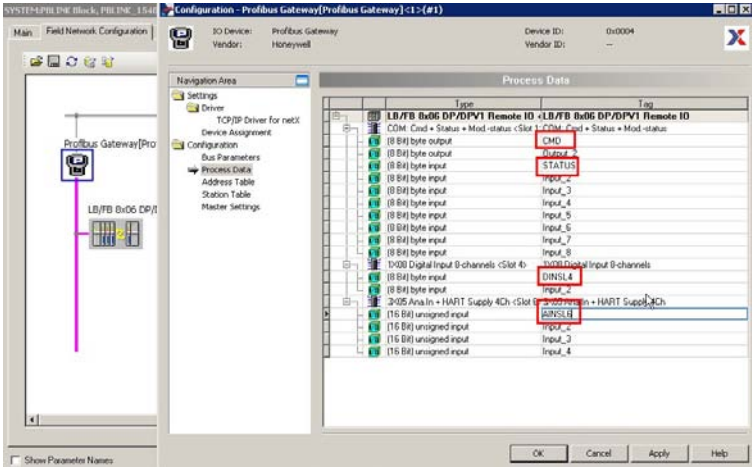
1. Double-click the PROFIBUS gateway.

   ↳ The **Configuration** window opens.
2. Choose **Configuration > Process Data**.
3. Rename the first data definition (input or output) of each module to a unique name.



4. Click **Apply** to apply the new net tags and click **OK** to close the window.

Example!



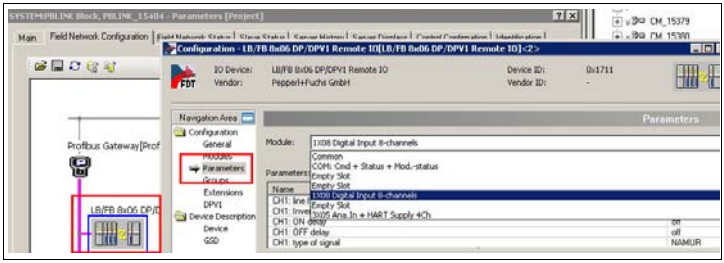
- **Input_1** of the com unit is the first byte of the global status register and thus it is renamed to **STATUS**.
- **Output_1** of the com unit is the first byte of the command register and thus it is renamed to **COMMAND**.
- **Input_1** of the digital input on slot 4 is renamed to **DINSL4**.
- **Input_1** of the analog input on on slot 6 is renamed to **AINSL6** and so on.

3.5 Parameterization of the Remote I/O Modules

Parameterize the Remote I/O Modules

1. Double-click the PROFIBUS slave.

   ↳ The **Configuration** window opens.
2. Choose **Configuration > Parameters**.
3. Select a remote I/O module from the drop-down list.



↳ The parameters of the selected remote I/O module are available for editing in the list below. Configure the parameters for each remote I/O module as required.

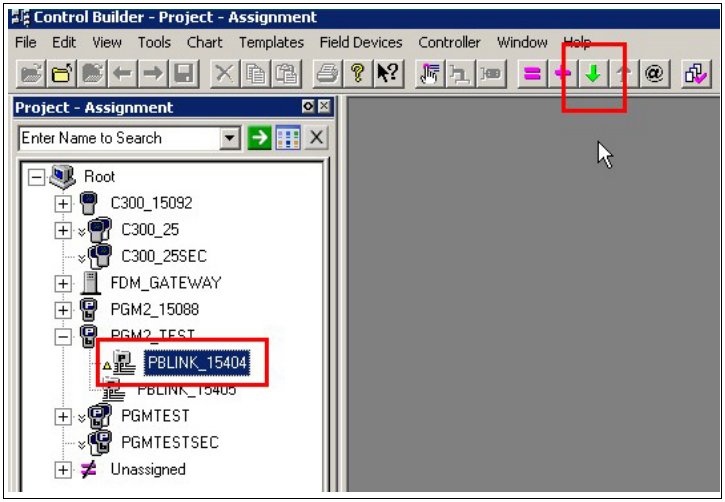
4. Click **Apply** to apply the current configuration and click **OK** to close the window.

3.6 Download the Configuration to the PROFIBUS Link

After the configuration has been completed, it must be downloaded to the PROFIBUS link.

Download Configuration to PROFIBUS Link

1. Select the PROFIBUS link in the **Project** window of the **Control Builder**.
2. Click the green arrow icon in the menu or right-click the PROFIBUS link and select **LOAD**.

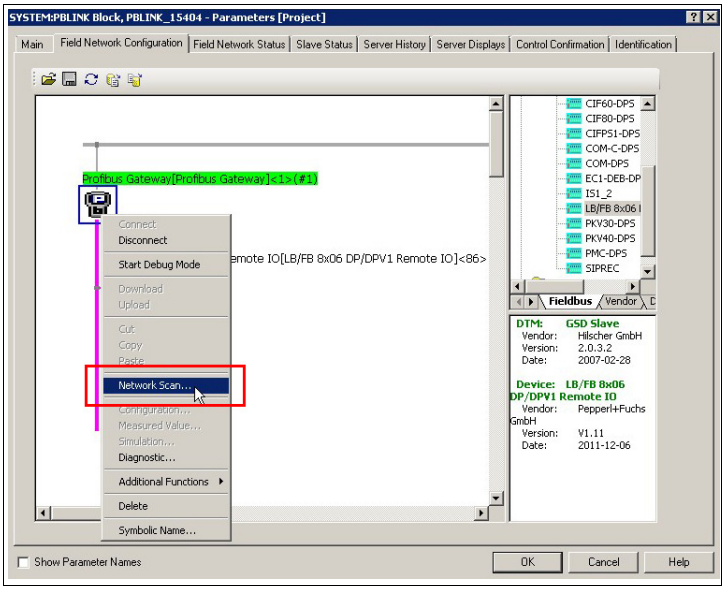


3.7 Set PROFIBUS Address for PROFIBUS Slave

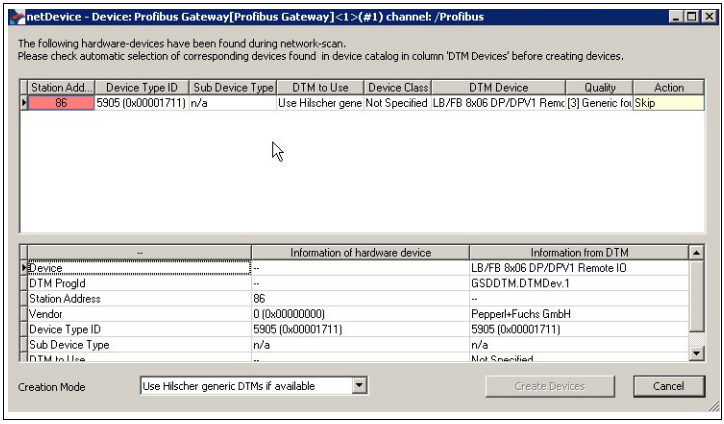
You can use the PROFIBUS master to identify the current addresses of each PROFIBUS slaves. Note that this option is available only if the master is offline.

Define PROFIBUS Address for Slave

1. To identify the current addresses of the PROFIBUS slaves, right-click the PROFIBUS gateway and select **Network Scan**.



↳ The hardware that is currently connected to the PROFIBUS gateway is displayed.



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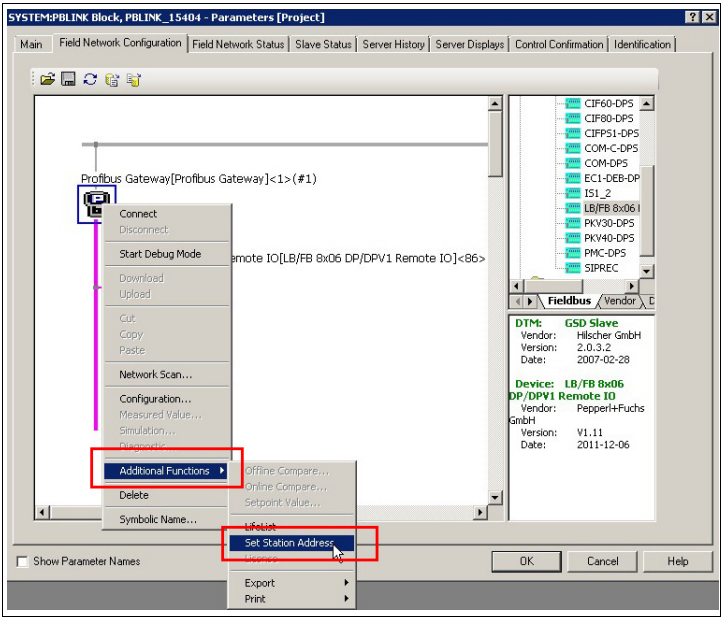
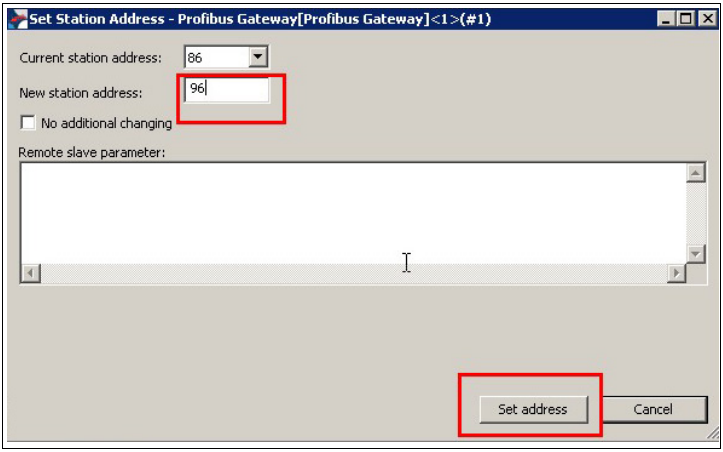
2. To define a new address for a PROFIBUS slave, right-click the PROFIBUS gateway and select **Additional Functions > Set Station Address**.



3. Select the address you want to change from the **Current station address** drop-down list and enter the new address in the **New station address** field.



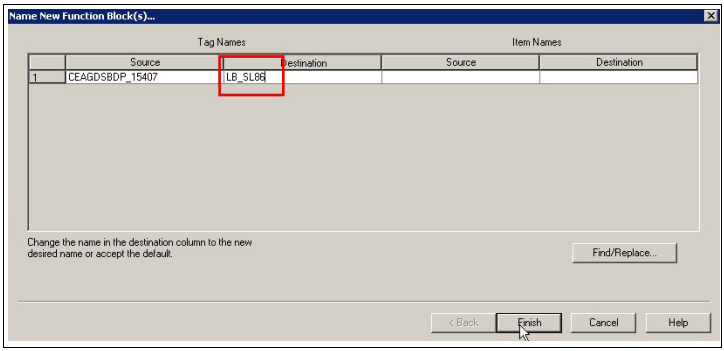
4. Click **Set address** to confirm the address change.

4 Configuration via Device Support Block (DSB)

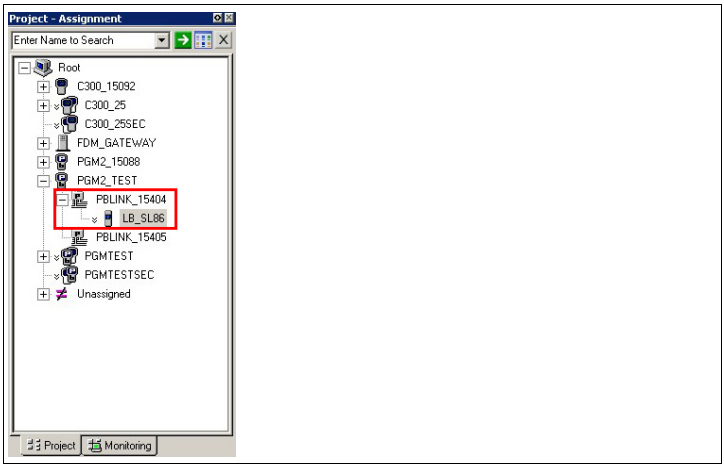
The data from the LB/FB remote I/O modules that is transmitted to the PROFIBUS master can be interpreted by the CEAGDSBDP device support block. This device support block is already included in the Honeywell Experion® Process Knowledge System.

Setup Configuration via Device Support Block (DSB)

1. Drag the CEAGDSBDP device support block from the **Library** window on the PB link in the **Project** window of the **Control Builder**.
2. Enter a name for the new instance of the function block.



↳ A new instance of the function block is added below the PB link in the **Project** window.



3. Double-click the new instance of the function block in the **Project** window.

   ↳ The **Parameters** window opens.
4. Choose the **Main** tab.

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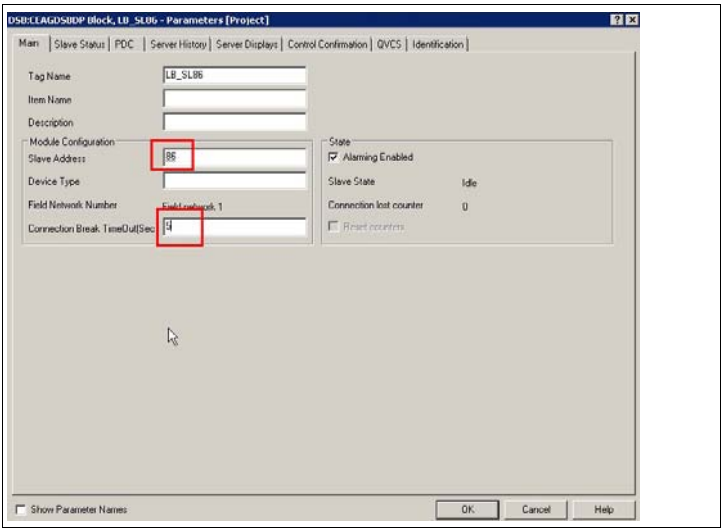
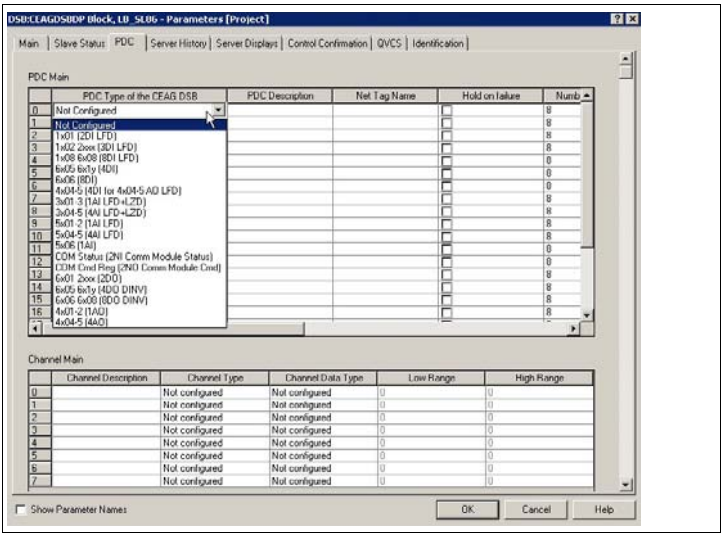
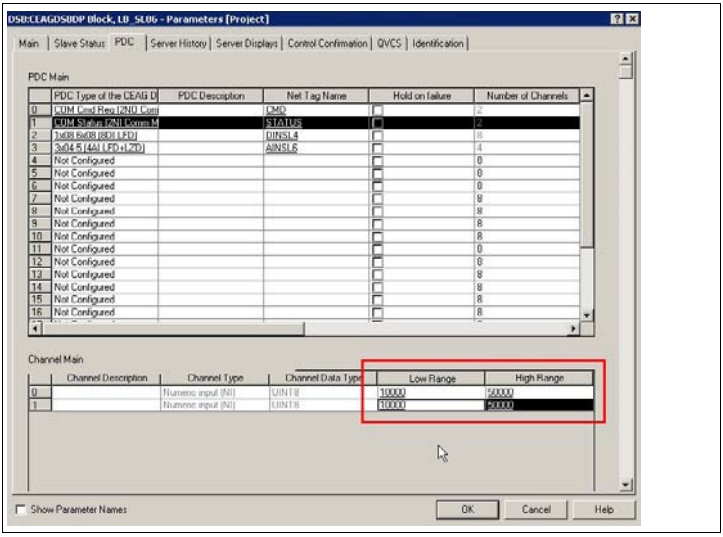
5. Enter the slave address as well as the connection break time. In general, the connection break time is set to 5 seconds. During this time the controller will not invalidate the input data, if the slave is not answering.



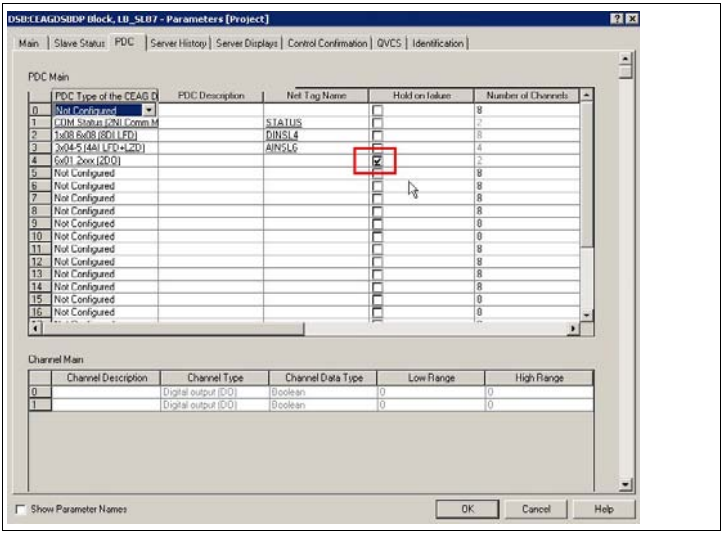
6. Choose the **PDC** tab.
7. Assign the PDC types of the device support block to the entries of the process data table. Each input and output value that is used for process control must be assigned to a PDC type. For a complete list of all remote I/O modules and possible PDC assignments, see chapter 7.



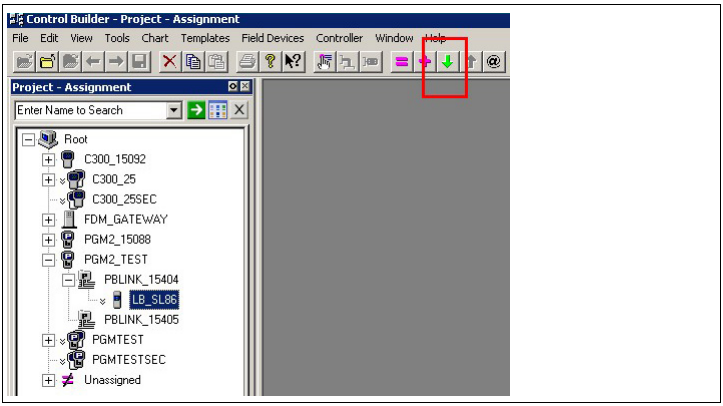
8. To avoid errors, enter the low range and high range for the global status register. Note that it is not used as an analog value.



9. We recommend that you activate the check box **Hold on failure** for all outputs.



10. After the configuration has been completed, download the configuration to the controller. Make sure the new instance of the function block is selected in the **Project** window of the **Control Builder**. Then click the green arrow icon in the menu bar.



Note!

The total number of PDCs that can be used for one field unit is limited to 24. Bidirectional remote I/O modules that have both inputs and outputs require two PDCs, even if they are used as inputs or outputs only. This means that if using such bidirectional remote I/O modules, the total number of remote I/O modules per field unit is actually lower than 24.

5 Usage of Remote I/O Data in PROFIBUS I/O Module Block

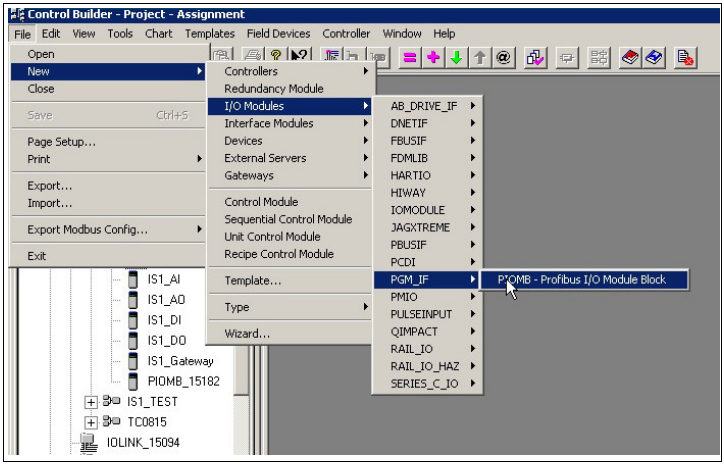
To use the remote I/O data in a functional diagram, a PROFIBUS I/O module block (PIOMB) must be added and assigned to the C300 controller in which the data will be used.

Note!

The data from all slaves that are connected to one PROFIBUS gateway module (both links) can be used in one C300 controller only.

Configure PROFIBUS I/O Module Block

1. To add a new PROFIBUS I/O module block, choose **File > New > I/O Modules > PGM_IF > PIOMB - Profibus I/O Module Block** in the menu of the **Control Builder**.



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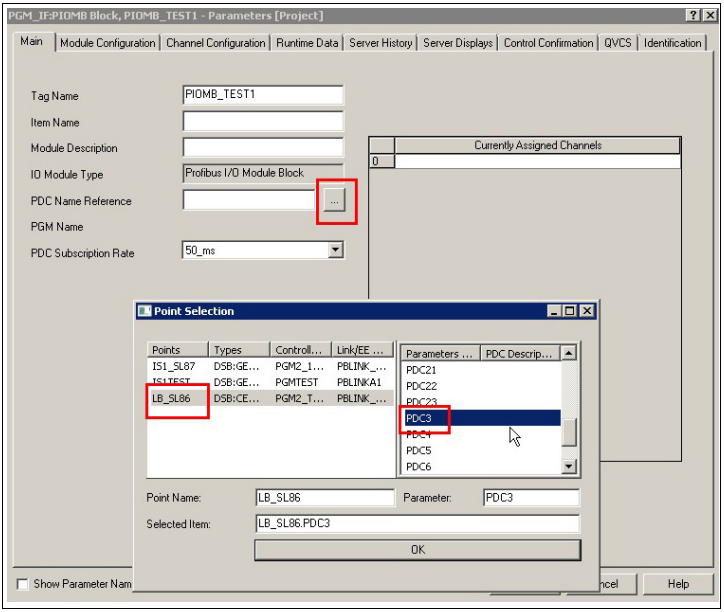
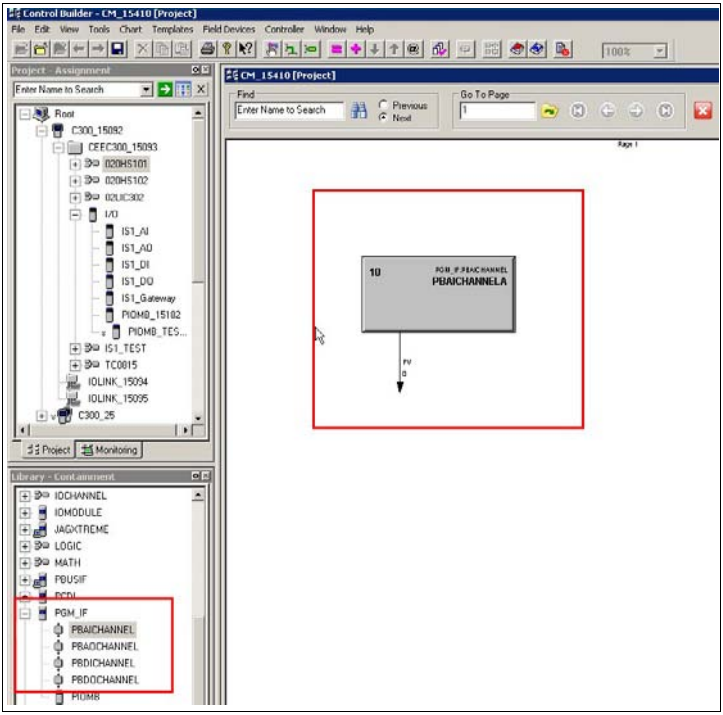
2. Assign the PROFIBUS I/O module block to a PDC of a device support block. To do so, click **...** next to the **PDC Name Reference** field to select a specific PDCs of a specific device support block.
In the screenshot below, the PROFIBUS I/O module block is assigned to PDC number 3, which is a 4 channel analog input at slot 6. → See image on page 20



3. Click **OK** to confirm the selection.

Assign PROFIBUS I/O Module Block to Controller

1. Add an input block to the functional diagram.

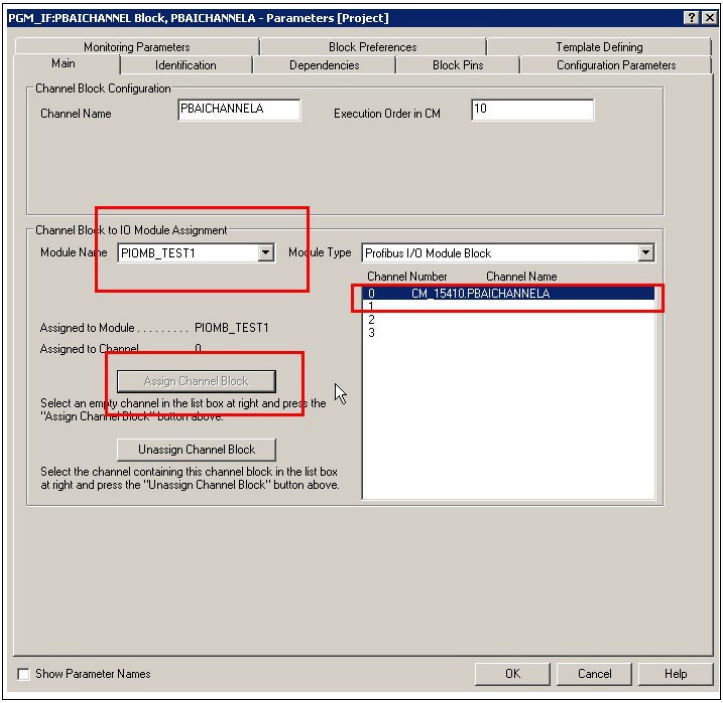


2. Double-click the channel block.

   ↳ The **Parameters** window opens.

3. Choose the **Main** tab.

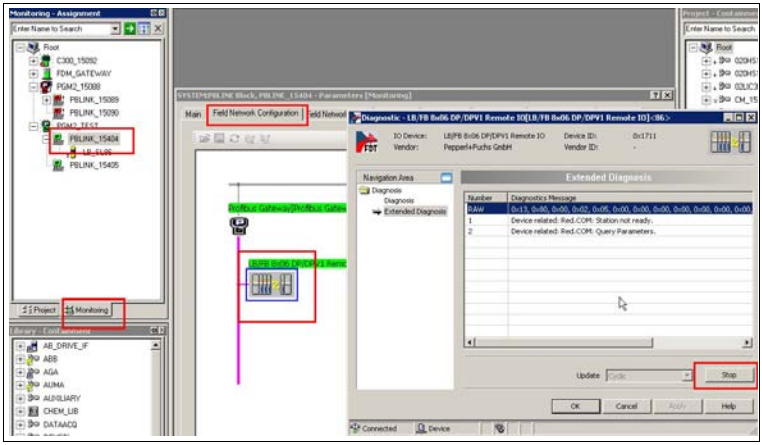
4. Select the PROFIBUS I/O module block from the **Module Name** drop-down list in the **Channel Block to Module Assignment** area. Select an empty channel from the channel list and click **Assign Channel Block**.



↳ The data of the remote I/O module is assigned to the controller and can be used for process control.

6 Diagnostics

To access the diagnostic information, you must switch from the project view to the monitoring view.



Access Diagnostic Information

1. To switch from the project view to the monitoring view, click the **Monitoring** tab.
2. Double-click the PROFIBUS link in the **Monitoring** window.

   ↳ The **Parameters** window opens.
3. Choose the **Field Network Configuration** tab.
4. Make sure that the PROFIBUS gateway and the remote I/O field unit are online.
5. Double-click the remote I/O field unit to open the **Diagnostic** window. Then choose **Diagnosis > Extended Diagnosis** and click **Start** respectively **Stop** to start or stop the update of the diagnostic information.

7 Overview of all PDC Types

LB/FB Remote I/O Module	PDC Type Honeywell Experion Release 400/410	
	Input	**Output**
1x01	1x01 (2DI LFD)	—
1x02	1x02 2xxx (3DI LFD)	—
1x03 (Frequency Measurement)	5x06 (1AI)	—
1x03 (12 Bit Counter)	(not yet supported in this release of the DSB)	—
1x03 (32 Bit Counter)	(not yet supported in this release of the DSB)	—
1x03 (32 Bit Counter + Freq.)	(not yet supported in this release of the DSB)	—
1x07	(not yet supported in this release of the DSB)	—
1x08	1x08 6x08 (8DI LFD)	—
1x09	1x08 6x08 (8DI LFD)	—
1x14	(not yet supported in this release of the DSB)	—
1x15	(not yet supported in this release of the DSB)	—
2xyy	1x02 2xxx (3DI LFD)	6x01 2xxx (2DO)
3x01	3x01-3 (1AI LFD+LZD)	—
3x02	3x01-3 (1AI LFD+LZD)	—
3x02 + PV	(not yet supported in this release of the DSB)	—
3x02 + PV + SV	(not yet supported in this release of the DSB)	—
3x02 + PV + SV + TV	(not yet supported in this release of the DSB)	—
3x02 + PV + SV + TV + QV	(not yet supported in this release of the DSB)	—
3x04	3x04-5 (4AI LFD+LZD)	—
3x05	3x04-5 (4AI LFD+LZD)	—
3x06	3x04-5 (4AI LFD+LZD)	—
3x07	3x04-5 (4AI LFD+LZD)	—
4x01	—	4x01-2 (1AO)
4x02	—	4x01-2 (1AO)
4x03	—	4x01-2 (1AO)
4x04	(4DI for 4x04-5 AO LFD)	4x04-5 (4AO)
4x05	(4DI for 4x04-5 AO LFD)	4x01-5 (4AO)
4x06	(4DI for 4x04-5 AO LFD)	4x01-5 (4AO)

LB/FB Remote I/O Module	PDC Type Honeywell Experion Release 400/410	
5x01	5x01-2 (1AI LFD)	—
5x02	5x01-2 (1AI LFD)	—
5x04	5x04-5 (4AI LFD)	—
5x05	5x04-5 (4AI LFD)	—
5x06	5x06 (1AI)	—
6x01	—	6x01 2xxx (2DO)
6x02 (planned)	(not yet supported in this release of the DSB)	(not yet supported in this release of the DSB)
6x05	6x05 6x1y (4DI)	6x05 6x1y (4DO DINV)
6x06	6x06 (8DI)	6x06, 6x08 (4DO DINV)
6x08	1x08 6x08 (8DI LFD)	6x06, 6x08 (4DO DINV)
6x1y	6x05 6x1y (4 DI)	6x05 6x1y (4DO DINV)
7x04 (universal remote I/O module)	(not yet supported in this release of the DSB)	(not yet supported in this release of the DSB)
Command Status Register	COM Status (2NI Comm Module Status)	—
Command Register	—	COM Cmd Reg (2NO Comm Module Cmd)

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