



PCH Network Portal

Quick Start Guide

for

Add-On Instruction (AOI) Configuration and Usage

Rockwell PLC with Ethernet/IP

PREFACE

This Quick Start Guide (QSG) is designed to help integrate Parker Hannifin's PCH Network Portal module into an Allen-Bradley (AB) PLC environment. For the sake of this document, the PCH Network Portal will also be referred to as PCH Portal. The QSG assumes that you are using a PCH Portal module that is communicating to the AB PLC via an Ethernet/IP network.

You can find this AOI and instructions on how to implement it here:

http://solutions.parker.com/PDN_softwarefiles

The PCH Portal is configurable, from the factory, with IO-Link Class A or Class B modules installed in the three module positions. This QSG is agnostic to IO-Link Device Classification, such that it shall function the same whether you are controlling Class A or Class B modules. The guide will walk the user through obtaining the necessary files, importing/configuring the AOI, and 'configuring' the PCH ports.

The "PCH1xEABC_AB_PD_Rx" AOI facilitates communication and handling of configuration data, process data, and diagnostic data between the PLC and the PCH Portal module and the IO-Link slave devices that are connected to it.

There are 4 Ethernet/IP connection definitions available for the PCH Portal module.

The "PCH1xEABC_AB_PD_Rx" AOI is designed to be used with the "CONNECTION 1" definition.

Refer to the PCH Portal's User Manual for connection definitions.

You can download resources such as this QSG, a sample RSLogix5000 project and the PCH Portal user manual here:

http://solutions.parker.com/PDN_softwarefiles

PCH Portal Configuration and Process Data Add-On Instruction

The “PCH1xEABC_AB_PD_Rx” AOI simplifies the configuration and usage of the Parker PCH Portal module and IO-Link devices with Allen-Bradley CompactLogix, ControlLogix and GuardLogix PLCs. This Quick Start Guide assumes the use of an Ethernet/IP fieldbus. Data is mapped to user-friendly configuration, control, status, and diagnostic tags on the PLC side.

IMPORTING THE INSTRUCTION

1. Add the PCH Portal module to the Controller Organizer’s “I/O Configuration”.



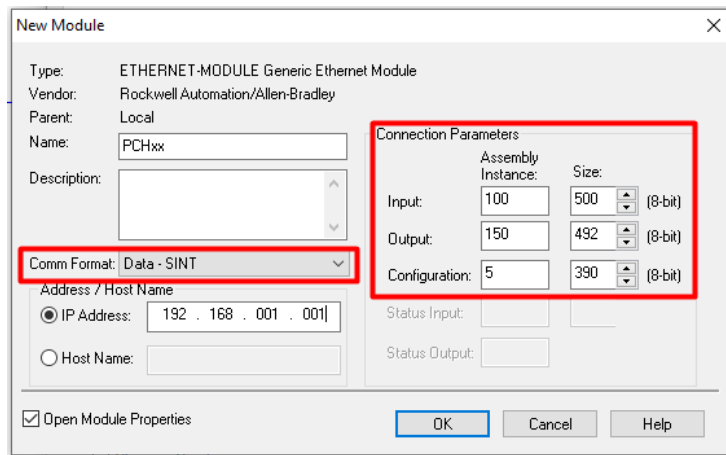
NOTE: In order to use the Parker PCH Portal AOI, a “Generic Ethernet Module” must be used to configure the PCH Portal. Do not use the EDS file.

Catalog Number	Description	Vendor	Category
ETHERNET-MODULE	Generic Ethernet Module	Rockwell Autom...	Communication

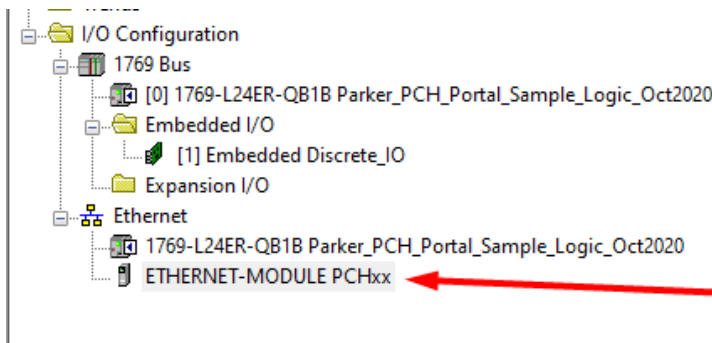
Per the PCH Portal’s user manual, configure the I/O module as follows:

Connection 1: This is fixed map, all the process data supported by the device is mapped into fixed locations. It is easier to locate and map the process data, as map remains fixed irrespective of the device port configurations. Connection 1 will be used whenever the PCH configuration to be done via PLC/controller.

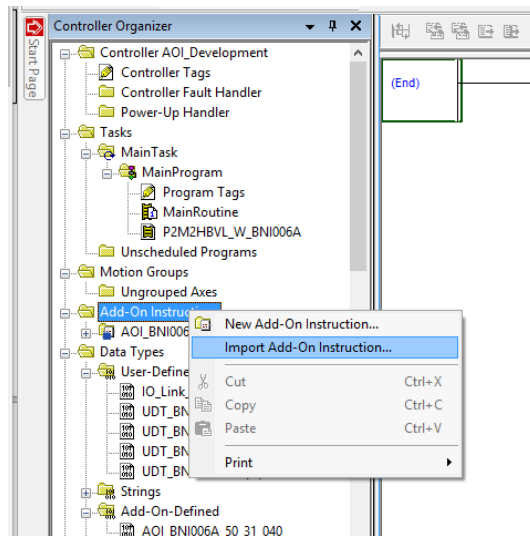
Mode	Instance ID	Data Length (Max. Bytes)
Input	100	500
Output	150	492
Configuration	5	390



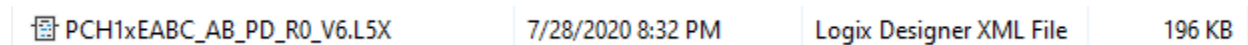
Note: Make sure you configure the “Comm Format” as **Data – SINT**



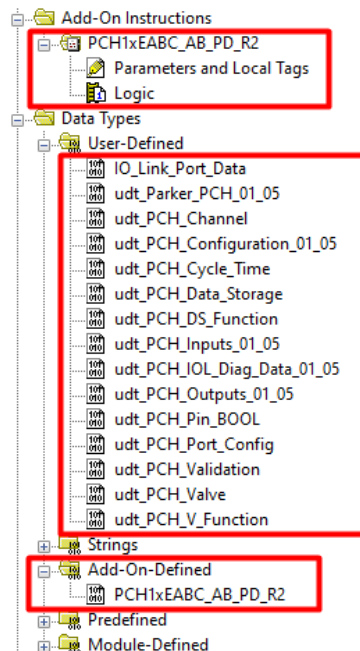
2. Right click Add-On Instruction in Controller Organizer and select “Import Add-On Instruction...”



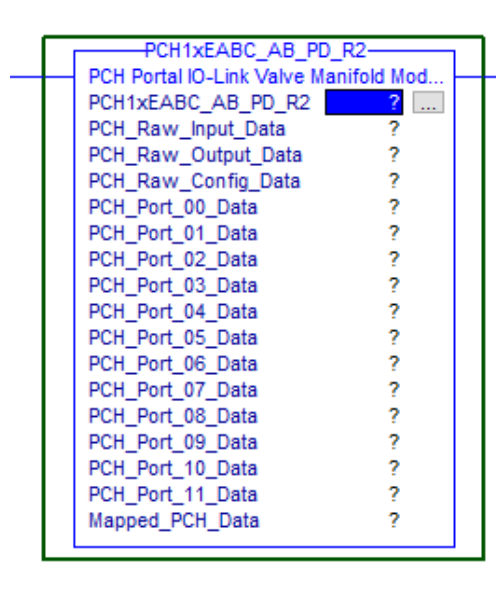
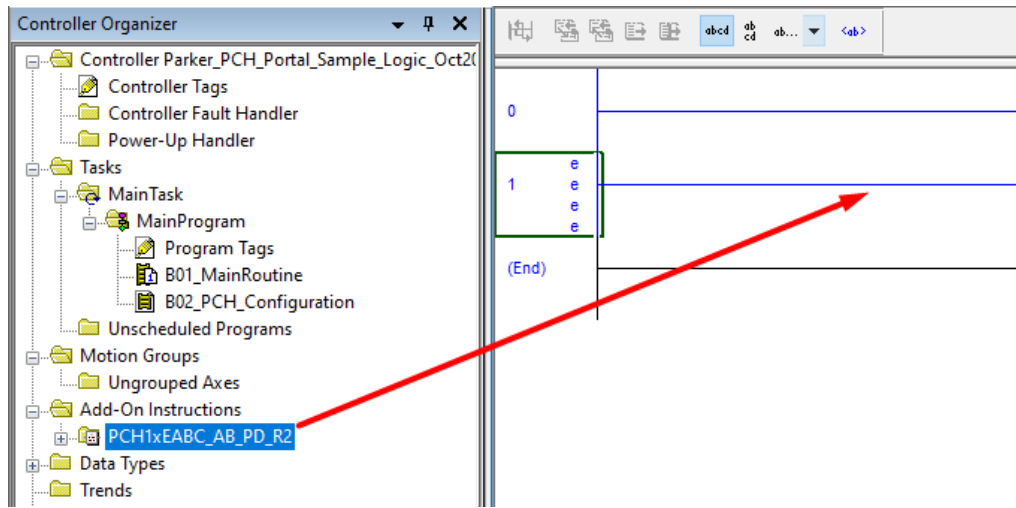
3. Select the “PCH1xEABC_AB_PD_Rx” where _Rx is the revision of AOI.



Choose OK on Import Configuration Window and you should then see the new AOI instance along with User-Defined and Add-On Defined data types created in the controller organizer.

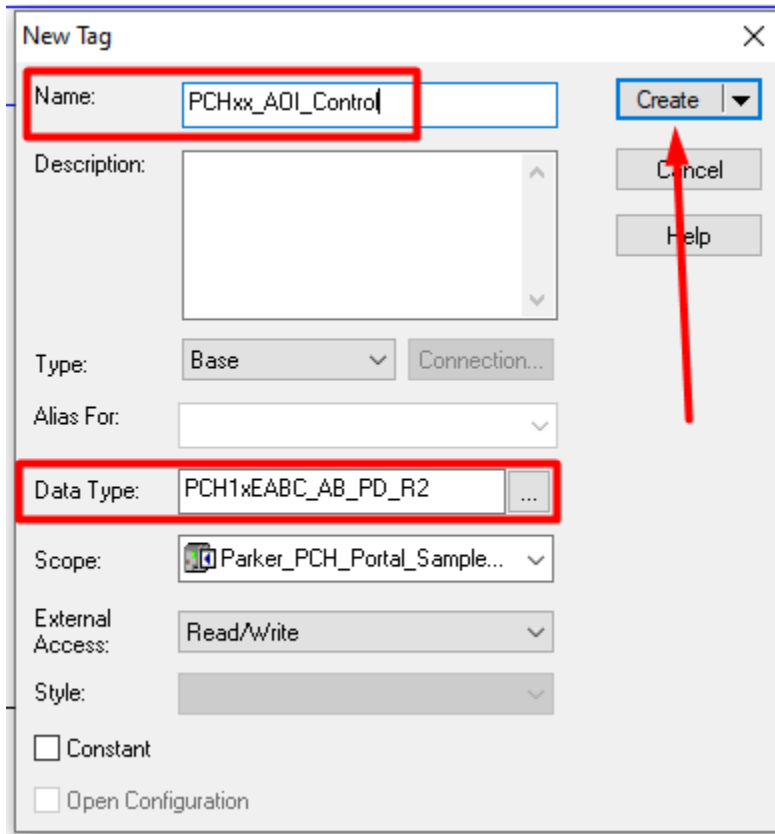
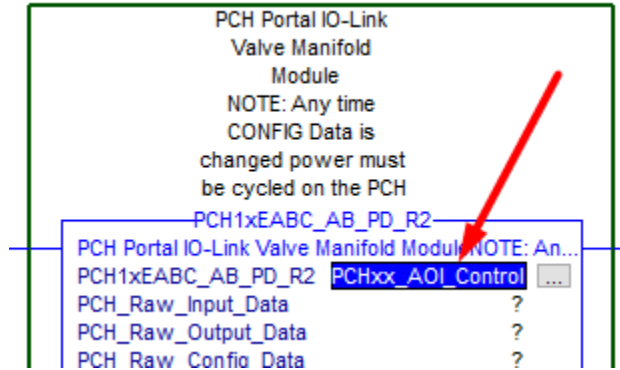


4. Add an instance of the instruction by dragging the AOI onto an empty rung of ladder. The instruction will drop onto the selected rung.



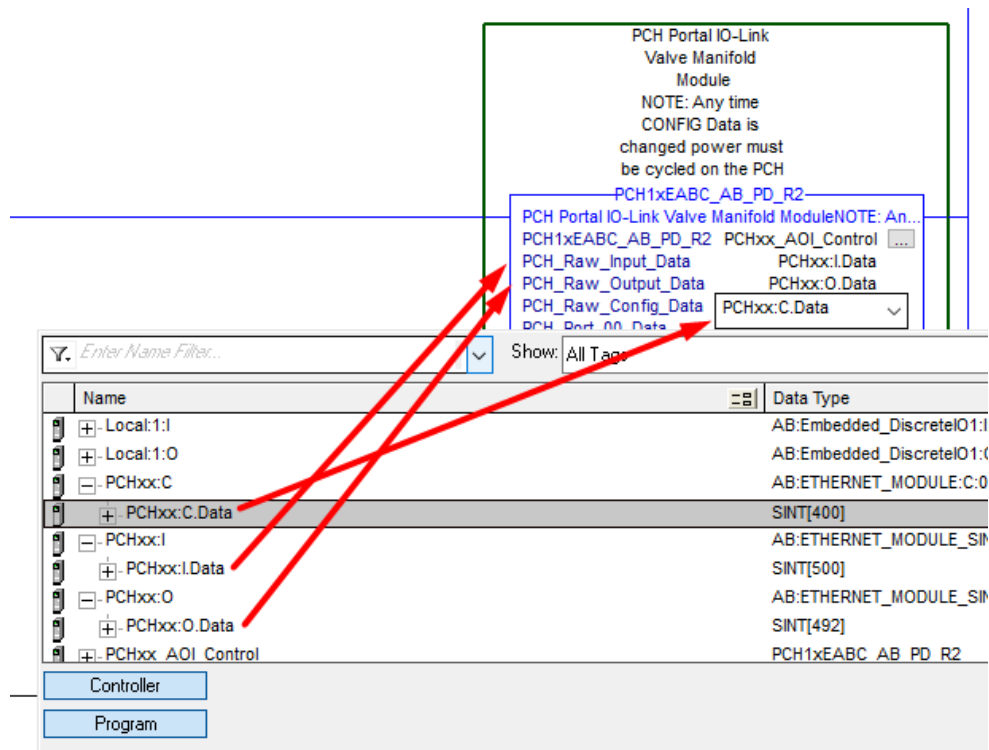
5. Create a tag for the “PCH1xEABC_AB_PD_Rx” AOI control.

The best method for this is to type in your ‘tag name’ and then right click on the tag field and select “NEW “tag-name””. This way the correct data type is automatically assigned to the tag.



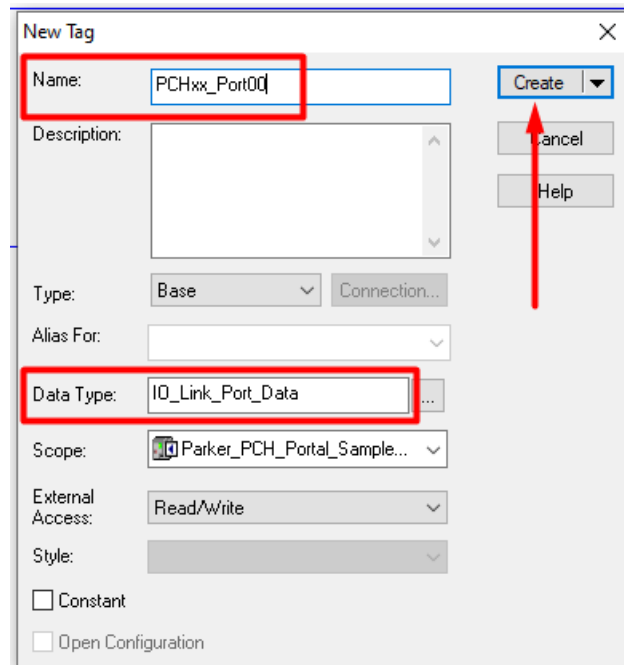
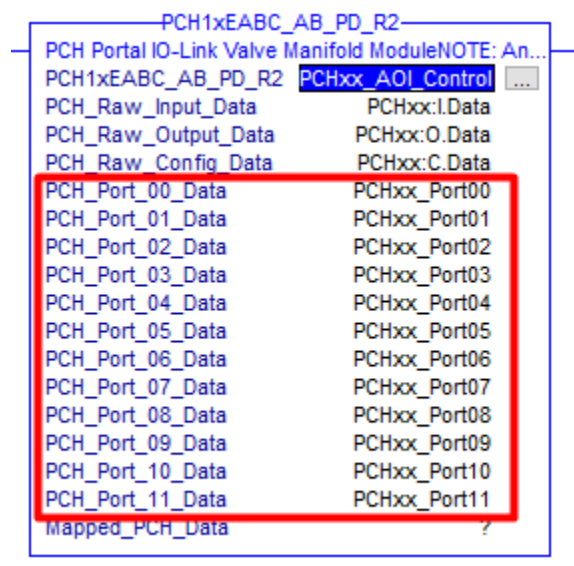
6. Select the controller scope tags, that were automatically created when you configured the PCH Portal in the I/O Configuration (Step 1), for PCH_Raw_Input_Data, PCH_Raw_Output_Data, and PCH_Raw_Config_Data. From the controller scope tag list.

NOTE: Expand the controller scope tags to select the “DATA” element of the tag.

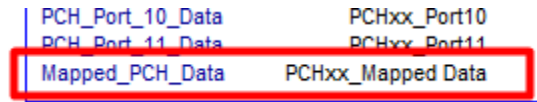


7. Create a tag for each of the 12 IO-Link ports. These can be created as ‘controller scope’ or ‘program scope’ tags. These tags will be used for the IO-Link device ‘Process Data’.

The best method to create these tags is to right click on the tag, after you enter the tag name, and select “NEW ‘tag_name’”, this way the correct data type gets assigned to the tag. In this case the data type is “IO_Link_Port_Data”.



8. Create a tag for the “Mapped_PCH_Data”. This tag can be created as ‘controller scope’ or ‘program scope’ tag. This tag will be used for PCHs Configuration Data, Input Data (for both the PCH and IO-Link devices connected to it), and for Output Data (for the PCH and IO-Link devices connected to it).



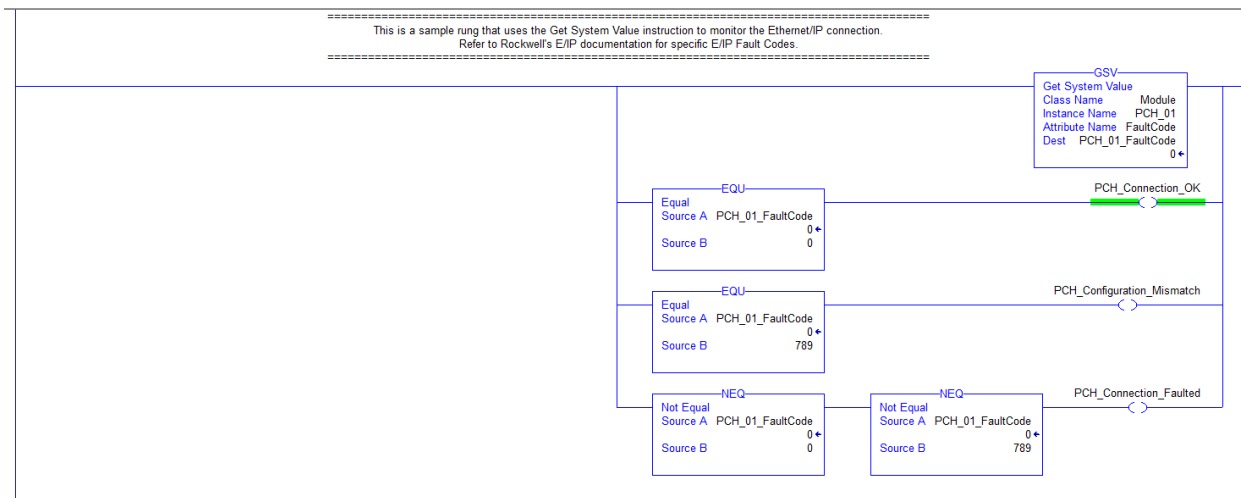
		IO-Link_PCH_Data	
[-] PCHxx_Mapped_Data		udt_Parker_PCH_01_05	PCH Mapped Data
+ PCHxx_Mapped_Data.I		udt_PCH_Inputs_01_05	PCH Mapped Data Input Data
+ PCHxx_Mapped_Data.O		udt_PCH_Outputs_01_05	PCH Mapped Data Output Data
+ PCHxx_Mapped_Data.C		udt_PCH_Configuration_01_05	PCH Mapped Data CONFIGURATION Data

9. At this point the AOI has been fully configured and is ready to use.

Following are some examples of logic that can be used with the PCH Portal module.

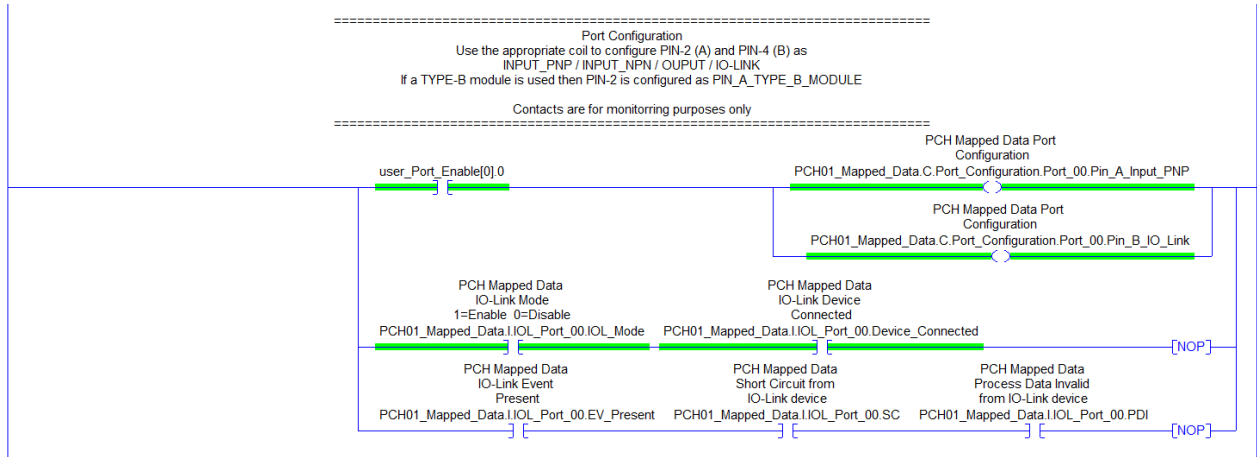
a. PCH Portal module connected and communicating:

There are many ways to determine if an Ethernet/IP module is connected and communicating, but here is a commonly used method. The 'Get System Value' returns a fault code if there are issues with the E/IP connection.

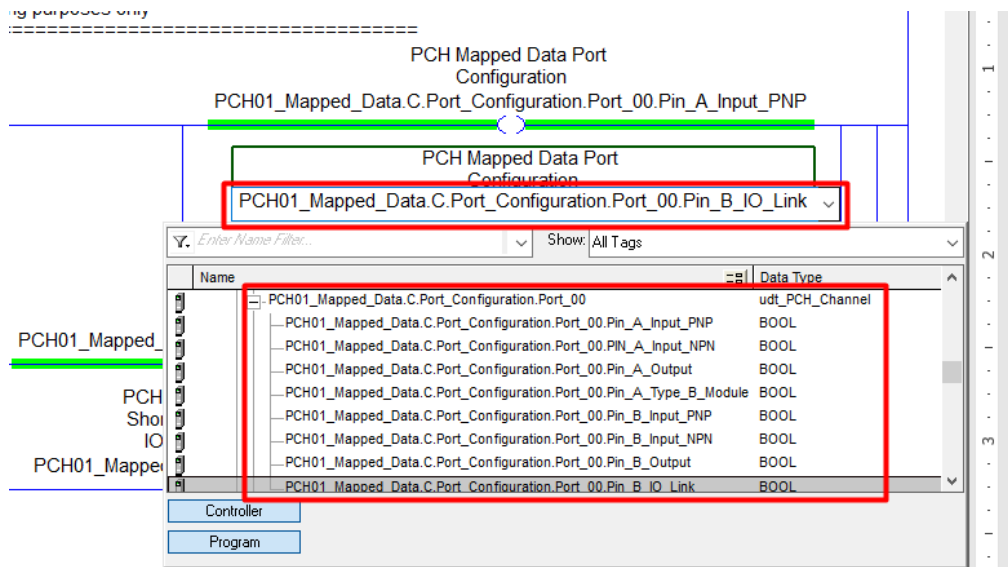


b. Configuration of a PCH Portal port:

Here is an example of a rung that can be used for the configuration of



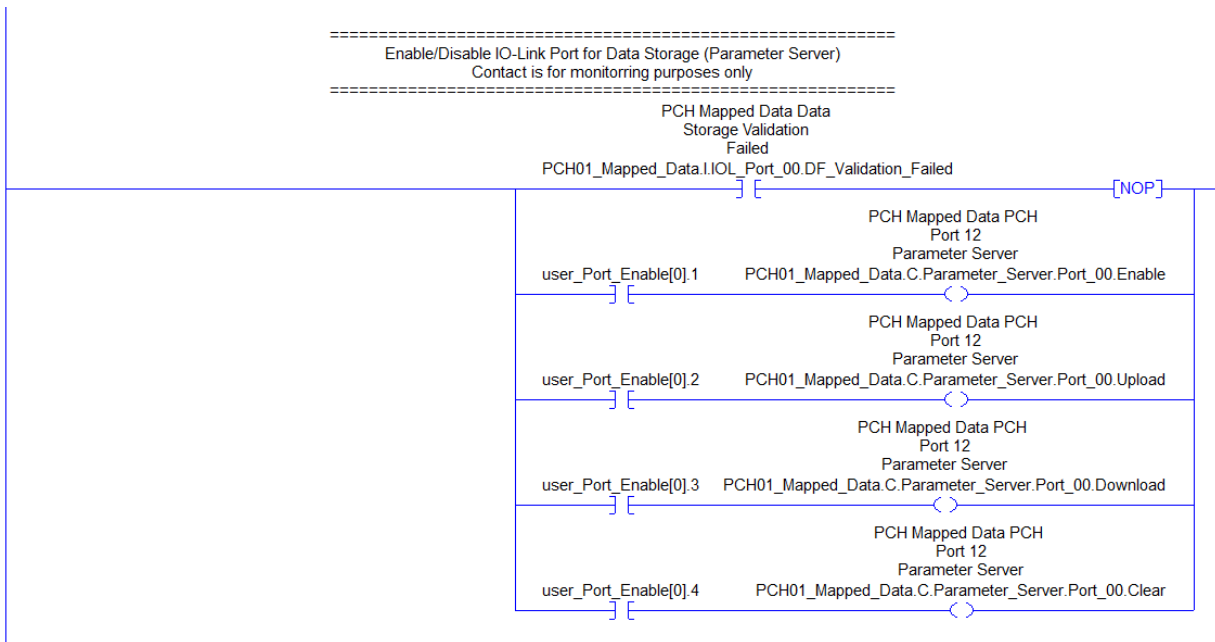
These tags are already predefined in the 'Configuration' element of the 'Mapped Data' tag structure. You simply have to select the configuration tag you want for the particular Port/Pin. The contacts on the bottom two branches are for monitoring purposes only.



NOTE: If 'Configuration Data' is changed after the PCH Portal is powered up and communicating to the PLC then the PCH Portal module will need to be power cycled in order for the new configuration data to be sent to the PCH Portal module. Configuration Data is only sent once upon successful connection to the PCH Portal module.

c. Configuring an IO-Link Port for “Data Storage (Parameter Server)”:

Data Storage (Parameter Server) is the functionality of automatically uploading and/or downloading parameters to an IO-Link device. The tags are already predefined in the ‘Configuration’ element of the “Mapped Data” tag structure. Here is a typical rung that can be used to control Data Storage.



Refer to the PCH Portal User Manual for details of the Data Storage (Parameter Server) functionality.

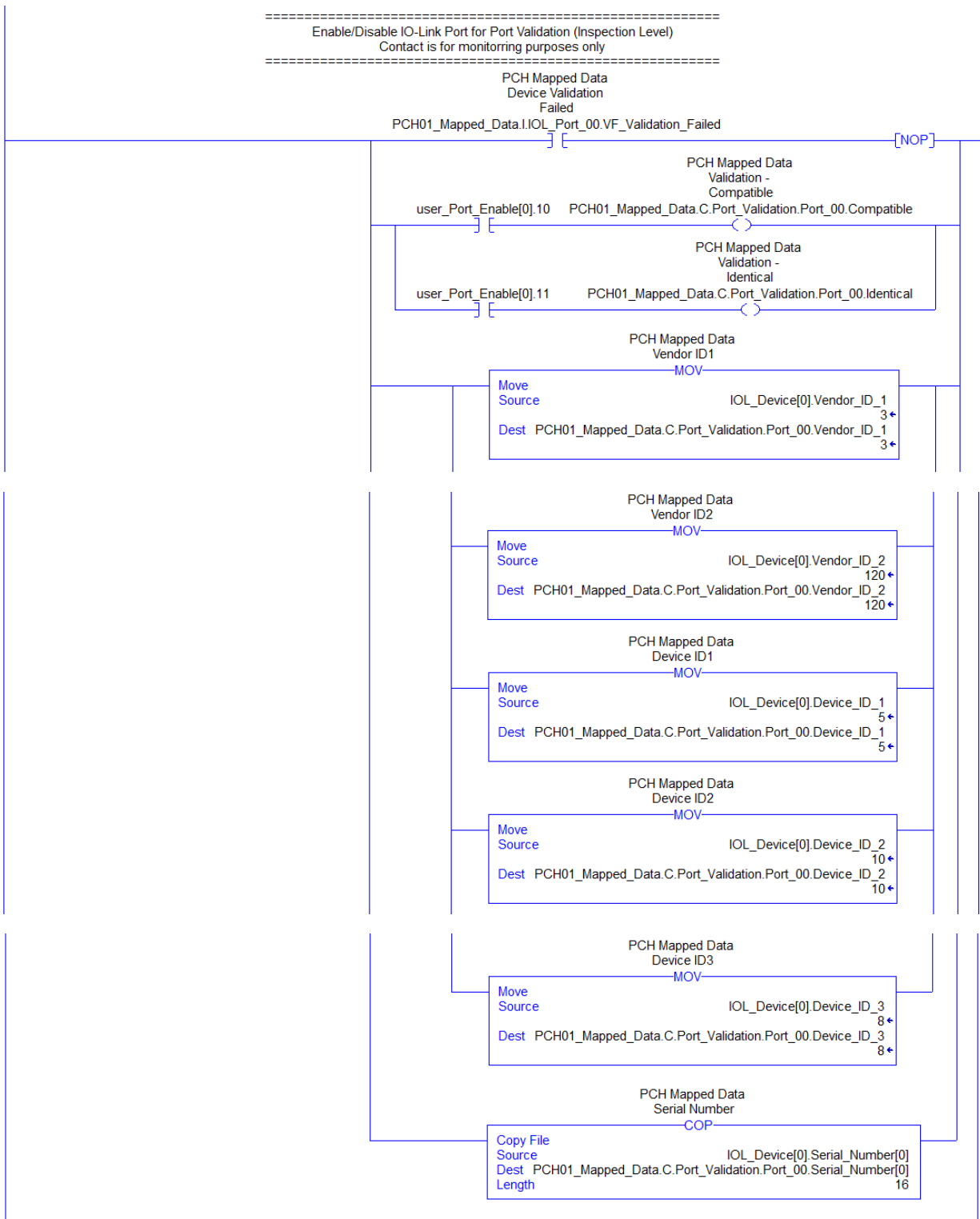
You can also refer to the IO-Link specification at:
<https://io-link.com/en/Download/Download.php?thisID=48>

Data Storage is part of the ‘Configuration’ of the PCH Portal.

The ‘DF_Validation_Failed’ bit in the above rung is set high when an IO-Link device, other than the one that was used to configure Data Storage, is connected to that specific IO-Link port. This is done through the IO-Link device’s Vendor_ID/Device_ID.

NOTE: If ‘Configuration Data’ is changed after the PCH Portal is powered up and communicating to the PLC then the PCH Portal module will need to be power cycled in order for the new configuration data to be sent to the PCH Portal module. Configuration Data is only sent once upon successful connection to the PCH Portal module.

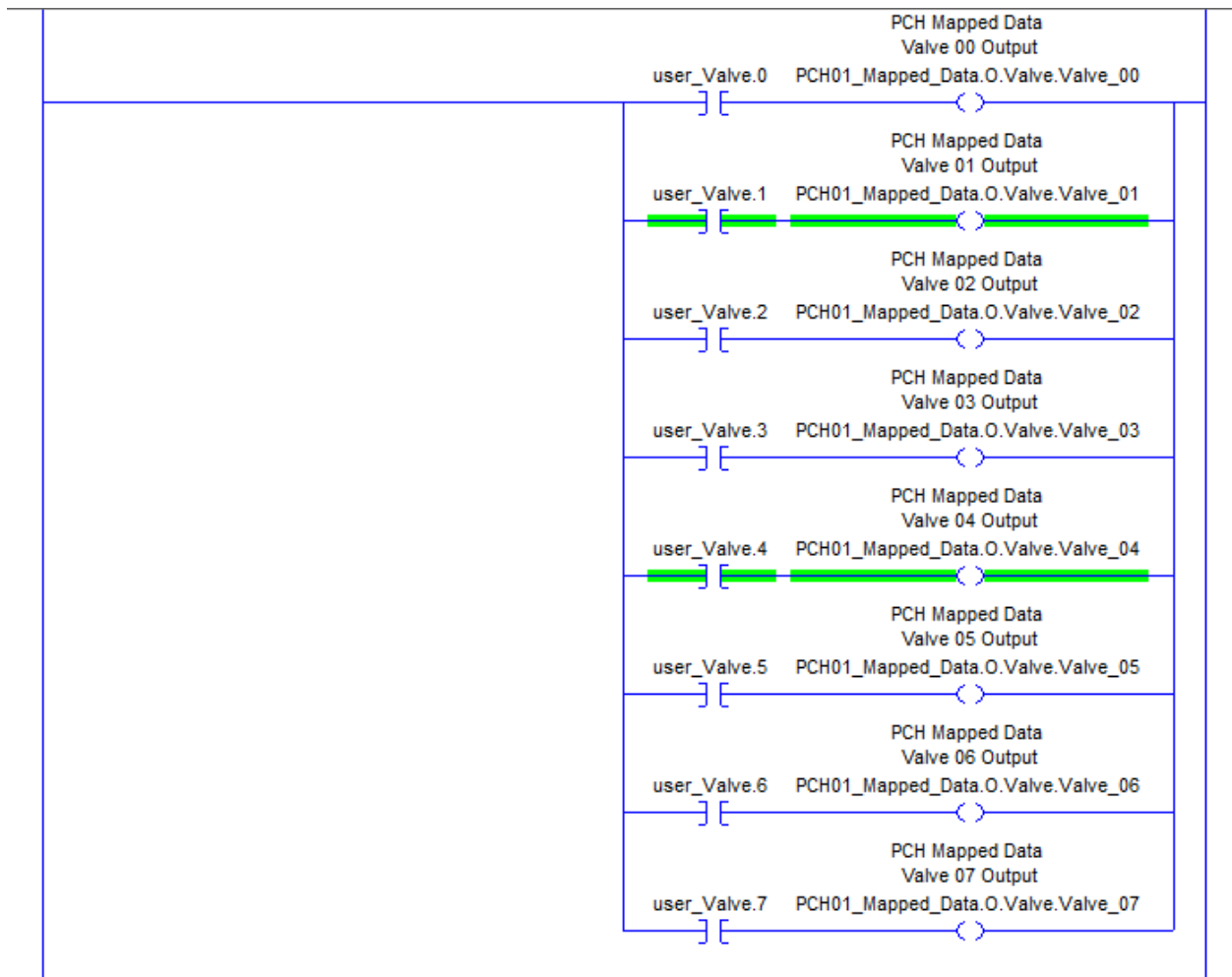
d. Configuring an IO-Link port for 'Validation'



e. Solenoid Valves (Cyclic)

In the OUTPUTS of the 'Mapped_Data' tag you will find the VALVE outputs. Use your logic to control the valves that are physically connected to the PCH Portal manifold.

Here is a sample rung showing user contacts controlling the predefined valve tags.

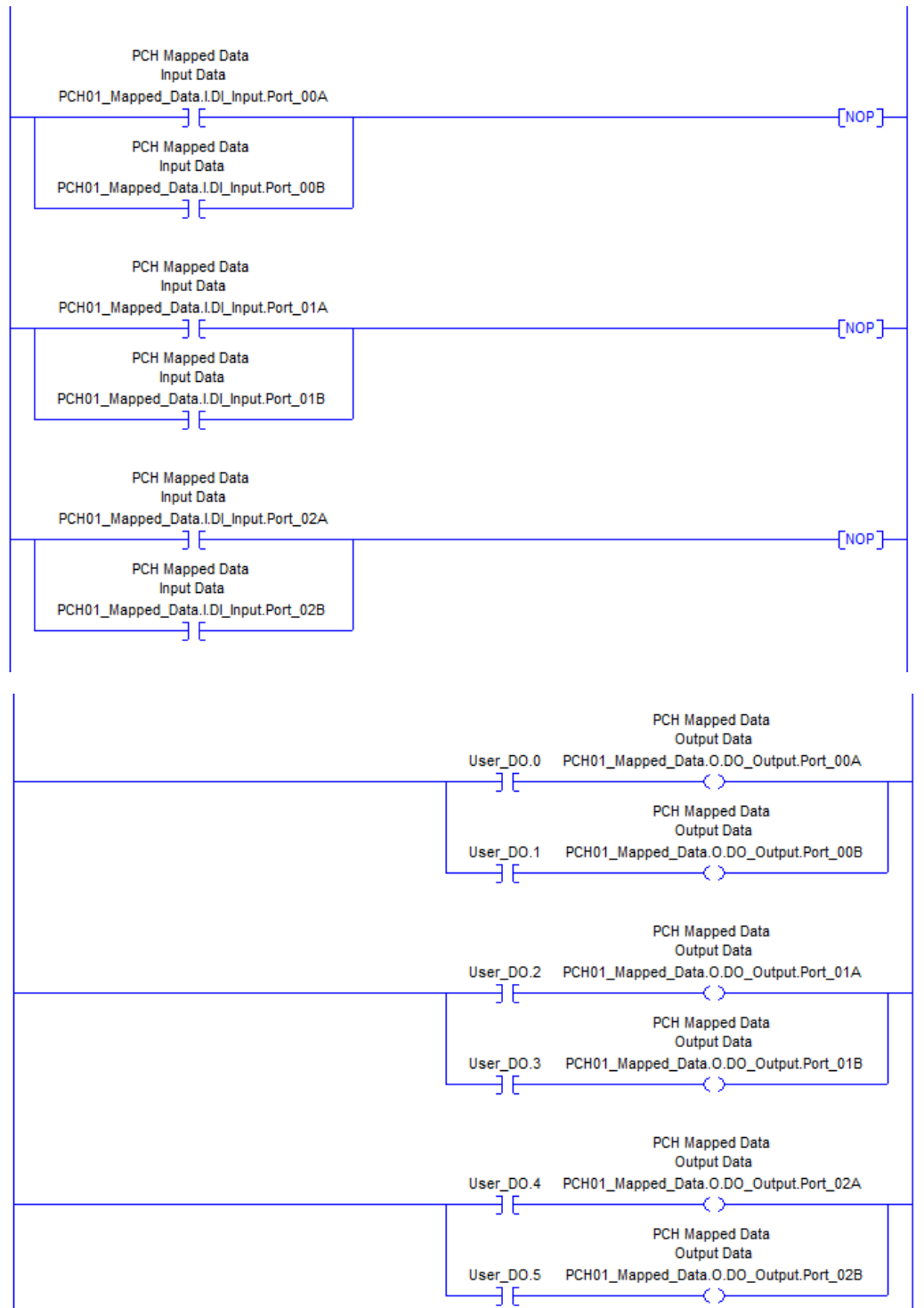


f. Discrete I/O on the PCH Portal module

In the INPUTS of the 'Mapped_Data' tag you will find the discrete inputs of the PCH Portal module. In the OUTPUTS of the 'Mapped_Data' tag you will find the discrete outputs of the PCH Portal module.

Use your logic to monitor the discrete inputs and control the discrete outputs of the PCH Portal ports. Here are a couple of sample rungs showing the **predefined** INPUT tags and predefined OUTPUT tags.

NOTE: This is not for IO-Link device I/O.



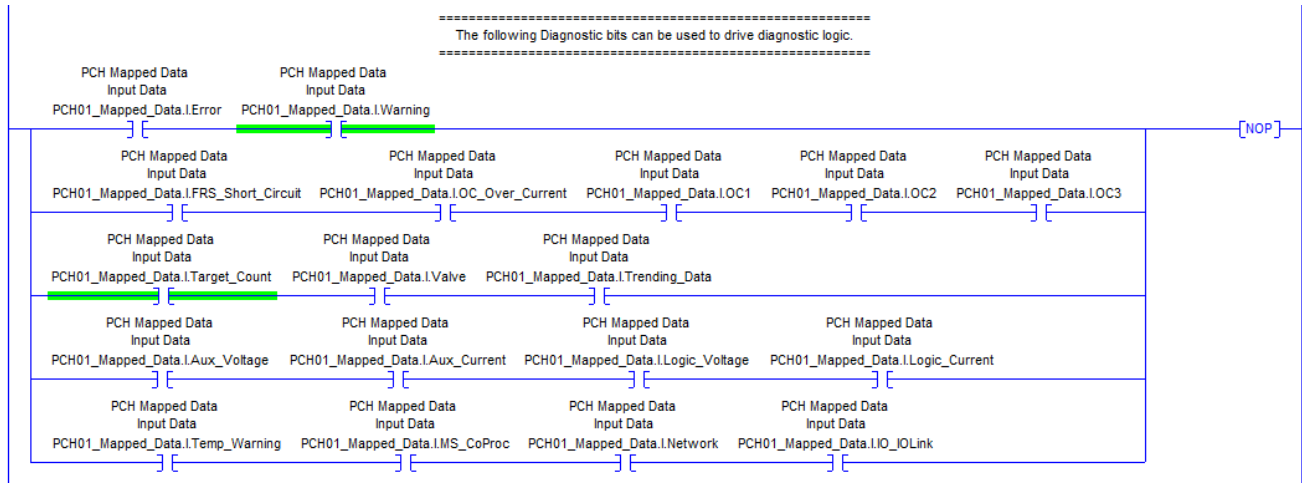
g. PCH Portal Diagnostic data

There are a number of predefined diagnostic bits available in ‘process data’.

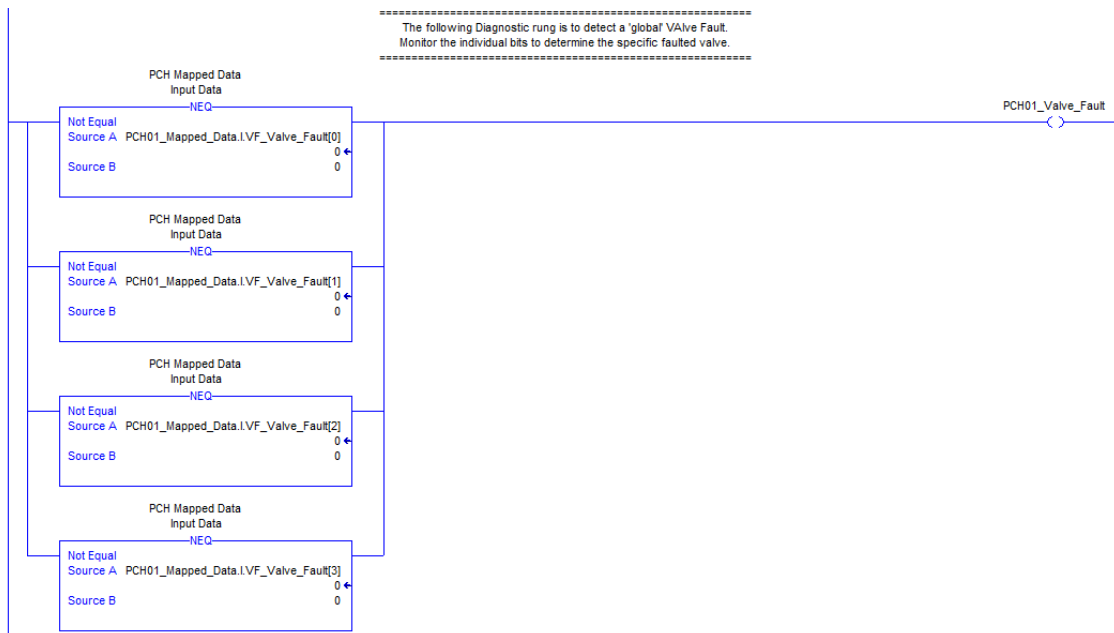
There are also diagnostics available via acyclic data. Refer to the manual for these diagnostics.

Following are the predefined diagnostic bits available in the INPUTS of the ‘Mapped_Data’ tag.

Use these bits to drive your diagnostic logic.



Valve faults are also available in the INPUTS of the ‘Mapped_Data’ tag. The following rung defines a global tag that can be used to prompt the user to evaluate the four Valve Fault bytes to determine which valve has faulted.



NOTE: Acyclic communications to the PCH Portal and to IO-Link devices connected to the PCH Portal are covered in a separate Add-On Instruction (AOI) with an accompanying Quick Start Guide.

If you need assistance with any of the information provided or with acyclic communications, please contact your local Parker rep.