PTQ-DNPQ
Quantum Platform
Distributed Network
Protocol Interface
Module
Revision 2.14

APPLICATION NOTE

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1 Introduction

This document covers the features added to support reporting of user set online/offline states for the PTQ-DNP-Q module application for the slave driver. Using the new special blocks recognized by the module, the user can set the online/offline state for the following data types: binary input, analog input, floating-point input and double floating-point input. Additionally, support for object 1 variation 2 has been added so the module can report the current online/offline status of the binary input points.

2 Block Definition

The PTQ-DNP-Q module uses new blocks to transfer the online/offline status of monitored points from the Quantum processor to the module. These blocks are transferred using the normal backplane transfer facility provided on the module using a type code of 3 (control block). The following table displays the block numbers utilized:

Block Number(s)	Data Types	Word Count
9000 to 9008	Binary Input	500 (8000 points)
9010	Analog Input	32
9030	Floating-Point Input	16
9040	Double Input	8

Each bit in the words present in the blocks represent the online/offline state of a specific point. For example, to set the first analog input point to the online state, set bit 0 in word 3 of block 9010 to 1. To set the same point to offline, clear the same bit (value of 0). Each word contains the status values for 16 points. The module is set up to handle all the words possible for each data type even if the points are not utilized in the user application.

The binary input online/offline status data requires several blocks because of the large number of points that can be defined. The table below contains a listing of the points considered in each block:

Block Number	Points	Word Count
9000	0 – 959	60
9001	960 – 1919	60
9002	1920 – 2879	60
9003	2880 – 3839	60
9004	3840 – 4799	60
9005	4800 – 5759	60
9006	5760 – 6719	60
9007	6720 – 7679	60
9008	7680 – 7999	20

3 Block Transfer Structure

The structure of the new control blocks to transfer the online/offline status is discussed in this section. The following structure is used to inform the module that a new block of data is available to be read:

Block Offset	Description
0	Block ID to consider (i.e., 9000)
1	Ignored for the read operation
2	Reserved for future use (not used)
3 to 62	Words of online/offline status data
63	Reserved for future use (not used)

After the module has completed processing the block, it will set the first word in the block to zero and will set the second word to the block identification code received. All other data in the block will remain unchanged.

In order to simplify transfer of the online/offline data from the processor to the module, a separate data area should be defined in the processor for each block. This way the processor logic only needs to alter the data in the memory area to change the online/offline state, and then, insert the block number in word zero of the block in order to have the data transferred.

4 Block Transfer Configuration

In order to transfer the online/offline status data from the processor to the module, block transfer commands must be set up in the [Backplane Data Exchange] section of the configuration file. An example section is shown:

```
[Backplane Data Exchange]
#  Data  Start PT      Point       Point     Word
#  Type   Address       Type     Address    Count
START
    101         0          4         101       10    #Move DNP BI data to module
    102         0          4         201       10    #Move DNP BO data to quantum
    103         0          4         301       40    #Move DNP Cntr data to module
    104         0          4         341       50    #Move DNP AI data to module
    105         0          4         401       28    #Move DNP AO data to quantum
    106         0          4         501       10    #Move DNP FI data to module
    108         0          4         511        8    #Move DNP FO data to quantum
    201         0          4         601       10    #Move IED BI data to quantum
    202         0          4         611        3    #Move IED BO data to module
    203         0          4         614       20    #Move IED Cntr data to quantum
    204         0          4         650       50    #Move IED AI data to quantum
    205         0          4         700        8    #Move IED AO data to module
      3         0          4         801       64    #command control data area
      3         0          4         901       64    #BI online/offline
      3         0          4        1001       64    #AI online/offline
      3         0          4        1101       64    #FI online/offline
      3         0          4        1201       64    #DI online/offline
END
```

In this example, the binary input status data (only block 9000 is used in this example) is transferred from the processor memory area 40901 to the module. The analog input status data is transferred from 41001. Note that since the command control code of 3 is utilized for the transfer operation, the point type must always be 4 and the word count must be 64.

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