Chapter 5

MODULES

Edition 4

Overview

Mk2_PIM2 FUNCTION BLOCK

Overview

This Chapter is reserved for Module Function Blocks that provide configuration parameters and diagnostic information that is general to a hardware module rather than specific to a channel.

User Program

The PIM Mk2 may require changes to any user program created using the Mk1 module.

The following is a guide to creating a user program involving a Mk2 PIM.

Do NOT request a PIM in the 'Required Module' section of the Hardware Definition Screen. Instead, create an instance of the PIM2 function block (to be found under MODULES in the function block 'Class List').

The address must be set to the address of the module, for example a PIM in slot 5 of rack 3 will have the address of '3:5'. This address is NOT generated automatically as it is with many other PC3000 module types.

Create an instance of a PI_Smpl_Ctr for each required counter channel. This is found under INPUTS in the Class List. The address for each channel must again be explicitly entered, this time with either a :1 or :2 appended to the module address, dependent on the channel. For example, channel 2 of a PIM in slot 4 of rack 1 would have an address of 1:4:2.

Set the Capt_Period parameter for each channel, preferably to at least 2 times the task assigned to the Pl_Simpl_Ctr function block. Under no circumstances should this parameter be set to equal the task time as this will cause malfunctioning of the function block, which shows up as an incorrect Delta_Count value.

When the Mode parameter is set to RUN the Total_Count parameter value will contain the total number of pulses received and the Delta_Count parameter value will be updated at intervals of the Capt_Period with the change in Total_Count during that period.

Non-Valid Delta_Counts will be seen under certain circumstaces:

When the Total_Count parameter wraps around (at 16777215) to 0 a large Delta_Count will be generated. The user program can overcome this by detecting that the overflow has occurred and adding 16777216 to get the correct value.

If the PC3000 warm starts, the Delta_Count will be invalid.

If the Sample_Period is changed whilst the program is running the first Delta_Count will be invalid.

PULSE INPUT MODULE MK2 FUNCTION BLOCK

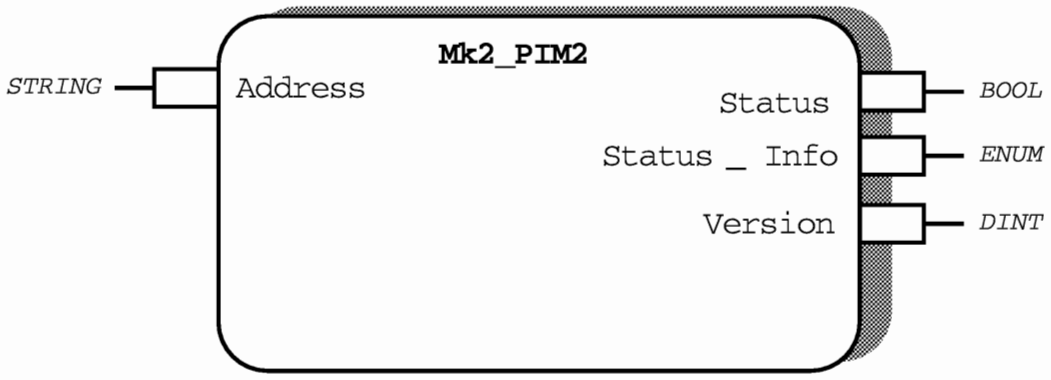

Figure 5-1 Mk2_PIM2 Function Block

Functional Description

This function block allows the location of the module (rack:slot) to be defined, in the Adress parameter. It also generates output parameters which allow monitoring of the general status of the module.

Function Block Attributes

Type:.....

Class: .....

Default Task: .....

Short List: .....

Memory Requirements .....

Parameter Descriptions

Address (A)

Rack and slot address as per normal PC3000 I/O module address conventions.

E.g. **2:7** refers to the seventh slot in the second rack.

Status (ST)

This gives the current status of the module.

Possible states:

Nogo	(0) :	There is a fault which is preventing normal communication with the module. More information is given in the **Status_Info** parameter.
Go	(1)	The module is healthy and is communicating.

Status_Info (STI)

This lists the possible reason for a **Status** of **Nogo.**

Reset	(0) :	The user program is not currently running.
OK	(1)	There is no fault condition, **Status** is **Go.**
No_Mod	(2)	There is no module located in the specified slot.
Wrg_Mod	(3)	Another module type is located in the specified slot.
Init	(4)	The PIM is currently initialising itself. This is a transitory stage, and should not last for more than a couple of seconds.
HW_Fail	(5)	The module has discovered a hardware fault.
Bad_Add	(6)	An invalid or non-existent address has been specified.
Dup_Add	(7)	An address has been used twice in the user program.
Inv_Slt	(8)	An incorrect slot has been specified.

Version (V)

This gives the current version of the PIM module firmware.

Parameter Attributes

Name	Type	Cold Start	Read Access	Write Access	Type Specific Information	
Address	**STRING**		Oper	Oper		
Status	**BOOL**	Nogo (0)	Oper		Senses	Nogo (0) Go (1)
Status_Info	**ENUM**	Reset (0)	Oper		Senses	Reset(0) OK(1) No_Mod(2) Wrg_Mod(3) Init(4) HW_Fail(5) Bad_Add (6) Dup_Add (7) Inv_Slt (8)
Version	**REAL**	0	Oper		High Limit Low Limit	

Table 5-1 Mk2_PIM2 Parameter Attributes