ProTechTPS & MSM

Overview

New ProTechTPS models are being released on 28 June 2013, and new MSM (MicroNet Safety Module) models are being released on 26 August 2013. These new models include the same basic functionality as current ProTechTPS and MSM models, and also include the improvements and capabilities listed below.

In an effort to minimize the risk of future application issues, and since the new/improved models are direct drop-in replacements for the existing models, Woodward plans to change all existing models to "non-preferred" on 26 August 2013, and all new/improved models to "preferred". Refer to Table 1 below for specific part number information. Woodward plans to inactivate all non-preferred models on 26 January 2014. Please inform affected purchasing teams and customers accordingly.

Product Change / Improvement

The "preferred" models listed below include the following changes, improvements, and additions:

Input Sharing/Voting Architecture Changes

- All module speed, analog, and discrete inputs are shared with all other modules (A,B,C).
- All module trip and alarm latch output statuses are shared with all other modules (A,B,C).
- All module "Start", "Reset", and "Speed Failed Override" commands are shared with all other modules (A,B,C).
- Added Speed Redundancy Manager Block:
  - With all input sensors/channels healthy, each module is configured to select the desired speed (median, HSS, or LSS) to use for its alarm and trip logic.
  - Upon one failed input sensor/channel, each module is configured to select the desired speed (HSS or LSS) to use for its alarm and trip logic.
  - Upon two failed input sensors/channels, each module is configured to select the desired action (issue a trip command or use healthy speed input sensor/channel for its alarm and trip logic).
  - Allows users to configure the use of 3 or 2 or 1 speed input sensors/channels.
  - Includes "Speed Difference Detection" function (can be attached to Alarm or Trip logic).
    Note: New speed redundancy manager logic allows users to configure the voting logic to meet Shell's 2-out-of-2 voting requirement when only two inputs are available/healthy.
- Added Acceleration Redundancy Manager Block:
  - With all input sensors/channels healthy, each module is configured to select the desired acceleration rate (median, HSS, or LSS) to use for its alarm and trip logic.
  - Upon one failed input sensor/channel, each module is configured to select the desired acceleration rate (HSS or LSS) to use for its alarm and trip logic.
  - Allows users to configure the use of 3 or 2 or 1 speed input sensors/channels.
- Added Analog Redundancy Manager Blocks (A-2-RM, A-3-RM):
  - With all input sensors/channels healthy, each module is configured to select the desired analog signal (median, average, HSS, or LSS) to use for its alarm and trip logic.
  - Upon one failed input sensor/channel, each module is configured to select the desired analog signal (average, HSS, or LSS) to use for its alarm and trip logic.
  - Allows users to configure the use of 3 or 2 or 1 input sensors/channels.
- Added Boolean Redundancy Manager Blocks (B-2-RM, B-3-RM):
  - With all input channels/modules healthy, each module is configured to select the desired Boolean input (2-out-of-3 voting) to use for its alarm and trip logic.
  - Upon one failed input channel/module, each module is configured to select the desired input state (if mis-match states are detected, default to configured true or false state) to use for its alarm and trip logic.

Note: The sharing of the module inputs and alarm and trip latch information allows users to connect to one module's Modbus communication port to obtain information from all modules.

GAP Programming Environment Addition

- Added ProTechTPS and MSM platforms to Woodward's GAP 3.0 programming environment. This allows users to program the ProTechTPS and MSM product lines using graphical function block code to program application specific logic.

  User must download and utilize Woodward's GAP 3.0 programming language and purchase a "ToolKit Advanced-Runtime License" (part number 8447-5002) to program and download associated logic into the ProTechTPS or MSM logic solvers using Woodward's GAP programming language.

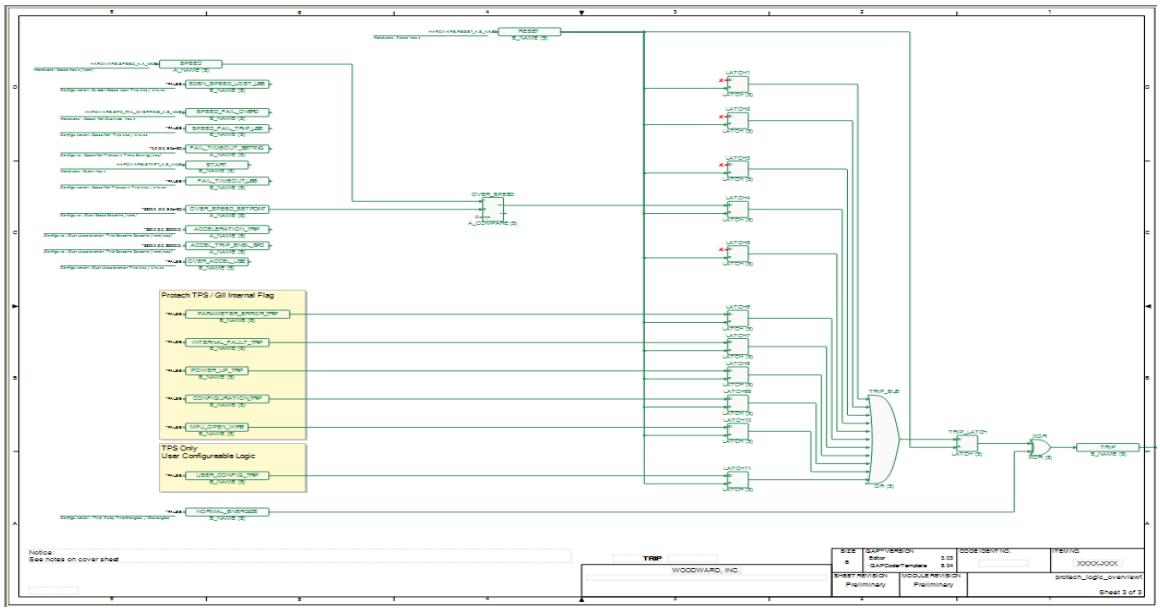

Figure 1. Example GAP Logic Program Page

Changes to the Number of Available Logic Blocks

- Decreased number of "Timer" blocks from 15 to 5.
- Decreased number of User configurable "Event Latches" from 3 to 1.
- Increased number of "Delay" blocks from 15 to 25.
- Increased number of "Alarm Latch Inputs" from 50 to 75.
- Increased number of "Analog Comparator" blocks from 10 to 15.
- Added 10 Analog Lag blocks, which allows users to add a "Lag" function/filter to any analog signal.
- Added 15 Analog Difference Detection blocks, which allows users to configure logic to detect a difference between the analog input signals.

Other Improvements and Additions

1. Added configurable "Failed Power Supply #1" and "Failed Power Supply #2" Alarm Override functions.
   - Allows users to configure the module to accept only one power supply, thus removing a nuisance Failed Power Supply Alarm indication.
2. Changed Speed Fail Alarm function to be overridden during the turbine start state/mode.
   - This removes a nuisance alarm during a turbine start-up.
3. Changed Speed Lost Alarm/Trip threshold level from 100 Hz to 200 Hz to reduce/remove nuisance alarms/trips when applied with speed gears that have less than 60 teeth and turbines that can slow roll at low speeds.
4. Changed the name of "Periodic Overspeed Test" to "Auto Sequence Test".
5. Added an option to start the Auto Sequence Test Routine from the Auto Sequence Test screen. This allows a user to instantly start the Auto Sequence Test function when desired.
6. Added an option to disable Auto Sequence Test routine from the Auto Sequence Test screen. This allows a user to disable the Auto Sequence Test function from being performed. Since the Auto

7. Added “Start” and “Continue” logic inputs to the Auto Sequence Test routine program block. These functions will allow programmers to design custom logic to start, halt, and continue the Auto Sequence Test routine based on internal or external conditions.
8. The Auto Sequence Test routine can be configured to run on a periodic basis. Added a “Disable” command function to the Auto Sequence Test screen, which allows users to temporarily disable the periodic test routine from being performed.
9. Added an Auto Simulated Speed Test Failed Alarm to indicate the failure of the Auto Simulated Test routine.
10. Added a configurable permissive for any Test routine, which will not allow the Test function to be started if any other module has an “Alarm” condition active. Users now have the following configurable Test “permissive” options: None, Module Not Tripped, or Module Not In Alarm. If configured, the test routine’s permissive logic does not allow a module’s Test function to operate if any module is in its Tripped or Alarmed State (user configurable).
11. Added the ability to configure/select the screen to be shown as the Home Screen.
12. Added a configurable option to not jump to Home Screen on a trip condition.
13. Added an Overspeed Setpoint analog read value/register to Modbus communications.
14. Added the ability to configure the module’s Trip Latch function to be latching or non-latching.
15. Added the option to configure a module’s Speed Probe Type to “Passive”, “Active”, and “Not Used”. The “Not Used” option allows users to wire two speed probes into only two of the ProTech-GII modules, and not have related nuisance alarms.
16. Added Date & Time Stamp information to the Peak Speed/Acceleration Log.
17. Added a configurable option to include the module’s trip state into the module’s Alarm Latch logic. This capability allows any module trip to be indicated as a module Alarm condition also and functions the same as the original ProTech 203 logic.
18. Added an option for users to issue a module trip command when entering the module’s “Configuration” mode. Note: Entry of the “Configuration Level” password is required for users to issue module trip command from the module’s front panel.
19. Added a configuration change time stamp function, which records and displays the date and time of the last configuration change was saved to memory (via the front panel or service tool).

Preferred Model Numbers

The following table shows the new/improved “preferred” ProTechTPS and MSM part numbers:

Description	Non-Preferred Part Number	Preferred Part Number
ProTechTPS – Bulkhead Mount, HV/LV, Ind. Relays	8237-1248	8237-1602
ProTechTPS – Bulkhead Mount, HV/HV, Ind. Relays	8237-1249	8237-1603
ProTechTPS – Bulkhead Mount, HV/LV, Voted Relays	8237-1250	8237-1604
ProTechTPS – Bulkhead Mount, HV/HV, Voted Relays	8237-1251	8237-1605
ProTechTPS – Panel Mount, HV/LV, Ind. Relays	8237-1371	8237-1606
ProTechTPS – Panel Mount, HV/HV, Ind. Relays	8237-1372	8237-1607
ProTechTPS – Panel Mount, HV/LV, Voted Relays	8237-1373	8237-1608
ProTechTPS – Panel Mount, HV/HV, Voted Relays	8237-1374	8237-1609
MicroNet Safety Module – Bulkhead Mount, HV/LV, Ind. Relays	8237-1252	8237-1492
MicroNet Safety Module – Bulkhead Mount, HV/HV, Ind. Relays	8237-1253	8237-1493
MicroNet Safety Module – Bulkhead Mount, HV/LV, Voted Relays	8237-1254	8237-1494
MicroNet Safety Module – Bulkhead Mount, HV/HV, Voted Relays	8237-1255	8237-1495
MicroNet Safety Module – Panel Mount, HV/LV, Ind. Relays	8237-1375	8237-1496
MicroNet Safety Module – Panel Mount, HV/HV, Ind. Relays	8237-1376	8237-1497
MicroNet Safety Module – Panel Mount, HV/LV, Voted Relays	8237-1377	8237-1498
MicroNet Safety Module – Panel Mount, HV/HV, Voted Relays	8237-1378	8237-1499

Table 1. Preferred ProTechTPS and MSM Part Numbers

Customer Action

1. Customers who are currently using a “non-preferred” ProTechTPS or MSM model and do not require any of the above listed changes/improvements should take no action. Woodward is committed to supporting the listed “non-preferred” models for a period of 20 years after inactivation. Refer to the related product support plan for these models.
2. It is recommended that customers who are purchasing ProTechTPS or MSM units for use in new applications order part numbers from only the “preferred” part number list.
3. Customers who have a “non-preferred” ProTechTPS or MSM model but wish to have/utilize one or more of the above listed changes/improvements can return their ProTechTPS or MSM unit(s) to Woodward/Fort Collins, Colorado, USA, for a conversion to the changed/improved part number at a cost of US$1750. Please contact your Woodward representative after 28 June 2013 for ProTechTPS models and after 26 August 2013 for MSM models to schedule model conversions.

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