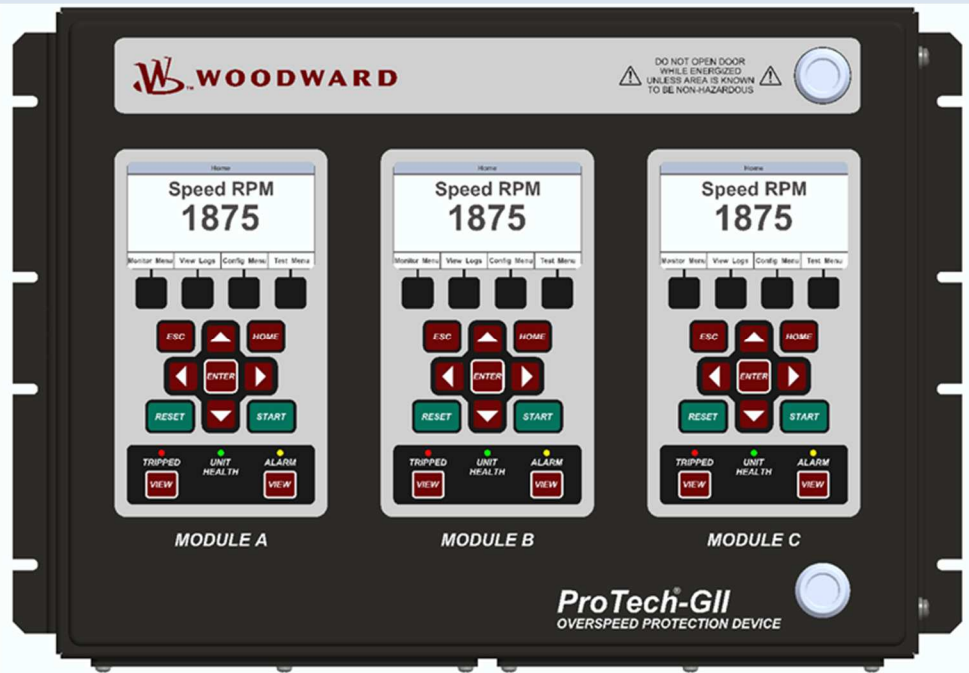




Product Manual 26545
(Revision G, 10/2020)
Original Instructions



Product Line
Overspeed Protection Device

Installation and Operation Manual

Acronyms and Definitions

2oo3	2-out-of-3
Block Identifier	The identifier used for each logic block for configuration purposes (Chapter 9)
CAN	Controller Area Network
DC	Diagnostic Coverage
DCS	Distributed Control System
Module	Functionality contained within one of the three identical sections
MPU	Magnetic Pick-up
PC	Personal Computer or laptop with Windows operating system
PCT	Programming and Configuration Tool
PFD	Probability of Failure on Demand
PFH	Probability of dangerous Failure per Hour
PLC	Programmable Logic Controller
PROX	Proximity Probe
RTU	Remote Terminal Unit
Settings-File	A file that contains the configuration settings loaded with the ProTech Programming and Configuration Tool (.wset).
GII	ProTech Overspeed Protection Device

The following table shows the various hardware configurations (mounting options, power supplies, and trip relay options) available:

Table 1-1. Available ProTech-GII Models

Part Number	Description
8237-1244	ProTech-GII - Bulkhead Mount, HV/LV, Independent Relay
8237-1367	ProTech-GII - Panel Mount, HV/LV, Independent Relay
8237-1245	ProTech-GII - Bulkhead Mount, HV/HV, Independent Relay
8237-1368	ProTech-GII - Panel Mount, HV/HV, Independent Relay
8237-1246	ProTech-GII - Bulkhead Mount, HV/LV, Voted Relays
8237-1369	ProTech-GII - Panel Mount, HV/LV, Voted Relays
8237-1247	ProTech-GII - Bulkhead Mount, HV/HV, Voted Relays
8237-1370	ProTech-GII - Panel Mount, HV/HV, Voted Relays
5437-1121	Spare Module for 8237-1244 Rev B or later, 8237-1367 Rev B or later
5437-1122	Spare Module for 8237-1245 Rev D or later, 8237-1368 Rev B or later
5437-1119	Spare Module for 8237-1246 Rev E or later, 8237-1369 Rev B or later
5437-1120	Spare Module for 8237-1247 Rev E or later, 8237-1370 Rev D or later
5437-1080	Spare Module for 8237-1244 Rev A or earlier -1367 Rev A or earlier
5437-1081	Spare Module for 8237-1245 Rev C or earlier -1368 Rev A or earlier
5437-1078	Spare Module for 8237-1246 Rev D or earlier, -1369 Rev A or earlier
5437-1079	Spare Module for 8237-1247 Rev D or earlier -1370 Rev C or earlier

Applications

The ProTech-GII is designed to be applied as an overspeed device for any size steam, gas, or hydro turbine, reciprocating engine, or plant process equipment. The device's fast (12 millisecond) response time, 0.5 to 32 000 rpm speed range, and integrated overspeed and acceleration detection/protection functionality, make it ideal for application on critical low-speed or high-speed rotating motors, compressors, turbines or engines. This device accepts one speed (MPU or PROX) input per module (3 total). In addition to the trip relay outputs, each ProTech-GII module provides 1 relay output that is dedicated to an alarm function (3 total) and 1 analog speed output (3 total).

The ProTech-GII utilizes a triple modular redundant architecture and 2-out-of-3 voting logic to accurately determine unsafe conditions and ensure that no single-point failure will affect system reliability or availability. With this design, failures in overspeed system components (switches, transducers, modules) are detected, annunciated, and allowed to be repaired or replaced while the monitored system continues to operate on-line. The ProTech-GII is designed for critical applications where both personnel safety and unit availability (operation run time) is a concern or necessity.

The ProTech-GII is certified as an IEC61508 SIL-3 (Safety Integrity Level 3) safety device and can be applied as a stand-alone IEC61508-based device or within an IEC61511-based plant safety system.

Table 2-1. Environmental Specifications

Operating Temperature:	–20 to +60 °C (–4 to +140 °F)
Storage Temperature (non operational):	–20 to +65 °C (–4 to +158 °F)
Relative Humidity:	Up to 95% (non-condensing)
Vibration:	0.04 G ² /Hz, 1.04 Grms, 10 to 500 Hz
Shock:	30 G, 11 ms half-sine pulse
Altitude:	Up to 3000 meters above sea level
Enclosure (Bulkhead Mount Version):	IP56 (per IEC 60529)
Enclosure (Panel Mount Version):	IP56, installed in IP56 enclosure/cabinet
Weight (Bulkhead Mount Version):	Approximately 26 lb (12 kg)
Weight (Panel Mount Version):	Approximately 22 lb (10 kg)
Pollution Degree:	2 (per IEC 60664-1)
Overvoltage Category:	II (per IEC 60664-1)
Electromagnetic Compatibility:	Emissions: EN61000-6-4 Immunity: EN61000-6-2

Power Supply Requirements

Each ProTech-GII system consists of three separate internal modules (A, B, C), and each of these three modules accept two input power sources. Depending on the ProTech-GII model purchased, the internal modules will accept either two high voltage (HV) input power sources or one HV input power source and one low voltage (LV) input power source. For reliability purposes, each ProTech-GII module will function normally with power sourced to either or both power supply inputs.

Power Supply Specifications

Table 2-2. Low Voltage Input Specifications

Number of Inputs	2. Input range depends on model (see following tables):
	• 2 High Voltage Inputs OR • 1 High Voltage and 1 Low Voltage
Wiring Constraints	Each power supply input must be provided with its own breaker. This is to facilitate both on-line-removal of a module, and also to protect other power supplies from tripping while connected to a common input power circuit.

High Voltage Input

Table 2-3. High Voltage Input Specifications

Voltage Input Range	90–264 Vac/47–63 Hz or 100–150 Vdc @ 30 W per module Nominal 115 Vac / 240 Vac / 125 Vdc
Current Input Max*	0.5 A @ 90 Vac 0.22 A @ 264 Vac 0.25 Arms @ 110 Vdc 0.18 Arms @ 150 Vdc
Inrush Current	10 A at 115 Vac, 20 A @ 220 Vac
Reverse Polarity Protection	Yes, for DC connection
Interrupt Time	45 ms, when operating on one power supply only