MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Amikon cover with selected ABB reference pages; not a complete installation manual

800 Series Turbine / TPM810

TPM810

TURBINE PROTECTION INTERFACE MODULE

OFFICIAL SOURCES

ABB TP800 sales brochure Rev B and Symphony Plus product catalogue. Original reference pages retained unchanged.

800 Series Turbine Modules

Turbine Protection TP800







800 Series Turbine Modules

Turbine Protection TP800

The Turbine Protection TP800 adds turbine protection capability to the System 800xA or to any other controller with Profibus interface. It provides a complete set of functions designed to address the protection requirements of most turbine types and manufacturers:

- Overspeed Protection
- Overspeed Trip
- Trip Anticipation
- Load Drop Anticipation
- 3 types of Power Load Unbalance

The TP800 allows for the implementation of all common protection schemes (1oo2, 2oo3, etc).

Additional Features

Built-in Profibus Interface

- Non-proprietary communication for true open architecture integration
- Master and Line Redundancy

Fast Response

Operational independence from the master controller results in high reliability and fast response time. Overspeed detection and trip is executed in 10 mSecs.

Flexibility

Configurable parameters allow for proper matching of the TP800 features to the specific functional and physical characteristics of each application. The configuration is done through the Profibus interface and includes:

- Field Input Configuration
- Protection Function Selection
- Protection Setpoint Adjustment
- Relay Output Programming
- Energize/De-energize Output Selection

Automatic Overspeed Testing

The TP800 can automatically execute an on-line overspeed test through the internal injection of a ramping frequency signal into the speed channels. This test verifies proper operation of the software, hardware and hydraulic components of the trip circuit.

Inputs

The required field inputs will vary from one application to another based on which protective functions are enabled. The input capability of the TP800 is as follows:

2 Speed Inputs

- Active or Passive Probes
- Cross Compound Applications

2 Digital Inputs (24/48/125VDC & 120VAC)

- Generator Breaker
- Turbine Reset

3 Digital Inputs (24/48VDC)

- Miscellaneous Trip Functions

2 Analog Inputs (4-20mA or 1-5V)

- Generator Megawatts
- Intermediate Steam Pressure

1 AC Input (0-5Amps)

- Generator Phase Current (with PCM810)

Outputs

The TP800 offers six independent relay driver outputs. A configurable matrix establishes the relationship between the protective functions and the relay drivers. In addition, each relay driver can drive one or more relays in the ROM810 modules.

800 Series Turbine Modules

Turbine Protection TP800

Applicable Hardware

A turbine protection system will typically include several TP800 modules. The specific number depends on the desired protection redundancy scheme. A two out of three scheme, for example, will require three TP800 modules.

Each TP800 module can interface to several ROM810's. The specific number is determined by the application characteristics.

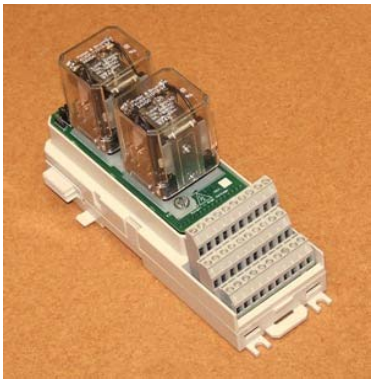
The PCM810 is only required for applications where Power Load Unbalance is calculated using generator phase current. One PCM810 module interfaces to three TP800 modules.

TP800 Hardware

- 1 -CPM810 Common Processor Module
- 1 -TPM810 Turbine Protection Module
- 1 -TBU810 Terminal Base Unit
- ROM810 Relay Output Module
- PCM810 Phase Current Module (optional)



TP800 (CPM810 + TPM810 + TBU810)



ROM810



PCM810

800 Series Turbine Modules

The Next Way of Thinking

Built-in Profibus Interface

- Non-proprietary communication for true open architecture integration
- Master and Line Redundancy

Flexible Installation Configurations

- Din Rail Mountable
- Standard 24VDC power supplies
- Existing cabinet installation for retrofits
- Front Standard mounting eliminates wiring for new installations

Component Commonality

- CPM810, TBU810 and ROM810 are common to all three turbine products (AS800, TP800, and VP800)
- Provides application flexibility and convenience
- Reduces spare part costs



ABB Inc.
Business Unit Power Generation

2 Acee Drive
Natrona Heights PA 15065-9700
Telephone: (724)295-6022
Fax: (724)295-6560
E-mail: camilo.lopez@us.abb.com

www.abb.com/powergeneration

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