

# GO SWITCH DEFENDER

NUCLEAR

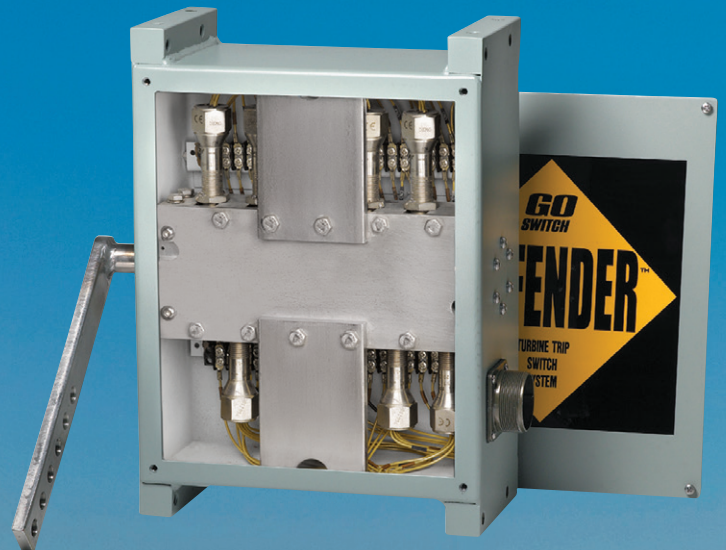
THROTTLE  
GOVERNOR  
INTERCEPT  
REHEAT STOP

## TURBINE POSITION MONITOR

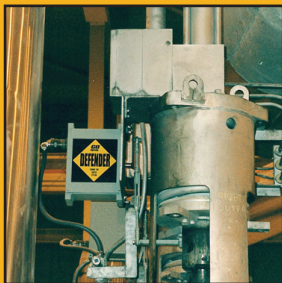
Qualified IEEE Harsh Non/LOCA and Mild Seismic

The **GO Nuclear DEFENDER** is the most dependable Turbine Valve Monitoring System available today. Combining GO Switch technology and value with an all-in-one cabinet, for easy drop-in installation, makes the new **GO Nuclear DEFENDER** a must upgrade for any Nuclear Power Plant wanting to enhance efficiency, eliminate maintenance and reduce REM exposure to employees.

The **GO Nuclear DEFENDER** will enhance the operation of all major brands of turbines and is a smart new build or replacement choice for difficult and unreliable conventional mechanical switches.



The **GO Nuclear DEFENDER** offers a robust, sealed, modular design, that is packed with up to 10 Nuclear Qualified GO Switches. Designed to withstand high dose radiation, high intensity seismic tests and high heat/steam temperature leaks, the GO DEFENDER Switch system with trusted GO Switch technology is far superior than any conventional mechanical switch.



The **GO DEFENDER** is designed to be extremely user friendly. Universal mounting pads allow mounting on literally any axis and make installation a snap. The Calibration Unit makes final setting of switches and targets a breeze (Optional ACP48 Calibration Unit available when quick disconnect is ordered). No longer will you have to labor with ohm meters or even communicate with the control room.

If your goal is to strengthen efficiency and reduce maintenance cost without increasing your operating expense, then you should upgrade your turbine control system to the **GO Nuclear Qualified DEFENDER**.

**TOPWORX**

  
**EMERSON**  
Process Management

# Nuclear DEFENDER Specifications

## Qualified IEEE & Meets AP Requirements Harsh & Mild

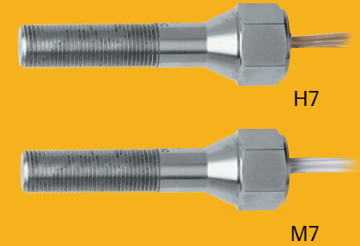
### DEFENDER Turbine Trip Switch System

- GO Switches . . . . . Leverless Up to 10 Optional (See Specifications Below)
- Enclosure . . . . . Heavy Duty 11 Gauge Steel (12" x 10" x 5")
- Coating . . . . . ANSI 61 Light Gray
- Connector Wiring . . . . . Maximum 16 Gauge
- Shaft . . . . . Solid 304 Stainless Steel
- Crank Arm . . . . . Solid 304 Stainless Steel
- Bearing . . . . . Self-Lubricated, O-ring sealed
- Target Cams . . . . . 17-4 and 304 Stainless Steel; Infinitely Adjustable
- Switch Mountings . . . . . Slotted for Easy Access
- Mounting Pads . . . . . Omni Directional; Threaded for 3/8" - 16 bolts (1" x 1" x 5")
- Terminal Wiring . . . . . Maximum 12 Gauge; Direct Mount, Feed Through



### Nuclear Switch H7 (Harsh) or M7 (Mild)

- Enclosure . . . . . Solid 303 Stainless Steel (5/8" dia. x 2-3/4" long)
- Contacts
  - Configuration . . . . . Single Pole Double Throw
  - Material . . . . . Fine Palladium Silver
  - Chamber . . . . . Environmentally Sealed
- Wiring . . . . . Pre-Wired Peek (Harsh), Tefzel (Mild)
- Rating (Resistive) . . . . . 5 Amp @ 120 VAC; 3 Amp @ 24 VDC; Maximum 240 VAC or 240 VDC



### Qualification References

Harsh Duty IEEE Non-LOCA  
 Standards and reference practices IEEE 382-1996,  
 IEEE 572-1985, IEEE 323-2003, IEEE 344-2004,  
 IEEE 383-2003, and conforms to all previous revisions of these standards.  
 APP-GW-VP-010, Equipment Qualification Methodology and Documentation Requirements for AP1000  
 Safety-Related Valves and Valve Appurtenances, 2010.

### Qualification Data

- Qualified Life: over 100 years @131°F (55°C)
- Temperature peak when used with H7 switches (for harsh application): 495°F
- Temperature peak when used with M7 switches (for mild application): 250°F
- Radiation dose for mild application: 50 Megarads gamma
- Radiation dose for accident application: 200 Megarads gamma
- Vibration and Seismic Tests:
  - Vibration Aging
  - Sine Sweep Test
  - Sine Beat @ max 6.6 g input
  - Seismic Triaxial Test, up to 80g SRS Response @ 5% damping

### ACP48 Calibration Unit

The APC48 dramatically reduces calibration time and only requires one person to complete the task. Calibration can be conducted without interruption of service and offers ease of target activation setting for multiple units.



ACP48

### Ordering

Nuclear Defender Turbine  
 Valve Position Monitor  
 System

Heavy Duty 11 Gauge Steel  
 12" x 10" x 5"  
 - ANSI 61 Light Gray

### GO Switches

Model H7 (Harsh) or M7 (Mild): SPDT,  
 environmentally sealed, Rated 5A @ 120VAC,  
 3A @ 24VDC, maximum, with prewired Tefzel  
 Lead Wires (M7) and PEEK Lead Wires (H7)

- Choose number of switches  
 (minimum 1, maximum 10)
- 010000 (1)** Leverless Limit Switch
  - 020000 (2)** Leverless Limit Switches
  - 030000 (3)** Leverless Limit Switches
  - 040000 (4)** Leverless Limit Switches
  - 050000 (5)** Leverless Limit Switches
  - 060000 (6)** Leverless Limit Switches
  - 070000 (7)** Leverless Limit Switches
  - 080000 (8)** Leverless Limit Switches
  - 090000 (9)** Leverless Limit Switches
  - 100000 (10)** Leverless Limit Switches

### Wiring Options

- 000** Without nuclear qualified connector or cable
- 001** Nuclear qualified connector only
- 003** 6ft. cable & nuclear qualified connector
- 004** 12ft. cable & nuclear qualified connector
- 020** 20ft. cable & nuclear qualified connector
- XXX** Greater than 20ft. specify length in 5ft. increments  
 & nuclear qualified connector
- 100** Conduit hub only



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 Process Management



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3300 Fern Valley Road, Louisville, KY 40213 USA  
 502.969.8000 502.969.5911 fax info@topworx.com www.topworx.com