

# Watchdog Timer Modules

## P8E-WDT24/PLC

Enhanced

I/O Compatibility

8-Pin Octal

## Overview

**P8E-WDT24/PLC** Watchdog Timers offer an enhanced upgrade for the popular **Brentek P8-Series** industry standard watchdog with advanced features offered in the newer digital types (see P8D-Series). Enhancements include a precision watchdog timer design (+/-2% accuracy), higher rated output contacts (8 Amps) and many new configurable options (see options).

P8E-Series Watchdog Timers are designed to monitor control system integrity as a “System Watchdog” in PLC (Programmable Logic Controller), SBC (Single-board Controller) and other OEM control applications. Control system integrity is monitored by an edge-triggered Watchdog input. While the internal timer is reset by controller activity, the FORM C Dry Output Contact is maintained (energized). Upon time-out or loss of power, the output relay de-energizes, indicating “loss of control” which can be configured to ALARM, SHUTDOWN or RESET the system. The Low Profile packaging is a direct plug-in to an industry standard 8-pin octal socket, such as Brentek p/n DIN8 which can be either DIN rail or panel mounted. P8E-WDT24/PLC types are available with an adjustable timeout range (see options for ranges) or a specified fixed timeout from 50 milliseconds to 60 seconds. Input options include optical-isolation and Input indicator. *The base model# is P8E-WDT24/PLC (24VDC operation, 2 second fixed timeout, FORM C (8 Amp rated) Dry Contact output, and a PLC compatible WDI input for direct connect to 24V sourcing logic<sup>T</sup>.*

**Sourcing Logic<sup>T</sup> Input  
24VDC**



Shown with -INI input indicator option.

## Product Features

- ▶ Enhanced System Fail-Safe\*
- ▶ “Loss of Control” Detection
- ▶ Fail-Safe FORM C Output (8 Amp)
- ▶ Fits Standard 8 Pin Octal Socket
- ▶ Power-up Clear
- ▶ High Reliability
- ▶ Edge-Triggered Input
- ▶ Power (RED) Indicator
- ▶ Output (GREEN) Indicator
- ▶ Operating Temp -40°C to +85°C
- ▶ 3 Year Limited warranty\*\*
- ▶ Encapsulated Design
- ▶ Enhanced Inductive Load Feature
- ❖ Adjustable Time-outs (-A.. options)
- ❖ Opto-isolated Input (-EISO option)
- ❖ Input Indicator (BLUE) (-INI option)
- ❖ 24V Supervision (-S24 option)
- ❖ Dual Edge Trigger (-DT option)
- ❖ First-fault ‘lock-out’ (-LO option)
- ❖ Power up trigger (-PT option)

## Recommended Operating Parameters

SYMBOL	PARAMETER	LIMITS			UNIT	CONDITION
		MIN	TYP	MAX		
V+	Supply Voltage	4.5		28	VDC	Pins 2(+) & 7(-)
I <sub>SUPPLY</sub>	Supply Current		50	60	mA	Output Relay Energized
T <sub>A</sub>	Operating Temperature	-40		+85	°C	Ambient Temperature
F <sub>IN</sub>	Maximum WDI Input rate		1	1.5	KHz	@50% duty. Note 1
T <sub>in</sub>	RESET WDI Period	0.5	1		mS	Edge to Edge
V <sub>IL</sub>	Input Logic Low voltage	0		0.8	V	Input Pin 5(+) ref. 7(-)
V <sub>IH</sub>	Input Logic High voltage	2.0		30	V	Input Pin 5(+) ref. 7(-)
R <sub>IN</sub>	Input Resistance		10		KOHMS	Pins 5
T	Standard Timeout period	1.96	2.0	2.04	Sec	P8E-WDT24/PLC
T <sub>PUR</sub>	Power-up Reset (Clear)	200	300		mS	Ignores WDI input
V <sub>in</sub>	Input Voltage limits	-40		+40	Vdc	Non-EISO (pin 5)

\* Output relay de-energizes for all fault conditions.

\*\* Refer to warranty section for limited warranty details.

Optically-Isolated models may be driven by sourcing or sinking logic (pins 5 & 6).

Note(s):

**Absolute Maximum Ratings** (Note 1, 3)

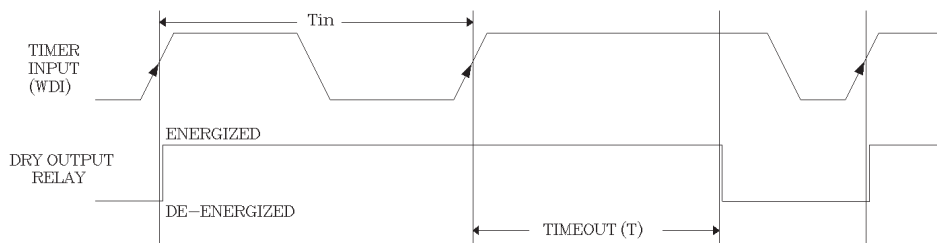
Supply Voltage (Pins 2 & 7) ..... +/-30VDC  
 DC RESET (WDI) voltage (Pins 5 & 7)..... +/-50VDC  
 Contact Switching Voltage (Pins 1,3 & 4) ... 200VDC/400VAC (Note 2)  
 Contact Switching/Inrush Current ..... 10 A @250 VAC/30 VDC  
 Operating Temperature ..... -40 to +85°C

1. Exceeding values above those listed may cause permanent device damage. Operation at these ratings for extended periods may affect reliability.
2. If DC switching voltage is greater than 30VDC, switching current must be derated. Please consult factory.
3. Depending on options chosen, other maximum values may apply. See maximum values in specifications for specific options.

**Output Contact Ratings**

SYMBOL	PARAMETER	LIMITS			UNIT	CONDITION
		MIN	TYP	MAX		
V <sub>SW</sub>	Switching Voltage AC DC			250 30	VAC VDC	@Rated Load
I <sub>SW</sub>	Switching Current	0.1		8	Amps	Resistive Load
P <sub>SW</sub>	Switching Power			2500 240	VA W	1/2 HP @240VAC, 1/3 HP @120VAC
Life	Expected Cycle Life @Rated Load		3x10 <sup>7</sup> 1X10 <sup>5</sup>		Cycles	Mechanical Electrical
R	Contact Resistance	0.1			Ohms	Initial Resistance
V <sub>ISO</sub>	Isolation Voltage		5000 1000		Vrms	Coil to Contact Between open contacts
T <sub>DEL</sub>	Pick-up Time (delay)		7		mS	Contact bounce
T <sub>LAT</sub>	Drop-out Time (latency)		3		mS	Contact bounce

**Timing Diagram**



Positive Edge-triggered

**Operation**

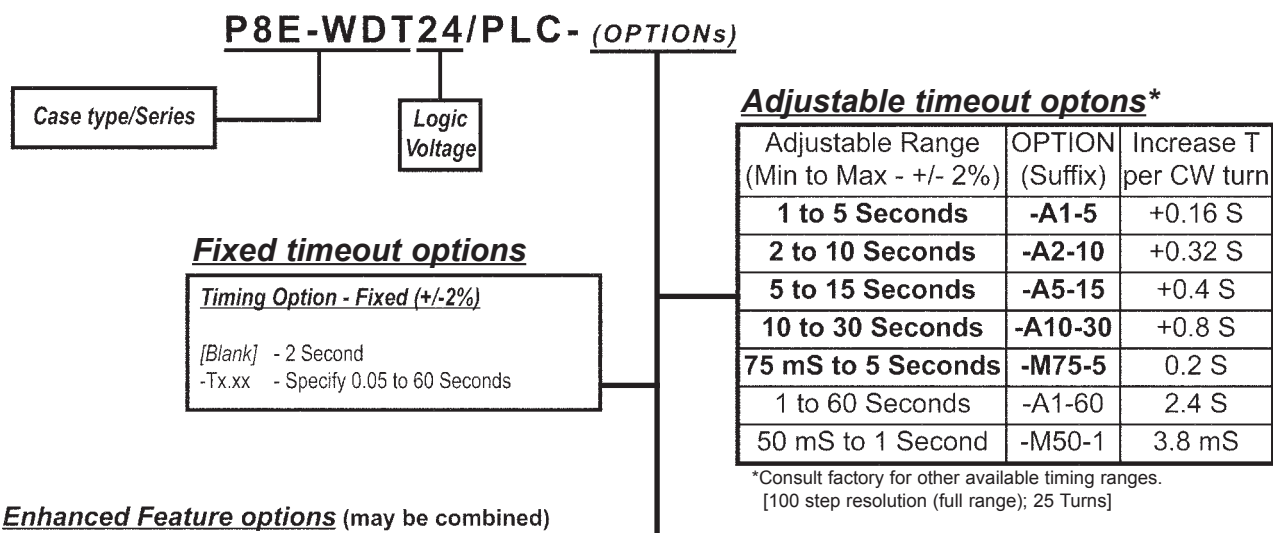
For units without the -PT (Power up trigger option), when power is first applied to the P8E-WDT24/PLC Watchdog Timer, the output initializes to a “fail” state for approximately 200mS, regardless of the WDI input state. A sourcing or positive-going edge applied to the WDI input (pin 5) triggers the internal timer and energizes the FORM C output contact. Continuously toggling the WDI input within the timeout period will maintain the output contact (energized). Timeout will occur only after the last positive-going edge of the WDI input is detected, de-energizing the output contact to the “fail” state. “Loss of control” is detected when the WDI signal stops either on or off. “Loss of power” is also indicated as a “fail” condition, providing a high level of system integrity. *Power* indicator is lit (RED) when power is applied. *Output* indicator is lit (GREEN) when the output is energized (timer is timing). For unit with -INI (Input indicator option), the *Input* indicator is lit (BLUE) when the WDI input signal is detected.

# Watchdog Timer Modules

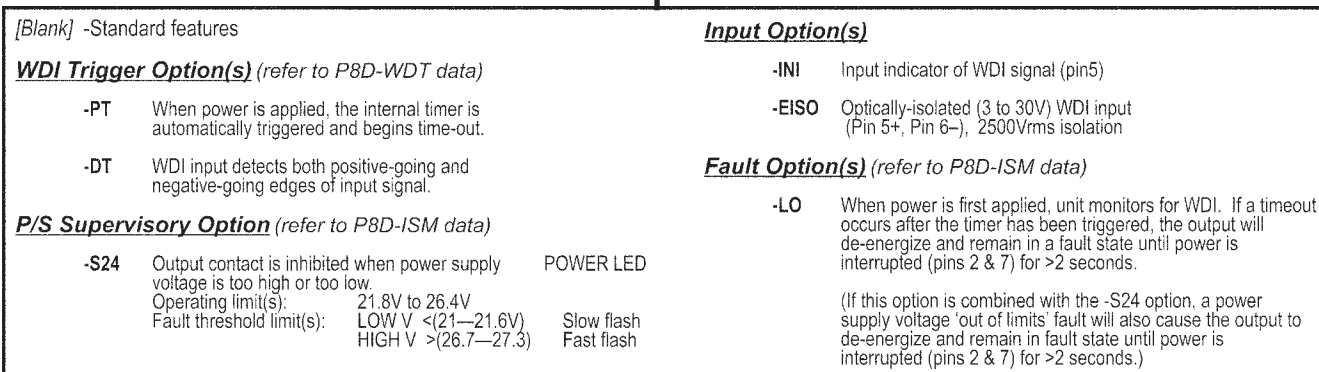
## P8E-WDT24/PLC

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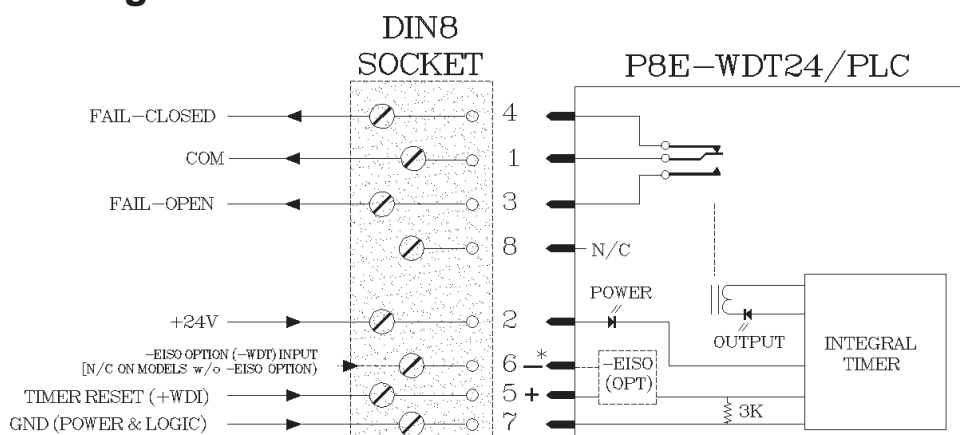
### Part Numbering



### Enhanced Feature options (may be combined)

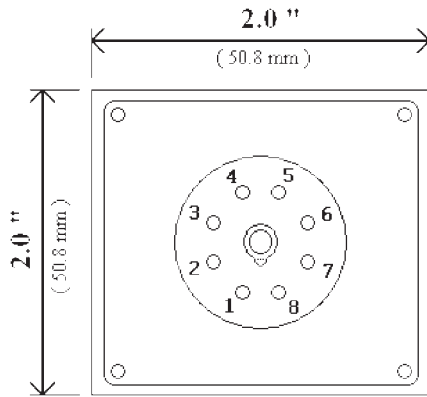


### Connection Diagram

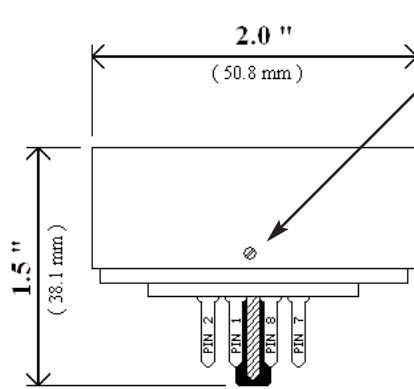


\*Pin 6 is N/C on models w/o -EISO option.

**Dimensions**



Bottom View

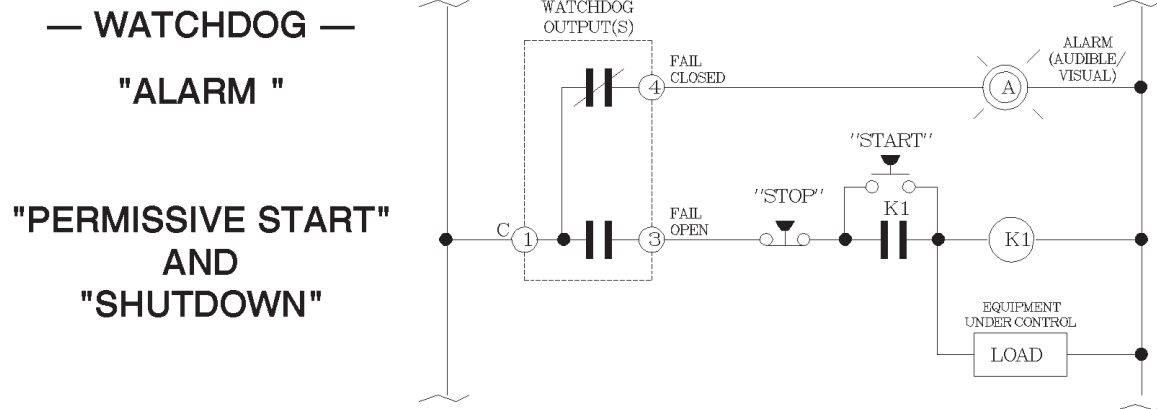


Front Side View

25 Turn Timing adjust on models with Adjustable Option. CW increases time.

Units are in inches unless noted otherwise.

**Typical Application(s)**



— WATCHDOG —  
"ALARM"

"PERMISSIVE START"  
AND  
"SHUTDOWN"



**Compatibility and features.** This NEW digital **P8E-Series** combines the user-friendly **Brentek P8-Series** (P8-WDT24/PLC types) with enhanced features offered in the NEW digital **P8D-Series** (**P8D-WDT** & **P8D-ISM** types), including:

**STANDARD FEATURES**

- ▶ Inductive Back-EMF masking
- ▶ Wide operating Voltage (5-28VDC)
- ▶ Precise digital timing (+/- 2%)
- ▶ Increased Contact ratings (8 Amps, 10 Amp surge)
- ▶ More standard adjustable timing ranges