Adjusting the Watchdog Timeout Period

Watchdog Timers

Brentek Field-Adjustable Timeout Watchdog Timers allow the range of time-out period adjustment to be specified. Timing ranges are specified by the beginning point and the end point – typically, minimum and maximum timeouts being 50 milliseconds and 60 seconds – consult the datasheet for timeout ranges available for your particular model of watchdog timer.

Brentek P8-WDT24/PLC Watchdog Timer with (gold) adjustment screw

A 25-turn adjustment potentiometer facilitates field timing adjustments. The time-out value increases with clockwise adjustment. It provides approximately a 1% increment per ¼ turn (100 step resolution). *Important Note: There are no stops in the timing adjustment screw - it will rotate continuously over the specified timing range.*

For increased ease of timeout adjustment, the Brentek PTM-300U Pulse Timing Module offers a Watchdog Timer Mode and its timeout is digitally adjustable using push-buttons; the timeout is displayed on a LCD display.

How Adjustable Time-out Periods Are Specified

Below are typical examples of part number **suffixes** for the timing range of Brentek Adjustable Watchdog Timers. Please consult the datasheet for your specific Watchdog Timer to be sure you know what specific timing range your adjustable watchdog timer has.

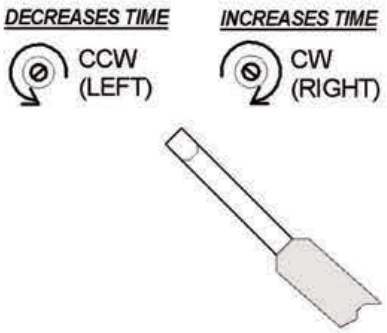
- Adjustable range of 50 milliseconds to 2 seconds: **-A50MS-2**
- Adjustable range of 100 milliseconds to 500 milliseconds: -**A100MS-500MS.**
- Adjustable range of 2 to 10 seconds: **-A2-10.**
- Adjustable range of 1 to 60 Seconds, **-A1-60.**

Before Starting

When setting time-outs, first ensure that the adjustment is set to the minimum of the adjustable timing range using a small screwdriver (tweaker) and rotating the 25-turn adjustment screw >25 full turns counter-clockwise (CCW or to the left).

Notes:

- There are no stops in the timing adjustment screw - it will rotate continuously in either direction.
- The timing range is at the maximum time when the 25T adjustment is rotated >25 times clockwise (CW or to the right).



Brentek WDT5 Watchdog Timer with (gold) adjustment screw

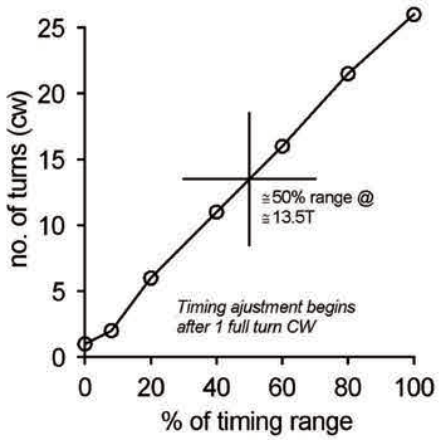
Approximating Adjustment Turns Graphically

Estimate the number of turns that approximate the desired time-out by determining the highlighted variables as follows:

- Watchdog Adjustment Range: **Range** = T_{max} – T_{min}
- Timeout Desired = T_{min} + (**% of Range** x [Range])
- Turns from minimum is read from the graph

Where:

- (T_{min}) is the minimum time-out
- (T_{max}) is the maximum time-out



Graph Example:

For an adjustable time-out period of 5 to 15 seconds (-A5-15) a timeout of 11 seconds is desired:

- Range = 15 - 5 = **10 seconds**
- Timeout Desired = 11s = 5 s + (**6 s**) yielding % of range = **60%**
- # Turns correlating to 60% of Range is **~16 turns**

Estimating Adjustment Turns by Calculation

To calculate the number of turns directly, use the following formula:

- # Turns = (25.6 x ((T - Tmin)/(Tmax – Tmin)))+ 0.67

Where:

- #Turns is the number of complete clockwise turns after starting at the minimum time determined by rotating timing adjustment 25+ Turns CCW prior to adjusting CW.
- (T) is Desired Timeout Period ,
- (T_{min}) is the minimum time-out
- (T_{max}) is the maximum time-out
- 25.6 is the scale factor
- 0.67 is the portion of the adjustment screw having no effect on timing.

Calculation Examples:

For an adjustable time-out period of 5 to 15 seconds (-A5-15), the number of turns can be estimated for any time-out within the range using the above formula:

- **11** sec. timeout (same as above) is desired:
  #Turns = (25.6 x ((**11** - 5) / (15 - 5))) + 0.67 = 16.03 Turns
- **12** sec. timeout is desired: #Turns = (25.6 x ((**12** - 5) / (15 - 5))) + 0.67 = 22.33 Turns
- **6** sec. timeout is desired: #Turns = (25.6 x ((**6** - 5) / (15 - 5))) + 0.67 = 2.23 Turns