Series WT
Environmentally Sealed Toggles

General Specifications

Electrical Capacity (Resistive Load)
- Power Level: 10A @ 125V AC or 6A @ 250V AC or 10A @ 30V DC

Other Ratings
- Contact Resistance: 10 milliohms maximum for solder lug & screw terminal models; 30 milliohms maximum for wire lead terminal models
- Insulation Resistance: 200 megohms minimum @ 500V DC
- Dielectric Strength: 1,500V AC minimum for 1 minute minimum
- Mechanical Life: 50,000 operations minimum for On-None-Off, On-None-On, & On-Off-On models; 30,000 operations minimum for all other models
- Electrical Life: 15,000 operations minimum
- Angle of Throw: 24°

Materials & Finishes
- Toggle: Brass with chrome plating
- Bushing & Outer Case: Glass fiber reinforced polyamide (UL94V-0)
- Inner Case: Melamine
- Inner Sealing Ring: Acrylonitrile butadiene rubber
- Outer Sealing Ring: Nitrile butadiene rubber
- Movable Contactor: Copper with silver plating
- Movable Contacts: Silver alloy plus copper with silver plating
- Stationary Contacts: Silver alloy plus copper with silver plating
- Terminals: Brass with tin plating
- Wire Lead Covers: Heat resistant polyvinyl chloride (Leads are AWG 16)

Environmental Data
- Operating Temp Range: –30°C through +70°C (–22°F through +158°F)
- Humidity: 90 ~ 95% humidity for 96 hours @ 40°C (104°F)
- Vibration: 10 ~ 55Hz with peak-to-peak amplitude of 1.5mm traversing the frequency range & returning in 1 minute; 3 right angled directions for 2 hours
- Shock: 50G (490m/s²) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)
- Front Panel Seal: IP67 of IEC60529, dust tight & water protected during temporary immersion for all models; optional toggle boot AT401 for additional protection (details at end of WT section)
- Behind Panel Seal: IP60 of IEC60529, dust tight but not water protected for solder lug & screw terminal models; IP67 of IEC60529, dust tight & water protected during temporary immersion for wire lead models

Installation
- Mounting Torque: 1.47Nm (13 lb•in)

Standards & Certifications
- Flammability Standards: UL94V-0 outer case
- Wiring Material Standards: UL AWM 1015 Recognized at Flammability VW-1; Temperature Range –20°C ~ +105°C; Maximum Load 600V; AWG 16.
- CSA TEW 105 Certified at Temperature Range –20°C ~ +105°C; Maximum Load 600V
**Distinctive Characteristics**

Sealing for wire lead models meets IP67 of IEC 60529 Standards at front and back panel.

Sealing for solder lug or screw lug models meets IP67 at front panel and IP60 at back panel.

Single unit construction of bushing and case gives added protection from environmental elements.

Epoxy sealed base covered by outer case doubles protection from dust and water (not operable under water or oil).

Specially designed contact mechanism that breaks light contact welds for circuits 11, 12, 21 and 22.

Interlocked movable contact mechanism provides highly reliable switching by minimizing contact bounce over center contact.

Heat resistant resin used for outer housing meets UL94V-0 flammability standard and provides high arc and tracking resistance.
**Series WT**

**TYPICAL SWITCH ORDERING EXAMPLE**

```plaintext
WT 2 2 S
```

<table>
<thead>
<tr>
<th>Poles</th>
<th>Circuits</th>
<th>Terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>S</td>
</tr>
<tr>
<td></td>
<td>ON</td>
<td>Solder Lug</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>T</td>
</tr>
<tr>
<td>DPST</td>
<td>ON</td>
<td>Screw Lug</td>
</tr>
<tr>
<td>DPDT</td>
<td>3</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>Wire Lead</td>
</tr>
</tbody>
</table>

**NONE = No Position**

**( ) = Momentary**

**DESCRIPTION FOR TYPICAL ORDERING EXAMPLE**

**WT22S**

**POLES & CIRCUITS**

<table>
<thead>
<tr>
<th>Pole</th>
<th>Model</th>
<th>Down</th>
<th>Center</th>
<th>Up</th>
<th>Down</th>
<th>Center</th>
<th>Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>WT11</td>
<td>ON</td>
<td>NONE</td>
<td>OFF</td>
<td>1-1b</td>
<td>OPEN</td>
<td>OPEN</td>
</tr>
<tr>
<td>SP</td>
<td>WT12</td>
<td>ON</td>
<td>NONE</td>
<td>OFF</td>
<td>1-1b</td>
<td>OPEN</td>
<td>1-1a</td>
</tr>
<tr>
<td></td>
<td>WT13</td>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>WT15</td>
<td>ON</td>
<td>OFF</td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>WT18</td>
<td>ON</td>
<td>(ON)</td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>WT19</td>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DP</td>
<td>WT21</td>
<td>ON</td>
<td>NONE</td>
<td>OFF</td>
<td>1-1b</td>
<td>OPEN</td>
<td>OPEN</td>
</tr>
<tr>
<td>DP</td>
<td>WT22</td>
<td>ON</td>
<td>NONE</td>
<td>OFF</td>
<td>1-1b</td>
<td>OPEN</td>
<td>1-1a</td>
</tr>
<tr>
<td></td>
<td>WT23</td>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>WT25</td>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>WT28</td>
<td>ON</td>
<td>(ON)</td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>WT29</td>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Throw & Schematics**

Note: Terminal numbers are not actually on wire lead models.
**Environmentally Sealed Toggles**

**Series WT**

### TYPICAL SWITCH DIMENSIONS

**Single Throw • Solder Lug**

<table>
<thead>
<tr>
<th>WT11S</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Double Throw • Solder Lug</strong></td>
</tr>
<tr>
<td>WT22S</td>
</tr>
</tbody>
</table>

**Single Throw • Screw Lug**

| WT21T |

### TYPICAL SWITCH DIMENSIONS

<table>
<thead>
<tr>
<th>Single Pole</th>
<th>Double Pole</th>
</tr>
</thead>
</table>

**Dimensions**

- Single Pole: [Dimensions listed]
- Double Pole: [Dimensions listed]

**Images:**

- Single Pole Diagrams
- Double Pole Diagrams
- Single Throw • Screw Lug Diagrams

**References:**

- [www.nkkswitches.com](http://www.nkkswitches.com)
Series WT

Environmentally Sealed Toggles

TYPICAL SWITCH DIMENSIONS

Double Throw • Screw Lug

Single & Double Pole • Wire Lead

STANDARD WIRE COLOR SCHEME

Wire leads are covered with heat resistant vinyl in accordance to UL 1015 and CSA TEW 105 Standards for Appliance Wiring Material (AWM).

<table>
<thead>
<tr>
<th>Terminal Numbers &amp; Wire Colors</th>
<th>1a</th>
<th>1</th>
<th>1b</th>
<th>2a</th>
<th>2</th>
<th>2b</th>
</tr>
</thead>
<tbody>
<tr>
<td>WT11</td>
<td>Black</td>
<td>1</td>
<td>White</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WT12-19</td>
<td>White</td>
<td>Black</td>
<td>Red</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WT21</td>
<td>Black</td>
<td>White</td>
<td>Blue</td>
<td>Yellow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WT22-29</td>
<td>White</td>
<td>Black</td>
<td>Red</td>
<td>Yellow</td>
<td>Blue</td>
<td>Green</td>
</tr>
</tbody>
</table>
### Environmentally Sealed Toggles

**Series WT**

#### PANEL CUTOUT & THICKNESS

<table>
<thead>
<tr>
<th>Maximum Effective Panel Thickness</th>
<th>With Standard Hardware: .157&quot; (4.0mm)</th>
<th>With optional Boot Assembly AT401A/H/S: .063&quot; (1.6mm)</th>
<th>With optional Boot Assembly AT4181: .083&quot; (2.1mm)</th>
</tr>
</thead>
</table>

#### STANDARD HARDWARE

**AT503M Hex Face Nut**
- Material: Brass with Chrome Plating
- 1 supplied with each switch

**Internal Tooth Lockwasher**
- Material: Phosphor Bronze/Chromate
- 1 supplied with each switch

**AT401P O-ring**
- Material: Nitrile butadiene rubber
- 1 supplied with each switch

#### OPTIONAL ACCESSORIES

Boot Assemblies for High Particulate Contamination Applications

- **AT401A for Oil Resistance**
  - Boot Material: Black nitrile butadiene rubber
  - Hex Nut Material & Finish: Nickel plated brass
  - O-ring Material: Nitrile butadiene rubber

- **AT401H for Dust & Ozone Resistance**
  - Boot Material: Gray ethylene propylene rubber
  - Hex Nut Material & Finish: Nickel plated brass
  - O-ring Material: Nitrile butadiene rubber

- **AT401S for Retention of Flexibility, Resilience & Tensile Strength Over Wide Temperature Range**
  - Boot Material: Black silicone rubber
  - Hex Nut Material & Finish: Nickel plated brass
  - O-ring Material: Nitrile butadiene rubber

#### AT4181 Splashproof Boot Assembly

- Boot Material: Black Silicon rubber
- Nut Material & Finish: Nickel plated brass
- O-ring Material: Nitrile butadiene rubber

Note: When using boot assemblies AT401A/H/S or AT4181, also use o-ring AT401P from the standard hardware supplied. Hex face nut AT503M and internal tooth lockwasher are not used with these boot assemblies.