## Honeywell



MICRO SWITCH
Military-Grade Toggle Switches
TL Series

## MICRO SWITCH TL Series Toggle Switches

Honeywell MICRO SWITCH TL Series toggle switches are military qualified to MIL-DTL-3950, specifications for sealed toggle switches. Quality construction features include a bonded seal between the toggle lever and bushing, and between the cover and case.

The robust design of the TL Series toggle is well-suited for many military, aerospace and other demanding applications where reliability is essential. These applications include environments where the panels are subjected to mechanical shock, vibration, and temperature extremes as well as environments with dust, splashing or hose-directed water.

TL Series toggle switches offer a variety of circuitry and pole options to easily integrate into a number of applications. A long history in military and aerospace applications has shown the TL Series toggle provides reliable performance with long operating life under the toughest conditions.

### What makes our switches better?

- MIL-DTL-3950 qualified switches available to meet military specifications
- Environmental sealing enables switches to withstand many demanding indoor and outdoor applications
- 1-, 2-, and 4-pole options for a variety of circuitry requirements
- 2- and 3-position, maintained and momentary toggle action to meet circuit and actuator requirements
- UL recognized, CSA certified, and CE approved for global use





# Features and Benefits

#### MIL-QUALIFIED AND GLOBAL APPROVALS

**MIL-DTL-3950 qualified** switches are available to meet military/aerospace specifications. TL Series toggles' environmental sealing enables switches to withstand many demanding indoor and outdoor applications. Quality construction includes a bonded seal between the toggle lever and bushing, and between the cover and case that enables switches to **withstand may demanding conditions**. UL recognized, CSA certified, and CE approved for global use

### Military-qualified listings

#### VARIETY OF CIRCUITRIES AND OPERATING ACTIONS

TL Series' **1, 2, and 4 pole options** meet a variety of circuitry requirements; while **2- and 3-position, maintained and momentary** toggle action, for a breadth of circuitry and actuator requirements. They thrive in a wide range of temperatures: -65 °C to 71 °C [-85 °F to 160 °F]

### Locking levers reduce unintended actuation

#### **LOCKING LEVERS**

Optional **lever locks** (pull-to-unlock) require two separate actions to actuate the switch in order to prevent unintended actuation

#### MULTIPLE CONNECTION OPTIONS

MICRO SWITCH TL Series toggles offer **three popular termination options**: screw, solder lugs, and IWTS (Integrated Wire Termination Systems)

#### **EASILY CONTROLS LOW-VOLTAGE DC APPLICATIONS**

Toggle switches available with a choice of **silver alloy or gold-plated contacts** to handle a variety of electrical load requirements

#### **INNOVATIVE PRODUCT DESIGN**

Engineered step-design case provides added space between terminals to **prevent shorting** 

#### **ROBUST CONSTRUCTION**

Built from military-grade components to achieve MIL-DTL-3950 requirements

## Potential Applications



#### MILITARY AND COMMERCIAL AIRCRAFT AND HELICOPTERS

Used in fixed wing aircraft and helicopter flight decks. Honeywell has a long history of providing TL Series toggle switches in commercial and military aircraft.

#### **AVIATION GROUND SUPPORT EQUIPMENT**

Used to turn on and operate various components of aviation ground support equipment, such as pumps, lights, and lift platforms.



#### MILITARY LAND VEHICLES (TRACK AND WHEELED VEHICLES)

Used in military land vehicles to control lights, pumps, arming equipment, and movement control of lifts/ramps, etc.

#### **CONSTRUCTION EQUIPMENT**

Often used on road milling, road pavers, trenchers, and stump cutters to operate movement of machinery and/or turn on lights, pumps, etc.



**Table 1. Specifications** 

Characteristic	Parameter Parame						
Description	military-grade toggle switch						
Sealing	qualified to MIL-DTL-3950						
Operating temperature	-65 °C to 71 °C [-85 °F to 160 °F]						
Actuators	standard, locking, special design, tab						
Action	2- or 3- position; momentary and maintained						
Mounting	Bushing 15/32 in (0.47 in) Ø						
Circuitry	SPST, SPDT, DPST, DPDT, 4PST, 4PDT						
Terminations	IWTS, solder, screw, quick-connect, leadwire						
Contacts	Silver alloy or gold-plated						
Amp rating	Up to 20 A, ac and dc capability						
Approvals	UL, CSA, CE						
Measurement	26,7 mm H x 33,5 mm W x 22,6 mm D [1.05 in H x 1.32 in W x 0.89 in D]						

**Table 2. UL and CSA Electrical Ratings** 

Rating code	Electrical rating
L192	10 amps, 125, 250, 277 Vac; ¼ Hp, 125 Vac; ½ Hp, 250, 277 Vac; 3 amps, 125 Vac "L"
L191	15 amps, 125, 250, 277 Vac; ½ Hp, 125 Vac; 1 Hp, 250, 277 Vac; 5 amps, 125 Vac "L"

Table 3. Electrical Ratings (in amperes)

Electrical rating code		28 <b>V</b> dc		115 Vdc	250 Vdc	115 <b>V</b> a	nc, 60 Hz & 4 Max.	100 Hz	230 <b>V</b> ac
	Ind.	Res.	Lamp	Res.	Res.	Ind.	Res.	Lamp	Res.
1	15	20	5	0.75	0.5	10	15	3	6
2	10	15	4	0.75	0.5	7	15	2	6
3	15	20	7	0.75	0.5	15	15	4	6
4	10	18	5	0.75	0.5	8	11	2	6
5	12	20	5	0.75	0.5	15	15	4	6
6	10	18	4	0.75	0.5	8	11	2	6

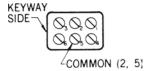
#### TERMINAL CIRCUIT IDENTIFICATION

Terminal identifications are referred to in the order guides to indicate which circuits are made in each toggle position (i.e., 1-2 refers to circuit closure through terminals 1 and 2).

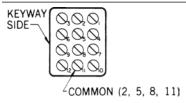
#### One Pole



#### Two Pole



#### Four Pole



#### **TERMINALS**

In addition to the screw terminal listings in the order guides, IWTS (Integrated Wire Termination Systems) versions and solder turrent terminals are available.

IWTS provides a reliable, completely serviceable unit which meets MIL-DTL-3950 requirements. IWTS improves maintainability since wiring bundles need not be disturbed. Leads are quickly and easily assembled or removed with an insert-extract tool.

A unique three-rib (grommet style) elastomer seal protects the lead connections without potting. There are no exposed metal terminals.

Versions available that will accept No. 16 wire with M39029/1-102 contact pins or No. 20 wire with MS39029/1-101 contact pins. Connections are resistant to shock, vibration, and high pull-out force.

#### **SPECIAL CIRCUITRIES**

Catalog listings with -10, -50, and -70 suffix numbers, as shown in the order guides, have special "on-on-on" circuits, as illustrated below. TLs with -12 suffix are the same as -50 except the keyway position is maintained, and the center position circuits 2-3 and 4-5 are made. -72 is the same as -50 except that the opposite keyway position is momentary, and in the center position circuits 2-3 and 4-5 are made.

#### -10 CIRCUITRY

No of poles	Keyway Side Maint. Position	Center Maint. Position	Opposite Keyway Maint. Position
2	3 2 1	3 2 1 6 5 4	3 2 1 6 5 4
4	3 2 1 6 5 4 9 8 7	5 2 1 6 5 4 9 8 7	3 2 1 6 5 4 9 8 7 12 11 10

#### -50 CIRCUITRY

No of poles	Keyway Side Maint. Position	Center Maint. Position	Opposite Keyway Maint. Position		
2	3 2 1	3 2 1	3 2 1		
4	3 2 1 6 5 4 9 8 7 12 11 10	3 2 1 6 5 4 9 8 7 12 11 10	3 2 1 6 5 4 9 8 7 12 11 10		

#### -70 CIRCUITRY

No of poles	Keyway Side Maint. Position			
2	3 2 1	3 2 1	3 2 1	
4	3 2 1 6 5 4 9 8 7 12 11 10	3 2 1 6 5 4 9 8 7 12 11 10	3 2 1 6 5 4 9 8 7 12 11 10	

#### TL (SCREW TERMINAL) 2-POSITION ORDER GUIDE

	Circuits Made	with Toggle At:			Standa	rd Toggle	Pull-to-Unlock Toggle		
No. of poles	Keyway Position	Opposite Keyway	Elect. Rating Code	UL Rating Code	Catalog Listing	Military Number	Add Suffix to Standard Toggle Listing <sup>Δ</sup>	Military Number**	
1	OFF	2-3	1	L191	1TL1-2	MS24523-22	D, F, G	MS24658-22	
	OFF*	2-3	2	L192	1TL1-4	MS24523-29	F	MS24658-29	
	1-2*	OFF	2	L192	1TL1-6	MS24523-30	F	MS24658-30	
	1-2	2-3	1	L191	1TL1-3	MS24523-23	D, F, G	MS24658-23	
	1-2*	2-3	2	L192	1TL1-8	MS24523-26	F	MS24658-26	
2	OFF	2-3, 5-6	3	L191	2TL1-2	MS24524-22	D, F, G	MS24659-22	
	OFF*	2-3, 5-6	4	L192	2TL1-4	MS24524-29	F	MS24659-29	
	1-2, 4-5*	OFF	4	L192	2TL1-6	MS24524-30	F	MS24659-30	
	1-2, 4-5	2-3, 5-6	3	L191	2TL1-3	MS24524-23	D, F, G	MS24659-23	
	1-2, 4-5*	2-3, 5-6	4	L192	2TL1-8	MS24524-26	F	MS24659-26	
4	OFF	2-3, 5-6, 8-9, 11-12	5	L191	4TL1-2	MS24525-22	D, F, G	MS24660-22	
	OFF*	2-3, 5-6, 8-9, 11-12	6	L192	4TL1-4	MS24525-29	F	MS24660-29	
	1-2, 4-5, 7-8, 10- 11*	OFF	6	L192	4TL1-6	MS24525-30	F	MS24660-30	
	1-2, 4-5, 7-8, 10-11	2-3, 5-6, 8-9, 11-12	5	L191	4TL1-3	MS24525-23	D, F, G	MS24660-23	
	1-2, 4-5*, 7-8, 10-11	2-3, 5-6, 8-9, 11-12	6	L192	4TL1-8	MS24525-26	F	MS24660-26	

<sup>\*</sup> These positions are momentary. All others are maintained.

#### **PULL-TO-UNLOCK OPTION**

When ordering pull-to-unlock toggle listings (see page 12 for configurations), add the suffix letter shown in the chart on page XXX to the standard toggle listing or the MS part number. For example, to order a 1TL1-1 pull-to-unlock toggle switch with the lever locked in the center position, add the letter **E** (i.e., 1TL1-1**E**, MS24658-21**E**)



#### **SOLDER TURRET TERMINAL VERSION**

11TL, 12TL, and 14TL type switches with solder turrent terminals are qualified to MIL-DTL-3950. They have the same circuitry and electrical ratings as their 1TL, 2TL, and 4TL counterparts, For example, an 11TL1-2 is the same as a 1TL1-2, except it has solder turret terminals instead of screw terminals.

Circuitry	Туре	Standard Lever	Lever Lock		
One pole	11TL	MS27734	MS27737		
Two pole	12TL	MS27735	MS27738		
Four pole	14TL	MS27736	MS27739		

<sup>\*\*</sup> Also add the appropriate suffix to the military number.

<sup>&</sup>lt;sup>∆</sup> See page 12 for locking configurations.

#### TL (SCREW TERMINAL) 3-POSITION ORDER GUIDE

	Circu	its Made with Togg	le At:			Stand	ard Toggle	Pull-to-Unlock Toggle		
No. of poles	Keyway Position	Center Position	Opposite Keyway	Elect. Rating Code	UL/CSA Rating Code	Catalog Listing	Military Number	Add Suffix to Standard Toggle Listing <sup>Δ</sup>	Military Number***	
1	1-2	OFF	2-3	1	L191	1TL1-1	MS24523-21	ALL TYPES	MS24658-21	
	1-2*	OFF	2-3	2	L192	1TL1-5	MS24523-31	E, F, K, L M, N	MS24658-31	
	1-2*	OFF	2-3*	2	L192	1TL1-7	MS24523-27	E, L, N	MS24658-27	
	NONE**	OFF	2-3	1	L191	1TL1-21	MS24523-24	E, F, K, M	MS24658-24	
	NONE**	1-2	2-3	1	L192	1TL1-31	MS24523-33	E, F, K, M	MS24658-33	
	NONE**	1-2	2-3*	2	L192	1TL1-51	MS24523-32	Е	MS24658-32	
	1-2*	OFF	NONE**	2	L192	1TL1-61	MS24523-28	Е	MS24658-28	
2	1-2, 4-5	OFF	2-3, 5-6	3	L191	2TL1-1	MS24524-21	ALL TYPES	MS24659-21	
	1-2, 4-5*	OFF	2-3, 5-6	4	L192	2TL1-5	MS24524-31	E, F, K, L, M, N	MS24659-31	
	1-2, 4-5*	OFF	2-3, 5-6*	4	L192	2TL1-7	MS24524-27	E, L, N	MS24659-27	
	NONE**	OFF	2-3, 5-6	3	L191	2TL1-21	MS24524-24	E, F, K, M	MS24659-24	
	NONE**	1-2, 4-5	2-3, 5-6	3	L191	2TL1-31	MS24524-33	E, F, K, M	MS24659-33	
	NONE**	1-2, 4-5	2-3, 5-6*	4	L192	2TL1-51	MS24524-32	Е	MS24659-32	
	1-2, 4-5*	OFF	NONE**	4	L192	2TL1-61	MS24524-28	Е	MS24659-28	
	1-2, 4-5	1-2, 5-6	2-3, 5-6	3	L191	2TL1-10	MS27407-4	ALL TYPES	MS27408-4	
	1-2, 4-5*	1-2, 5-6	2-3, 5-6	4	L192	2TL1-50	MS27407-5	E, F, K, L, M, N	MS27408-5	
	1-2, 4-5*	1-2, 5-6	2-3, 5-6*	4	L192	2TL1-70	MS27407-6	E, L, N	MS27408-6	
4	1-2, 4-5, 7-8, 10-11	OFF	2-3, 5-6, 8-9, 11-12	5	L191	4TL1-1	MS24525-21	ALL TYPES	MS24660-21	
	1-2, 4-5, 7-8, 10-11*	OFF	2-3, 5-6, 8-9, 11-12	6	L192	4TL1-5	MS24525-31	E, F, K, L, M, N	MS24660-31	
	1-2, 4-5, 7-8, 10-11*	OFF	2-3, 5-6, 8-9, 11-12*	6	L192	4TL1-7	MS24525-27	E, L, N	MS24660-27	
	NONE**	OFF	2-3, 5-6, 8-9, 11-12	5	L191	4TL1-21	MS24525-24	E, F, K, M	MS24660-24	
	NONE**	1-2, 4-5, 7-8, 10-11	2-3, 5-6, 8-9, 11-12	5	L191	4TL1-31	MS24525-33	E, F, K, M	MS24660-33	
	NONE**	1-2, 4-5, 7-8, 10-11	2-3, 5-6, 8-9, 11-12*	6	L192	4TL1-51	MS24525-32	Е	MS24660-32	
	1-2, 4-5, 7-8, 10-11*	OFF	NONE**	6	L192	4TL1-61	MS24525-38	Е	MS24660-28	
	1-2, 4-5, 7-8, 10-11	2-3, 4-5	2-3, 5-6, 8-9, 11-12	5	L191	4TL1-10	_	ALL TYPES	_	
	1-2, 4-5, 7-8, 10-11*	2-3, 4-5, 7-8, 11-12	2-3, 5-6, 8-9, 11-12	6	L192	4TL1-50	MS27406-2	E, F, K, L, M, N	MS27409-2	
	1-2, 4-5, 7-8, 10-11*	2-3, 4-5	2-3, 5-6, 8-9, 11-12*	6	L192	4TL1-70	_	E, L, N	_	
	1-2, 4-5, 7-8, 10-11	2-3, 4-5, 7-8, 11-12	2-3, 5-6, 8-9, 11-12	5	L191	4TL1-12	MS27406-1	ALL TYPES	MS27409-1	
	1-2, 4-5, 7-8, 10-11*	2-3, 4-5, 7-8, 11-12	2-3, 5-6, 8-9, 11-12*	6	L192	4TL1-72	MS27406-3	E, L, N	MS27409-3	

<sup>\*</sup> These positions are momentary. All others are maintained.

\*\* Toggle lever is blocked from these products. Toggle becomes 2-position, with center being one extreme position.

\*\*\* Also add appropriate suffix letter to military number

<sup>&</sup>lt;sup>△</sup> See page 12 for locking configurations.

#### TL (IWTS TERMINATION) 2-POSITION ORDER GUIDE

	Circuits Made	with Toggle At:			No. 16 To	ermination	No. 20 Termination		
No. of poles	Keyway Position	Opposite Keyway	Elect. Rating Code	UL Rating Code	Catalog Listing	Military Number	Catalog Listing	Military Number	
1	OFF	2-3	1	L191	101TL1-2	MS27722-22	101TL2-2	MS27784-22	
	OFF*	2-3	2	L192	101TL1-4	MS27722-29	101TL2-4	MS27784-29	
	1-2*	OFF	2	L192	101TL1-6	MS27722-30	101TL2-6	MS27784-30	
	1-2	2-3	1	L191	101TL1-3	MS27722-23	101TL2-3	MS27784-23	
	1-2*	2-3	2	L192	101TL1-8	MS27722-26	101TL2-8	MS27784-26	
2	OFF	2-3, 5-6	3	L191	102TL1-2	MS27723-22	102TL2-2	MS27785-22	
	OFF*	2-3, 5-6	4	L192	102TL1-4	MS27723-29	102TL2-4	MS27785-29	
	1-2, 4-5*	OFF	4	L192	102TL1-6	MS27723-30	102TL2-6	MS27785-30	
	1-2, 4-5	2-3, 5-6	3	L191	102TL1-3	MS27723-23	102TL2-3	MS27785-23	
	1-2, 4-5*	2-3, 5-6	4	L192	102TL1-8	MS27723-26	102TL2-8	MS27785-26	
4	OFF	2-3, 5-6, 8-9, 11-12	5	L191	104TL1-2	MS27724-22	104TL2-2	MS27786-22	
	OFF*	2-3, 5-6, 8-9, 11-12	6	L192	104TL1-4	MS27724-29	104TL2-4	MS27786-29	
	1-2, 4-5, 7-8, 10- 11*	OFF	6	L192	104TL1-6	MS27724-30	104TL2-6	MS27786-30	
	1-2, 4-5, 7-8, 10-11	2-3, 5-6, 8-9, 11-12	5	L191	104TL1-3	MS27724-23	104TL2-3	MS27786-23	
	1-2, 4-5, 7-8, 10- 11*	2-3, 5-6, 8-9, 11-12	6	L192	104TL1-8	MS27724-26	104TL2-8	MS27786-26	

#### TL (IWTS TERMINATION) 3-POSITION ORDER GUIDE

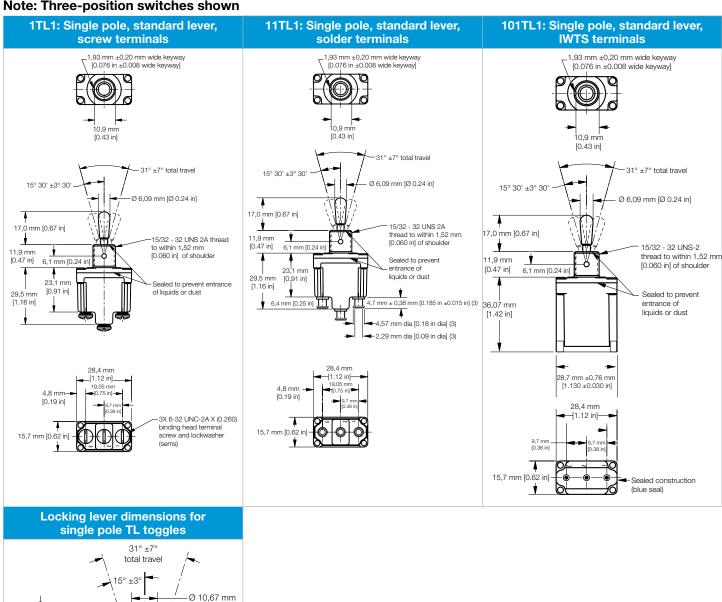
	Circu	its Made with Tog	gle At:			No. 16	Termination	No. 20	Termination	
No. of poles	Keyway Position	Center Position	Opposite Keyway	Elect. Rating Code	UL/CSA Rating Code	Catalog Listing	Military Number	Catalog Listing	Military Number	
1	1-2	OFF	2-3	1	L191	101TL1-1	MS27722-21	101TL2-1	MS27784-21	
	1-2*	OFF	2-3	2	L192	101TL1-5	MS27722-31	101TL2-5	MS27784-31	
	1-2*	OFF	2-3*	2	L192	101TL1-7	MS27722-27	101TL2-7	MS27784-27	
2	1-2, 4-5	OFF	2-3, 5-6	3	L191	102TL1-1	MS27723-21	102TL2-1	MS27785-21	
	1-2, 4-5*	OFF	2-3, 5-6	4	L192	102TL1-5	MS27723-31	102TL2-5	MS27785-31	
	1-2, 4-5*	OFF	2-3, 5-6*	4	L192	102TL1-7	MS27723-6	102TL2-7	MS27785-27	
4	1-2, 4-5, 7-8, 10-11	OFF	2-3, 5-6, 8-9, 11-12	5	L191	104TL1-1	MS27724-21	104TL2-1	MS27786-21	
	1-2, 4-5, 7-8, 10-11*			6	L192	104TL1-5	MS27724-31	104TL2-5	MS27786-31	
	1-2, 4-5, 7-8, 10-11*	OFF	2-3, 5-6, 8-9, 11-12*	6	L192	104TL1-7	MS27724-27	104TL2-7	MS27786-27	

<sup>\*</sup> These positions are momentary. All others are maintained.

NOTE: For TL switches featuring IWTS termination and a "pull-to-unlock" lever option, contact a Honeywell Sensing and Control representative at 1-800-537-6945.

#### TL SERIES 1-POLE STANDARD ACTUATOR OPTIONS, TERMINALS, & DIMENSIONS

Note: Three-position switches shown



2,28 mm [0.090 in]

to change position

approx. pullout

26,67 mm

[1.05 in]

[Ø 0.42 in]

#### TL SERIES 2-POLE STANDARD ACTUATOR OPTIONS, TERMINALS, & DIMENSIONS

Note: Three-position switches shown

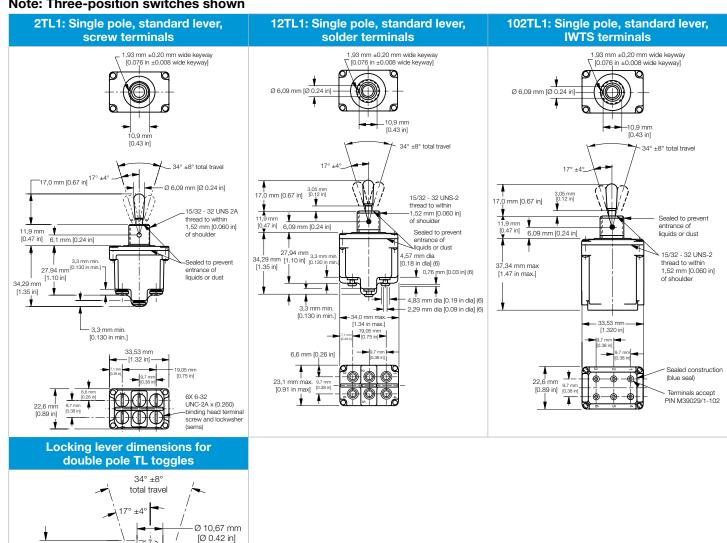
2,28 mm [0.090 in]

to change position

approx. pullout

26.67 mm

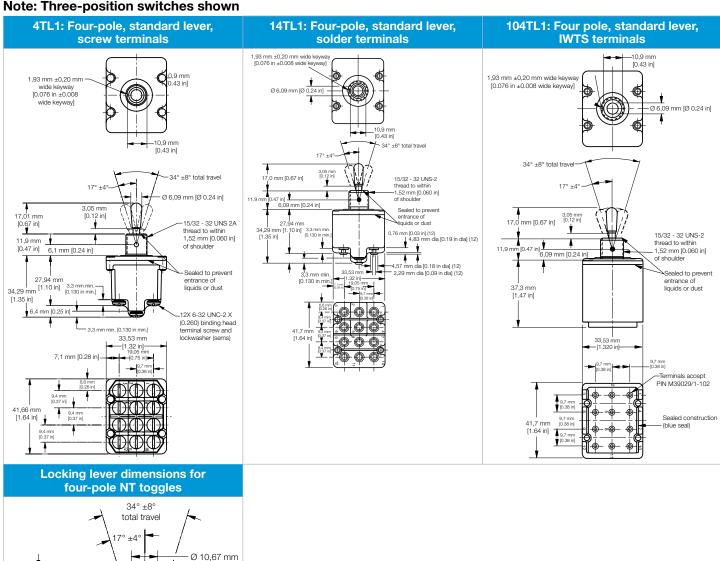
[1.05 in]



#### TL SERIES 4-POLE STANDARD ACTUATOR OPTIONS, TERMINALS, & DIMENSIONS

[Ø 0.42 in]

Note: Three-position switches shown



2.28 mm [0.090 in] approx. pullout

to change

position

26,67 mm

[1.05 in]

#### MICRO SWITCH TL™ SERIES LOCKING CONFIGURATIONS

А	В			D	ı	E F			G	н
Locked In Center and Locked In Extreme Position Three Positions (Keyway Side)		Center and xtreme Position	C	ocked Out Of Center Locke Position Center P					Locked In Extreme Positio (Keyway Side)	
J		К		L			М		N	Р
						Ē	<b>\$</b>			
Locked Out Of Center And Extreme Position (Opposite Keyway)		Locked In Center And Extreme Posit (Opposite Keyv	ion	Locked ( Extreme P (Keyway	osition	Ar Extrem	ne Position Ext		ocked Out Of reme Position posite Keyway)	Locked Out Of And Into Extreme Position (Keyway Side)

#### ADDITIONAL INFORMATION

The following associated literature is available on the Web (sensing.honeywell.com):

- Product installation instructions
- · Product range guide
- Product application-specific information
  - Flight deck toggle switches
  - Sensors and switches in front loaders
  - Sensors and switches in mobile cranes
  - Sensors and switches in oil rig applications

#### For more information

Honeywell Sensing and Internet of Things services its customers through a worldwide network of sales offices and distributors. For application assistance, current specifications, pricing or the nearest Authorized Distributor, visit sensing. honeywell.com or call:

Asia Pacific +65 6355-2828

Europe +44 (0) 1698 481481 USA/Canada +1-800-537-6945

#### **AWARNING**

#### **PERSONAL INJURY**

**DO NOT USE** these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

#### **AWARNING**

#### MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

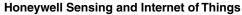
Failure to comply with these instructions could result in death or serious injury.

#### WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.

While we provide application assistance personally, through our literature and the Honeywell website, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.



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102TL2-12A 102TL2-3 12TL1-1A 12TL1-2 101TL2-2F 101TL255-3 101TL2887-51 101TL2887-8F 102TL1-2D 102TL1-6 102TL200-1 102TL2-10E 102TL2-10M 102TL2-10P 102TL2133-10 102TL2-50N 102TL2-72L 102TL2855-7 104TL2-7 104TL2-72 104TL286-12A 104TL2887-3 104TL2887-8F 11TL146-2 1TL119-3-A03 1TL119-4-A02 1TL133-21 1TL150-7E 1TL28-5 1TL28-7 1TL5-1 1TL5-3 1TL5-7 1TL64-51 1TL82-7 1TL887-51E 2TL124-10 2TL126-70-A02 2TL130-21 2TL149-1A 2TL256-5F 2TL28-1 2TL49-3G 2TL57-7 2TL84-7R 2TL863-7 2TL887-3D 2TL887-7E 4TL11-82G 4TL143-3D 4TL887-51E 1TL11-1 1TL11-5 1TL11-7 1TL11-8 1TL11-82 1TL91-3 1TL91-4 1TL91-7 2TL1-1L 2TL1-50 2TL150-1N 2TL150-3D 2TL1-50E 2TL1-50F 2TL1-50K 2TL1-50M 2TL1-50N 2TL49-1A 2TL49-21E 2TL49-31E 2TL51-5 2TL887-3 2TL91-8 4TL1-10A 4TL1-10E 4TL1-10L 4TL1-10M 4TL1-10P 4TL1-1D 4TL1-1E 4TL1-1L 4TL1-1M 4TL1-1N 4TL1-1P 4TL1-21F 4TL1-21K 4TL1-2D 4TL1-50M 4TL1-2G 4TL1-31K 4TL1-3G 4TL1-50 4TL1-50 4TL1-50F 4TL1-50K 4TL1-50K 4TL1-50M