

# TFS Series Splash Proof Miniature Snap-acting Switches



## Features/Benefits

- Reliable snap action mechanism
- Low cost - high performance
- RoHS compatible

## Typical Applications

- Alarm devices / Home security
- Air conditioner
- Food processor
- Water heaters
- Industrial
- Forklifts

UL61058-1  

## Specifications

CONTACT RATING / ELECTRICAL LIFE:  
 0.1A @ 125/250 V AC / 10,000 operations  
 3A @ 125/250 VAC / 10,000 operations  
 6A @ 125/250 VAC / 10,000 operations  
 10A @ 125/250 VAC / 10,000 operations  
 ELECTRICAL OPERATING FREQUENCY: 10-30 operations per min.  
 MECHANICAL LIFE: 1,000,000 operations  
 MECHANICAL OPERATING FREQUENCY: 120 operations per min.  
 INSULATION RESISTANCE: (at 500 VDC/minute) 100 M ohm min.  
 DIELECTRIC STRENGTH: 1500 VAC (50 -60 Hz)  
 OPERATING TEMPERATURE: -40°C to 85°C (with no icing)  
 OPERATING FORCE: 200 grams.

## Materials

CASE: Nylon  
 COVER: PBT  
 ACTUATOR: PBT  
 MOVABLE CONTACTS: Silver alloy  
 TERMINALS: Brass  
 LEVER: Stainless steel  
 WIRE: PVC+CU

**NOTE:** Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Snap-acting

## Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-12 thru J-15. For additional options not shown in catalog, consult Customer Service Center.



### Electrical Rating

| ELECTRICAL RATING | AMPS (GRAMS) | OPERATING FORCE |        |         |         |         |
|-------------------|--------------|-----------------|--------|---------|---------|---------|
|                   |              | S (200)         | D (50) | J (100) | L (150) | H (300) |
| 01                | 0.1          | •               | •      | •       | •       | •       |
| 03                | 3            | •               | •      | •       | •       | •       |
| 06                | 6            | •               | •      | •       | •       | •       |
| 10                | 10           | •               | X      | X       | X       | •       |

• Available  
 X Not available

### Operating Force

- S** 200 grams
- D** 50 grams
- J** 100 grams
- L** 150 grams
- H** 300 grams

### Actuator Lever Fixed

- P00** Button
- T10** Lever - high force
- T20** Lever - low force
- A05** Lever roller - High force, short lever
- A10** Lever roller - high force
- A20** Lever roller - low force
- A25** Lever roller - Low force, short lever

### Circuit Arrangement

- C** SPDT
- Y** SPST N.O.
- W** SPST N.C.

### Mounting Hole Size

- NONE** 3.1 mm (3 mm screw clearance hole)
- S** 2.9 mm (4-40 screw clearance hole)

### Terminal Type

- 40** .187" quick connect

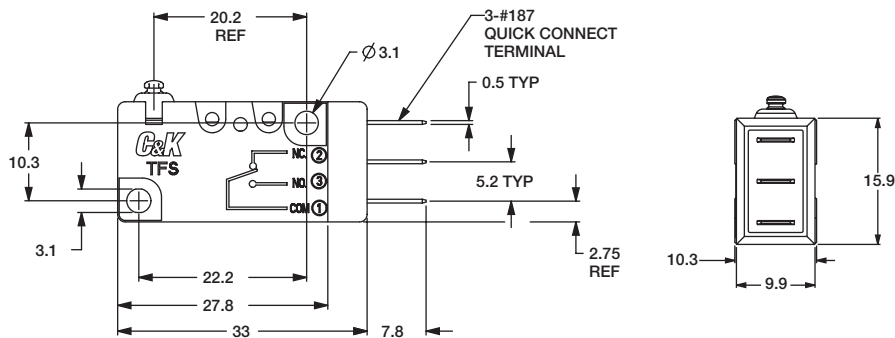


Dimensions are shown: mm  
 Specifications and dimensions subject to change

# TFS Series Splash Proof Miniature Snap-acting Switches

## SERIES

**TFS** SUB-MINIATURE SNAP-ACTING SWITCHES

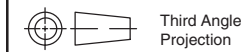


## ELECTRICAL RATING

| OPTION CODE | RoHS COMPLIANT | RoHS COMPATIBLE | ELECTRICAL RATING                      |
|-------------|----------------|-----------------|--|
| <b>10</b>   | Yes            | Yes             | 10A @ 125/250 V AC / 10,000 operations |
| <b>06</b>   | Yes            | Yes             | 6A @ 125/250 VAC / 10,000 operations   |
| <b>03</b>   | Yes            | Yes             | 3A @ 125/250 VAC / 10,000 operations   |
| <b>01</b>   | Yes            | Yes             | 0.1A @ 125/250 VAC / 10,000 operations |

## OPERATING FORCE

| OPTION CODE | BASIC SWITCH OPERATING FORCE |
|-------------|------------------------------|
| <b>S</b>    | 200 GRAMS                    |
| <b>D</b>    | 50 grams                     |
| <b>J</b>    | 100 grams                    |
| <b>L</b>    | 150 grams                    |
| <b>H</b>    | 300 grams                    |

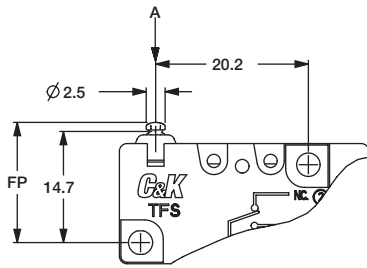


Dimensions are shown: mm  
Specifications and dimensions subject to change

# TFS Series Splash Proof Miniature Snap-acting Switches

## ACTUATOR

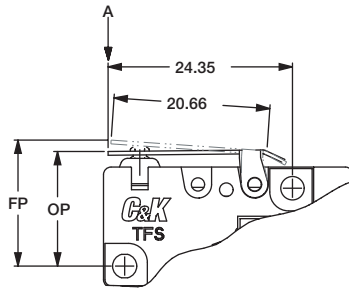
**P00** BUTTON



Measure at Point "A"

|                            |               |
|----------------------------|---------------|
| Max. operating force       | 200 grams     |
| Min. release force         | 30 grams      |
| Operating position OP      | 14.7 ± 0.4 mm |
| Max. movement differential | 0.4 mm        |
| Min. over travel OT        | 1.0 mm        |
| Max. pre-travel PT         | 1.2 mm        |

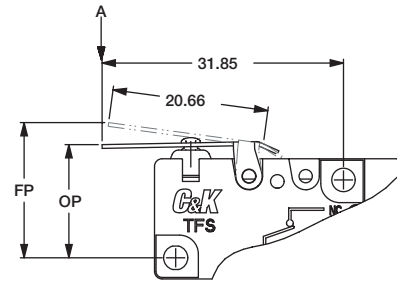
**T10** LEVER, HIGH FORCE



Measure at Point "A"

|                            |               |
|----------------------------|---------------|
| Max. operating force       | 160 grams     |
| Min. release force         | 25 grams      |
| Operating position OP      | 15.1 ± 0.6 mm |
| Max. movement differential | 0.6 mm        |
| Min. over travel OT        | 1.1 mm        |
| Max. pre-travel PT         | 2.6 mm        |

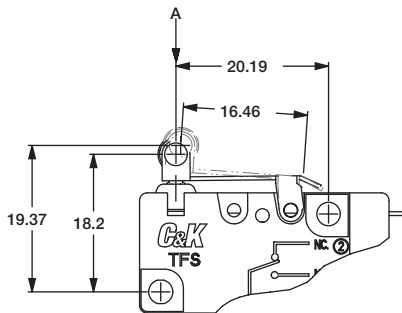
**T20** LEVER, LOW FORCE



Measure at Point "A"

|                            |             |
|----------------------------|-------------|
| Max. operating force       | 90 grams    |
| Min. release force         | 10 grams    |
| Operating position OP      | 15 ± 1.1 mm |
| Max. movement differential | 1.1 mm      |
| Min. over travel OT        | 1.2 mm      |
| Max. pre-travel PT         | 5.1 mm      |

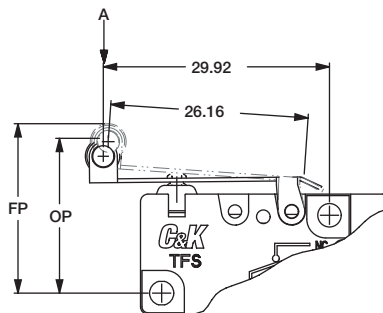
**A05** LEVER ROLLER  
HIGH FORCE, SHORT LEVER



Measure at Point "A"

|                            |               |
|----------------------------|---------------|
| Max. operating force       | 200 grams     |
| Min. release force         | 30 grams      |
| Operating position OP      | 20.6 ± 0.5 mm |
| Max. movement differential | 0.5 mm        |
| Min. over travel OT        | 1.0 mm        |
| Max. pre-travel PT         | 2.1 mm        |

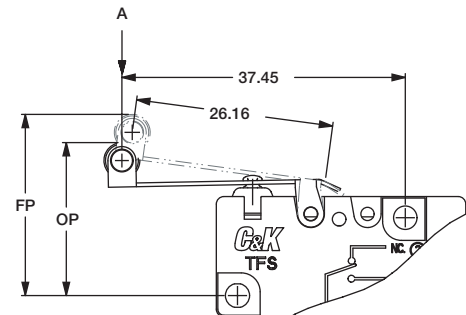
**A10** LEVER ROLLER  
HIGH FORCE



Measure at Point "A"

|                            |               |
|----------------------------|---------------|
| Max. operating force       | 130 grams     |
| Min. release force         | 20 grams      |
| Operating position OP      | 20.4 ± 0.7 mm |
| Max. movement differential | 0.7 mm        |
| Min. over travel OT        | 1.3 mm        |
| Max. pre-travel PT         | 3.3 mm        |

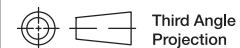
**A20** LEVER ROLLER  
LOW FORCE



Measure at Point "A"

|                            |               |
|----------------------------|---------------|
| Max. operating force       | 70 grams      |
| Min. release force         | 10 grams      |
| Operating position OP      | 20.2 ± 1.2 mm |
| Max. movement differential | 1.4 mm        |
| Min. over travel OT        | 1.5 mm        |
| Max. pre-travel PT         | 6.5 mm        |

Snap-acting



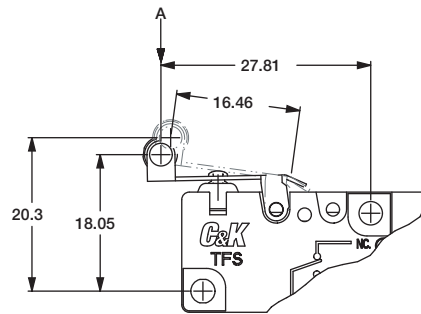
Third Angle  
Projection

Dimensions are shown: mm  
Specifications and dimensions subject to change

# TFS Series Splash Proof Miniature Snap-acting Switches

## ACTUATOR

**A25** LEVER ROLLER  
LOW FORCE, SHORT LEVER

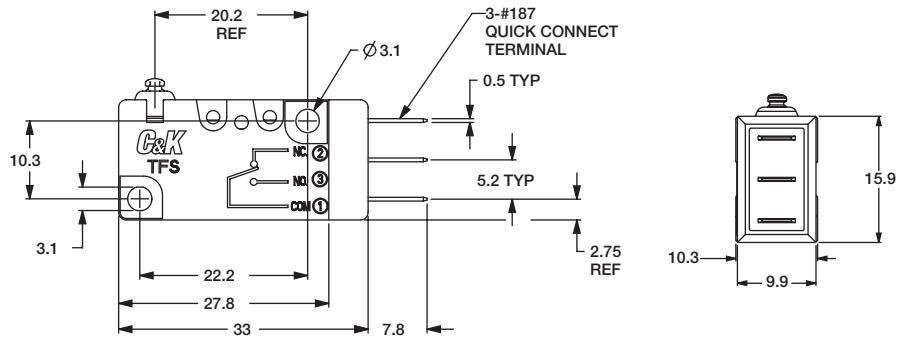


Measure at Point "A"

|                            |               |
|----------------------------|---------------|
| Max. operating force       | 150 grams     |
| Min. release force         | 15 grams      |
| Operating position OP      | 20.4 ± 0.9 mm |
| Max. movement differential | 0.9 mm        |
| Min. over travel OT        | 1.2 mm        |
| Max. pre-travel PT         | 4.2 mm        |

## TERMINAL TYPE

**40** .187" QUICK CONNECT



Snap-acting

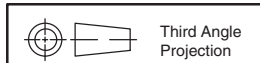
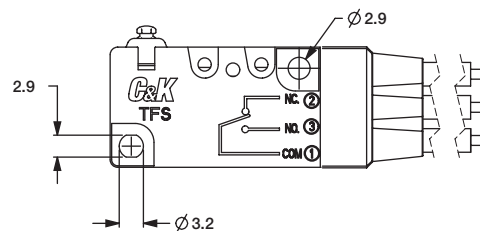
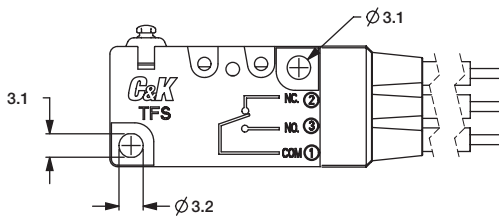
## CIRCUITRY

- C** SPDT (Single Pole, Double Throw)
- Y** SPST N.O. (Single Pole, Single Throw, Normally Open)
- W** SPST N.C. (Single Pole, Single Throw, Normally Closed)

## MOUNTING HOLE SIZE

**NONE** 3.1 mm (3mm SCREW CLEARANCE HOLE)

**S** 2.9 mm (4-40 SCREW CLEARANCE HOLE)



Dimensions are shown: mm  
Specifications and dimensions subject to change

**G&K**

# TFS Series

## Sealed Miniature Snap-acting Switches (Water Proof)



### Features/Benefits

- IP67
- Reliable snap action mechanism
- Low cost - high performance
- RoHS compatible

### Typical Applications

- Alarm devices / Home security
- Air conditioner
- Food processor
- Water heaters
- Industrial
- Forklifts

UL61058-1



### Specifications

CONTACT RATING / ELECTRICAL LIFE:

- 0.1A @ 125/250 V AC / 10,000 operations
- 3A @ 125/250 VAC / 10,000 operations
- 6A @ 125/250 VAC / 10,000 operations
- 10A @ 125/250 VAC / 10,000 operations

ELECTRICAL OPERATING FREQUENCY: 10-30 operations per min.

MECHANICAL LIFE: 1,000,000 operations

MECHANICAL OPERATING FREQUENCY: 120 operations per min.

INSULATION RESISTANCE: (at 500 VDC/minute) 100 M ohm min.

DIELECTRIC STRENGTH: 1500 VAC (50 -60 Hz)

OPERATING TEMPERATURE: see wire type

OPERATING FORCE: 200 grams.

### Materials

CASE: Nylon

COVER: PBT

ACTUATOR: PBT

MOVABLE CONTACTS: Silver alloy.

TERMINALS: Brass.

LEVER: Stainless steel

WIRE: PVC+CU

**NOTE:** Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Snap-acting

### Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-17 thru J-19. For additional options not shown in catalog, consult Customer Service Center.

**Electrical Rating**  
see chart below

**Operating Force**

- S** 200 grams
- D** 50 grams
- J** 100 grams
- L** 150 grams
- H** 300 grams

**Actuator Lever Fixed**

- P00** Button
- T10** Lever - high force
- T20** Lever - low force
- A05** Lever roller - High force, short lever
- A10** Lever roller - high force
- A20** Lever roller - low force
- A25** Lever roller - Low force, short lever

**Terminal Type**

- W** Wire

**Circuit Arrangement**

- C** SPDT
- Y** SPST N.O.
- W** SPST N.C.

**Wire UL #**

- B** UL1015 (T55)

**Mounting Hole Size**

- NONE** 3.1 mm (3 mm screw clearance hole)
- S** 2.9 mm (4-40 screw clearance hole)

| ELECTRICAL RATING | AMPS | WIRE TYPE |         |         |         |                    |
|-------------------|------|-----------|---------|---------|---------|--------------------|
|                   |      | C 16AWG   | D 18AWG | E 20AWG | F 22AWG | G 24AWG<br>H 26AWG |
| 01                | 0.1  | •         | •       | •       | •       | •                  |
| 03                | 3    | •         | •       | •       | X       | X                  |
| 06                | 6    | •         | •       | X       | X       | X                  |
| 10                | 10   | •         | X       | X       | X       | X                  |

**Wire Type**

- C** 16 AWG
- D** 18 AWG
- E** 20 AWG
- F** 22 AWG
- G** 24 AWG
- H** 26 AWG

**OPERATING TEMPERATURE**

-40°C to + 85°C (with UL1015 wire)

• Available  
X Not available

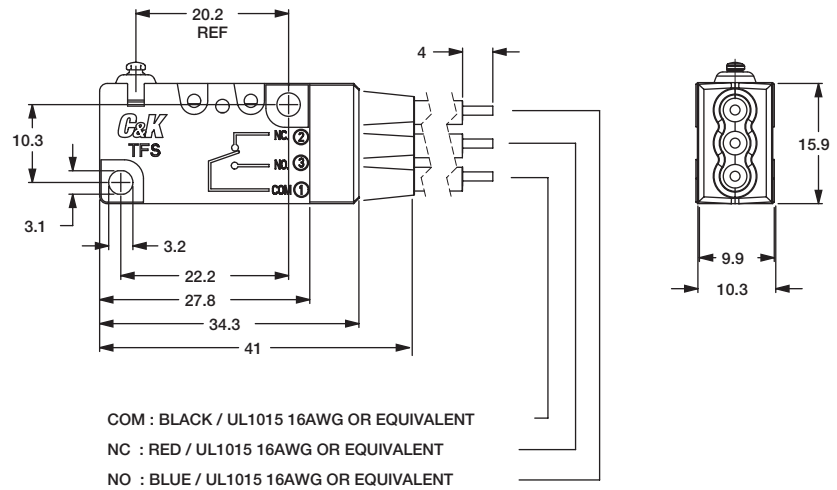


Dimensions are shown: mm  
Specifications and dimensions subject to change

# TFS Series Sealed Miniature Snap-acting Switches (Water Proof)

## SERIES

**TFS** SUB-MINIATURE SNAP-ACTING SWITCHES – WATERPROOF



## ELECTRICAL RATING

| OPTION CODE | RoHS COMPLIANT | RoHS COMPATIBLE | ELECTRICAL RATING                      |
|-------------|----------------|-----------------|--|
| <b>10</b>   | Yes            | Yes             | 10A @ 125/250 V AC / 10,000 operations |
| <b>06</b>   | Yes            | Yes             | 6A @ 125/250 VAC / 10,000 operations   |
| <b>03</b>   | Yes            | Yes             | 3A @ 125/250 VAC / 10,000 operations   |
| <b>01</b>   | Yes            | Yes             | 0.1A @ 125/250 VAC / 10,000 operations |

## OPERATING FORCE

| OPTION CODE | BASIC SWITCH OPERATING FORCE |
|-------------|------------------------------|
| <b>S</b>    | 200 GRAMS                    |
| <b>D</b>    | 50 grams                     |
| <b>J</b>    | 100 grams                    |
| <b>L</b>    | 150 grams                    |
| <b>H</b>    | 300 grams                    |



Dimensions are shown: mm  
 Specifications and dimensions subject to change

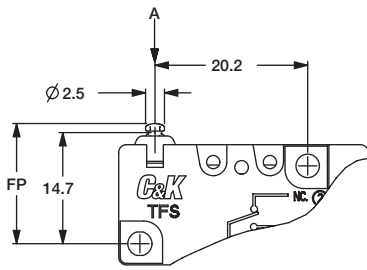


Snap-acting

# TFS Series Sealed Miniature Snap-acting Switches (Water Proof)

## ACTUATOR

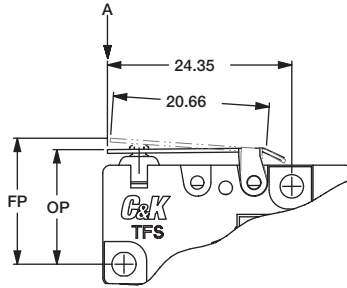
**P00** BUTTON



Measure at Point "A"

|                            |               |
|----------------------------|---------------|
| Max. operating force       | 200 grams     |
| Min. release force         | 30 grams      |
| Operating position OP      | 14.7 ± 0.4 mm |
| Max. movement differential | 0.4 mm        |
| Min. over travel OT        | 1.0 mm        |
| Max. pre-travel PT         | 1.2 mm        |

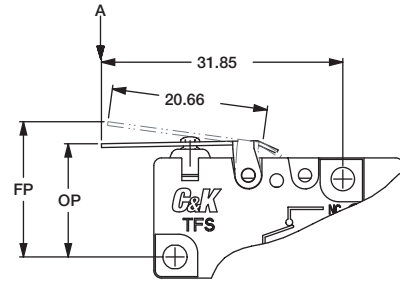
**T10** LEVER, HIGH FORCE



Measure at Point "A"

|                            |               |
|----------------------------|---------------|
| Max. operating force       | 160 grams     |
| Min. release force         | 25 grams      |
| Operating position OP      | 15.1 ± 0.6 mm |
| Max. movement differential | 0.6 mm        |
| Min. over travel OT        | 1.1 mm        |
| Max. pre-travel PT         | 2.6 mm        |

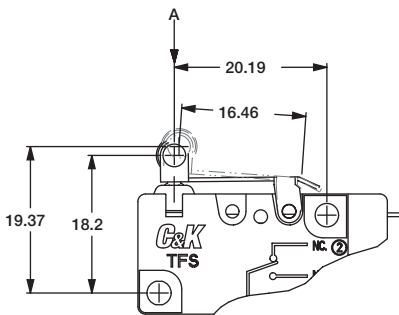
**T20** LEVER, LOW FORCE



Measure at Point "A"

|                            |             |
|----------------------------|-------------|
| Max. operating force       | 90 grams    |
| Min. release force         | 10 grams    |
| Operating position OP      | 15 ± 1.1 mm |
| Max. movement differential | 1.1 mm      |
| Min. over travel OT        | 1.2 mm      |
| Max. pre-travel PT         | 5.1 mm      |

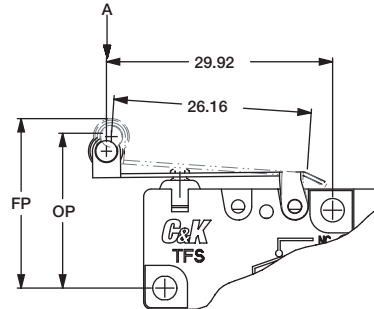
**A05** LEVER ROLLER  
HIGH FORCE, SHORT LEVER



Measure at Point "A"

|                            |               |
|----------------------------|---------------|
| Max. operating force       | 200 grams     |
| Min. release force         | 30 grams      |
| Operating position OP      | 20.6 ± 0.5 mm |
| Max. movement differential | 0.5 mm        |
| Min. over travel OT        | 1.0 mm        |
| Max. pre-travel PT         | 2.1 mm        |

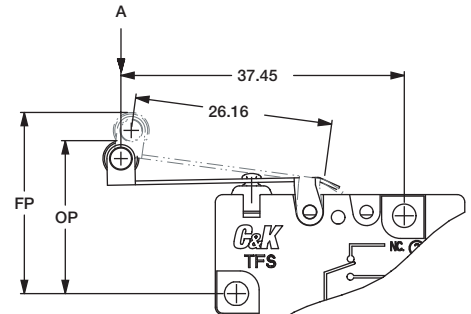
**A10** LEVER ROLLER  
HIGH FORCE



Measure at Point "A"

|                            |               |
|----------------------------|---------------|
| Max. operating force       | 130 grams     |
| Min. release force         | 20 grams      |
| Operating position OP      | 20.4 ± 0.7 mm |
| Max. movement differential | 0.7 mm        |
| Min. over travel OT        | 1.3 mm        |
| Max. pre-travel PT         | 3.3 mm        |

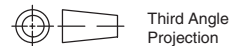
**A20** LEVER ROLLER  
LOW FORCE



Measure at Point "A"

|                            |               |
|----------------------------|---------------|
| Max. operating force       | 70 grams      |
| Min. release force         | 10 grams      |
| Operating position OP      | 20.2 ± 1.2 mm |
| Max. movement differential | 1.4 mm        |
| Min. over travel OT        | 1.5 mm        |
| Max. pre-travel PT         | 6.5 mm        |

Snap-acting



Third Angle  
Projection

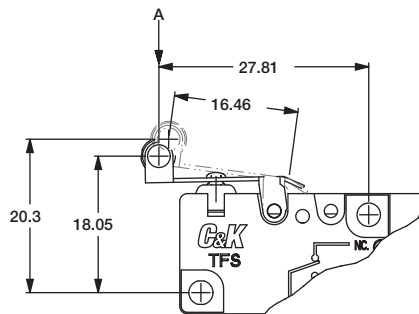
Dimensions are shown: (mm)

Specifications and dimensions subject to change

# TFS Series Sealed Miniature Snap-acting Switches (Water Proof)

## ACTUATOR

**A25** LEVER ROLLER  
LOW FORCE, SHORT LEVER

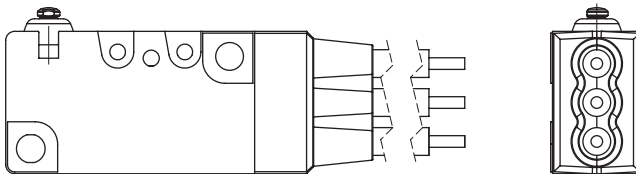


Measure at Point "A"

|                            |               |
|----------------------------|---------------|
| Max. operating force       | 150 grams     |
| Min. release force         | 15 grams      |
| Operating position OP      | 20.4 ± 0.9 mm |
| Max. movement differential | 0.9 mm        |
| Min. over travel OT        | 1.2 mm        |
| Max. pre-travel PT         | 4.2 mm        |

## TERMINAL TYPE

**W** WIRE UL1015



## CIRCUITRY

- C** SPDT (Single Pole, Double Throw)
- Y** SPST N.O. (Single Pole, Single Throw, Normally Open)
- W** SPST N.C. (Single Pole, Single Throw, Normally Closed)

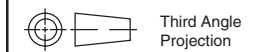
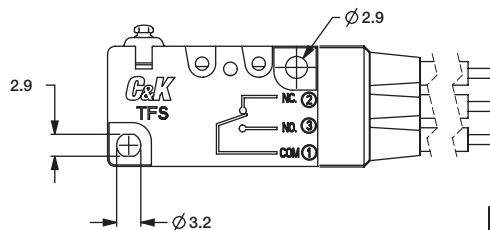
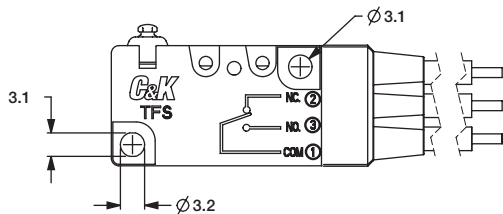
## WIRE TYPE

- C** 16 AWG
- D** 18 AWG
- E** 20 AWG
- F** 22 AWG
- G** 24 AWG
- H** 26 AWG

## MOUNTING HOLE SIZE

**NONE** 3.1 mm (3mm SCREW CLEARANCE HOLE)

**S** 2.9 mm (4-40 SCREW CLEARANCE HOLE)



Dimensions are shown: (mm)  
Specifications and dimensions subject to change





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