

grippers

**TJ30 & TJ200 Series**  
3 Jaw Gripper



Air-Oil Systems, Inc. [www.airoil.com](http://www.airoil.com)

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### TJ30 Series 3 Jaw Gripper

TJ30 3 jaw gripper provides high grip force in a compact design. Stripper plate option provides 9 lbs. of linear spring force to facilitate part insertion when gripper jaws release part.

- A. Jaws are T-Slot bearing supported to prevent Jaw breakage and offer superior load bearing performance.
- B. Flexible mounting, thru hole for SHCS, tapped from opposite side.
- C. Dowel holes for locating.
- D. Hardcoated aluminum body.
- E. Sensing tracks for Hall effect switches sensing.
- F. Optional Stripper Plate.



### Specifications

| GRIP FORCE CLOSE<br>80 PSI | GRIP FORCE OPEN<br>80 PSI | STROKE | WEIGHT | DISPLACEMENT | MAXIMUM OPERATING<br>PRESSURE |
|----------------------------|---------------------------|--------|--------|--------------|-------------------------------|
| 29 lbs                     | 26 lbs                    | 0.30   | 9 oz   | 0.35 cu in   | 120 psi                       |

### How To Order

TJ 30 1 6 D SP X

Series ————— 30

Seal Option ————— 1 = Buna  
2 = Viton

Stripper Plate  
SP = With Stripper Plate  
NP = No Stripper Plate

Sensing Position  
A = Single Position Open  
B = Single Position Close  
C = Two Position Sensing  
D = No Sensing

Sensing Type  
1 = Hall Switch – PNP (Sourcing)  
2 = Hall Switch – NPN (Sinking)  
6 = No Sensing

Quick Disconnect Cord Set  
Z = Hall Switch – PNP (Sourcing)  
Y = Hall Switch – NPN (Sinking)

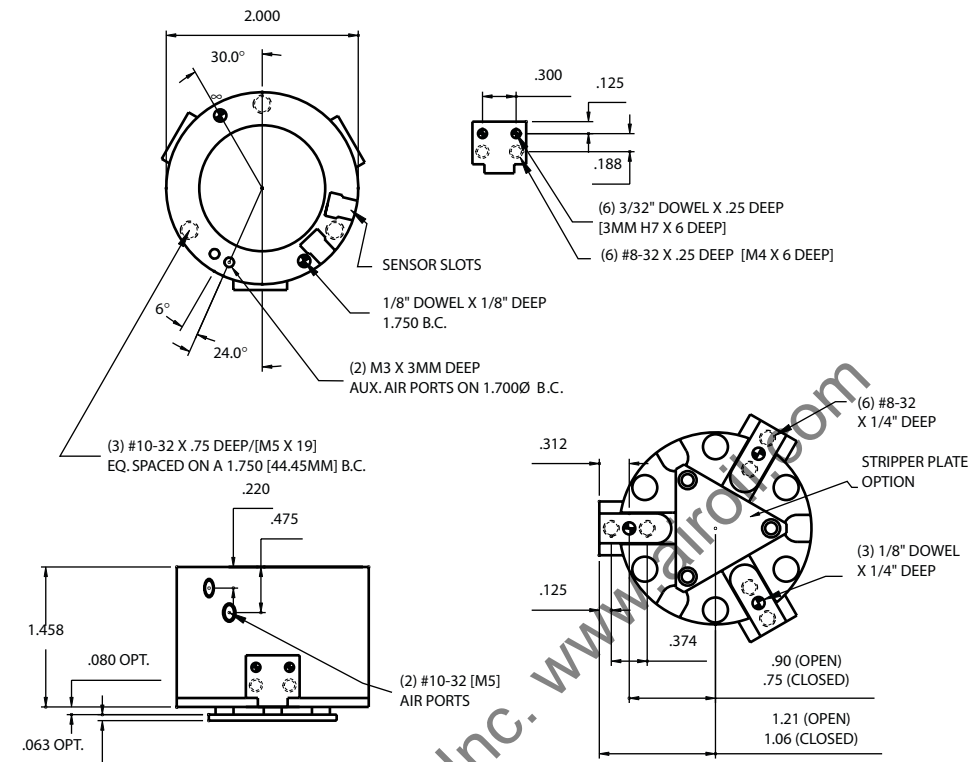
### Sensing Kits

| SWITCH DESCRIPTION         | STANDARD CORD SET<br>PART NO. | QUICK DISCONNECT<br>PART NO. |
|----------------------------|-------------------------------|------------------------------|
| Hall Effect - PNP Sourcing | HPNPS31                       | HPNPQ31                      |
| Hall Effect - NPN Sinking  | HNPNS32                       | HNPNQ32                      |
| 90° 5 Meter Cable          | N/A                           | PXC90                        |
| Straight 5 Meter Cable     | N/A                           | PXCST                        |

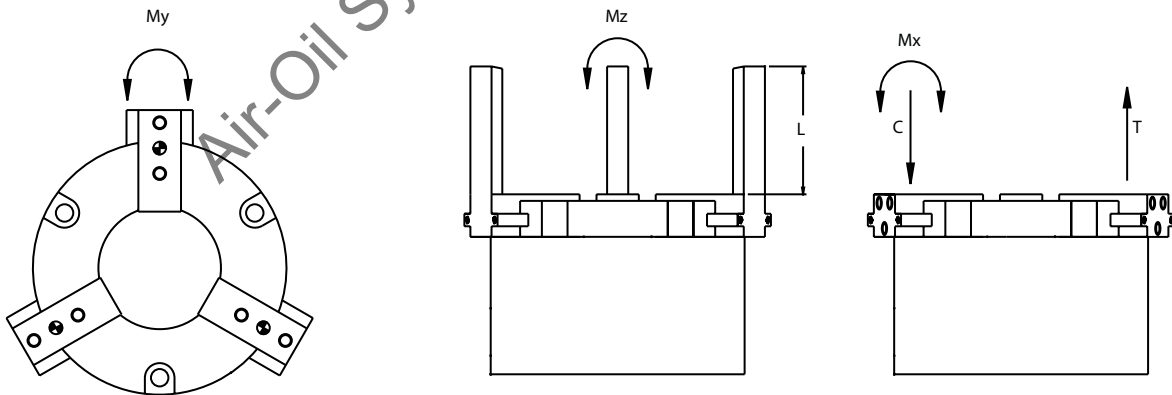


## TJ30 Series 3 Jaw Gripper

### Dimensions



### Performance Data



### Grip Force VS. Finger Length

| L (FINGER LENGTH) | CLOSE FORCE @ 80 PSI |          |
|-------------------|----------------------|----------|
| 1 inch            | 24 lbs               | 10.8 Kgf |
| 2 inches          | 21 lbs               | 9.5 Kgf  |
| 3 inches          | 16 lbs               | 7.2 Kgf  |

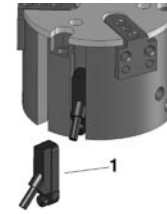
### Maximum Load Ratings

| TJ200          |             |
|----------------|-------------|
| C- Compression | 300 lbs.    |
| T - Tension    | 300 lbs.    |
| Mx             | 250 in/lbs. |
| My             | 150 in/lbs. |
| Mz             | 250 in/lbs. |



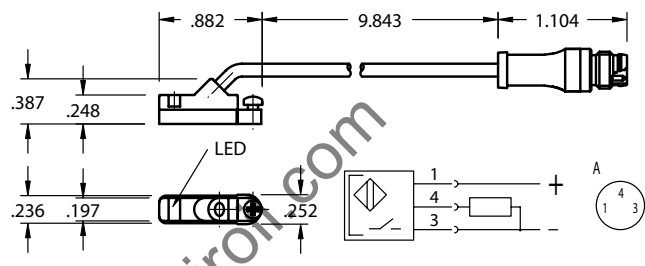
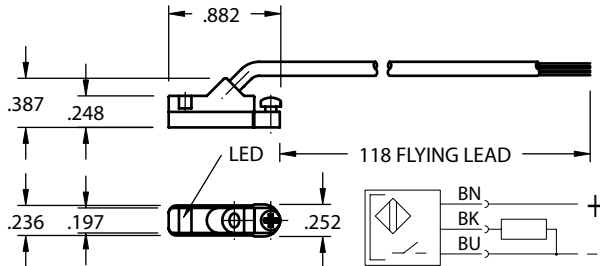
### TJ30 Series Switch Information

|   | SWITCH OR BRACKET DESCRIPTION | STANDARD PART NO. | QUICK DISCONNECT PART NO. |
|---|-------------------------------|-------------------|---------------------------|
| 1 | Hall Effect - PNP (Sourcing)  | HPNPS31           | HPNPQ31                   |
| 1 | Hall Effect - NPN (Sinking)   | HNPNS32           | HNPNQ32                   |



#### HPNPS31 – Electronic Switch (PNP NO), flying lead

#### HPNPQ31 – 8mm connector



#### Sensing Data

|  |         |                               |
|--|---------|-------------------------------|
| Ambient temperature range $\Delta$         | (°F/°C) | -13 to +158 (-25 to +70)      |
| Temperature drift                          | (% of ) | $\leq 0.3\%/^{\circ}\text{C}$ |
| Frequency of operating cycles $f$ at $U_e$ | (kHz)   | 10                            |
| Turn on time $t$                           | (ms)    | .05                           |
| turn off time $t$                          | (ms)    | .05                           |
| Utilization categories                     |         | DC13                          |
| Function—supply voltage indication         |         | YES                           |

#### Electrical Data

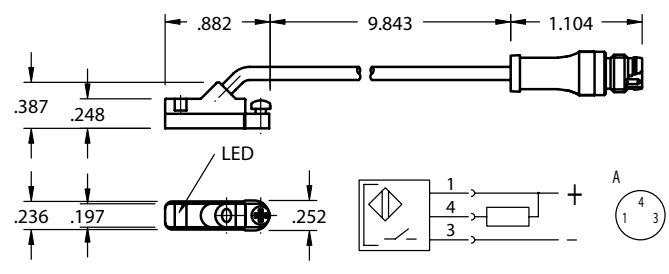
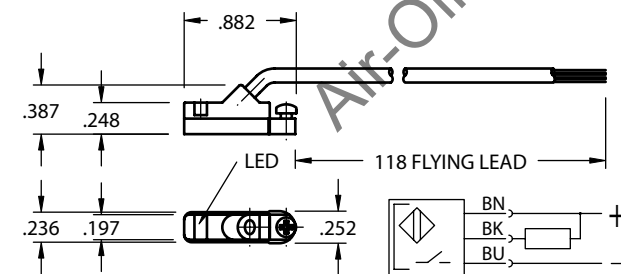
|   |               |            |
|---|---------------|------------|
| Rated operational voltage $U_e$               | (V)           | 24 DC      |
| Supply voltage $U_B$                          | (V)           | 10...30 DC |
| incl. ripple                                  | (% of $U_e$ ) | 15         |
| Voltage drop $U_d$ at $I_e$ Stat./dyn.        | (V)           | 1/—        |
| Rated insulation volatage $U_i$               | (V)           | 75 AC      |
| Rated supply frequency                        | (Hz)          | DC         |
| Rated operational current $I_e$               | (mA)          | 200        |
| No-load supply current $I_o$ at $U_e$ d./und. | (mA)          | 25/13      |
| Protected against polarity reversal           |               | YES        |

#### Mechanical Data

|   |           |
|---|-----------|
| Housing material  | Polyamide |
| Material of sensing face                                  | Polyamide |
| Connection  | PVC cable |
| Degree of Protection                                      | IP 67     |
| Rated shock: half-sinus, 30 g, 11 ms                      |           |
| Rated vibration environment: 55 Hz, 1mm amplitude, 3 x 30 |           |

#### HNPNS32 – Electronic Switch (NPN NO), flying lead

#### HNPNQ32 – 8mm x connector



#### Sensing Data

|  |               |                               |
|--|---------------|-------------------------------|
| Ambient temperature range $\Delta$         | (°F/°C)       | -13 to +158 (-25 to +70)      |
| Temperature drift                          | (% of $S_p$ ) | $\leq 0.3\%/^{\circ}\text{C}$ |
| Frequency of operating cycles $f$ at $U_e$ | (kHz)         | 10                            |
| Turn on time $t$                           | (ms)          | .05                           |
| turn off time $t$                          | (ms)          | .05                           |
| Utilization categories                     |               | DC13                          |
| Function—supply voltage indication         |               | YES                           |

#### Electrical Data

|   |               |            |
|---|---------------|------------|
| Rated operational voltage $U_e$               | (V)           | 24 DC      |
| Supply voltage $U_B$                          | (V)           | 10...30 DC |
| incl. ripple                                  | (% of $U_e$ ) | 15         |
| Voltage drop $U_d$ at $I_e$ Stat./dyn.        | (V)           | 1/—        |
| Rated insulation volatage $U_i$               | (V)           | 75 AC      |
| Rated supply frequency                        | (Hz)          | DC         |
| Rated operational current $I_e$               | (mA)          | 200        |
| No-load supply current $I_o$ at $U_e$ d./und. | (mA)          | 25/13      |
| Protected against polarity reversal           |               | YES        |

#### Mechanical Data

|   |           |
|---|-----------|
| Housing material  | Polyamide |
| Material of sensing face                                  | Polyamide |
| Connection  | PVC cable |
| Degree of Protection                                      | IP 67     |
| Rated shock: half-sinus, 30 g, 11 ms                      |           |
| Rated vibration environment: 55 Hz, 1mm amplitude, 3 x 30 |           |



### TJ200 Series 3 Jaw Gripper

Provides high grip force in a compact design. Shielded design makes the TJ ideal for machine loading and unloading. Compact design to grip force ratio are ideal for confined work areas.

- A. Jaws are T-Slot bearing supported to prevent Jaw breakage and offer superior load bearing performance.
- B. Flexible mounting, thru hole for SHCS, tapped from opposite side.
- C. Dowel holes for locating.
- D. Hardcoated aluminum body.
- E. Sensing tracks for Hall effect switches.



### Specifications

| GRIP FORCE CLOSE<br>80 PSI | GRIP FORCE OPEN<br>80 PSI | STROKE | WEIGHT | DISPLACEMENT | MAXIMUM OPERATING PRESSURE |
|----------------------------|---------------------------|--------|--------|--------------|----------------------------|
| 200 lbs                    | 194 lbs                   | 0.33   | 2.3 oz | 3.27 cu in   | 120 psi                    |

### How To Order

Series  
200

Seal Option  
1 = Buna  
2 = Viton

TJ 200 1 6 D X

Sensing Position

- A = Single Position Open
- B = Single Position Close
- C = Two Position Sensing
- D = No sensing

Sensing Type

- CS Series Switch
- 1 = Hall Switch – PNP (Sourcing)
- 2 = Hall Switch – NPN (Sinking)
- 6 = No Sensing
- Quick Disconnect Cord Set
- Z = Hall Switch – PNP (Sourcing)
- Y = Hall Switch – NPN (Sinking)

When ordering additional switches:

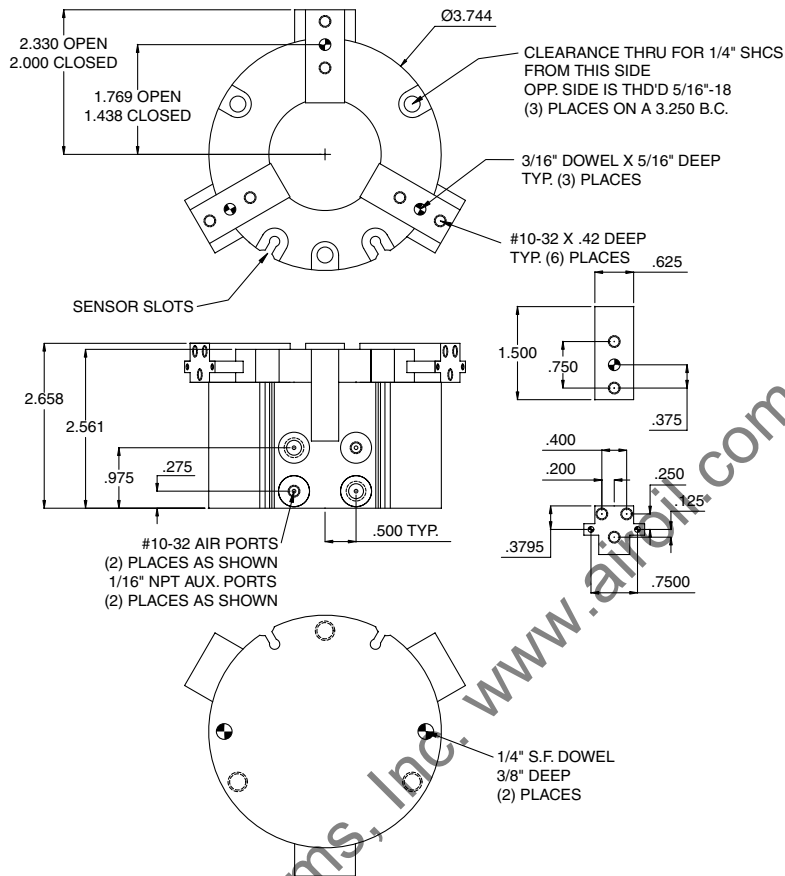
| SWITCH DESCRIPTION         | STANDARD CORD SET PART NO. | QUICK DISCONNECT PART NO. |
|----------------------------|----------------------------|---------------------------|
| Hall Effect - PNP Sourcing | CS-20TP                    | CS-20 TP-QD               |
| Hall Effect - NPN Sinking  | CS-20TN                    | CS-20 TN-QD               |



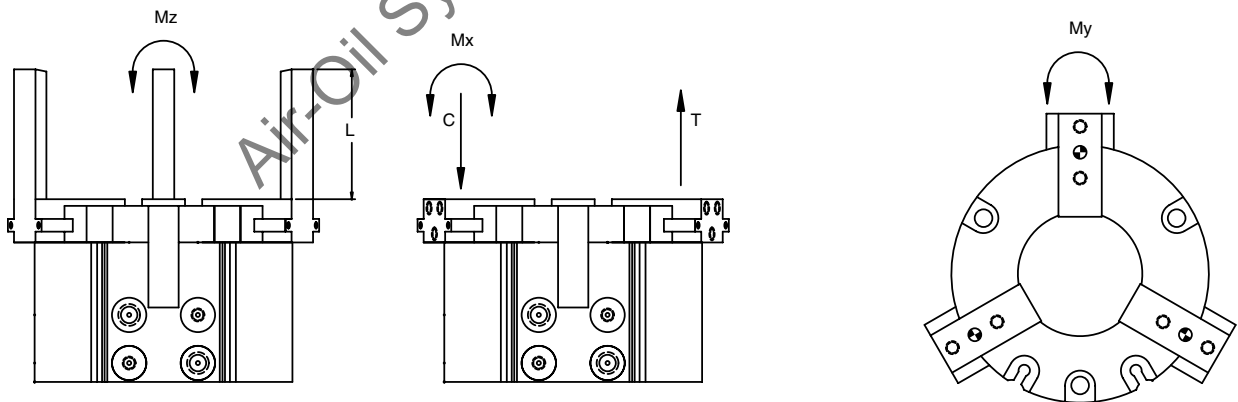
## TJ200 Series 3 Jaw Gripper

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### Dimensions



### Performance Data



### Grip Force VS. Finger Length

| L (FINGER LENGTH) | CLOSE FORCE @ 80 PSI |        |
|-------------------|----------------------|--------|
| 1 inch            | 175 lbs              | 79 Kgf |
| 2 inches          | 160 lbs              | 72 Kgf |
| 3 inches          | 140 lbs              | 63 Kgf |

### Maximum Load Ratings

|                 | TJ200        |         |
|-----------------|--------------|---------|
| C - Compression | 1250 lbs.    | 566 Kgf |
| T - Tension     | 1250 lbs.    | 566 Kgf |
| Mx              | 1000 in/lbs. | 113 Nm  |
| My              | 900 in/lbs.  | 101 Nm  |
| Mz              | 1000 in/lbs. | 113 Nm  |

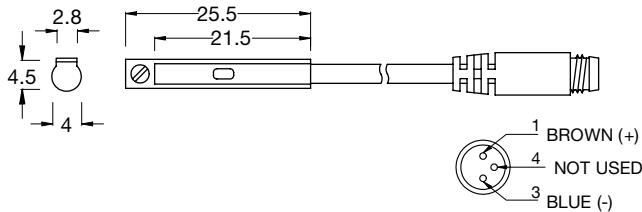


### TJ200 Series Switch Information

| SWITCH OR BRACKET DESCRIPTION    | STANDARD PART NO. | QUICK DISCONNECT PART NO. |
|----------------------------------|-------------------|---------------------------|
| 1 Hall Effect PNP (Sourcing) 4mm | CS-20TP           | CS-20TP-QD                |
| 1 Hall Effect NPN (Sinking) 4mm  | CS-20TN           | CS-20TN-QD                |

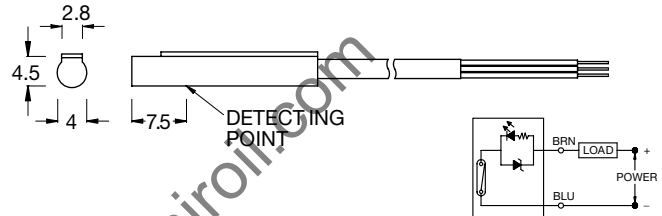


### Reed Switch (AC/DC NO) 8 mm Connector - CS-20TR-QD



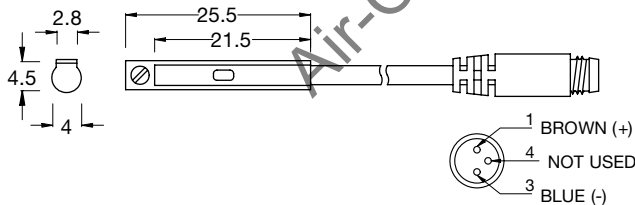
|                       |                       |
|-----------------------|-----------------------|
| Sensor Type           | Reed Switch           |
| Switching Logic       | SPST Normally Open    |
| Output                | -                     |
| Operating Voltage     | 5-120V DC/AC 50/60 Hz |
| Switching Current     | 50mA max. (Resistive) |
| Power Rating*         | 6 Watts               |
| Voltage Drop          | 2.5V                  |
| Current Consumption   | -                     |
| Leakage Current       | -                     |
| LED Indicator         | Red                   |
| Operating Frequency   | 200 Hz                |
| Temperature Range     | -                     |
| Shock / Vibration     | 30G/9G                |
| Protection Circuit    | None                  |
| Set Screw Max. Torque | -                     |

### Reed Switch (AC/DC NO) Flying Lead - CS-20TR



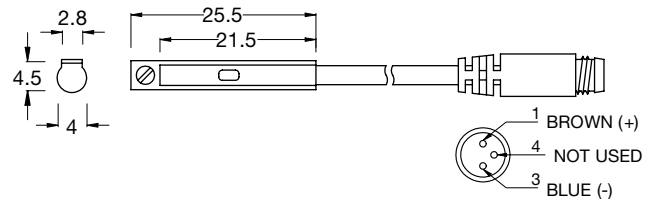
|                       |                       |
|-----------------------|-----------------------|
| Sensor Type           | Reed Switch           |
| Switching Logic       | SPST Normally Open    |
| Output                | -                     |
| Operating Voltage     | 5-120V DC/AC 50/60 Hz |
| Switching Current     | 50mA max. (Resistive) |
| Power Rating*         | 6 Watts               |
| Voltage Drop          | 2.5 max.              |
| Current Consumption   | -                     |
| Leakage Current       | -                     |
| LED Indicator         | Red                   |
| Operating Frequency   | 200 Hz                |
| Temperature Range     | -                     |
| Shock / Vibration     | 30G/9G                |
| Protection Circuit    | None                  |
| Set Screw Max. Torque | -                     |

### Electro Switch (PNP NO) 8 mm Connector - CS-20TP-QD



|                          |                                     |
|--------------------------|-------------------------------------|
| Sensor Type              | Solid State Output                  |
| Switching Logic          | Normally Open                       |
| Output                   | PNP Current Sourcing                |
| Operating Voltage        | 5-30 VDC                            |
| Switching Current        | 50mA max.                           |
| Power Rating*            | 1.5 Watts                           |
| Voltage Drop             | 1.5 V @ 25 mA max.                  |
| Current Consumption      | 15 mA @ 24 VDC max.                 |
| Leakage Current          | 0.01 mA max.                        |
| LED Indicator            | Green                               |
| Cable                    | -                                   |
| Operating Frequency      | 1000 Hz                             |
| Magnetic Requirement     | 40 Gauss parallel                   |
| Temperature Range        | 14 to 158°F (-10 to 70°C)           |
| Shock / Vibration        | 50G/9G                              |
| Enclosure Classification | IEC 529 IP67 (NEMA 6)               |
| Protection Circuit       | Reverse Polarity, Surge Suppression |
| Set Screw Max. Torque    | 1.77 in-lbs (0.2 N-m)               |

### Electro Switch (NPN NO) 8 mm Connector - CS-20TN-QD



|                          |                                     |
|--------------------------|-------------------------------------|
| Sensor Type              | Solid State Output                  |
| Switching Logic          | Normally Open                       |
| Output                   | NPN Current Sourcing                |
| Operating Voltage        | 5-30 VDC                            |
| Switching Current        | 50mA max.                           |
| Power Rating*            | 1.5 Watts                           |
| Voltage Drop             | 0.5 V @ 25 mA max.                  |
| Current Consumption      | 12 mA @ 24 VDC max.                 |
| Leakage Current          | 0.01 mA max.                        |
| LED Indicator            | Red                                 |
| Cable                    | -                                   |
| Operating Frequency      | 1000 Hz                             |
| Magnetic Requirement     | 40 Gauss parallel                   |
| Temperature Range        | 14 to 158°F (-10 to 70°C)           |
| Shock / Vibration        | 50G/9G                              |
| Enclosure Classification | IEC 529 IP67 (NEMA 6)               |
| Protection Circuit       | Reverse Polarity, Surge Suppression |
| Set Screw Max. Torque    | 1.77 in-lbs (0.2 N-m)               |

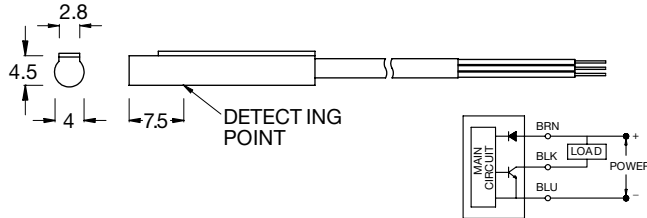




## TJ200 Series 3 Jaw Gripper

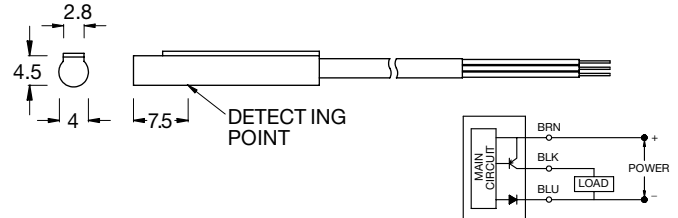
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### Electro Switch (NPN NO) Flying Lead - CS-20TN



|                          |                                     |
|--------------------------|-------------------------------------|
| Sensor Type              | Solid State Output                  |
| Switching Logic          | Normally Open                       |
| Output                   | NPN Current Spourcing               |
| Operating Voltage        | 5-30 VDC                            |
| Switching Current        | 50mA max.                           |
| Power Rating*            | 1.5 Watts                           |
| Voltage Drop             | 0.5 V @ 25 mA max.                  |
| Current Consumption      | 12 mA @ 24 VDC max.                 |
| Leakage Current          | 0.01 mA max.                        |
| LED Indicator            | Red                                 |
| Cable                    | -                                   |
| Operating Frequency      | 1000 Hz                             |
| Magnetic Requirement     | 40 Gauss parallel                   |
| Temperature Range        | 14 to 158°F (-10 to 70°C)           |
| Shock / Vibration        | 50G/9G                              |
| Enclosure Classification | IEC 529 IP67 (NEMA 6)               |
| Protection Circuit       | Reverse Polarity, Surge Suppression |
| Set Screw Max. Torque    | 1.77 in-lbs (0.2 N-m)               |

### Electro Switch (PNP NO) Flying Lead - CS-20TP



|                          |                                     |
|--------------------------|-------------------------------------|
| Sensor Type              | Solid State Output                  |
| Switching Logic          | Normally Open                       |
| Output                   | PNP Current Spourcing               |
| Operating Voltage        | 5-30 VDC                            |
| Switching Current        | 50mA max.                           |
| Power Rating*            | 1.5 Watts                           |
| Voltage Drop             | 1.5 V @ 25 mA max.                  |
| Current Consumption      | 12 mA @ 24 VDC max.                 |
| Leakage Current          | 0.01 mA max.                        |
| LED Indicator            | Green                               |
| Cable                    | Abrasion resistant polyurethane     |
| Operating Frequency      | 1000 Hz                             |
| Magnetic Requirement     | 40 Gauss parallel                   |
| Temperature Range        | 14 to 158°F (-10 to 70°C)           |
| Shock / Vibration        | 50G/9G                              |
| Enclosure Classification | IEC 529 IP67 (NEMA 6)               |
| Protection Circuit       | Reverse Polarity, Surge Suppression |
| Set Screw Max. Torque    | 1.77 in-lbs (0.2 N-m)               |

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