

NAIS

HIGH PERFORMANCE  
MINIATURE SWITCHES  
WITH WIDE RANGE

NV (AH7)  
SWITCHES



FEATURES

- Extra long-life spring mechanism  
—More than 10<sup>7</sup> mechanical operations,  
10<sup>5</sup> electrical
- High contact rating of 15 Amps with  
an operating force of only 200 g 7.05 oz
- Safety insulation guard types avail-  
able
- Available in a wide operating force  
and capacity range
- UL/CSA/VDE/SEMKO approved

TYPICAL  
APPLICATIONS

- Home appliances
- Vending machines
- Amusement and communication  
equipment
- Copiers
- General industrial machines

ORDERING INFORMATION

Ex. AH7

| Type of switch                               | Contact arrangement                                                                                                                                                                          | Terminal                                                                                                                                                                                                                                      | Actuators                                                                                                                                                                 | Operating force by pin plunger (max.) |                                                              |              |              |              |               |               |               |
|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|--------------------------------------------------------------|--------------|--------------|--------------|---------------|---------------|---------------|
| NV switch                                    | 1: Bottom COM terminal SPDT<br>2: Bottom COM terminal SPST-NC<br>3: Bottom COM terminal SPST-NO<br>4: Side COM terminal SPDT<br>5: Side COM terminal SPST-NC<br>6: Side COM terminal SPST-NO | *(1: Solder terminal with right-hand guard)<br>*(2: Solder terminal without guard)<br>4: .187 Quick-connect/solder terminal with right-hand guard<br>5: .187 Quick-connect/solder terminal without guard<br>*(8: .250 Quick-connect terminal) | 0: Pin plunger<br>1: Short hinge lever<br>2: Hinge lever<br>3: Long hinge lever<br>4: Simulated roller lever<br>5: Short roller lever<br>6: Roller lever<br>8: Wire lever | Type                                  |                                                              | 0.15N {15gf} | 0.25N {25gf} | 0.49N {50gf} | 0.98N {100gf} | 1.96N {200gf} | 3.92N {400gf} |
|                                              |                                                                                                                                                                                              |                                                                                                                                                                                                                                               |                                                                                                                                                                           | Standard type                         |                                                              | —            | —            | 360          | 460           | 5             | 7             |
|                                              |                                                                                                                                                                                              |                                                                                                                                                                                                                                               |                                                                                                                                                                           | Heat resistant type (Standard)        | .187 Quick-connect/solder terminal without guard             | —            | —            | 356          | 456           | 555           | 755           |
|                                              |                                                                                                                                                                                              |                                                                                                                                                                                                                                               |                                                                                                                                                                           |                                       | Solder terminal without guard<br>.250 Quick-connect terminal | —            | —            | *(355)       | *(455)        |               |               |
|                                              |                                                                                                                                                                                              |                                                                                                                                                                                                                                               |                                                                                                                                                                           | Low-level circuit type (Standard)     |                                                              | —            | —            | 361          | 461           | 561           | —             |
| Heat resistant type (Low-level circuit type) |                                                                                                                                                                                              | 162                                                                                                                                                                                                                                           | 262                                                                                                                                                                       | 362                                   | 462                                                          | 562          | —            |              |               |               |               |

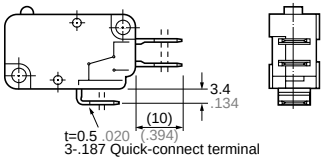
Remark: Please consult us for \* marked product.

TERMINALS

mm inch

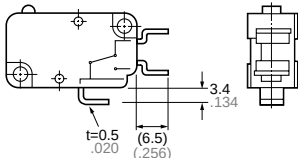
1. .187 Quick-connect/solder terminal

1) Bottom COM terminal



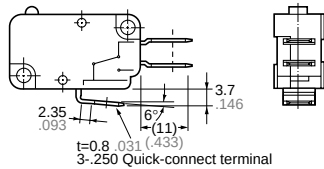
2. Solder terminal

1) Bottom COM terminal

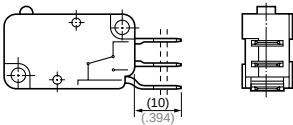


3. .250 Quick-connect terminal

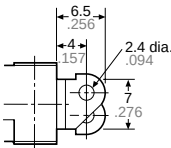
1) Bottom COM terminal



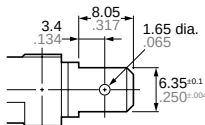
2) Side COM terminal



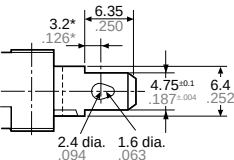
2) Terminal portion dimensions



2) Terminal portion dimensions



3) Terminal portion dimensions



\* Indicating for the center of 1.6 dia. .063 dia.

## PRODUCT TYPES

### 1. Standard type

Bottom COM terminal .187 Quick-connect/solder terminal without guard

| Actuators              | Operating force, max. | Contact arrangement |           |           |
|------------------------|-----------------------|---------------------|-----------|-----------|
|                        |                       | SPDT                | SPST-NC   | SPST-NO   |
| Pin plunger            | 0.49N{50gf}           | AH7150360           | AH7250360 | AH7350360 |
|                        | 0.98N{100gf}          | AH7150460           | AH7250460 | AH7350460 |
|                        | 1.96N{200gf}          | AH71505             | AH72505   | AH73505   |
|                        | 3.92N{400gf}          | AH71507             | AH72507   | AH73507   |
| Short hinge lever      | 0.49N{50gf}           | AH7151360           | AH7251360 | AH7351360 |
|                        | 0.98N{100gf}          | AH7151460           | AH7251460 | AH7351460 |
|                        | 1.96N{200gf}          | AH71515             | AH72515   | AH73515   |
|                        | 3.92N{400gf}          | AH71517             | AH72517   | AH73517   |
| Hinge lever            | 0.49N{50gf}           | AH7152360           | AH7252360 | AH7352360 |
|                        | 0.98N{100gf}          | AH7152460           | AH7252460 | AH7352460 |
|                        | 1.96N{200gf}          | AH71525             | AH72525   | AH73525   |
|                        | 3.92N{400gf}          | AH71527             | AH72527   | AH73527   |
| Long hinge lever       | 0.49N{50gf}           | AH7153360           | AH7253360 | AH7353360 |
|                        | 0.98N{100gf}          | AH7153460           | AH7253460 | AH7353460 |
|                        | 1.96N{200gf}          | AH71535             | AH72535   | AH73535   |
|                        | 3.92N{400gf}          | AH71537             | AH72537   | AH73537   |
| Simulated roller lever | 0.49N{50gf}           | AH7154360           | AH7254360 | AH7354360 |
|                        | 0.98N{100gf}          | AH7154460           | AH7254460 | AH7354460 |
|                        | 1.96N{200gf}          | AH71545             | AH72545   | AH73545   |
|                        | 3.92N{400gf}          | AH71547             | AH72547   | AH73547   |
| Short roller lever     | 0.49N{50gf}           | AH7155360           | AH7255360 | AH7355360 |
|                        | 0.98N{100gf}          | AH7155460           | AH7255460 | AH7355460 |
|                        | 1.96N{200gf}          | AH71555             | AH72555   | AH73555   |
|                        | 3.92N{400gf}          | AH71557             | AH72557   | AH73557   |
| Roller lever           | 0.49N{50gf}           | AH7156360           | AH7256360 | AH7356360 |
|                        | 0.98N{100gf}          | AH7156460           | AH7256460 | AH7356460 |
|                        | 1.96N{200gf}          | AH71565             | AH72565   | AH73565   |
|                        | 3.92N{400gf}          | AH71567             | AH72567   | AH73567   |

Remarks: 1. When ordering solder terminal, change the fifth digit of part number from "5" to "2" and delete suffix "60" from the part no.  
 2. When ordering 2.94N{300gf} types, insert the number "6" at the seventh digit of part no. instead of "360", "460", "5" or "7".  
 3. When ordering international standard approved types, please attach the following number to the part no.  
 9: UL/CSA 6×10<sup>3</sup> rated  
 4: UL/CSA 10<sup>5</sup> rated  
 8: VDE/SEMKO  
 7: UL TV rating

# AH7

Side COM terminal .187 Quick-connect/solder terminal with right-hand guard

| Actuators              | Operating force, max. | Contact arrangement |           |           |
|------------------------|-----------------------|---------------------|-----------|-----------|
|                        |                       | SPDT                | SPST-NC   | SPST-NO   |
| Pin plunger            | 0.49N{50gf}           | AH7440360           | AH7540360 | AH7640360 |
|                        | 0.98N{100gf}          | AH7440460           | AH7540460 | AH7640460 |
|                        | 1.96N{200gf}          | AH74405             | AH75405   | AH76405   |
|                        | 3.92N{400gf}          | AH74407             | AH75407   | AH76407   |
| Short hinge lever      | 0.49N{50gf}           | AH7441360           | AH7541360 | AH7641360 |
|                        | 0.98N{100gf}          | AH7441460           | AH7541460 | AH7641460 |
|                        | 1.96N{200gf}          | AH74415             | AH75415   | AH76415   |
|                        | 3.92N{400gf}          | AH74417             | AH75417   | AH76417   |
| Hinge lever            | 0.49N{50gf}           | AH7442360           | AH7542360 | AH7642360 |
|                        | 0.98N{100gf}          | AH7442460           | AH7542460 | AH7642460 |
|                        | 1.96N{200gf}          | AH74425             | AH75425   | AH76425   |
|                        | 3.92N{400gf}          | AH74427             | AH75427   | AH76427   |
| Long hinge lever       | 0.49N{50gf}           | AH7443360           | AH7543360 | AH7643360 |
|                        | 0.98N{100gf}          | AH7443460           | AH7543460 | AH7643460 |
|                        | 1.96N{200gf}          | AH74435             | AH75435   | AH76435   |
|                        | 3.92N{400gf}          | AH74437             | AH75437   | AH76437   |
| Simulated roller lever | 0.49N{50gf}           | AH7444360           | AH7544360 | AH7644360 |
|                        | 0.98N{100gf}          | AH7444460           | AH7544460 | AH7644460 |
|                        | 1.96N{200gf}          | AH74445             | AH75445   | AH76445   |
|                        | 3.92N{400gf}          | AH74447             | AH75447   | AH76447   |
| Short roller lever     | 0.49N{50gf}           | AH7445360           | AH7545360 | AH7645360 |
|                        | 0.98N{100gf}          | AH7445460           | AH7545460 | AH7645460 |
|                        | 1.96N{200gf}          | AH74455             | AH75455   | AH76455   |
|                        | 3.92N{400gf}          | AH74457             | AH75457   | AH76457   |
| Roller lever           | 0.49N{50gf}           | AH7446360           | AH7546360 | AH7646360 |
|                        | 0.98N{100gf}          | AH7446460           | AH7546460 | AH7646460 |
|                        | 1.96N{200gf}          | AH74465             | AH75465   | AH76465   |
|                        | 3.92N{400gf}          | AH74467             | AH75467   | AH76467   |

Remarks: 1. When ordering 2.94N{300gf} types, insert the number "6" at the seventh digit of part no.  
2. When ordering international standard approved types, please attach the following number to the part no.  
9: UL/CSA 6×10<sup>3</sup> rated  
4: UL/CSA 10<sup>5</sup> rated  
8: VDE/SEMKO (Not every part no. are approved. Please consult us.)  
7: UL TV rating

## Side COM terminal .187 Quick-connect/solder terminal without guard

| Actuators              | Operating force, max. | Contact arrangement |           |           |
|------------------------|-----------------------|---------------------|-----------|-----------|
|                        |                       | SPDT                | SPST-NC   | SPST-NO   |
| Pin plunger            | 0.49N{50gf}           | AH7450360           | AH7550360 | AH7650360 |
|                        | 0.98N{100gf}          | AH7450460           | AH7550460 | AH7650460 |
|                        | 1.96N{200gf}          | AH74505             | AH75505   | AH76505   |
|                        | 3.92N{400gf}          | AH74507             | AH75507   | AH76507   |
| Short hinge lever      | 0.49N{50gf}           | AH7451360           | AH7551360 | AH7651360 |
|                        | 0.98N{100gf}          | AH7451460           | AH7551460 | AH7651460 |
|                        | 1.96N{200gf}          | AH74515             | AH75515   | AH76515   |
|                        | 3.92N{400gf}          | AH74517             | AH75517   | AH76517   |
| Hinge lever            | 0.49N{50gf}           | AH7452360           | AH7552360 | AH7652360 |
|                        | 0.98N{100gf}          | AH7452460           | AH7552460 | AH7652460 |
|                        | 1.96N{200gf}          | AH74525             | AH75525   | AH76525   |
|                        | 3.92N{400gf}          | AH74527             | AH75527   | AH76527   |
| Long hinge lever       | 0.49N{50gf}           | AH7453360           | AH7553360 | AH7653360 |
|                        | 0.98N{100gf}          | AH7453460           | AH7553460 | AH7653460 |
|                        | 1.96N{200gf}          | AH74535             | AH75535   | AH76535   |
|                        | 3.92N{400gf}          | AH74537             | AH75537   | AH76537   |
| Simulated roller lever | 0.49N{50gf}           | AH7454360           | AH7554360 | AH7654360 |
|                        | 0.98N{100gf}          | AH7454460           | AH7554460 | AH7654460 |
|                        | 1.96N{200gf}          | AH74545             | AH75545   | AH76545   |
|                        | 3.92N{400gf}          | AH74547             | AH75547   | AH76547   |
| Short roller lever     | 0.49N{50gf}           | AH7455360           | AH7555360 | AH7655360 |
|                        | 0.98N{100gf}          | AH7455460           | AH7555460 | AH7655460 |
|                        | 1.96N{200gf}          | AH74555             | AH75555   | AH76555   |
|                        | 3.92N{400gf}          | AH74557             | AH75557   | AH76557   |
| Roller lever           | 0.49N{50gf}           | AH7456360           | AH7556360 | AH7656360 |
|                        | 0.98N{100gf}          | AH7456460           | AH7556460 | AH7656460 |
|                        | 1.96N{200gf}          | AH74565             | AH75565   | AH76565   |
|                        | 3.92N{400gf}          | AH74567             | AH75567   | AH76567   |

Remarks: 1. When ordering 2.94N{300gf} types, insert the number "6" at the seventh digit of part no.  
2. When ordering international standard approved types, please attach the following number to the part no.  
9: UL/CSA 6×10<sup>3</sup> rated  
4: UL/CSA 10<sup>5</sup> rated  
8: VDE/SEMKO (Not every part no. are approved. Please consult us.)  
7: UL TV rating

# AH7

## 2. Heat resistant type (Standard)

.187 Quick-connect/solder terminal without guard

| Actuators              | Operating force, max. | Bottom COM terminal | Side COM terminal |
|------------------------|-----------------------|---------------------|-------------------|
| Pin plunger            | 0.49N{50gf}           | AH7150356           | AH7450356         |
|                        | 0.98N{100gf}          | AH7150456           | AH7450456         |
|                        | 1.96N{200gf}          | AH7150555           | AH7450555         |
|                        | 3.92N{400gf}          | AH7150755           | AH7450755         |
| Short hinge lever      | 0.59N{60gf}           | AH7151356           | AH7451356         |
|                        | 1.08N{110gf}          | AH7151456           | AH7451456         |
|                        | 2.16N{220gf}          | AH7151555           | AH7451555         |
|                        | 4.12N{420gf}          | AH7151755           | AH7451755         |
| Hinge lever            | 0.29N{30gf}           | AH7152356           | AH7452356         |
|                        | 0.59N{60gf}           | AH7152456           | AH7452456         |
|                        | 1.18N{120gf}          | AH7152555           | AH7452555         |
|                        | 2.35N{240gf}          | AH7152755           | AH7452755         |
| Long hinge lever       | 0.15N{15gf}           | AH7153356           | AH7453356         |
|                        | 0.29N{30gf}           | AH7153456           | AH7453456         |
|                        | 0.59N{60gf}           | AH7153555           | AH7453555         |
|                        | 1.18N{120gf}          | AH7153755           | AH7453755         |
| Simulated roller lever | 0.29N{30gf}           | AH7154356           | AH7454356         |
|                        | 0.59N{60gf}           | AH7154456           | AH7454456         |
|                        | 1.18N{120gf}          | AH7154555           | AH7454555         |
|                        | 2.35N{240gf}          | AH7154755           | AH7454755         |
| Short roller lever     | 0.59N{60gf}           | AH7155356           | AH7455356         |
|                        | 1.08N{110gf}          | AH7155456           | AH7455456         |
|                        | 2.16N{220gf}          | AH7155555           | AH7455555         |
|                        | 4.12N{420gf}          | AH7155755           | AH7455755         |
| Roller lever           | 0.29N{30gf}           | AH7156356           | AH7456356         |
|                        | 0.59N{60gf}           | AH7156456           | AH7456456         |
|                        | 1.18N{120gf}          | AH7156555           | AH7456555         |
|                        | 2.35N{240gf}          | AH7156755           | AH7456755         |

Remarks: 1. When ordering solder terminal, change the fifth digit of part number from "5" to "2".  
(ex.) AH7150555→AH7120555  
2. When ordering 2.94N{300gf} types, insert the number "655" at the seventh digit of part no. instead of "356", "456", "555" or "755".  
3. Please consult us for NC and NO types.  
4. When ordering international standard approved types, please attach the following number to the part no.  
9: UL/CSA 6×10<sup>3</sup> rated  
8: VDE/SEMKO  
7: UL TV rating

## 3. Heat resistant type (Low-level circuit type)

| Actuators              | Operating force, max. | Bottom COM terminal | Side COM terminal |
|------------------------|-----------------------|---------------------|-------------------|
| Pin plunger            | 0.15N{15gf}           | AH7150162           | AH7450162         |
|                        | 0.25N{25gf}           | AH7150262           | AH7450262         |
|                        | 0.49N{50gf}           | AH7150362           | AH7450362         |
|                        | 0.98N{100gf}          | AH7150462           | AH7450462         |
| Short hinge lever      | 1.96N{200gf}          | AH7150562           | AH7450562         |
|                        | 0.59N{60gf}           | AH7151362           | AH7451362         |
|                        | 1.08N{110gf}          | AH7151462           | AH7451462         |
|                        | 2.16N{220gf}          | AH7151562           | AH7451562         |
| Hinge lever            | 0.29N{30gf}           | AH7152362           | AH7452362         |
|                        | 0.59N{60gf}           | AH7152462           | AH7452462         |
|                        | 1.18N{120gf}          | AH7152562           | AH7452562         |
| Long hinge lever       | 0.15N{15gf}           | AH7153362           | AH7453362         |
|                        | 0.29N{30gf}           | AH7153462           | AH7453462         |
|                        | 0.59N{60gf}           | AH7153562           | AH7453562         |
| Simulated roller lever | 0.29N{30gf}           | AH7154362           | AH7454362         |
|                        | 0.59N{60gf}           | AH7154462           | AH7454462         |
|                        | 1.18N{120gf}          | AH7154562           | AH7454562         |
| Short roller lever     | 0.59N{60gf}           | AH7155362           | AH7455362         |
|                        | 1.08N{110gf}          | AH7155462           | AH7455462         |
|                        | 2.16N{220gf}          | AH7155562           | AH7455562         |
| Roller lever           | 0.29N{30gf}           | AH7156362           | AH7456362         |
|                        | 0.59N{60gf}           | AH7156462           | AH7456462         |
|                        | 1.18N{120gf}          | AH7156562           | AH7456562         |
| Wire lever             | 0.098N{10gf}          | AH7158162           | AH7458162         |
|                        | 0.15N{15gf}           | AH7158262           | AH7458262         |

Remarks: 1. Please consult us for NC and NO types.  
2. As for International standard, please refer to the "Information".

## SPECIFICATIONS

### 1. Contact rating

| Contact      | Operating force by pin plunger (max.)     | Rating (resistive load)   |
|--------------|-------------------------------------------|---------------------------|
| Silver alloy | 0.49N {50gf}                              | 5A 250V AC, 0.5A 125V DC  |
|              | 0.98N {100gf}                             | 10A 250V AC, 0.6A 125V DC |
|              | 1.96N, 2.94N, 3.92N {200gf, 300gf, 400gf} | 15A 250V AC, 0.6A 125V DC |
| Gold clad    | 0.15N {15gf}                              | 1A 250V AC                |
|              | 0.25 to 1.96N {25 to 200gf}               | 3A 250V AC                |

- Gold clad low level circuit type (resistive load)

6V DC 5mA

12V DC 2mA

24V DC 1mA

### 2. Characteristics

| Contact                                      |                                                 | Silver alloy                                                      |                           |                                          | Gold clad                                     |                 |                           |                           |                  |
|----------------------------------------------|-------------------------------------------------|-------------------------------------------------------------------|---------------------------|------------------------------------------|-----------------------------------------------|-----------------|---------------------------|---------------------------|------------------|
| Operating force by pin plunger (max.)        |                                                 | 0.49N<br>{50gf}                                                   | 0.98N<br>{100gf}          | 1.96N, 2.94N, 3.92N<br>{200, 300, 400gf} | 0.15N<br>{15gf}                               | 0.25N<br>{25gf} | 0.49N<br>{50gf}           | 0.98N<br>{100gf}          | 1.96N<br>{200gf} |
| Expected life (min.)                         | Mechanical (at O.T. rated)                      | Min. 10 <sup>7</sup> (at 60 cpm)                                  |                           |                                          |                                               |                 |                           |                           |                  |
|                                              | Electrical (at O.T. min.)                       | Min. 10 <sup>5</sup> (at rated load, 20 cpm)                      |                           |                                          |                                               |                 |                           |                           |                  |
| Insulation resistance (min.)                 |                                                 | Min. 100MΩ (at 500V DC)                                           |                           |                                          |                                               |                 |                           |                           |                  |
| Dielectric strength                          | Between terminals                               | 1,000V AC for 1min.                                               |                           |                                          |                                               |                 |                           |                           |                  |
|                                              | Between terminals and other exposed metal parts | 1,500V AC for 1min.                                               |                           |                                          |                                               |                 |                           |                           |                  |
|                                              | Between terminals and ground                    | 1,500V AC for 1min.                                               |                           |                                          |                                               |                 |                           |                           |                  |
| Contact resistance (Initial)                 |                                                 | Max. 50mΩ (by voltage drop at 1A 6 to 8V DC)                      |                           |                                          | Max. 50 mΩ (by voltage drop at 1A 6 to 8V DC) |                 |                           |                           |                  |
| Vibration resistance (by pin plunger types)  |                                                 | 10 to 55 Hz at amplitude of 0.75mm (Contact opening: max. 1msec.) |                           |                                          |                                               |                 |                           |                           |                  |
| Shock resistance (by pin plunger types) Min. |                                                 | 98m/s <sup>2</sup> {10G}                                          | 196m/s <sup>2</sup> {20G} | 294m/s <sup>2</sup> {30G}                | 98m/s <sup>2</sup> {10G}                      |                 | 196m/s <sup>2</sup> {20G} | 294m/s <sup>2</sup> {30G} |                  |
| Allowable operating speed                    |                                                 | 0.1 to 1,000mm/sec.                                               |                           |                                          |                                               |                 |                           |                           |                  |
| Max. operating cycle rate                    |                                                 | 600/min.                                                          |                           |                                          | 300/min.                                      |                 | 600/min.                  |                           |                  |
| Ambient temperature                          |                                                 | -25°C to +80°C -13°F to +176°F (No freezing below 0°C)            |                           |                                          |                                               |                 |                           |                           |                  |
| Ambient humidity                             |                                                 | Max. 85% R.H.                                                     |                           |                                          |                                               |                 |                           |                           |                  |
| Unit weight                                  |                                                 | 8g .28oz                                                          |                           |                                          |                                               |                 |                           |                           |                  |

### 3. Operating characteristics

#### 1) Pin plunger

mm inch

| Seventh digit of part number | O.F. max.    | R.F. min.    | P.T. max. | M.D. max. | O.T. min. | O.P. max.          |
|------------------------------|--------------|--------------|-----------|-----------|-----------|--------------------|
| 1                            | 0.15N{15gf}  | 0.029N{3gf}  | 1.6 .063  | 0.8 .031  | 0.8 .031  | 14.7±0.6 .579±.024 |
| 2                            | 0.25N{25gf}  | 0.059N{6gf}  | 1.6 .063  | 0.8 .031  | 0.8 .031  | 14.7±0.6 .579±.024 |
| 3                            | 0.49N{50gf}  | 0.12N{12gf}  | 1.6 .063  | 0.4 .016  | 0.8 .031  | 14.7±0.6 .579±.024 |
| 4                            | 0.98N{100gf} | 0.25N{25gf}  | 1.6 .063  | 0.4 .016  | 0.8 .031  | 14.7±0.6 .579±.024 |
| 5                            | 1.96N{200gf} | 0.49N{50gf}  | 1.6 .063  | 0.4 .016  | 0.8 .031  | 14.7±0.6 .579±.024 |
| 6                            | 2.94N{300gf} | 0.74N{75gf}  | 1.6 .063  | 0.4 .016  | 0.8 .031  | 14.7±0.6 .579±.024 |
| 7                            | 3.92N{400gf} | 0.98N{100gf} | 1.6 .063  | 0.4 .016  | 0.8 .031  | 14.7±0.6 .579±.024 |

#### 2) Short hinge lever

| Seventh digit of part number | O.F. max.    | R.F. min.    | P.T. max. | M.D. max. | O.T. min. | O.P. max.          |
|------------------------------|--------------|--------------|-----------|-----------|-----------|--------------------|
| 3                            | 0.59N{60gf}  | 0.098N{10gf} | 1.6 .063  | 0.5 .020  | 0.8 .031  | 15.3±0.8 .602±.031 |
| 4                            | 1.08N{110gf} | 0.20N{20gf}  | 1.6 .063  | 0.5 .020  | 0.8 .031  | 15.3±0.8 .602±.031 |
| 5                            | 2.16N{220gf} | 0.39N{40gf}  | 1.6 .063  | 0.5 .020  | 0.8 .031  | 15.3±0.8 .602±.031 |
| 6                            | 3.14N{320gf} | 0.59N{60gf}  | 1.6 .063  | 0.5 .020  | 0.8 .031  | 15.3±0.8 .602±.031 |
| 7                            | 4.12N{420gf} | 0.78N{80gf}  | 1.6 .063  | 0.5 .020  | 0.8 .031  | 15.3±0.8 .602±.031 |

#### 3) Hinge lever

| Seventh digit of part number | O.F. max.    | R.F. min.    | P.T. max. | M.D. max. | O.T. min. | O.P. max.          |
|------------------------------|--------------|--------------|-----------|-----------|-----------|--------------------|
| 3                            | 0.29N{30gf}  | 0.049N{5gf}  | 3.2 .126  | 1.2 .047  | 1.2 .047  | 15.3±1.2 .602±.047 |
| 4                            | 0.59N{60gf}  | 0.098N{10gf} | 3.2 .126  | 1.2 .047  | 1.2 .047  | 15.3±1.2 .602±.047 |
| 5                            | 1.18N{120gf} | 0.20N{20gf}  | 3.2 .126  | 1.2 .047  | 1.2 .047  | 15.3±1.2 .602±.047 |
| 6                            | 1.77N{180gf} | 0.29N{30gf}  | 3.2 .126  | 1.2 .047  | 1.2 .047  | 15.3±1.2 .602±.047 |
| 7                            | 2.35N{240gf} | 0.39N{40gf}  | 3.2 .126  | 1.2 .047  | 1.2 .047  | 15.3±1.2 .602±.047 |

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4) Long hinge lever

| Seventh digit of part number | O.F. max.    | R.F. min.     | P.T. max. | M.D. max. | O.T. min. | O.P. max.          |
|------------------------------|--------------|---------------|-----------|-----------|-----------|--------------------|
| 3                            | 0.15N{15gf}  | 0.025N{2.5gf} | 7.5 .295  | 2.2 .087  | 2.2 .087  | 15.3±2.6 .602±.102 |
| 4                            | 0.29N{30gf}  | 0.049N{5gf}   | 7.5 .295  | 2.2 .087  | 2.2 .087  | 15.3±2.6 .602±.102 |
| 5                            | 0.59N{60gf}  | 0.098N{10gf}  | 7.5 .295  | 2.2 .087  | 2.2 .087  | 15.3±2.6 .602±.102 |
| 6                            | 0.88N{90gf}  | 0.15N{15gf}   | 7.5 .295  | 2.2 .087  | 2.2 .087  | 15.3±2.6 .602±.102 |
| 7                            | 1.18N{120gf} | 0.39N{40gf}   | 7.5 .295  | 2.2 .087  | 2.2 .087  | 15.3±2.6 .602±.102 |

5) Simulated roller lever

| Seventh digit of part number | O.F. max.    | R.F. min.    | P.T. max. | M.D. max. | O.T. min. | O.P. max.          |
|------------------------------|--------------|--------------|-----------|-----------|-----------|--------------------|
| 3                            | 0.29N{30gf}  | 0.049N{5gf}  | 3.2 .126  | 1.2 .047  | 1.2 .047  | 18.5±1.2 .728±.047 |
| 4                            | 0.59N{60gf}  | 0.098N{10gf} | 3.2 .126  | 1.2 .047  | 1.2 .047  | 18.5±1.2 .728±.047 |
| 5                            | 1.18N{120gf} | 0.20N{20gf}  | 3.2 .126  | 1.2 .047  | 1.2 .047  | 18.5±1.2 .728±.047 |
| 6                            | 1.77N{180gf} | 0.29N{30gf}  | 3.2 .126  | 1.2 .047  | 1.2 .047  | 18.5±1.2 .728±.047 |
| 7                            | 2.35N{240gf} | 0.39N{40gf}  | 3.2 .126  | 1.2 .047  | 1.2 .047  | 18.5±1.2 .728±.047 |

6) Short roller lever

| Seventh digit of part number | O.F. max.    | R.F. min.    | P.T. max. | M.D. max. | O.T. min. | O.P. max.          |
|------------------------------|--------------|--------------|-----------|-----------|-----------|--------------------|
| 3                            | 0.59N{60gf}  | 0.098N{10gf} | 1.6 .063  | 0.5 .020  | 0.8 .031  | 20.7±0.8 .815±.031 |
| 4                            | 1.08N{110gf} | 0.20N{20gf}  | 1.6 .063  | 0.5 .020  | 0.8 .031  | 20.7±0.8 .815±.031 |
| 5                            | 2.16N{220gf} | 0.39N{40gf}  | 1.6 .063  | 0.5 .020  | 0.8 .031  | 20.7±0.8 .815±.031 |
| 6                            | 3.14N{320gf} | 0.59N{60gf}  | 1.6 .063  | 0.5 .020  | 0.8 .031  | 20.7±0.8 .815±.031 |
| 7                            | 4.12N{420gf} | 0.78N{80gf}  | 1.6 .063  | 0.5 .020  | 0.8 .031  | 20.7±0.8 .815±.031 |

7) Roller lever

| Seventh digit of part number | O.F. max.    | R.F. min.    | P.T. max. | M.D. max. | O.T. min. | O.P. max.          |
|------------------------------|--------------|--------------|-----------|-----------|-----------|--------------------|
| 3                            | 0.29N{30gf}  | 0.049N{5gf}  | 3.2 .126  | 1.2 .047  | 1.2 .047  | 20.7±1.2 .815±.047 |
| 4                            | 0.59N{60gf}  | 0.098N{10gf} | 3.2 .126  | 1.2 .047  | 1.2 .047  | 20.7±1.2 .815±.047 |
| 5                            | 1.18N{120gf} | 0.20N{20gf}  | 3.2 .126  | 1.2 .047  | 1.2 .047  | 20.7±1.2 .815±.047 |
| 6                            | 1.77N{180gf} | 0.29N{30gf}  | 3.2 .126  | 1.2 .047  | 1.2 .047  | 20.7±1.2 .815±.047 |
| 7                            | 2.35N{240gf} | 0.39N{40gf}  | 3.2 .126  | 1.2 .047  | 1.2 .047  | 20.7±1.2 .815±.047 |

8) Wire lever

| Seventh digit of part number | O.F. max.    | R.F. min.   | P.T. max. | M.D. max. | O.T. min. | O.P. max.          |
|------------------------------|--------------|-------------|-----------|-----------|-----------|--------------------|
| 1                            | 0.098N{10gf} | 0.010N{1gf} | 3.5 .138  | 2 .079    | 1.2 .047  | 15.5±1.4 .610±.055 |
| 2                            | 0.15N{15gf}  | 0.020N{2gf} | 3.5 .138  | 2 .079    | 1.2 .047  | 15.5±1.4 .610±.055 |

DIMENSIONS

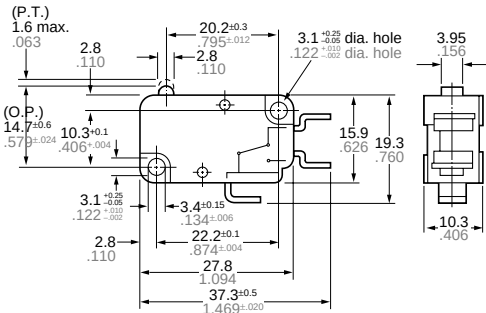
mm inch

1. Pin plunger

Bottom COM terminal (Guardless)

.187 Quick-connect/Solder terminal

Solder terminal



Side COM terminal (with right-hand guard)



.187 Quick-connect/Solder terminal



Side COM terminal (Guardless)



.187 Quick-connect/Solder terminal



2. Short hinge lever



3. Hinge lever



4. Long hinge lever



## 5. Simulated roller lever

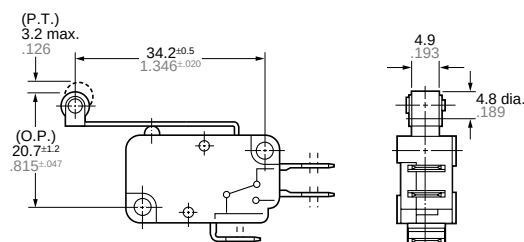
mm inch



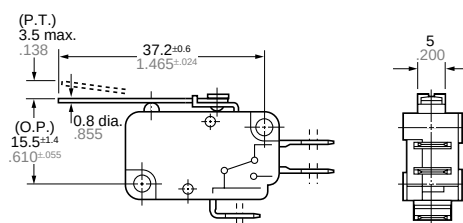
## 6. Short roller lever



## 7. Roller lever



## 8. Wire lever



## NOTES

1. Use 3.0mm mounting screws to mount switches with less than a 5 kg-cm torque. Use of screw washers or adhesive lock is recommended. Before mounting, check insulation distance between terminals as well as between terminals and ground. If enough distance is not secured, it is recommended to use insulation material in mounting.  
Set 70 to 100% overtravel in actual use. When the operation object is in the free position, force should not be applied directly to the actuator or to the pin plunger. Also force should be applied to the pin plunger from vertical direction to the switch.

2. When specifying NV switches, allow  $\pm 20\%$  to the listed operating and release forces.  
3. Hand soldering should be accomplished in less than 5 seconds, preferably with a 60 watt iron. Avoid contacting the switch case with the soldering iron.  
4. Low-level circuit type is recommended for using under low-level current and voltage.

5. Avoid using NV switches in the following conditions:

- In corrosive gases, such as hydrogen sulfide.
- In flammable or explosive gases such as gasoline or thinner etc.
- In a dusty environment.
- In an ambient temperature under  $-25^{\circ}\text{C}$   $-13^{\circ}\text{F}$  or over  $80^{\circ}\text{C}$   $176^{\circ}\text{F}$ .
- In an ambient humidity over 85% R.H..