## GENERAL SPECIFICATIONS

### Electrical Capacity

**Resistive Load:**
HS13: 6A @ 125V AC, 3A @ 250V AC, or 5A @ 30V DC
HS16: 12A @ 125V AC or 6A @ 250V AC
TS: 6A @ 125/250V AC
PS: 30A @ 125/250V AC

### Other Ratings

**Contact Resistance:** 10 milliohms maximum
**Insulation Resistance:** 200 megohms minimum @ 500V DC
**Dielectric Strength:** 1,500V AC minimum for 1 minute minimum
**Mechanical Life:**
HS: 15,000 operations minimum
TS: 30,000 operations minimum
PS: 10,000 operations minimum
**Electrical Life:**
HS: 7,500 operations minimum
TS: 10,000 operations minimum
PS: 5,000 operations minimum
**Indexing:** 30° for HS16, TS & PS; 45° for HS13
**Contact Timing:** Nonshorting HS13; Shorting & Nonshorting HS16; Nonshorting TS; Nonshorting PS
**Range of Operating Torque:**
HS16: 0.54 ~ 0.64Nm for first pole & 0.05Nm for each additional pole
HS13: 0.15 ~ 0.24Nm
TS: 0.09Nm for first pole & (0.07Nm x total number of poles) + 0.13Nm for additional poles
PS: 0.14Nm for each pole

### Materials & Finishes

**Knob:** Phenolic resin
**Shaft:** HS13: brass; HS16, TS, & PS: brass with nickel plating
**Bushing:** HS13: brass; HS16, TS, & PS: brass with nickel plating
**Case:** Phenolic resin
**Movable Contacts:** HS13, HS16, & TS phosphor bronze; PS silver alloy
**Stationary Contacts:** HS13, HS16, & PS: brass with silver plating; TS: phosphor bronze
**Terminals:** HS: phosphor bronze; TS & PS: copper with silver plating

### Environmental Data

**Operating Temp Range:** –10°C through +70°C (+14°F through +158°F)
**Humidity:** 90 ~ 98% humidity for 96 hours @ 40°C (104°F)
**Vibration:** 10 ~ 55 Hz with peak-to-peak amplitude of 1.5mm traversing the frequency range & returning in 1 minute; 3 right angled directions for 2 hours
**Shock:** 50G (490m/s²) acceleration (tested in 3 right angled directions, with 3 shocks in each direction)

### Installation

**Mounting Torque:** 2.94Nm (26 lb•in)
**Maximum Panel Thickness:** Shown with panel cutouts in following drawings
**Soldering Time & Temperature:** Manual Soldering (HS series only): See Profile A in Supplement section.

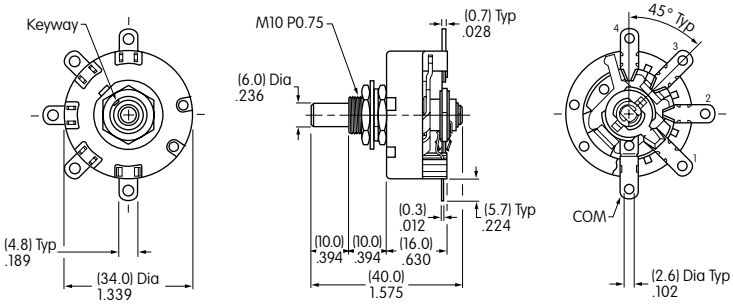
### Standards & Certifications

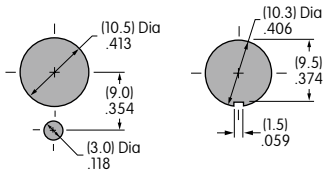
**UL:** **File No. E44145 - Recognized only when ordered with marking on switch.**
Add "/U" or "/CUL" to end of part number to order UL recognized switch.
HS16 models 1– through 6–pole are recognized at 12A @ 125V AC & 6A @ 250V AC
See Supplement section to find UL or cULus rating details.

## 6 AMP SINGLE POLE/NONSHORTING/45° INDEXING

| Round Shaft | D-flat Shaft | Number of Positions | Stopper Settings | Number of Terminals * | Load Terminals | Schematics |
|---|---|---|---|---|---|---|
| HS13X | HS13X-D | 2 | Fixed | 1 COM, 2 LOAD | 1 & 2 | HS13X |
| HS13Y | HS13Y-D | 3 | Fixed | 1 COM, 3 LOAD | 1, 2, & 3 | HS13Y |
| HS13Z | HS13Z-D | 4 | Fixed | 1 COM, 4 LOAD | 1, 2, 3, & 4 | HS13Z |

Switch is viewed from shaft end and shown in position 1. Terminal numbers are not on switch. Standard Hardware shown on last page of this section.
* Wire harness & cable assemblies offered only in Americas.



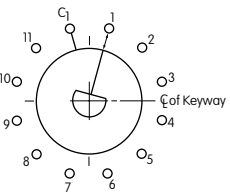

Maximum Effective Panel Thickness
With Locking Ring
.150" (3.8mm)
Without Locking Ring
.189" (4.8mm)



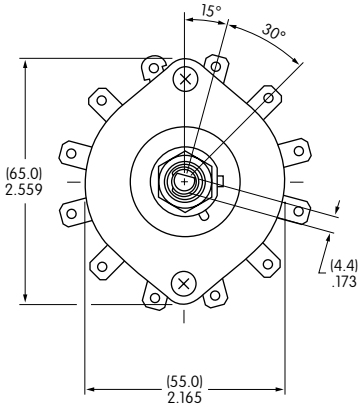
HS13X

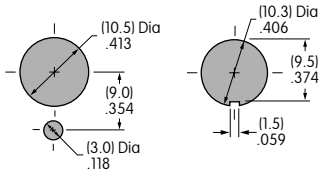
## 12 AMP/SHORTING & NONSHORTING/30° INDEXING

| Knurled Shaft | | D-flat Shaft | | Pole | Number of Positions | Stopper Settings | Number of Terminals * | Schematic |
|---|---|---|---|---|---|---|---|---|
| Nonshorting | Shorting | Nonshorting | Shorting | | | | | |
| HS16-1 | HS16-1S | HS16-1N | HS16-1SN | 1P | 2-11 | 2, 3, 4 . . . 11 | 1 COM, 11 LOAD | |
| HS16-2 | HS16-2S | HS16-2N | HS16-2SN | 2P | 2-11 | 2, 3, 4 . . . 11 | 2 COM, 22 LOAD | |
| HS16-3 | HS16-3S | HS16-3N | HS16-3SN | 3P | 2-11 | 2, 3, 4 . . . 11 | 3 COM, 33 LOAD | |
| HS16-4 | HS16-4S | HS16-4N | HS16-4SN | 4P | 2-11 | 2, 3, 4 . . . 11 | 4 COM, 44 LOAD | |
| HS16-5 | HS16-5S | HS16-5N | HS16-5SN | 5P | 2-11 | 2, 3, 4 . . . 11 | 5 COM, 55 LOAD | |
| HS16-6 | HS16-6S | HS16-6N | HS16-6SN | 6P | 2-11 | 2, 3, 4 . . . 11 | 6 COM, 66 LOAD | |

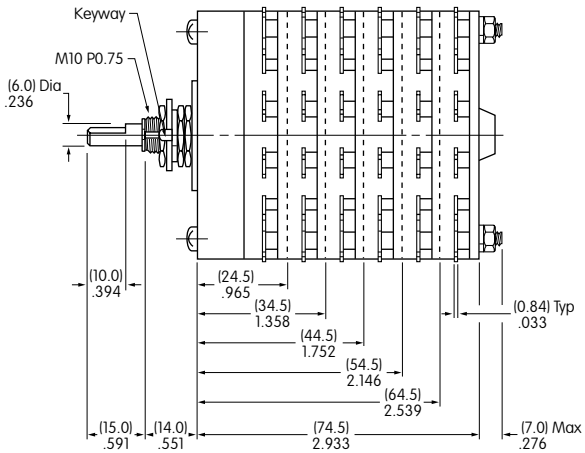


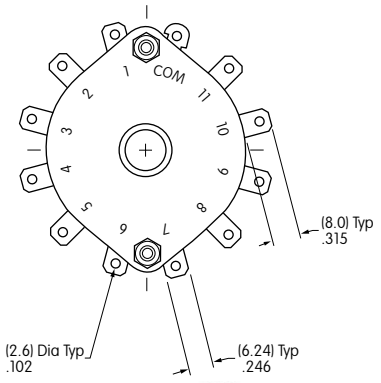

Switch is viewed from shaft end and shown in position 1. Terminal numbers are not on switch. Standard Hardware shown on last page of this section.
* Wire harness & cable assemblies offered only in Americas.




Maximum Effective Panel Thickness
With Locking Ring
.189" (4.8mm)
Without Locking Ring
.228" (5.8mm)




- On each deck of multipole devices common and load terminals are in the same positions as shown in the schematic above.
- Switch is viewed from the shaft end and shown in position 1.
- Terminal numbers are on the switch bottom. Stopper positions are molded on the top of the switch.
- Standard Hardware shown on last page of this section.

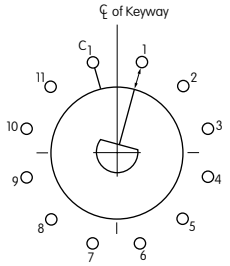


HS16-2N

## 6 AMP/NONSHORTING/ADJUSTABLE STOP/30° INDEXING

| Model | Pole | Number of Positions | Stopper Settings | Number of Terminals | Shaft Type |
|---|---|---|---|---|---|
| **TS1N** | 1P | 2-11 | 2, 3, 4 . . . 11 | 1 COM, 11 LOAD | D Flat |
| **TS2N** | 2P | 2-11 | 2, 3, 4 . . . 11 | 2 COM, 22 LOAD | D Flat |
| **TS3N** | 3P | 2-11 | 2, 3, 4 . . . 11 | 3 COM, 33 LOAD | D Flat |
| **TS4N** | 4P | 2-11 | 2, 3, 4 . . . 11 | 4 COM, 44 LOAD | D Flat |
| **TS5N** | 5P | 2-11 | 2, 3, 4 . . . 11 | 5 COM, 55 LOAD | D Flat |

**Schematic**



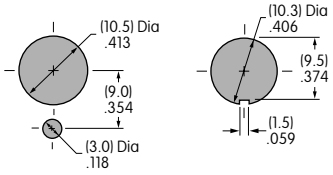

On each deck of multipole devices common & load terminals are in the same positions as shown in this schematic.

Switch is viewed from the shaft end and shown in position 1.

Terminal numbers are on the switch bottom. Stopper positions are molded on the top of the switch.

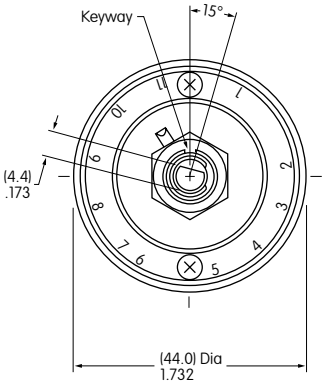
• Standard Hardware shown on last page of this section.

### Panel Cutouts

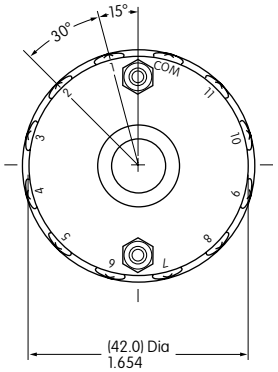



Maximum Effective Panel Thickness
With Locking Ring
.189" (4.8mm)
Without Locking Ring
.228" (5.8mm)

### Top

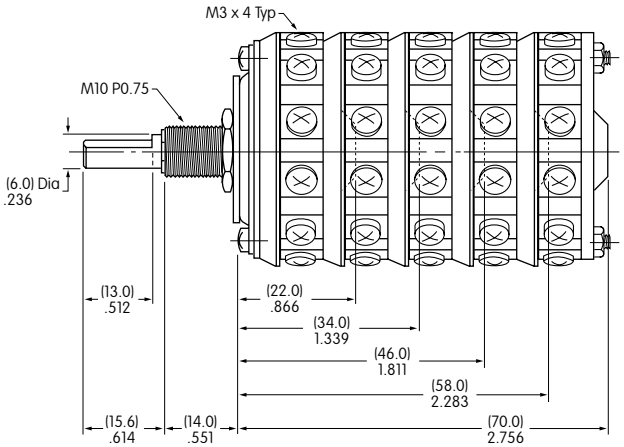



### Bottom

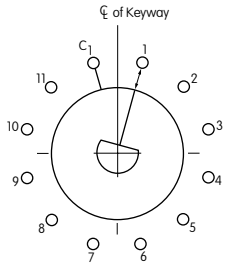





TS5N



## 30 AMP/NONSHORTING/ADJUSTABLE STOP/30° INDEXING

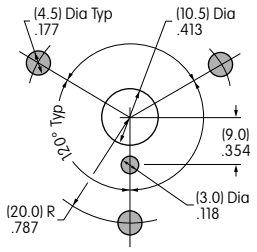
| Knurled Shaft | D Flat Shaft | Pole | Number of Positions | Stopper Settings | Number of Terminals | Schematic |
|---|---|---|---|---|---|---|
| PS1 | PS1N | 1P | 2-11 | 2, 3, 4 . . . 11 | 1 COM, 11 LOAD |  |
| PS2 | PS2N | 2P | 2-11 | 2, 3, 4 . . . 11 | 2 COM, 22 LOAD | |
| PS3 | PS3N | 3P | 2-11 | 2, 3, 4 . . . 11 | 3 COM, 33 LOAD | |
| PS4 | PS4N | 4P | 2-11 | 2, 3, 4 . . . 11 | 4 COM, 44 LOAD | |
| PS5 | PS5N | 5P | 2-11 | 2, 3, 4 . . . 11 | 5 COM, 55 LOAD | |



On each deck of multipole devices common & load terminals are in the same positions as shown in this schematic. Switch is viewed from the shaft end and shown in position 1. Terminal numbers are on switch bottom. Stopper positions are molded on the top of the switch.

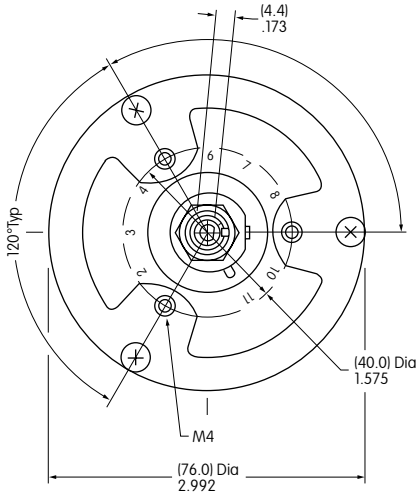
- Standard Hardware shown on last page of this section.

### Panel Cutout

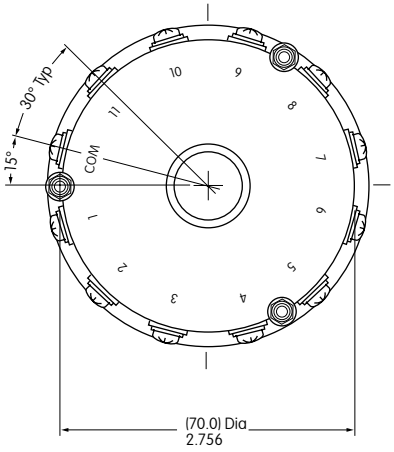


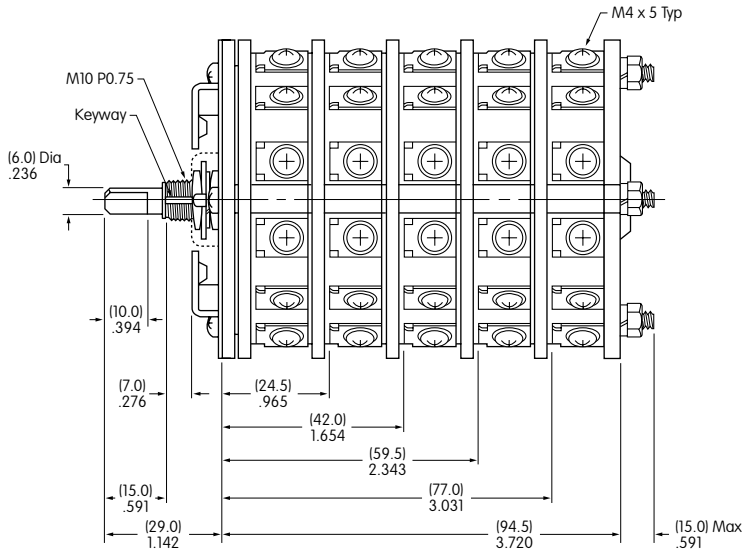

Maximum Effective Panel Thickness
Without Locking Ring
.189" (4.8mm)

### Top




### Bottom



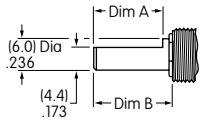



PS4N

## SHAFT TYPES

**D Flat Shaft**

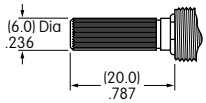
For use with
AT431 and AT432




| Dimension A | | Dimension B | |
|---|---|---|---|
| For TS | (13.0) .512 | For TS | (15.6) .614 |
| For HS or PS | (10.0) .394 | For HS or PS | (15.0) .591 |

**Knurled Shaft**

Not for use with
AT431 or AT432

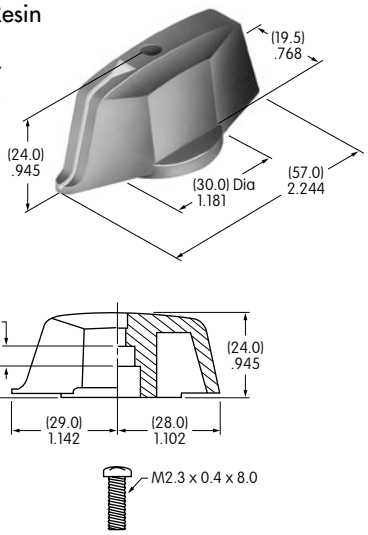



## OPTIONAL KNOBS FOR D FLAT SHAFTS

**AT431**
**Large Knob**

Phenolic Resin

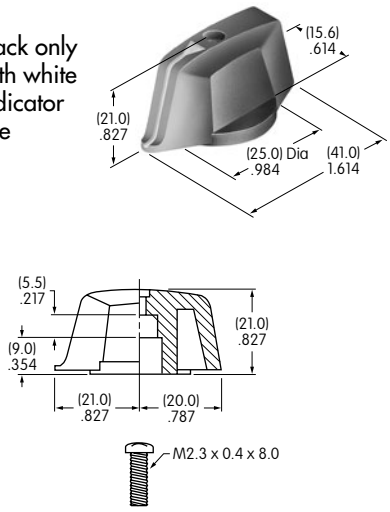
Black only with white indicator line




**AT432**
**Small Knob**

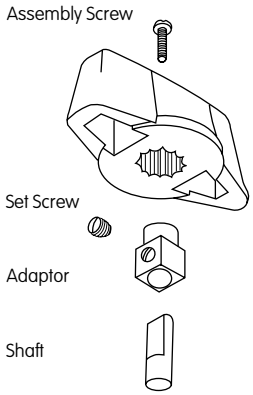
Phenolic Resin

Black only with white indicator line




**Knob Orientation**

The rotary knobs used on the D-flat shafts can be oriented on the switch to suit the customer's particular front panel needs simply by sliding the knob over the square adaptor at the preferred orientation.




## STOPPER SETTING

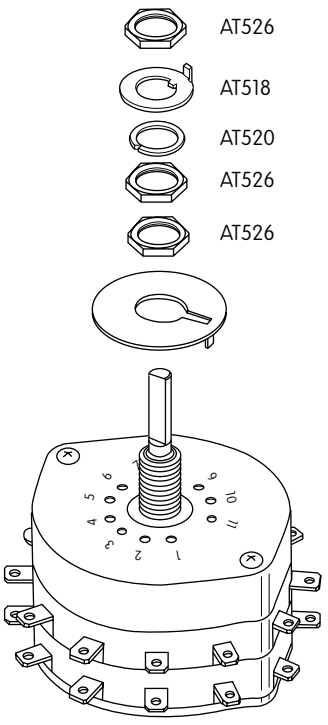
**For HS16, TS, & PS Models**

The HS16, TS, and PS switches are supplied with the stopper plate set for the maximum number of positions allowed for that model. Prior to installation, the desired stopper setting should be made:

1. Be sure the shaft is turned counterclockwise to the extreme left. If the shaft is not turned counterclockwise to the extreme left, proper setting cannot be achieved.
2. Loosen the nut far enough to allow raising the stopper plate for resetting.
3. Insert the stopper in the numbered hole for the desired stopper setting. Satisfactory switch functioning cannot be assured if the stopper plate is not properly positioned.
4. Tighten the nut firmly against the stopped plate.

**Standard Hardware Supplied with HS, TS, and PS:**

AT526 Hex Mounting Nut (quantity 3)
AT518 Locking Ring (quantity 1)
AT520 Split Lockwasher (quantity 1)
Use of mounting supports on PS is optional; screws are not provided.



# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

NKK Switches:

HS16-5N HS13X AT432 AT431 HS16-3N-RO HS13Y-RO HS16-2N-RO TS3N-RO PS1N-RO HS13-Y-RO PS2N-RO HS16-1N-AT432 HS16-1-RO HS16-1S-RO HS16-3N-AT432 HS16-5S-RO HS16-6N-AT432 PS1N-AT432 PS3N-AT432 PS5N-AT432 TS1N-AT432 TS3N-AT432 TS5N-AT432 TS2N-RO TS4N-RO TS1N-RO HS16-1N-RO HS16-6N-RO HS16-2-RO HS16-3-RO HS16-4N-RO HS13X-RO HS16-5N-RO HS16-6SN-RO HS16-2SN-RO HS16-3SN-RO TS5N-RO PS4N-RO PS3N-RO HS16-4 HS16-4SN HS13X-D-RO HS13Y-D-RO HS13Z-D-RO HS13Z-RO HS16-1SN-RO HS16-5SN-RO PS1 PS2 PS3 PS5N PS5 PS4 HS16-6-RO PS3-RO PS5N-RO

**ООО «НИОКРсистемс» -** это оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов. Реализуемая нашей компанией продукция насчитывает более полумиллиона наименований.

Благодаря этому наша компания предлагает к поставке практически не ограниченный ассортимент компонентов как оптовыми, мелкооптовыми партиями, так и в розницу.

Благодаря развитой сети поставщиков, помогаем в поиске и приобретении экзотичных или снятых с производства компонентов.

## Наша компания это:

- Гарантия качества поставляемой продукции
- Широкий ассортимент
- Минимальные сроки поставок
- Техническая поддержка
- Подбор комплектации
- Индивидуальный подход
- Гибкое ценообразование
- Работаем по 275 ФЗ

ООО «НИОКР СИТЕМС»
Москва, 125362, Россия, ул. Вишневая, д. 9, к. 1, Блок 104 а и 104 в

Телефон: 8 (495) 268-14-82
Email: n@nsistems.ru

ИНН: 7735154786
ОГРН: 1167746717709