Series HS TS PS

Toggles

GENERAL SPECIFICATIONS

Te		
	Electrical Canacity	
Rockers	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
Pushbuttons	Other Datings	PS: 30A @ 125/250V AC
Pus	Other Ratings Contact Resistance:	10 milliohms maximum
8	Insulation Resistance:	200 megohms minimum @ 500V DC
Programmable III uminated	Dielectric Strength:	1,500V AC minimum for 1 minute minimum
mine	Mechanical Life:	HS: 15,000 operations minimum
		TS: 30,000 operations minimum PS: 10,000 operations minimum
able	Electrical Life:	HS: 7,500 operations minimum
amm		TS: 10,000 operations minimum
rogr		PS: 5,000 operations minimum
	Indexing: Contact Timing:	30° for HS16, TS & PS; 45° for HS13
ocks	Range of Operating Torque:	Nonshorting HS13; Shorting & Nonshorting HS16; Nonshorting TS; Nonshorting PS HS16: 0.54 ~ 0.64Nm for first pole & 0.05Nm for each additional pole
Keylocks		HS13: 0.15 ~ 0.24Nm
-		TS: 0.09Nm for first pole & (0.07Nm x total number of poles) + 0.13Nm for additional poles
se		PS: 0.14Nm for each pole
Rotaries		
Ro	Materials & Finishes Knob:	Phenolic resin
	Shaft:	HS13: brass; HS16, TS, & PS: brass with nickel plating
les	Bushing:	HS13: brass; HS16, TS, & PS: brass with nickel plating
Slides	Case:	Phenolic resin
	Movable Contacts: Stationary Contacts:	HS13, HS16, & TS phosphor bronze; PS silver alloy HS13, HS16, & PS: brass with silver plating; TS: phosphor bronze
S	Terminals:	HS: phosphor bronze; TS & PS: copper with silver plating
Tactiles		
Tc	Environmental Data	
	Operating Temp Range:	–10°C through +70°C (+14°F through +158°F)
<u>+-</u>	Humidity:	90 ~ 98% humidity for 96 hours @ 40°C (104°F)
Ë	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/s ²) acceleration (tested in 3 right angled directions, with 3 shocks in each direction)
Touch	Installation	
	Mounting Torque:	2.94Nm (26 lb•in)
s	Maximum Panel Thickness:	Shown with panel cutouts in following drawings
Indicators	Soldering Time & Temperature:	Manual Soldering (HS series only): See Profile A in Supplement section.
India	Standards & Cartifications	
	Standards & Certifications UL:	File No. E44145 - Recognized only when ordered with marking on switch.
Accessories	OL:	Add "/U" or "/CUL" to end of part number to order UL recognized switch.
esso		HS16 models 1- through 6-pole are recognized at 12A @ 125V AC & 6A @ 250V AC
Acc		See Supplement section to find UL or cULus rating details.
ut ut		
Supplement		
ddn		
S		



Standard Size Rotaries

Series HS

		6 AN	P SING	LE POLE/NO	NSHORTI	NG/45° IND	EXING		
Round	D-flat	Number of	Stopper	Number of	Load		Schematics		
Shaft	Shaft	Positions	Settings	Terminals *	Terminals	HS13X & of Keyway	HS13Y & of Keyway	HS13Z & of Keyway	
HS13X	HS13X-D	2	Fixed	1 COM, 2 LOAD	1&2	20	2 °	2 0 4 0 1 0	
HS13Y	HS13Y-D	3	Fixed	1 COM, 3 LOAD	1, 2, & 3	10	10		
HS13Z	HS13Z-D	4	Fixed	1 COM, 4 LOAD	1, 2, 3, & 4	clori	clowi	clo	

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.



12 AMP/SHORTING & NONSHORTING/30° INDEXING

Knurled Shaft D-flat Shaft			Number of	Stopper	Number of				
Nonshorting	Shorting	Nonshorting	Shorting	Pole	Positions	Settings	Terminals *	Schematic	-
H\$16-1	H\$16-1\$	H\$16-1N	H\$16-1\$N	1P	2-11	2, 3, 4 11	1 COM, 11 LOAD		
HS16-2	H\$16-2S	H\$16-2N	HS16-2SN	2P	2-11	2, 3, 4 11	2 COM, 22 LOAD	110 11 0^2	G
HS16-3	HS16-3S	H\$16-3N	HS16-3SN	ЗP	2-11	2, 3, 4 11	3 COM, 33 LOAD		Ŭ
HS16-4	HS16-4S	HS16-4N	HS16-4SN	4P	2-11	2, 3, 4 11	4 COM, 44 LOAD	QO QA	
HS16-5	H\$16-5\$	HS16-5N	HS16-5SN	5P	2-11	2, 3, 4 11	5 COM, 55 LOAD		
H\$16-6	H\$16-6S	H\$16-6N	H\$16-6SN	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.



.228" (5.8mm)

 $\begin{array}{c} \text{Keyway} \\ \text{(6.0) Dia} \\ \text{(3.0) Dia} \\ \text{(6.0) Dia} \\ \text{$

- 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



Toggles

Rockers

Tactiles

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Touch

Indicators

Series TS

-	Model	Pole	Number of Positions	Stopper Settings	Number of Terminals	Shaft Type	Schematic
-	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	ЗP	2-11	2, 3, 4 11	3 COM, 33 LOAD	D Flat	On each deck of multipole devices commo & load terminals are in the same positions
_	TS4N	4P	2-11	2, 3, 4 11	4 COM, 44 LOAD	D Flat	as shown in this schematic. Switch is viewed from the shaft end and shown in position 1.
	TS5N	5P	2-11	2, 3, 4 11	5 COM, 55 LOAD	D Flat	Terminal numbers are on the switch bottor Stopper positions are molded on the top c the switch.

Panel Cutouts



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



TS5N

+15° Keyway (4.4) *]* .173 (\times) (44.0) Dia 1.732

Тор



Bottom





Rotaries

Slides

Tactiles

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Touch

Indicators

Supplement Accessories

Knurled Shaft	D Flat Shaft	Pole	Number of Positions	Stopper Settings	Number of Terminals	Schematic	-
PS1	P\$1N	1P	2-11	2, 3, 4 11	1 COM, 11 LOAD	€ of Keyway	-
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	90 04	:
PS5	P\$5N	5P	2-11	2, 3, 4 11	5 COM, 55 LOAD	${}_{8}^{O} _{0}^{I} {}_{0}^{O} {}_{6}^{O}$	
On ea the s	ach deck of m haft end and	ultipole dev shown in po	ices common & loc osition 1. Terminal	ad terminals are in the so numbers are on switch	ime positions as shown in thi pottom. Stopper positions ar	s schematic. Switch is viewed from e molded on the top of the switch.	-
Standard I	Hardware sha	own on last	page of this sectior	1.			
	nel Cutout			Тор		Bottom	-







CHES Rotaries

Slides

Tactiles

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Touch

Indicators

Supplement Accessories

Series HS TS PS

Standard Size Rotaries



STOPPER SETTING

For HS16, TS, & PS Models

Factiles

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Touch

Indicators

Supplement Accessories

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.



