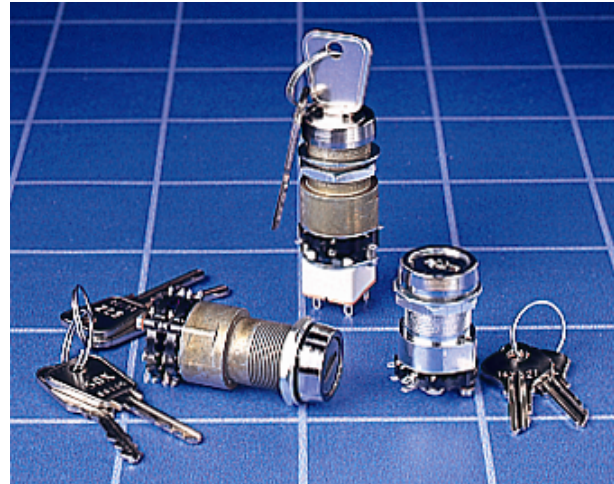


# RA LOCK SWITCHES

# RoHS COMPLIANT

## GENERAL ELECTRICAL & MECHANICAL SPECIFICATION

Switch Rating:	150mA @ 250V ac/dc 350mA @ 110V ac/dc 1A @ 12V ac/dc
Life:	>10,000 Cycles
Operating Temperature:	-30°C to +85 °C
Proof Voltage:	1,000Vac (Initial)
Insulation Resistance:	>999MΩ at 500Vdc (Initial)
Contact Resistance:	<20 mΩ (Initial)
Operating Torque (nominal):	7.2 cNm
End Stop Torque (nominal):	1.2 Nm
Wafer:	Polyphenylene Sulphide (PPS)
Lock Housing:	Zinc Alloy Bright Cr Plated
Contact/Terminal Material:	Brass, CZ108 Ag Plated
Keys:	Mild Steel Ni Plated



## GENERAL FEATURES

- Made in UK.
- Multi-wafer Lock switch.
- Switch indexed 30°, 45°, 60° or 90°.
- Contacts are non-shorting (BBM) or shorting (MBB).
- Keys removable at 60° or 90° angles.
- Two keys per lock. Additional keys to order.
- Keys to pass (common combination) or differ.
- Solder or printed circuit terminals.
- Two part construction. The lock is inserted into the panel from the rear and secured by screwing on the bezel from the front of the panel.

## STANDARD CIRCUITRY AND KEY WITHDRAWAL POSITIONS

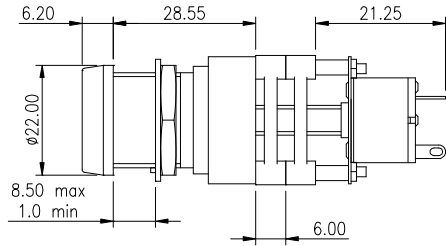
INDEXING ANGLE	STANDARD CIRCUITS NON SHORTING CONTACTS SOLDER TERMINALS						TOTAL SWITCH MOVEMENT	KEY FREE POSITIONS				
	1 POLE	2 POLE	3 POLE	4 POLE	5 POLE	6 POLE		KRA	5-RAL (200KEY DIFFERS)		8-RAL (200KEY DIFFERS)	
								(200KEY DIFFERS) (KEY FREE 60° STEPS)	-001 (KEY FREE 90° STEPS)	-002 (KEY FREE 60° STEPS)	-001 (KEY FREE 90° STEPS)	-002 (KEY FREE 60° STEPS)
30°	2 WAY	2 WAY	2 WAY	2 WAY	2 WAY	2 WAY	0°-30°	1	1		1	
	3 WAY	3 WAY	3 WAY	3 WAY	3 WAY		0°-60°	1+3	1	1+3	1	1+3
	4 WAY	4 WAY	4 WAY	4 WAY			0°-90°		1/1+4		1/1+4	
	5 WAY	5 WAY	5 WAY				0°-120°	1+3+5	1/1+4	1+3+5	1/1+4	1+3+5
	6 WAY	6 WAY					0°-150°		1/1+4		1/1+4	
	7 WAY	7 WAY					0°-180°	1+3+5+7	1+7/1+4+7	1+3+5+7	1+7/1+4+7	1+3+5+7
	8 WAY						0°-210°					
	9 WAY						0°-240°	1+3+5+7+9		1+3+5+7+9		1+3+5+7+9
	10 WAY						0°-270°		1+4+7+10		1+4+7+10	
	11 WAY						0°-300°					
	12 WAY						0°-330°					
							0°-360° NoStop	1+3+5+7+9+11	1+7/1+4+7+10	1+3+5+7+9+11	1+7/1+4+7+10	1+3+5+7+9+11
45°	2 WAY	2 WAY	2 WAY	2 WAY			0°-45°		1		1	
	3 WAY	3 WAY	3 WAY	3 WAY			0°-90°		1/1+4		1/1+4	
	4 WAY	4 WAY					0°-135°					
	5 WAY	5 WAY					0°-180°	1+7	1+7/1+4+7		1+7/1+4+7	
	6 WAY	6 WAY					0°-225°					
	7 WAY	7 WAY					0°-270°		1+4+7+10		1+4+7+10	
	8 WAY						0°-315°					
	8 WAY						0°-360° NoStop	1+7	1+4+7+10		1+4+7+10	
60°	2 WAY	2 WAY	2 WAY	2 WAY	2 WAY		0°-60°	1/1+3	1	1+3	1	1+3
	3 WAY	3 WAY	3 WAY	3 WAY			0°-120°	1+3+5	1	1+3+5	1	1+3+5
	4 WAY	4 WAY					0°-180°	1+3+5+7	1+7/1+4+7	1+3+5+7	1+7/1+4+7	1+3+5+7
	5 WAY	5 WAY					0°-240°	1+3+5+7+9		1+3+5+7+9		1+3+5+7+9
	6 WAY	6 WAY					0°-300°					
	6 WAY	6 WAY		2 WAY			0°-360° NoStop	1+3+5+7+9+11	1+7/1+4+7+10	1+3+5+7+9+11	1+7/1+4+7+10	1+3+5+7+9+11
90°	2 WAY	2 WAY	2 WAY				0°-90°		1/1+4		1/1+4	
	3 WAY	3 WAY					0°-180°	1+7	1+7/1+4+7		1+7/1+4+7	
	4 WAY	4 WAY					0°-270°		1+7/1+4+7+10		1+7/1+4+7+10	
	4 WAY	4 WAY					0°-360° NoStop	1+7	1+7/1+4+7+10		1+7/1+4+7+10	

# RA LOCK SWITCHES

## MULTIWAFER RAL LOCKSWITCH

**5-RAL-001 (Keys free at 90° intervals)**

**5-RAL-002 (Keys free at 60° intervals)**



### DESCRIPTION

**LOCK TYPE:** 5 Discs

**LOCK MOVEMENT:** 60° or 90° Steps.

**LOCK COMBINATIONS:** 200 differs or all to pass (same key for all locks).

**KEY TYPE:** Flat, double entry (key can be inserted into the lock only one way up).

**MASTER KEY SYSTEM AVAILABLE:** Yes.

**MAXIMUM PANEL THICKNESS:** 8.5mm.

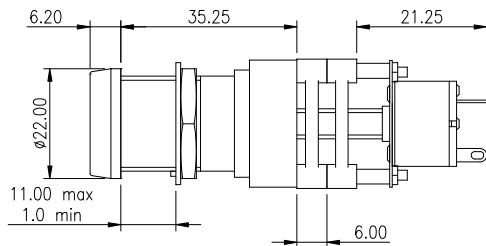
**MODULE INDEXING ANGLES:** 30°, 45°, 60°, 90°

**MAXIMUM NUMBER OF WAFERS:** 6 or 2 plus 2 pole mains switch

## MULTIWAFER RAL LOCKSWITCH

**8-RAL-001 (Keys free at 90° intervals)**

**8-RAL-002 (Keys free at 60° intervals)**



### DESCRIPTION

**LOCK TYPE:** 8 Discs

**LOCK MOVEMENT:** 60° or 90° Steps.

**LOCK COMBINATIONS:** 2000 differs or all to pass (same key for all locks).

**KEY TYPE:** Flat, double entry (key can be inserted into the lock only one way up).

**MASTER KEY SYSTEM AVAILABLE:** Yes.

**MAXIMUM PANEL THICKNESS:** 11.0mm.

**MODULE INDEXING ANGLES:** 30°, 45°, 60°, 90°

**MAXIMUM NUMBER OF WAFERS:** 6 or 2 plus 2 pole mains switch

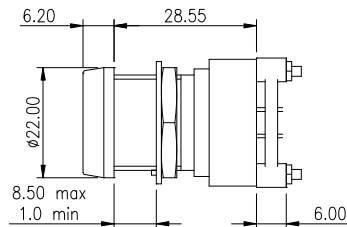
## IMPULSION SINGLE WAFER RAL LOCKSWITCH

**5-RAL-004**

DOUBLE IMPULSION

**5-RAL-005**

SINGLE IMPULSION



### DESCRIPTION

**LOCK TYPE:** 5 Disc Impulsion

**LOCK MOVEMENT:** 60°.

**LOCK COMBINATIONS:** 200 differs or all to pass (same key for all locks).

**KEY TYPE:** Flat, double entry (key can be inserted into the lock only one way up).

**MASTER KEY SYSTEM AVAILABLE:** Yes.

**MAXIMUM PANEL THICKNESS:** 8.5mm.

**MAXIMUM NUMBER OF WAFERS:** 1

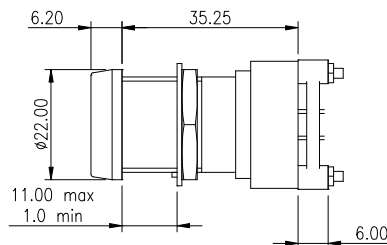
## IMPULSION SINGLE WAFER RAL LOCKSWITCH 8 DISC

**8-RAL-004**

DOUBLE IMPULSION

**8-RAL-005**

SINGLE IMPULSION



### DESCRIPTION

**LOCK TYPE:** 8 Disc Impulsion

**LOCK MOVEMENT:** 60°.

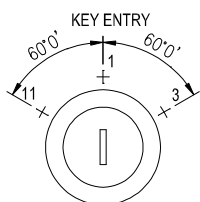
**LOCK COMBINATIONS:** 2000 differs or all to pass (same key for all locks).

**KEY TYPE:** Flat, double entry (key can be inserted into the lock only one way up).

**MASTER KEY SYSTEM AVAILABLE:** Yes.

**MAXIMUM PANEL THICKNESS:** 11.0mm.

**MAXIMUM NUMBER OF WAFERS:** 1



DOUBLE IMPULSION

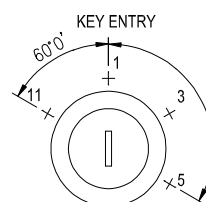
5-RAL-004 8RAL-004

Indexing Movements Available

60° C.W and 60° A.C.W

60° C.W only. 60° A.C.W only

Key Free at key entry only. (PSN1)



SINGLE IMPULSION

5-RAL-005 8RAL-005

Indexing Movements Available

60° A.C.W (Impulsion) and 60° to

240° C.W (Non-Impulsion).

Key Free at positions 1, 3 and 5

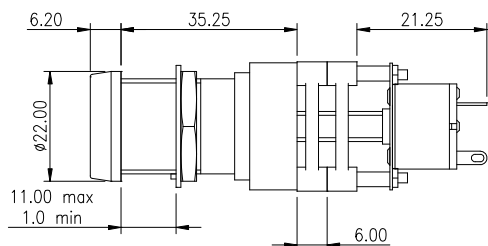
# RA LOCK SWITCHES

## LIMITED ACCESS IMPULSION SINGLE WAFER

### RAL LOCKSWITCH

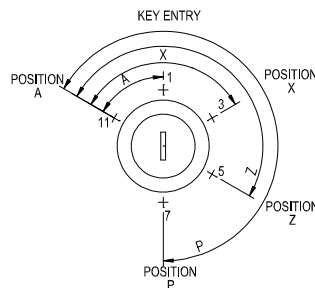
#### 8-RAL-003

Keys free at Key entry (PSN1)  
& Position 'A' (PSN11) only.



#### DESCRIPTION

**LOCK TYPE:** 8 Disc  
**LOCK MOVEMENT:** 60°.  
**LOCK COMBINATIONS:** 50 different sets of 4 keys (A/XZ/P) per lock or 1 set of 4 keys to pass all locks.  
**KEY TYPE:** Flat, double entry (key can be inserted into the lock only one way up).  
**MASTER KEY SYSTEM AVAILABLE:** No.  
**MAXIMUM PANEL THICKNESS:** 11.0mm.  
**MAXIMUM NUMBER OF WAFERS:** 6



### LOCK MOVEMENT DETAILS

Key 'A' – Movement 60° ACW from key entry  
 Key 'X' – Movement 60° ACW and 60° CW from key entry  
 Key 'Z' – Movement 60° ACW and 120° CW from key entry  
 Key 'P' – Movement 60° ACW and 180° CW from key entry  
 Key free available at key entry and Position 'A' only.

LOCK TYPE	KEY FREE INTERVALS	KEY CODE	SWITCH INDEX ANGLE	CONTACT	NUMBER OF WAFERS	TERMINATION	CONTACT PLATING	MASTERED LOCKS
5= 200 Key Differs	1 = 90° (001) 2 = 60° (002)	S = Same key for all locks D = Keys to differ between locks	3 = 30° 4 = 45° 6 = 60° 9 = 90°	B = BBM Non Shorting M = MMB shorting	1 = 1 WAFERS 2 = 2 WAFERS 3 = 3 WAFERS 4 = 4 WAFERS 5 = 5 WAFERS 6 = 6 WAFERS 7 = 1+M/S 8 = 2+M/S NOTE One wafer only for impulsion	S = Solder Terminal P = PCB terminal T = PCB Pin	S = Silver Plated G = Gold Plated F = Gold Flash	M = Yes N = No

**R A L**

CODE LETTER	TOTAL LOCK MOVEMENT	KEY WITHDRAW POSITION	KEY FREE INCREMENTS Impulsion			
			90° (001)	60° (002)	60° (004)	60° (005)
A	0° to 90°	1	X			
B	0° to 90°	1,4	X			
C	0° to 180°	1,7	X			
D	0° to 180°	1,4,7	X			
E	0° to 270°	1,4,7,10	X			
F	0° to 360° NO STOP	1,4,7,10	X			
G	0° to 60°	1,3		X		
H	0° to 120°	1,3,5		X		
J	0° to 180°	1,3,5,7		X		
K	0° to 240°	1,3,5,7,9		X		
L	0° to 360° NO STOP	1,3,5,7,9,11		X		
M	0° to 60°	1		X		
N	0° ← 60°	1			X	
P	300° → 0°	1			X	X
R	300° → 0 ← 60°	1			X	X
S	300° → 0° TO 120°	1,3,5				X

CODE	INDEXING ANGLE	POLES PER WAFER
A	30°	1
B	30°	2
C	30°	3
D	30°	4
E	30°	5
F	30°	6
G	45°	1
H	45°	2
K	45°	3
L	45°	4
M	60°	1
N	60°	2
P	60°	3
R	60°	4
S	60°	5
T	90°	1
W	90°	2
X	90°	3
Y	90°	4
Z	To Drawing	

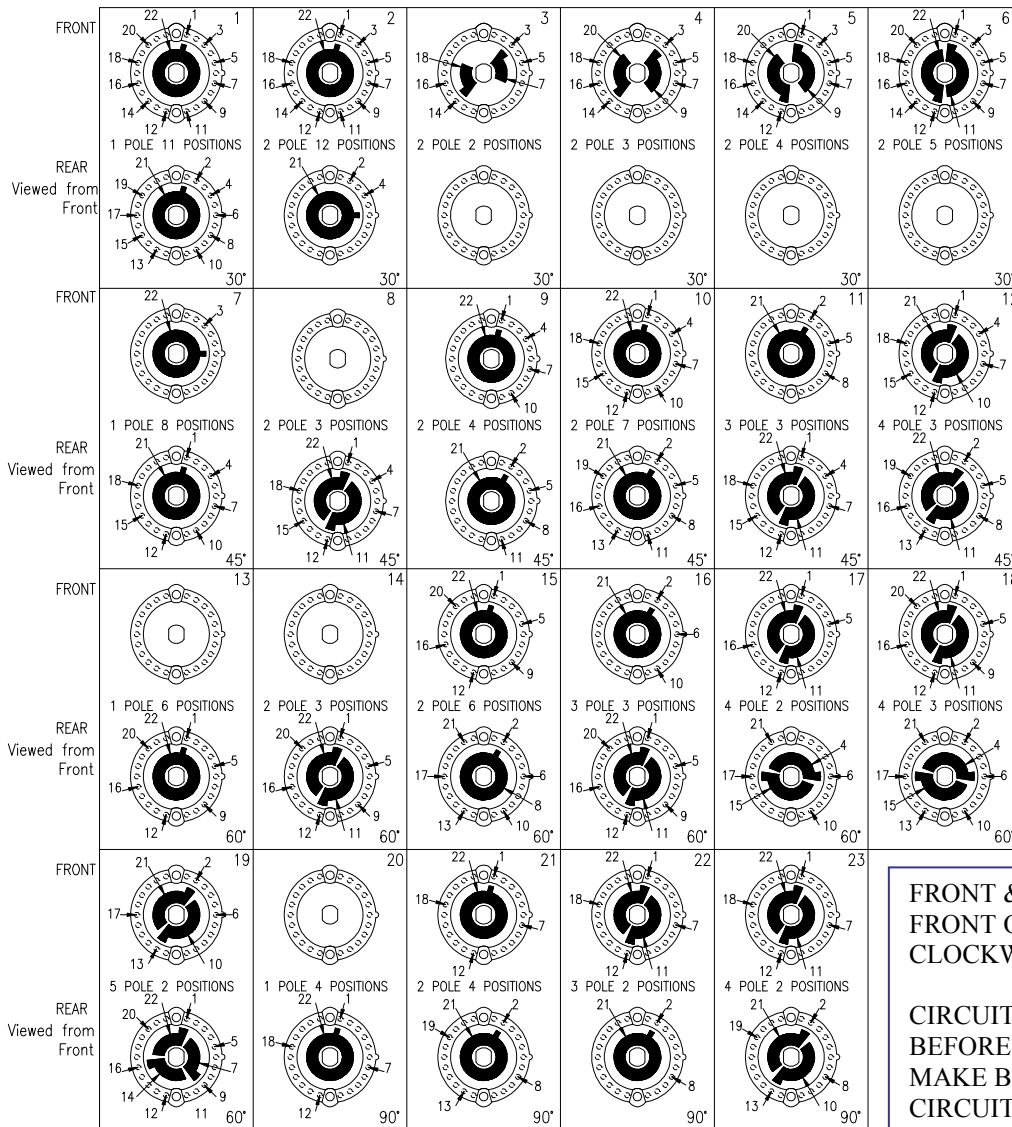
MAX POS PER WAFER
12
09
05
04
03
02
08
07
03
03
06
06
03
03
02
04
04
02
02
To Drawing

### ORDERING CODE

Build your part number by filling in the empty boxes with the appropriate numbers and letter

# RA LOCK SWITCHES

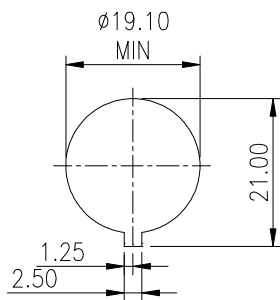
## TYPICAL WAFER LAYOUTS 30° 45° 60° 90°



FRONT & REAR WAFERS VIEWED FROM FRONT OF SWITCH IN EXTREME COUNTER CLOCKWISE POSITION.

CIRCUITRY IS SHOWN HERE AS BREAK BEFORE MAKE (BBM – NON-SHORTING) BUT MAKE BEFORE BREAK (MBB- SHORTING) CIRCUITRY MAY ALSO BE SPECIFIED.

### TYPICAL PANEL PIERCING DIMENSIONS



### LOCK MOVEMENT DESCRIPTION

