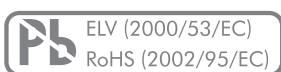


MAIN FEATURES

VERY ROBUST AND VERSATILE 12 & 24 POSITIONS MULTI WAFER SELECTOR SWITCH

- Up to 24 positions multi wafer selector switch
- Very robust and versatile
- 25'000 switching cycles with up to 20 Ncm switching torque
- Gold plated contacts: 3 micron
- Optional IP68 front panel sealing
- Operating temperature range: -40 to +85°C
- Various options and customizations

**TYPE 04****STANDARD PRODUCT VARIETY**

- Soldering eyelets or pins for PCB
- From 1 x 24 to 6 x 3 poles/positions per wafer
- Up to 8 wafers
- 15 or 30° indexing angle
- Shorting or non-shorting
- 1.5, 8.0, 15 or 20 Ncm switching torque
- IP60 or IP68 front panel sealing
- Configurable end-stops
- Shaft diameter: 6 mm or 1/4"

POSSIBLE CUSTOMIZATIONS

- Shaft dimension and shape
- Bushing dimensions
- Switching torque
- Hollow shaft, inner shaft
- Others

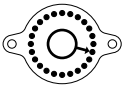
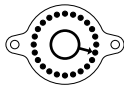
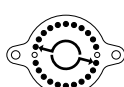
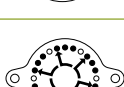
TYPICAL APPLICATIONS

- Industrial controls
- Avionics, instrumentation, test systems
- Medical and audio equipment

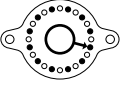
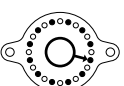
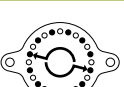
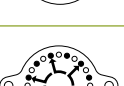
1 PREFERENCE TYPES SELECTION CHART

1 For other types/options, see type key.

INDEXING ANGLE 15°, SHORTING

CONTACT ARRANGEMENT	NUMBER OF WAFERS	FUNCTION (POLES X POSITIONS)	STANDARD TYPE KEY WITH SOLDER EYELETS	WITH PINS FOR PCB
	1—H	1 x 24, endless rotating	04-1103	04-1103-20
	2—HH	2 x 24, endless rotating	04-2103	-
	3—HHH	3 x 24, endless rotating	04-3103	-
	4—HHHH	4 x 24, endless rotating	04-4103	-
	1—H	1 x 24	04-1133	04-1133-20
	2—HH	2 x 24	04-2133	-
	3—HHH	3 x 24	04-3133	-
	4—HHHH	4 x 24	04-4133	-
	1—H	2 x 11	04-1213	04-1373-20
	2—HH	4 x 11	04-2213	-
	3—HHH	6 x 11	04-3213	-
	4—HHHH	8 x 11	04-4213	-
	1—H	3 x 7	04-1373	04-1373-20
	2—HH	6 x 7	04-2373	-
	3—HHH	9 x 7	04-3373	-
	4—HHHH	12 x 7	04-4373	-
	1—H	4 x 5	04-1453	04-1373-20
	2—HH	8 x 5	04-2453	-
	3—HHH	12 x 5	04-3453	-
	4—HHHH	16 x 5	04-4453	-
	1—H	6 x 3	04-1633	04-1453-20
	2—HH	12 x 3	04-2633	-
	3—HHH	18 x 3	04-3633	-
	4—HHHH	24 x 3	04-4633	-

INDEXING ANGLE 30°, NON-SHORTING

CONTACT ARRANGEMENT	NUMBER OF WAFERS	FUNCTION (POLES X POSITIONS)	STANDARD TYPE KEY WITH SOLDER EYELETS	WITH PINS FOR PCB
	1—H	1 x 24, endless rotating	04-1104	04-1104-20
	2—HH	2 x 24, endless rotating	04-2104	-
	3—HHH	3 x 24, endless rotating	04-3104	-
	4—HHHH	4 x 24, endless rotating	04-4104	-
	1—H	1 x 12	04-1124	04-1124-20
	2—HH	2 x 12	04-2124	-
	3—HHH	3 x 12	04-3124	-
	4—HHHH	4 x 12	04-4124	-
	1—H	2 x 6	04-1264	04-1264-20
	2—HH	4 x 6	04-2264	-
	3—HHH	6 x 6	04-3264	-
	4—HHHH	8 x 6	04-4264	-
	1—H	3 x 4	04-1344	04-1344-20
	2—HH	6 x 4	04-2344	-
	3—HHH	9 x 4	04-3344	-
	4—HHHH	12 x 4	04-4344	-
	1—H	4 x 3	04-1434	04-1434-20
	2—HH	8 x 3	04-2434	-
	3—HHH	12 x 3	04-3434	-
	4—HHHH	16 x 3	04-4434	-
	1—H	6 x 2	04-1624	04-1624-20
	2—HH	12 x 2	04-2624	-
	3—HHH	18 x 2	04-3624	-
	4—HHHH	24 x 2	04-4624	-

STOP SCREWS AND BUSHING NUT

Configurable stop screws can be set on any position between 2 and the maximum. Stop screws have to be ordered separately.

	PACKAGING SIZE	ORDER NUMBER
Stop screw M1.4	10 pcs.	4124-21
Stop screw M1.4	100 pcs.	4124-20
Hex nut M10 x 0.75	10 pcs.	4124-41

SPECIFICATIONS

MECHANICAL DATA

Resolution:	24 positions max. (15° indexing); shorting 12 positions max. (30° indexing); non-shorting
Switching torque (new condition):	1.5, 8.0, 15 or 20 Ncm (+/- 25%), additional wafers may increase switching torque
Rotational life:	25,000 switching cycles min.
Fastening torque of nut:	300 Ncm max.

ELECTRICAL DATA

Function:	From 1 x 24 to 6 x 3 poles/positions per wafer (max. 8 wafers; >8 wafers are available on request)
Switching mode:	Shorting (for 15° indexing) Non-shorting (for 30° indexing)
Load current:	2 A max. (resistive load)
Switching voltage:	42 VDC max.
Contact resistance (new condition):	10 m Ω max.
Insulation resistance (new condition):	10 ¹² Ω min. (contact to contact / housing)
Switching capacity:	1 pF max. (contact to contact)
Dielectric withstanding voltage:	500 VDC during 60 seconds

MATERIAL DATA

Shaft:	Stainless steel
Bushing/housing:	Zinc diecast, zinc plated and passivated
Nut:	Brass, zinc plated and passivated
Contact plating:	Gold; 3 μ m
Insulation material:	Wafer: HF ceramic, rotor: Polybutylene (PBTB)
Soldering leads:	Alloy copper, gold plated

ENVIRONMENTAL DATA

Operating/storage temperature range:	-40 to +85°C
IP sealing:	IP60, optional IP68 (2 bar, 1 h) shaft/front panel sealing
Vibration:	10 G _{rms} max. @ 10 to 2000 Hz
Flammability:	UL94-HB

PACKAGING QUANTITY

Tray:	10 pcs.
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SOLDERING CONDITIONS

Hand soldering:	340°C max. during 2 s max.
Wave soldering:	280°C max. peak temperature during 5 s max.

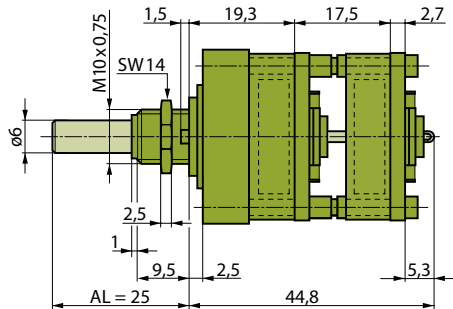
SWITCHING MODES

For information about switching modes please see technical explanations at the end of the catalog

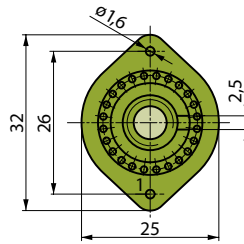
SELECTOR SWITCH TYPE O4

DRAWINGS

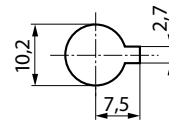
WITH SOLDER EYELETS



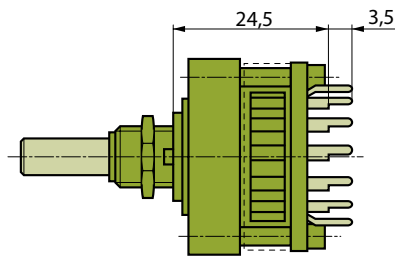
SW = key spanner



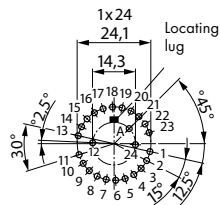
FRONT PANEL CUT OUT



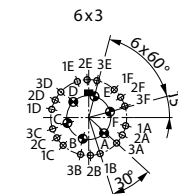
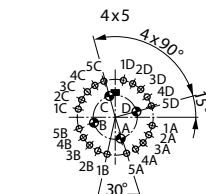
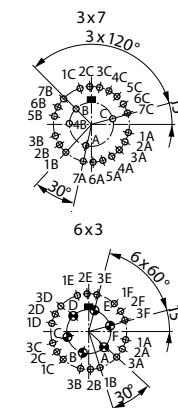
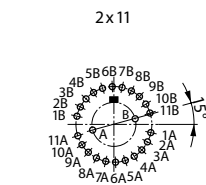
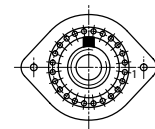
WITH PINS FOR PCB MOUNTING



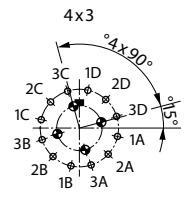
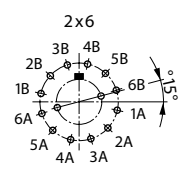
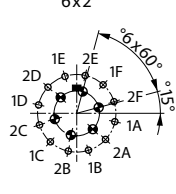
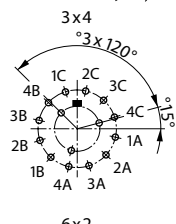
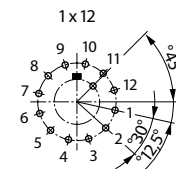
DRILLING DIAGRAM FOR 15° INDEXING ANGLE



View from the shaft end



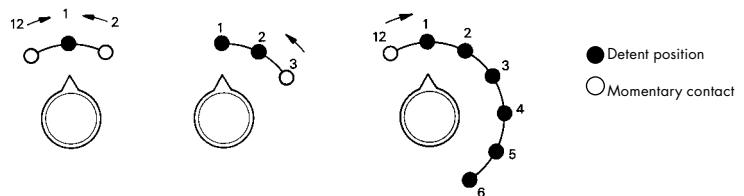
DRILLING DIAGRAM FOR 30° INDEXING ANGLE



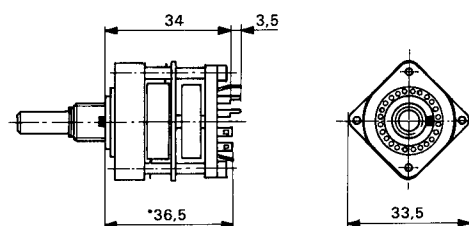
○ = $\varnothing 1,3\text{ mm}$
 ● = $\varnothing 2,3\text{ mm}$

SWITCH WITH MOMENTARY CONTACT

EXAMPLES



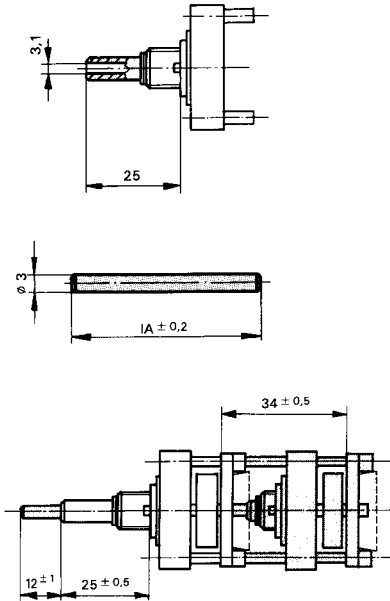
DIMENSIONS



*17.5 mm extra per wafer

SELECTOR SWITCH TYPE 04

HOLLOW SHAFT SYSTEM



HOLLOW SHAFT

Available for switches up to 5 wafers; inner shaft (Ø 3 mm) to be ordered separately.

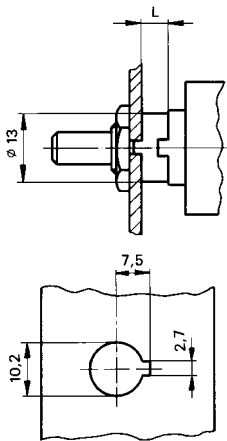
INNER SHAFT

For switches with mounting plate or hollow shaft; hollow shaft has to be ordered separately. Please state exact length.

SWITCHES WITH 2 DRIVE SHAFTS

Consisting of a hollow outer and inner shaft. The inner shaft driving a maximum of 3 wafers with 6 wipers each. Please give type description of each switch.

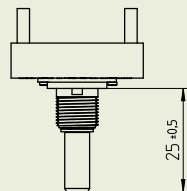
SPACERS



Spacers can be used in many cases instead of shortened bushes; made of glass-fibre reinforced plastic to compensate the front panel thickness; available in two standard lengths.

LENGTH L	PACKAGING UNIT	ORDER NUMBER
3.5 mm	10 pcs.	4007-36
3.5 mm	100 pcs.	4124-30
5.5 mm	10 pcs.	4124-36
5.5 mm	100 pcs.	4124-35

TYPE KEY

04	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STANDARD TYPE KEY (see page 88)														
WAFER TYPE - HF ceramic P PCB														
NUMBER OF WAFERS (max. 8) > 8 on request														
NUMBER OF POLES Number of Poles per Wafer														
FACTORY SET CHARACTER Defined by Elma (See page 88, is composed of switching mode, poles and positions)														
SWITCHING MODE 3 Shorting 4 Non-shorting														
TORQUE - 15 Ncm (standard) M 8.0 Ncm N 20.0 Ncm R 1.5 Ncm														
		SHAFT DIAMETER 0 6 mm Z 1/4"												
		FACTORY SET END-STOP 00 Standard 23 23 pos. 22 22 pos. 21 21 pos. 20 20 pos. 19 19 pos. 18 18 pos. 17 17 pos. 16 16 pos. 15 15 pos. 14 14 pos. 13 13 pos. 12 12 pos. 11 11 pos. 10 10 pos. 09 9 pos. 08 8 pos. 07 7 pos. 06 6 pos. 05 5 pos. 04 4 pos. 03 3 pos. 02 2 pos.												
		SHAFT LENGTH (AL) 000 25 mm ¹ xxx Custom (e.g. 18.5 mm = 185) ¹ Customized shaft length Please state shaft length (AL) measured from mounting face (6 mm shaft; max. AL = 50 mm, 1/4" shaft; max. AL = 25 mm). 												
		PIN STYLE; IP SEALING 00 Eyelets 20 Pins for PCB 30 Eyelets; IP68 70 Pins for PCB; IP68												

GENERAL SWITCH KNOWLEDGE

POSITION

A position is the mechanical detent of a switch actuator.

DETENT

A detent is a mechanical positioning device for stopping actuator travel at each successive electrical circuit; for example, a spring-operated ball and groove.

POLE

A pole is a single common electrical input having one or more outputs.

WAFER, DECK OR LAYER

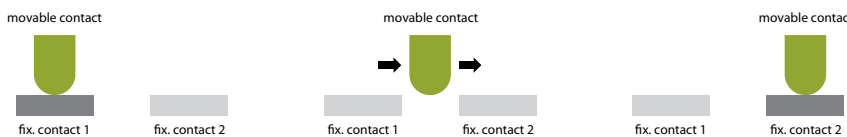
A wafer/deck or layer is a section what the contacts are mounted on.

INDEXING ANGLE

An indexing angle is the number of degrees between each position.
 For example: 12 positions for a total of 360 degrees result a 30 degrees indexing angle.

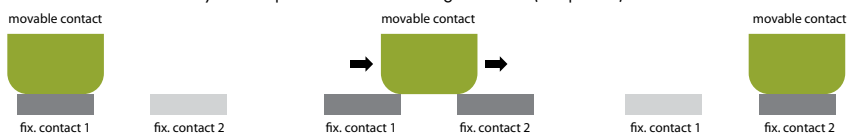
NON-SHORTING CONTACTS "BREAK BEFORE MAKE"

A non-shorting contact is also known as "break before make" and describes the action of one circuit of a pole before interrupting another of the same pole. The switch will be momentarily interrupted before it changes from position 1 to position 2 during actuation (see picture).



SHORTING CONTACTS "MAKE BEFORE BREAK"

A shorting contact is also known as "make before break" and describes the action of one circuit of a pole before interrupting another of the same pole. The switch will momentarily "short" position 1 and 2 during actuation (see picture).



CYCLE

A cycle is the complete sequence of indexing through all successive switch positions and returning to the original position. The rotational life from coded or selector switches are usually specified with cycles.

REVOLUTION

A revolution is the complete sequence of indexing through all successive switch positions in the same direction. The rotational life from encoded switches are usually specified with revolutions.

WHEN YOU SHOULD USE GOLD-PLATED CONTACTS

Gold plated contacts should be used for longer rotational life and if the switch will not be actuated for a long period of time after installation or in corrosive environmental conditions.