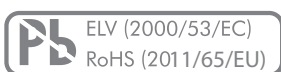


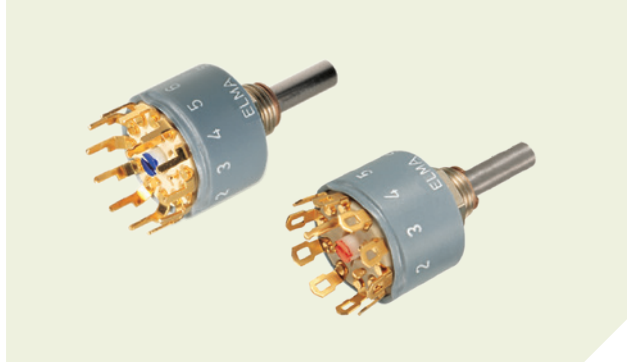
MAIN FEATURES

COMPACT, UP TO 12 POSITIONS

- 25'000 switching cycles with up to 6 Ncm switching torque
- Gold plated contacts: 3 micron
- Robust metal bushing and shaft
- Operating temperature: up to -40° to +85°C
- Front panel sealing: up to IP68
- Various options and customizations



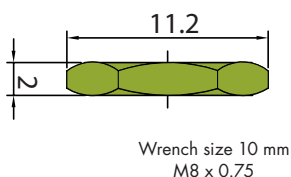
TYPE 01



PRODUCT VARIETY

- Soldering eyelets or pins for PCB
- From 1 x 12 to 4 x 3 poles/positions per wafer
- Single or dual wafer
- Indexing angle: 30°, 36° or 60°
- Shorting or non-shorting
- Switching torque: 2, 4 or 6 Ncm
- Front panel sealing: IP60 or IP68
- Configurable End-Stops
- Shaft diameter: 3, 4 or 6 mm
- Shaft length

NUT (SUPPLIED)



Spare Part

Part Number (10 pcs. bag)
- Brass nickel plated: 4024-81

POSSIBLE CUSTOMIZATIONS

- Shaft dimension and shape
- Bushing dimensions
- Switching torque
- Hollow shaft, inner shaft
- Pull/push-to-turn
- Others















TYPICAL APPLICATIONS

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










1 PREFERENCE TYPES SELECTION CHART

1 For other types/options, see type key.




INDEXING ANGLE 30°, SHORTING

CONTACT ARRANGEMENT	NUMBER OF WAFERS (MAX 2 WAFERS AVAILABLE)	FUNCTION (POLES X POSITIONS)	PART NUMBER WITH SOLDER EYELETS	WITH PINS FOR PCB
		1 x 12, endless rotating	01-1123	01-1123-20
		2 x 12, endless rotating	01-2123	–
		1 x 12	01-1183	01-1183-20
		2 x 12	01-2183	–
		1 x 11	01-1113	01-1113-20
		2 x 11	01-2113	–
		2 x 6	01-1263	01-1263-20
		4 x 6	01-2263	–
		4 x 3	01-1433	01-1433-20
		8 x 3	01-2433	–

INDEXING ANGLE 30°, NON-SHORTING

CONTACT ARRANGEMENT	NUMBER OF WAFERS (MAX 1 WAFERS AVAILABLE)	FUNCTION (POLES X POSITIONS)	PART NUMBER WITH SOLDER EYELETS	WITH PINS FOR PCB
		1 x 12, endless rotating	01-1124	01-1124-20
		1 x 12	01-1184	01-1184-20
		1 x 11	01-1114	01-1114-20
		2 x 6	01-1264	01-1264-20
		4 x 3	01-1434	01-1434-20

INDEXING ANGLE 36°, SHORTING

CONTACT ARRANGEMENT	NUMBER OF WAFERS (MAX 2 WAFERS AVAILABLE)	FUNCTION (POLES X POSITIONS)	PART NUMBER WITH SOLDER EYELETS	WITH PINS FOR PCB
		1 x 10, endless rotating	01-1103	01-1103-20
		1 x 10	01-1193	01-1193-20

INDEXING ANGLE 60°, NON-SHORTING

CONTACT ARRANGEMENT	NUMBER OF WAFERS (MAX 2 WAFERS AVAILABLE)	FUNCTION (POLES X POSITIONS)	PART NUMBER WITH SOLDER EYELETS	WITH PINS FOR PCB
		1 x 6, endless rotating	01-1104	01-1104-20
		1 x 6	01-1164	01-1164-20
		2 x 3	01-1234	01-1234-20
		4 x 2	01-1424	01-1424-20

STOP PINS

PACKAGING UNIT	PART NUMBER
10 pcs.	4007-36
50 pcs.	4007-35

On switches with fixed end-stop, additional stops can be set, by means of a plastic pin, on any position between 2 and the maximum (stop pins to be ordered separately).

SPECIFICATIONS

MECHANICAL DATA

Resolution:	12 positions max. (30° indexing); shorting or non-shorting 10 positions max. (36° indexing); shorting 6 positions max. (60° indexing); non-shorting
Switching torque (new condition):	2, 4 or 6 Ncm (+/- 25%), additional wafers may increase switching torque
Rotational life:	25'000 cycles min.
End-stop strenght:	100 Ncm for 30° indexing angle 150 Ncm for 36° and 60° indexing angle
Acceptable shaft load:	Max. allowable pull or munch load 4 mm shaft > 500 N max. allowable side load 4 mm shaft <= 100 N (20 mm above fixation of switch)
Fastening torque of nut:	300 Ncm max.

ELECTRICAL DATA

Functions:	From 1 x 12 to 4 x 3 poles/positions per wafer (max. 2 wafers)
Switching mode:	Shorting (for 30° and 36° indexing) Non-shorting (for 30° and 60° indexing)
Load current:	2 A max. (resistive load)
Switching voltage:	42 VDC max.
Contact resistance (new condition):	10 mΩ max.
Insulation resistance:	10 ¹¹ Ω min. (contact to contact / housing)
Switching capacity:	1 pF max. (contact to contact)
Dielectric withstanding voltage:	500 VDC during 60 seconds (pin to pin, pin to housing)

MATERIAL DATA

Shaft:	Stainless steel 1.4305
Bushing:	Nickel silver
Housing:	Fiber enforced plastic
Nut:	Brass with glossy nickel plating
Contact plating:	Gold; 3 μm
Insulation material:	Wafer: PEEK, rotor: Polybutylene
Soldering leads:	Alloy copper, gold plated

ENVIRONMENTAL DATA

Operating/storage temperature range:	-40 to +85°C max.
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 sec max.
Wave soldering:	280°C max. peak temperature during 5 sec max.

SWITCHING MODES

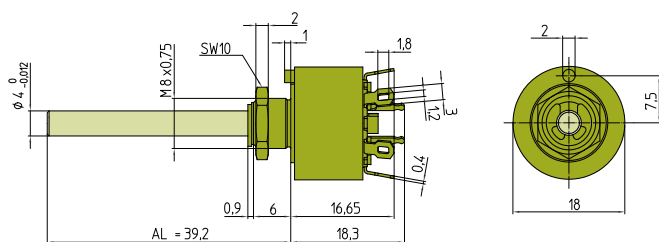
For information about switching mode please see **technical explanations** at the end of the catalog

DRAWINGS

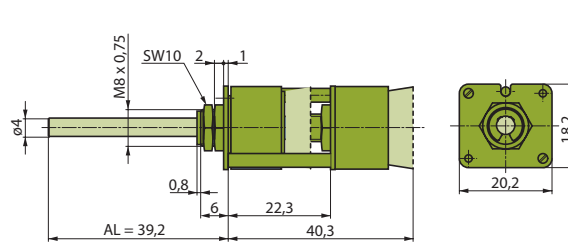
Tolerances unless otherwise specified DIN ISO 2768-1 (m)

WITH SOLDER EYELETS

1 WAFER

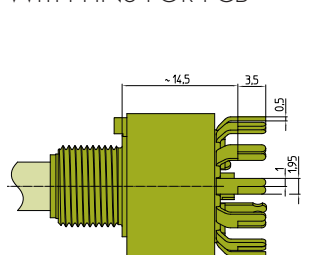


2 WAFER

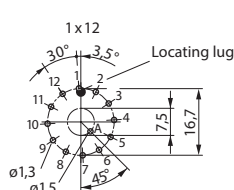


SW = key spanner

WITH PINS FOR PCB



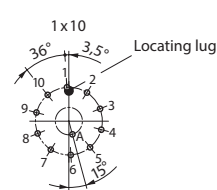
DRILLING DIAGRAM FOR 30° INDEXING ANGLE



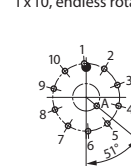
Drilling diagram view from the shaft end



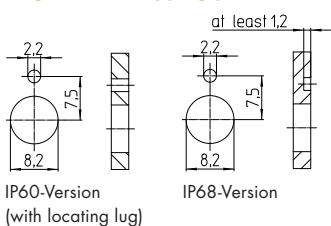
DRILLING DIAGRAM FOR 36° INDEXING ANGLE



1 x 10, endless rotating



FRONT PANEL CUT OUT

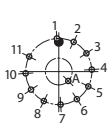


IP60-Version

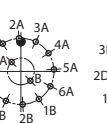
(with locating lug)

IP68-Version

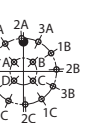
1 x 11



2 x 6



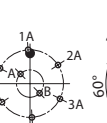
4 x 3



DRILLING DIAGRAM FOR 60° INDEXING ANGLE



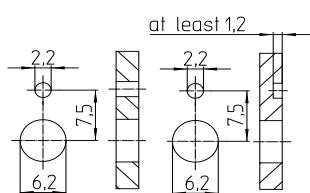
2 x 3



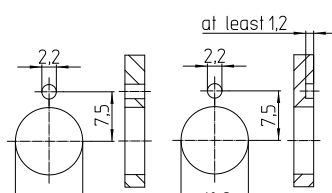
4 x 2



SPECIAL SHAFT DIAMETER



iP 60 - 3 mm - iP 68

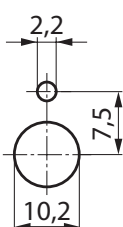
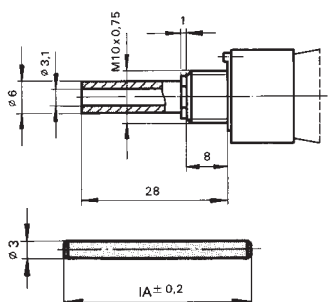


iP 60 - 6 mm - iP 68

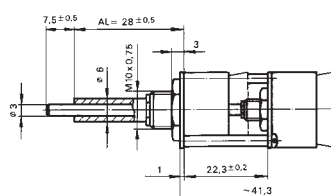
TYPE O1 switches are also available with the following shaft diameters:

\varnothing	AL (STANDARD)	BUSHING	NUT SIZE
3 mm	59 mm	M6 x 0.75 x 6.0 mm	10 mm
6 mm	28 mm	M10 x 0.75 x 8.0 mm	14 mm

HOLLOW SHAFT SYSTEM (CUSTOMIZED SOLUTION)



Front panel cut out



HOLLOW SHAFT

Hollow shaft to allow concentric operation of either two switches or, for example, a switch and a potentiometer. The inner shaft ($\varnothing 3$ mm) must be ordered separately.

INNER SHAFT

Must be ordered separately for switches with hollow shaft.

SWITCHES WITH CONCENTRIC SHAFTS

It is possible for two switches to be operated individually by concentric shafts on the same mounting. When ordering, the type number of each switch must be given and specified. IP 60.

TYPE KEY

01	-	-	-	-	-	-	-	-	-	-	-	-	-	-
----	---	---	---	---	---	---	---	---	---	---	---	---	---	---

PART NUMBER

(see page 87)

NUMBER OF WAFERS

(max. 2)
max. 1 wafer for 30° non-shorting

NUMBER OF POLES

Number of poles per wafer

FACTORY SET CHARACTER

Defined by Elma
(see page 87, is composed of switching mode, poles and positions)

SWITCHING MODE

- 3** Shorting
4 Non-shorting

TORQUE

- 4 Ncm (standard)
M 2 Ncm
N 6 Ncm

SHAFT DIAMETER

- 0** 4 mm (standard)
M 3 mm
N 6 mm

FACTORY SET END-STOP

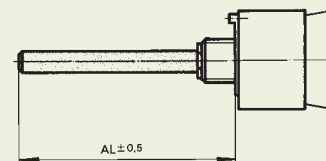
- 00** 12 pos. (standard)
11 11 pos.
10 10 pos.
09 9 pos.
08 8 pos.
07 7 pos.
06 6 pos.
05 5 pos.
04 4 pos.
03 3 pos.
02 2 pos.

SHAFT LENGTH (AL)

- 000** 59 mm (Ø 3 mm shaft)
39.2 mm (Ø 4 mm shaft) (standard)
28 mm (Ø 6 mm shaft)
1 xxx Custom shaft length. (AL)
(round custom shaft lengths to
0.5 mm accuracy eg. 10.3mm
=> 10.5mm or 10.00mm)

¹ Customized shaft length (AL)
AL: measured from top of housing
(see picture below).

Max shaft length (AL):
Ø 3 and 4 mm = 80 mm
Ø 6 mm = 28 mm



PIN STYLE, IP SEALING

- 00** Eyelets, IP60
20 Pins for PCB, IP60
30 Eyelets, IP68
70 Pins for PCB, IP68