

# Displacement Sensor, Ultraflat Industrial Potentiometer Membrane



## FEATURES

- Sealed
- Infinite resolution
- High integration capacity
- Durability
- Rectilinear: UIPMA type
- Rotational: UIPMC type
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

## DESIGN SUPPORT TOOLS

[click logo to get started](#)
**3D**  
Models  
Available

## QUICK REFERENCE DATA

Sensor type	LINEAR or ROTATIONAL, conductive plastic
Output type	Output by connector
Market appliance	Industrial
Dimensions	4 mm (thickness max.)

## ELECTRICAL SPECIFICATIONS

PARAMETER	UIPMA	UIPMC
Total resistance ( $R_n$ )	4.7 k $\Omega$	10 k $\Omega$
Tolerance on $R_n$	$\pm 30\%$	
Dissipation	$\leq 0.1$ W/cm of travel <sup>(1)</sup>	$\leq 1$ W to 70 °C
Theoretical electrical travel (TET)	20 mm to 250 mm <sup>(1)</sup>	312°
Tolerance on TET	$\pm 1$ mm	$\pm 3^\circ$
Useful electrical travel (UET)	TET - 2 mm	306°
Electrical continuity travel (ECT)	TET + 4 mm	325°
Linearity	$\pm 2\%$	$\pm 5\%$
Temperature coefficient	-300 ppm/°C $\pm$ 300 ppm/°C	
Collector / track current ( $I_c$ )	$\leq 1$ mA	
Recommended current $I_c$	$\leq 100$ $\mu$ A	
Recommended load impedance	$\geq 100 R_n$	
Output smoothness	< 0.1 % (NFC 93 255)	

### Note

<sup>(1)</sup> See "Specific UIPMA Characteristics" table

## MECHANICAL SPECIFICATIONS

PARAMETER	UIPMA	UIPMC
Design	Flexible insulating films	Flexible insulating films
Mechanical travel	Electrical continuity travel	Electrical continuity travel
Backlash	< 0.1 mm	< 0.3°
Mounting	With double-sided adhesive on flat, clean, and dry support	
Speed displacement	$\leq 1.5$ m/s	
Drive	Force $\geq 0.3$ N	Torque $\geq 1$ N cm
Protection class (NFC 20 010)	IP66 (electrical connection and plug excluded)	
Maximum alignment fault	$\pm 1$ mm	-

## PERFORMANCE

PARAMETER	UIPMA	UIPMC
Life	> 3M cycles (depending on chosen wiper)	
Operating temperature range	-10 °C to +50 °C	
Storage temperature range	-40 °C to +50 °C	
Support	Flat, clean, and dry	

### Note

- Nothing stated herein shall be construed as a guarantee of quality or durability

SAP PART NUMBERING GUIDELINES - UIPM							
MODEL	TYPE	UIPMA: THEORETICAL ELECTRICAL TRAVEL (mm) UIPMC: EXTERNAL DIAMETER (mm)	TYPE	VALUE	LINEARITY	LEADS	PACKAGING
UIPM	A = linear	050 100 (on request) 150 200 (on request) 250	I = industrial	472 = 4K7	X = ± 2 %	C = connector	B = bulk
UIPM	C = rotational	030	I = industrial	103 = 10K	J = ± 5 %	C = connector	B = bulk

ACCESSORY WIPER	
Wiper type A	ACCSUIPMWIPERKB434

CONNECTIONS
Connector Berg Duflex 67.013.003, contacts 76.785.301 The connector of UIPMA / UIPMC is intended for use with Berg terminal ref. 76785-YXX and Berg headers ref. 76384-YXX or 76382-YXX

### DIMENSIONS in millimeters

#### UIPMA

**Bottom**

Active area with adhesive

Flat flex cable

6.5 ± 1

Connector Berg Duflex 67013-003LF Contacts 76785-301LF

0.51 ± 0.1 total thickness without protection layer

A Stuck on the customer interface

**Top**

Pin 3  
Pin 2  
Pin 1

8 x R2 ± 1

13.5 ± 0.5

7 ± 1

TET + 11

TET + flat flex cable + 14

1.75 ± 0.5

10 ± 1

Useful Electrical Travel: UET (TET - 2)

Theoretical Electrical Travel (TET)

Electrical Continuity Travel: ECT (TET + 4)

Identification area: VISHAY - part number - date code  
Part number: UIPMAxxxI472XCB  
Date code: YYYYWW  
(YYYY: the year of manufacture with 4 digits, WW: week number with 2 digits)

**Schematic <sup>(1)</sup>**

U<sub>supply</sub> (pin 3)

Wiper

Collector (pin 2)

Ground (pin 1)

Equipotential voltage areas

**Top**

**Bottom**

**Warning:**  
do not bend the active area

TET (mm)	FLAT FLEX CABLE (mm)
50	100
100	50
150	100
200	100
250	50

**Notes**

- Tolerancing according to ISO 8015
  - General tolerances according to ISO 2768 - mK
- (1) Ground and U<sub>supply</sub> can be swapped to change the slope sign