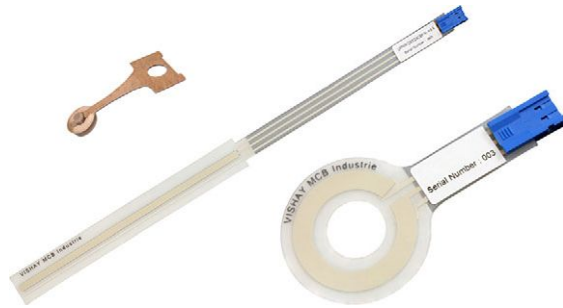


# Displacement Sensor, Ultraflat Industrial Potentiometer Membrane



## 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 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	U	C = connector	B = bulk

ACCESSORY WIPER	
Wiper type A	ACCSUIPMWIPERKB434
Wiper type B	ACCSUFPMWIPERKB422
Wiper type D	ACCSUIPMWIPERKB435

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

**Top**  
 Pin 3  
 Pin 2  
 Pin 1

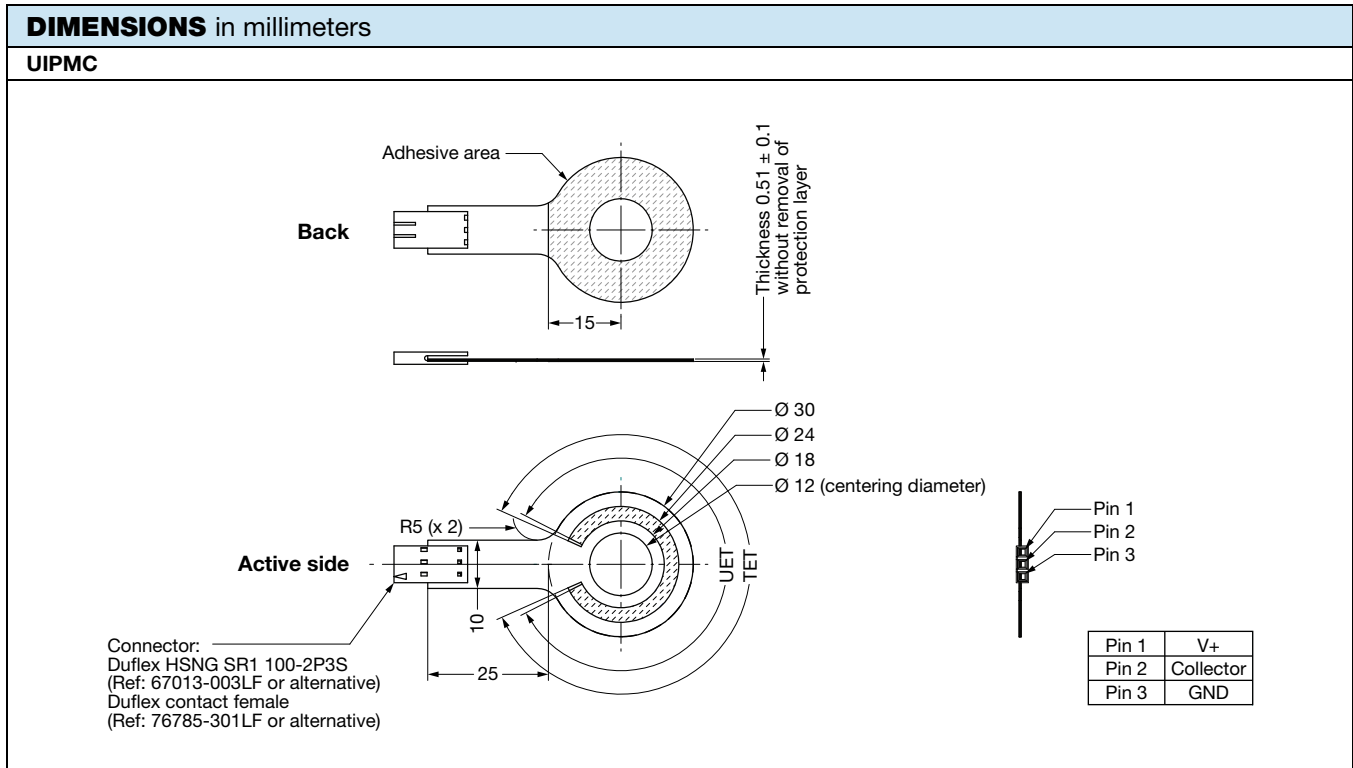
**Warning:**  
 do not bend the active area

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

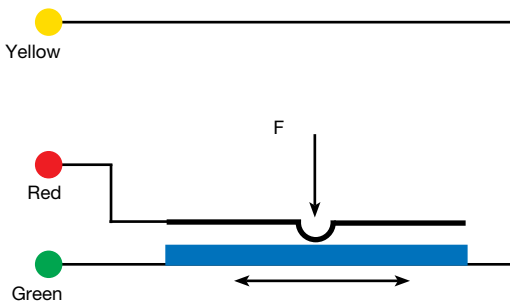
- Notes**
- Tolerancing according to ISO 8015
  - General tolerances according to ISO 2768 - mK
  - (1) Ground and U<sub>supply</sub> can be swapped to change the slope sign

**MOUNTING REQUIREMENTS FOR UIPMA**

1. The shape of the customer interface over the active area shall be:  $\square 0.05$
2. The roughness of the customer interface over the active area shall be:  $\sqrt{Ra} 1.6$
3. Before sticking the sensor, the interface surface shall be free of all traces of dirt, grease, foreign objects, and burrs.
4. The bending of the flat flex cable shall be:  $\varnothing 3$  mm min.



**ELECTRICAL DIAGRAM**



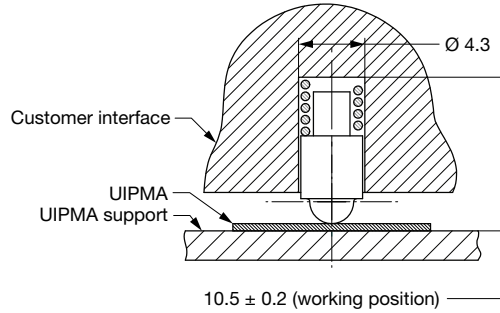
The voltage varies according to the position of the presser on the deformable membrane.

**SPECIFIC VERSIONS** (on request)

- Other electrical or mechanical characteristics
- Other bases
- Integration in equipment
- Other versions: outdoor design, ...
- Integration in equipment (flat flex cable, contacts, wires, ...)

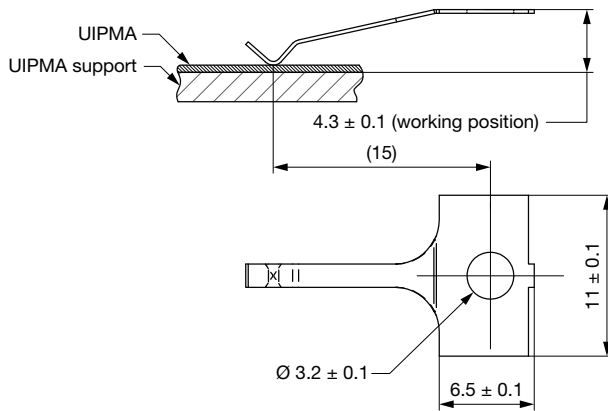
**PRESSERS**

**Wiper Type A**



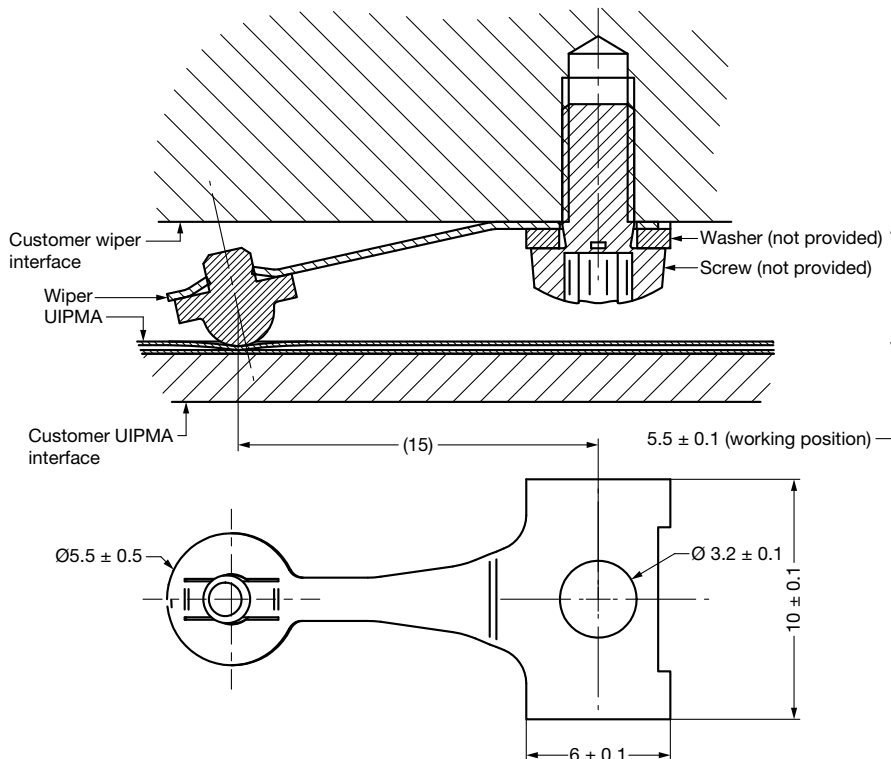
Endurance life = 3M cycles

**Wiper Type B**

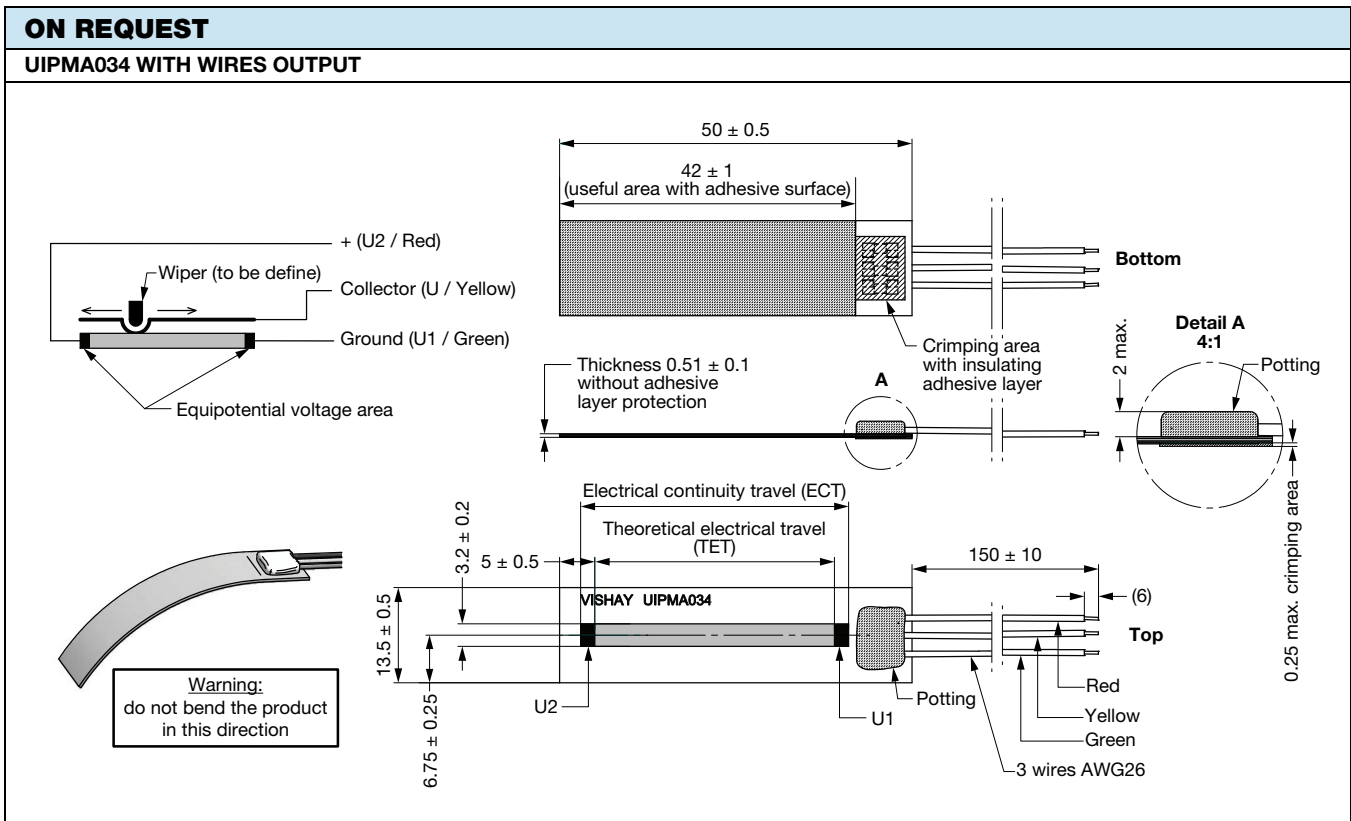
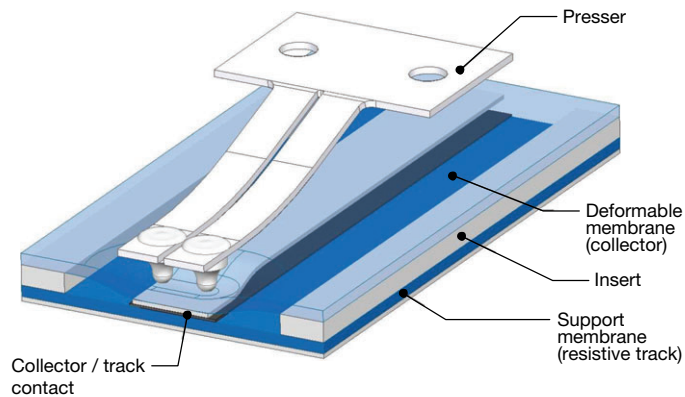


Endurance life = 100 000 cycles

**Wiper Type D**

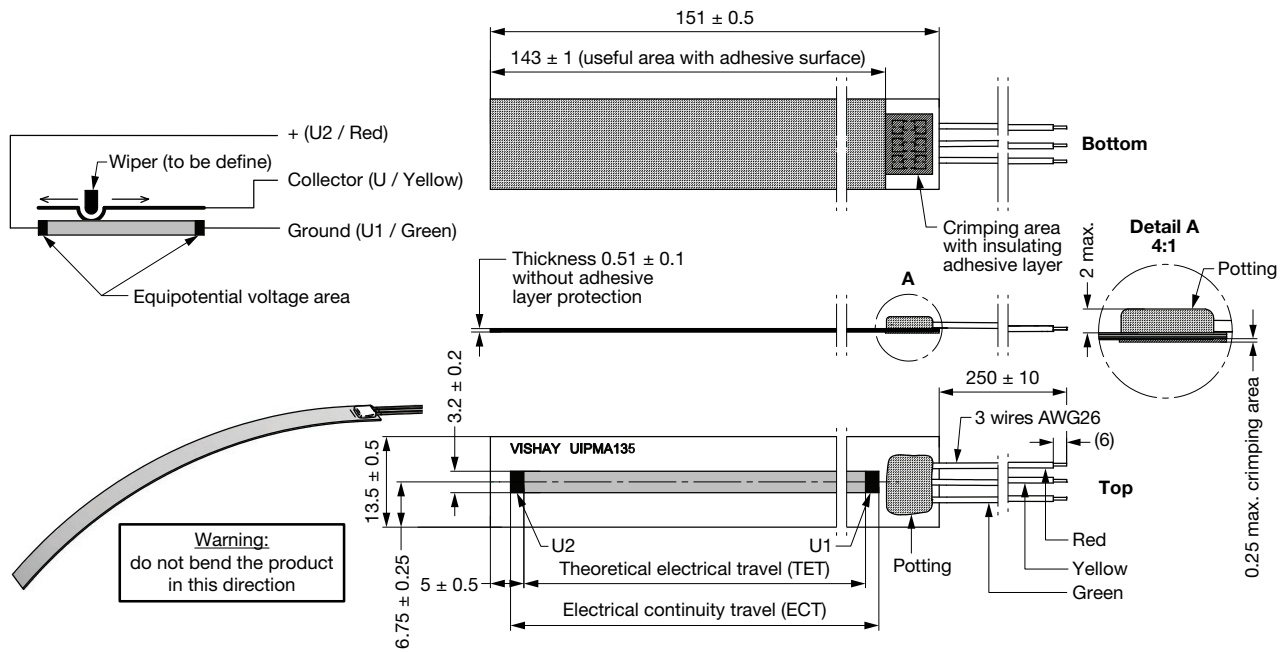


<b>SPECIFIC UIPMA CHARACTERISTICS</b>			
THEORETICAL ELECTRICAL TRAVEL (TET) (mm)	DISSIPATION AT +40 °C (W)	ELECTRICAL CONTINUITY TRAVEL (ECT) (mm)	FILM LENGTH (mm)
50	≤ 0.5	54	75
100	≤ 1.0	104	125
150	≤ 1.5	154	175
200	≤ 2.0	204	225
250	≤ 2.5	254	275

**OPERATING DESCRIPTION**


**ON REQUEST**

**UIPMA135 WITH WIRES OUTPUT**





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