

## Analog Displacement Sensors for Off-Road Applications



### FEATURES

- Conductive plastic potentiometer technology
- Use in engine compartment
- Wire or connector outputs
- Lever drive with return spring
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

### DESIGN SUPPORT TOOLS

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**3D**  
Models  
Available

### QUICK REFERENCE DATA

|                  |                                         |
|------------------|-----------------------------------------|
| Sensor type      | ROTATIONAL, conductive plastic          |
| Output type      | Output by integrated connector or wires |
| Market appliance | Transportation                          |
| Dimensions       | 39.5 mm x 31.5 mm x 23.37 mm            |

### ELECTRICAL SPECIFICATIONS

| PARAMETER                                           |                       |
|-----------------------------------------------------|-----------------------|
| Total electrical travel                             | 95° ± 1.5°            |
| Independent linearity                               | ± 1.5 %               |
| Inter-linearity                                     | ± 3 %                 |
| Total resistance (R <sub>n</sub> )                  | 2 x 4 kΩ ± 20 % in // |
| Output smoothness                                   | < 0.1 % (NFC 93255)   |
| Power rating at +40 °C                              | 0.5 W                 |
| Power rating at +125 °C                             | 0.05 W                |
| Wiper current limiting resistance (R <sub>p</sub> ) | 2 x 1.7 kΩ ± 20 %     |
| Recommended wiper current                           | ≤ 100 μA              |
| Maximum wiper current                               | 15 mA for 1 min       |
| Recommended load impedance                          | ≥ 100 R <sub>n</sub>  |

### MECHANICAL SPECIFICATIONS

| PARAMETER                              |                 |
|----------------------------------------|-----------------|
| Mechanical rotation                    | 125° ± 5°       |
| Lever return torque at start of travel | ≥ 1.5 N cm      |
| Lever return torque at end of travel   | ≤ 8.5 N cm      |
| Stop strength                          | 60 N cm         |
| Lever return                           | Anti-clockwise  |
| Protection class                       | IP 67           |
| Mounting screw tightening torque       | 2.3 N m maximum |

### PERFORMANCE

| PARAMETER                       |                                          |
|---------------------------------|------------------------------------------|
| Operating temperature range     | -40 °C to +125 °C                        |
| Storage temperature range       | -55 °C to +135 °C                        |
| Vibrations                      | Severity 10 Hz to 2000 Hz, 10 mm or 50 g |
| Life                            | 5M cycles (TET)                          |
| Micro-movements (dither stroke) | > 50M cycles                             |

#### Note

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

## SAP PART NUMBERING GUIDELINES - PMR410 / PMR420

| MODEL | TYPE                                                                                    | LEVER TYPE                 | VALUE                         | ANGLE | LEADS                                                                    | PACKAGING                                |
|-------|-----------------------------------------------------------------------------------------|----------------------------|-------------------------------|-------|--------------------------------------------------------------------------|------------------------------------------|
| PMR4  | 10 = redundant with integrated connector output<br><br>20 = redundant with wires output | A = lever A<br>C = lever C | 202 = 2K0<br>(2 x 4 kΩ in //) | 095   | I = integrated connector<br>(for PMR410)<br><br>W = wire<br>(for PMR420) | C = 20 pcs<br>G = 100 pcs<br>M = 400 pcs |

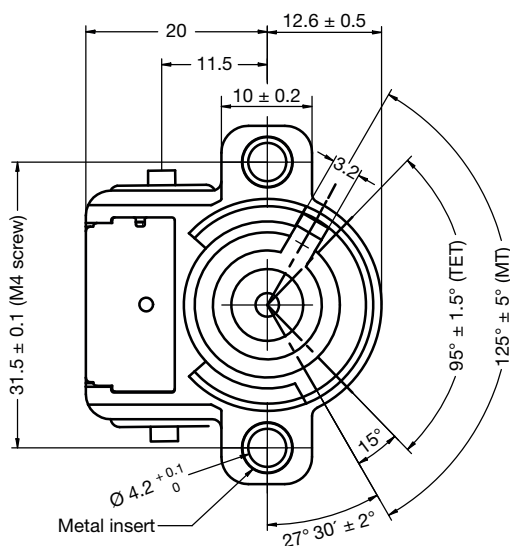
## CONNECTIONS

**Type PMR410:** AMP 142918-1 type integrated connector outputs

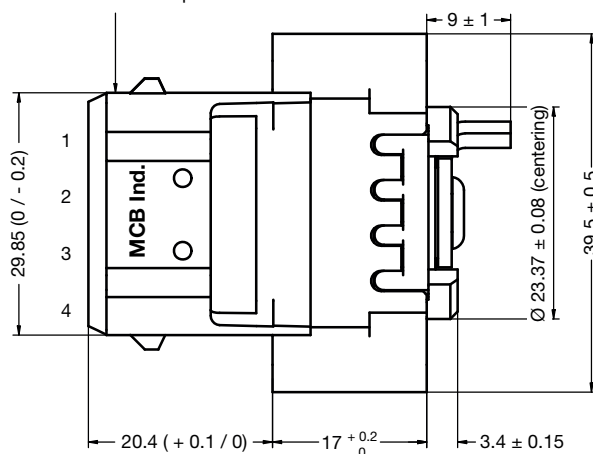
**Type PMR420:** Wire outputs (RoHS compliance to confirm in function of wires)

**DIMENSIONS** in millimeters

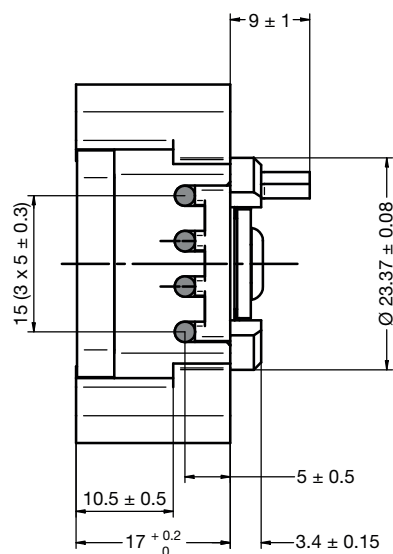
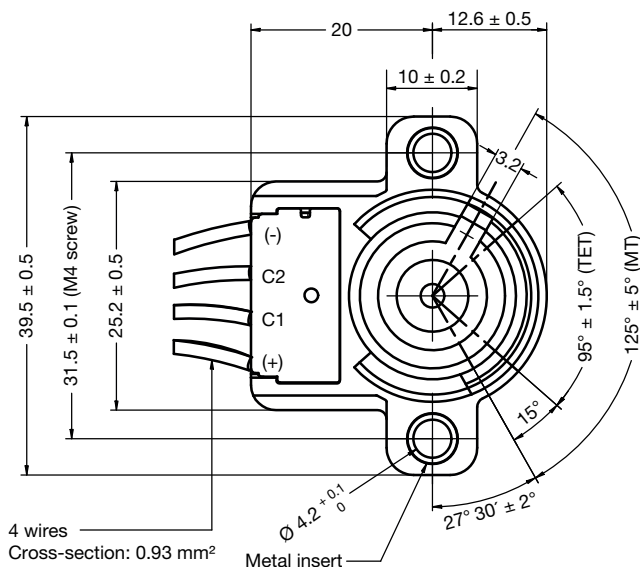
## PMR410



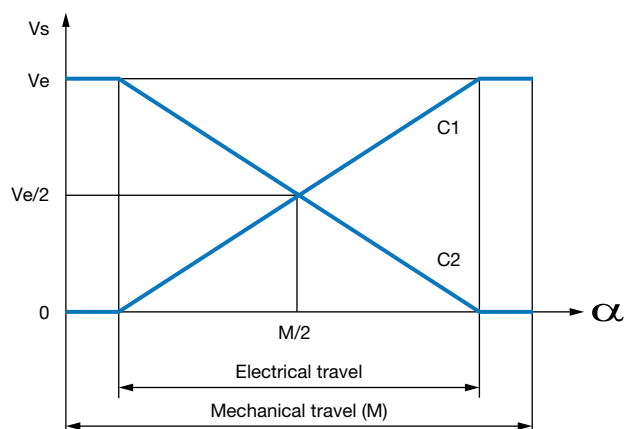
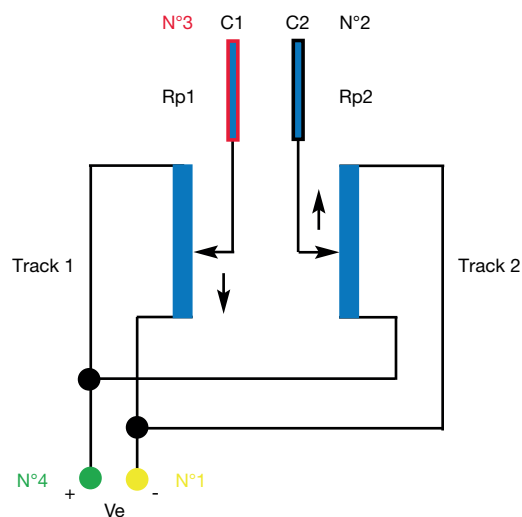
AMP 14918-1 type connector  
for 282192-1 (black) or 282192-2 (grey)  
female connector  
4 x 2.8 x 0.8 contacts pitch 5 mm



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**PMR420**

## ELECTRICAL DIAGRAM



**OPTIONS** (on request)

- Other electrical travel
- Other total resistance
- Other linearity
- No protection resistance ( $R_p$ )
- Other lever



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