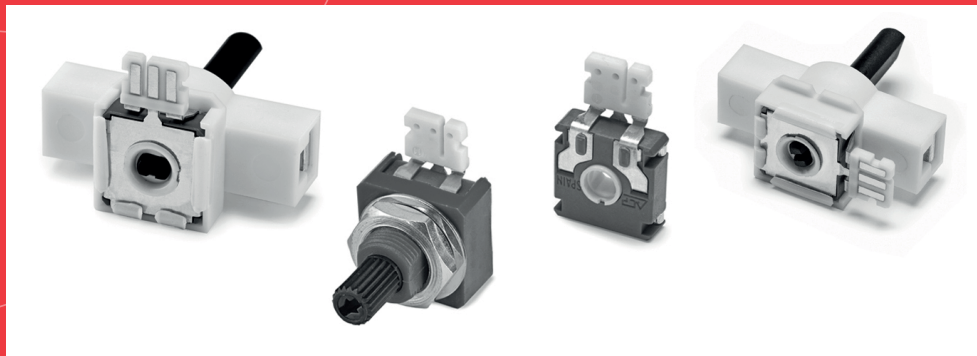


# ACP Pluggable Potentiometers



Technical information



Aragonesa de Componentes Pasivos

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## INTRODUCTION

ACP introduces the PLUGGABLE to RAST 2,5 card edge connector series. All available models share the same concept: the three pins of the endless-turn potentiometer are embedded in a plastic housing allowing its connection to the suitable card edge connector.

PLUGGABLE series are also capable of fixing themselves directly to the front panel through M4 screws or Nut&Washer (MCS14 HP) contained into its external housing.

Thanks to this concept, the output signal can be transmitted from the potentiometer to the customer electronics just using the suitable connector. In this way, you will save important costs such as the removal of the soldering process and the need for a PCB suited for a card edge connection.

Tight absolute linearity, softer/stronger mechanical detents, high-temperature fitting (up to 120°C), etc... are available options under request. Pluggable series can be customized to meet specific customer requirements.

### APPLICATIONS

Cooking ovens as feedback position sensor, cooking style selector, or temperature/time setting dial. Switch selector for washing machines, dishwashers, tumble dryers...

# HOW TO ORDER

**Example:** CS14NHP SI-10KA3030 LV15 RSN LN3% T°B

CSF14RHP SI-10KA3030 LV15 RSN LA4% S T°B WT-14015-NE-V0

QC16RHPL SI-10KA3030 LV10 16DT 5N S LA3% T°B PDT1 WT-14315-NE-V0

## Standard features

| 1      | 2                                                   | 3         | 4                | 5                                                      | 6                                        | 7                     | 8                                | 9                        |
|--------|-----------------------------------------------------|-----------|------------------|--------------------------------------------------------|------------------------------------------|-----------------------|----------------------------------|--------------------------|
| Series | Rotor <sup>1</sup>                                  | Model     | Connector.       | Value <sup>2</sup>                                     | Taper                                    | Tolerance             | Life                             | Detents                  |
|        |                                                     |           |                  |                                                        |                                          |                       |                                  |                          |
| CS14   | B, D*,E ,F*, G,<br>K, M, N*, P,<br>T*, X, Y*, Z*    | HP        | SI, SF<br>LI, LF | Std:<br>10K<br><br>Others:<br>1K≤ Rn ≤5M<br>on request | Linear: A<br><br>Others: Special<br>code | 1K ≤ Rn ≤ 5M:<br>±30% | Std:<br>LV15<br><br>Others: LVXX | No detents:<br>Blank     |
| MCS14  | N, Z                                                |           |                  |                                                        |                                          |                       |                                  | Other detents:<br>XXDT   |
| CSF14  | B, D*,E ,F*, G,<br>K, M, N*, P,<br>T*, X, Y*, Z*, R | HPL<br>HP |                  |                                                        |                                          |                       | Std:<br>LV10<br><br>Others: LVXX | No detents:<br>Blank     |
| QC16   | R                                                   |           |                  |                                                        |                                          |                       |                                  | Up to 16<br>detents:XXDT |
| QCJ16  |                                                     |           |                  |                                                        |                                          |                       |                                  | No detents:<br>Blank     |

## Extra features

| 10    | 11      | 12    | 13    | 14     | 15        | 16     | 17       | 18                 | 19                  | 20                     | 21    | 22    | 23    |
|-------|---------|-------|-------|--------|-----------|--------|----------|--------------------|---------------------|------------------------|-------|-------|-------|
| Track | Housing | Wiper | Rotor | Torque | Linearity | Plates | Oper. T° | Detent<br>Position | Mechanical<br>Angle | Accessory <sup>3</sup> | Ref # | Color | Flam. |
| CS14  |         |       |       |        |           |        |          |                    |                     |                        |       |       |       |
|       |         |       |       |        |           |        |          |                    |                     |                        |       |       |       |
| MCS14 |         |       |       |        |           |        |          |                    |                     |                        |       |       |       |
|       |         |       |       |        |           |        |          |                    |                     |                        |       |       |       |
| CSF14 |         |       |       |        |           |        |          |                    |                     |                        |       |       |       |
|       |         |       |       |        |           |        |          |                    |                     |                        |       |       |       |
| QC16  |         |       |       |        |           |        |          |                    |                     |                        |       |       |       |
|       |         |       |       |        |           |        |          |                    |                     |                        |       |       |       |
| QCJ16 |         |       |       |        |           |        |          |                    |                     |                        |       |       |       |

<sup>1</sup> Rotor drawings, <sup>2</sup> Standard ohmic values, <sup>3</sup> Accessory drawings : please refer to the General Catalogue at [www.acptechnologies.com](http://www.acptechnologies.com)

## Color chart, for rotor, housing and accessories HT

|      |         |     |      |
|------|---------|-----|------|
| Grey | Neutral | Red | Blue |
| GS   | IN      | RO  | AZ   |

## Color chart, for accessories (NO HT)

|       |       |     |
|-------|-------|-----|
| Black | White | Red |
| NE    | BA    | RO  |

Note: Rotor and Housing are according to UL 94V0.

HT accessories are recommended, V0 versions under request.

\*Rotors available for more than 50.000 turns

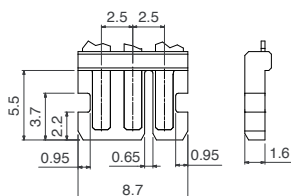
## Possibilities of connection

The three pins of the potentiometer (the collector and the two terminals) are fitted into a 1,55 mm thick plastic part with a pitch of 2,5mm. Extended temperature versions covering a range from -40°C to +120°C are available for applications where the working temperature interval exceeds the standard limits of -25°C to +70°C. The self-extinguishable version of the plastic parts, V0, can be supplied under request.

ACP is able to supply different kind of connectors:

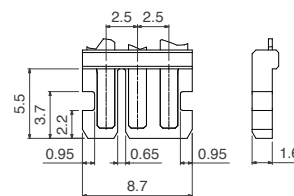
### SI

SHORT latching shape and groove at INITIAL terminal side.



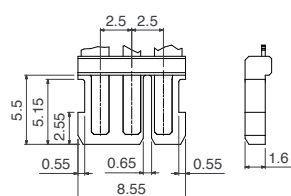
### SF\*

SHORT latching shape and groove at FINAL terminal side.



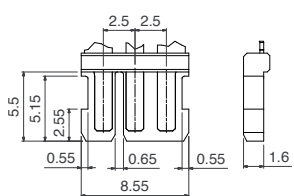
### LI\*

LONG latching shape and groove at INITIAL terminal side.



### LF\*

LONG latching shape and groove at FINAL terminal side.



\*Please, inquiry.

## Technical information table

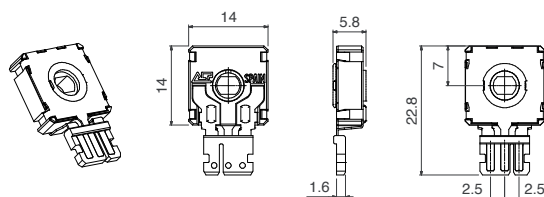
|                                                             |                  | CS14                                                  | MCS14 | CSF14 | QC16                               | QCJ16      |
|-------------------------------------------------------------|------------------|-------------------------------------------------------|-------|-------|------------------------------------|------------|
| Range of resistance value*                                  | Lin (A)          | Std: 10K<br>Others: 1KΩ≤ Rn≤ 5MΩ, on request          |       |       |                                    |            |
| Tolerance*                                                  | 1KΩ ≤ Rn ≤ 5MΩ   | ±30%                                                  |       |       |                                    |            |
| Variation laws                                              |                  | Lin (A). Other tapers available on request            |       |       |                                    |            |
| CRV - Contact Resistance Variation (dynamic)                |                  | ≤ 3% Rn                                               |       |       |                                    |            |
| CRV - Contact Resistance Variation (static)                 |                  | ≤ 5% Rn                                               |       |       |                                    |            |
| Maximum power dissipation                                   | Lin (A)          | at 50°C 0.15W                                         |       |       |                                    |            |
| Maximum voltage                                             | Lin (A)          | 250VDC                                                |       |       |                                    |            |
| Operating temperature*                                      |                  | T <sup>a</sup> Std: -25°C...+70°C                     |       |       |                                    |            |
|                                                             |                  | T <sup>a</sup> D:-25°C...+ 85°C                       |       |       |                                    |            |
|                                                             |                  | T <sup>a</sup> B: -25°C...+105°C (+125°C, on request) |       |       |                                    |            |
| Temperature coefficient                                     | 100Ω ≤ Rn ≤ 10KΩ | +200/ -300 ppm                                        |       |       |                                    |            |
|                                                             | 10KΩ < Rn ≤ 5MΩ  | +200/ -300 ppm                                        |       |       |                                    |            |
| Resistive element                                           |                  | Carbon technology                                     |       |       |                                    |            |
| Angle of rotation (mechanical)                              |                  | 360°                                                  |       |       |                                    | ± 45°± 5°  |
| Angle of rotation (electrical)                              |                  | 330° ± 20°                                            |       |       |                                    | 245°± 20°  |
| Wiper standard delivery position                            |                  | 50% ± 15°                                             |       |       | PDT1                               | 50% ± 5°   |
| Max. stop torque                                            |                  | -                                                     |       |       |                                    | 50 Ncm     |
| Max. push/pull on rotor                                     |                  | 35N / 50N                                             |       |       | 50 N                               |            |
| Wiper torque*                                               |                  | LV15: < 2,5 Ncm<br>>LV15: >1,5Ncm                     |       |       | -                                  | 0,5-3,5Ncm |
| Wiper torque with detents*                                  |                  | <3,5 Ncm                                              | -     |       | 3 Ncm, 5 Ncm<br>Others on request  | -          |
| Mechanical life                                             |                  | 15.000 turns<br>Long Life: Up to 250.000 turns        |       |       | 10.000 turns<br>Others, on request |            |
| Detent Option<br>(For value discrimination)-non overlapping |                  | Up to 16                                              | -     |       | Up to 16                           | -          |

\*Other (tapers, resistance value, operating temperature, wiper torque and mechanical life) please inquire.

Rotors can be chosen according to customer specifications; the rotors shown here are examples, please refer to the General Catalogue at [www.acpttechnologies.com](http://www.acpttechnologies.com)

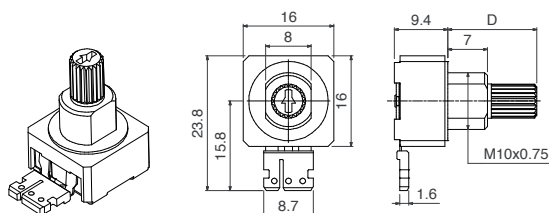
## CS14

### HP

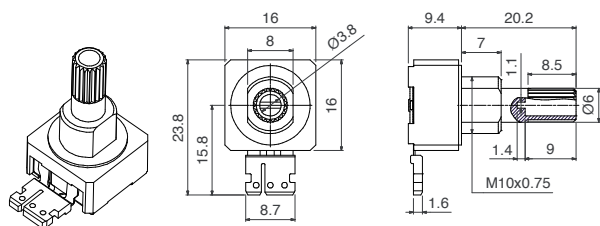


## MCS14

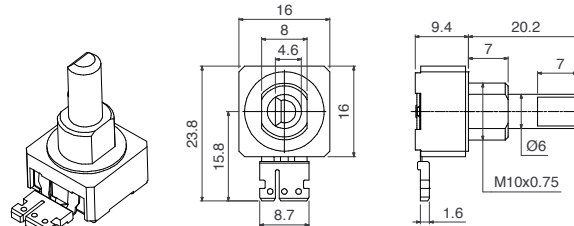
### HP



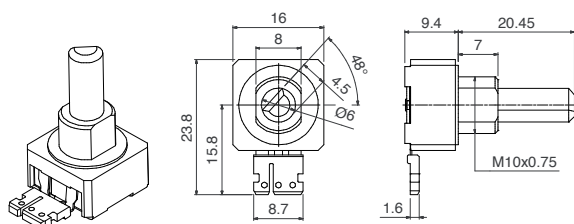
### HP... WT-14008



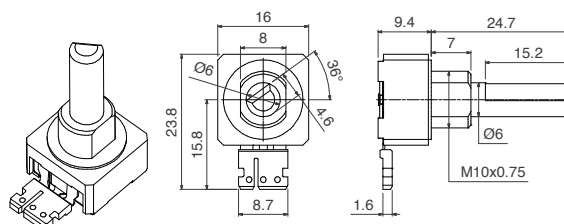
### HP... WT-14015



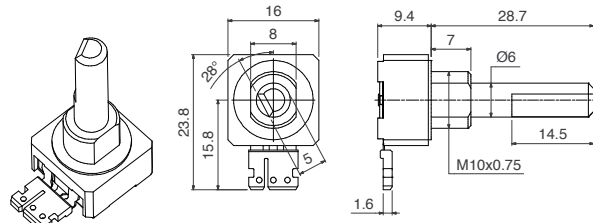
### HP... WT-14066



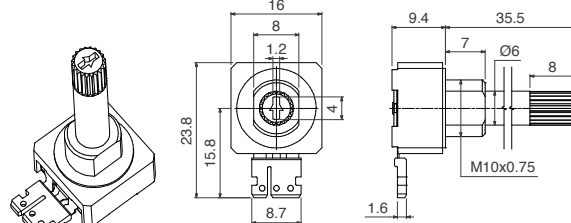
### HP... WT-14067



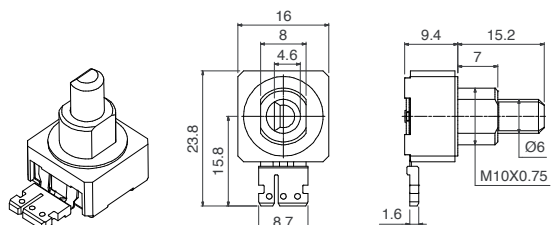
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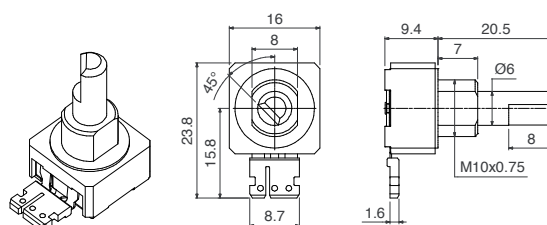
### HP... WT-14073



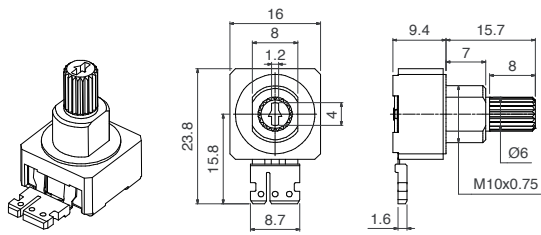
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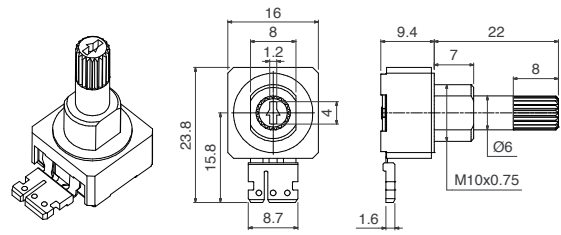
### HP... WT-14084



## HP... WT-14187

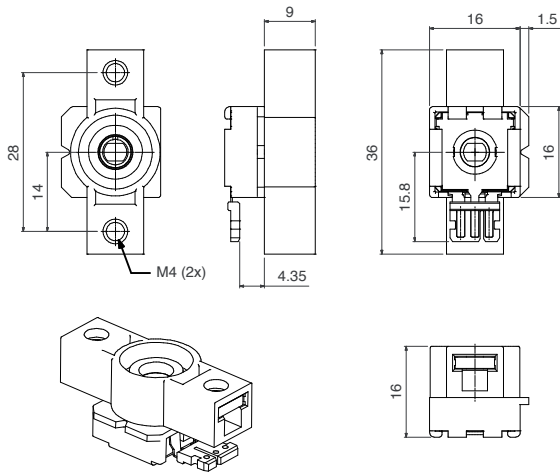


## HP... WT-14250

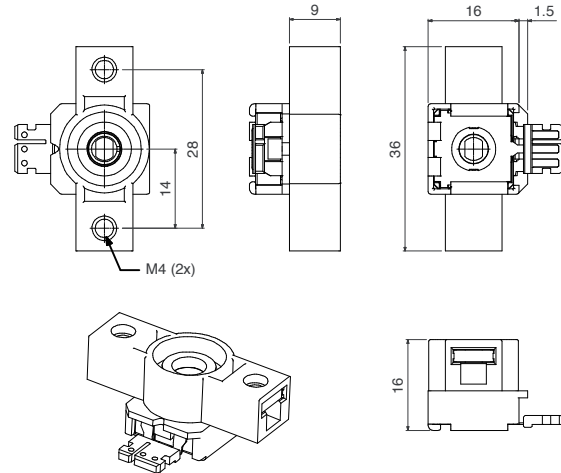


## CSF14 / QC16 / QCJ16

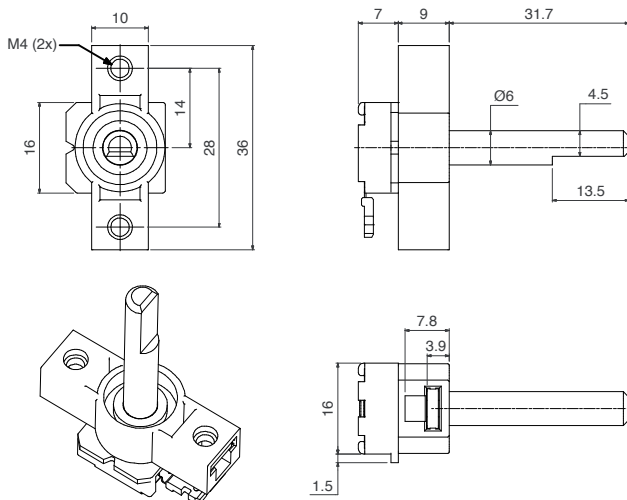
### HPL



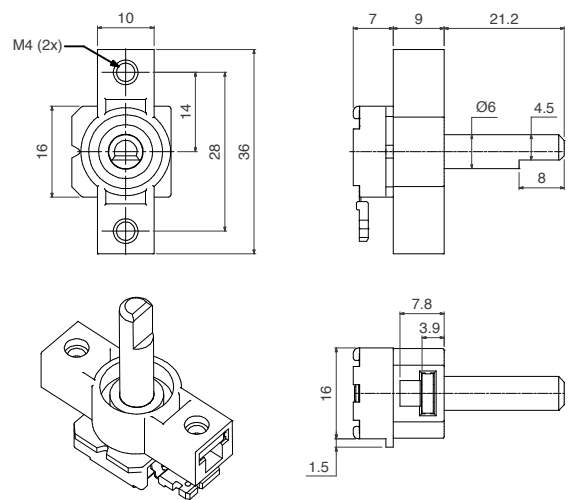
### HP



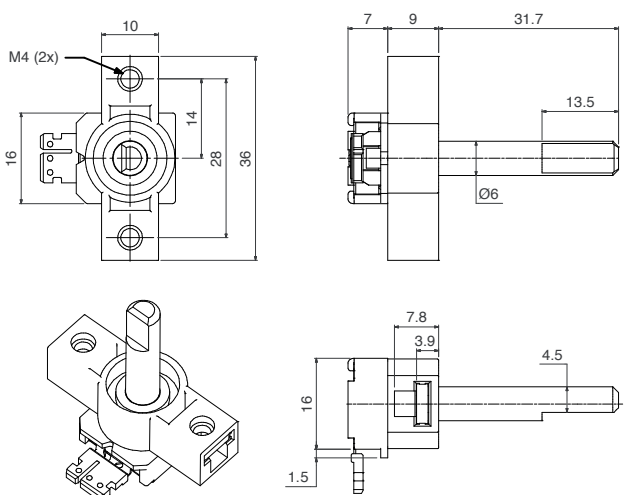
## HPL... WT-14301



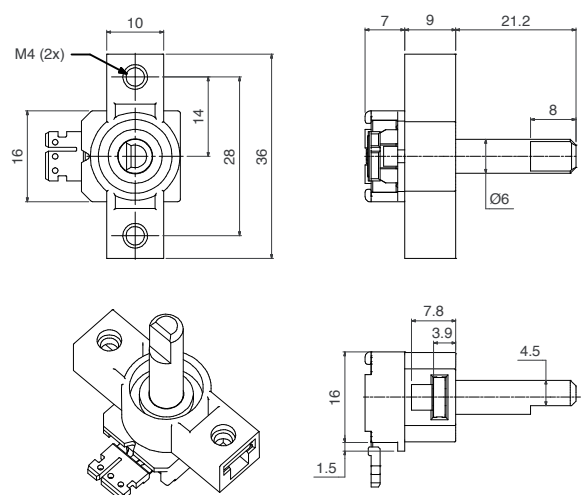
## HPL... WT-14315



## HP... WT-14301



## HP... WT-14315



## CS14 HP / MCS14 HP / CSF14 HP

Tight Linearity. Up to LA2%.

Non-overlapping

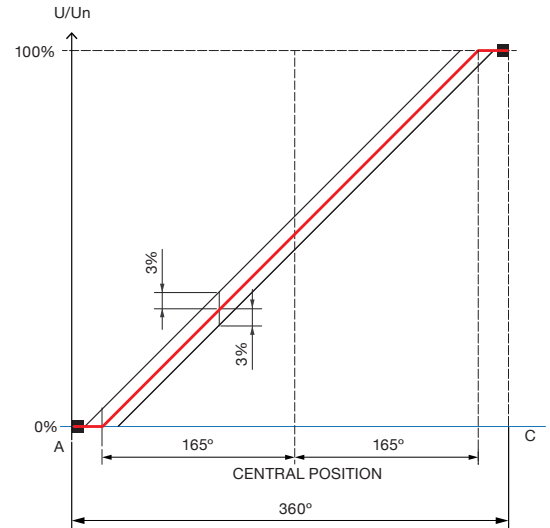
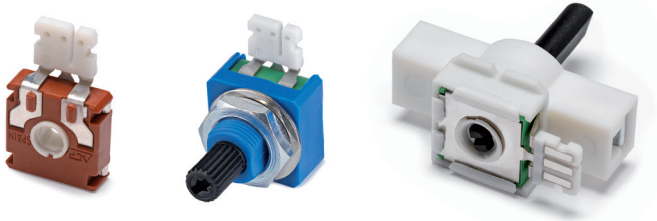
Panel fixation:

- MCS14: Nut&Washer

- CSF14: M4 Screws

Control Potentiometer Feedback

Feedback Position Sensor



Electrical Taper Example: CS14 HP & MCS14 HP

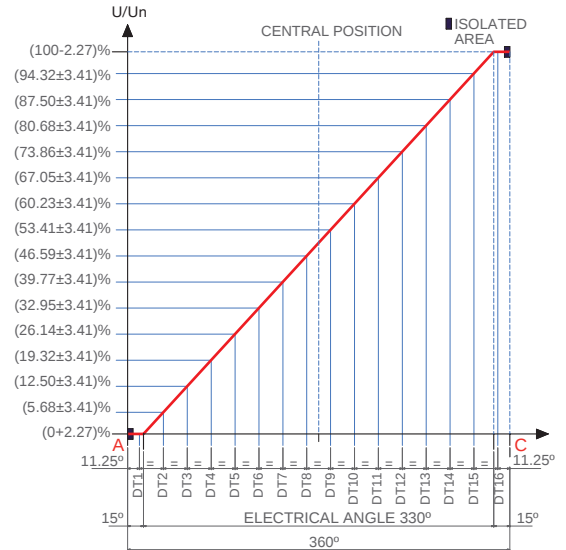
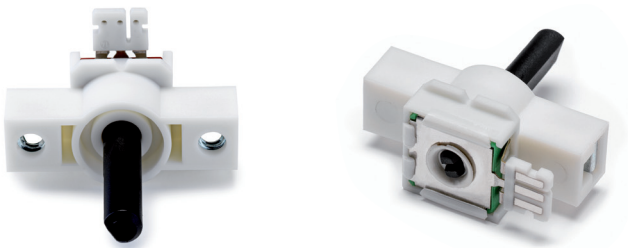
## QC16 HP/HPL

Mechanical Detents

Non-overlapping

Panel fixation - M4 Screws

Selector Function Switch



Electrical Taper Example: CSF14 HPL / HP

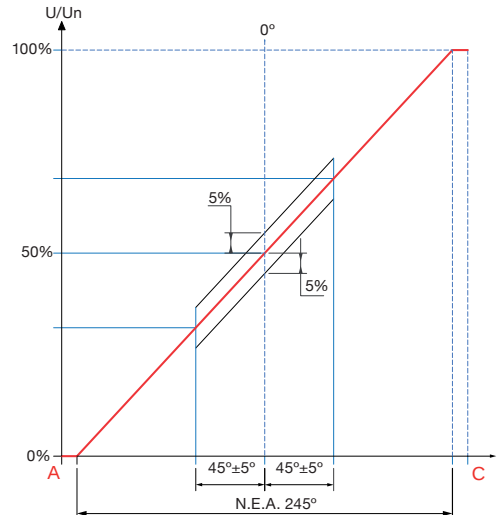
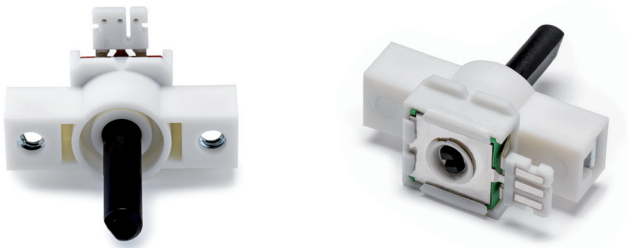
## QCJ16

Tight Linearity.

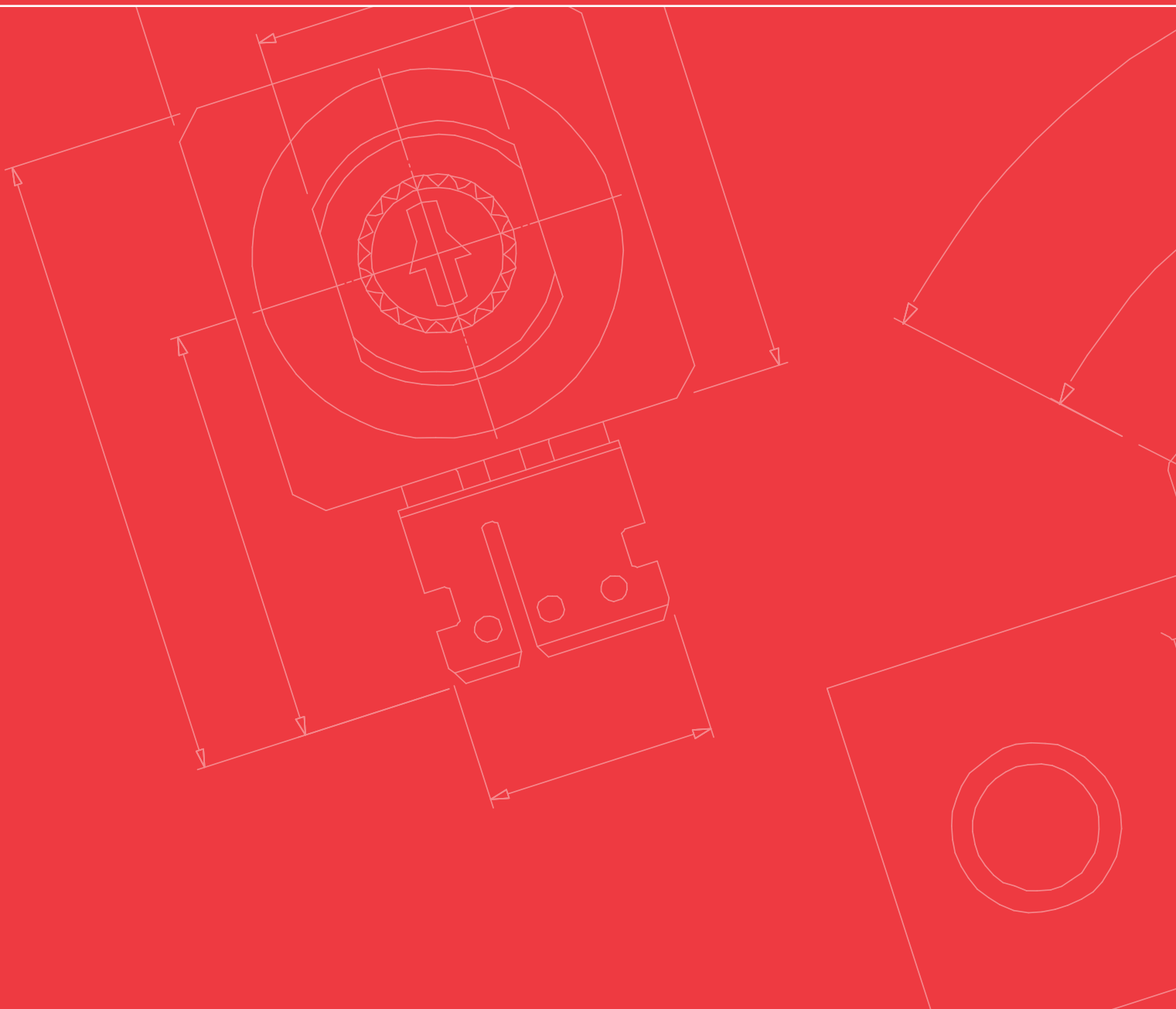
Spring Loaded Effect. Return to Zero

Panel fixation - M4 Screws

Control potentiometer



Electrical Taper Example: QC16 HP / HPL



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