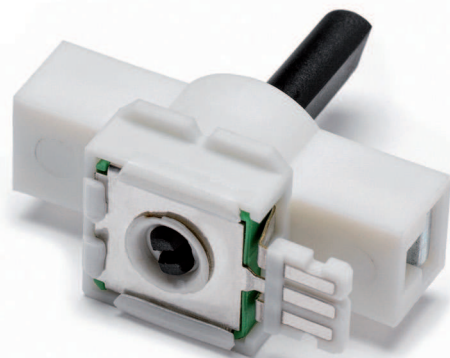
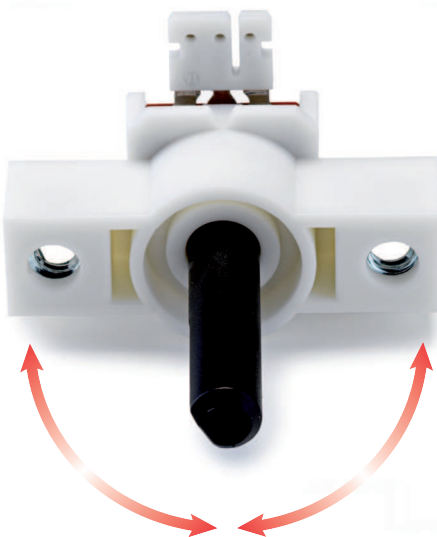


QCJ16

Control Panel Potentiometer



QCJ16

The QCJ16 belongs to the patented ACP Pluggable series. The three pins of the potentiometer are fitted into a 1,55 mm thick plastic part with a pitch of 2,5mm, allowing its connection to the suitable RAST2,5 card edge connector.

The external housing contains two washers for direct panel fixation through M4 screws into the customer device. ACP can also study other options for direct panel fixation.

The QCJ16 is fitted with an internal spring mechanism. When the operator turns the knob CW or CCW from the central rest position, the spring mechanism provides an opposite torque. When releasing the knob, the spring returns the potentiometer to the central rest position.

Electrically, the potentiometer is a standard 245° linear taper with a 5% absolute linearity. The mechanical rest position corresponds to the physical middle position, hence to the central value of the output signal. Starting from there, the output value varies along the linear curve until reaching the corresponding end stop.

An alternative output signal to the above is an SPDT (Single Pole, Double Throw) configuration, with "on" positions at both mechanical end stops and "off" position in the central rest position. Mechanical angle option available is $\pm 45^\circ$.

Extended temperature versions covering a range from -40°C to $+120^\circ\text{C}$ are available for applications where the working temperature interval exceeds the standard limits of -25°C to $+70^\circ\text{C}$. Ingress Protection rating type is IP54 and plastic materials can be self-extinguishable according to UL 94V0 whenever required.

The ACP pluggable series is an appealing cost saving option as customer can remove both PCB and soldering process. The electrical signal is directly transmitted from the front panel to the electronics using the suitable RAST2,5 connector.

Applications:

This Spring Loaded potentiometer (QCJ16) is the ideal alternative to a tact switch or incremental encoder to increase or decrease the value of a certain parameter.

EXAMPLE: QCJ16RHP-10KA3030 LV10 S $\pm 45^\circ$ WT-14315-NE V0

Standard features								Extra features					Assembled accessory				
Series	Rotor	Model	Connector	Value	Taper	Tol.	Life	Housing	Rotor	Plates	Opera.T ^a	Mechanical Angle	Accessory	Ref	Color	Flam.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
QCJ16	R	HP	SI	10K	A	3030	LV10	S					±45°	WT	14315	NE	

QCJ16

Dimensions:	36x16mm
Protection:	IP 54
Core potentiometer:	CA14 / RS14
Packaging:	Bulk
Wiper position:	Middle Position
Terminals:	Pluggable to RAST 2.5 card edge connector
Marking:	Resistive value marked on external housing. Others on request.

9 - Housing

Color: For colors other than standard: -See color chart below- CJ-color, ex., red: CJ-RO

10 - Rotor

Color: For colors other than standard: -See color chart below- RT-color: ex., red: RT-RO

11 - Plates

with plates S

withOUT plates N

12 - Operating T^a

-25...+70°C (standard) (leave blank)

-25...+85°C

-25...+105°C T^aE

Others under request. Please check availability.

13 - Mechanical Angle

Standard $\pm 45^\circ$ (leave blank)

Other configurations under study AMXXX: ex: AM270

14 - Assembled Accesories (shafts)

Assembled from terminal side WT

Accessory Reference -XXXXX Example: 14117

See list of shafts and thumbwheels available

Special tolerances under request. Please check availability.

Color of shaft or thumbwheel	-YY Example, white: BA
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Non self-extinguishable. (leave blank)

Self-extinguishable according to standard UL 94 -V0

Self-extinguishable according to standard UL 94
(-V0 in box 17 modifies only the accessory, please, note.)

Color chart for rotor, housing and accessories

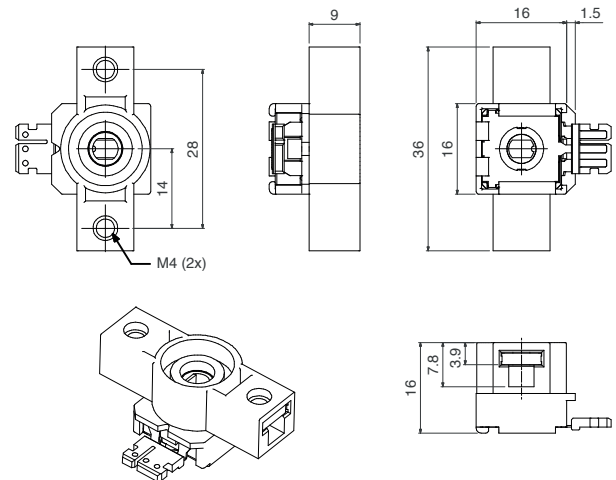
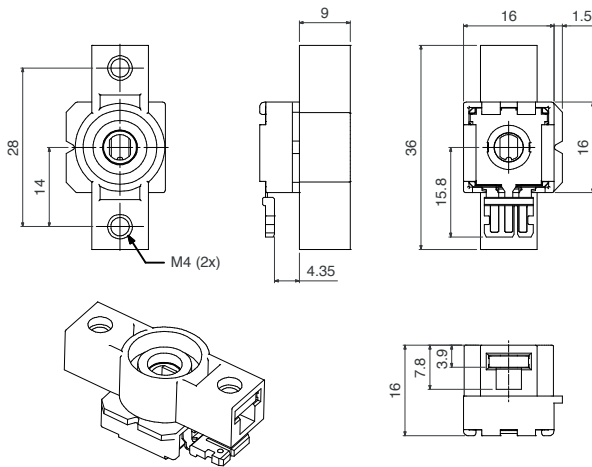
Black ⁽¹⁾	White	Neutral	Transp.	Red	Green	Yellow	Blue	Grey	Brown
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NE	BA	IN	TA	BO	VF	AM	A7	GS	MB
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HPL and HP are the standard models. For others, please, inquire

HPL

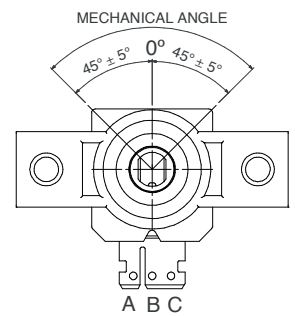
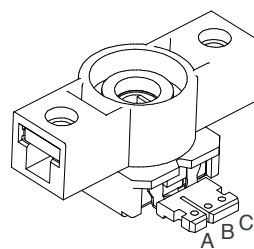
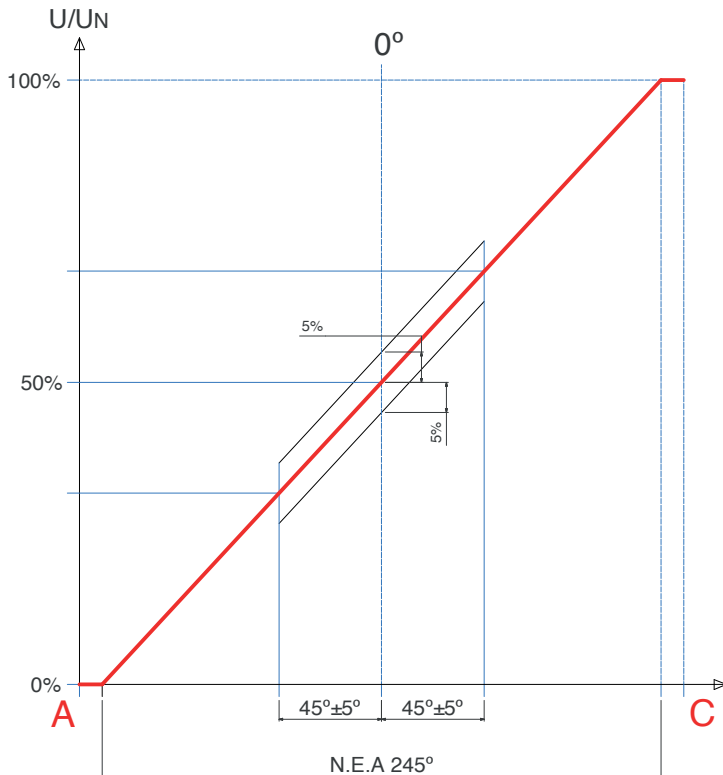
HP



Tapers

The core potentiometer is a standard 245° linear taper with a 5% absolute linearity. The mechanical rest position corresponds to the physical middle position, hence to the central value of the output signal.

Starting from there, the output value varies along the linear curve until reaching the corresponding end stop



An alternative output signal to the above is an SPDT* configuration, with “on” positions at both mechanical end stops and “off” position in the central rest position. Mechanical angle option available: $\pm 45^\circ$.

*Single pole, double throw. A simple break-before-make changeover switch: C (COM, Common) is connected either to L1 or to L2.

The QCJ16 is delivered with the wiper on middle position.

Connector

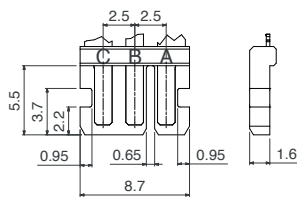
ACP offers the possibility to turn one CS14 standard into a pluggable version. Thanks to an external RAST 2,5 card edge connector in which terminals are embedded, customer can transmit the output signal from the potentiometer to the electronic module. The three pins of the potentiometer (the collector 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.

A typical application would be as feedback position sensor of the cooking style selector for kitchen ovens. ACP is able to supply different kind of connectors:

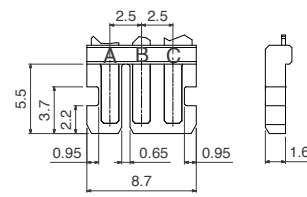
SI

SHORT latching shape and groove at INITIAL terminal side.



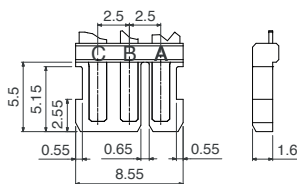
SF*

SHORT latching shape and groove at FINAL terminal side.



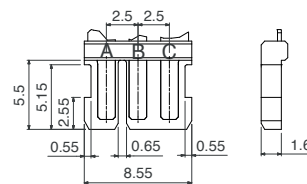
LI*

LONG latching shape and groove at INITIAL terminal side.



LF*

LONG latching shape and groove at FINAL terminal side.



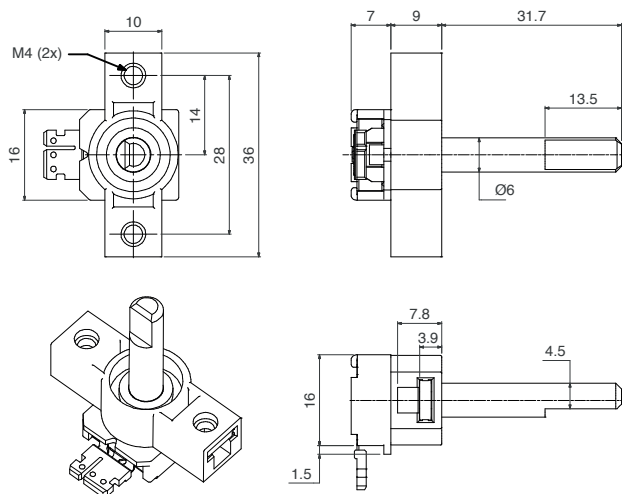
*Please, inquiry.

Shafts

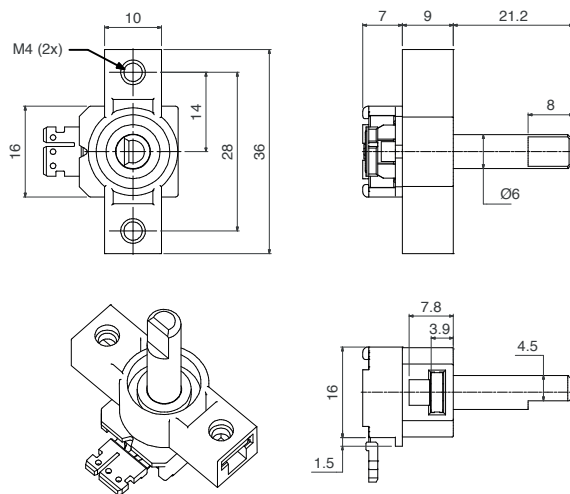
Shafts are available in different colors (color chart in “how to order” section) and with self-extinguishable property, according to UL 94 V-0, under request. ACP can study special shaft designs.

Shafts can be sold separately or already mounted on the potentiometer.

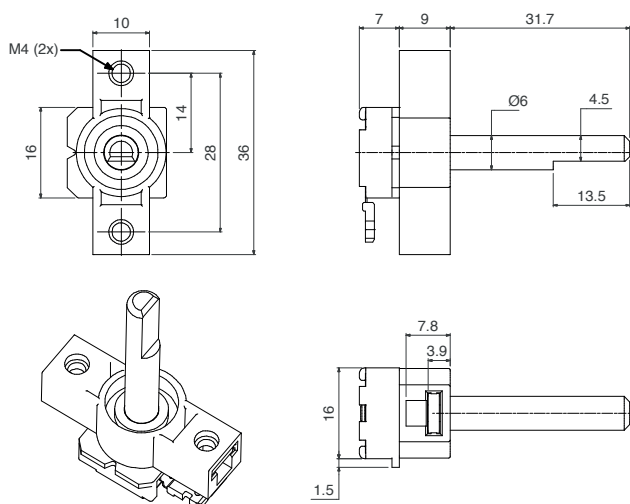
HP... WT-14301



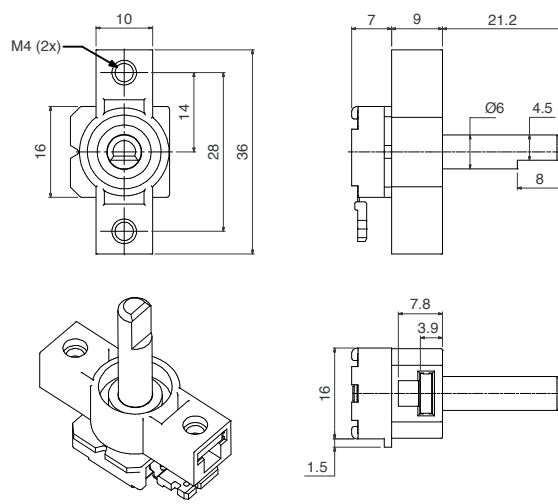
HP... WT-14315



HPL... WT-14301

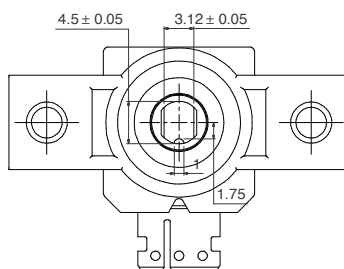


HPL... WT-14315



Rotor inner dimensions

This drawing shows the rotor at 50% position in order to better depict the dimensions and tolerances.



Packaging

Bulk packaging:

Pieces per box (250 x 150 x 70)

QCJ16 model
without shaft

90

Electric Specifications

These are standard features; other specifications and out of range values can be studied on request.

QCJ16

Range of resistance values* Lin (A)	Standard: 10K Ω Others: 1K Ω $\leq$ Rn $\leq$ 5M Ω , on request
Tolerance*	$\pm 30\%$
Variation laws	Lin (A). Other tapers available on request
CRV - Contact Resistance Variation (dynamic)	Lin (A) Electrical Angle 245° $\pm 20^\circ \leq 3\%$ Rn. Other tapers, please inquire
CRV - Contact Resistance Variation (static)	Lin (A) Electrical Angle 245° $\pm 20^\circ \leq 5\%$ Rn. Other tapers, please inquire
Maximum power dissipation** Lin (A)	at 50°C, 0.15W
Maximum voltage Lin (A)	250VDC
Linearity (absolute)	$\pm 5\%$
Operating temperature	standard: -25°C ... +70°C
	T ^a D: -25°C ... +85°C
	T ^a B: -25°C ... +105°C (+120°C, on request)
Temperature coefficient 1K $\leq$ Rn $\leq$ 10K Ω 10K Ω < Rn $\leq$ 5M Ω	+200/ -300 ppm +200/ -500 ppm

* Out of range ohm values and tolerances are available on request, please, inquire.

** Dissipation of special tapers will vary, please, inquire.

Mechanical Specifications

QCJ16

Resistive element	Carbon technology
Angle of rotation (mechanical)	$\pm 45^\circ \pm 5^\circ$
Angle of rotation (electrical)	245° $\pm 20^\circ$
Wiper standard delivery position	Neutral position $\pm 5^\circ$
Max. stop torque	50 Ncm
Max. push/pull on rotor	50 N
WiperTorque	Standard: 0,5-3,5Ncm Others, under request
Mechanical life	Standard: 10.000 turns. Others, under request

Test results

The following typical test results (with 95% confidence) are given at 23°C $\pm 2^\circ$ C and 50% $\pm 25\%$ RH.

QCJ16

	Test conditions	Typical variation of Rn	Linearity after test
Damp heat	500 h. at 40°C and 95% RH	$\pm 20\%$	$\pm 7\%$
Temperature Coefficient	16 h at 85°C, plus 2 h at -25°C	$\pm 20\%$	$\pm 7\%$
Load life	1.000 h. at 50°C	$\pm 20\%$	$\pm 7\%$
Mechanical life	10.000 turns at 10 c.p.m. and at 23°C $\pm 2^\circ$ C	$\pm 20\%$	$\pm 7\%$
Storage (3 years)	3 years at 23°C $\pm 2^\circ$ C	$\pm 3\%$	$\pm 7\%$