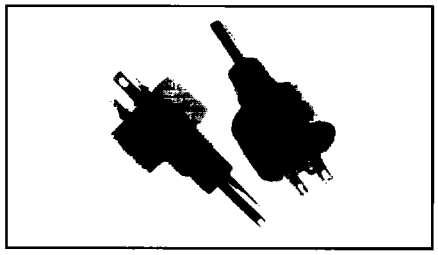
MODEL PE30
Cermet Potentiometers
Military and Professional Grade
Fully Sealed Container

VISHAY DALE®



FEATURES
- 3.0 watts at + 70°C
- High power rating
- Low temperature coefficient
- Excellent stability
- Fully sealed
- Low contact resistance variation
- Mechanical strength
- Use of Faston .113" [2.86mm] connections

STANDARD RESISTANCE ELEMENT DATA

STANDARD RESISTANCE VALUES (Ohms)	LINEAR LAW			LOGARITHMIC LAW			TC -55°C to +125°C (PPM/°C)
	MAXIMUM POWER @ +70°C (Watts)	MAXIMUM WORKING VOLTAGE (Volts)	MAX. CURRENT THROUGH ELEMENT (mA)	MAXIMUM POWER @ +70°C (Watts)	MAXIMUM WORKING VOLTAGE (Volts)	MAX. CURRENT THROUGH ELEMENT (mA)	
22	3.0	8.12	369.0	—	—	—	± 200
47	3.0	11.87	252.0	—	—	—	
100	3.0	17.32	173.0	—	—	—	± 100
220	3.0	25.69	116.0	—	—	—	
470	3.0	37.55	79.0	—	—	—	
1k	3.0	54.77	54.0	1.5	38.7	38.7	
2.2k	3.0	81.24	37.0	1.5	57.4	26.1	
4.7k	3.0	118.74	25.0	1.5	83.9	17.9	
10k	3.0	173.20	17.0	1.5	122.0	12.2	
22k	3.0	256.9	11.0	1.5	181.6	8.25	
47k	3.0	375.5	8.0	1.5	265.0	5.64	
100k	3.0	547.7	5.4	1.5	387.0	3.8	
220k	1.63	600.0	2.7	1.5	574.0	2.61	
470k	0.76	600.0	1.28	0.76	600.0	1.26	
1M	0.36	600.0	0.60	0.36	600.0	0.6	
2.2M	0.16	600.0	0.27	—	—	—	
4.7M	0.07	600.0	0.12	—	—	—	
10M	0.036	600.0	0.06	—	—	—	

ELECTRICAL SPECIFICATIONS

Electrical Travel: 270° ± 10°.

Resistance Range: 22 ohm to 10 Megohm.

Standard Series: E3 (1 - 2.2 - 4.7). 1 - 2 - 5 available.

Resistance Tolerance: Standard ± 20%. ± 5% and ± 10% available.

Power Rating: Linear law, 3.0 watts at + 70°C. Logarithmic law, 1.5 watts at + 70°C.

Temperature Coefficient: (- 55 to°C + 125°C) ± 100PPM/°C for Rn ≥ 100 ohm typical.

Guaranteed Temperature Coefficient: For ohmic values ≥ 100 ohm and in the temperature range - 20°C to + 70°C, the guaranteed temperature coefficient is ± 75PPM/°C.

Limiting Element Voltage (Linear taper): 600 volts.

Contact Resistance Variation: 3% Rn or 3 ohm.

End Resistance: 1 ohm typical.

Dielectric Strength: 2500 V RMS.

Insulation Resistance: 10^4 Megohm (500 VDC).

MECHANICAL SPECIFICATIONS

Mechanical Travel: 300° ± 5°.

Operating Torque: 4.2 oz. in. maximum.

End Stop Torque: 6.2 lb. in. minimum.

Tightening Torque of Mounting Nut: 31.0 lb. in. maximum.

Unit Weight: 1.1 ounce maximum.

Resistive Element: Cermet.

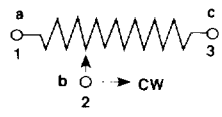
ENVIRONMENTAL SPECIFICATIONS

Temperature Range: - 55°C to + 125°C.

Climatic Category: 55/125/56.

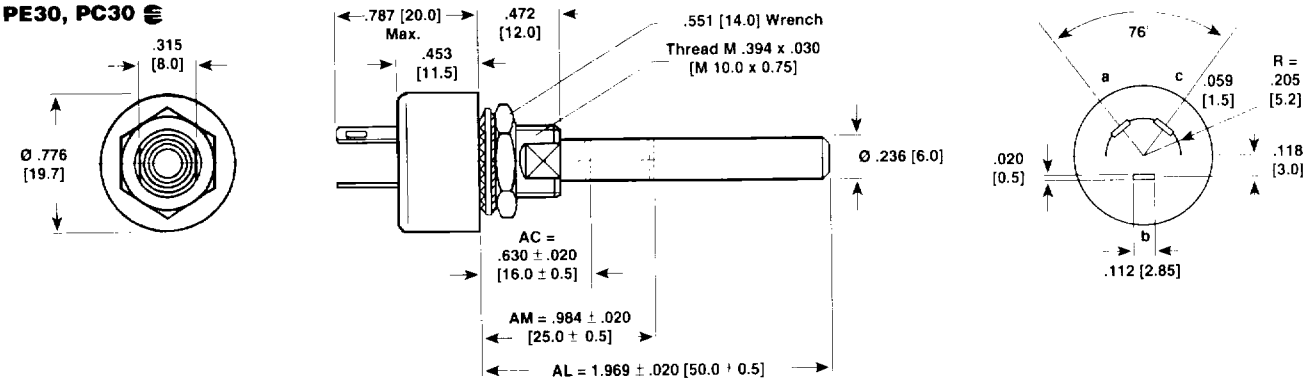
Sealing: Fully sealed container IP67. Water washable.

CIRCUIT DIAGRAM

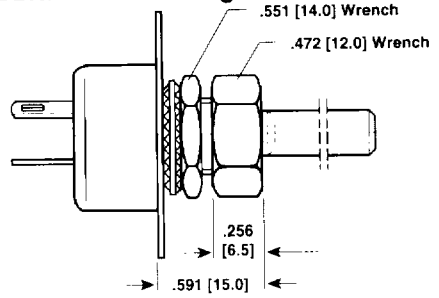


DIMENSIONAL CONFIGURATIONS [Numbers in brackets indicate millimeters]

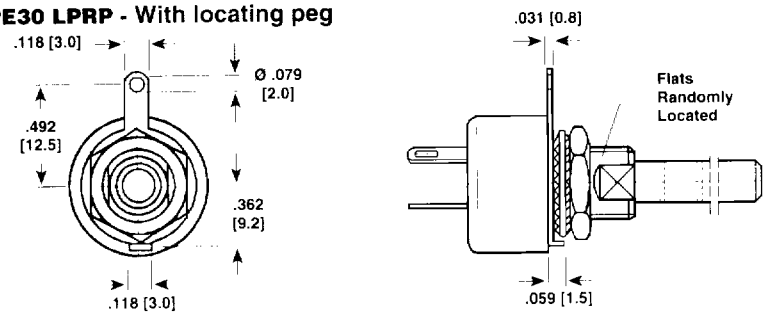
PE30, PC30 €



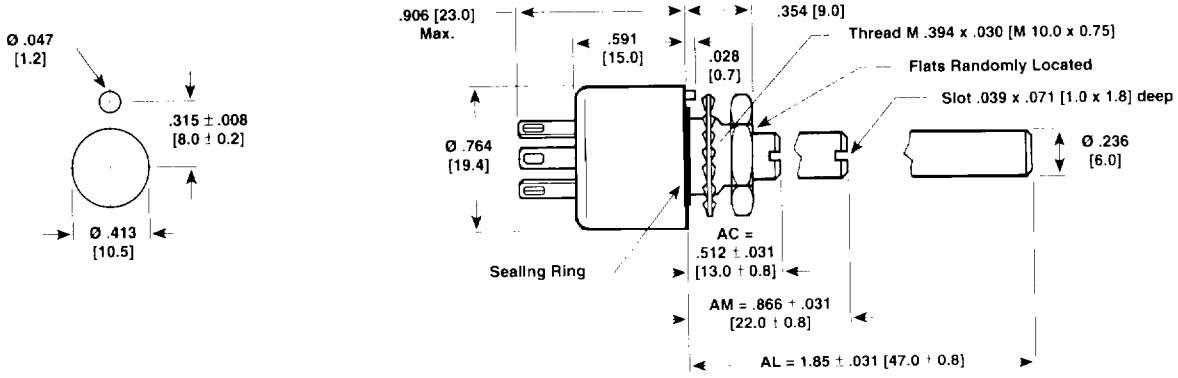
DBAN - Shaft locking



PE30 LPRP - With locating peg



PE30P, PE30PE - Panel sealed version. PE: Including locating peg.



€ Undergoes European Quality Insurance System (CECC). **Note:** Tolerance = ± .004" [0.1mm] unless otherwise specified.

ENVIRONMENTAL PERFORMANCE

		NF C 83253 REQUIREMENTS		TYPICAL VALUES AND DRIFTS	
		$\frac{\Delta Rac}{Rac}$%	$\frac{\Delta Rab}{Rab}$%	$\frac{\Delta Rac}{Rac}$%	$\frac{\Delta Rab}{Rab}$%
TEST	**CONDITIONS**				
Climatic Sequence	Phase A dry heat + 125°C Phase B damp heat Phase C cold - 55°C Phase D damp heat, 5 cycles	10%	10%	0.5%	1%
Long Term Damp Heat	56 days	10% Insulation resistance: > 100MΩ	10%	0.5% Insulation resistance: > 10^4MΩ	1%
Rapid Temperature Change	5 cycles - 55°C at + 125°C	3%	—	0.5%	—
Shock	50 g, 11ms 3 successive shocks in 3 directions	2%	—	0.1%	0.2%
Vibration	10 - 55 Hz 0.75mm or 10 g during 6 hours	2%	—	0.1%	0.2%
Rotational Life	25,000 cycles	10% Contact resistance variation: < 7% Rn	—	3% Contact resistance variation: < 2% Rn	—
Load Life	1000 hours at rated power 90°/30', ambient temperature + 70°C	10% Contact resistance variation: < 7% Rn	—	1% Contact resistance variation: < 3% Rn	—

DALE ELECTRONICS, INC., 1155 W. 23rd Street, Tempe, AZ 85282-1883 • Phone (602) 967-7874 • Fax 602-829-9314

MODEL PE30

COMMAND SHAFT

Length is measured from the mounting surface to the free end of the shaft. Screwdriver slot is aligned with the wiper within ± 10°. Special shafts are available, in accordance to drawings supplied by customers. We recommend customers not to machine shafts, in order to avoid damage. Bending or torsion of terminals should be avoided.

LINEARITY

The typical linearity of linear variation law potentiometer is ± 5%. Guaranteed linearity on request. Consult factory.

QUALITY ASSURANCE - QUALIFICATIONS

In between 2 issues of our data sheets, quality assurance and qualification situation may be modified (NF C - UTE - CECC). For accurate information, please consult the official documents or consult factory.

PANEL SEALING: PE30P

The panel sealing device consists of a ring located in a slot on the potentiometer face. Sealing is obtained by tightening the ring against the panel when mounting the potentiometer.

SHAFT LOCKING: DBAN

The shaft locking device consists of a tapered nut tightening a slotted notched washer against both bushing and shaft. DBAN tightening torque is 280 oz. in, shaft locking torque being 40 oz. in.

DBAN is also available with all special types.

This device is normally supplied in a separate bag. Mounting on request.

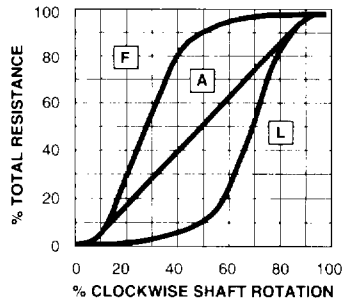
LOCATING PEG: LPRP

Location is obtained by fitting a special washer in 2 holes drilled at 180° in the potentiometer face.

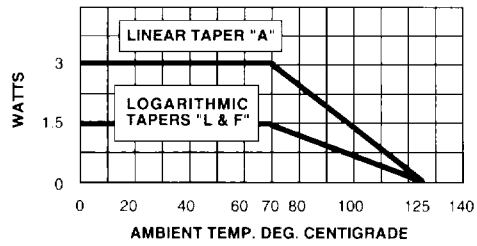
PART MARKING

— Trademark
— Model
— NF types (if applicable)
— Value
— Tolerance
— Manufacturing date
— Marking of terminals 1, 2, 3 or a, b, c

RESISTANCE TAPERS



DERATING



HOW TO ORDER

PE30	P	AC	200kΩ	± 20%	A
MODEL	FEATURE	SHAFT	VALUE	TOLERANCE	TAPER

FEATURE
P = Panel sealing*
LPRP = Locating peg
DBAN = Shaft locking

SHAFT
AC = .630" ± .020" [16mm ± 0.5mm], slotted
AM = .984" ± .020" [25mm ± 0.5mm], slotted
AL = 1.97" ± .020" [50mm ± 0.5mm], plain round

TOLERANCE
± 20% standard
± 5% and ± 10% available

TAPER
A = Linear
L = Clockwise logarithmic
F = Inverse clockwise logarithmic

* PE panel sealing with locating peg (former designation E108).