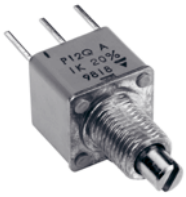
Fully Sealed Container Cermet Potentiometers
Military and Professional Grade


P12T


P12Q


P12H

Model P12 potentiomenters fully meet the requirements of CECC 41300

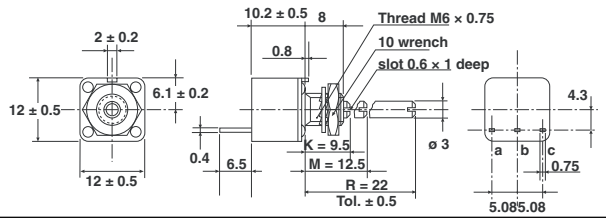
FEATURES

- 1 Watt at 70 °C
- CECC 41 300
- Full sealing
- Mechanical strength

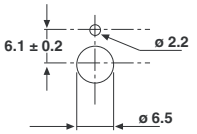
RoHS COMPLIANT

DIMENSIONS in millimeters

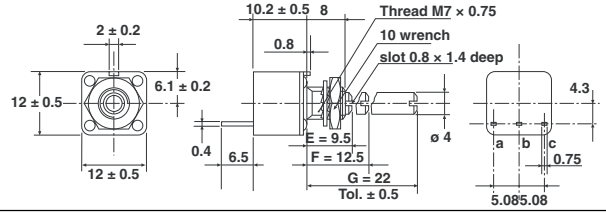
P12T



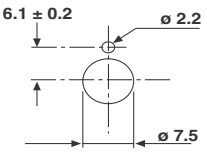
PANEL CUTOUT
PANEL THICKNESS: 4 max



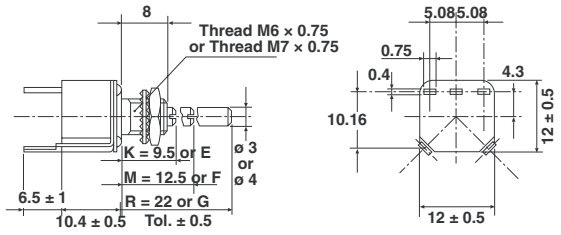
P12Q



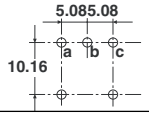
PANEL CUTOUT



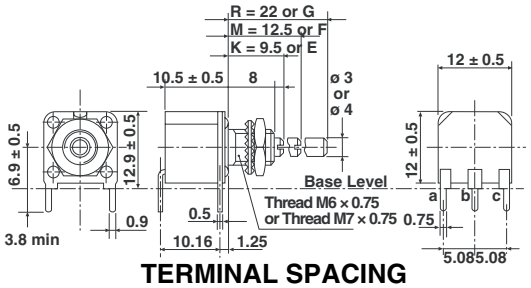
P12TY - P12QY



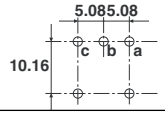
TERMINAL SPACING



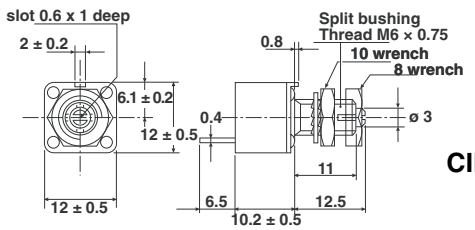
P12TX - P12QX



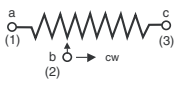
TERMINAL SPACING



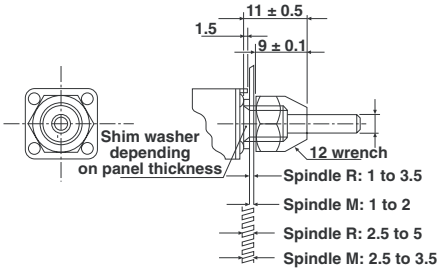
P12HL with spindle locking nut



CIRCUIT DIAGRAM



DE Shaft and panel sealing hardware



Tolerance unless otherwise specified ± 0.5

ELECTRICAL SPECIFICATIONS		
Resistive Element		cermet
Electrical Travel		270° ± 10°
Resistance Range	**Linear Law**	22 Ω to 10 MΩ
	Logarithmic Laws	100 Ω to 2.2 MΩ
Standard series E3		1 - 2.2 - 4.7 and on request 1 - 2 - 5
Tolerance	**Standard**	± 20 %
	On Request	± 10 %
Power Rating	**Linear**	1 W at + 70 °C
	Logarithmic	0.5 W at + 70 °C
Temperature Coefficient		See Standard Resistance Element Data
Limiting Element Voltage (Linear Law)		350 V
Contact Resistance Variation		3 % or 3 Ω
End Resistance (Typical)		1 Ω
Dielectric Strength (RMS)		2000 V
Insulation Resistance (500 VDC)		10^6 MΩ

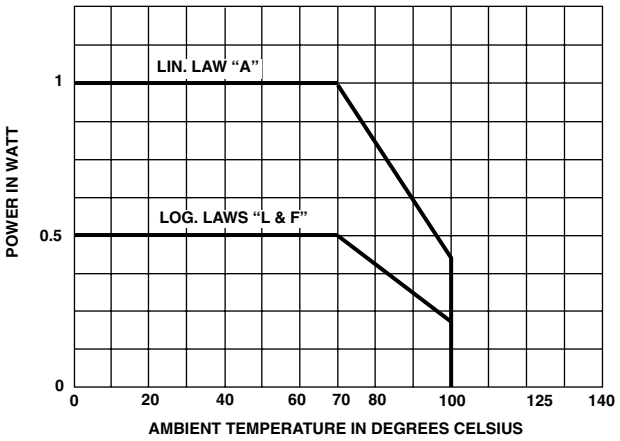
MECHANICAL SPECIFICATIONS

Mechanical Travel	300° ± 5°
Operating Torque (max. Ncm)	2 typical
End Stop Torque (max. Ncm)	style H: 15 - T.Q.: 35
Tightening Torque (max. Ncm)	150
Unit Weight (max. g)	7.6 to 10

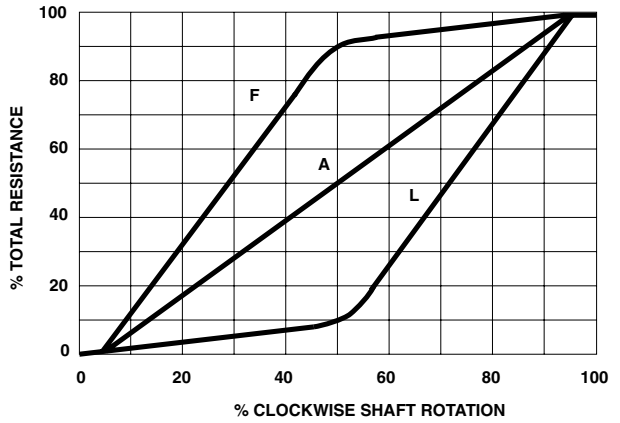
ENVIRONMENTAL SPECIFICATIONS

Temperature Range	- 55 °C to + 125 °C
Climatic Category	55/100/56
Sealing	fully sealed container IP67

POWER RATING CHART



RESISTANCE LAWS



PERFORMANCE			
TESTS	CONDITIONS	TYPICAL VALUES AND DRIFTS	
		$\frac{\Delta RT}{RT}$ (%)	$\frac{\Delta R_{1-2}}{R_{1-2}}$ (%)
Load Life	1000 hours at rated power 90'/30' - ambient temp. 70 °C	± 1 % Contact res. variation: < 3 % Rn	
Climatic Sequence	Phase A dry heat 125 °C Phase B damp heat Phase C cold - 55 °C Phase D damp heat 5 cycles	± 0.5 %	± 1 %
Long Term Damp Heat	56 days 40 °C 93 % RH	± 0.5 % Dielectric strength: 1000 V RMS Insulation resistance: > 10^4 MΩ	± 1 %
Rapid Temperature Change	5 cycles - 55 °C at + 125 °C	± 0.5 %	
Shock	50 g at 11 ms 3 successive shocks in 3 directions	± 0.1 %	± 0.2 %
Vibration	10 - 55 Hz 0.75 mm or 10 g during 6 hours	± 0.1 %	$\frac{\Delta V_{1-2}}{V_{1-3}}$ ≤ ± 0.2 %
Rotational Life	25 000 cycles	± 3 % Contact res. variation: < 2 % Rn	

STANDARD RESISTANCE ELEMENT DATA							
STANDARD RESISTANCE VALUES	LINEAR LAW			LOGS LAW			TCR - 55 °C + 125 °C
	MAX. POWER AT 70 °C	MAX. WORKING VOLTAGE	MAX. WIPER CUR.	MAX. POWER AT 70 °C	MAX. WORKING VOLTAGE	MAX. WIPER CUR.	
Ω	W	V	mA	W	V	mA	ppm/°C
22	1	4.69	213.2				0
47		6.85	145.8				+ 200
100		10	100				
220		14.8	67.4				
470		21.6	46.1				
1K		31.6	31.6	0.5	22.4	22.4	
2.2K		46.9	21.3		33.2	15.1	
4.7K		63.5	14.5		48.5	10.3	
10K		100	10		79.7	7.07	
22K		148.3	6.7		105	4.77	
47K		216.7	4.6		153	3.26	± 100
100K	1	316.2	3.16		224	2.24	
220K	0.56	350	1.59	0.5	332	1.51	
470K	0.26	350	0.75	0.26	350	0.74	
1M	0.12	350	0.35	0.12	350	0.35	
2.2M	0.05	350	0.16	0.05	350	0.16	
4.7M	0.02	350	0.07				
10M	0.01	350	0.01				

MARKING

Printed:
- VISHAY trademark
- series
- ohmic value (in Ω)
- tolerance (in %)
- manufacturing date
- marking of terminals 1 or a

SPECIAL FEATURES
SHAFTS

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

SHAFT AND PANEL SEALING HARDWARE

The type P12T with R or M shaft can be provided with an optional "DE" sealing hardware which ensures sealing of both the shaft and the mounting panel. "DE" sealing hardware can be supplied in a separate envelope.

SHAFT LOCKING

- The shaft locking bushing is available only with P12H potentiometers. Torque applied to locking nuts should not exceed 15 Ncm.

ORDERING INFORMATION

P12 OR P12H	T	M	470 kΩ	20 %	A	DE	BO
SERIES OR SHAFT LOCKING	STYLE	SHAFT	OHMIC VALUE	TOLERANCE	RESISTANCE LAW	PANEL SEALING DEVICE	PACKAGING

SAP PART NUMBERING GUIDELINES

P	1	2	T	A	B	S	4	7	4	M	A	B	2	D	E		
MODEL			BUSHING	SHAFT		LEADS	OHMIC VALUE			TOL	LAW	PACKAGING		SPECIAL (IF APPLICABLE)			

See the end of this data book for conversion tables

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