3296 Cermet Trimming Potentiometers

Product features

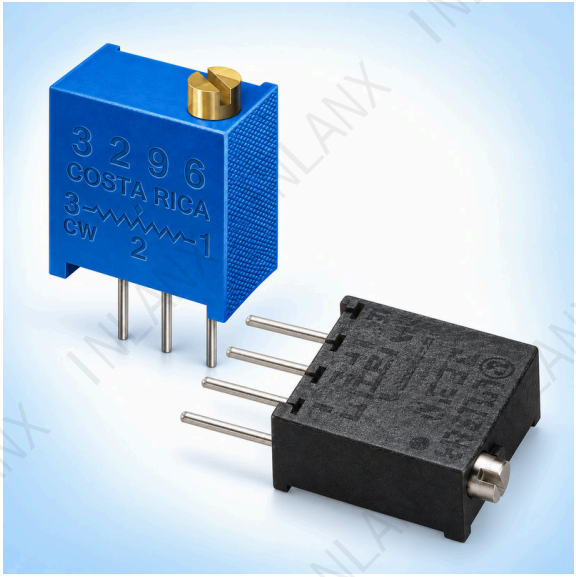
• 3/8-inch multiturn cermet potentiometer; sealed industrial construction.

• LC2: low-current applications below 50 µA; thin-body design.

• OT1: four-terminal center tap for operational-amplifier offset adjustment.

Styles: Standard: W / X / P / Y / Z; LC2 and OT1: see the corresponding outline drawings.

Variant parameters are specified separately. Select the corresponding ordering suffix.



Electrical characteristics

Parameter	3296	3296-LC2	3296-OT1
Resistance range	10 Ω-2 MΩ	500 Ω-100 kΩ	100 Ω-1 MΩ, pins 1-3
Resistance tolerance	±10%; tighter tolerance available	±10%	±20%
Minimum / end resistance	1% or 2 Ω, whichever is greater	1% or 2 Ω, whichever is greater	≤2 Ω
Contact resistance variation	1% or 3 Ω max., whichever is greater	≤0.5%	—
Contact resistance (DC mode)	—	≤0.3%	—
DC offset	—	≤0.5%	—
Voltage adjustability	±0.01%	±0.1%	±0.025%
Resistance adjustability	±0.05%	±0.2%	—
Voltage output variation	—	—	±0.25%
Resolution	Infinite	Infinite	—
Insulation resistance	≥1000 MΩ at 500 VDC	≥1000 MΩ at 500 VDC	≥1000 MΩ at 500 VDC
Dielectric strength	900 VAC at sea level; 350 VAC at 70000 ft	900 VAC at sea level; 350 VAC at 70000 ft	900 VAC at sea level; 350 VAC at 70000 ft
Electrical travel	25 turns nominal	25 ±5 turns	25 turns nominal
Center-tap resistance	—	—	≤2 Ω
Center-tap electrical center	—	—	±5%
Center-tap dead band	—	—	0.5 turn

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Environmental characteristics

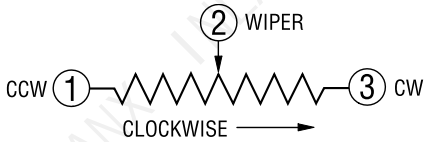
Parameter	3296	3296-LC2	3296-OT1
Rated power / voltage limit	0.5 W at 70°C; 0 W at 125°C; max. 300 V	0.5 W at 85°C; 0 W at 125°C; max. 400 V	0.5 W at 70°C; 0 W at 125°C
Operating temperature	-55°C to +150°C	-55°C to +125°C	-55°C to +125°C
Temperature coefficient	±100 ppm/°C	±100 ppm/°C	—
Temperature stability	—	—	ΔVR ±0.5% max.
Seal test	85°C Fluorinert	85°C Fluorinert	85°C Fluorinert
Humidity	MIL-STD-202 Method 103, 96 h; ΔTR 2%; IR 10 MΩ	80-90% RH, 10 cycles; TRS ≤2%; IR 10 MΩ; contact shift ≤0.2%	MIL-STD-202 Method 103, 96 h; IR ≥10 MΩ
Vibration	20 G; ΔTR 1%; ΔVR 1%	20 G; VRS 0.5%; contact shift 0.2%	20 G; ΔTR ±1%
Shock	100 G; ΔTR 1%; ΔVR 1%	100 G; VRS 0.5%; contact shift 0.2%	100 G; ΔTR ±1%
Load life	1000 h at 70°C / 0.5 W; ΔTR 3%; CRV 3% or 3 Ω, whichever is greater	1000 h at 85°C rated power; TRS 3%; contact shift 0.2%; CRV 0.5%	1000 h; ΔTR ±3%
Rotational life	200 cycles; ΔTR 4%; CRV 3% or 3 Ω, whichever is greater	200 cycles; TRS 4%; contact shift 0.2%	200 cycles; ΔTR ±4%
Thermal shock	—	5 cycles; TRS 2%; VRS 0.5%; contact shift 0.2%	—

Physical characteristics

Parameter	3296	3296-LC2	3296-OT1
Torque	3.0 oz-in max.	3.0 oz-in max.	3.0 oz-in max.
Stop / end-stop strength	Wiper idles	Wiper idles	Wiper idles
Terminals	Solderable pins	Solderable pins	Solderable pins
Weight	0.03 oz	0.03 oz	0.03 oz
Wiper setting	50% of actual TR, ±10%	50% of actual TR, ±10%	—
Flammability	UL 94V-0	UL 94V-0	UL 94V-0
Adjustment tool	H-90	H-90	H-90

TR: total resistance; CRV: contact resistance variation; VR: voltage ratio. TRS/VRS indicate shifts in total resistance/voltage ratio. —: not specified for that construction.

Terminal circuit



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Standard resistance values and codes

3296

Resistance	Code	Resistance	Code	Resistance	Code
10 Ω	100	20 Ω	200	50 Ω	500
100 Ω	101	200 Ω	201	500 Ω	501
1 kΩ	102	2 kΩ	202	5 kΩ	502
10 kΩ	103	20 kΩ	203	25 kΩ	253
50 kΩ	503	100 kΩ	104	200 kΩ	204
250 kΩ	254	500 kΩ	504	1 MΩ	105
2 MΩ	205				

3296-LC2

Resistance	Code	Resistance	Code	Resistance	Code
500 Ω	501	1 kΩ	102	2 kΩ	202
5 kΩ	502	10 kΩ	103	20 kΩ	203
25 kΩ	253	50 kΩ	503	100 kΩ	104

3296-OT1

Resistance	Code	Resistance	Code	Resistance	Code
100 Ω	101	200 Ω	201	500 Ω	501
1 kΩ	102	2 kΩ	202	5 kΩ	502
10 kΩ	103	20 kΩ	203	50 kΩ	503
100 kΩ	104	200 kΩ	204	500 kΩ	504
1 MΩ	105				

Selected drawing dimensions • mm

Style	Shown outline values	Lead / pad spacing	Other drawing values
Standard	9.53; 10.03; 4.83 ±0.13	2.54	6.40 ±1.32
LC2	9.53; 10.03; 4.83	2.54	5.97 ±0.89
OT1	9.53; 10.03; 4.83	2.54	6.40 ±1.32

Drawing reference values only; use the individual outline views. Units: mm (inches in parentheses). Individual tolerances apply.

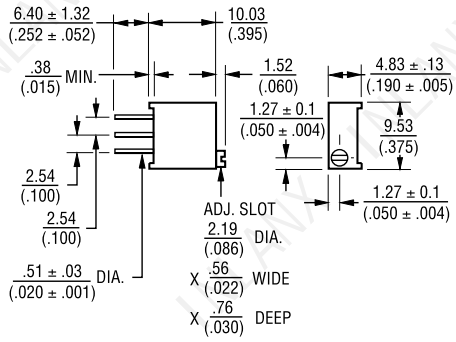
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Outline and mounting dimensions

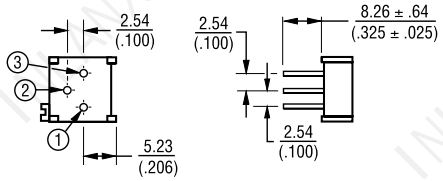
Unless otherwise noted: ±0.25 mm (±0.010 in).

Standard W / X / P / Y / Z

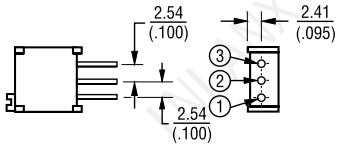
Common Dimensions



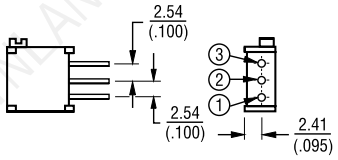
3296P



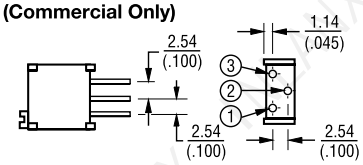
3296W



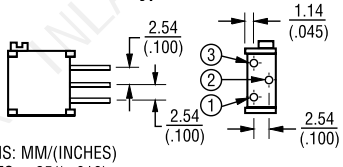
3296X



3296Y (Commercial Only)



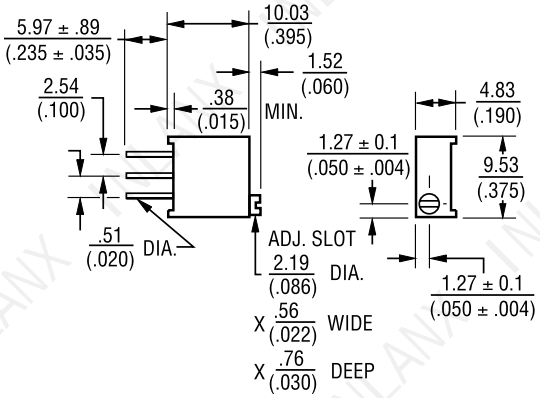
3296Z (Commercial Only)



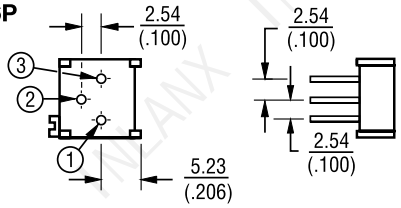
DIMENSIONS: MM/(INCHES)
TOLERANCES: ±.25/(±.010)
EXCEPT WHERE NOTED

LC2 W / P / X

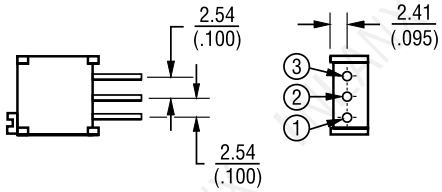
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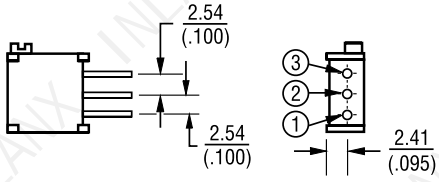
3296P

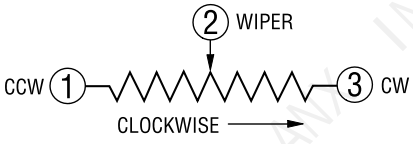


3296W



3296X



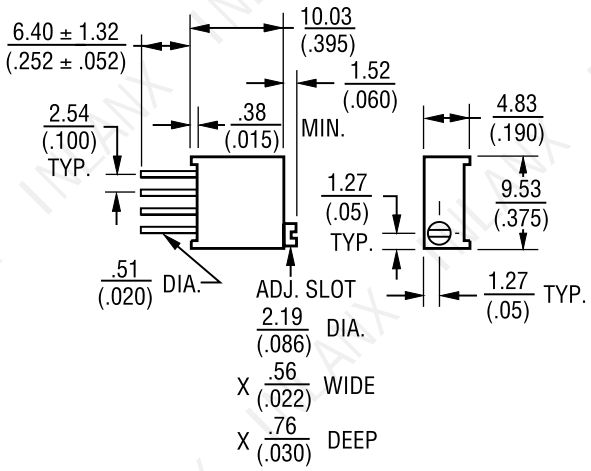


DIMENSIONS: MM/(INCHES)
TOLERANCES: ±.25/(±.010) EXCEPT WHERE NOTED

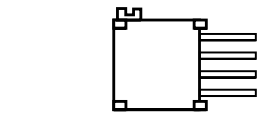
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OT1 W / X and center tap

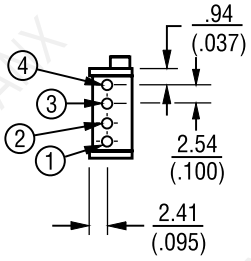
Common Dimensions



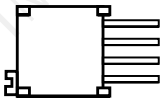
3296X-OT1

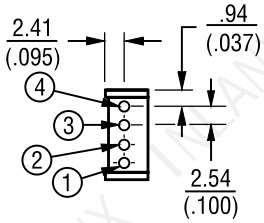


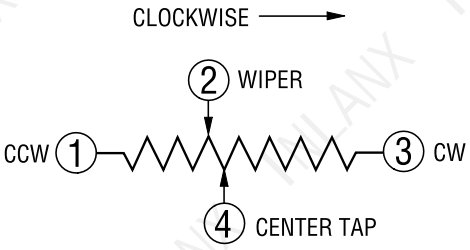
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TOLERANCES: ±.25/(±.010)
EXCEPT WHERE NOTED



3296W-OT1

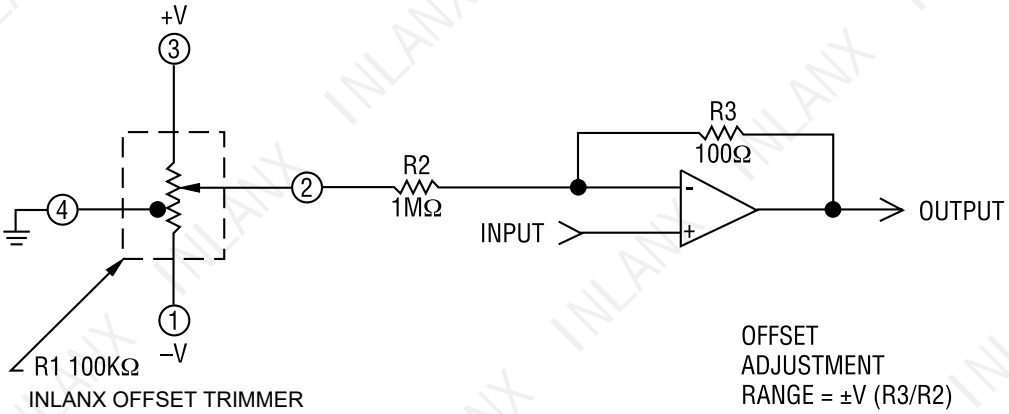






Terminal and application circuits

OT1 offset-adjustment circuit

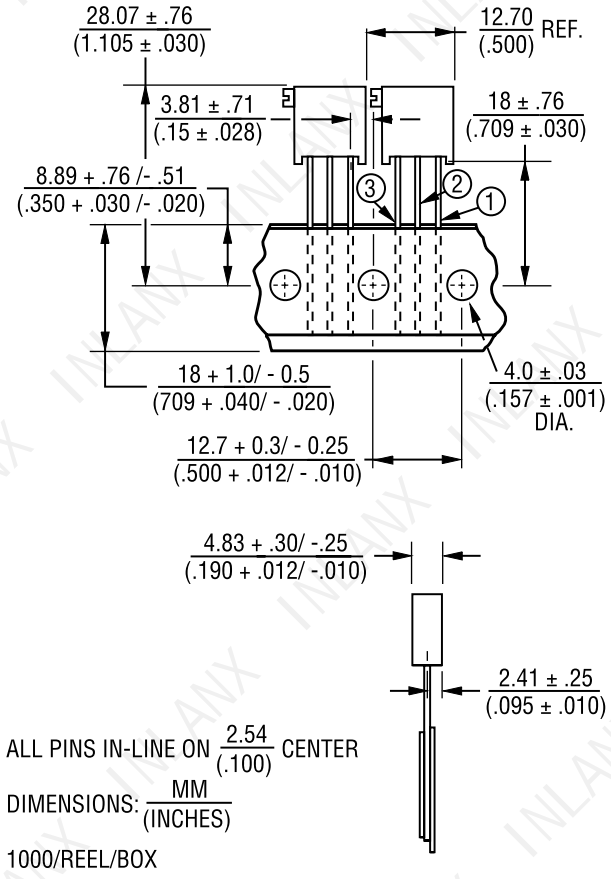


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Packaging dimensions

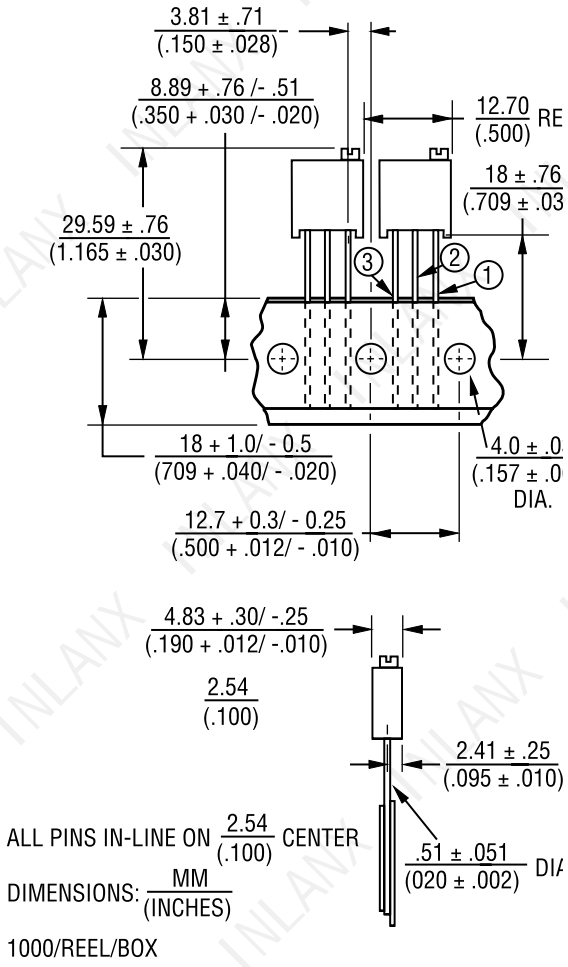
W / X tape and reel

SIDE ADJUST
3296X-1



Meets EIA Specification 468.

TOP ADJUST
3296W-1



Meets EIA Specification 468.

Packaging and ordering

Standard and LC2: 50 pcs/tube; OT1: 50 pcs/tube or tray. Standard W and X support R tape/reel and A ammo pack. Terminal pitch is 2.54 mm; detailed tape geometry is shown in the drawings.

Standard: 3296 W - 1 - 103 [R/A] [LF]. LC2: 3296 W - LC2 - 103 LF. Center tap: 3296 X - OT1 - 103 LF. Prefix all part numbers with INLANX. LF: 100% tin; blank: 90% tin / 10% lead.