Vishay Angstrohm Power Rheostats

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Vishay Angstrohm

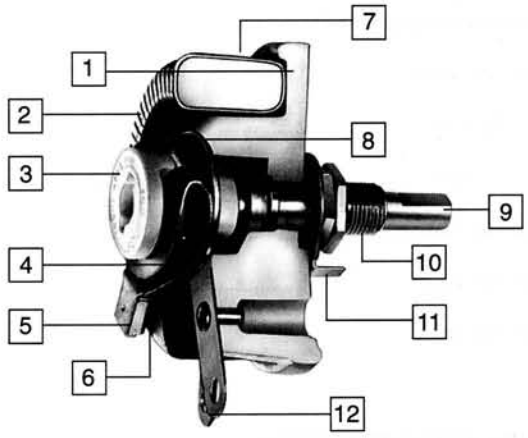
Power Rheostats

Standard and Special Features

Angstrohm's broad line of power rheostats is designed to provide exceptional reliability through the application of modern manufacturing techniques and the use of sophisticated materials. These same techniques have resulted in a line of power rheostats that feature a very compact size for their dissipation rating. Furthermore, many standard value rheostats are available for "off-the-shelf" delivery, while special devices are available with short delivery cycles.

STANDARD DESIGN FEATURES

1. **Base and Ring:** Molded of high density ceramic, the base and ring provide the rheostat foundation.
2. **Winding:** Utilizing the most modern toroidal winding machines assures a uniform wind. Resolution and power dissipation are maintained at a maximum through proper selection of wire size.
3. **Insulator:** Molded of high density, porcelain/ceramic. Electrically "isolates" the contact assembly from the control shaft.
4. **Contact Arm:** Balanced and plated for protection, the contact arm assures positive contact between the winding and the contact shoe and between the contact ring and collector ring, through the employment of a "live" spring of simple, yet reliable design.
5. **Contact Shoe:** Fabricated of long-life, metallic material. Minimizes wire wear and assures excellent current conduction from the winding to the center terminal.
6. **Shunt Pigtail:** Carries the current from the contact shoe to the contact ring.
7. **Ceramic Cement:** Provides the "bonding medium" necessary to securely attach the ring and base together and to lock the windings from shifting.
8. **Contact Ring:** Provides high current carrying capabilities through its large surface area to the center terminal. The ring is nickel plated to withstand corrosion.
9. **Control Shaft:** Manufactured to exacting tolerances and protected from adverse environments by plating, the shaft provides for rotation of the contact assembly.



10. **Bushing:** Precision machined, the polished brass bushing affords smooth, uniform rotation of the control shaft.
11. **Locating Tab:** Provides rheostat indexing and "non-turn" feature. The tab may be ordered at 3, 6, 9 or 12 o'clock positions. 6 o'clock is standard on all models - rheostat terminals located downward.
12. **Three Terminals:** Permit use as a potentiometer or rheostat. The center terminal or "collector ring," collects the current from the winding via the shoe-shunt assembly.

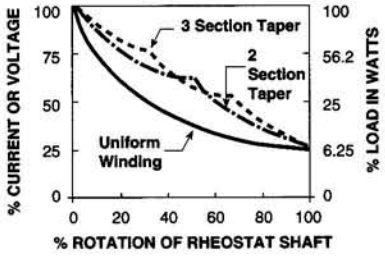
SPECIAL DESIGN FEATURES

Our application engineering department will be glad to advise you on special features (some of which are listed here). Send your requirements to the factory for analysis and we will design a unit to meet your needs. Please furnish your data in as complete a fashion as possible. This helps to avoid delays in completion of projects.

Tapered Windings: Available in all sizes, tapered windings offer more linear and closer load control than the standard rheostat winding. Consult factory for standard available tapers.

COMPARISON CURVES

UNIFORM VERSUS TAPERED WINDING



Controlled Temperature Coefficient: Controlled Temperature Coefficient of Resistance can be supplied for applications requiring a minimum change in resistance due to changes in temperature.

Blank-Section: Rheostats can be made to your specifications with the resistance element eliminated at any point in the inherent 300° rotational limit of the unit.

Dead-Lug Off-Position: The rheostat resistive circuit is opened at the "high resistance" end position. This should be restricted to units of medium resistance values in low current applications.

Moved Terminal Off-Position: Terminal is "moved" so that the contact brush slides off the terminal onto a dead-section of the ceramic ring.

Cut-Off Lugs: The projecting portion of the terminal is omitted. This can be supplied with any style "off" position.

Switching Lugs: Provides for a tap switch effect at the end of the rheostat winding. These lugs are not to add an "off" position, but to accommodate the introduction of external circuitry into the rheostat circuit.

Extra Terminals: Unlike switching lugs, these terminals furnish intermediate taps within the winding.

Quick-Connect Terminal: Male terminals will accept 1/4" [6.35mm] wide female connectors. Not available on Model MP06.

"U" Type Spade: Male and quick-connect terminals. Same as single-space above except on the rheostats and terminals, the configuration is in the shape of a "U" to allow two female connectors to be used. Provides a junction for more than one wire at the end terminal locations.

Less Than Standard Rotation: Rheostats can be supplied with a winding angle less than standard. These units can be equipped with stops limiting the rotation to that of the winding angle. The wattage rating of such rheostats is proportional to the decrease in winding angle.

Power Rheostats

12.5 Watt

FEATURES

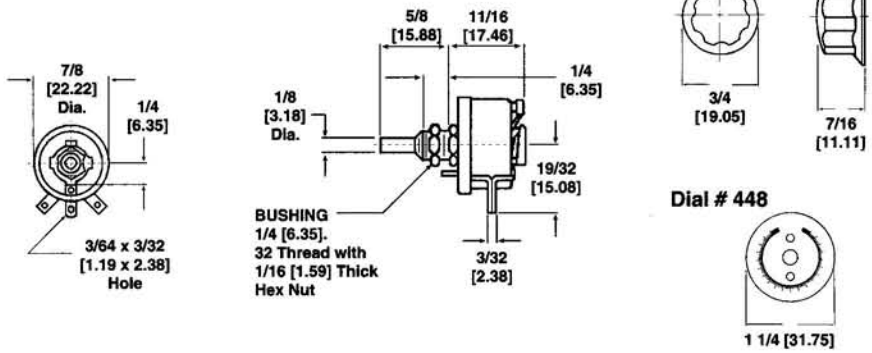
- Diameter 7/8" [22.22mm]
- Depth behind panel 11/16" [17.46mm]
- Shaft 1/8" [3.18mm] diameter
- Rotation 300° ± 5°
- Weight 0.037 pounds (17 grams)
- Mounts on panels up to 1/8" [3.18mm] by means of a 1/4" [6.35mm], 32 bushing and hex nut
- Non-turn lugs require 1/8" [3.18mm] hole, 1/4" [6.35mm] below center of shaft - Model "A" shaft

RESISTANCE VALUES*

TOTAL OHMS	MAXIMUM AMPS	APPROXIMATE STEPS
1.0	3.530	29
2.0	2.500	42
2.5	2.240	38
3.0	2.040	44
5.0	1.580	40
6.0	1.440	48
8.0	1.250	51
10.0	1.120	51
15.0	0.910	51
25.0	0.710	73
35.0	0.600	75
50.0	0.500	86
75.0	0.410	103
100.0	0.350	108
125.0	0.320	128
150.0	0.290	128
175.0	0.270	148
200.0	0.250	130
250.0	0.220	166
350.0	0.190	185
500.0	0.160	215
750.0	0.130	255
1000.0	0.110	260
1500.0	0.091	310
2500.0	0.071	321
3500.0	0.060	378
5000.0	0.050	430

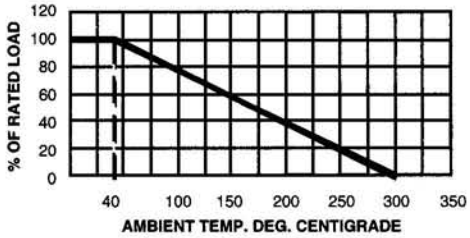
* All other intermediate resistance values are available and can be manufactured on a normal delivery cycle.

DIMENSIONS in inches [millimeters]



DERATING

Angstrohm rheostat standard wattage ratings are based on a 300°C rise in "free-air" in ambient not exceeding + 40°C (shown). For other applications, wattage ratings are available based on 340°C rise in "free-air" in ambient not exceeding + 25°C, and in other cases + 50°C.



MARKING

— Resistance value

— Amps

— Date code

ORDERING INFORMATION

MP06	A	100
MODEL	BUSHING AND SHAFT CONFIGURATION	VALUE

A = Standard Round Shaft

NOTE: For Additional Features: Submit detailed drawing information when ordering "non-standard" parts.

MP10

Vishay Angstrohm

VISHAY

Power Rheostats

25 Watt

FEATURES

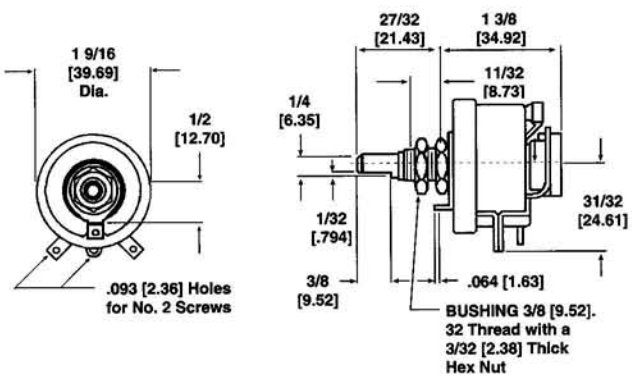
- Diameter 1 9/16" [39.69mm]
- Depth behind panel 1 3/8" [34.92mm]
- Shaft 1/4" [6.35mm] diameter
- Rotation 300° ± 5°
- Weight 0.180 pounds (82 grams)
- Mounts on panels up to 1/4" [6.35mm] by means of a 3/8" [9.52mm], 32 bushing and hex nut
- Non-turn lugs require 3/16" [4.76mm] hole, 1/2" [12.70mm] below center of shaft - Model "A" shaft
- U. L. Recognized, File No. E51076

RESISTANCE VALUES*

TOTAL OHMS	MAXIMUM AMPS	APPROXIMATE STEPS
1.0	5.00	28
2.0	3.54	31
3.0	2.89	48
6.0	2.04	51
8.0	1.77	54
10.0	1.58	54
15.0	1.29	64
25.0	1.00	86
35.0	0.85	105
50.0	0.71	115
75.0	0.58	135
100.0	0.50	152
125.0	0.45	143
175.0	0.38	160
250.0	0.32	185
350.0	0.27	205
500.0	0.22	230
750.0	0.18	270
1000.0	0.16	292
1500.0	0.13	353
2500.0	0.10	358
3500.0	0.08	392
5000.0	0.07	440

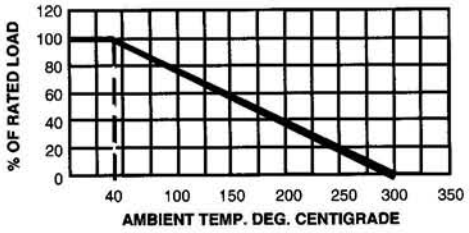
* All other intermediate resistance values are available and can be manufactured on a normal delivery cycle.

DIMENSIONS in inches [millimeters]

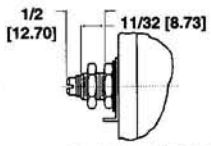


DERATING

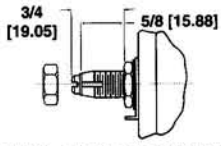
Angstrohm rheostat standard wattage ratings are based on a 300°C rise in "free-air" in ambient not exceeding + 40°C (shown). For other applications, wattage ratings are available based on 340°C rise in "free-air" in ambient not exceeding + 25°C, and in other cases + 50°C.



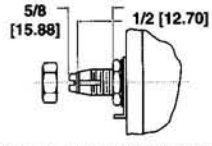
SPECIAL SHAFTS in inches [millimeters]



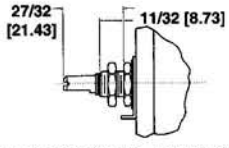
TYPE B: 1/2 [12.70], 11/32 [8.73] Models. Slotted shaft with standard bushing for 1/8 [3.18] panel.



TYPE C: 3/4 [19.05], 5/8 [15.88] Models. Locking bushing with slotted shaft for 1/4 [6.35] panel.



TYPE D: 5/8 [15.88], 1/2 [12.70] Models. Locking bushing with slotted shaft for 1/8 [3.18] panel.



TYPE E: 27/32 [21.43], 11/32 [8.73] Models. Std. bushing and flatted shaft w/screwdriver slot for 1/8 [3.18] panel.

MARKING

— Resistance value

— Amps

— Date code

ORDERING INFORMATION

MP10	A	1500
MODEL	BUSHING AND SHAFT CONFIGURATION	VALUE

A = Standard Flatted Shaft

NOTE: For Additional Features: Submit detailed drawing information when ordering "non-standard" parts.

Power Rheostats

50 Watt

FEATURES

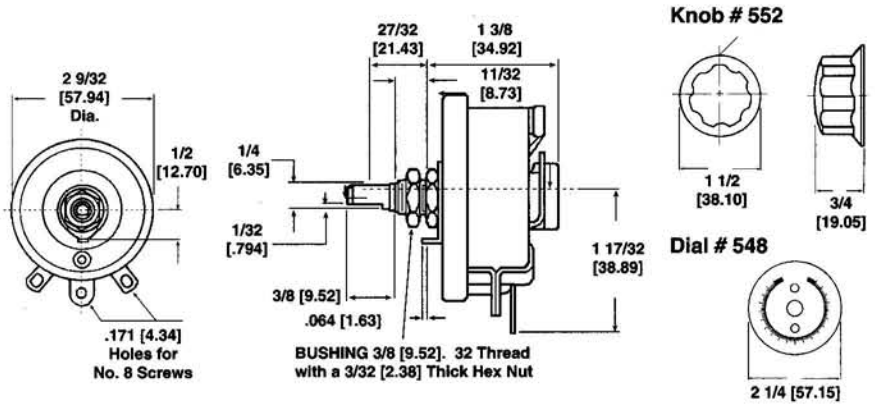
- Diameter 2 9/32" [57.94mm]
- Depth behind panel 1 3/8" [34.92mm]
- Shaft 1/4" [6.35mm] diameter
- Rotation 300° ± 5°
- Weight 0.321 pounds (145 grams)
- Mounts on panels up to 1/4" [6.35mm] by means of a 3/8" [9.52mm], 32 bushing and hex nut
- Non-turn lugs require 3/16" [4.76mm] hole, 1/2" [12.70mm] below center of shaft - Model "A" shaft
- U. L. Recongnized, File No. E51076

RESISTANCE VALUES*

TOTAL OHMS	MAXIMUM AMPS	APPROXIMATE STEPS
0.5	10.00	24
1.0	7.07	46
2.0	5.00	50
4.0	3.54	44
6.0	2.89	74
8.0	2.50	85
12.0	2.04	108
16.0	1.76	108
22.0	1.50	123
35.0	1.19	148
50.0	1.00	113
80.0	0.79	147
125.0	0.63	178
150.0	0.58	173
225.0	0.47	203
300.0	0.41	214
500.0	0.32	290
800.0	0.25	365
1000.0	0.22	358
1600.0	0.18	367
2500.0	0.14	460
3500.0	0.12	505
5000.0	0.10	565
8000.0	0.08	695
10000.0	0.07	693

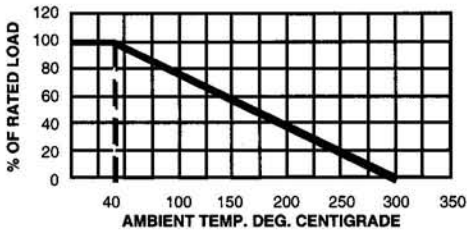
* All other intermediate resistance values are available and can be manufactured on a normal delivery cycle.

DIMENSIONS in inches [millimeters]

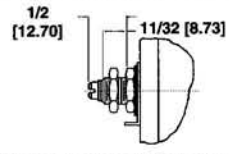


DERATING

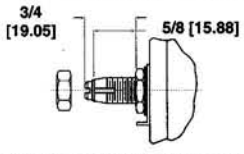
Angstrohm rheostat standard wattage ratings are based on a 300°C rise in "free-air" in ambient not exceeding + 40°C (shown). For other applications, wattage ratings are available based on 340°C rise in "free-air" in ambient not exceeding + 25°C, and in other cases + 50°C.



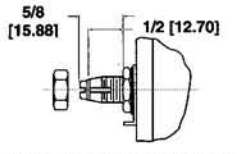
SPECIAL SHAFTS in inches [millimeters]



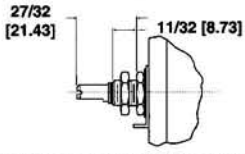
TYPE B: 1/2 [12.70], 11/32 [8.73] Models. Slotted shaft with standard bushing for 1/8 [3.18] panel.



TYPE C: 3/4 [19.05], 5/8 [15.88] Models. Locking bushing with slotted shaft for 1/4 [6.35] panel.



TYPE D: 5/8 [15.88], 1/2 [12.70] Models. Locking bushing with slotted shaft for 1/8 [3.18] panel.



TYPE E: 27/32 [21.43], 11/32 [8.73] Models. Std. bushing and flatted shaft w/screwdriver slot for 1/8 [3.18] panel.

MARKING

— Resistance value
— Amps
— Date code

ORDERING INFORMATION

MP15 (MODEL) — A (BUSHING AND SHAFT CONFIGURATION) — 5 (VALUE)

A = Standard Flatted Shaft

NOTE: For Additional Features: Submit detailed drawing information when ordering "non-standard" parts.

MP25

Vishay Angstrohm

Power Rheostats

100 Watt

FEATURES

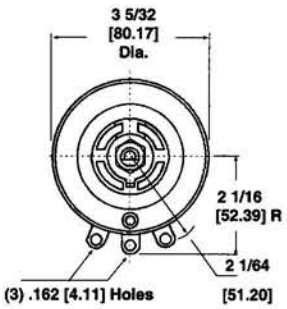
- Diameter 3 5/32" [80.17mm]
- Depth behind panel 1 1/2" [38.10mm]
- Shaft 1/4" [6.35mm] diameter
- Rotation 300° ± 5°
- Weight 0.594 pounds (268 grams)
- Mounts on panels up to 1/4" [6.35mm] by means of a 3/8" [9.52mm], 32 bushing and hex nut
- Non-turn lugs require 3/16" [4.76mm] hole, 1/2" [12.70mm] below center of shaft - Model "A" shaft
- U. L. Listed, File No. E51076

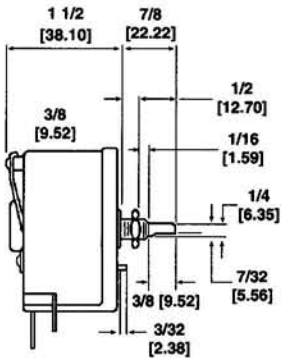
RESISTANCE VALUES*

TOTAL OHMS	MAXIMUM AMPS	APPROXIMATE STEPS
0.5	14.140	30
1.0	10.000	30
2.0	7.071	56
3.0	5.774	66
5.0	4.472	56
7.5	3.652	66
10.0	3.162	104
15.0	2.582	113
25.0	2.000	144
50.0	1.414	180
75.0	1.155	180
100.0	1.000	216
200.0	0.707	252
300.0	0.557	252
400.0	0.500	252
500.0	0.447	324
750.0	0.365	396
1000.0	0.316	410
2000.0	0.224	410
2500.0	0.200	410
5000.0	0.141	685
7500.0	0.115	820
10000.0	0.100	820

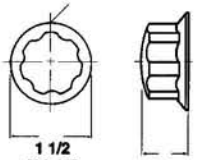
* All other intermediate resistance values are available and can be manufactured on a normal delivery cycle.

DIMENSIONS in inches [millimeters]

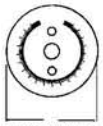




Knob # 552

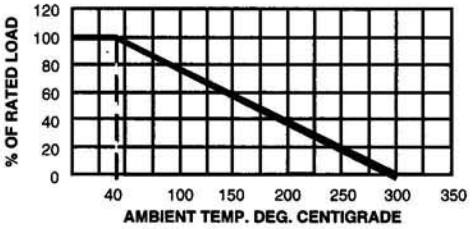


Dial # 548

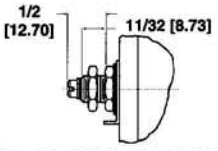


DERATING

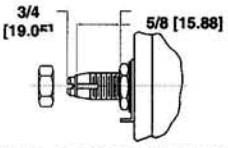
Angstrohm rheostat standard wattage ratings are based on a 300°C rise in "free-air" in ambient not exceeding + 40°C (shown). For other applications, wattage ratings are available based on 340°C rise in "free-air" in ambient not exceeding + 25°C, and in other cases + 50°C.



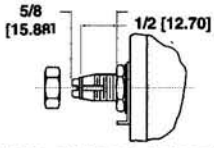
SPECIAL SHAFTS in inches [millimeters]



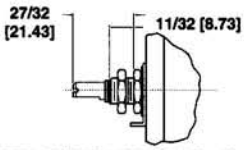
TYPE B: 1/2 [12.70], 11/32 [8.73] Models. Slotted shaft with standard bushing for 1/8 [3.18] panel.



TYPE C: 3/4 [19.05], 5/8 [15.88] Models. Locking bushing with slotted shaft for 1/4 [6.35] panel.



TYPE D: 5/8 [15.88], 1/2 [12.70] Models. Locking bushing with slotted shaft for 1/8 [3.18] panel.



TYPE E: 27/32 [21.43], 11/32 [8.73] Models. Std. bushing and flatted shaft w/screwdriver slot for 1/8 [3.18] panel.

MARKING

— Resistance value

— Amps

— Date code

ORDERING INFORMATION

MP25	A	25
MODEL	BUSHING AND SHAFT CONFIGURATION	VALUE

A = Standard Flatted Shaft

NOTE: For Additional Features: Submit detailed drawing information when ordering "non-standard" parts.

Power Rheostats

150 Watt

FEATURES

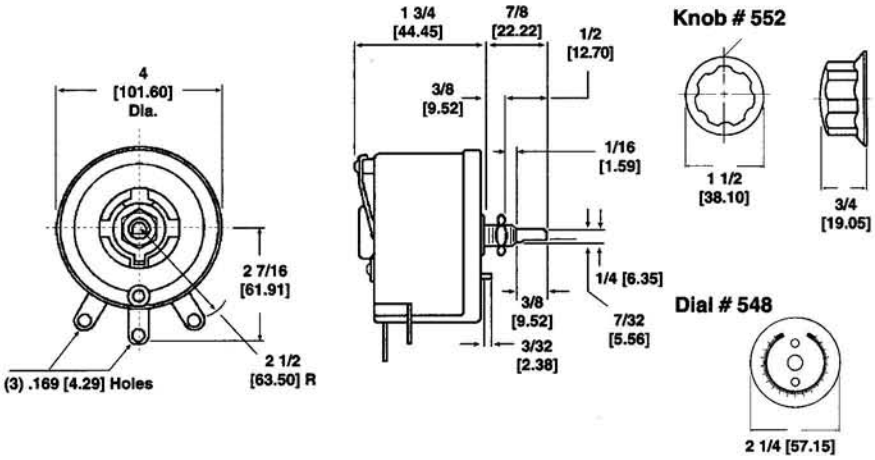
- Diameter 4" [101.60mm]
- Depth behind panel 1 3/4" [44.45mm]
- Shaft 1/4" [6.35mm] diameter
- Rotation 300° ± 5° and weight 1.014 pounds (460 grams)
- Total ohms available in higher ranges up to 25,000 ohms
- Mounts on panels up to 1/4" [6.35mm] by means of a 3/8" [9.52mm], 32 bushing and hex nut
- Non-turn lugs require 3/16" [4.76mm] hole, 1/2" [12.70mm] below center of shaft - Model"A" shaft
- U. L. Approved

RESISTANCE VALUES*

TOTAL OHMS	MAXIMUM AMPS	APPROXIMATE STEPS
0.5	17.350	35
1.0	12.247	39
2.0	8.660	39
3.0	7.071	70
5.0	5.477	73
7.5	4.472	70
10.0	3.873	70
15.0	3.162	120
25.0	2.449	152
50.0	1.732	190
75.0	1.414	228
100.0	1.225	228
200.0	0.866	265
300.0	0.707	303
400.0	0.612	342
500.0	0.548	342
750.0	0.447	418
1000.0	0.387	432
2000.0	0.274	575
2500.0	0.244	456
5000.0	0.173	865
7500.0	0.141	1000
10000.0	0.122	1000

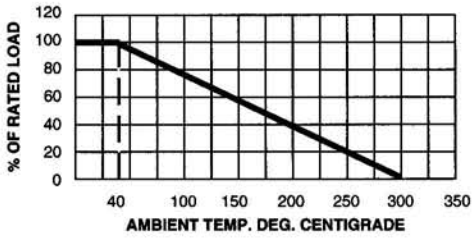
* All other intermediate resistance values are available and can be manufactured on a normal delivery cycle.

DIMENSIONS in inches [millimeters]



DERATING

Angstrohm rheostat standard wattage ratings are based on a 300°C rise in "free-air" in ambient not exceeding + 40°C (shown). For other applications, wattage ratings are available based on 340°C rise in "free-air" in ambient not exceeding + 25°C, and in other cases + 50°C.



MARKING

— Resistance value
— Amps
— Date code

ORDERING INFORMATION

MP30 / MODEL — A / BUSHING AND SHAFT CONFIGURATION — 25 / VALUE

A = Standard Flatted Shaft

NOTE: For Additional Features: Submit detailed drawing information when ordering "non-standard" parts.

MP40

Vishay Angstrohm

Power Rheostats

300 Watt

FEATURES

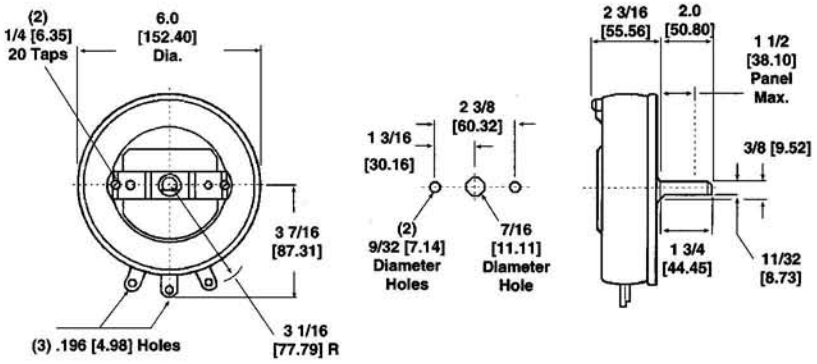
- Diameter 6" [152.40mm]
- Depth behind panel 2 3/16" [55.56mm]
- Shaft 3/8" [9.52mm] diameter
- Rotation 315° ± 5°
- Model "A" shaft
- Weight 2.625 pounds (1.191 kilograms)
- Total ohms available in higher ranges up to 25,000 ohms
- Mounts on panels up to 1 1/4" [31.75mm] by means of a mounting bracket with two 1/4" [6.35mm], 20 flat head screws
- U. L. Listed, File No. E51076

RESISTANCE VALUES*

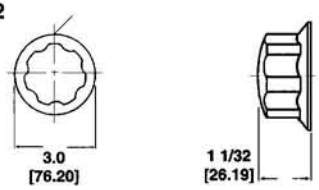
TOTAL OHMS	MAXIMUM AMPS	APPROXIMATE STEPS
1.0	17.320	40
1.5	14.142	58
2.0	12.247	78
2.5	10.954	78
3.0	10.000	73
4.0	8.660	78
5.0	7.745	78
7.5	6.324	148
10.0	5.477	154
15.0	4.472	147
25.0	3.464	155
35.0	2.927	231
50.0	2.449	267
75.0	2.000	308
100.0	1.732	326
150.0	1.414	270
200.0	1.224	308
300.0	1.000	340
400.0	0.886	370
500.0	0.774	455
750.0	0.632	514
1000.0	0.547	578
1500.0	0.447	675
2500.0	0.346	720

* All other intermediate resistance values are available and can be manufactured on a normal delivery cycle.

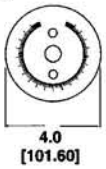
DIMENSIONS in inches [millimeters]



Knob # 952



Dial # 949



DERATING

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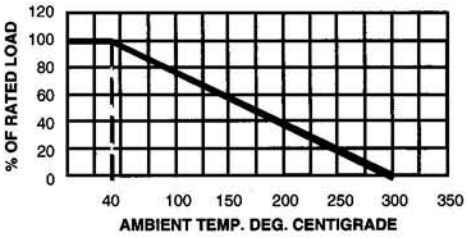

MARKING

— Resistance value
— Amps
— Date code

ORDERING INFORMATION

MP40	A	25
MODEL	STANDARD SHAFT CONFIGURATION	VALUE
	Other lengths available on special order	

NOTE: For Additional Features: Submit detailed drawing information when ordering "non-standard" parts.

Enclosed Models MP07 and MP11
Ring Type Model N152 and Tandem Assemblies

ENCLOSED RHEOSTATS

MODEL MP07, 12.5 Watt derated to 6.25 Watt
MODEL MP11, 25 Watt derated to 12.6 Watt

The MP07 and MP11 Rheostats can be furnished in a light-weight, dust-proof metal can, equipped with two or three screw terminals or solder lugs. They are not hermetically sealed but are closed by a rolled double seam. The MP07 is available in resistance values as listed for the MP06 (page xx), and the MP11 is available in resistance values as listed for the MP10 (page xx). Ordering information for the MP07 and the MP11 is the same as the MP06 and the MP10, respectively.

RING TYPE RHEOSTATS

MODEL N152

Angstrohm N152 ring rheostats are especially designed for portable and mobile apparatus likely to be subject to severe shock. Their rugged construction makes them well suited for this use.

FEATURES

- Operation - Manual
- Model- Rheostat, adjustable
- Duty - Continuous
- Enclosure - Open
- Form - EW, Exposed Wire or Ribbon
- Resistance Range - 8 Ω to 5000 Ω
- Service - Navy A
- Ambient - 50°C
- Insulation - Class C
- Rating - 50 Watt

TANDEM ASSEMBLIES

Two or more rheostats may be specified in tandem to save space on the face of a panel. These assemblies are manufactured using a common shaft arrangement which virtually eliminates backlash while providing smooth positive action. Since there are countless tandem combinations possible, consult Angstrohm for information regarding your specific requirements.

Additional Products Available

- Lower and Higher Wattage Available. (1.0 to 500 Watts)
- Higher Resistance Values Available.
- P.C. Mounting Available.
- Hermetically Sealed Cases. (Available in 5,16, 30, and 50 Watts)
- International Mounting and Characteristics Available.
- Vitreous Enameled.