

## Coaxial Shunts T&M RESEARCH PRODUCTS, Inc.

Apr 13

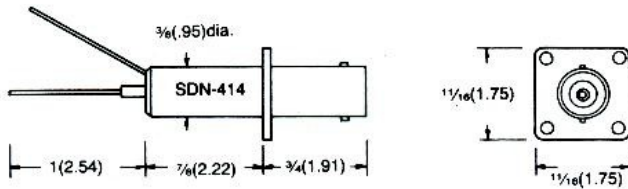
The displayed shunt sizes and resistive values are intended to guide users through the possibilities. We can dial in any resistance value a customer would be interested in. The values in the catalog allow the user to also know the response characteristics of their unit should they decide to change a resistance value by a milliohm or so. We consider us to be a design-build company where most of our business is still prototype design built to customer specifications. We will provide any contact tab/connector You may think of - at reasonable cost. This is also possible for single quantity coaxial current probes. Standard monitor connector is BNC

**Models SDN and SBNC - torque down threaded center load terminals by hand only !**

### SDN - 414 Series

SDN-414- 2 Watt Units - 1 5/8 Inch Case

Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
SDN-414-01	0,01	400	1	6
SDN-414-025	0,025	1200	0,3	3
SDN-414-05	0,05	2000	0,18	2
SDN-414-10	0,1	2000	0,18	1



Picture 5: TTSDN shunt compared to standard

### ORDERING INFORMATION

When ordering specify model number, wattage, and tolerance. Example: SDN-414-10, 2 watts, 4%.

Please specify type of load terminals: standard wire=SDN - flat low impedance strips = TTSDN

### SDN Series

2 Watt Units - 1 13/16 Inch Case

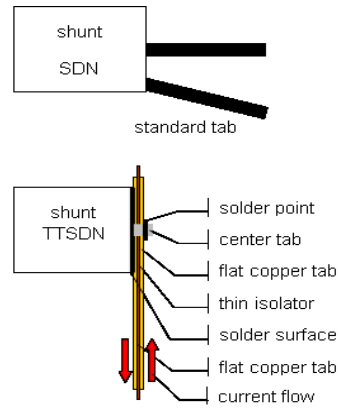
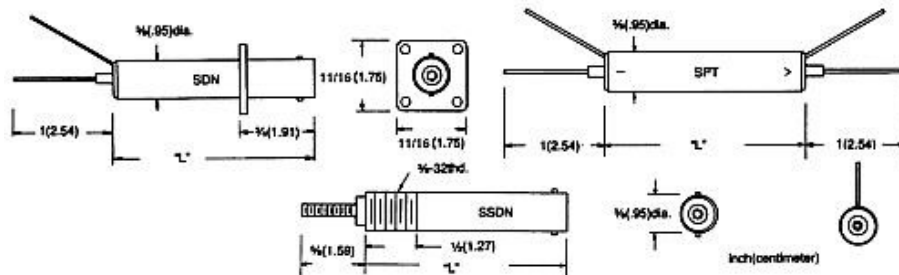
Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
SDN-001	0,001	12	30	12
SDN-0025	0,0025	12	30	28
SDN-005	0,005	400	1	3
SDN-015	0,015	1200	0,3	1,5
SDN-10	0,1	2000	0,18	2

3 Watt Units - 2 11/16 Inch Case

Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
SDN-25	0,25	1200	0,3	5
SDN-50	0,5	800	0,45	2,5

4 Watt Units - 4 Inch Case

Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
SDN-100	1	800	0,45	5



Picture 6: TTSDN shunt , sketch

When ordering specify model number(SDN,SSDN,SPT), wattage, and tolerance. Example: SDN-50, 3 watts, 4%.

**Models SDN and SBNC - torque down threaded center load terminals by hand only !**

## A Series - SBNC Series

4 Watt Units - 3 1/4 Inch Case\*

Model	Resistance ohms	Bandpass Mhz.	Risetime nsec.	Emax joules
A-2-01	0,01	400	1	16
A-5-05	0,05	2000	0,18	5
A-2-005	0,005	200	2	15
A-4-0025	0,0025	48	8	30
A-8-001	0,001	12	30	70

5 Watt Units - 3 1/8 Inch Case\*

Model	Resistance ohms	Bandpass Mhz.	Risetime nsec.	Emax joules
A-1-05	0,05	1200	0,3	20
A-2-025	0,025	400	1	40
A-5-1	0,1	1200	0,3	10
A-4-005	0,005	48	8	60

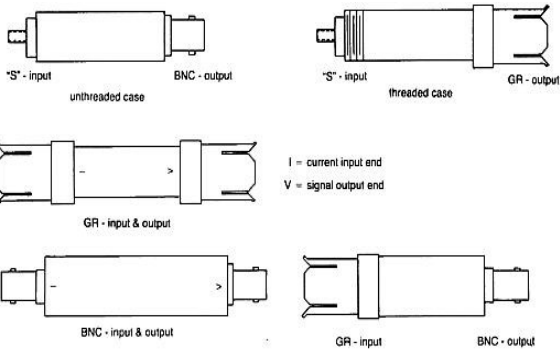
6 Watt Units - 5 Inch Case\*

Model	Resistance ohms	Bandpass Mhz.	Risetime nsec.	Emax joules
A-1-1	0,1	800	0,45	40
A-2-05	0,05	400	1	80
A-5-2	0,2	1200	0,3	20

7 Watt Units - 5 1/2 Inch Case\*

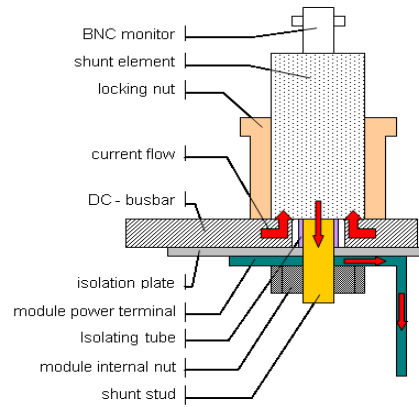
Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
A-5-5	0,5	800	0,45	15

\*Case lengths are for the SBNC-X-X model type, case lengths for other connectors will vary slightly. "S" modification - Current input connection is an 8-32 stud with the case threaded 5/8-24, supplied with two nuts. Unthreaded case available if specified.



Please specify type of shape A or SBNC Series, specify center terminal thread and length M5/M6 or M5 with thread adaptor to M8 length from 5mm to 25mm  
SBNC models Are sold with a big solid locking nut

**Models SDN and SBNC - torque down threaded center load terminals by hand only !**



Picture 4: SBNC shunt insertion, sketch



Picture 3: SBNC shunt



Picture: SBNC with locking nut and busbar isolator

## M Series

1M Models - 20 - Watt Hi-wattage Units - 4 3/4 Inch Overall Length

Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	E <sub>max</sub> joules
1M-T10*	0,05	1200	0,3	75
1M-05	0,025	400	1	150
1M-1	0,02	800	0,45	63
1M-2	0,01	200	2	125
1M-4	0,005	48	8	250
1M-8	0,025	12	30	500
1M-10	0,002	8	45	625
1M-16	0,00125	3,2	113	1000
1M-20	0,001	2,2	164	1250

2M Models - 30 - Watt Hi-wattage Units - 6 3/4 Inch Overall Length

Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	E <sub>max</sub> joules
2M-T10*	0,1	800	0,45	150
2M-05*	0,05	400	1	300
2M-1	0,04	400	1	125
2M-2	0,02	200	2	250
2M-4	0,01	48	8	500
2M-8	0,005	12	30	1000
2M-10	0,004	8	45	1250
2M-16	0,0025	3,2	113	1250
2M-20	0,002	2,2	164	2500



Picture: M-Series - standard

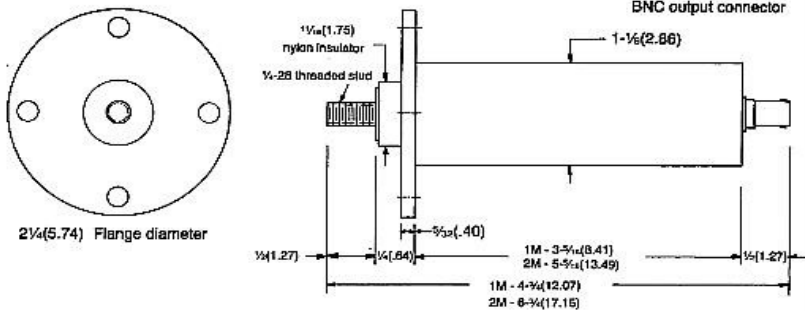
\*These models slightly longer than stated. BNC output connector supplied as standard. Other connectors available.

### CONTINUOUS DUTY RATINGS

Model	Hi-Wattage	Finned Model
1M	20 WATTS	75 WATTS
2M	30 WATTS	125 WATTS

The Hi-Wattage model is standard. The wattage for the 1M is 20 watts and the 2M is 30 watts. Both the 1M and 2M are available with cooling fins attached to their cases. The finned model wattage's are 75 watts for the 1M and 125 watts for the 2M. The wattage's stated are based on heavy current connections with unconfined mounting. The case temperatures should not exceed 140 degrees F(60 degrees C). Additionally the Finned Models require 100 cubic feet(2.8 cubicmeters) per minute air flow over their cases. The ambient temperature should not exceed 86 degree F(30 degrees C). Operation above this temperature the wattage rating should be derated accordingly.

$\frac{3}{32}$ (.55) mounting holes on 1- $\frac{3}{4}$ (4.45) bolt circle



### ORDERING INFORMATION

When ordering specific model number, wattage, output connector, and tolerance.

Example: 1M-20, 20 watts,BNC, 4%.

## F Series

75 Watt Hi-Wattage Units - 8 Inch Overall Length

Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
F-250-1	0,02	800	0,45	250
F-500-2	0,01	200	2	500
F-1000-4	0,005	48	8	1000
F-2000-8	0,0025	12	30	2000
F-2500-10	0,002	8	45	2500
F-4000-16	0,00125	3,2	113	4000
F-5000-20	0,001	2,2	164	5000
F-8000-32	0,000625	1	250	8000
F-10,000-40	0,0005	0,58	872	10000

90 Watt Hi-Wattage Units - 8 7/8 Inch Overall Length

Model	Resistance ohms.	Bandpass MHz.	Risetime nsec.	Emax joules
F-300-1	0,025	800	0,45	300
F-3000-10	0,0025	8	45	3000
F-16,000-40	0,0008	0,58	872	16000

Model	Hi-Wattage	Finned Model
8"	75 watt	250 watt
8 7/8"	90 watt	300 watt

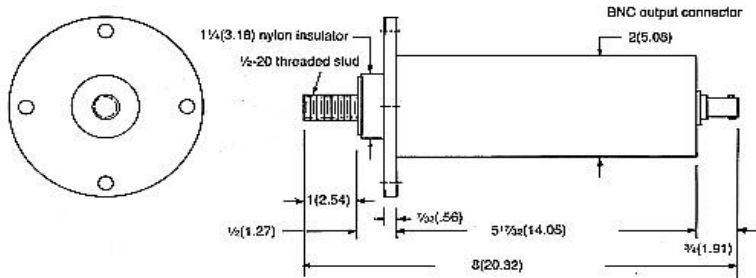


Picture: M-Series - finned

The Hi-Wattage model is standard. The wattage's stated are based on heavy current connections with unconfined mounting. The case temperature should not exceed 140 degrees F (60 degrees C). Additionally the Finned Models require 150 cubic feet(4.2 cubicmeters) per minute air flow over their cases. The ambient temperature should not exceed 86 degrees F (30 degrees C). Operation above this temperature the wattage rating should be derated accordingly.

3 1/2(8.89) Flange diameter

3/8(.71) mounting holes on 2 3/4(6.99) bolt circle



### ORDERING INFORMATION

When ordering specify model number, wattage, output connector and tolerance.

Example:F-5000-20, 75 Watts, BNC, 4%.

## K Series

150 Watt Hi-Wattage Units - 10 Inch Overall Length

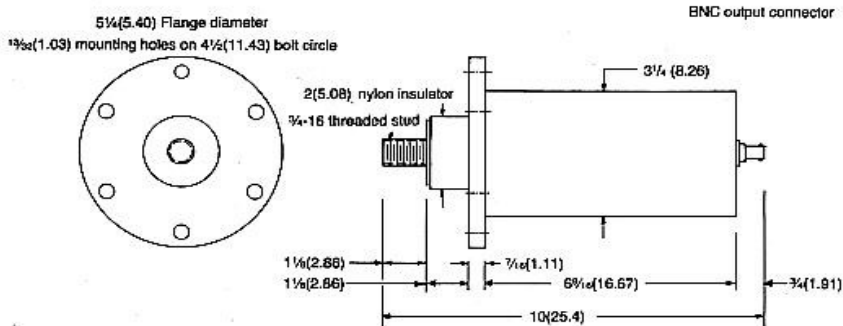
Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
K-500-1	0,01	800	0,45	500
K-1000-2	0,005	200	2	1000
K-2000-4	0,0025	48	8	2000
K-4000-8	0,00125	12	30	4000
K-5000-10	0,001	8	45	5000
K-8000-16	0,000625	3,2	113	8000
K-10,000-20	0,0005	2,2	164	10000
K-16,000-32	0,0003	1	250	16000
K-20,000-40	0,00025	0,58	872	20000
K-32,000-64	0,00015	0,25	2000	32000

120 Watt Hi-Wattage Units - 9 1/8 Inch Overall Length

Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
K-1600-4	0,002	48	8	1600
K-3200-8	0,001	12	30	3200
K-6400-16	0,0005	3,2	113	6400
K-12,800-32	0,00025	1	250	12800
K-16,000-40	0,0002	0,58	872	16000
K-21,000-64	0,0001	0,25	2000	32000

Model	Hi-Wattage	Finned Model
10"	150 Watt	500 Watt
9 1/8"	120 Watt	400 Watt

The Hi-Wattage model is standard. The wattage's stated are based on heavy current connections with unconfined mounting. The case temperature should not exceed 140 degrees F (60 degrees C). Additionally the Finned Models require 200 cubic feet(5.6 cubicmeters) per minute air flow over their cases. The ambient temperature should not exceed 86 degrees F (30 degrees C). Operation above this temperature the wattage rating should be derated accordingly.



inch(centimeter)

### ORDERING INFORMATION

When ordering specify model number, wattage, output connector and tolerance.  
 Example:K-5000-10, 150 Watts, BNC, 4%.

## R Series

225 Watt Hi-Wattage Units - 12 3/4 Inch Overall Length, 3 3/4 Inch Dia.

Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
R-700-1	0,01	800	0,45	700
R-1400-2	0,005	200	2	1400
R-2800-4	0,0025	48	8	2800
R-5600-8	0,00125	12	30	5600
R-7000-10	0,001	8	45	7000
R-11,200-16	0,000625	3,2	113	11200
R-14,000-20	0,0005	2,2	164	14000
R-22,400-32	0,0003	1	250	22400
R-28,000-40	0,00025	0,58	872	28000
R-44,800-64	0,00015	0,25	2000	44800



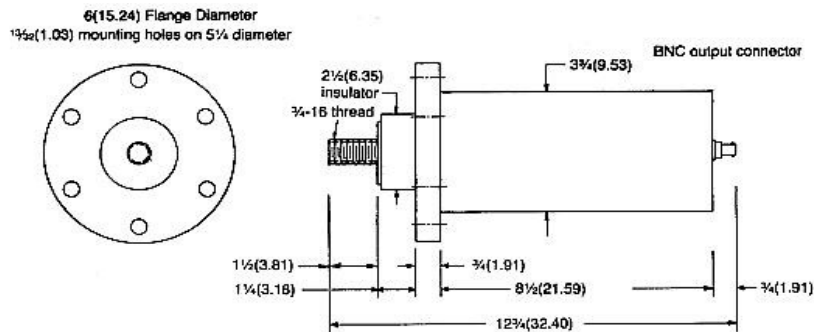
Picture: R-Series - finned

275 Watt Hi-Wattage Units - 11 Inch Overall Length, 5 Inch Dia.

Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
R-7500-8	0,001	12	30	7500
R-15,000-16	0,0005	3,2	113	15000
R-30,000-32	0,00025	1	250	30000
R-60,000-64	0,000125	0,25	2000	60000

Model	Hi-Wattage	Finned
12 3/4"	225 watt	700 watt
11"	275 watt	850 watt

The Hi-Wattage model is standard. The wattage's stated are based on heavy current connections with unconfined mounting. The case temperature should not exceed 140 degrees F (60 degrees C). Additionally the Finned Models require 300 cubic feet(8.6 cubicmeters) per minute air flow over their cases. The ambient temperature should not exceed 86 degrees F (30 degrees C). Operation above this temperature the wattage rating should be derated accordingly.



### ORDERING INFORMATION

When ordering specify model number, wattage, output connector and tolerance.  
 Example:R-14,000-20, 225 Watts, BNC, 4%.

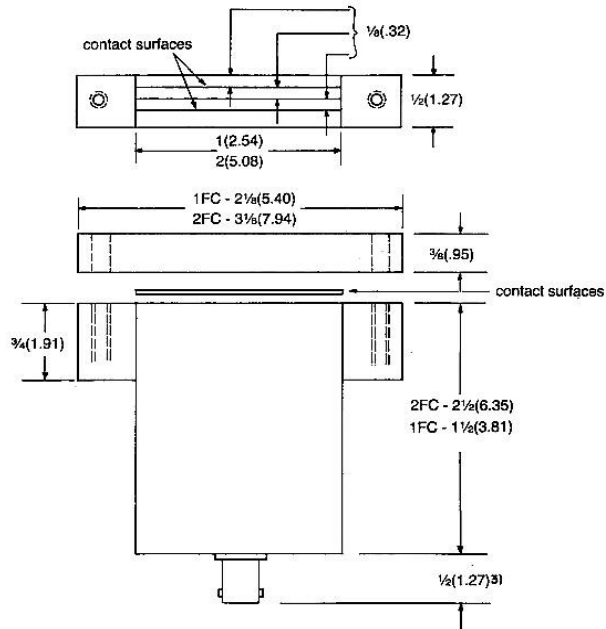
## W-clamping type flat cable input

5 Watt Units - 1 Inch Long Clamping Surface

Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
W-1-01C-1FC	0,01	800	0,45	20
W-2-005C-1FC	0,005	200	2	40
W-4-0025C-1FC	0,0025	48	8	60

7 1/2 Watt Units - 2 Inch Long Clamping Surface

Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
W-1-01C-2FC	0,01	800	0,45	80
W-1-005C-2FC	0,005	800	0,45	40
W-2-0025C-2FC	0,0025	200	2	80
W-4-001C-2FC	0,001	48	8	130



Picture: W-clamping Series

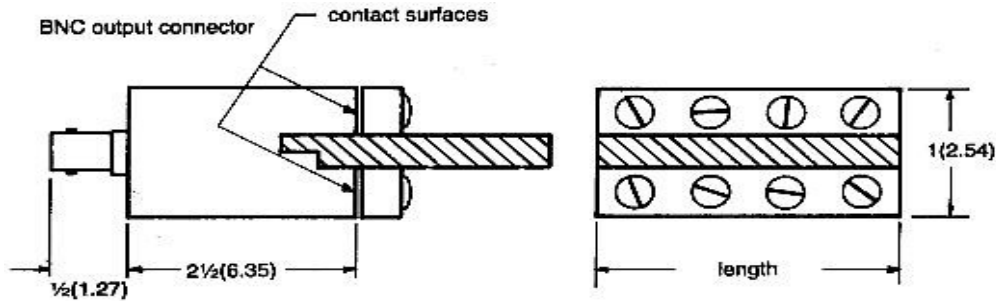
### ORDERING INFORMATION

When ordering specify model number. Example: W-1-10C-1FC.

## W-bar strap type flat cable input

2 1/2 Watts Per Unit Length

Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules	Length Inches
W-2-005C-2FC	0,005	400	2	125	2
W-2-0025-4FC	0,0025	400	2	275	4
W-2-001-6FC	0,001	400	2	275	6
W-2-0005-12FC	0,0005	400	2	550	12
W-2-0005-18FC	0,0005	400	2	1250	18
W-2-00025-24FC	0,00025	400	2	1050	24



### ORDERING INFORMATION

When ordering specify model number and tolerance. Example: W-2-001-6FC. For custom design unit please specify your requirements: Length of unit, resistance, joules, and mounting requirements.

## W-stud input 1 stud type

7 1/2 Watt Units - 5 1/2 Inch Overall Length

Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
W-5-50-1STUD	5	400	1	300
W-5-40-1STUD	4	400	1	240
W-5-30-1STUD	3	400	1	180
W-5-20-1STUD	2	400	1	120
W-5-10-1STUD	1	800	0,45	60

6 Watt Units - 4 1/2 Inch Overall Length

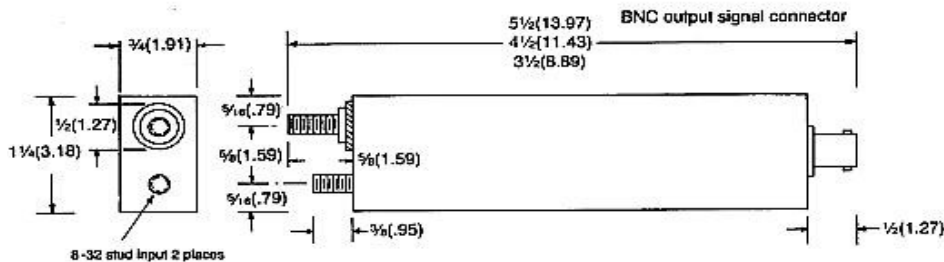
Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
W-1T-5-1STUD	0,5	400	1	500
W-1T-25-1STUD	0,25	800	0,45	250
W-1-1-1STUD	0,1	400	1	200
W-1-05-1STUD	0,05	400	1	100

5 Watt Units - 3 1/2 Inch Overall Length

Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
W-1-025-1STUD	0,025	800	0,45	50
W-2-01-1STUD	0,01	200	2	80
W-4-005-1STUD	0,005	48	8	160
W-8-0025-1STUD	0,0025	12	30	320
W-10-001-1STUD	0,001	8	45	200



Picture: W-Stud Type



### ORDERING INFORMATION

When ordering specify model number, wattage and tolerance. Example: W-1-05-1Stud, 6 watts.



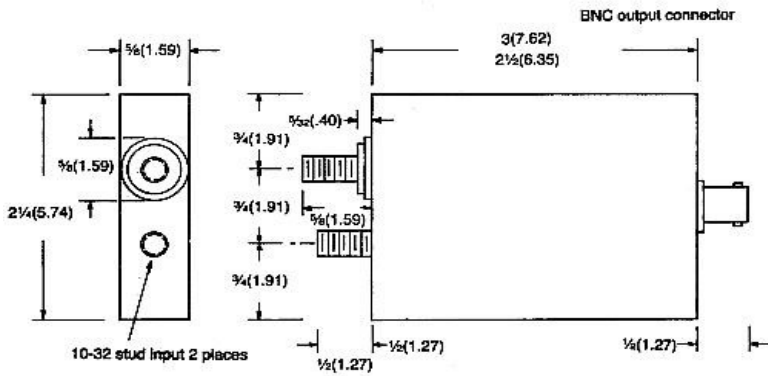
## W-stud input 2 stud type

12 1/2 Watt Units - 2 1/2 Inch Overall Length

Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
W-1-05-2STUD	0,05	400	1	425
W-1-025-2STUD	0,025	400	1	213
W-1-01-2STUD	0,01	800	0,45	85
W-2-005-2STUD	0,005	200	2	165
W-4-0025-2STUD	0,0025	48	8	330
W-8-001-2STUD	0,001	12	30	350

15 Watt Units - 3 Inch Overall Length

Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
W-2-01-2STUD	0,01	200	2	330
W-4-005-2STUD	0,005	48	8	660
W-8-0025-2STUD	0,0025	12	30	1320



### ORDERING INFORMATION

When ordering specify model number, wattage, and tolerance. Example: W-1-01-2Stud, 12 1/2 watts, 4%.

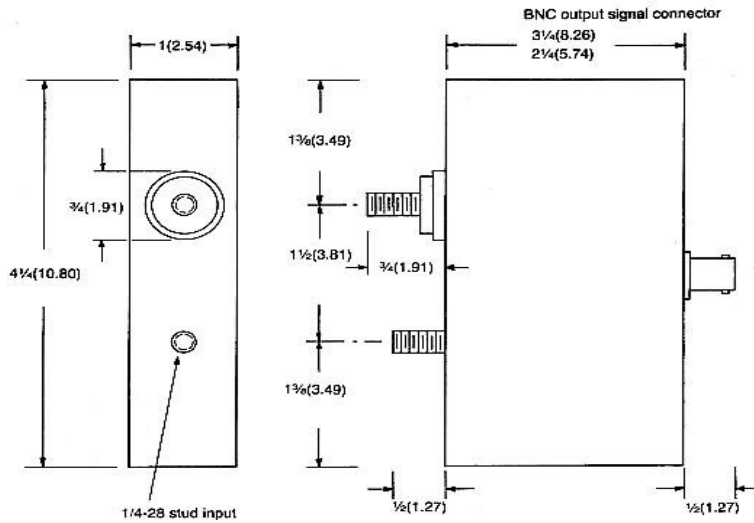
## W-stud input 4 stud type

15 Watt Units - 3 Inch Case Length

Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
W-1-005-4STUD	0,005	800	0,45	175
W-2-0025-4STUD	0,0025	200	2	350
W-4-0005-4STUD	0,001	48	8	560
W-8-0005-4STUD	0,0005	12	30	1220
W-16-00025-4STUD	0,00025	3,2	113	2440

20 Watt Units - 4 Inch Case Length

Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
W-1-01-4STUD	0,01	800	0,45	350
W-2-005-4STUD	0,005	200	2	700
W-4-0025-4STUD	0,0025	48	8	1400
W-8-001-4STUD	0,001	12	30	2240
W-16-0005-4STUD	0,0005	3,2	113	2240



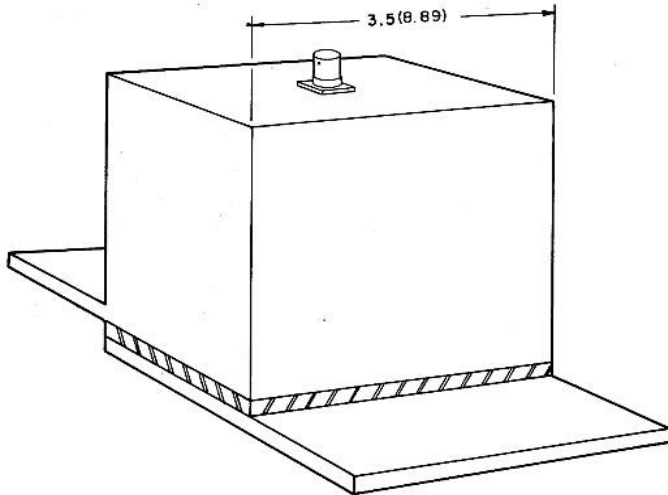
### ORDERING INFORMATION

When ordering specify model number, wattage, and tolerance. Example: W-1-01-4Stud, 20 watts, 4%.

## W-flange input 3.5s type

Model - Group A	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
W3001-3.5s-025	0,025	300	1,5	300
W52012-3.5s-01	0,01	200	2	520
W1K4-3.5s-005	0,005	48	8	1000
W2.1K8-3.5s-0025	0,0025	12	30	2100
W3.5K10-3.5s-0025	0,0025	8	45	3500
W3.3K16-3.5s-001	0,001	3,2	113	3300
W5.5K20-3.5s-001	0,001	2,2	164	5500
W6.6K32-3.5s-0005	0,0005	1	250	6600
W11.2K40-3.5s-0005	0,0005	0,58	872	11200
W13.2K64-3.5s-00025	0,00025	0,25	2000	13200

Model - Group B	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
W49011-3.5s-01	0,01	300	1,5	490
W1K2-3.5s-005	0,005	200	2	1000
W2K4-3.5s-0025	0,0025	48	8	2000
W3.4K8-3.5s-001	0,001	12	30	3400
W5.7K10-3.5s-001	0,001	8	45	5700
W6.6K16-3.5s-0005	0,0005	3,2	113	6600
W11K20-3.5s-0005	0,0005	2,2	164	11000
W13.2K32-3.5s-00025	0,00025	1	250	13200
W22K40-3.5s-00025	0,00025	0,58	872	22000
W21.1K64-3.5s-0001	0,0001	0,25	2000	21100



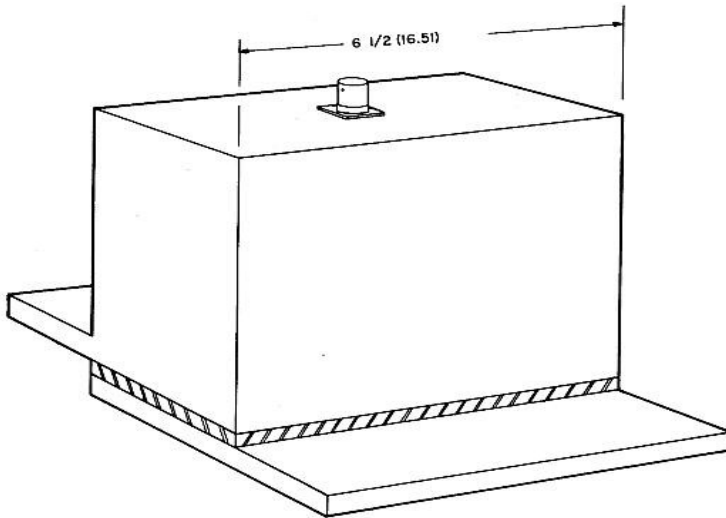
### ORDERING INFORMATION

When ordering specify model number, and tolerance. Example: W1K4-3.5S-005.

## W-flange input 6.5s type

Model	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
W490J1-6.5s-01	0,01	300	1,5	490
W1K2-6.5s-005	0,005	200	2	100
W2K4-6.5s-0025	0,0025	48	8	2000
W3.4K8-6.5s-001	0,001	12	30	3400
W5.7K10-6.5s-001	0,001	8	45	5700
W6.6K16-6.5s-0005	0,0005	3,2	113	6600
W11K20-6.5s-0005	0,0005	2,2	164	11000
W13.2K32-6.5s-00025	0,00025	1	250	13200
W22K40-6.5s-00025	0,00025	0,58	872	22000
W21.1K64-6.5s-0001	0,0001	0,25	2000	21100

Model - Group B	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
W980J1-6.5s-005	0,005	300	1,5	980
W1.1K2-6.5s-0025	0,0025	200	2	1100
W3.2K4-6.5s-001	0,001	48	8	3200
W6.7K8-6.5s-0005	0,0005	12	30	6700
W11.4K10-6.5s-0005	0,0005	8	45	11400
W13.2K16-6.5s-00025	0,00025	3,2	113	13200
W22.1K20-6.5s-00025	0,00025	2,2	164	22100
W21.1K32-6.5s-0001	0,0001	1	250	21100
W35.9K40-6.5s-0001	0,0001	0,58	872	35900
W42.2K64-6.5s-00005	0,00005	0,25	2000	42200



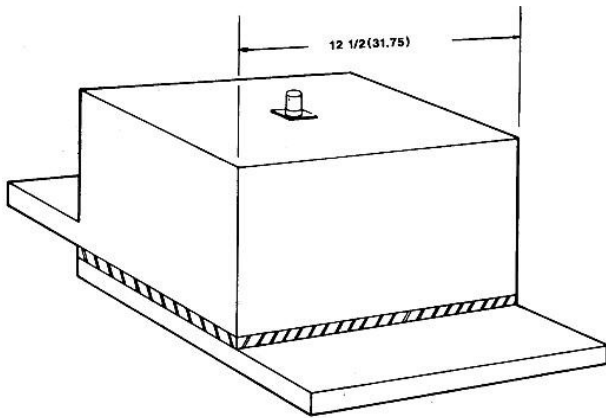
### ORDERING INFORMATION

When ordering specify model number, and tolerance. Example: W2K4-6.5s-0025.

## W-flange input 12.5s type

Model - Group A	Resistance ohms	Bandpass MHz.	Risetime nsec.	Emax joules
W980J1-12.5s-005	0,005	300	1,5	980
W1.1K2-12.5s-0025	0,0025	200	2	3300
W3.2K4-12.5s-001	0,001	48	8	3200
W6.7K8-12.5s-0005	0,0005	12	30	6700
W11.4K10-12.5s-0005	0,0005	8	45	11400
W13.2K16-12.5s-00025	0,00025	3,2	113	13200
W22.1K20-12.5s-00025	0,00025	2,2	164	22100
W21.1K32-12.5s-0001	0,0001	1	250	21100
W35.9K40-12.5s-0001	0,0001	0,58	872	35900
W42.2K64-12.5s-00005	0,00005	0,25	2000	42200

Model	Resistance ohms	Bandpass MHz.	Risetime nsec	Emax joules
W2K1-12.5s-005	0,005	300	1,5	2000
W3.3K2-12.5s-001	0,001	200	2	3300
W6.5K4-12.5s-0005	0,0005	48	8	6500
W13.7K8-12.5s-00025	0,00025	2	30	13700
W23K10-12.5s-00025	0,00025	8	45	23000
W21K16-12.5s-0001	0,0001	3,2	113	21000
W35K20-12.5s-0001	0,0001	2,2	164	35000
W42K32-12.5s-00005	0,00005	1	250	42000
W72K40-12.5s-00005	0,00005	0,58	872	72000
W84K64-12.5s-000025	0,000025	0,25	2000	84000



### ORDERING INFORMATION

When ordering specify model number, and tolerance. Example: W6.7K8-12.5s-0005.

Picture: W Flange - Series

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