

## Strip Sensing Thermal Ribbons

Omega's averaging thermal ribbons are flat wire wound RTD elements offered in flexible compact and strip forms. They are ideal for sensing temperature in tight spaces or on non-flat surfaces. Compact RTD elements are wound on a single plane for faster time response and can be installed anywhere for accurate point sensing that is less susceptible to self-heating. Strip RTD elements average temperatures along their length. They can be wrapped around cylinders or adhered to flat surfaces to eliminate point measurement errors. Mount on the end turns of stator windings and provides an easy way to add overtemperature protection when the stator is not being rewound. These averaging RTDs are RoHS compliant and feature surface or pressure-sensitive adhesive (PSA\*) mounting. They also feature polyimide, silicone rubber or polyester film insulation, and standard PFA or silicone rubber insulated lead wire options. Note: PSA reduces temperature range to -20 to 177°C



### Features

- **'Averaging' sensing along the length to eliminate point measurement errors**
- **Platinum RTD or Nickel-iron sensor**
- **Choice of materials of construction for chemical resistance and/or vacuum applications as needed**
- **Fast time response**
- **Chemical resistance**
- **Optional lead wire insulations**

### Typical applications:

- **Production line equipment**
- **Machinery and machined parts**
- **Enclosures**
- **Hot plates and dies**
- **Stator measure in motors and generators**
- **Laminating equipment**

### Specifications

<b>Temperature range</b>	From -200 to 200°C (-328 to 302°F)
<b>Lead wires</b>	36" (specify "0" for solder pad option on model "P" only)
<b>Lead wire configuration</b>	0, 2, 3, or 4 wire (0 denotes "solder -pad" style)
<b>Ribbon thickness</b>	0.010"
<b>Sensor type</b>	100 Ω RTD (or nickel-platinum)
<b>Adhesive backing</b>	PSA (pressuresensitive adhesive)

## Ordering Table

### Part Number Breakdown-[Model]-[Element]-[Number of Wires]-[Cable Insulation]-[Lead Length]-[Adhesive Backing]

**Example: TFSA-R-P-PD-2-T-40-P**, Polyimide, Platinum (0.00385 TCR) 100  $\Omega \pm 0.1\%$  at 0°C (EN60751, Class B), 2 wire, PFA cable insulated, 40 in lead length, with PSA

Model	Element Options	Insulation	Temperature Range	Lead wire	Time Constant	Dimensions (W x L x T (max))
TFSA-R-P-*	PD, PE	Polyimide	-73 to 200°C -100 to 392°F	AWG 26, PFA insulated	0.10 sec.	0.50 x 1.25 x 0.050" (12.7 x 31.8 x 1.3 mm)
TFSA-R-SR-*	PB11	Silicone rubber w/ polyimide backing	-62 to 220°C -80 to 428°		0.2 sec	0.375 x 4.00 x 0.075" (9.5 x 101.6 x 1.9 mm)
TFSA-R-SR1-*	PD12	Silicone rubber w/ polyimide backing	-62 to 220°C -80 to 428°		0.2 sec.	0.20 x 0.60 x 0.08" (5 x 15 x 2 mm)
TFSA-R-M-*	FA	Wire-wound Nickel-iron flat element	-200 to 150°C -328 to 302°F	AWG 30, PFA insulated	0.3 sec	0.75 x 0.75 x 0.04" (19 x 19 x 1.0 mm)
TFSA-R-P1-*	FA	Wire-wound Nickel-iron thin element	-62 TO 220°C -80 TO 428°F	AWG 26, PFA insulated	0.2 sec.	0.375 x 4.00 x 0.0065" (9.5 x 101.6 x 1.7 mm)
TFSA-R-SR6-*	PD12	Silicone rubber w/ polyimide backing	-200 to 200°C -328 to 392°F	AWG 26, PFA insulated	0.6 sec.	0.375 x 4.00 x 0.0075" (9.5 x 101.6 x 1.9 mm)
TFSA-R-SR2-*	FB	Silicone rubber w/ polyimide backing	200 to 200°C -328 to 392°F	Silicone Rubber	0.8 sec.	0.5 x 1.5 x. 0.0045" (12.7 x 38.1 x 1.2 mm)
TFSA-R-SR3-*	FC	Silicone rubber w/ polyimide backing	-62 to 200°C -80 to 392°F	Silicone Rubber	0.8 sec.	0.5 x 1.5 x. 0.0045" (12.7 x 38.1 x 1.2
TFSA-R-SR4-*	PB	Silicone rubber w/ polyimide backing	-62 to 200°C -80 to 392°F	Silicone Rubber	0.8 sec.	0.5 x 1.5 x. 0.0045" (12.7 x 38.1 x 1.2 mm)
TFSA-R-SR7-*	PD	Silicone rubber w/ polyimide backing	-62 to 200°C -80 to 392°F	Silicone Rubber	0.8 sec.	0.5 x 1.5 x. 0.0045" (12.7 x 38.1 x 1.2 mm)
TFSA-R-SR8-*	PF	Silicone rubber w/ polyimide backing	-62 to 200°C -80 to 392°F	Silicone Rubber	0.8 sec.	0.5 x 3.0 x. 0.0045" (12.7 x 72.6 x 1.2 mm)
TFSA-R-PF-*	PD, PF	Polyimide with foil	-200 to 200°C -328 to 392°F	AWG 28, PFA insulated	0.8 sec.	0.30 x 0.30 x 0.025" (7.6 x 7.6 x 0.7 mm)
TFSA-R-P2-*	PA, PE, CA, NA	Polyimide	-73 to 200°C -100 to 392°F	AWG 26, PFA insulated	0.17 sec.	0.5 x 1.25 x. 0.050" (12.7 x 38.1 x 1.3 mm)

## Sensor Types

Element	Element Specifications	Available Models
PD	Platinum (0.00385 TCR) 100 $\Omega$ $\pm$ 0.1% at 0°C (EN60751, Class	TFSA-R-P, TFSA-R-SR7, TFSA-R-PF
PE	Platinum (0.00385 TCR) 100 $\Omega$ $\pm$ 0.22% at 0°C	TFSA-R-P, TFSA-R-P2
PB11	Platinum (0.00391 TCR) 100 $\Omega$ $\pm$ 0.11% at 0°C	TFSA-R-SR
PD12	Platinum (0.00385 TCR) 100 $\Omega$ $\pm$ 0.12% at 0°C	TFSA-R-SR1, TFSA-R-SR6
FA	Nickel-iron (0.00518 TCR) 604 $\Omega$ $\pm$ 0.26% at 0°C	TFSA-R-M, TFSA-R-P1
FB	Nickel-iron (0.00527 TCR) 1000 $\Omega$ $\pm$ 0.12% at 70°F	TFSA-R-SR2
FC	Nickel-iron (0.00527 TCR) 2000 $\Omega$ $\pm$ 0.12% at 70°F	TFSA-R-SR3
PB	Platinum (0.00391 TCR) 100 $\Omega$ $\pm$ 0.1% at 0°C	TFSA-R-SR4
PF	Platinum (0.00385 TCR) 1000 $\Omega$ $\pm$ 0.1% at 0°C	TFSA-R-SR8, TFSA-R-PF
PA	Platinum (0.00391 TCR) 100 $\Omega$ $\pm$ 0.5% at 0°C	TFSA-R-P2
CA	Copper (0.00427 TCR) 10 $\Omega$ $\pm$ 0.2% at 25°C	TFSA-R-P2
NA	Nickel (0.00672 TCR) 120 $\Omega$ $\pm$ 0.5% at 0°C	TFSA-R-P2

Cable Insulation	Material
R	Silicone Rubber
T	PFA
ST	Stainless steel braid over PFA insulated leads
SR	Stainless steel braid over silicone rubber insulated leads

Number of Wires	Lead Length
0, 2, or 3	0 to 240" (specify "0" for solder pads, option on "P" model)

Adhesive Backing	Suffix
With out adhesive	No suffix
With adhesive	-P