

Type 1787 Current Sense Resistor Networks

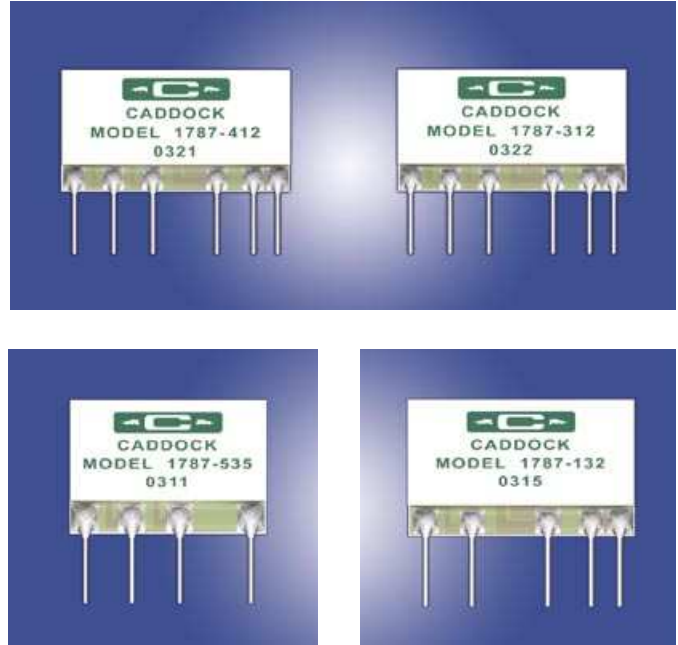
Accurate Current Sensing in Multi-Range Instrumentation

Type 1787 Current Sense Resistor Networks utilize Caddock's Micronox® resistance films and advanced high thru-put laser manufacturing capabilities to achieve many vital advantages in precision current measurement circuits, including laboratory and bench-type digital instrumentation:

- The thin-profile single-package configuration replaces as many as four discrete current sense resistors.
- The monolithic construction and standardized lead spacing simplify installation.
- Caddock Micronox® resistance films provide exceptional stability for improved long-term measurement accuracy.

Twelve standard models in five network arrangements provide the specific accuracy and resistance values required for a wide range of current measuring instruments and circuits.

Prototype quantities of most models of the Type 1787 Current Sense Resistor Networks are available either from stock or within 6 weeks after receipt of order.



Model No.	Resistance Values				Power Rating Watts				Max. Power Rating Watts Total Pkg.	Fig.	Absolute Tolerance % ①	Maximum Absolute TC ppm/°C ②	Absolute Stability Max. % Change in Resistance Value	
	R _A	R _B	R _C	R _D	R _A	R _B	R _C	R _D					Load Life ③	Shelf Life ④
1787-31	999.9 Ω	99.9 Ω	9.9 Ω	0.9 Ω	0.25	0.25	0.50	1.0	1.0	1	0.25	80	0.05	0.03
1787-312	999.9 Ω	99.9 Ω	9.9 Ω	0.9 Ω	0.25	0.25	0.50	1.0	1.0	1	0.10	80	0.03	0.02
1787-41	1,000 Ω	100 Ω	10 Ω	1 Ω	0.25	0.25	0.50	1.0	1.0	2	0.25	80	0.05	0.03
1787-412	1,000 Ω	100 Ω	10 Ω	1 Ω	0.25	0.25	0.50	1.0	1.0	2	0.10	80	0.03	0.02
1787-5	999 Ω	99 Ω	9 Ω	N/A	0.25	0.25	0.75	N/A	0.75	3	0.25	50	0.04	0.02
1787-53	999 Ω	99 Ω	9 Ω	N/A	0.25	0.25	0.75	N/A	0.75	3	0.10	50	0.02	0.01
1787-535	999 Ω	99 Ω	9 Ω	N/A	0.25	0.25	0.75	N/A	0.75	3	0.05	50	0.02	0.01
1787-6	1,000 Ω	100 Ω	10 Ω	N/A	0.25	0.25	0.75	N/A	0.75	4	0.25	50	0.04	0.02
1787-64	1,000 Ω	100 Ω	10 Ω	N/A	0.25	0.25	0.75	N/A	0.75	4	0.10	50	0.02	0.01
1787-645	1,000 Ω	100 Ω	10 Ω	N/A	0.25	0.25	0.75	N/A	0.75	4	0.05	50	0.02	0.01
1787-13	99.9 Ω	9.9 Ω	0.9 Ω	N/A	0.25	0.50	1.0	N/A	1.0	5	0.25	100	0.05	0.03
1787-132	99.9 Ω	9.9 Ω	0.9 Ω	N/A	0.25	0.50	1.0	N/A	1.0	5	0.10	100	0.03	0.02

① **Absolute Tolerance:**

Tolerance of R_A, R_B, R_C, or R_D when measured in accordance with proper Figure No.

② **Absolute Temperature Coefficient:**

Temperature coefficient of R_A, R_B, R_C, or R_D from 0°C to +70°C, referenced to +25°C.

④ **Shelf Life:** Stability of R_A, R_B, R_C, or R_D for six months at shelf conditions.

Storage Temperature: -55°C to +85°C.

③ **Load Life:** Stability of R_A, R_B, R_C, or R_D with full power applied individually for 2,000 hours at +70°C.

Applications Engineering
17271 North Umpqua Hwy.
Roseburg, Oregon 97470-9422
Phone: (541) 496-0700
Fax: (541) 496-0408

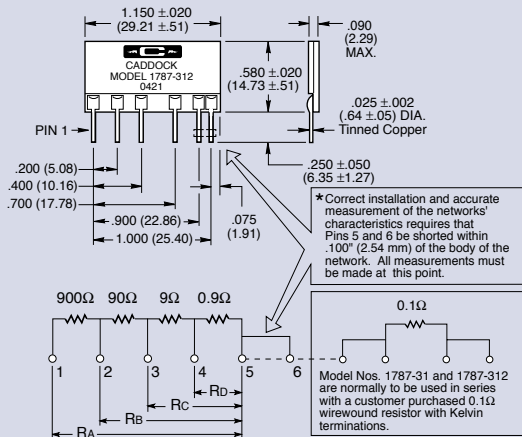
CADDOCK ELECTRONICS, INC.

e-mail: caddock@caddock.com • web: www.caddock.com
For Caddock Distributors listed by country see caddock.com/contact/dist.html

Sales and Corporate Office
1717 Chicago Avenue
Riverside, California 92507-2364
Phone: (951) 788-1700
Fax: (951) 369-1151

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Figure 1 - Model Nos. 1787-31 and 1787-312



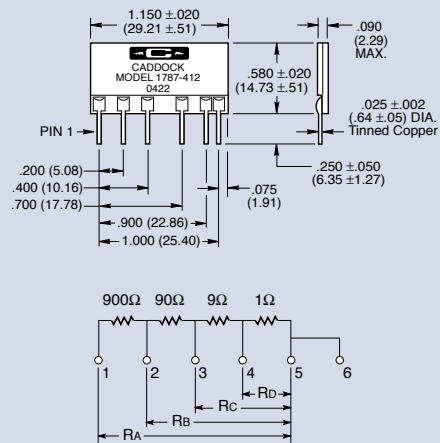
*Correct installation and accurate measurement of the networks' characteristics requires that Pins 5 and 6 be shorted within .100" (2.54 mm) of the body of the network. All measurements must be made at this point.

Model Nos. 1787-31 and 1787-312 are normally to be used in series with a customer purchased 0.1Ω wirewound resistor with Kelvin terminations.

Model Nos. 1787-31 and 1787-312 Measurement Connections

Resistances		Kelvin Connections			
"R"	Total Value	Sense Lead P ₁	Current Lead C ₁	Current Lead C ₂	Sense Lead P ₂
R _A	999.9 Ω	Pin 1	Pin 1	Pin 5 *	Pin 6 *
R _B	99.9 Ω	Pin 1	Pin 2	Pin 5 *	Pin 6 *
R _C	9.9 Ω	Pin 1	Pin 3	Pin 5 *	Pin 6 *
R _D	0.9 Ω	Pin 1	Pin 4	Pin 5 *	Pin 6 *

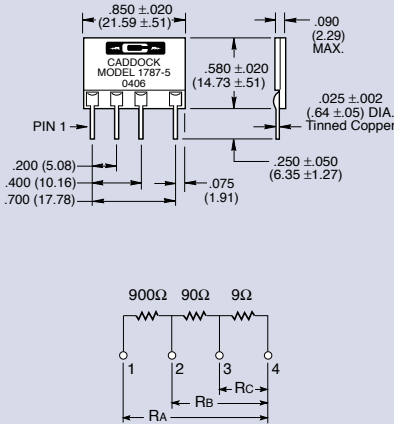
Figure 2 - Model Nos. 1787-41 and 1787-412



Model Nos. 1787-41 and 1787-412 Measurement Connections

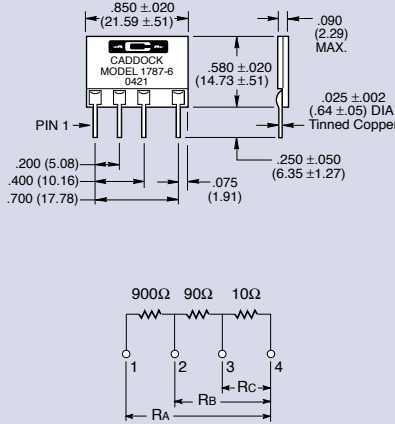
Resistances		Kelvin Connections			
"R"	Total Value	Sense Lead P ₁	Current Lead C ₁	Current Lead C ₂	Sense Lead P ₂
R _A	1,000 Ω	Pin 1	Pin 1	Pin 5	Pin 6
R _B	100 Ω	Pin 1	Pin 2	Pin 5	Pin 6
R _C	10 Ω	Pin 1	Pin 3	Pin 5	Pin 6
R _D	1 Ω	Pin 1	Pin 4	Pin 5	Pin 6

Figure 3 - Model Nos. 1787-5, 1787-53, and 1787-535



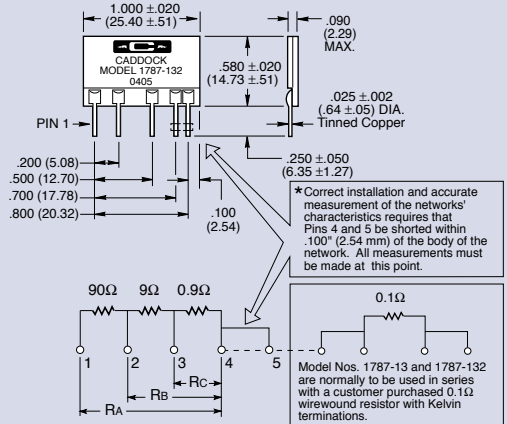
Resistances	
"R"	Total Value
R _A	999 Ω
R _B	99 Ω
R _C	9 Ω

Figure 4 - Model Nos. 1787-6, 1787-64, and 1787-645



Resistances	
"R"	Total Value
R _A	1,000 Ω
R _B	100 Ω
R _C	10 Ω

Figure 5 - Model Nos. 1787-13 and 1787-132



*Correct installation and accurate measurement of the networks' characteristics requires that Pins 4 and 5 be shorted within .100" (2.54 mm) of the body of the network. All measurements must be made at this point.

Model Nos. 1787-13 and 1787-132 are normally to be used in series with a customer purchased 0.1Ω wirewound resistor with Kelvin terminations.

Model Nos. 1787-13 and 1787-132 Measurement Connections

Resistances		Kelvin Connections			
"R"	Total Value	Sense Lead P ₁	Current Lead C ₁	Current Lead C ₂	Sense Lead P ₂
R _A	99.9 Ω	Pin 1	Pin 1	Pin 4 *	Pin 5 *
R _B	9.9 Ω	Pin 1	Pin 2	Pin 4 *	Pin 5 *
R _C	0.9 Ω	Pin 1	Pin 3	Pin 4 *	Pin 5 *

DIMENSIONS IN INCHES AND (MILLIMETERS)