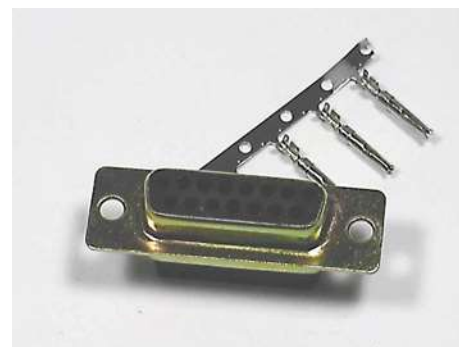


Sub-miniature D Feedthroughs for use with various types of Thermocouples

Sub-D F/T's may be used for T/Cs. A Standard D-Type Feedthrough is used but the Air and Vacuum side Pins are changed to T/C types. Although the use of standard Pin material in contact with the T/C Pins results in the creation of two T/C junctions, the measurement error introduced is negligible provided the vacuum side of the Feedthrough contacts and the air side are at the same temperature. Tests showed a maximum error of less than 0.5K



General Specification K type T/C Crimp Pins

Vacuum/ Air Material	High Vacuum and UHV K Type Chromel® / Alumel® Type N Nisil® / Nicrosil® Type J Iron / Constantan® Type T Copper / Constantan®
Fits wire	0.25 – 0.6 mm
Crimp tool	214-CTOOL-TC or 214-CTOOL-TC-HQ
Pack contents	5 Pairs = 5 pieces (+) and 5 pieces (-)

Thermocouple Crimp Pins for Sub-D Fits HV and UHV Female Sockets for Feedthroughs

TYPE	No. PER PKT.	PART NUMBER
K, Female	2x5	213-PINF-K
N, Female	2x5	213-PINF-N
J, Female	2x5	213-PINF-J
T, Female	2x5	213-PINF-T

Thermocouple Crimp Pins for Sub-D Fits HV and UHV Male Plugs

TYPE	No. PER PKT.	PART NUMBER
K, Male	2x5	213-PINM-K
N, Male	2x5	213-PINM-N
J, Male	2x5	213-PINM-J
T, Male	2x5	213-PINM-T

Air side Thermocouple Sockets for Sub-D Fit to K Type Thermocouple Pins

TYPE	SIZE	PART NUMBER
AIR	9	211-FS09-ATC
AIR	15	211-FS15-ATC
AIR	25	211-FS25-ATC
AIR	37	211-FS37-ATC
AIR	50	211-FS50-ATC

Thermocouple Pin Crimp Tool for Sub-D For all HV and UHV types

TYPE	No. PER PKT.	PART NUMBER
Standard	1	214-CTOOL-TC
High Quality	1	214-CTOOL-TC-HQ



If a high accuracy temperature measurement is required, the use of a Platinum Resistance Thermometer (PT100) is recommended. See Sec. 6



214-CTOOL-TC-HQ



214-CTOOL-TC



Thermocouple Wires Type K / N

Here is a selection out of our Kapton insulated thermocouple wires. Versions without junction are listed here.

The full range including bare wires and PTFE insulated wires is listed in Section 3

Single insulated
312-KAP-TCK (top)

Double insulated
311-KAP-TCK
(bottom)



General Specification 312-KAP-TC (K, N, E)

Vacuum	UHV
Material	Kapton coated T/C wire
Wire-ø	2 x 0.25 mm (max. OD 0.9 mm)
Temp.	-200°C to 250°C (higher Temperature when stripped)
Insulation	Kapton outer insulation, inside (+) wire blank, (-) wire insulated

Kapton Isolated Thermocouple wires – NO JUNCTION Types K / N / E

T/C TYPE	LENGTH	PART NUMBER
K	1 m	312-KAP-TCK-1M
K	5 m	312-KAP-TCK-5M
K	10 m	312-KAP-TCK-10M
N	1 m	312-KAP-TCN-1M
N	5 m	312-KAP-TCN-5M
N	10 m	312-KAP-TCN-10M
E	5 m	312-KAP-TCE-5M

Note: Wires with junction made available on request

Radiation resistant 311-KAP-TC(K/N/T)-RAD

Vacuum	UHV
Temp.	-200°C to 300°C
Radiation resistant	up to 10 ⁹ rad

Other specifications according 311-KAP-TC(K)

Radiation resistant Kapton Isolated Thermocouple wires Types K / N / T

T/C TYPE	LENGTH	PART NUMBER
K	1 m	301-KAP-TCK-1M
K	5 m	301-KAP-TCK-5M
K	10 m	301-KAP-TCK-10M
N	1 m	311-KAP-TCN-RAD-1M
N	5 m	311-KAP-TCN-RAD-5M
N	10 m	311-KAP-TCN-RAD-10M
T	1 m	311-KAP-TCT-RAD-1M
T	5 m	311-KAP-TCT-RAD-5M
T	10 m	311-KAP-TCT-RAD-10M

Note: Wires with junction made available on request
See section 3!

General Specification 311-KAP-TC (K)

Vacuum	UHV
Material	Kapton double insulated T/C wire Cromel (+) = yellow Alumel (-) = red
Wire-ø	2 x 0.25 mm (max OD 1.3 mm)
Temp.	-200°C to 250°C
Insulation	Kapton outer insulation, inside (+) wire yellow, (-) wire red

Kapton Isolated Thermocouple wires – double insulated NO JUNCTION - Types K / J

T/C TYPE	LENGTH	PART NUMBER
K	1 m	311-KAP-TCK-1M
K	5 m	311-KAP-TCK-5M
K	10 m	311-KAP-TCK-10M
J	10 m	311-KAP-TCJ-10M

Note: Wires with junction made available on request