STANDARD THERMOCOUPLES

PERFORMANCE SPECIFICATION CHINO

MODEL C810

(Pt/Pd thermocouple for secondary standard)

C810 is a standard thermocouple manufactured with materials of high purity platinum (+ pole) and palladium (- pole) which has been commercialized under the guidance of National Metrology Institute of Japan, AIST. It is more stability in measuring high temperature than the thermocouple manufactured with metal (R, S, B) which has been conformed to JIS C1602 (IEC60584).

●C810 is designed as a standard thermocouple used for secondary standard at freezing point of silver and copper. The protecting tube is also easily removable.

■ MODELS

C810-1□□

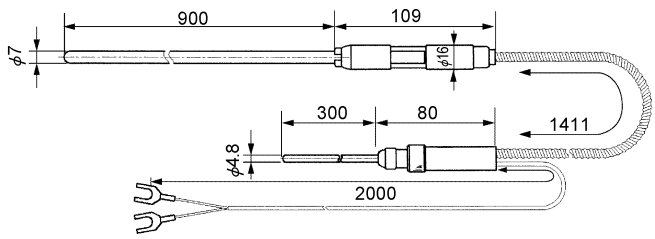
Calibration point
AG: Silver
CU: Copper

■ GENERAL SPECIFICATIONS

Temperature:	Exclusive use for Ag (961.78°C) and Cu (1084.62°C)*
Materials:	＋ --- Platinum (Purity of 99.999%)
	－ --- Palladium (Purity of 99.99%)
Wire diameter:	ø0.5mm
Wire length:	2800mm
Protecting tube:	Quartz ø 7mm x 900mm
Reference junction:	ø4.8mm x 300mm with SUS316 Protecting tube
External lead wire:	Copper lead wire 2m with gold chip

* Conformed to JCT21306 specific application documents (contact type thermometer) issued by National Institute of Technology and Evaluation.

■ DIMENSIONS



Unit: mm

MODEL C820 (Pt/Pd thermocouple)

C820 is a standard thermocouple manufactured with materials of high purity platinum (+ pole) and palladium (- pole) which has been commercialized under the guidance of National Metrology Institute of Japan, AIST. It is more stability in measuring high temperature than the thermocouple manufactured with metal (R, S, B) which has been conformed to JIS C1602 (IEC60584).

●C820 is designed as a standard thermocouple for thermometer calibration. Standard electromotive force is ASTM Vol.14.03 E1751. It will also be conformed to IEC.

■ MODEL

C820-2NN

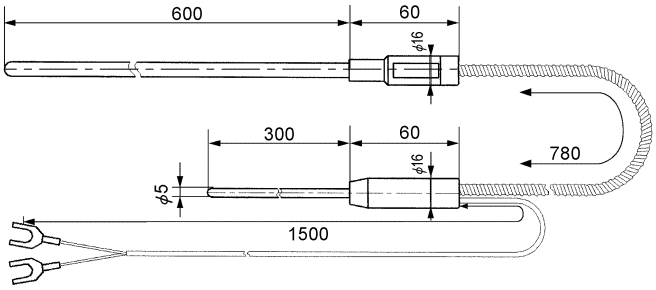
■ GENERAL SPECIFICATIONS

Temperature range: 0 to 1300°C
Materials: ＋ --- Platinum (Purity of 99.999%)
－ --- Palladium (Purity of 99.99%)
Wire diameter: ø0.5mm
Wire length: 1800mm
Protecting tube: Corundum recrystallized alumina ø8mm x600mm
Reference junction: ø5mm x 300mm with SUS316 protecting tube
External lead wire: Copper lead wire 1.5m with gold chip

■ CALIBRATION

For applying sensor as a standard thermometer, temperature-thermoelectromotive force table must be prepared by calibrating them. CHINO prepares a temperature-thermoelectromotive force table at CHINO's standard laboratory if required (Calibration charge is separately required).
Calibration code: F-3
Calibration point: Freezing point of tin, zinc, aluminum, silver and copper

■ DIMENSIONS



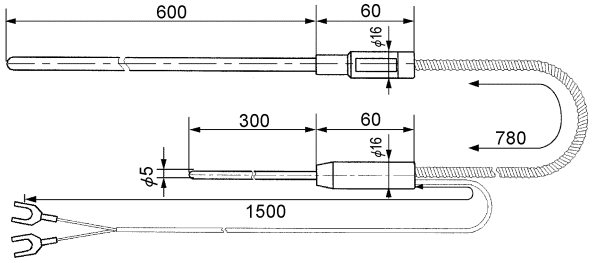
Unit: mm

MODEL C850 (Au/Pt thermocouple)

C850 is a standard thermocouple manufactured with materials of high purity gold (+ pole) and platinum (- pole) which has been commercialized by collaborative research with professor Goto from College of Engineering in Tamagawa University. It has smaller electromotive force drift and less uncertainty when measuring high temperature comparing to the thermocouple manufactured with metal (R, S, B) which has been conformed to JIS C1602 (IEC60584).

- Long term stability is 15mK (960°C /500hr). It enables lower cost than platinum resistance thermometer and higher accurate standard management than the former thermocouples.
- Electromotive force is conformed to ASTM Voi.14.03 E1751 and it will also be adapted to IEC.
- Fixed point calibration of tin, zinc, aluminum and silver with uncertainty of 30mk (k=2) is available.

■ DIMENSIONS



Unit: mm

■ MODEL

C850-1NN

■ GENERAL SPECIFICATIONS

Temperature range:	0 to 1000°C
Materials:	＋ --- Gold (Purity of 99.999%)
	－ --- Platinum (Purity of 99.999%)
Wire diameter:	ø0.5mm
Wire length:	1800mm
Protecting tube:	Quartz ø7mm x 600mm
Reference junction:	ø5mm x 300mm with SUS316 protecting tube
External lead wire:	Copper lead wire 1.5m with gold chip

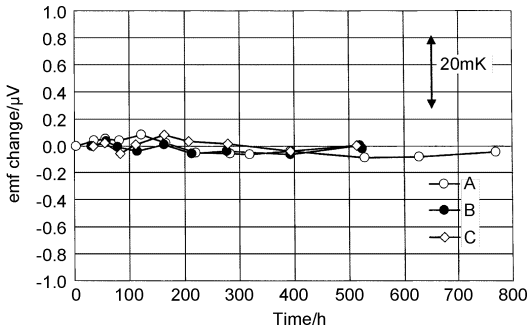
■ CALIBRATION

For applying sensor as a standard thermometer, temperature-thermoelectromotive force table must be prepared by calibrating them. CHINO prepares a temperature-thermoelectromotive force table at CHINO's standard laboratory if required (Calibration charge is separately required).

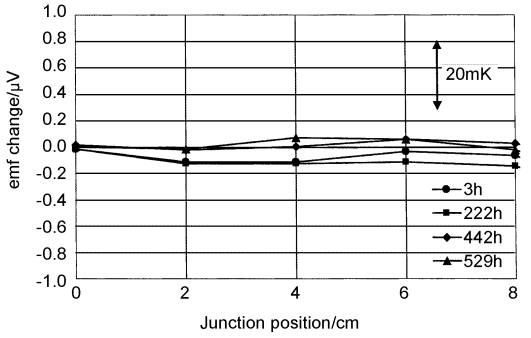
Calibration code: F-3B

Calibration point: Freezing point of tin, zinc, aluminum and silver.

■ CHARACTERISTICS EXAMPLE



Au/Pt thermocouple drift at Ag point

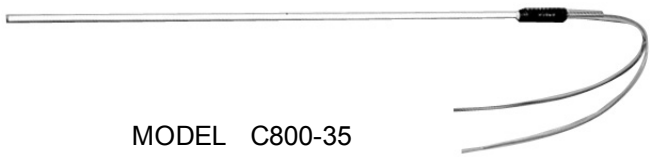


Au/Pt thermocouple inhomogeneity at Ag point

PERFORMANCE SPECIFICATION

MODELS C800-15(S TYPE)
C800-35(R TYPE)
C800-65(B TYPE)

These sensors are standard sensors with measuring range from 200 to 1554 °C which constructed with a stem structure of a high purity alumina ceramic protecting tube recrystallized.



MODEL C800-35

- ●Strictly selected bare thermocouple, unique cleaning and heat treatment techniques realized more stable and high accurate sensors.
- ●The thermocouples feature high heat conductivity and excellent stability under an oxidation-reduction atmosphere as protecting tube and insulation tube are made of high purity recrystallized alumina.
- ●Standard thermocouples are excluded from ITS-90 as reference however they are employed as industrial standards.

■ GENERAL SPECIFICATIONS

C800-15

Wire: S type
Wire diameter: ø0.5mm
Wire length: 1500mm
Measuring temperature range: Max.1400°C
Protecting tube:Corundum recrystallized alumina
ø6mm x 600mm

C800-35

Wire: R type
Wire diameter: ø0.5mm
Wire length: 1500mm
Measuring temperature range: Max.1400°C
Protecting tube:Corundum recrystallized alumina
ø6mm x 600mm

C800-65

Wire: B type
Wire diameter: ø0.5mm
Wire length: 1500mm
Measuring temperature range: Max.1554°C
Protecting tube:Corundum recrystallized alumina
ø6mm x 600mm

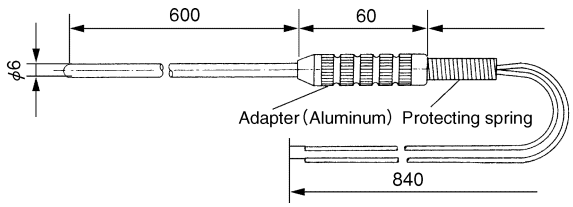
■ CALIBRATION

For applying sensor as a standard thermometer, temperature-thermoelectromotive force table must be prepared by calibrating them. CHINO prepares a temperature-thermoelectromotive force table at CHINO's standard laboratory if required (Calibration charge is separately required).
Calibration temperature: 0 to 1554 °C
(Fixed point calibration test Code F-3, 4)
(Comparison calibration test Code H-4, H-6)

●Comparison test certificate issued by Japan Electric Meters Inspection Corporation (JEMIC)

JEMIC issues a test certificate obtained by a comparison test at optional temperature between 0°C and 1100°C. CHINO prepares this test certificate if requested.

■ DIMENSIONS



Unit: mm

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