



SD800+ Technical manual

1. Introduction

This Technical manual describes the calibration procedures for technical or engineer only who want to re-calibrate the SD800+.

2. Calibration

To access calibration menu. Pressing the SET, UP and Down keys simultaneously for 5 second.

To exit the calibration menu, Pressing SET and UP key will return to PV/SV display.

2.1 Calibration menu



Do not perform the calibration procedure unless there is a definite requirement.

To perform the calibration process, the following equipments are required.

- ☑ Thermocouple calibrator. K type is recommended with accuracy better than $\pm 0.1^{\circ}\text{C}$ or 0.01% of reading.
- ☑ 0.0~-850.0°C PT100 calibrator with accuracy better than $\pm 0.05^{\circ}\text{C}$ or 0.01% of reading.
- ☑ 0~100mV millivolt source with accuracy better than $\pm 2\mu\text{V}$ or 0.01% of reading.
- ☑ 0~10V voltage source with accuracy better than $\pm 0.08\text{mV}$ or 0.01% of reading.
- ☑ 0~24mA current source with accuracy better than $\pm 0.4\mu\text{A}$ or 0.01% of reading.

Before calibration, please note that the internal dip switch on the main board should be configured in accordance with input signal.

DIP Switch	1	2	3	4	5	6
Thermocouple/mV	Off	On	Off	On	On	On
Pt100	Off	Off	Off	Off	Off	Off
mA	On	On	Off	Off	On	Off
V	Off	Off	On	Off	Off	Off

Display	Description	Range
PV	Showing the process value. It is useful to check the accuracy after calibration procedure without exiting the technical menu.	Read only. PV and measuring value will display alternately.
PtA	Showing the cold-junction (ambient) temperature	Read only. PtA and ambient temperature will display alternately.
HCJC	Cold-junction temperature offset correction.	-50.0~50.0
TYPE	Input signal type. for calibration, it is recommended to set K type for thermocouple and PT100(DIN) for RTD.	J : J type K : K type T : T type E : E type B : B type R : R type S : S type N : N type C : C type d-Pl : PT100(DIN) J-Pl : PT100(JIS)

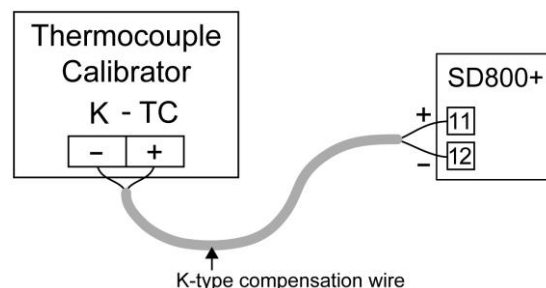
		\bar{A} : mA \bar{U} : mV \underline{U} : V $P\underline{U}$: External (RS485)
$\underline{U}n, t$	Unit	0 : none 1 : °C 2 : °F 3 : % 4 : RH 5 : %RH 6 : ppm 7 : user define
dP	Decimal point.	00000 0000.0 000.00 (for linear input only) 00.000 (for linear input only) 0.0000 (for linear input only)
$CH0$	The counts of ADC channel 0 for factory reference only	Read only. $CH0$ and counts value will display alternately.
$CH1$	The counts of ADC channel 1 for factory reference only	Read only. $CH1$ and counts value will display alternately.

For different input signal type, the variant calibration parameters will be shown and the calibration procedure is explained as below.

Thermocouple and mV calibration

Display	Description	Range (default)
$\bar{U}L$	Low calibration for mV (Shown only thermocouple or mV input is selected)	0.000 (fixed)
$\bar{U}H$	High calibration for mV (Shown only thermocouple or mV input is selected)	50.000 (fixed)

1. Set the input signal type to K-type or mV.
2. Connect the millivolt source to terminals 11 and 12 as shown below when the display shows $\bar{U}L$. Set the current source to 0.00mV. then press and hold SET key for about 3 seconds. The display will change to “ $\bar{U}H$ ” automatically.
3. Set the millivolt source to 50.00mV. then press and hold the SET key for about 3 seconds. The calibration is done and the display will show $P\underline{U}$ and measuring value alternately.

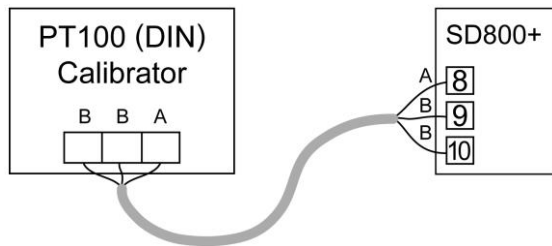


PT100 calibration

Display	Description	Range (default)
$P\underline{L}$	Low calibration for PT100 (Shown only PT100 input is selected)	-200 ~ 600°C for JIS (0.0) -200 ~ 850°C for DIN (0.0)
$P\underline{H}$	High calibration for PT100 (Shown only PT100 input is selected)	200 ~ 600°C for JIS (600.0) -200 ~ 850°C for DIN (800.0)

1. Set the input signal type to PT100(DIN), the unit to °C and decimal point to 000.0.

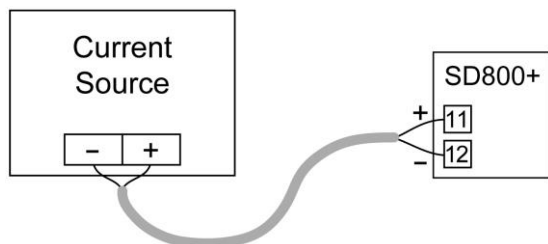
2. Connect a PT100 (DIN) calibrator to terminals 8 ,9 and 10 as shown below. Set the calibrator to 0.0°C. Set the **PEL** value to 0.0 if its value is other than 0.0. Then press SET key for about 3 seconds. The display will change to **PEH** automatically.
3. Set the calibrator to 800.0°C and set the **PEH** value to 800.0. Then press SET key for about 3 seconds. The PT100 calibration is done and the display will show **PU** and measuring value alternately.



mA calibration

Display	Description	Range (default)
HAL	Low calibration for mA (Shown only mA input is selected)	4.000 (fixed)
HAH	High calibration for mA (Shown only mA input is selected)	20.000 (fixed)

1. Set the input signal type to mA.
2. Connect a current source to terminals 11 and 12 as shown below when the display shows **HAL** . Set the current source to 4.00mA. Then press SET key for about 3 seconds. The upper display will change to **HAH** automatically.
3. Set the current source to 20.00mA Then press and hold SET key for about 3 seconds. The mA calibration is done and the display will show **PU** and measuring value alternately.



V calibration

Display	Description	Range (default)
VL	Low calibration for V (Shown only V input is selected)	0.000 (fixed)
VH	High calibration for V (Shown only V input is selected)	10.000 (fixed)

1. Set the input signal type to V.
2. Connect a voltage source to terminals 11 and 12 as shown below when the display shows **VL** . Set the voltage source to 0.00V. then press and hold SET key for about 3 seconds. The display will change to **VH** automatically.
3. Set the voltage source to 10.00V. then press and hold SET key for about 3 seconds. The V calibration is done and the display will show **PU** and measuring value alternately.

