

# SELECTOR SWITCH BOX

TYPE: TRS-□□□K□□

## INSTRUCTION MANUAL



*Meiya Electric Co., Ltd.*

485, Nanatsushinya, Shimizu, Shizuoka 424-0066, Japan

Phone: 81-543-45-2211

Fax.: 81-543-45-2215

## 1. GENERAL

The system is combined used with thermocouple (CA) for measuring temperature.

## 2. SYSTEM

Refer to Fig. 1.

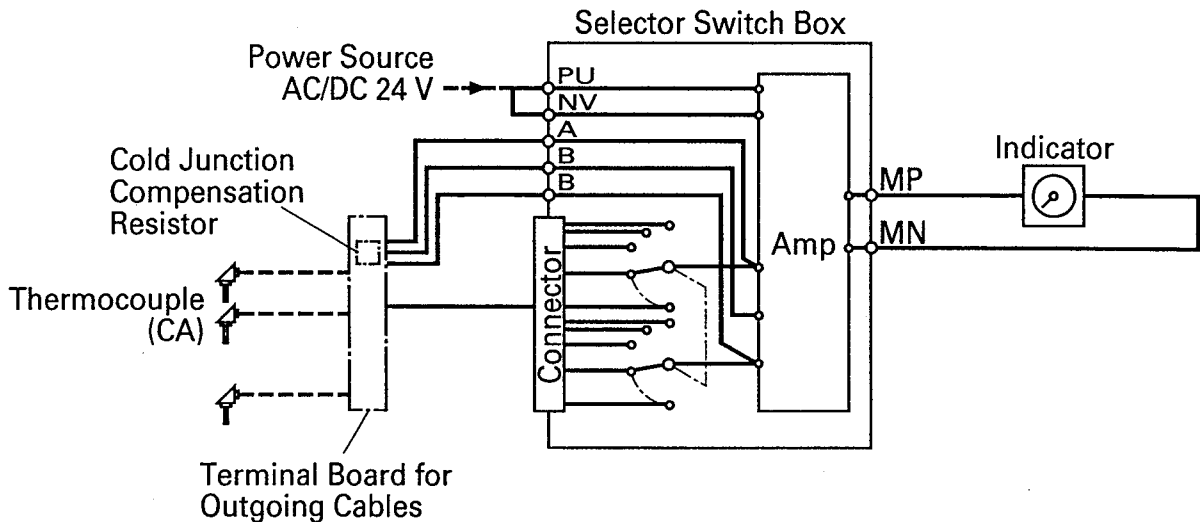


Fig. 1

## 3. ADJUSTMENT

An amplifier unit for variation of the thermoelectromotive force and for converting that to 1 ~ 5 V DC signal, with ZERO and SPAN adjusters, is incorporated into the box.

And in case that zero or span adjustment comes to be needed, the following procedures are taken to:

### (1) ZERO Adjustment

- Disconnect any thermocouple from the terminal board.
- Connect the mV signal generating kit corresponding to 0 °C with there.
- Set the selector switch to that point.
- Adjust the "ZERO VR" so that the indicator shows zero.

## (2) SPAN Adjustment

Connect the mV generating kit corresponding to full scale instead of that for 0 °C, and adjust the "SPAN VR" so that the indicator shows full scale.

Note: The same manner as ZERO adjustment is taken for the SPAN adjustment.

## 4. MAINTENANCE

(1) In case of abnormal movement occurring on the indicator ..... Confirm the power supply.

(2) When measured value abnormal is found in all points;

Connect the mV generating kit instead of the thermocouples, and after that confirm whether the indication is correct or not.

(a) In case that the indication is correct, check the thermocouple and its feeder cable and the terminations.

(b) In case that the indication is still abnormal, check the contacts of the selector switch.

(3) When measured value abnormal is found in all points;

(a) Check the indicator and power source circuit.

(b) In case that the abnormality still remains after carrying out (a), and impossible any adjustment, change the amplifier unit to new one.

## 5. SPECIFICATIONS

(1) Power Source: 24 V AC/DC

(2) Sensor : Thermocouple (CA)

(3) Output Signal: Measured Value (1 ~ 5 V DV)

## 6. APPROXIMATION FOR "ZERO" ADJUSTMENT

In case that there is no mV generating kit, the following adjustment method can be applied as an approximation method for ZERO adjustment;

Remove compensate lead wire for thermocouple to be adjusted from terminal board, and shortcircuit its terminals

Under this condition, adjust the "ZERO VR" so that the temperature indicator displays a temperature value corresponding to that at a place where a cold junction compensating resistor is installed.

# REFERENCE THERMO-ELECTROMOTIVE FORCE OF CA

Unit: mV

Temp. (°C)	-100	0	100	200	300	400	500	600	700	800	900	1,000	1,100	1,200	1,300	Temp. (°C)
0	-3.553 299	0.000 392	4.095 413	8.137 400	12.207 416	16.395 423	20.640 426	24.902 425	29.128 419	33.277 409	37.325 399	41.269 388	45.108 378	48.828 364	52.398 319	0
-10	-3.852 286	-0.392 385	4.508 411	8.537 401	12.623 416	16.818 423	21.066 427	25.327 424	29.517 418	33.686 409	37.724 398	41.657 388	45.486 377	49.192 363	52.747 346	10
-20	-4.138 272	-0.777 379	4.919 408	8.938 403	13.039 417	17.211 423	21.493 426	25.761 425	29.965 418	34.095 407	38.122 397	42.045 387	45.863 375	49.555 361	53.093 346	20
-30	-4.410 259	-1.166 371	5.327 406	9.341 404	13.456 418	17.664 426	21.919 427	26.176 423	30.383 416	34.502 407	38.519 396	42.432 385	46.238 376	49.916 360	53.139 343	30
-40	-4.669 243	-1.527 362	5.733 404	9.745 406	13.874 418	18.088 425	22.346 426	26.599 423	30.799 415	34.909 405	38.915 395	42.817 385	46.612 373	50.276 357	53.782 343	40
-50	-4.912 229	-1.889 354	6.137 402	10.151 409	14.292 420	18.513 425	22.772 426	27.022 423	31.214 415	35.314 404	39.310 393	43.202 383	46.985 371	50.633 357	54.125 341	50
-60	-5.141 213	-2.243 343	6.539 400	10.560 409	14.712 420	18.938 425	23.198 426	27.445 422	31.629 413	35.718 403	39.703 393	43.585 383	47.356 370	50.990 354	54.466 341	60
-70	-5.354 196	-2.586 334	6.939 399	10.969 412	15.132 420	19.363 425	23.624 426	27.567 421	32.012 413	36.121 403	40.096 392	43.968 381	47.726 369	51.314 353	54.807 -	70
-80	-5.550 180	-2.920 322	7.338 399	11.381 412	15.552 422	19.788 426	24.050 426	28.288 421	32.455 411	36.524 401	40.488 391	44.349 380	48.095 367	51.697 352	-	80
-90	-5.730 161	-3.242 311	7.737 400	11.793 414	15.974 421	20.214 426	24.476 426	28.709 419	32.866 411	36.925 400	40.879 390	44.729 379	48.462 366	52.049 349	-	90
-100	-5.891	-3.553	8.137	12.207	16.395	20.640	24.902	29.128	33.277	37.325	41.269	45.108	48.828	52.398	-	100
Temp. (°C)	-100	0	100	200	300	400	500	600	700	800	900	1,000	1,100	1,200	1,300	Temp. (°C)

Remarks: Temperature of standard junction shall be 0 °C.

In case when the temperature of standard junction is set at 20 °C, 0.798 mV shall be subtracted from the values of above table.