

Dual-output Thermocouple Converter

WSP-THW



This compact plug-in converter accepts Thermocouples input conforming to JIS standard and provides optically isolated two DC outputs. This converter has a linearizer, a cold junction compensation circuit, and a burnout protection circuit as standard equipment which is required to measure temperature.

Features

- ★ Fine Zero & span adjustment by 15 turn trimmer
- ★ Zero & span adjustment $\pm 10\%$ full scale
- ★ Safe design by dielectric strength of 3000Vac
- ★ 5 years warranty, long life
- ★ CE approved
- ★ Linearizer, Cold junction compensation circuit, and Burnout protection circuit built-in

Ordering code

WSP- **THW** - [] [] [] [] - [] []

| Code | Input Signal |
|------|-----------------------|
| T | T (CC) thermocouple |
| E | E (CRC) thermocouple |
| J | J (IC) thermocouple |
| K | K (CA) thermocouple |
| N | N thermocouple |
| R | R (PR13) thermocouple |
| S | S thermocouple |
| B | B thermocouple |
| W | WRe 5-26 |

| Code | Power Supply |
|-------|----------------------------------|
| A | 100 to 240Vac $\pm 10\%$ 50/60Hz |
| D * 2 | 24Vdc $\pm 10\%$ 10.8 to 30Vdc |
| 8 | 110Vdc $\pm 10\%$ |

| Code | Test Report |
|------|------------------|
| X | None |
| T | With Test report |

| Measuring Temperature Range | Code | Manufacturable Range by Thermocouple | | | | | | | | | |
|-----------------------------|--------|--------------------------------------|---|---|---|---|---|---|---|---|---|
| | | T | E | J | K | N | R | S | B | W | |
| 0 to 100°C | 08 | ○ | ○ | ○ | ○ | | | | | | |
| 0 to 150°C | 09 | ○ | ○ | ○ | ○ | | | | | | |
| 0 to 200°C | 10 | ○ | ○ | ○ | ○ | | | | | | |
| 0 to 250°C | 11 | ○ | ○ | ○ | ○ | | | | | | |
| 0 to 300°C | 12 | ○ | ○ | ○ | ○ | | | | | | |
| 0 to 400°C | 13 | | ○ | ○ | ○ | ○ | ○ | | | | |
| 0 to 500°C | 14 | | ○ | ○ | ○ | ○ | ○ | | | | |
| 0 to 600°C | 15 | | | ○ | ○ | ○ | ○ | ○ | | ○ | |
| 0 to 800°C | 16 | | | | ○ | ○ | ○ | ○ | ○ | ○ | |
| 0 to 1000°C | 17 | | | | | ○ | ○ | ○ | ○ | ○ | |
| 0 to 1200°C | 18 | | | | | | ○ | ○ | ○ | ○ | |
| 0 to 1300°C | 19 | | | | | | | ○ | ○ | ○ | |
| 0 to 1400°C | 20 | | | | | | | | ○ | ○ | |
| 0 to 1600°C | 21 | | | | | | | | | ○ | ○ |
| 0 to 1800°C | 22 | | | | | | | | | | ○ |
| 0 to 2000°C | 23 | | | | | | | | | | |
| 0 to 2300°C | 24 | | | | | | | | | | |
| Other than above | 99 * 1 | Contact us | | | | | | | | | |

| Code | Output 2 | Allowable Load Resistance |
|-------|--|---------------------------|
| A | 4 to 20mAdc | 350Ω or less |
| G | 0 to 20mAdc | 350Ω or less |
| H | 1 to 5Vdc | 1kΩ or more |
| N | 0 to 5Vdc | 1kΩ or more |
| P | 0 to 10Vdc | 2kΩ or more |
| S * 1 | Contact us for other than the above Current output 20mA or less Voltage output 10V or less | |

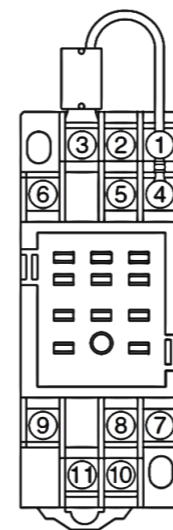
| Code | Output 1 | Allowable Load Resistance |
|-------|--|---------------------------|
| A | 4 to 20mAdc | 750Ω or less |
| B | 1 to 5mAdc | 3kΩ or less |
| D | 0 to 1mAdc | 15kΩ or less |
| E | 0 to 10mAdc | 1.5kΩ or less |
| G | 0 to 20mAdc | 750Ω or less |
| H | 1 to 5Vdc | 1kΩ or more |
| J | 0 to 10mVdc | 10kΩ or more |
| K | 0 to 100mVdc | 100kΩ or more |
| L | 0 to 1Vdc | 200Ω or more |
| N | 0 to 5Vdc | 1kΩ or more |
| P | 0 to 10Vdc | 2kΩ or more |
| S * 1 | Contact us for other than the above Current output 20mA or less Voltage output 10V or less | |

* 1...CE approval do not adapt input range code 99 and output range code S.
* 2...CE approval do not adapt when power supply is 10.8Vdc to 30Vdc.

Specifications

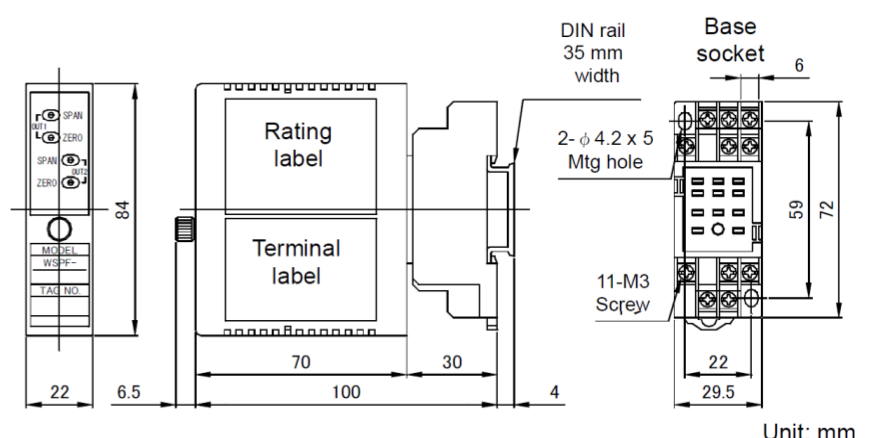
| | |
|--|--|
| Accuracy | $\pm 0.2\%$ FS (at 23 $\pm 10^\circ\text{C}$) |
| Response time | Approx. 25ms (0 to 90%) |
| Allowable load | Current output First output : 15V or less of voltage drop between output Second output : 11V or less of voltage drop between output Voltage output Load current 5mA or less *1μA or less if the output is less than 1V |
| Zero & span adjustment | $\pm 10\%$ FS (15 turn trimmer) |
| Operating temperature | -5 to +55°C |
| Operating relative humidity | 90% or less (Non-condensing) |
| Temperature coefficient | $\pm 0.015\%$ FS of span per °C |
| Cold junction compensation accuracy | $\pm 0.5^\circ\text{C}$ or less at 23 $\pm 10^\circ\text{C}$ ($\pm 1^\circ\text{C}$ or less for R, WR and S) |
| Cold junction compensation temperature | 10 to 40°C *R, S, WR thermocouple : $\pm 1^\circ\text{C}$ |
| Linearization | Available (30% FS or less of R and W is out of range) |
| Burnout protection | Upscale / downscale *Please specify when you order for |
| Isolation | Between input, output, and power supply |
| Insulation resistance | 100MΩ or more with 500Vdc megger Between input, output, and power supply terminal |
| Dielectric strength | 3000Vac for 1 min between power supply and input/output terminal, 2000Vac for 1 min between input and output terminal |
| Power consumption | Approx. 5.6VA (AC), Approx. 90mA (DC) |
| Power supply variation | $\pm 0.1\%$ FS (within the range of rated voltage) |
| Dimensions | 84(H) X 29.5(W) X 106.5(D)mm |
| Weight | Approx. 150g |
| Structure | Plug-in (Body part and socket part) |
| Connection | M3 SEMS screw part of the base socket (Tightening torque 0.6N·m) |
| Mounting | DIN rail or wall surface |
| Case color and material | Ivory, ABS resin, flame retardant grade UL94V-0 |
| EMC directive | EN61326-1, EN61010-1, EN50581 Installation category : II, Pollution degree : 2 |
| Rated altitude | 2000m or less |

Terminal connections



| No. | Symbol | Description |
|-----|------------|----------------------------|
| 1 | INPUT + | Input |
| 2 | OUTPUT-2 + | No.2 Output |
| 3 | INPUT - | Input |
| 4 | CJC | Cold junction compensation |
| 5 | OUTPUT-2 - | No.2 Output |
| 6 | NC | No connection |
| 7 | OUTPUT-1 + | No.1 Output |
| 8 | NC | No connection |
| 9 | OUTPUT-1 - | No.1 Output |
| 10 | POWER U(+) | Power Supply |
| 11 | POWER V(-) | |

Dimensions



* Specification is subject to change without notice