

D5072

I.S. SIL2 Multifunction Temperature Converter

The Multifunction Temperature Converter D5072 accepts a low level dc signal from millivolt, thermocouple or 2-3-4 wire resistance/RTD or transmitting potentiometer sensor, located in Hazardous Area, and converts, with isolation, the signal to drive a Safe Area load, suitable for applications requiring SIL 2 level in safety related systems for high risk industries. Output signal can be direct or reverse. Modbus RTU RS-485 output is available on Bus connector. Cold junction compensation can be programmed as Internal: provided by an internal temperature sensor; Fixed: to a user-customizable temperature value; Remote: (only D5072D) connecting compensation RTD to one of the two ch. For D5072D module: duplicator function provides two independent outputs from one single input. Output function can be configured as: Adder, subtractor, low/high selector. Modules are provided with alarm function, which is available via photoMOS output.

FEATURES

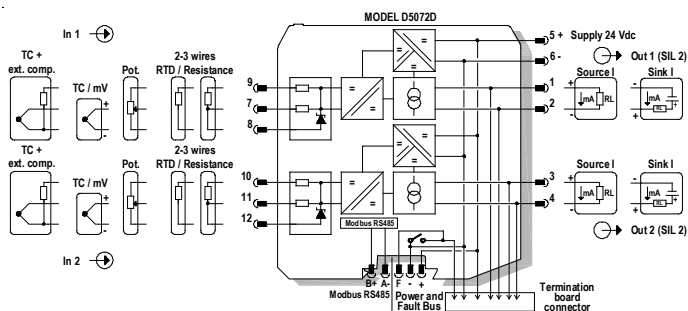
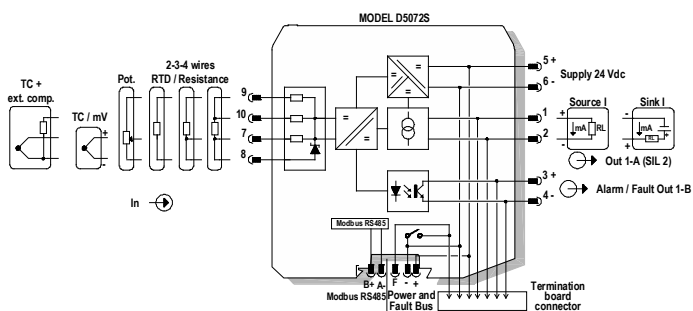
- SIL 2
- Input from Zone 0/Div. 1
- Installation in Zone 2/Div. 2
- mV, TC, 2/3/4 wire res./RTD or potentiometer input
- Duplication/inversion/scaling/custom output
- Selectable CJC: internal PT1000, external RTD or fixed
- Fastest integration time: 50 ms
- Burnout/internal/cjc/in sensor fault monitor
- Alarm output with user-settable trip points
- Modbus RTU RS-485 for monitor & configuration
- Fully programmable operating parameters
- High Accuracy, μP controlled A/D converter
- Three port isolation, Input/Output/Supply
- High Density, two channels per unit

FUNCTION DIAGRAM

Additional installation diagrams may be found in Instruction Manual.

Hazardous Area

Safe Area/Zone 2/Div. 2



TECHNICAL DATA

Supply

24 Vdc nom (18 to 30 Vdc), reverse polarity protected.

Current consumption: 50 mA (D5072D), 35 mA (D5072S), @ 24 Vdc with 20 mA output, typical.

Power dissipation: 1.0 W (D5072D), 0.75 W (D5072S), @ 24 Vdc with 20 mA output, typical.

Input

Millivolt, thermocouple, 2-3-4 wire RTD or 3 wire transmitting potentiometer. Refer to Instruction Manual for more details.

Integration time: from 50 ms to 500 ms.

Input range: -50 to +80 mV for TC/mV, 0-4 k Ω for RTD/resistance.

Thermocouple reference junction compensation: programmable: internal Pt1000, fixed, external, or remote.

Output

Fully customizable 0/4 to 20 mA, on max. 300 Ω load source mode, current limited @ 24 mA. Refer to Instruction Manual for more details.

Transfer characteristic: linear, direct or reverse on all input sensors.

Modbus interface

Modbus RTU RS-485 up to 115.2 kbps for monitor/configuration/control.

Performance

Ref. Conditions: 24 V supply, 250 Ω load, 23 \pm 1 $^{\circ}\text{C}$ ambient temperature, slow integration mode, 4-wires configuration for RTD.

Input Calibration & linearity accuracy: refer to Instruction Manual.

Input Temp. influence: refer to Instruction Manual.

Input Ref. junction compensation accuracy: $\leq \pm 1^{\circ}\text{C}$.

Out Calibration accuracy: $\leq \pm 0.05\%$ FSR.

Out Linearity error: $\leq \pm 0.05\%$ FSR.

Out Temp. influence: $\leq \pm 0.01\%$ FSR on zero/span for a 1 $^{\circ}\text{C}$ change.

Isolation

I.S. In/Out 2.5 kV; I.S. In/Supply 2.5 kV; I.S. In/I.S. In 500 V; Out/Supply 500 V; Out/Out 500 V.

Environmental conditions

Operating temperature: temperature limits -40 to +70 $^{\circ}\text{C}$.

Storage temperature: temperature limits -45 to +80 $^{\circ}\text{C}$.

Safety description

Associated apparatus and non-sparking electrical equipment.

D5072S: $U_o = 7.2\text{ V}$, $I_o = 23\text{ mA}$, $P_o = 40\text{ mW}$, $U_i = 12.8\text{ V}$, $C_i = 0\text{ nF}$, $L_i = 0\text{ nH}$ at terminals 7-8-9-10.

D5072D: $U_o = 7.2\text{ V}$, $I_o = 16\text{ mA}$, $P_o = 27\text{ mW}$, $U_i = 12.8\text{ V}$, $C_i = 0\text{ nF}$, $L_i = 0\text{ nH}$ at terminals 7-8-9, 10-11-12.

$U_m = 250\text{ Vrms}$ or Vdc, -40 $^{\circ}\text{C} \leq T_a \leq 70^{\circ}\text{C}$.

Mounting

DIN-Rail 35 mm, with or without Power Bus or on custom Term. Board.

Weight: about 135 g (D5072D), 130 g (D5072S).

Connection: by polarized plug-in disconnect screw terminal blocks to accommodate terminations up to 2.5 mm² (13 AWG).

Dimensions: Width 12.5 mm, Depth 123 mm, Height 120 mm.

ORDERING INFORMATION

D5072S: 1 channel

D5072D: 2 channels

Accessories

Bus Connector JDFT049, Bus Mounting Kit OPT5096.

Programmable USB serial line Kit PPC5092 + SWC5090.