

# D5072-099

## I.S. SIL2 Sink-Out Temperature Converter

The Sink-Out Temperature Converter D5072-099 accepts a low level dc signal from millivolt, thermocouple or 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: Automatic: provided by an internal temperature sensor; Fixed: to a user-customizable temperature value; External: making use of an external RTD; Remote: (only D5072D-099) connecting compensation RTD to one of the two channels. For D5072D-099 module: duplicator function provides two independent outputs from one single input. Output function can be configured as: average, subtractor, low/high or redundancy selector. Modules are provided with alarm function, which is available via solid state contact output.

### FEATURES

- SIL 2 / SC 3
- 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,  $\mu$ P controlled A/D converter
- Three port isolation, Input/Output/Supply
- High Density, two channels per unit

### ORDERING INFORMATION

#### Ordering codes

D5072S-099: 1 channel

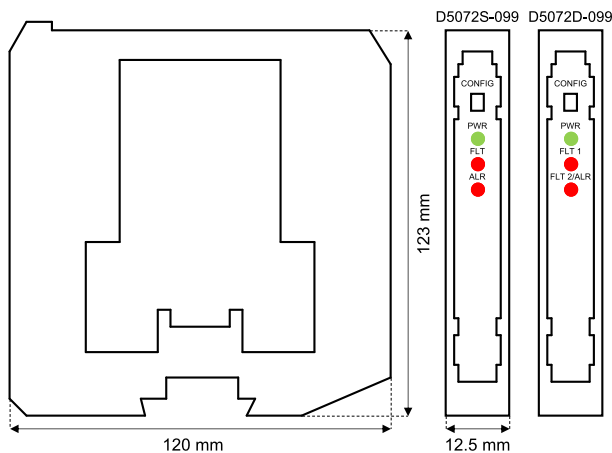
D5072D-099: 2 channels

#### Accessories

Bus Connector JDFT049, Bus Mounting Kit OPT5096.

Programmable USB serial line Kit PPC5092 + SWC5090.

### OVERALL DIMENSIONS



### TECHNICAL DATA

#### Supply

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

**Current consumption:** 50 mA (D5072D-099), 42 mA (D5072S-099), @ 24 Vdc with 20 mA output, typical.

**Power dissipation:** 1.0 W (D5072D-099), 0.9 W (D5072S-099), @ 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:**  $\pm 500$  mV (TC/mV), 0-4 k $\Omega$  (RTD/res), up to 10 k $\Omega$  (pot).

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

#### Output

Fully customizable 0/4 to 20 mA (sink mode), current limited @ 24 mA.

External voltage generator range is V min. 3.5V @ 0 $\Omega$  load and V max. 30V. Refer to Instruction Manual for more details.

#### Modbus interface

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

#### Performance

**Ref. Conditions:** 24 V supply, 250  $\Omega$  load,  $23 \pm 1$   $^{\circ}$ C ambient temperature, slow integration mode, 3/4-wires RTD.

#### Input:

**Calibration & linearity accuracy:** refer to Instruction Manual.

**Temp. influence:** refer to Instruction Manual.

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

#### Out:

**Calibration accuracy:**  $\leq \pm 10$   $\mu$ A.

**Linearity accuracy:**  $\leq \pm 10$   $\mu$ A.

**Temp. influence:**  $\leq \pm 2$   $\mu$ A/ $^{\circ}$ C.

#### 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  $+70$   $^{\circ}$ C.

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

#### Safety description

Associated apparatus and non-sparking electrical equipment.

D5072S-099:  $U_o = 7.2$  V,  $I_o = 23$  mA,  $P_o = 40$  mW,  $U_i = 12.8$  V,  $C_i = 0$  nF,  $L_i = 0$  nH at terminals 7-8-9-10.

D5072D-099:  $U_o = 7.2$  V,  $I_o = 16$  mA,  $P_o = 27$  mW,  $U_i = 12.8$  V,  $C_i = 0$  nF,  $L_i = 0$  nH at terminals 7-8-9, 10-11-12.

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

#### Mounting

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

**Weight:** about 135 g (D5072D-099), 130 g (D5072S-099).

**Connection:** by polarized plug-in disconnect screw terminal blocks to accommodate terminations up to 2.5 mm<sup>2</sup> (13 AWG).

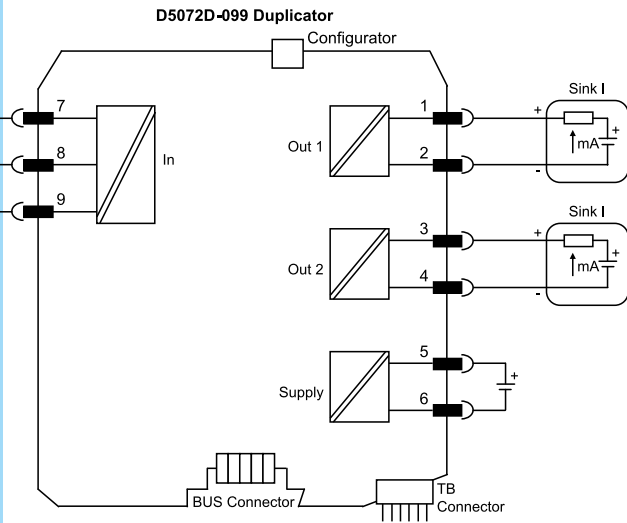
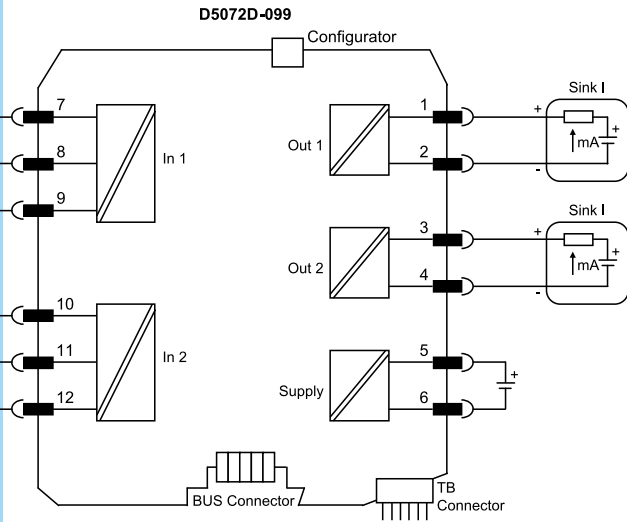
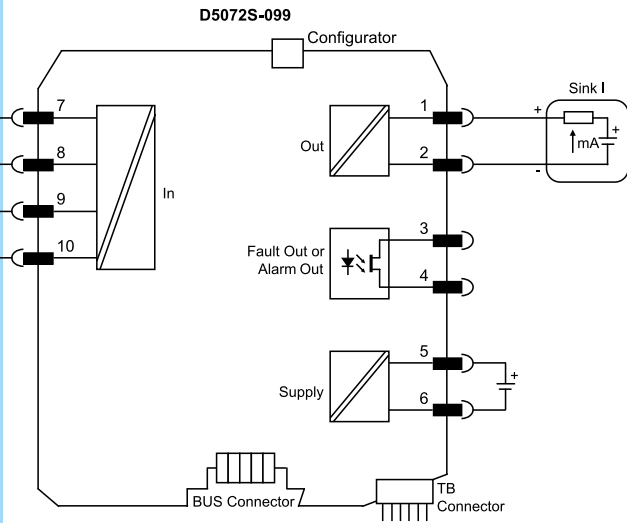
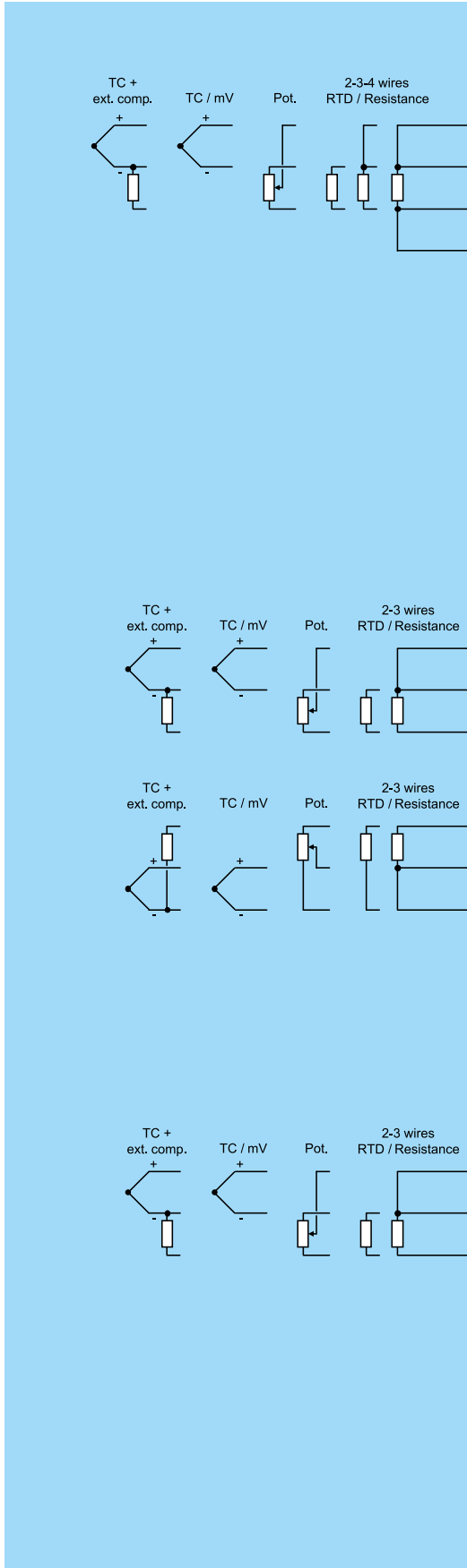
**Dimensions:** Width 12.5 mm, Depth 123 mm, Height 120 mm.

# FUNCTION DIAGRAM

Additional installation diagrams may be found in Instruction Manual.

## Hazardous Area

## Safe Area/Zone 2/Div. 2



**FSM SIL 3** Functional Safety Management Certification: GM International is certified to conform to IEC61508:2010 part 1 clauses 5-6 for safety related systems up to and included SIL3. In addition, GM International products have been granted I.S. certificates from the most credited Notified Bodies in the world.

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