

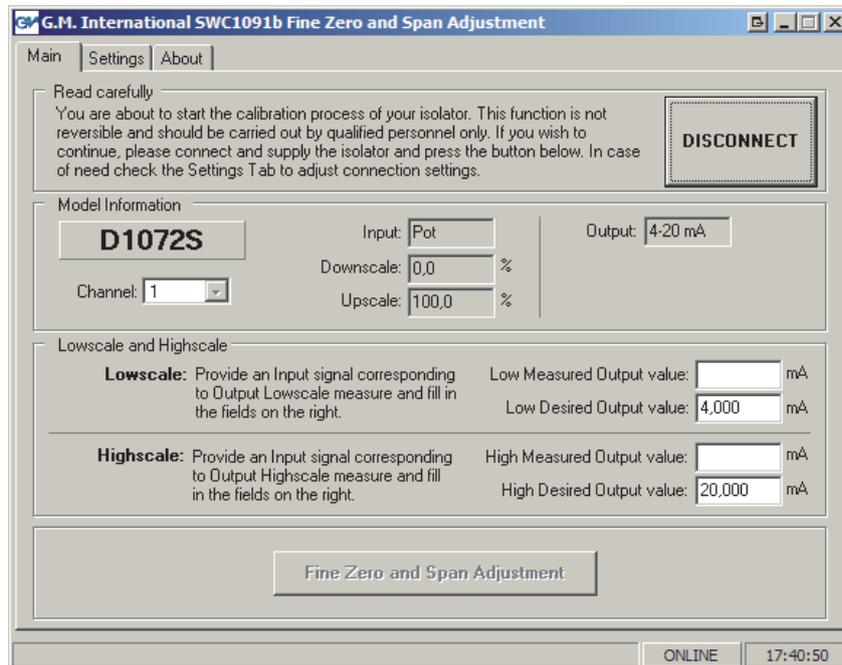
**SWC1091**  
**Zero and Span adjustment software**  
**for G.M. International Isolators**  
**Series D1000**

Installation and use manual

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## 1 The SWC1091 Software



*Figure 1, SWC1091 Software main screen*

### 1.1 Introduction

The SWC1091 is designed to provide a PC user interface to fine adjust zero and span of D1000 series isolators that accept user settings; a list of which can be found at Section 1.1.1.

The SWC1091 is distributed by G.M. International s.r.l.

The SWC1091 is to be installed on a machine with the following minimum requirements:

- ❑ Pentium class Processor 200Mhz;
- ❑ 800x600 pixels screen resolution;
- ❑ 64MB RAM;
- ❑ 1 available Serial (RS-232) Port or USB port if Serial to USB adapter is used
- ❑ "Microsoft Windows" operative system

Furthermore, as shown in figure below the following items are required:

- ❑ PPC1092 adapter
- ❑ CABF010 Null-Modem Serial Cable (see Note 1 below for details)
- ❑ CABF004 6 pin cable (RJ-12 jack)

Note: all the necessary cables are included when ordering PPC1092 adapter.

The image below clarifies the situation:



Figure 2, CABF010 + PPC1092 + CABF004 + Module

Note: CABF010 serial cable is a NULL Model type of cable and not a straight cable; the wiring diagram is the following:

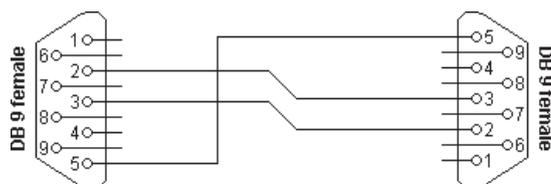


Figure 3, Null-Modem Serial connection diagram

Connector 1	Connector 2	Function
Pin 2	Pin 3	Rx ← Tx
Pin 3	Pin 2	Tx → Rx
Pin 5	Pin 5	Ground

### 1.1.1 Configurable units

Following is a list of units that can be configured via software:

- Analog/Temperature Input: D1072S, D1072D
- Analog Input: D1054S

**Note:** If your unit has a 4 pin jack connector on the front it cannot be configured via software, even if it is listed among the above. A PPC1090 Pocket Portable Configurator is needed in this case.

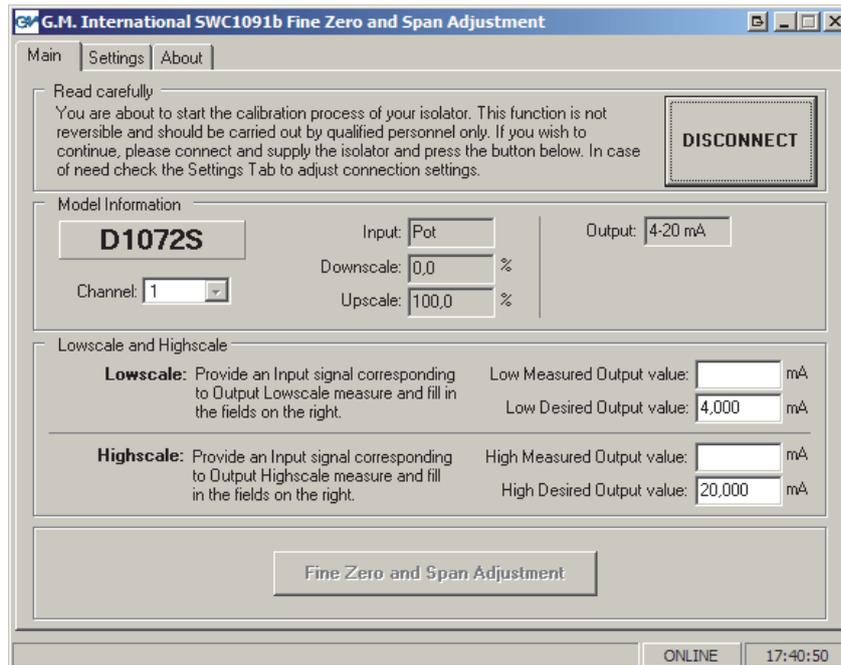
### 1.2 User Interface

The SWC1091 user interface is organized in three different Tabs:

- ❑ Main
- ❑ Settings
- ❑ About

Details of their contents are described in the following sections.

#### 1.2.1 Main Tab



*Figure 4, Main Tab*

The “Main” Tab is the main interface that allows to adjust the functional parameters of the unit.

The main area is divided into four group boxes representing:

- ❑ Connect and Disconnect button to enable and disable communication to the module.
- ❑ Model information, containing configuration parameters and channel selection drop-down list
- ❑ Low scale and high scale measured and desired fields.
- ❑ “Fine Zero and Span adjustment” button

Refer to Section 3 at page 8 for details on how to proceed with adjustment of specific isolator.

## 1.2.2 Settings Tab

Communication settings can be adjusted through the “Settings” tab, as shown below:

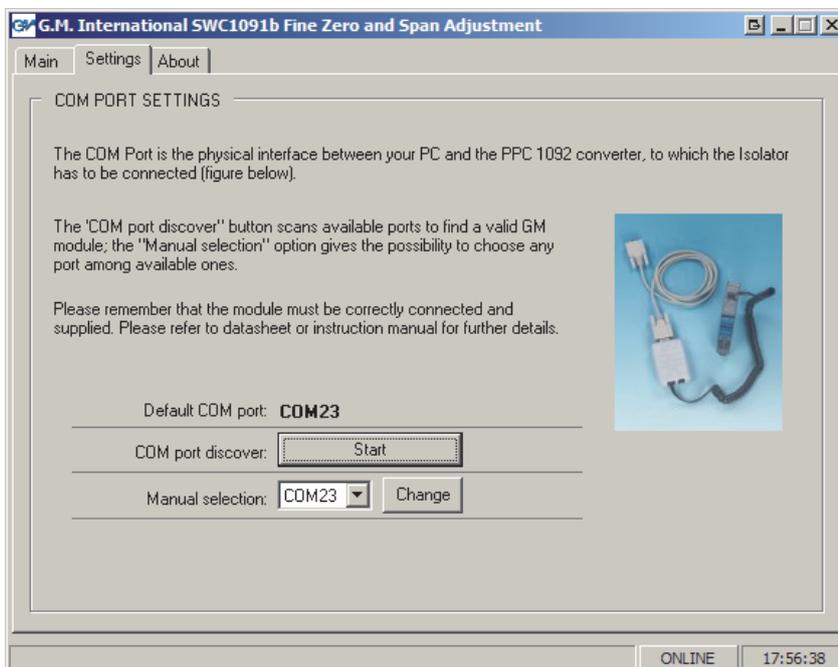


Figure 5, Settings Tab

- COM port settings: define which RS-232 serial port is to be used by the SWC1091 to communicate with the unit. The “COM port discover” option may be initiated at any time by the user in order to search for a valid unit that was previously connected to the PC (refer to Section 2 for connection details). The “Manual selection” option shows COM ports available on the PC and allows the user to select one of them;

## 1.2.3 About Tab

The “About” tab contains G.M. International contact details and links to the website and email.

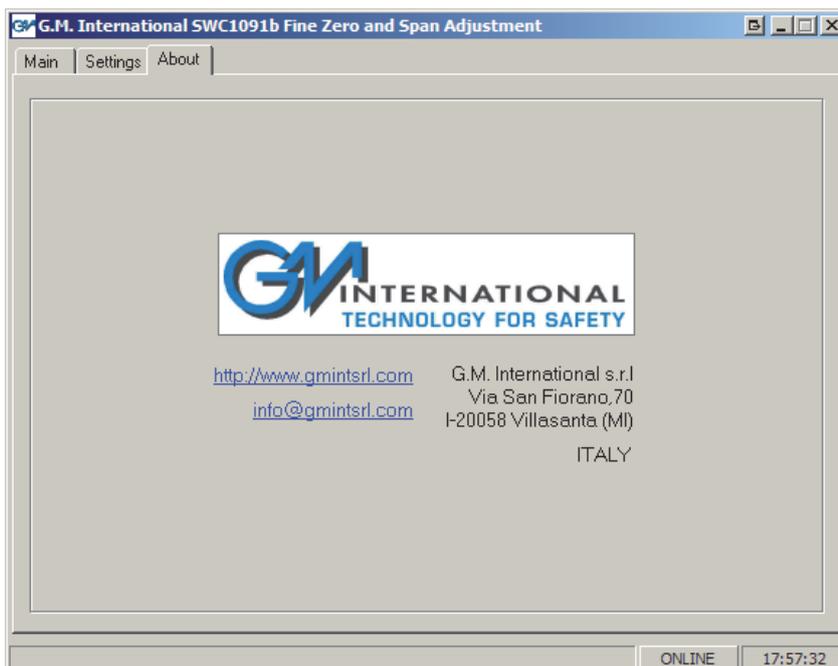


Figure 6, About Tab

## 2 Installation and quick start

After having checked the requirements at Section 1.1 it is possible to proceed with the installation

### 2.1 Installing the SWC1091

Launch the installer and follow the instructions.

An icon will appear on your desktop at the end of the process.

### 2.2 Connecting cables, powering the unit

The unit is connected to the PC using a PPC1092 adapter. (see Section 1.1 for details)

Supply the unit as told in the product datasheet.

### 2.3 Connection settings

The SWC1091 is configured by default to use Serial Port "COM1"; to change this setting proceed to the "Settings" Tab.

It is possible to choose from an available port in the "Manual selection" list, or to press the "COM port discover" button, that will search for a valid unit among all available serial ports on the PC.

In this case, remember that the unit must be powered up and properly connected.

### 2.4 Testing serial connection

After choosing the correct COM port, test serial connection by connecting the unit and pressing "CONNECT" in the Main Tab.

If the input and output parameters are correctly loaded to screen it means that everything is correct.

If an error occurs refer to Section 4 at page 13 for help.

### 3 Zero and Span adjustment instructions

The following procedures must be integrated with the related technical sheets for the identification of all functional and connecting parameters.

- ❑ The fine zero and span adjustment should be carried out after warming up the instruments before the test so as to be sure to obtain the declared performance.
- ❑ Carry out a cycle of pre-warming up for the units to be tested, for a minimum period of 15 minutes so as to settle performance and reduce warm-up uncertainties. To this extent, apply a stabilized voltage of 24 Vdc (check the voltage is between 22 V and 26 V) to feed the terminal blocks of the units, connecting positive pole to terminal “3” and negative pole to terminal “4”.  
Check the Power Supply output current capacity in order to be sure that it can drive all the connected units.
- ❑ Connect the unit that needs adjustment, as described in the single module notes in the following paragraphs.
- ❑ Proceed with the fine zero and span adjustment.

#### 3.1 General Instructions

- ❑ Set the power supply voltage at 24 V dc and power the unit.
- ❑ Connect the multimeter for reading in direct current or voltage according to configured output type, as described in the related figure.
- ❑ Connect input sensor simulator according configured input sensor type, as described in the related figure.
- ❑ It is necessary to carry out the test twice, in order to check both channels of the unit.
- ❑ Select channel to be adjusted via the drop-down list below the model name.
- ❑ Configure the input sensor in accordance with the measuring range and specified output in order to obtain a **low scale measure** and report the reading into the text field “*Low Measured Output value*” of the SWC1091 software as shown in Figure 7 below
- ❑ Configure the input sensor in accordance with the measuring range and specified output in order to obtain a **high scale measure** and report the reading into the text field “*High Measured Output value*” of the SWC1091 software as shown in Figure 7 below
- ❑ Check fields “Low Desired Output Value” and “High Desired Output Value” and modify if needed.
- ❑ When all fields are filled in, the “*Fine Zero and Span Adjustment*” will become enabled.

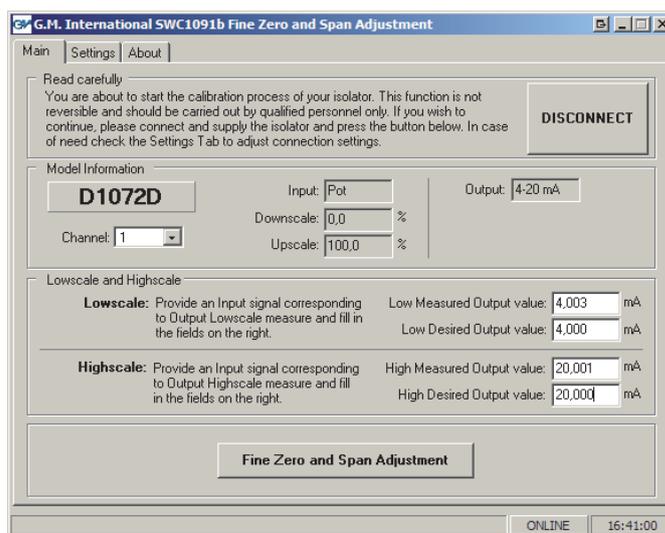


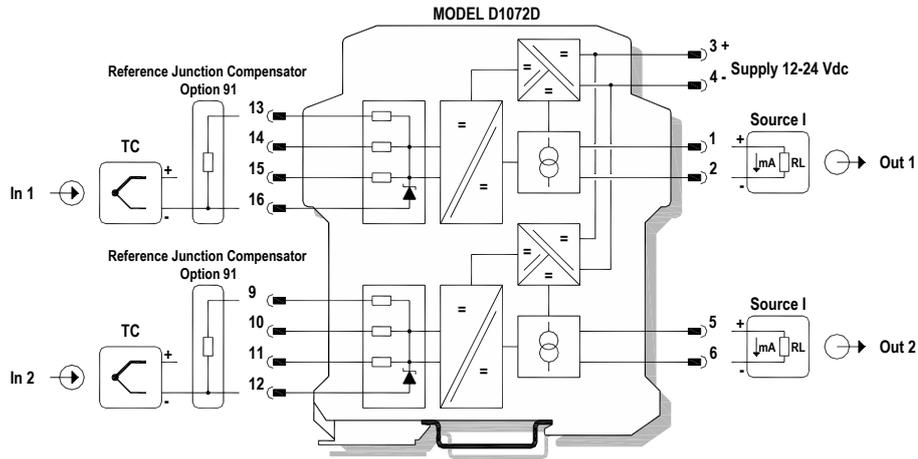
Figure 7, High Scale and Low Scale

- ❑ Press the “*Fine Zero and Span Adjustment*” button and confirm the following dialog box to proceed.  
**Note:** This process is not reversible and will interact with the module’s functional parameters, be sure that fields are correctly filled in.
- ❑ Verify that the adjustment has took place and that the readings accord to the desired output value.
- ❑ If the obtained reading variation does not fulfil requirements, please repeat the process.

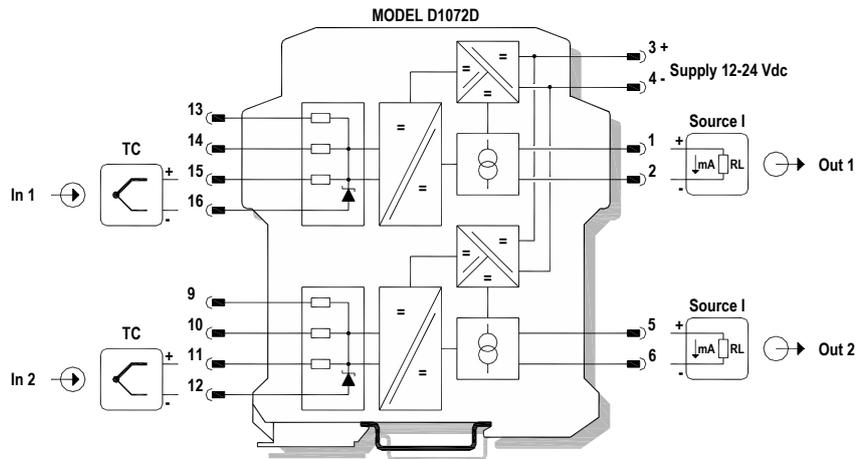
### 3.2 D1072 connections

The D1072 accepts multiple input sensors and provides current or voltage output. Connect the unit as described in the following diagrams, according to the specific application. Please note that in model D1072S, only channel 1 is applicable.

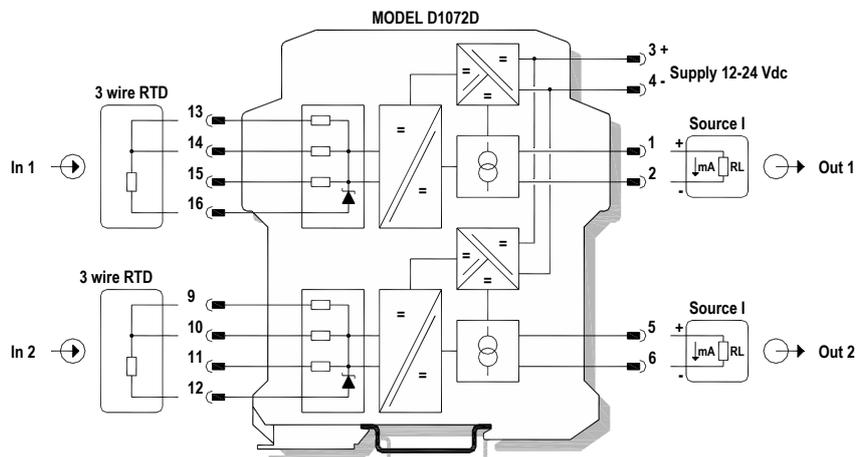
#### 3.2.1 Thermocouple with automatic reference junction compensation, current output



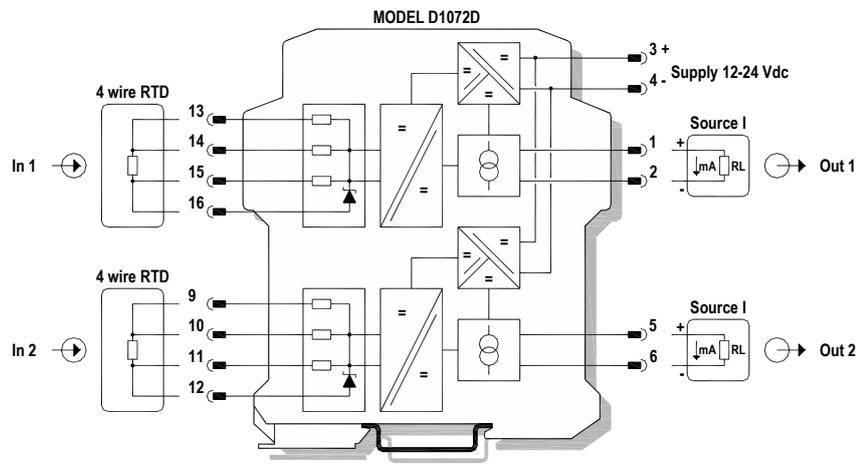
#### 3.2.2 Thermocouple with fixed reference junction compensation, current output



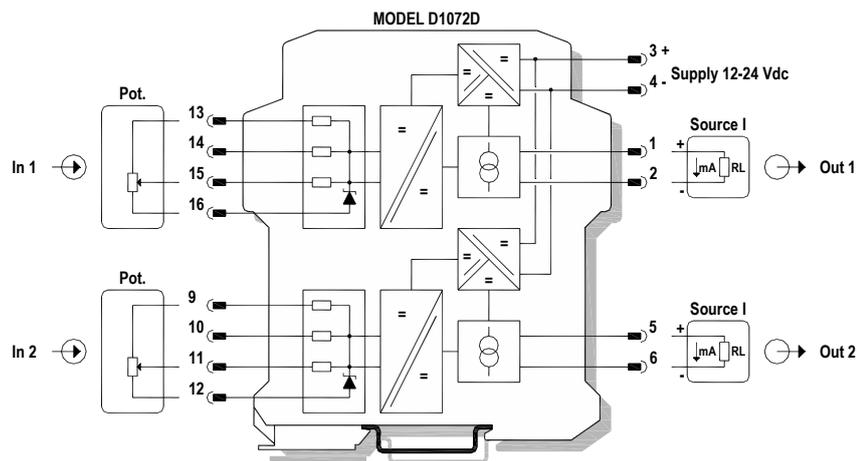
#### 3.2.3 3-wire Thermoresistance, current output



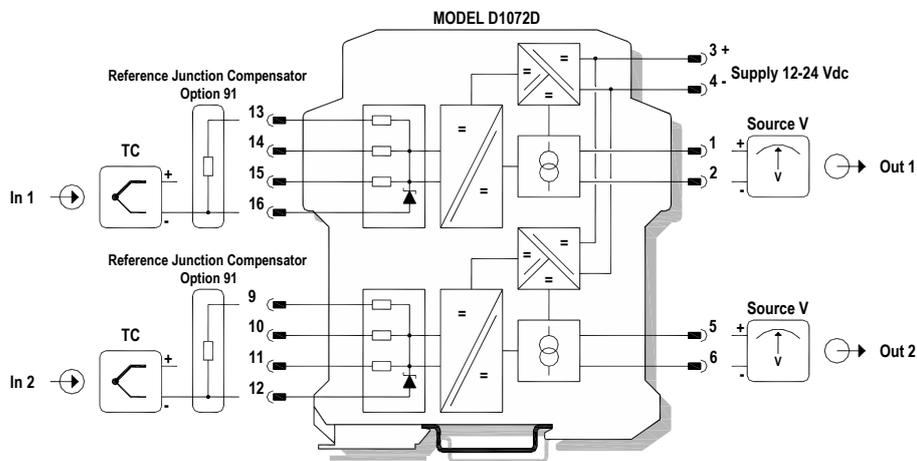
### 3.2.4 4-wire Thermoresistance, current output



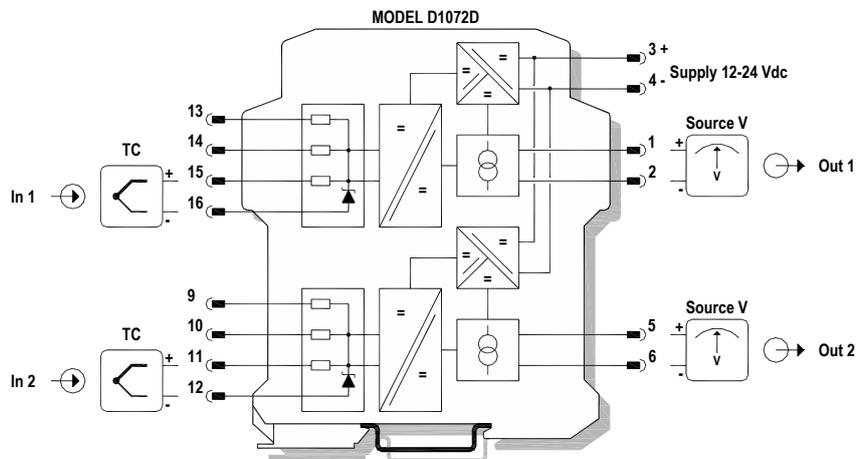
### 3.2.5 Potentiometer, current output



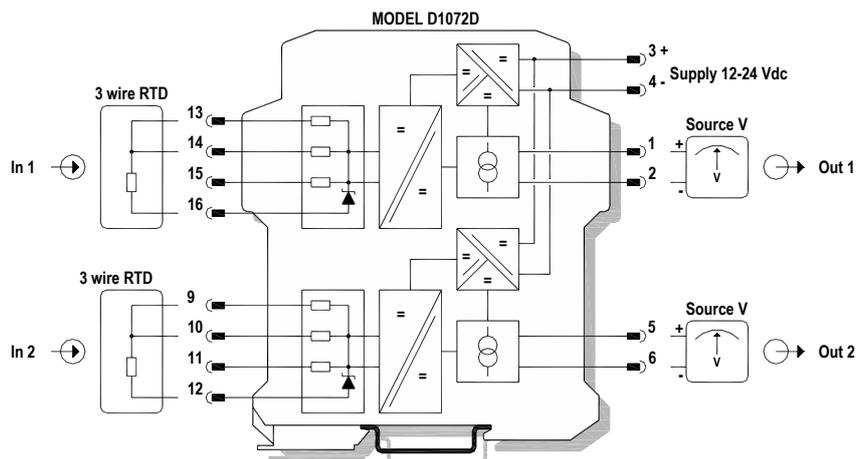
### 3.2.6 Thermocouple with automatic reference junction compensation, voltage output



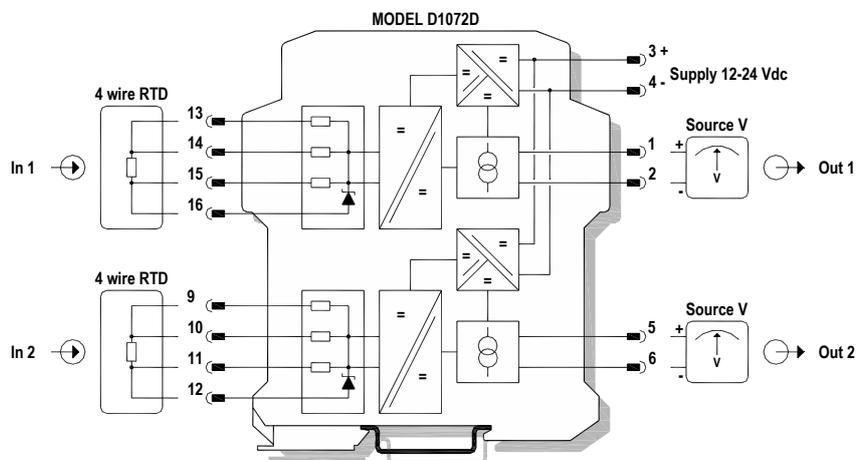
### 3.2.7 Thermocouple with fixed reference junction compensation, voltage output



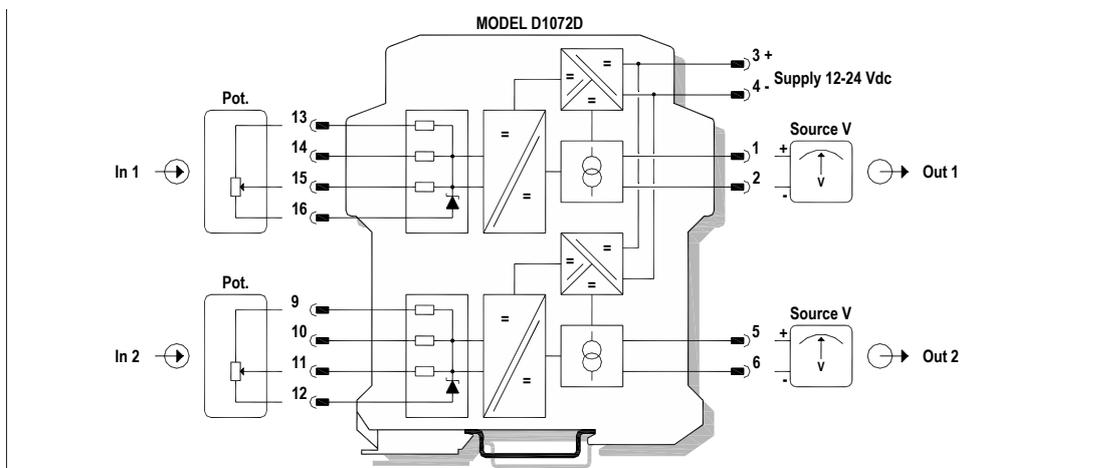
### 3.2.8 3-wire Thermoresistance, voltage output



### 3.2.9 4-wire Thermoresistance, voltage output

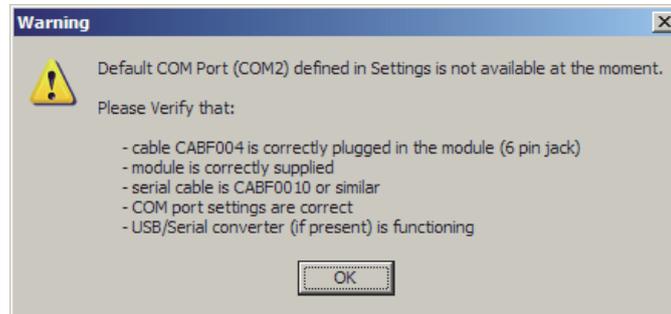


### 3.2.10 Potentiometer, voltage output



## 4 Troubleshooting and support

### 4.1 Serial connection



This message appears whenever the user attempts to access the serial port which was previously defined in the "Settings" tab and the operation is not successful.

Given that all cables are properly connected, the remaining possible reasons are listed below:

- ❑ Unit is not configurable via SWC1091 software:  
Verify that the unit is among the list at Section 1.1.1 (page 4).
- ❑ Serial cable used to connect the PC to the PPC1092 is not a Null-Modem RS-232 cable:  
please see Note 1 in Section 1.1 for specifics.
- ❑ Unit is not correctly supplied, or not supplied at all:  
see unit's datasheet for instructions.
- ❑ PC Serial port is not correct:  
Try the "COM port discover" function in the "Settings" tab; in case this does not work, look for COM port properties in "Control Panel → System → Hardware → Peripherals".

If a USB to Serial adapter is being used, please also check that drivers are correctly installed and operational. G.M. International PPC1092 is shipped with a USB to Serial Adapter (figure below). Drivers for this model can be found on the CD Rom that is given with the adapter or on the internet at <http://www.gmintsrl.com/>



### 4.2 Updating to a new version

Please contact G.M. International to obtain the latest version of the software. Contact details can be found at the last page or at <http://www.gmintsrl.com>