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Operating Manual

Programmable Isolation Amplifier

M9842/22

Warranty

Mostec warrants this product to be free of manufacturing defects for a 2-year period after the original date of purchase. Within this period, defective products will be repaired free of charge provided that the defect occurred during normal operation. This warranty does not cover damage to the product resulting from ordinary usage such as front panel scratches, broken control elements and corrosion, etc. The customer is responsible for shipping and packing charges for products returned under warranty to Mostec. Mostec warrants this product beyond the 2-year warranty period for an additional 2 years in case of long term damages due to improper manufacturing. Such damages as poorly soldered joints or other assembly problems are also covered by the warranty. Transportation damages are not covered by the warranty and should be referred to the respective delivery service.

Technical description

The M9842-22 series "snap-on" isolation amplifier and line conditioner separates and/or converts an analog process signal for computers and industrial control equipment. Also, a computer or control equipment's analog signal can be adapted to the process environment. Isolation amplifiers are also installed where signals need to separate different signal grounds to avoid ground loops or when signals with different electrical grounds has to be isolated from each other or to convert one signal to an other.

Example: To convert and isolate a 4...20mA process signal to a 0...10V signal connected to a computer interface.

An additional application is to extract and isolate the measuring signal out of 2-wire transmitter's power supply.

The amplifier is field programmable by means of a serial data cable connected to a personal computer or to a laptop. The set-up software is free of charge and is distributed via the Mostec home page at www.mostec.ch. The range of the amplifier is also factory set free of charge.

The isolation amplifier consists of the following elements: Input circuit and amplifier, signal processor, demodulator, voltage/current source and the power supply.

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A. Programming a standard type

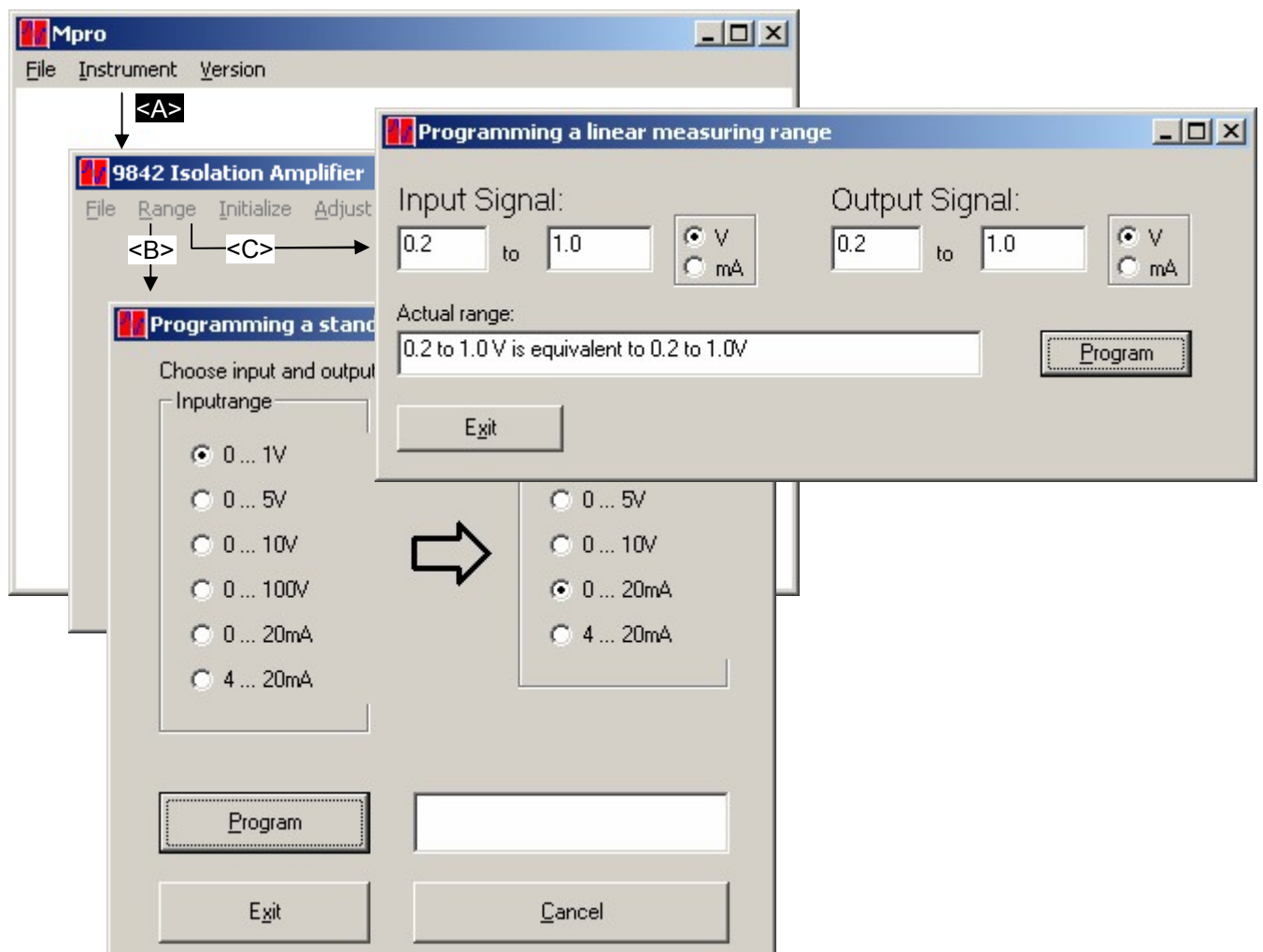
Connect the link cable from the computer to the M9842/22. (see E, page 6)

1. start "Mpro"
2. Select "M9842" in the menu "Instrument" <A>
3. Select "Standard Type" in the menu "Range"
4. Select the input and output range.
5. Select "Program"

B. Programming a linear conversion

Connect the link cable from the computer to the M9842/22. (see E, page 6)

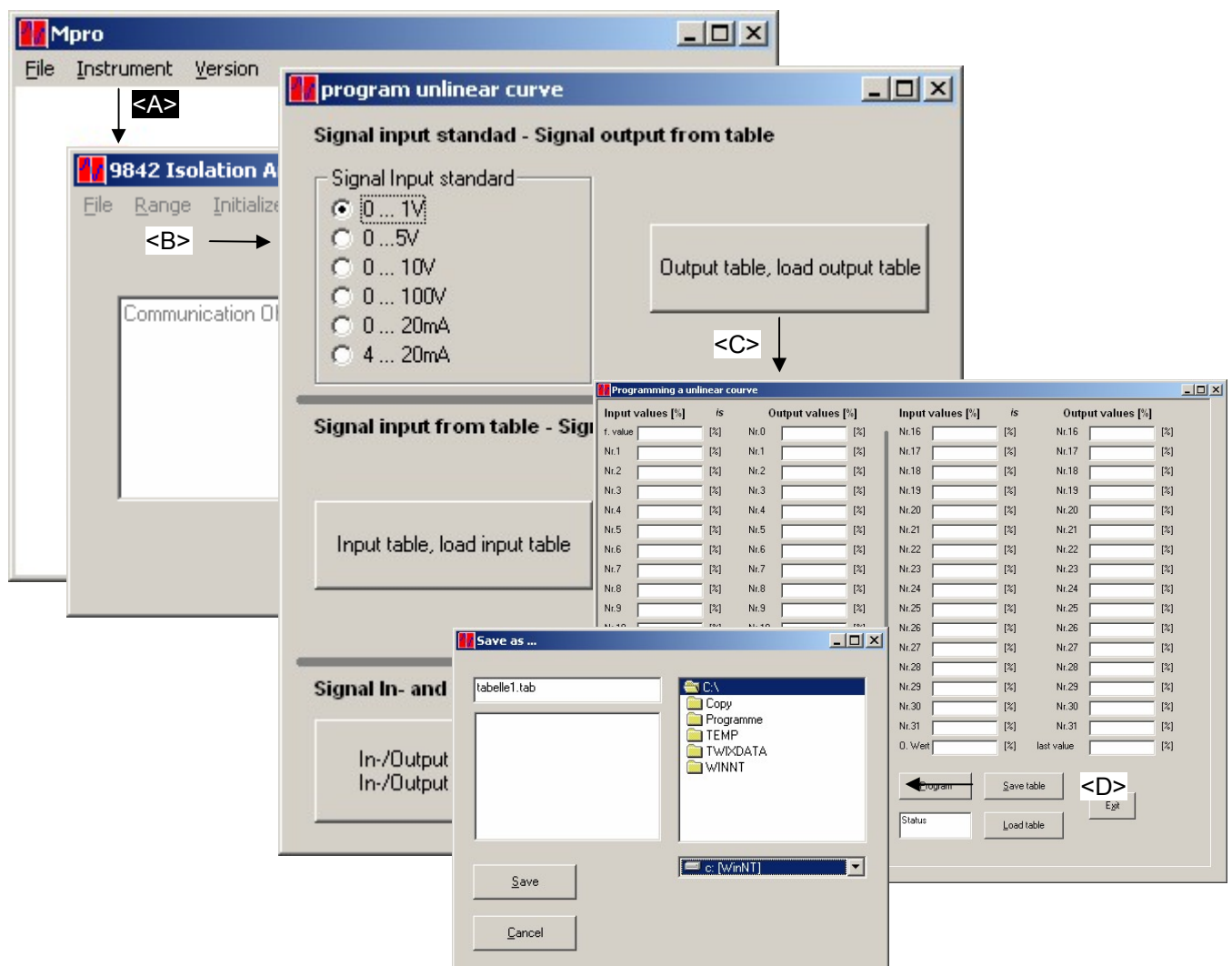
1. start "Mpro"
2. Select "M9842" in the menu "Instrument" <A>
3. Select "Linear conversion" under "Range" <C>
4. Enter the value for the input range. Possible values are: $\pm 100\text{mV}$ to $\pm 100\text{V}$ or $\pm 2\text{mA}$ to $\pm 20\text{mA}$
5. Enter the value for the output range. Possible values are: $0\text{...}10\text{V}$ or $0\text{...}20\text{mA}$
6. Select "Program"



C. Programming a special conversion table

Connect the link cable from the computer to the M9842/22. (see E, page 6)

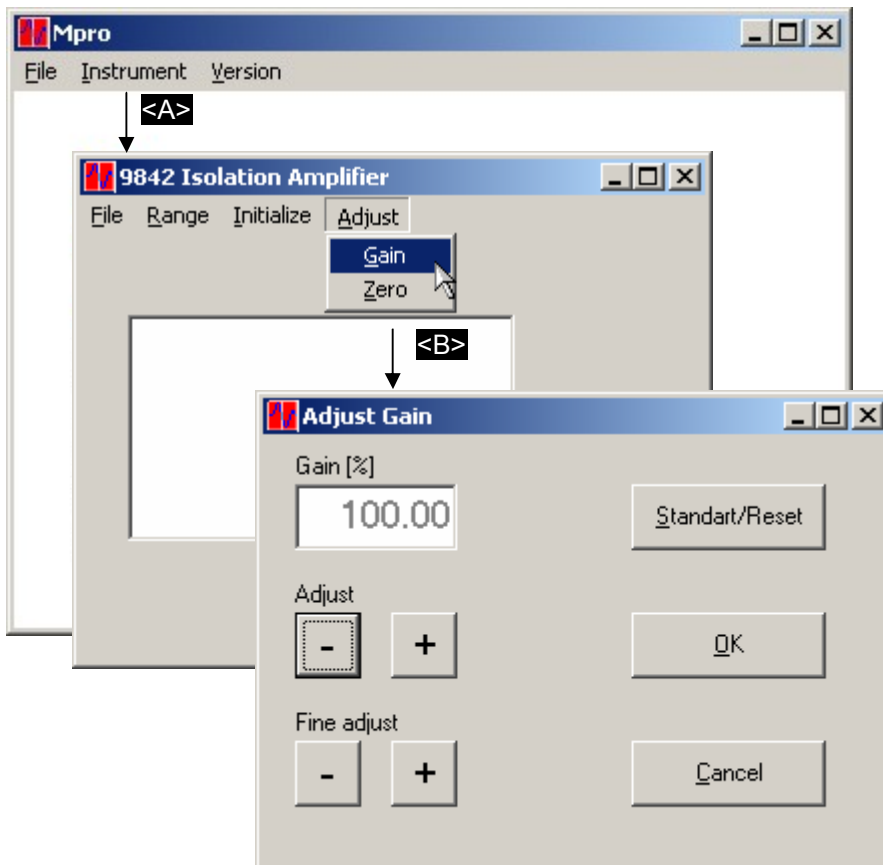
1. start "Mpro"
2. Select "M9842" in the menu "Instrument" <A>
3. Select "special conversion table" in the menu "Range"
4. There are 3 possibilities:
 - a. Signal input standard – signal output from table
 - b. Signal input from table – signal output standard
 - c. Signal input and output from table
- ⇒ In all tables, it's possible to load a given table.
5. If 4a or 4b are selected, all linear fields have their value, select the range for the input and output signal only. <C>
All 33 linearization steps must be input to complete the table.
6. If 4c is selected, all 66 linearization steps must be input, for input and output signal.
7. The linearization steps must be set in % from the selected input or output.
Example: "Input range" = 0...20mA, "f.value" = 0, "Nr.1" = 5.1, "Nr.2" = 7.8, etc. "last value" = 100.0
8. Save the table after all values are input. <D>
9. Select "Program"



D. Fine-adjust the output signal

Connect the link cable from the computer to the M9842/22. (see E, page 6)

1. start "Mpro"
2. Select "M9842" in menu "Instrument" <A>
3. Select "Adjust" for fine-adjusting the "Gain" or "Zero" .



E. General references for using the programming software

- The newest software may be downloaded any time and free of charge at www.mostec.ch.
- Connect the M9842/22 to the power supply for programming
- Be sure that the connected COM-port isn't used by any other peripheral device.
- If the PC or the corresponding COM-port is "grounded" by the power line cable or by other cabling, ground loops may interfere with the measuring signal. The use of a computer with battery power is recommended to avoid such problems.
- Contact us if there are problems or questions concerning the software.

Non-liability

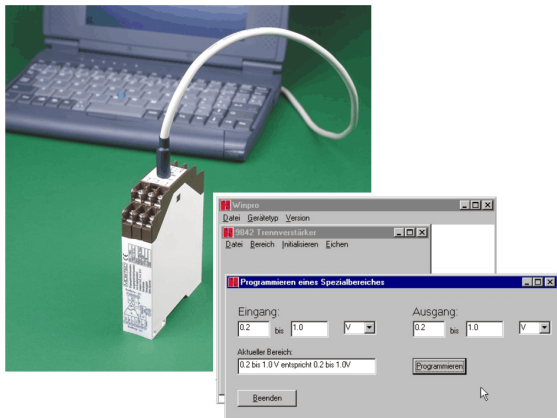
The company Mostec AG developed and tested the software "Mpro" with largest care. Mostec is not responsible for any damages whatsoever, including loss of information, interruption of business, personal injury and/or any damage or consequential damage without limitation, incurred before, during or after the use of our products.

F. Technical Data

Technical Data:

Input:	programmable												
Output:	programmable												
Input impedance:	<ul style="list-style-type: none"> - Current input = 51Ω (= input load) - Voltage input $1M\Omega$ 												
Output impedance:	<ul style="list-style-type: none"> - Current output $\geq 1M\Omega$ - Voltage output, max. load = 700Ω - Voltage output $< 0,1\Omega$ 												
Max. output current limit:	30mA, short circuit proof (voltage output only)												
Special signal range:	<ul style="list-style-type: none"> - Voltage input: $\pm 100mV$ to $\pm 100VDC$, others on request - Current input: $\pm 2mA$ to $\pm 20mADC$, others on request - Voltage output: $0...10VDC$, others on request - Current output: $0...20mADC$, others on request 												
Test isolation voltage:	2500VAC/1 minute (Input → Output → power supply)												
Common mode rejection ratio:	<ul style="list-style-type: none"> Min. 140dB @ 1000VDC min. 100dB @ 1000VAC/50 Hz 												
Gain error:	Max. 0,05% of full scale												
Zero offset:	Max. 0,05% of full scale												
Working temperature range:	$-5...+55^{\circ}C$												
Power supply:	24VAC/DC -20%/+5%, isolated												
Power supply load:	3.0W @ $I_{output} = 30mA$												
CE-conformity:	fulfilled												
Mounting:	35mm mounting rail, EN50022-35												
Weight:	160g												
Terminals:	screw terminals for $1.5mm^2$ wire												
Terminal description:	<table border="0" style="width: 100%;"> <tr> <td>1 = Signal input V(+)</td> <td>2 = Signal input (-)</td> </tr> <tr> <td>3 = Signal input mA(+)</td> <td>4 = +24V (2-wire)</td> </tr> <tr> <td>5 = not used</td> <td>6 = Signal input PE</td> </tr> <tr> <td>7 = Signal output V(-)</td> <td>8 = Signal output (+)</td> </tr> <tr> <td>9 = Signal output mA(-)</td> <td>10 = Power Supply AC~/DC(-)</td> </tr> <tr> <td>11 = Power Supply AC~/DC(+)</td> <td>12 = PE</td> </tr> </table>	1 = Signal input V(+)	2 = Signal input (-)	3 = Signal input mA(+)	4 = +24V (2-wire)	5 = not used	6 = Signal input PE	7 = Signal output V(-)	8 = Signal output (+)	9 = Signal output mA(-)	10 = Power Supply AC~/DC(-)	11 = Power Supply AC~/DC(+)	12 = PE
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Warranty:	2 years												
Options:	<ul style="list-style-type: none"> - Programming cable - Programming software - Customer modifications, special ranges 												

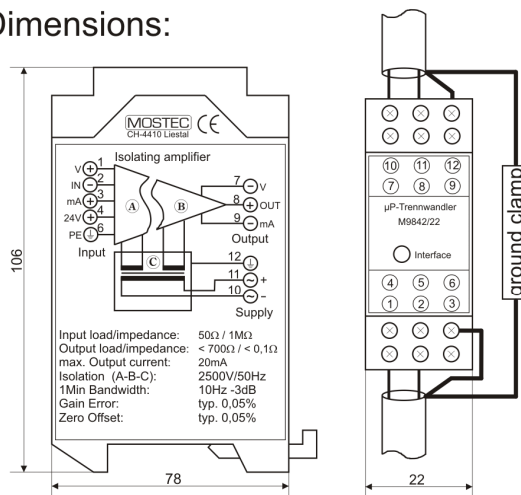
Programming by Laptop:



Note:

- Connect to the RS232 interface by a Mostec adapter cable
- Connect the M9842/22 to the power supply for programming
- Download free programming software: www.mostec.ch

Dimensions:



Wiring instructions:

- Install into metallic panels only.
- Shields: All signal lines must be grounded on both sides of the cable.

