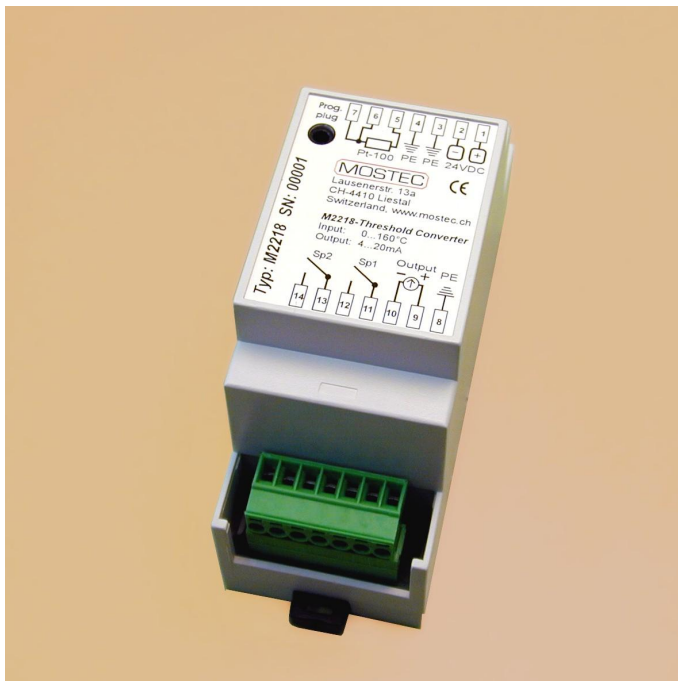


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# Operating Manual

## Threshold Converter

### M2218A (T)

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## 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 threshold converter M2218 is used to check or control either a signal current or a temperature. A Pt-100 platinum sensor in 3-wire mode can be connected to the unit. It converts the input signal to an internal standard signal of 0 to 100.0%. Two independent limit contacts can be set within this range.

All settings as limit values, hysteresis, range and operating mode of the contacts can be set with a PC-program.

The unit may be programmed to customers values or ranges by the factory.

A typical application would be to measure and monitor pressure in a process vessel:  
A pressure transmitter converts the pressure of 1 to 10 bar to a current signal of 4 to 20mA. The M2218 monitors under- and overpressure in the vessel. It converts the 4...20mA signal current to 0...100.0%. The alarm is set between 0% (=1 bar) and 100.0% (=10 bar). With these floating alarm contacts, overpressure valves, compressor relays, etc. are driven directly.

If a Pt-100 sensor is connected to the input, the unit works as a temperature monitor or as a simple temperature controller.

Optionally a galvanically isolated output signal of 4...20mA is available.

The 24VDC power supply is galvanically isolated from the input circuit and the output current source.

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### A. Set the limit contacts

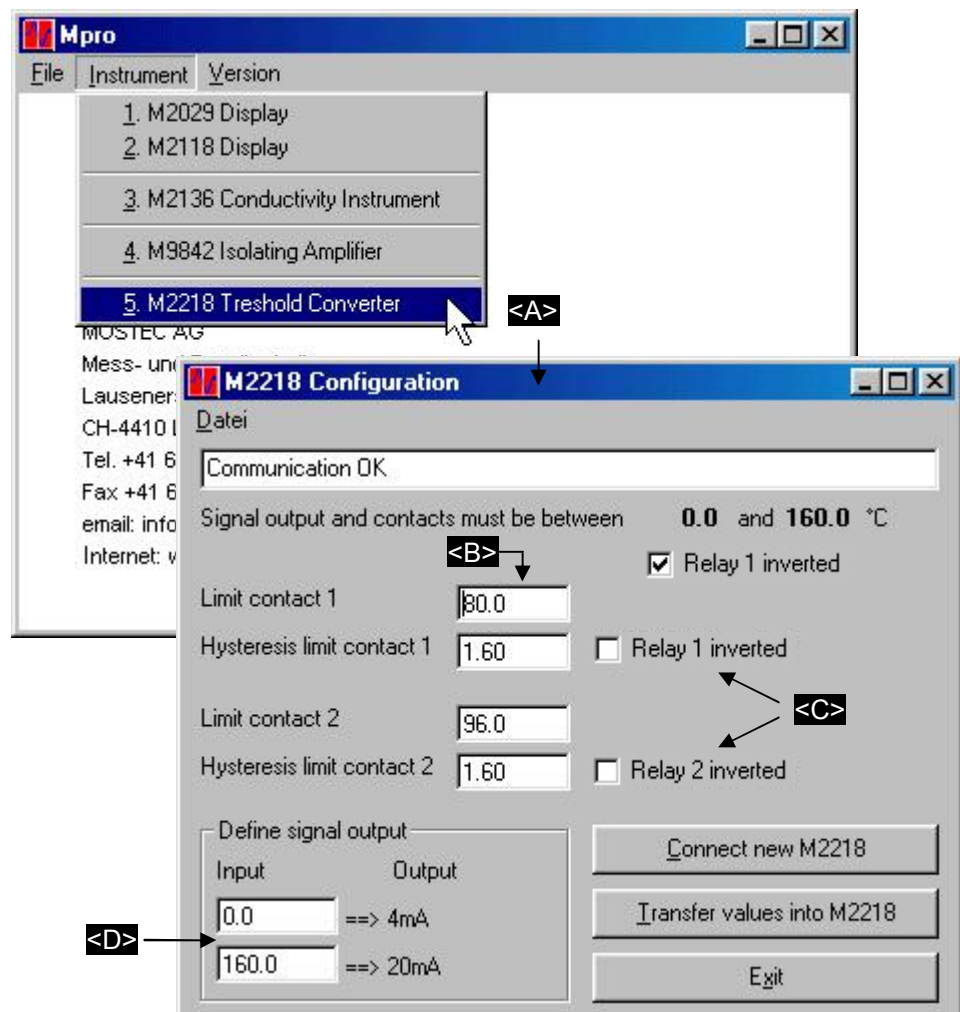
Connect the link cable to the Computer and the M2218. (see D, page 5)

1. start "Mpro"
2. Choose "M2218 Threshold converter" in menu "Instrument" <A>
3. Enter the values for the limit contacts and the hysteresis <B>
4. Set relay operating mode <C>
  - Relay 1 inverted Relay ON, when input > setpoint (normally open contact closed)
  - Relay 1 inverted Relay ON, when input < setpoint (normally open contact open)
5. Choose "Program values"

### B. Set the current output

Connect the link cable to the Computer and the M2218. (see D, page 5)

1. start "Mpro"
2. Choose "M2218 Threshold converter" in menu "Instrument" <A>
3. Enter the values for the current output <D>
4. Choose "Transfer values into M2218"



### C. Fine adjust the input amplifier

**Caution: This option changes the factory settings!**

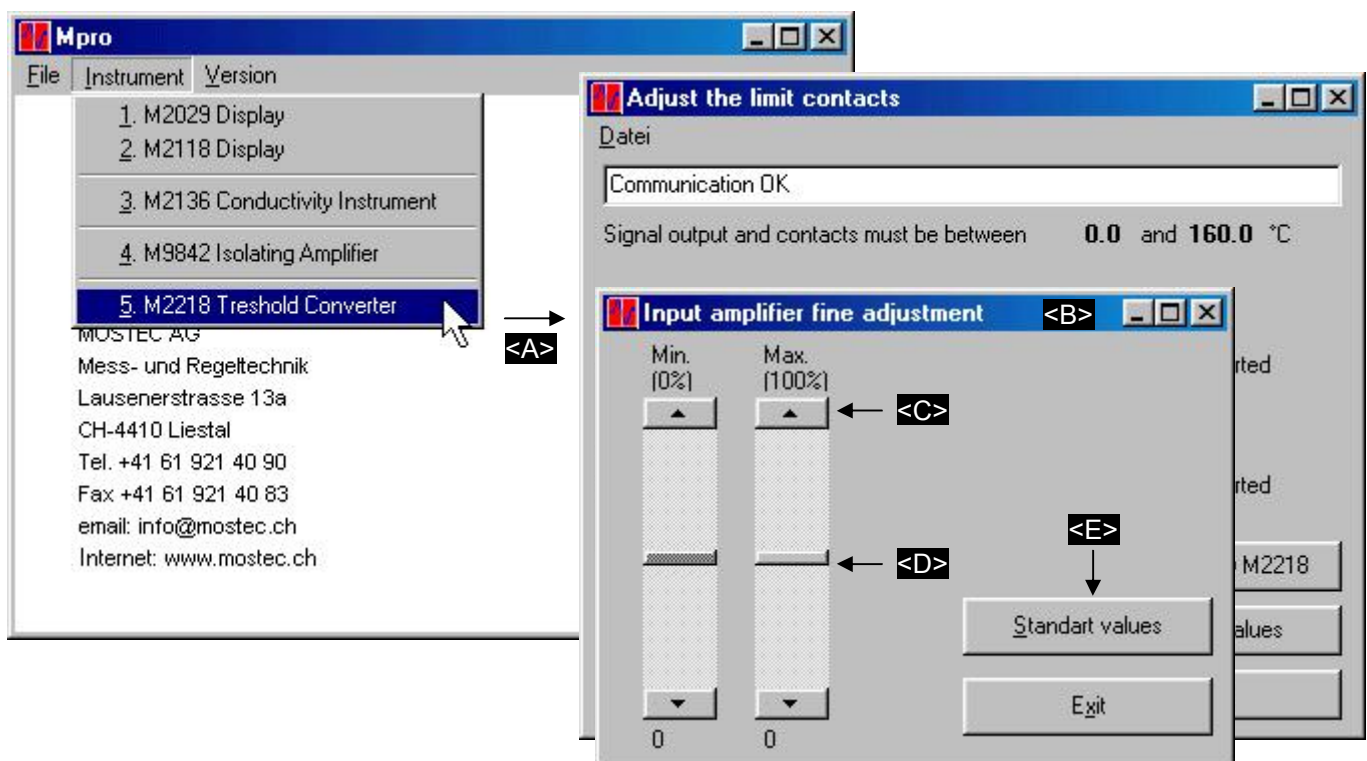
⇒ The following instruments are necessary:

1. Current source or temperature simulator
2. Digital mA-meter

⇒ Press button "Standart values" <E> to restore the factory settings

Connect the link cable the computer and the M2218. (see D, page 5)

1. start "Mpro"
2. Choose "M2218 Threshold converter" in menu "Instrument" <A>
3. Press the keyboard combination Shift+Crtl+F ⇒ The display shows the fine adjustment menu <B>
4. Change the min. and max. values by the up and down arrows <C> or by scroll bars <D>
5. Choose "Exit"



### D. General references using the programming software

- The latest software may be downloaded any time and free of charge at [www.mostec.ch](http://www.mostec.ch).
- Connect the M2218 to the power supply for programming.
- Make sure that the connected COM-port is not used by any other peripheral device or software.
- If the PC or the corresponding COM-port is "grounded" by the power line cable or by other cables: Ground loops may interfere with the measuring signal. The use of a computer with battery power or a galvanically isolated programming cable from Mostec is recommended to avoid such problems.
- Contact us if there are problems or questions concerning the software.

## E. Installation of programming software "Mpro"

### System requirements

Pentium PC  
Windows 95/98/NT4.0/2000/XP®  
unused RS232-DB9 Port  
64MB RAM  
5MB unused hard disc

### Non-liability

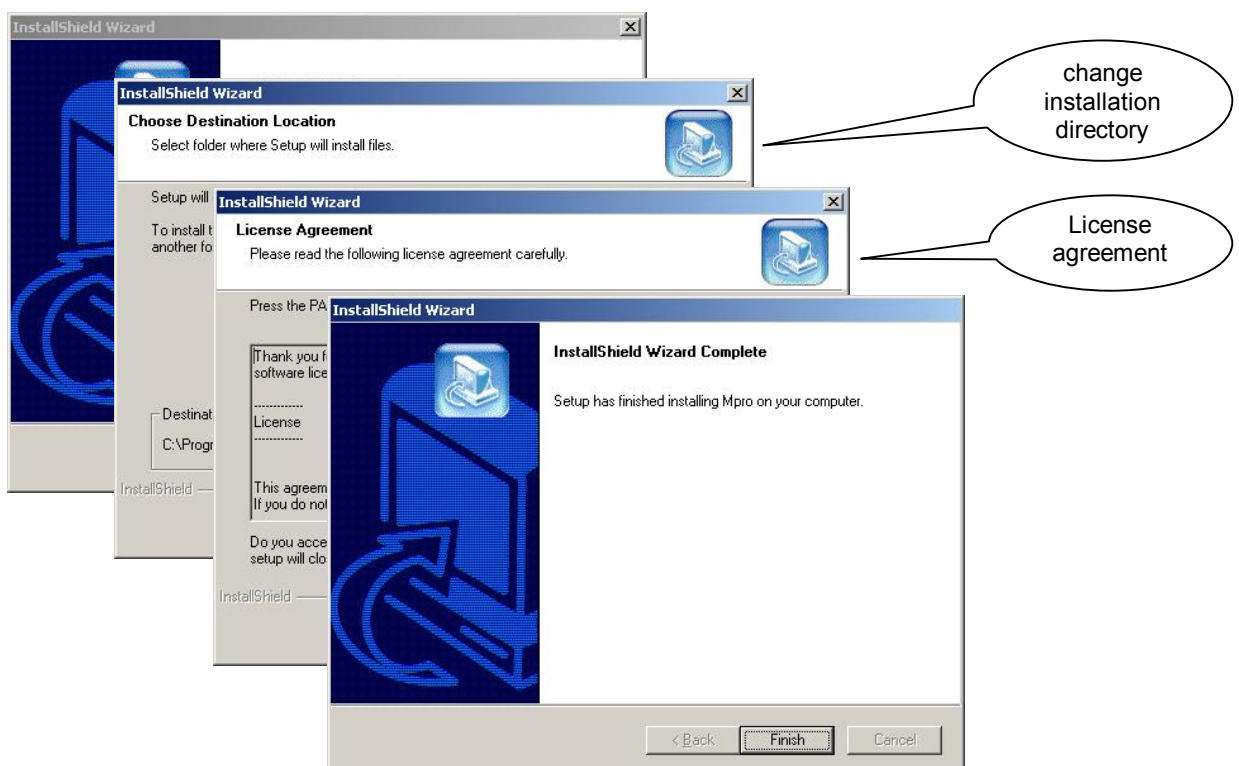
The company Mostec AG developed and tested the software "Mpro" with largest care. Mostec is not responsible for any damages whatsoever, including loss of information, interruption of business, personal injury and/or any damage or consequential damage without limitation, incurred before, during or after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

### General references

Close all open programs, before beginning the installation.  
For installation under Windows NT/2000/XP, administrator rights are necessary.  
The newest software may be downloaded any time and free of charge at "[www.mostec.ch/software.htm](http://www.mostec.ch/software.htm)".  
Mostec also supplies the program on CD-ROM.

### Mpro installation

1. Installation with CD-ROM  
Put the CD-ROM in the CD-ROM drive, "Mpro-Setup" starts automatically, otherwise "Setup\_Mpro.exe" must be started manually in the main directory of the CD-ROM drive.
- 1.1 Installation without CD-ROM  
The newest software may be downloaded any time and free of charge at "[www.mostec.ch/software.htm](http://www.mostec.ch/software.htm)".  
Start the file "Setup\_Mpro.exe".
2. The installation is now implemented.  
The user will be guided by the menus, until the installation is finished.



3. A "Mpro" Icon will be installed on the desktop to start the program "Mpro".  
or via "Start ⇒ Program Files ⇒ Mostec ⇒ Mpro".



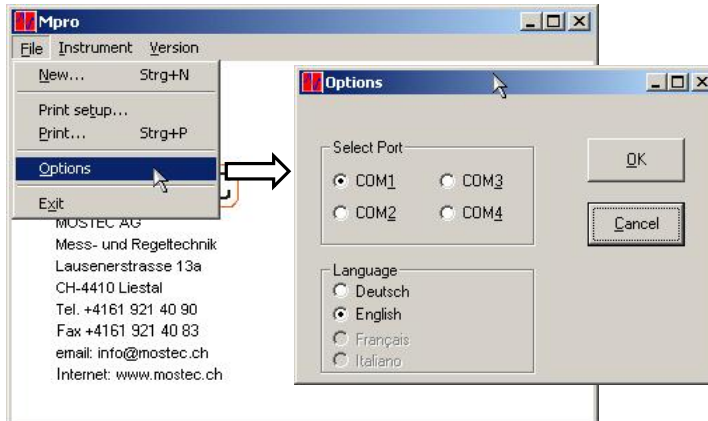
### Mpro uninstall

1. "Mpro" can be uninstalled at any time by "Start ⇒ Settings ⇒ Control Panel ⇒ Software ⇒ Mpro".

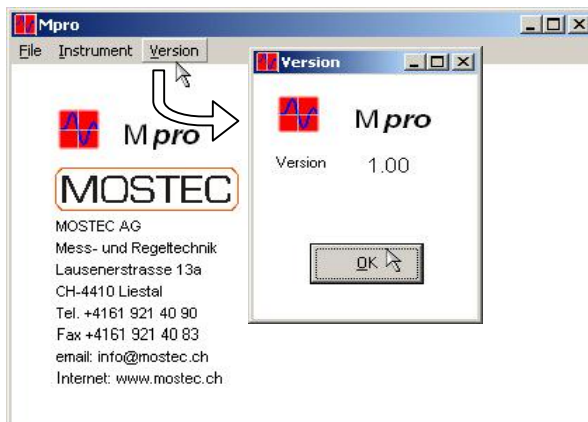


### Mpro configuration

1. Set the "COM-Port" and "Language" in the menu "File/Options".



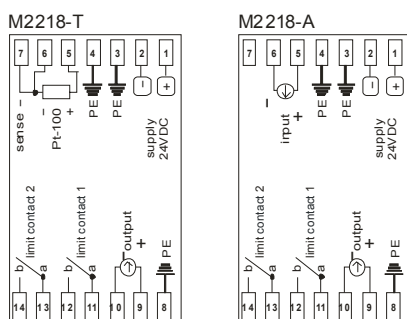
2. Click "Version" to see the installed program version.



## F. Technical Data

Input signal:	M2218-A: 4...20mA M2218-T: Pt-100 platinum sensor with 3-wire connection, temperature range: 0...160°C																		
Input load:	M2218-A: 51Ω																		
Accuracy :	±0.2% at 23°C ambient temperature																		
Reproducibility:	±0.1%																		
Temperature coefficient:	zero drift: 50ppM/°C typical, gain drift: 50ppM/°C typical																		
Long-term stability:	±0.2%																		
Working temperature range:	-5 to +45°C																		
Maximum humidity:	95%, non-condensing																		
Programming:	with a programming cable to a front panel miniature plug																		
Limit contacts:	two, adjustable between 0.0 and 100.0%																		
Hysteresis:	computer programmable, see manual																		
Contacts:	floating normally open contacts																		
Max. contact load:	1A/48V resistive																		
Change limit contacts:	computer programmable, see manual																		
Display limit contacts:	computer programmable, see manual																		
Current output:	4...20mA, galvanically isolated																		
Max. load:	<400Ω																		
Output impedance:	>1MΩ typical																		
Power supply:	24VDC, ±15%																		
Power supply load:	<2.5W at 24VDC																		
CE-conformity:	fulfilled																		
Terminals:	2 x 7-pole plug-in screw terminals																		
Terminal description:	<table border="0"> <tr> <td>1 = supply voltage: 24VDC(+)</td> <td>2 = supply voltage: 24VDC(-)</td> </tr> <tr> <td>3 = supply voltage: PE</td> <td>4 = signal input PE</td> </tr> <tr> <td>5 = M2218-T: input Pt-100 (+)</td> <td>6 = M2218-T: input Pt-100 (-)</td> </tr> <tr> <td>M2218-A: input 4...20mA (+)</td> <td>M2218-A: input 4...20mA (-)</td> </tr> <tr> <td>7 = M2218-T: Pt-100 sense (-)</td> <td>8 = signal output PE</td> </tr> <tr> <td>M2218-A: not used</td> <td></td> </tr> <tr> <td>9 = output 4...20mA: (+)</td> <td>10 = output 4...20mA: (-)</td> </tr> <tr> <td>11 = limit contact 2: (a)</td> <td>12 = limit contact 2: (b)</td> </tr> <tr> <td>13 = limit contact 1: (a)</td> <td>14 = limit contact 1: (b)</td> </tr> </table>	1 = supply voltage: 24VDC(+)	2 = supply voltage: 24VDC(-)	3 = supply voltage: PE	4 = signal input PE	5 = M2218-T: input Pt-100 (+)	6 = M2218-T: input Pt-100 (-)	M2218-A: input 4...20mA (+)	M2218-A: input 4...20mA (-)	7 = M2218-T: Pt-100 sense (-)	8 = signal output PE	M2218-A: not used		9 = output 4...20mA: (+)	10 = output 4...20mA: (-)	11 = limit contact 2: (a)	12 = limit contact 2: (b)	13 = limit contact 1: (a)	14 = limit contact 1: (b)
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Case:	DIN-standard case to DIN 46277 rails (L x W x H) 90 x 36 x 58mm																		
Mounting:	Snap-on to DIN46277 rails, min. distance from one instrument to the next: 5mm																		
Weight:	~90g																		
Warranty:	2 years																		

### Wiring:



### Dimensions (mm):

