Operating Manual

Alarm Unit
Type M2118

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 alarm unit M2118 is used to check or control any type of signal current or voltage signal. It converts the input signal to an internal standard signal of for example 0 to 100.0%. In this range two alarm contacts can be set independently. A 4-digit LED display shows the actual value and setpoints or alarm values in the range of -1999 to 9999 units.
All settings as alarm values, hysteresis, range and operating mode of the floating contacts can be set with a link cable, connected to a personal computer or a laptop.
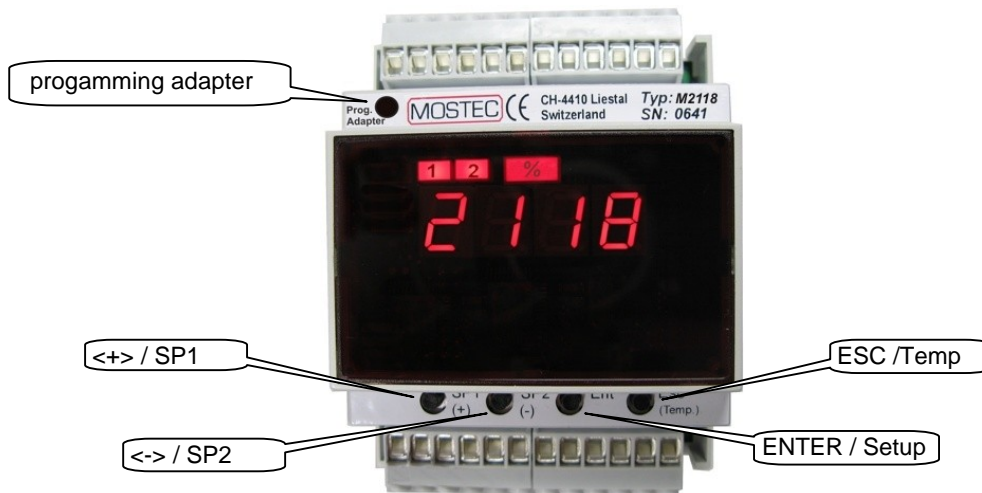Both alarm contacts can also be programmed with tiny push button switches behind the front panel.
A typical application would be to measure and monitor pressure in a process vessel. The pressure transmitter converts the pressure of 1 to 10 bar to a current signal of 4 to. 20mA. The M2118 monitors under- 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, compressors, etc. are driven directly.
Optionally, a galvanic isolated output signal of 0...20mA or 4...20mA is available.

Power supply: Universal supply 20 to 253VAC/DC

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A. Font panel controls

B. Adjusting the limit contacts with two programming buttons

The value of the limit contacts can be changed by two buttons without programming Software.

1. Unlock the user menu / insert or modify the menu protection access code:
The values of the user menu can be protected from unintended access using an access code. After activating the access code, menu values can be observed but no longer modified. To modify setpoints and other parameters, the access code has to be set to the value 0000. If the code has a value different from 0000, writing to the user menu is suppressed.

Set the access code:
1. Press and hold both buttons <ENTER> und <ESC> for 4 seconds.
   ⇨ After 4 seconds The display shows SP_1 indicating the user menu.
2. Now navigate to the Code menu item with the button <->, then press <ENTER>.
   a) A code has already been entered: The display flashes between Code und 0. Enter now the valid access code with the buttons <+> and <-> and confirm with the <ENTER> key. If the code is wrong, the instrument quits the user menu (in case you do not know your code any more, call MOSTEC we have a unlock code). If the code is correct, it can be modified with the keys <+> and <->, or in order to make changes to the user menu, set to 0000.
   b) No code has been entered: The display shows 0000. A code can be entered with the keys <+> and <-> then confirm with the <ENTER> key. If you do not need the user menu protection, leave the value 0000 unchanged and quit the code menu with the <ESC> key.

2.Adjust the limit contacts:

1. Push and hold the button <ENTER> for 4 seconds.
   ⇨ The display will show up the program menu.
2. Change to menu SP_1 for limit contact #1 or SP_2 for limit contact #2,
   by the button <+> or <->, then press <ENTER>.
   ⇨ The display shows the actual value of the limit contact.
3. Change the value for the limit contact by the button <+> or <->, then press <ENTER>.
4. Change to menu HSt_1 for limit contact #1 or HSt_2 for limit contact #2,
   by the button <+> or <->, then press <ENTER>.
5. Change the value for the hysteresis by the button <+> or <-> , then press <ENTER>.
6. Change to menu LEd_1 for limit contact #1 or LEd_2 for limit contact #2,
   by the button <+> or <->, then press <ENTER>.
7. Change the lamp status by the button <+> or <-> , then press <ENTER>.
   "nor": LED lamp ON, when input > setpoint
   "Inr": LED lamp ON, when input < setpoint
8. Change to menu rEL_1 for limit contact #1 or rEL_2 for limit contact #2,
   by the button <+> or <->, then press <ENTER>.
9. Change relay operating mode by the button <+> or <-> , then press <ENTER>.
   "nor": Relay ON, when input > setpoint (normal mode)
   "Inr": Relay ON, when input < setpoint (fail-safe mode)
10. Press button <ESC>
    ⇨ the display shows the actual value.

C. Adjusting the limit contacts with programming software

Connect the link cable with Adapter to the Computer and the display. (see I, page 6)

1. start "M*pro*"
2. Choose "M2118" in menu "Instrument" <A>
3. Choose "Linear conversion table" under "Range" <B>
4. Choose "Adjust the limit contacts" <C>
5. Enter the values for the limit contacts and all other settings (hysteresis etc.)
6. Choose "Program the limit contacts"

D. Adjusting the display range with programming software

Connect the link cable with Adapter to the Computer and the display. (see I, page 6)

1. start "M*pro*"
2. Choose "M2118" under "Instrument" <A>
3. Choose "Linear conversion table" under "Range" <B>
4. Enter the value for input range, output range and decimal place
5. Choose "Program"

E. Adjusting a tare value
Note: The measuring range is reduced by the set tare!

1. Adjusting a tare value with the programming buttons

1. Press and hold the button <ENTER> and <+>.
   ⇨ The display shows *TARE* and the actual measuring value, after 3 seconds tare is adjusted.
   ⇨ The display shows the actual measuring value.

2. Switch off tare with the programming buttons

1. Press and hold the button <ENTER> and <+>.
   ⇨ The display shows *TARE* and the actual measuring value, after 3 seconds tare is switched off.
   ⇨ The display shows the actual measuring value.
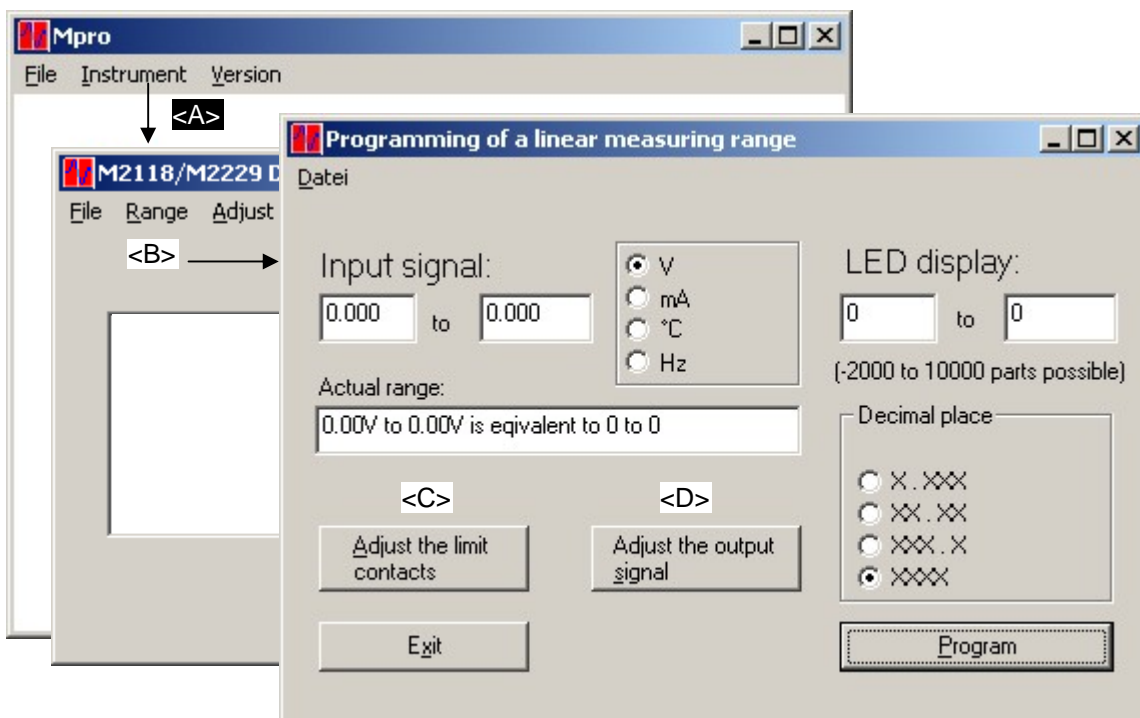
3. Adjusting a tare value with the menu

1. Press and hold the button <ENTER> and <ESC> for 4 seconds..
   ⇨ The display shows *SP_1* indicating the user menu.
2. Move to menu item TARE. To move, use the button <+> or <->, then press <ENTER>.
3. Switch on or switch off tare. To move, use the button <+> or <->, then press <ENTER>.
4. Press the button <ESC>
   ⇨ the display shows the actual measuring value.

F. Adjusting the output signal range with programming software

Connect the link cable with the Computer and the display. (see I, page 6)

1. start "M*pro*"
2. Choose "M2118" in menu "Instrument" <A>
3. Choose "Linear conversion table" under "Range" <B>
4. Choose "Adjust the output signal" <D>
5. Enter the values for the limit contacts and all other settings (hysteresis etc.)
6. Choose "Program the limit contacts"

G. Fine-adjust the display/current output with the programming buttons

The display and the current output can be changed without programming Software and PC.

### 1. Unlock the user menu / insert or modify the menu protection access code:
  see B, page 3

2. Adjust the limit contacts:
    1. Press and hold the button <ENTER> for 4 seconds.
      ⇨ The display shows *5P_1* indicating the user menu.
    2. Move to menu item d_Zo for display min. and or d_GA for display max. value,
      or I_Zo for current output min. and I_GA for current output max. value
      To move, use the button <+> or <->, then press <ENTER>.
      ⇨ The display indicates the actual value of the limit contact.
    3. Change the value, using the button <+> or <->, then press <ENTER>.
    4. Press the button <ESC>
      ⇨ the display shows the actual measuring value.

H. Fine-adjust the display with programming software
Connect the link cable with adapter to the computer and the display. (see I, page 6)

1. start "M*pro*"
2. Choose "M2118" in menu "Instrument" <A>
3. Choose "Adjust" for fine-adjusting the "Gain" or "Zero" <B>.
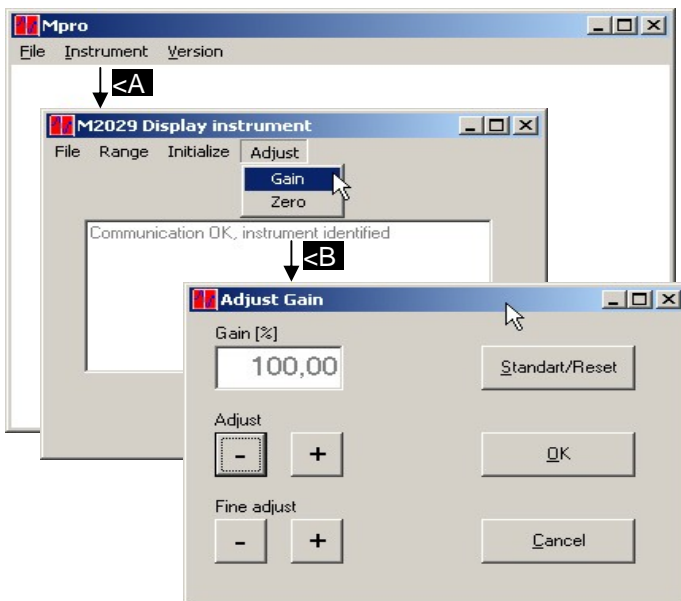
I. General references for using the programming software

- The newest software may be downloaded any time and free of change at www.mostec.ch.
- Connect the M2118 to the power supply for programming
- Be sure that the connected COM-port isn`t used by any other peripherial device.
- If the PC or the corresponding COM-port is "grounded" by the power line cable or by other cabeling, 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.

J. Technical Data

Input signal:	0/4...20mA/0...1V and 10V, programmable
Input load / impedance:	current signal=51Ω, voltage signal=1MΩ
2-Wire transmitter supply:	24VDC max. 25mA
Display:	4-digit, LED red, 10mm
Display range:	-1999...9999
Accuracy :	±0.1% at 23°C ambient temperature
Reproducibility:	±0.1%
Temperature coefficient:	zero drift: 30ppM/°C typical,
	gain drift: 25ppM/°C typical
Long-term stability:	±0.1%
Working temperature range:	-5 to +45°C
Maximum humidity:	95%, non-condensing
Range adjustment:	by computer programmable, see manual
Zero-/Gain adjustment:	by computer programmable, see manual
Alarm contacts:	two, adjustable between 0,0 and 100,0%
Hysteresis:	by computer programmable, factory set: ±5 digit, see manual
Contacts:	floating change over contacts
Max. contact load:	1A/230V resistive
Change alarm contacts:	by button switches or computer programmable, see manual
Display alarm contacts:	by button switches or computer programmable, see manual
Mode of the alarm contacts:	with two red LED-Lamps
Display unit:	with one red LED-Lamp
Option current output:	0/4...20mA, galvanically isolated
Max. load:	500Ω
Output impedance:	>1MΩ typical
Power supply:	20 to 253VAC or DC
Power supply load:	4.5 to 7.0W at 230VAC
CE-conformity:	fulfilled
Terminals:	3 x 6-pole plug-in screw terminals

Terminal description:		
	1 = supply voltage: AC~/DC(+)	2 = supply voltage: AC~/DC(-)
	3 = supply voltage: PE	4 = signal output PE
	5 = signal output (+)	6 = signal output (-)
c.o. = change over	7 = alarm contact 1, c.o. contact	8 = alarm contact 1, n.c. contact
n.o. = normally open	9 = alarm contact 1, n.o. contact	10 = alarm contact 1, c.o. contact
d.c. = normally closed	11 = alarm contact 2, n.c. contact	12 = alarm contact 2, n.o. contact
	13 = signal input PE	14 = signal input (-)
	15 = signal input current (+)	16 = signal input voltage (+)
	17 = 2-Wire transmitter supply +24V	18 = 2-Wire transmitter supply PE

Case:	DIN-standard 71mm, snap-on to DIN 46277 rails
Weight:	200g
Warranty:	2 years
Options:	- Link cable for programming with a computer: P/N M2029LAP
	- Programming software (free download: www.mostec.ch)
	- Other input signal
How to order:	M2118, input 4...20mA, display 50...100,0%,
	SP1=2,00bar, PS2=9,50bar, Hysteresis ±2digit,
	current output: 50...100,0% = 0...20mA

Pressure control:
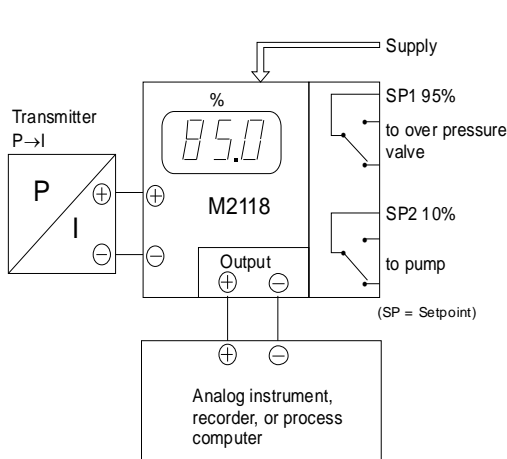
Dimensions (mm):
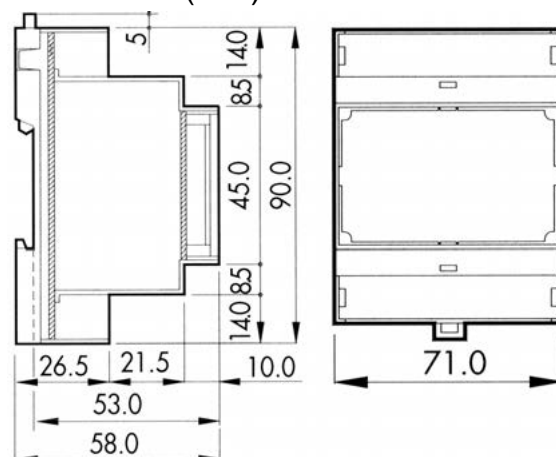
K. User menu

Menu access: press the button (**ENT**) for 4 seconds.
Navigation within the menu: buttons (**+**) and (**-**)
Select a menu item: button (**ENT**) (= ENTER)
Leave a menu item: button (**ESC**) (= ESCAPE)
Change a value: buttons (**+**) and (**-**)

(**ENT**)
   ↓
   →SP_1   (**ENT**)→   (**+**)/(**-**)   Adjust setpoint 1
                    ←(**ESC**)/(**ENT**)   1.053
                           **   *

   ↓ (**+**) / ↑ (**-**)
   →HST1   (**ENT**)→   (**+**)/(**-**)   Adjust hysteresis 1
                    ←(**ESC**)/(**ENT**)   0.007

   ↓ (**+**) / ↑ (**-**)
   →LED1   (**ENT**)→   (**+**)/(**-**)   LED 1 function normal/inverse
                    ←(**ESC**)/(**ENT**)   NOR / INR

   ↓ (**+**) / ↑ (**-**)
   →REL1   (**ENT**)→   (**+**)/(**-**)   Relay 1 function normal/inverse
                    ←(**ESC**)/(**ENT**)   NOR / INR

   ↓ (**+**) / ↑ (**-**)
   →SP_2   (**ENT**)→   (**+**)/(**-**)   Adjust setpoint 2
                    ←(**ESC**)/(**ENT**)   1.053

   ↓ (**+**) / ↑ (**-**)
   →HST2   (**ENT**)→   (**+**)/(**-**)   Adjust hysteresis 2
                    ←(**ESC**)/(**ENT**)   0.007

   ↓ (**+**) / ↑ (**-**)
   →LED2   (**ENT**)→   (**+**)/(**-**)   LED 1 function normal/inverse
                    ←(**ESC**)/(**ENT**)   NOR / INR

   ↓ (**+**) / ↑ (**-**)
   →REL2   (**ENT**)→   (**+**)/(**-**)   Relay 1 function normal/inverse
                    ←(**ESC**)/(**ENT**)   NOR / INR

   ↓ (**+**) / ↑ (**-**)
   →CODE   (**ENT**)→   (**+**)/(**-**)   Change menu access code
                    ←(**ESC**)/(**ENT**)   0036

   ↓ (**+**) / ↑ (**-**)
   →D_20   (**ENT**)→   (**+**)/(**-**)   Fine-adjust display min. value
                    ←(**ESC**)/(**ENT**)   0000

   ↓ (**+**) / ↑ (**-**)
   →D_GA   (**ENT**)→   (**+**)/(**-**)   Fine-adjust display max. value
                    ←(**ESC**)/(**ENT**)   0000

   ↓ (**+**) / ↑ (**-**)
   →I_20   (**ENT**)→   (**+**)/(**-**)   Fine-adjust current output min. value
 ←(**ESC**)/(**ENT**)   0000
   ↓ (**+**) / ↑ (**-**)
   →I_GA   (**ENT**)→   (**+**)/(**-**)   Fine-adjust current output max. value
 ←(**ESC**)/(**ENT**)   0000
   ↓ (**+**) / ↑ (**-**)
   →TARE   (**ENT**)→   (**+**)/(**-**)   Adjust tare
                    ←(**ESC**)/(**ENT**)   ON / OFF

**   Leave the menu without saving the value
*   Leave the menu and save the value