

pH/rH-Controller Type M3020

- Back Lighted Display
- Temperature Compensation
- Programmable
- Alarm Function
- USB Memory Stick Port
- Wide Range Power Supply
- Up To 5 Relay Outputs



Technical Description

The highly compact pH/rH(mV)-controller type M3020 has been developed for simple process control and monitoring applications in electrometry. The back lighted graphic display is readable from distance and enables self explaining activation of the functions.

Basically, the instrument is a simple two-point controller, consisting of an electrometer amplifier and two floating change-over contacts which are adjustable over the entire measuring range and the two change-over contact are used e.g. for alarm units, metering valves and pumps, etc.

A graphic display continuously indicates the actual value, temperature and instrument status. 4 LEDs informs about the status of the change-over contacts, temperature and alarm.

The wide range power supply, from 20 to 253VAC/DC, supplies the instrument. A pH-sensor only is needed for minimal operation.

The temperature compensation of the pH-signal

can be set to manual or external. A Pt-100 platinum temperature sensor in the reactor compensates the pH-signal. Broken sensor wires are indicated immediately and this error condition activates the alarm contact. Alarm settings are programmable.

The instrument settings can be protected with an access code. A USB memory stick, used as a data logger on the back of the instrument, may log all values. A signal current output with galvanic isolation is available.

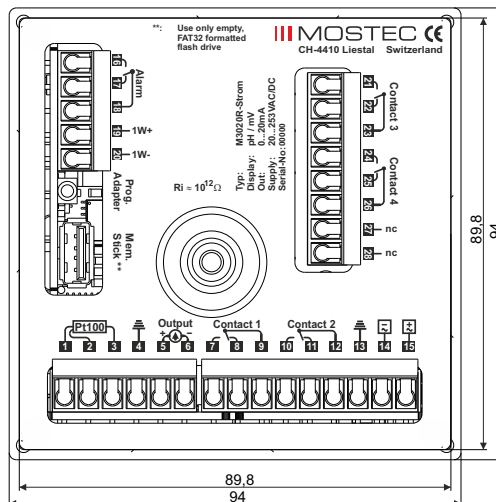
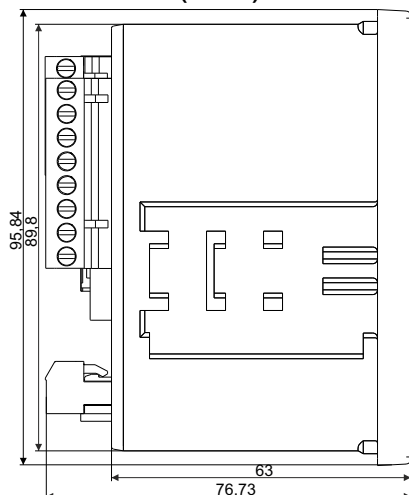
The choice of probe electrodes for the controller isn't critical, but for each application the appropriate sensor must be selected. Analogue und digital sensors can be used. The electrode can be calibrated anytime with the user friendly menu.

Typical applications:
Simple monitoring with alarm annunciation when the preset thresholds are exceeded. The controller is used for routine monitoring of environmental, pollution and other applications.

Technical Data:

Measuring range:	0,00 to 14,00pH	-1000 to +1000mV																																																						
Resolution:	0,01pH	1mV																																																						
Accuracy:	0,01pH	3mV																																																						
Long Term stability, 1 year:	0,02pH	6mV (max. per year at 23°C)																																																						
Display:	LCD 128x128 Pixel																																																							
Pixel size:	0.4x0.4mm																																																							
Temperature drift:	Max. 50µV/°C																																																							
Max. humidity:	non condensing																																																							
Input impedance:	1000GΩ (10 ¹² Ω)																																																							
Input bias current:	Max. 1,5pA																																																							
Temperature:	-3.0...120.0°C temperature compensation by Pt-100, 3-wire, or by hand.																																																							
Relay control:	Switchable between automatic / manual in the main screen by pressing F4																																																							
ENT key:	quick access to the settings in the Main Screen save / parameters / ...																																																							
ESC key:	ESC key: access to the main menu (press and hold the Main Screen 3sec) / exit menu item																																																							
+ / - key:	value settings / control relay / ...																																																							
F1 / F2 key:	control relays 3 and 4 on the main screen																																																							
F3 key:	calibrating of the probe on the main screen																																																							
F4 key:	to increase or decrease values																																																							
Programming functions:	adjustable caption display and various setting options via software																																																							
Input variant:	Analog and digital ISM InPro (3250i,3253i,4260i,4800i...) or Analog and 2-wire transmitter (M2920)																																																							
Option 2-wire transmitter:	20V/24mA, range: 4...20mA = -1000...+1000mV																																																							
Signal current output:	0...20mA, galvanically isolated, adjustable over full range																																																							
Max load:	500Ω																																																							
Output impedance:	typ. >1MΩ																																																							
Limit values:	0...14pH, adjustable over the full range																																																							
Hysteresis:	5 - 200 digits adjustable																																																							
Limit value status:	displayed with green lamps for contact 1/2, no lamps for optional contact 3/4																																																							
Relay outputs:	floating changeover contacts, Max. 6A, 2A at 230V continuous, inductive																																																							
Alarm functions:	2 programmable switching thresholds, Pt-100 alarm if wires are broken, 1Wire alarm if wires are broken and USB alarm if the stick/media is full. The alarm is displayed with the red lamp and on the display. Alarm can be acknowledged.																																																							
Alarm relay:	same specifications as above																																																							
USB:	logger function, programmable log-term (sequence: 1-7200 sec). Use only FAT32 formatted, empty USB flash drives. Stop logging before removing the stick.																																																							
Supply:	20...253VAC/DC, up to 3W																																																							
CE-conformity:	confirmed																																																							
Terminals:	<table border="0"> <tr> <td>1</td><td>Pt-100 sense -</td><td>10</td><td>contact 2 n/o</td><td>19</td><td>digital input + ISM InPro / *</td> </tr> <tr> <td>2</td><td>Pt-100 -</td><td>11</td><td>contact 2 n/c</td><td>20</td><td>digital input - ISM InPro / *</td> </tr> <tr> <td>3</td><td>Pt-100+</td><td>12</td><td>contact 2 c/o</td><td>21</td><td>contact 3 n/o</td> </tr> <tr> <td>4</td><td>PE Pt-100</td><td>13</td><td>PE</td><td>22</td><td>contact 3 n/c</td> </tr> <tr> <td>5</td><td>current output +</td><td>14</td><td>N supply</td><td>23</td><td>contact 3 c/o</td> </tr> <tr> <td>6</td><td>current output -</td><td>15</td><td>L1</td><td>24</td><td>contact 4 n/o</td> </tr> <tr> <td>7</td><td>contact 1 n/o</td><td>16</td><td>alarm contact n/o</td><td>25</td><td>contact 4 n/c</td> </tr> <tr> <td>8</td><td>contact 1 n/c</td><td>17</td><td>alarm contact n/c</td><td>26</td><td>contact 4 c/o</td> </tr> <tr> <td>9</td><td>contact 1 c/o</td><td>18</td><td>alarm contact c/o</td><td>27 to 28:</td><td>do not connect!</td> </tr> </table>	1	Pt-100 sense -	10	contact 2 n/o	19	digital input + ISM InPro / *	2	Pt-100 -	11	contact 2 n/c	20	digital input - ISM InPro / *	3	Pt-100+	12	contact 2 c/o	21	contact 3 n/o	4	PE Pt-100	13	PE	22	contact 3 n/c	5	current output +	14	N supply	23	contact 3 c/o	6	current output -	15	L1	24	contact 4 n/o	7	contact 1 n/o	16	alarm contact n/o	25	contact 4 n/c	8	contact 1 n/c	17	alarm contact n/c	26	contact 4 c/o	9	contact 1 c/o	18	alarm contact c/o	27 to 28:	do not connect!	<p style="text-align: right;">} optional</p>
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(n/o = normally open, n/c = normally closed, c/o = changeover contact)																																																								
Terminal strip:	plug terminals on the back panel																																																							
pH/mV socket:	13mm DIN socket with Teflon insulation / BNC available on request																																																							
Weight:	304g																																																							
Equipment:	2 quick-mounting brackets 1 operating instructions with wiring diagram																																																							
Warranty:	2 years																																																							
Other options:	- special measuring range / signal output - custom functions - transparent door Ip55 - custom home screen / logo - 2 additional relay outputs (contact 3/4) - 2-wire transmitter input (* 19=Supply, 20=input)																																																							
Order example:	limit transducer: - M3020-1W - M3020-2Wire PID controller: - M3020R-1W - M3020R-2Wire - additional relay output 3/4																																																							

Dimensions (mm):



M3020 / V1.40