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Operating manual

Conductivity meter

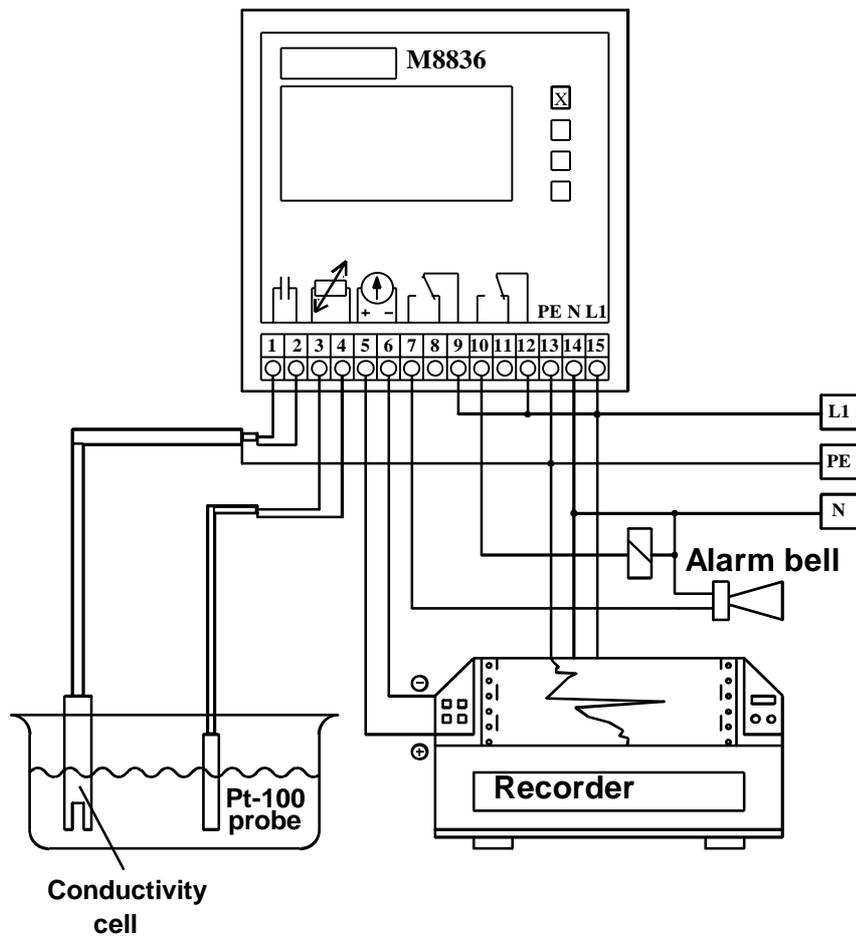
Type M 8836

A. 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 postal delivery service.

B. Wireing

- * When you are measuring below $10\mu\text{S}$, connecting long cell cables or placing cell cables close to power cables, the use of shielded cables (in high noise enviroments even triax cables) are recommended.

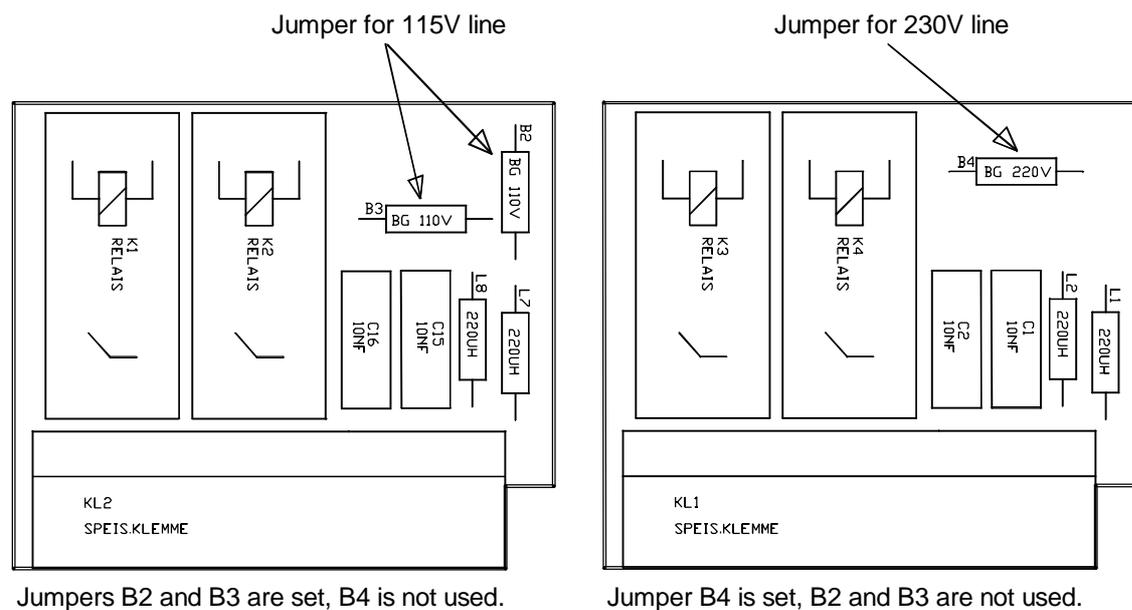


C. Starting

1.

Before the first start up, check if you are using the correct supply voltage. The instrument supply voltage is indicated on the back panel. To change the supply voltage see figure 1.

Figure 1



2.

Select the proper setup for current signal output and the relay functions on the right side of the instrument. Mark your configuration with a pen on the label, so you will know this configuration later on or, in case of a defect, you can send the exchange instrument already set up to your customer.

3.

The signal current source is factory calibrated and should only be readjusted when really necessary. However, if you need to adapt the signal current source to another instrument, note the following:

With the signal current switch set to "0...20mA", the potentiometers "Min/Max 0...20mA" are active. The potentiometers "Min/Max 4...20mA" are active when the signal current switch is set to "4..20mA".

4.

When you are using a Pt-100 temperature probe the "Temp/Pt-100" switch should be set to "Pt-100". Without Pt-100 probe, the "Temp/Pt-100" switch has to be on the "Temp" position, otherwise there will be a large measuring error. The Pt-100 wire gage should be at least 1.5mm² to reduce cable errors. Manually compensated temperature is not as accurate as automatic. Small measuring errors are possible because the temperature can not be given precisely with the temperature scale.

5.

Switch on the instrument and set the range selector to the desired range. If the display shows "1 . ", the range is chosen to sensitive. Turn the range selector clockwise until you get an adequate reading on your display.

D. Adjustment of the temperature slope (%/°C)

1.

Accurate adjustment of the temperature slope is suggestive only with automatic temperature compensation because manually compensated temperature is usually not accurate enough.

2.

It is recommendable to set an approximate value for the temperature slope when the temperature is given manually.

3.

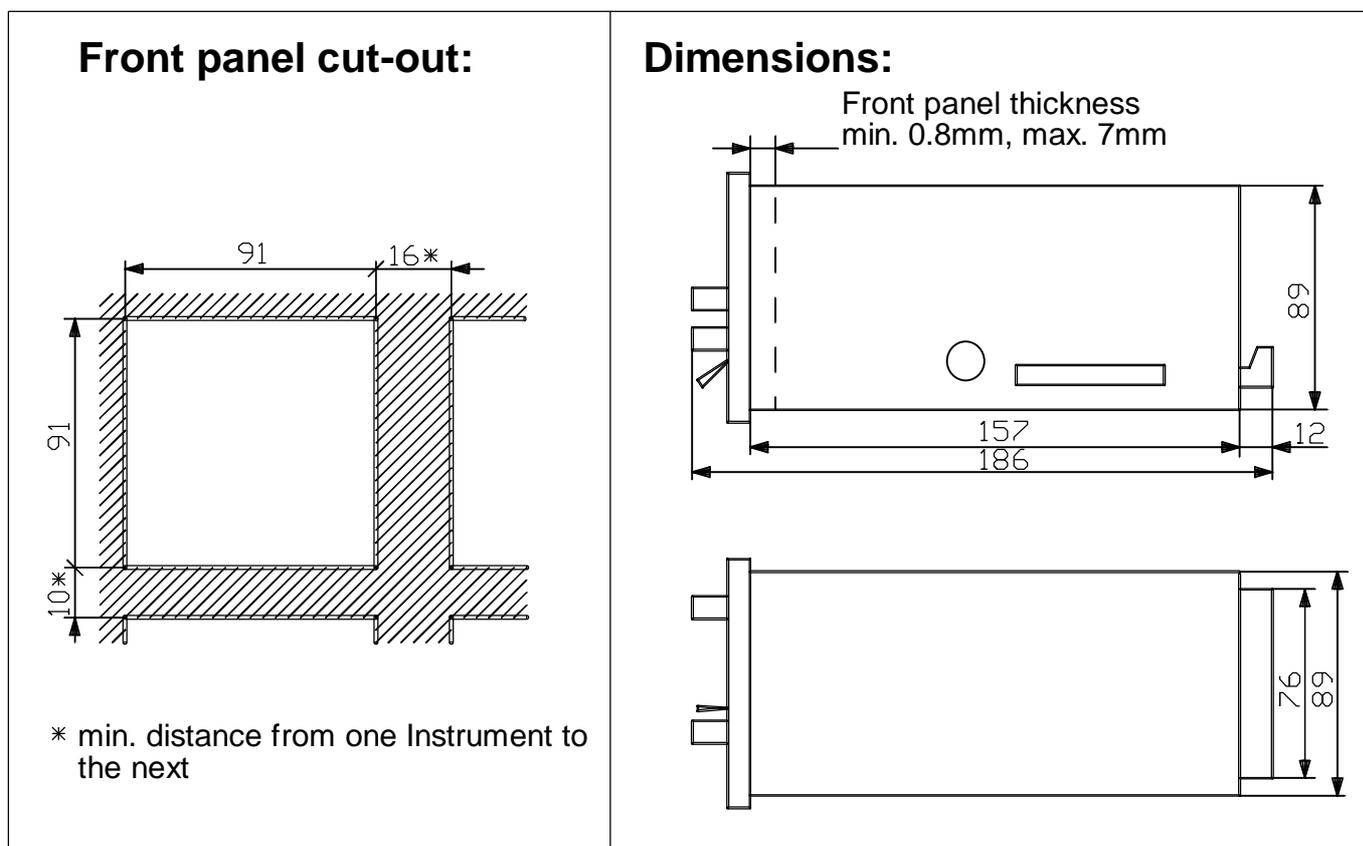
To adjust the temperature slope for automatic temperature compensation with Pt-100 probe, set the slope first to an approximate value.

4.

If the temperature of the solution is changing without changing its chemical structure, the indicated value should be constant. If the value drifts, the slope "%/°C" has to be corrected until the displayed value remains constant even with changing temperature.

E. Adjusting the limit contacts

1.
Both limit contacts are identical and are therefore adjusted in the same way.
2.
Press one of the limit contact switches. The display then shows the value of the corresponding limit contact.
3.
With the potentiometer, located left of the switch, the limit value for this contact can be set between 0 and 1999.
4.
If you release the switch, the measuring value is automatically displayed again.
5.
Decimal point and value of the limit contact is automatically adapted to the current range.



F. Front panel controls

1. Adjustment screw limit contact 1
2. Limit status lamp limit contact 1
3. Switch to display the limit value contact 1
4. Adjustment screw limit contact 2
5. Limit status lamp limit contact 2
6. Switch to display the limit value contact 2
7. Potentiometer for manual temperature compensation in °C
8. Switch to select between manual/pt-100 temperature compensation
9. Potentiometer slope %/°C
10. Range selector

G. Specifications:

Measuring ranges:	0...20.00 μ S, 0...200.0 μ S, 0...2.000mS, 0...20.00mS																		
Display:	12.7mm Liquid Crystal Display with 3 1/2 digits																		
Accuracy:	Better than 0.5% at 2.25%/°C slope between 0°C and 50°C.																		
Measuring frequency:	100Hz at 0...20.00 μ S, 1000Hz all other ranges																		
Measuring amplitude:	70mV AC RMS																		
Input protection:	Two antiparallel diodes																		
Step response:	Time between a conductivity change from 0% to 100% or reverse measured between 10% and 90% = 4 seconds																		
Temperature compensation:	Manually from 0°C...50°C, automatically by an external Pt-100 platinum resistor probe.																		
Temperature slope:	1.5%/°C to 3.0%/°C																		
Reference temperature:	25°C																		
Maximal length of sensor cable:	Unlimited, cable capacity is compensated automatically																		
Limit contacts:	Two floating change-over contacts which can be adjusted over the full range. Each can be defined as normally open or normally closed contact by an internal slide switch.																		
Adjustment:	Each limit can be adjusted via a 20-turn potentiometer with screw driver slot on the front panel. The limit value is displayed by pressing the corresponding switch.																		
Status:	The limit status is indicated by two green lamps																		
Hysteresis:	15 parts fixed																		
Contacts rating:	Change over 6A/230V 50/60Hz with resistive load																		
Contact live:	100 000 operations at max. load 1000 000 operations mechanically, without load																		
Output current signal:	0..20mA or 4..20mA over the selected range. 0..20mA or 4..20mA can be defined by an internal slide switch which is accessible to the user. Also the potentiometers for the fine adjustment of the output signal are located at the same position and easy to reach.																		
Output impedance of the current signal:	>1M Ω at 20mA																		
Maximal load of the current signal:	500 Ω (=10V 20mA)																		
Supply voltage:	115V/60Hz or 230V/50Hz ca. 5VA																		
Case dimensions:	Black plastic case 96x96mm (3,78"x3,78"), 180mm (7,09") deep																		
Mounting:	Two mounting clamps																		
Terminals:	Two plug-in screw terminals for supply, limit contacts and signals																		
Terminal description:	<table> <tr> <td>1 =Conductivity cell</td> <td>2 =Conductivity cell</td> </tr> <tr> <td>3 =Pt-100 platinum probe</td> <td>4 =Pt-100 platinum probe</td> </tr> <tr> <td>5 =Output current signal +</td> <td>6 =Output current signal -</td> </tr> <tr> <td>7 =Limit contact 2 normally open</td> <td>10=Limit contact 1 normally open</td> </tr> <tr> <td>8 =Limit contact 2 normally closed</td> <td>11=Limit contact 1 normally closed</td> </tr> <tr> <td>9 =Limit contact 2 change over</td> <td>12=Limit contact 1 change over</td> </tr> <tr> <td>13=Protective earth PE</td> <td></td> </tr> <tr> <td>14=Supply voltage N</td> <td></td> </tr> <tr> <td>15=Supply voltage L1</td> <td></td> </tr> </table>	1 =Conductivity cell	2 =Conductivity cell	3 =Pt-100 platinum probe	4 =Pt-100 platinum probe	5 =Output current signal +	6 =Output current signal -	7 =Limit contact 2 normally open	10=Limit contact 1 normally open	8 =Limit contact 2 normally closed	11=Limit contact 1 normally closed	9 =Limit contact 2 change over	12=Limit contact 1 change over	13=Protective earth PE		14=Supply voltage N		15=Supply voltage L1	
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Weight:	670 grams (23,5 ounces)																		
Options:	<ul style="list-style-type: none"> -Different cell constants -Leakproof housing IP54 -Custom made front panels -Different supply voltages : 24VAC, 24VDC -Output current with signal isolation -Output signal voltage -Limit contacts with different hysteresis 																		