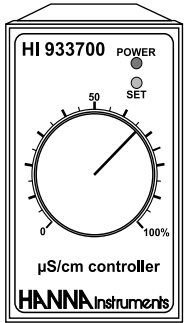


# Instruction Manual

## HI 933700

### Panel-Mounted μS/cm Controller



**HANNA**  
instruments  
<http://www.hannainst.com>

**CE**  
This Instrument is in  
Compliance with the CE Directives

## WARRANTY

HI 933700 controller is warranted for two years against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. The probes are warranted for a period of one year. This warranty is limited to repair or replacement free of charge.

Damages due to accident, misuse, tampering or lack of prescribed maintenance are not covered.

If service is required, contact the dealer from whom you purchased the instrument. If under warranty, report the model number, date of purchase, serial number and the nature of the failure. If the repair is not covered by the warranty, you will be notified of the charges incurred. If the instrument is to be returned to Hanna Instruments, first obtain a Returned Goods Authorization Number from the Customer Service department and then send it with shipment costs prepaid. When shipping any instrument, make sure it is properly packaged for complete protection.

To validate your warranty, fill out and return the enclosed warranty card within 14 days from the date of purchase.

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Hanna Instruments reserves the right to modify the design, construction and appearance of its products without advance notice.

Dear Customer,

Thank you for choosing a Hanna product. This manual will provide you with the necessary information for correct operation of the instrument. Please read it carefully before using the product. If you need additional technical information, do not hesitate to e-mail us at [tech@hannainst.com](mailto:tech@hannainst.com).

These instruments are in compliance with CE directives EN 50081-1 and EN 50082-1.

## PRELIMINARY EXAMINATION

Remove the instrument from the packing material and examine it carefully. If any damage has occurred during shipment, immediately notify your Dealer or the nearest Hanna Customer Service Center.

The meters are supplied with:

- HI 7682 EC probe;
- Mounting brackets;
- HANNA power adapter.

Note: Conserve all packing material until the instrument has been observed functioning correctly. Any defective item must be returned in its original packing.

## GENERAL DESCRIPTION

The HI933700 series instruments are panel-mounted controllers designed for simplicity of use in a wide range of industrial applications.

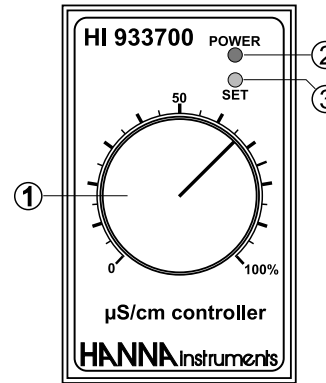
The models are designed with a large setting knob on the front panel and two indication LEDs. Power supply and relay connections are made via the plug-in terminal blocks on the rear panel.

The instruments are equipped with a probe connection socket and accept input direct from an EC probe.

Another feature is the selectable output relay contact configuration NC (Normally Closed) or NO (Normally Open).

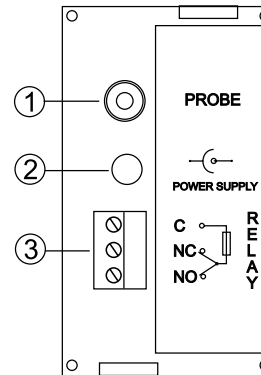
## FUNCTIONAL DESCRIPTION

### FRONT PANEL



1. Setting knob
2. Green power LED
3. Red alarm LED

### REAR PANEL

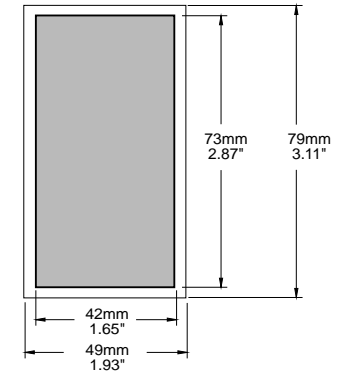


1. RCA for the EC probe
2. Power socket
3. Output relay contacts  
C = Central contact  
NO = Normally Open  
NC = Normally Closed

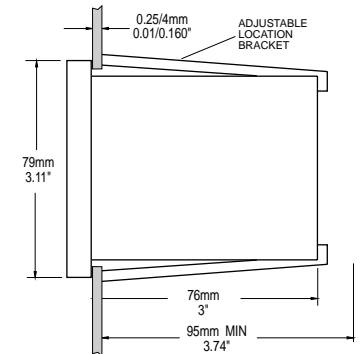
## MECHANICAL DIMENSIONS

### FRONT VIEW OF THE PANEL-MOUNTED UNIT.

Dimensions show the cutout size for the installation and also the outside dimensions of the panel.



### SIDE VIEW OF THE PANEL-MOUNTED UNIT.



Adjustable location brackets (supplied with the meter) allow the controller to slide into the cutout and will hold the unit securely in place. 95 mm (3.74") is the minimum amount of space required to install the controller with the cables connected.

## SPECIFICATIONS

HI933700

Range 0 to 2000  $\mu\text{S}/\text{cm}$  (HI 933700/1, HI933700/2);  
0 to 4000  $\mu\text{S}/\text{cm}$  (HI 933700/3, HI933700/4).

Accuracy (@ 20°C/68°F)  $\pm 5\%$  f.s.

Setpoint Adjustable from 0 to 100% f.s.

Setpoint Hysteresis  $\pm 10\%$  f.s.

Alarm Red LED lit if EC value exceeds SP (1, /3)  
Red LED lit if EC value is lower than SP (2, /4)

Calibration Manual with one trimmer

Probe HI 7682 EC probe (included)

Power supply HANNA Power Adapter (included)

Dimensions 79 x 49 x 95 mm (3.11 x 1.93 x 3.74")

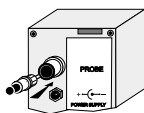
Weight 150 g (5.3 oz.)

Installation cat. II

Output relay 1A max resistive load;  
0.75 A max. inductive load; 250 VAC

## INITIAL PREPARATION

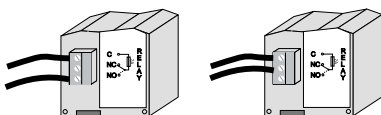
- Connect the EC probe to the RCA connector marked "PROBE".



- Connect the power adapter cable to the power socket. The green front panel LED should light.



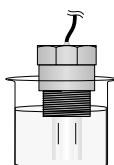
- Connect the relay output contacts using the terminal NC or NO according to your needs.



## CALIBRATION

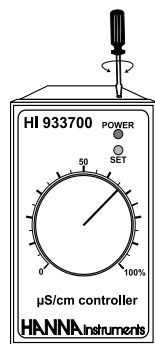
For the greatest accuracy, frequent calibration of the instrument is recommended.

- Turn the meter on and connect the probe.
- Pour a small quantity of HI 7031 EC calibration solution (for HI 933700/1 and /2) or HI 7032 calibration solution (for HI933700/3 and /4) in a beaker. If possible, use plastic beakers to minimize any EMC interference.
- Immerse the EC probe in the solution, making sure that metal pins are completely submerged.



Note: the probe tip should be completely submerged in the solution. Moreover, in order not to affect the accuracy of measurements, it is important that the probe body does not touch nor stand close to the side walls of the beaker. The tip can lay on the bottom of the beaker.

- Wait for a couple of minutes for thermal equilibrium.
- Tap the probe gently on the bottom, then shake it while rotating to make sure no air bubbles have remained trapped.
- Adjust setpoint at 70%.
- Adjust the calibration trimmer with a small screwdriver until the output relay switches.
- Rotate the calibration trimmer in the opposite direction until the relay switches again.
- Adjust the calibration trimmer in the middle of the two relay switching points.
- The calibration is now complete and the instrument is ready for use.

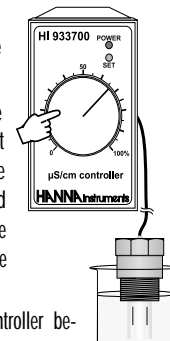


The instrument should be recalibrated at least once a month and after performing probe cleaning procedure.

## OPERATIONAL GUIDE

- Select your own set point via the front panel setting knob.
- Immerse the tip of the EC probe in the sample.

Note: In order not to affect the accuracy of measurements, it is important that the probe body does not touch nor stand close to the side walls of the vessel. The tip may lay on the bottom of the beaker.



- When the reading of the controller becomes higher or lower than the setpoint (depending on the model), the red, front panel LED illuminates and the output relay is activated.

### PROBE MAINTENANCE

To minimize clogging and extend the life of the probe, it is recommended that it be cleaned often or at least once a month.

- Immerse the tip of the electrode in HI 7061 Cleaning Solution for one hour.
- If a more thorough cleaning is required, rub the metal pins with very fine sandpaper.
- After cleaning or when not in use, rinse the probe with tap water and recalibrate the instrument.

## ACCESSORIES

- HI 7682 EC probe and 1 m (3.3') cable
- HI 70031P 1413  $\mu\text{S}/\text{cm}$  (EC) calibration solution, 20 mL sachet (25 pcs)
- HI 70032P 1382 ppm/cm (EC) calibration solution, 20 mL sachet (25 pcs)
- HI 7031L 1413  $\mu\text{S}/\text{cm}$  (EC) calibration sol., 460 mL bottle
- HI 7032L 1382 ppm calibration sol., 460 mL bottle
- HI 7061L Electrode cleaning solution, 460 mL bottle
- HI 710005 12 VDC power adapter, US plug
- HI 710006 12 VDC power adapter, European plug
- HI 710012 12 VDC power adapter, Australian plug
- HI 710013 12 VDC power adapter, Southern Africa plug
- HI 710014 12 VDC power adapter, UK plug

## CE DECLARATION OF CONFORMITY

HANNA  
Instruments



DECLARATION OF CONFORMITY

We

Hanna Instruments Italia Srl  
via E. Fermi, 10  
35030 Sarmeola di Rubano - PD  
ITALY

herewith certify that the EC controller:

HI 933700

has been tested and found to be in compliance with the following regulations:

IEC 801-2 Electrostatic Discharge  
IEC 801-3 RF Radiated  
IEC 801-4 Fast Transient  
EN 55022 Radiated, Class B  
EN 61010-1 User Safety Requirement

Date of Issue: 2-10-1997

D.Volpato - Engineering Manager  
On behalf of  
Hanna Instruments S.r.l.

### Recommendations for Users

Before using these products, make sure that they are entirely suitable for the environment in which they are used.

Operation of these instruments in residential areas could cause unacceptable interferences to radio and TV equipment.

The metal band at the end of the probe is sensitive to electrostatic discharges. Avoid touching this metal band at all times.

During operation, ESD wrist straps should be worn to avoid possible damage to the probe by electrostatic discharges.

Any variation introduced by the user to the supplied equipment may degrade the instrument's EMC performance.

To avoid electrical shock, do not use these instruments when voltages at the measurement surface exceed 24 VAC or 60 VDC.

Use plastic beakers to minimize any EMC interferences.

To avoid damages or burns, do not perform any measurement in microwave ovens.

The calibration trimmer is sensitive to electrostatic discharges. It is recommended to use antistatic screwdriver.