HI935012

Beer Thermometer

INSTRUCTION MANUAL

HANNA instruments

Dear Customer,

Thank you for choosing a Hanna Instruments product.

Please read this instruction manual carefully before using this meter.

This manual will provide you with the necessary information for correct use of this meter, as well as a precise idea of its versatility.

If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com or view our worldwide contact list at www.hannainst.com.

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Remove the meter from the packing material and examine it to make sure that no damage has occurred during shipping. If there is any damage, contact your local Hanna Instruments Office.

Each meter is supplied complete with:

- Temperature probe
- Alkaline batteries: 1.5V AAA (3 pcs.)
- Quick reference guide
- Instruction manual

Note: Save all packing material until you are sure that the meter functions correctly. All defective items must be returned in the original packing with the supplied accessories.

The thermometer is waterproof and is rated IP65.

The meter is specifically designed for measuring the temperature in many chemical processes that take place during the beer production including mashing, wort separation, fermentation and finally packaging, distribution and aging.

Both air temperature and product internal temperature can be measured with this thermometer.

The dedicated probe FC762N2 shaft is designed for continuous contact with foodstuffs in accordance with Regulation (EC) 1935/2004.

Temperature plays a central function in brewing operations. Spot checking temperature throughout the process ensures daily work routines are carried out at the correct temperature, and equipment is operating efficiently. Temperature measurements are made at the hot water tank, the mash tank, the boil kettle, fermenter, bright beer tank and final storage area. Temperature checks provide peace of mind the operation is running smoothly and the batch will be uncompromised.

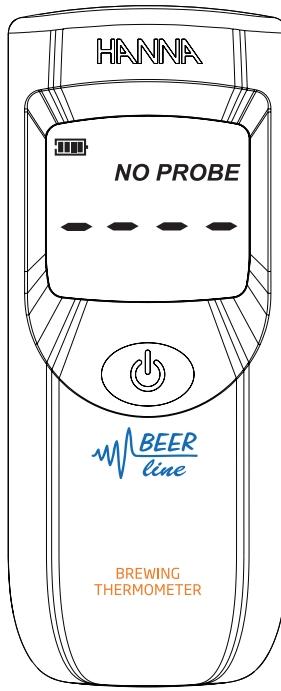
Hanna Instruments manufactures the HI935012 Beer thermometer to meet the tough environment encountered in the beer sector. Standard features include a ruggedized professionally designed waterproof case and stainless steel probe for measurements. The meter provides good accuracy and includes features such as CAL Check, user calibration at 0.0 °C (32 °F), low battery detection, auto-off capability, and has a long battery life.

The model HI935012 thermistor style thermometer measures temperatures from -20.0 to 120.0 °C (-4.0 to 248.0 °F). It comes with a stainless steel replaceable style probe (FC762N2).

Main features:

- FC762N2 thermistor probe
- Calibration Check feature
- User calibration at 0 °C
- Remaining battery life indication/low battery detection
- Auto-off capability
- Waterproof casing IP65

HI935012



Interchangeable FC762 series
Thermistor probes

Range*	-20.0 to 120.0 °C -4.0 to 248.0 °F
Resolution	0.1 °C 0.1 °F
Meter Accuracy @ 23.0°C ±5°C	±0.1 °C (-20.0 to 120.0 °C) ±0.2 °F (-4.0 to 248.0 °F)
Probe Accuracy FC762N2	±0.3 °C (-10.0 to 80.0 °C) ±0.5 °F (14 to 176 °F)
	±0.7 °C / ±1.3 °F remaining range
Battery type / life	1.5V AAA (3 pcs.) approx. 4500 hours of continuous use
Auto-Off	user selectable: after 8 min, 60 min or disabled
Environment	For product internal measurement: Rated operating condition: -20 to 50 °C (-4 to 122 °F) Limiting condition: -30 to 50 °C (-22 to 122 °F) Storage and transportation condition: -40 to 70 °C (-40 to 158 °F)
	Relative Humidity 100 %
Storage/transport temperature	-40 to 70 °C (-40 to 158 °F)
Dimensions	140 x 57 x 28 mm (5.5 x 2.2 x 1.1")
Mass	175 g (6.17 oz.)
Case Ingress Protection Rating	IP65

*The measurement range may be limited by probe type and applies to the probe shaft.

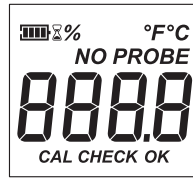
Each meter is supplied with batteries. Remove the battery cover, unwrap the supplied batteries and install them while paying attention to their polarity (see the "Battery replacement" section for more details).

START UP

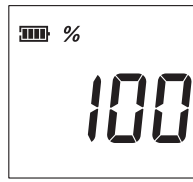
Connect the temperature probe to the meter.

To switch the meter ON, press the **ON/OFF** button on the front of the meter. If it does not turn on, make sure that the batteries are properly installed in their place.

At start-up the thermometer displays all LCD segments for a few seconds, followed by the percentage indication of the remaining battery life. It then enters CAL Check mode followed by measurement mode.



*Note: The full display can be frozen by keeping the **ON/OFF** button pressed.*



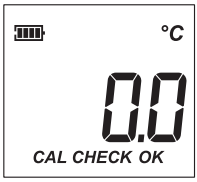
Battery Life

Place the stainless steel tip of FC762N2 thermistor probe into media you wish to measure. The probe should reach the final temperature in a few seconds. Measurements in air may take longer to equilibrate.

CALIBRATION CHECK

The meter is provided with an automatic CAL Check feature at start-up, which allows the user to check the meter calibration status.

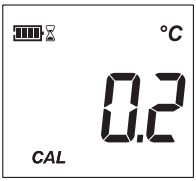
If the meter is calibrated, the display will stabilize and show "**0.0 °C**" ("**32.0 °F**"), ±0.3 °C (±0.5 °F) for a few seconds.



CALIBRATION

The meter can be calibrated in 0 °C (32 °F) by using an ice bath.

- Prepare an ice bath with approximately equal volumes of distilled water and chopped ice made from distilled water.
- Immerse the temperature probe in the center of the ice bath, taking care not to touch the ice with the probe tip.
- Ensure that the meter is measuring a temperature within ±1.5 °C (±2.7 °F).



- To enter the Calibration mode, press and hold the **ON/OFF** button, when the meter is in measurement mode. Meter will display "**OFF**" then "**CAL**". Release the button and the meter will then enter Calibration Mode.
- The **CAL** tag turns on to indicate that the Calibration mode has been entered.

Note: If the measurement is outside the ±1.5 °C (±2.7 °F) window, the meter enters Calibration mode with value blinking. Contact you local Hanna Instruments office for a check if the blinking persists.

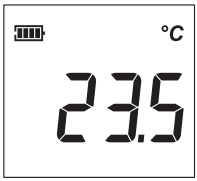
- When the meter reaches the stability condition, which is detected when the measurement remains within ±0.2 °C (±0.4 °F) for 5 seconds, the calibration is accepted and the reading becomes 0 °C (32 °F).
- The meter then automatically returns to normal mode displaying "**Stor**".

*Note: To exit the Calibration mode at any time, press the **ON/OFF** button. "**ESC**" is displayed and the meter returns to measurement mode.*

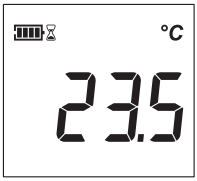
*To erase a previous calibration, from Calibration mode, press and hold **ON/OFF** button for a few seconds until "**CLr**" is displayed.*

MEASUREMENT

If a temperature probe is plugged in, the meter displays the measured temperature.

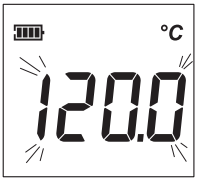


If the measurement is unstable, the meter will display ⧖ until the measurement becomes stable.



If the reading is slightly beyond the measurement range, the meter flashes the closest full-scale value.

To switch the meter OFF, press the **ON/OFF** key.

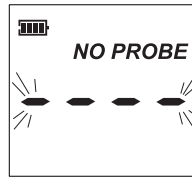


WARNING MESSAGES

NO PROBE message

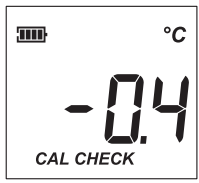
If no temperature probe is plugged in, or the signal is interrupted the display shows blinking dashes and the "**NO PROBE**" message is displayed.

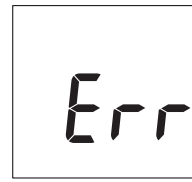
When the readings are very far from the measurement range, the probe may be damaged. The display shows blinking dashes and "**NO PROBE**" message is displayed.



CALIBRATION CHECK ERROR MESSAGE

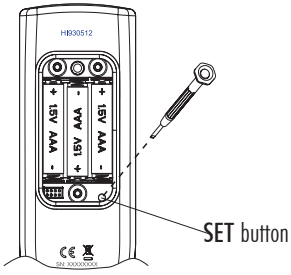
If during **CALIBRATION CHECK** the meter displays more than ±0.3 °C (±0.5 °F), then an **"Err"** message is displayed.



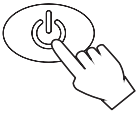


Contact your local Hanna Instruments Office for recalibration.

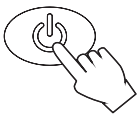
Enter Setup Mode to change the temperature unit (°C or °F) or to adjust the auto-off time. To enter the Setup Mode, press the **SET** button located inside the battery compartment.



- Use the **ON/OFF** button to switch between **"°C"** or **"°F"**. **Long press** the **ON/OFF** button once to save and continue to auto-off settings.

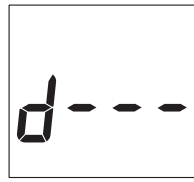


- Use the **ON/OFF** button to cycle through the following **Auto-Off** choices: 8 minutes (**"d08"**, default value), 60 minutes (**"d60"**) or OFF (**"d---"**). **Long press** the **ON/OFF** button once to save and continue to normal operation.



8 minutes

60 minutes

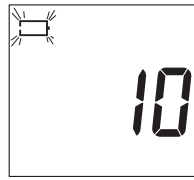


Disabled

Each meter is provided with an auto-off feature, which switches the meter off after a certain period of non-use, to save battery life.

BATTERY REPLACEMENT

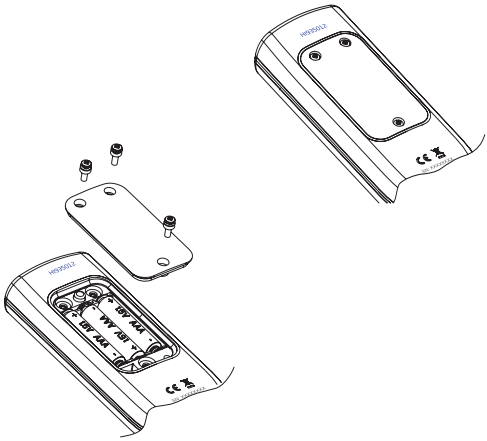
When the remaining battery life is less than 10% the battery tag blinks on the display to warn the user.



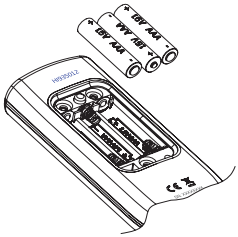
If the display shows battery level "**0%**" it means the battery charge is not enough to guarantee good measurements and the Battery Error Prevention System (BEPS) turns the meter off.

Immediately replace the batteries with new ones.

The batteries are accessed by opening the battery cover on the back of the instrument.



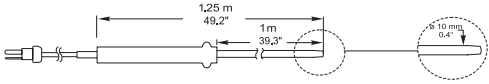
Replace the three 1.5V AAA alkaline batteries located in the battery compartment, observing the indicated polarity.



Replace the battery cover making sure that the gasket is in place.

TEMPERATURE PROBE

All Hanna Instruments temperature probes are pre-calibrated at the factory and are ready-to-use. These interchangeable probes make it possible to switch from one probe to another within the family without requiring recalibration.



Note: To clean the meter and the probe, do not use aggressive detergents. It is recommended to use water.

ACCESSORIES

FC762N2	Thermistor probe with 1 m stainless steel shaft with handle
HI710026	Protective Rubber Boot with circular hole

All Hanna Instruments conform to the **CE European Directives**.

CE RoHS compliant

Disposal of Electrical & Electronic Equipment. The product should not be treated as household waste. Instead hand it over to the appropriate collection point for the recycling of electrical and electronic equipment which will conserve natural resources.

Disposal of waste batteries. This product contains batteries, do not dispose of them with other household waste. Hand them over to the appropriate collection point for recycling.

Ensuring proper product and battery disposal prevents potential negative consequences for the environment and human health, which may be caused by inappropriate handling. For more information, contact your city, your local household waste disposal service, the place of purchase or go to www.hannainst.com.

Recommendations for Users

Before using these products, make sure they are entirely suitable for your specific application and for the environment in which they are used. Any variation introduced by the user to the supplied equipment may degrade the meters' performance. To avoid electrical shock, do not use these meters when voltages at the measurement surface exceed 24 VAC or 60 VDC. For yours and the meter's safety do not use or store the meter in hazardous environments.

Warranty

HI935012 is warranted for two years against defects in workmanship and materials when used for its intended purpose and maintained according to instructions. This warranty is limited to repair or replacement free of charge. Damage due to accidents, misuse, tampering or lack of prescribed maintenance is not covered.

If service is required, contact your local Hanna Instruments Office. If under warranty, report the model number, date of purchase, serial number and the nature of the problem. If the repair is not covered by the warranty, you will be notified of the charges incurred. If the meter is to be returned to Hanna Instruments, first obtain a Returned Goods Authorization number from the Technical Service department and then send it with shipping costs prepaid. When shipping any meter, make sure it is properly packed for complete protection.

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

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