

**M500 SERIES HI- PERFORMANCE DIGITAL  
THERMOMETERS  
INSTRUCTION MANUAL**

**M500**

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# M500 SERIES PRODUCT DESCRIPTION

## GLA M500 SERIES OF HI-PERFORMANCE DIGITAL RECHARGEABLE THERMOMETERS

### M500HPDT THERMOMETER PACKAGE INCLUDES:

- ◆ GLA M500HPDT Thermometer
- ◆ GLA M207R or M207S Probe
- ◆ GLA C725 or C316C Battery Charger
- ◆ GLA M500 Thermometer Instruction Manual

### GLA M207 SERIES OF PROBES

◆ The M207 Series of Probes have been designed for accurate rectal temperaturing of bovine, equine, swine, sheep, and small animals in an efficient manner. The M207 probe is available in either a right angle (M207R) or straight design (M207S). Sizes available include:

- ◆ M207R Right Angle Probe
  - ◆ 4.0" Right Angle Probe (10cm)
  - ◆ 3.0" Right Angle Probe (7.6cm)
- ◆ M207S Straight Probe
  - ◆ 4.0" Straight Probe (10cm)
  - ◆ 3.0" Straight Probe (7.6cm)
  - ◆ 1.5" Straight Probe (3.85cm)
- ◆ M207C Custom Probe
  - ◆ Call for details

### GLA C725 AND C316C BATTERY CHARGERS

- ◆ C725 Charger
  - ◆ US standard, 115VAC 60 cycle, wall plug-in
  - ◆ C316C Charger (Adapters available)
    - ◆ International standard, 230VAC 50 cycle, wall plug-in

### GLA H300 LEATHER HOLDER

- ◆ Leather holder, allows proper reading of LED Display in any position
- ◆ Leather strap allows it to be fitted to most belts / pipes / squeeze chutes

## OPERATING AND MAINTENANCE INSTRUCTIONS

### M500 THERMOMETER

◆ The M500 Series Thermometers are designed to be accurate, fast, durable, and easy to use. The following information will allow you to understand and use your new M500 Thermometer.

### CONTROLS, INITIAL SETUP, AND USE

#### M500HPDT THERMOMETER

◆ The GLA M500 Thermometer is a fast, accurate, and durable rechargeable thermometer. All M500 Thermometers can temperature in either Fahrenheit or Celsius.

## NOTE: PLEASE ATTACH THE M207 PROBE BEFORE PRECEDING.

### INITIAL M500 LED DISPLAY SCREEN

◆ The LED display screen contains information that is important to the use of your new M500 Thermometer. When you turn on the M500, your LED screen will show in a scrolling LED

display, the following information:

**GLA .. HPDT .. 500.. F1.05 (C1.05) .. BATT .. 6.5 .. INST or HOLD**

**EXPLANATION OF INITIAL DISPLAY**

GLA ..	GLA
HPDT ..	Hi-Performance Digital Thermometer
F1.05 ..	F - Fahrenheit (C - Celsius) 1.05 is the software version installed
BATT ..	Is about to display the actual battery voltage, i.e. 6.9 volts, 6.5 volts, etc.
INST ..	Temperature position, or
HOLD ..	Peak Temperature and Hold position.

## CONTROLS

### ON / OFF SWITCH

- ◆ To turn the M500 ON, press the ON/OFF Switch.
- ◆ To turn the M500 OFF, depress and hold the ON/OFF Switch for 5 seconds.
- ◆ You can turn the M500 OFF in any of the operating positions.
- ◆ If the M500 has been off for more than five minutes or less than two seconds the initial screen display will be shown.
- ◆ If the M500 has been off for less than five minutes, but more than three seconds, the initial display will not be shown.

### FUNCTION SWITCH M500

- ◆ Four position switch selects the operation function of the unit. The pointer indicates the following operations (facing the unit, from right to left:
  - ◆ INST - Temperature Position,
  - ◆ HOLD - Peak Temperature and Hold Position,
  - 75 HOLD - Peak Temperature and Hold Position.
  - ◆ HOLD - Peak Temperature and Hold Position.

### PROBE CONNECTOR

- ◆ The M207 Probe attaches to this connector, the larger of the two connectors on the top of the unit.

### CHARGER CONNECTOR

- ◆ The C725 or C316C Charger attaches to this connector, the smaller of the two connectors on the top of the unit.

### INITIAL SETUP AND USE

- ◆ Attach the M207 Probe. To attach the probe, screw the probe connector onto the mating receptacle connector. The probe should be attached FINGER TIGHT ONLY. Do not overtighten. The cord should be able to move freely on the connector.

- ◆ Make sure the M500 Thermometer is fully charged. Attach the C725 or C316C Charger to the charger post and plug into a wall socket. Charging will be indicated by the scrolling of a decimal point across the bottom of the LED screen. The battery should be fully charged after 10-14 hours.
- ◆ After charging, turn the unit ON, the initial display information will be shown. Turn the FUNCTION Switch to the INST Position. The display should read ambient air temperature **(if probe is attached / if no probe attached the display will read PrbE Err!)**
- ◆ To take a temperature, turn the FUNCTION Switch to the INST (located at the far right position, facing the unit) or HOLD Position. Insert the probe and the display reading will begin to climb. In approximately 8 to 15 seconds your reading will start to slow.
- ◆ If you are using the HOLD Position, the decimal point will flash until the peak temperature is measured, when the highest temperature is reached, the decimal point will stop flashing. The temperature will remain on the screen for five minutes. To reset the display, press the power switch once.
- ◆ The M500 will shut off automatically after five minutes of inactivity. You must turn it back ON to take another temperature.
- ◆ When the batteries begin to discharge to a low level, the LED display will show LO ...BATT, once per minute. When the batteries are too low to power the unit satisfactorily, the M500 will turn OFF automatically. You must recharge the unit to use the M500 again. Voltage levels are as follows: 6.5 - 6.9 volts indicates a full charge, 6.0 - 6.4 volts is normal, <6.0 volts is low, <5.5 is discharged.
- ◆ To recharge the battery pack, attach the charger connector onto the mating connector on the top left of the M500 Thermometer. Tighten FINGER TIGHT ONLY, to avoid breakage of the connector. Plug charger into wall outlet. Charging will be indicated by a scrolling decimal point.

The M500 must be turned OFF when charging. If the battery pack fails to hold a charge after being adequately charged, the battery pack may need to be replaced. If you do not get any indication of the charging display, the charger may need to be replaced.

◆ You may use the M500 with the charger attached and plugged in at all times. Using The M500 this way disables the Automatic Off feature. To turn the M500 OFF, depress the ON switch, the initial display is shown, the screen blanks, the initial display is shown again, the unit then turns OFF.

◆ To switch the M500 from Fahrenheit to Celsius, or vice versus you must follow these instructions:

- ◆ Put the Selector switch in the INST position, PRESS and HOLD your ON switch.
- ◆ Wait for the display to go blank, still holding down the ON switch
- ◆ Then turn the Selector switch to the HOLD Position
- ◆ The GLA initial display will appear, then the display will read SET, let go of the ON switch.
- ◆ The Display will then read CELC.
- ◆ Putting the Selector switch back to the INST position selects Fahrenheit (FAHR),
- ◆ Putting the Selector switch in the HOLD position selects Celsius (CELC).
- ◆ Select temperature scale,
- ◆ PUSH the power switch, DONE will appear on the LED display, the unit is now in the temperature scale you selected.

◆ Due to the microprocessor construction of the M500 Series of Thermometers, the M500 does a "self check" and "self calibration" each time the unit is turned on. If the M500 turns on, it is calibrated properly. If the unit seems to be inaccurate, the cause will more than likely be the M207 Probe attached.

## BASIC CARE AND MAINTENANCE

- ◆ Use your battery voltage reading to guide your recharge levels, 6.5 -6.9 volts indicates a full charge, 6.0 - 6.4 volts is normal, <6.0 volts is low, <5.5 is discharged. When recharging your M500 Series Thermometer, please be sure it is OFF. If your batteries fail to hold a charge, it usually indicates a dead cell in the battery pack, which will need to be replaced. With proper care, your battery pack should last longer than the year warranted by the battery manufacturer. Normally it will last 2 to 4 years before needing to be replaced.
- ◆ When your battery pack (B601) does need replacing, you may send it to GLA and we will replace it for a nominal charge, order a new battery pack directly from GLA, or from an authorized GLA distributor. When you order a battery pack directly from GLA, installation instructions will be included. **NOTE:** Soldering is required to replace the battery pack. It may also be necessary to replace the fuse when replacing the battery pack. **It is very important to follow the battery installation directions, very carefully, step by step.**
- ◆ Treat your probe and cord assembly with care. Over-stretching the retractile cord will inevitably break the internal wires. If the probe tip is allowed to strike a hard surface such as concrete, the high impact pressure will often destroy the sensing element. **DO NOT EXPOSE PROBES TO TEMPERATURES ABOVE 200° FAHRENHEIT (95° CELSIUS), AND DO NOT AUTOCLAVE OR HEAT STERILIZE YOUR PROBES.** High temperatures such as these will damage the probe tip and require its replacement. If your Probe, or connector is damaged your LED Display will indicate a **PRBE ERR!** display.
- ◆ When using your M500 Series Thermometer outside, protect the unit from rain or extreme water exposure. The thermometer housing is splash-proof, but it is not designed to be continually exposed to high moisture situations or drenching.
- ◆ Should your thermometer become wet inside, carefully remove the bottom four screws and bottom plate, (trying not to damage

the bottom gasket). Let any water in the unit drain out and allow the unit to dry overnight in a warm dry location. **NO OTHER DISASSEMBLY SHOULD BE ATTEMPTED. DUE TO THE MICROPROCESSOR OPERATION, IT IS IMPORTANT THAT ANY FURTHER REPAIR BE DONE ONLY BY A QUALIFIED ELECTRONICS TECHNICIAN, PREFERABLY A GLA REPAIR TECHNICIAN.**

- ◆ Do not store your M500 Series Thermometer in vehicles or in outdoor sheds where temperatures may become very high. Ideally the thermometer should be stored in locations that do not exceed 115° Fahrenheit (45° Celsius).
- ◆ Most GLA M500 Series Thermometers and M207 Probes can be repaired when feasible. If you feel that you have a damaged unit, please send it to the factory for repair.
- ◆ With a minimum of care and maintenance, your M500 Series Thermometer should give you many years of service. We are always available to answer any questions you may have regarding our products.

### REPAIR PRACTICES

- ◆ GLA has been manufacturing animal health thermometers and probes since 1969. Most GLA Thermometers and Probes can be repaired when necessary. Battery chargers, since they are not manufactured by GLA, must be replaced when necessary. When you send us a thermometer/probe for repair, we request that you follow these guidelines:
  - ◆ Include your thermometer, probe, and charger. This allows us to check the entire "package" and ensure that the repair is correct and complete.
  - ◆ Include a note describing the problem you are experiencing, and in what situation the problem occurs.
  - ◆ Include your complete name, address, and telephone number with area code so that we may contact you with any questions.
  - ◆ Repairs can be sent to GLA from any authorized GLA distributor, or directly to the GLA factory.

◆ By following these guidelines, you will make it easier for us to repair your thermometer efficiently and correctly. If you would like an estimate on the cost of a repair, or if you wish to discuss any repair, please contact us toll free at **800 346-1182** or email at [info@gla-ag.com](mailto:info@gla-ag.com) . Our staff of repair technicians can usually advise you of the best steps to take.

## **TROUBLE - SHOOTING GUIDE**

### **NO DISPLAY:**

◆ If there is no display, attach the charger unit and plug it into a wall outlet. If the initial display appears, turn the unit off and allow it to charge fully. If the battery will not hold a charge and the charger appears to be working (indicated by the scrolling decimal point), the battery is probably in need of replacement. See BATTERY REPLACEMENT.

◆ If there is no display when you attach the charger, the fuse may have been blown. This will require the M500 Series Thermometer to be sent in for repair to determine the cause of the short.

◆ If there is no indication of charging (no scrolling decimal point) the charger will need to be replaced.

### **DAMAGED OR SHORTED M207 PROBE:**

◆ If you receive a reading of **PrbE ERR!**, you have a damaged probe, cord or connector. You will need to either replace your M207 Probe or have it repaired by GLA. You may also receive a reading of **PrbE ERR!**, if the ambient air temperature is below freezing. Inserting the probe into the animal will most likely correct this reading.

**IF YOU ARE EXPERIENCING PROBLEMS NOT DISCUSSED HERE, OR YOU NEED FURTHER INFORMATION, PLEASE CALL US AT 800 346-1182 AND A TECHNICIAN WILL BE GLAD TO ANSWER YOUR QUESTIONS.**

## **BATTERY REPLACEMENT**

◆ All M500 Series Thermometers operate on a five-cell NiCad battery pack. We recommend that you send your M500 Series Thermometer in for battery replacement and general maintenance. You may, however, purchase B601 Battery packs and fuses from GLA or your local distributor.

Installation instructions are available. **NOTE: Soldering is required to replace the battery pack. It may also be necessary to replace the fuse when replacing the battery pack. It is very important to follow the battery installation directions, very carefully, step by step. NO OTHER DISASSEMBLY SHOULD BE ATTEMPTED. DUE TO THE MICROPROCESSOR OPERATION, IT IS IMPORTANT THAT ANY FURTHER REPAIR BE DONE ONLY BY A QUALIFIED ELECTRONICS TECHNICIAN, PREFERABLY A GLA REPAIR TECHNICIAN.**

#### **GUARANTEE, WARRANTY, AND LIABILITY LIMIT**

◆ All GLA products are warranted against defects in materials and workmanship for two years from date of purchase. If, during the warranty period, the product is defective in material and/or workmanship (excluding battery pack deterioration, non-factory repairs, battery charger deterioration, moisture damage, or abuse), GLA will make the necessary adjustments and repairs. Other than expressly stated herein, GLA Agricultural Electronics makes no warranties, expressed or implied, with regard to the M500 Series of Thermometers and M207 Series of Probes, including any warranty of merchantability of fitness for a particular purpose, and no claim of any kind against GLA Agricultural Electronics arising out of the use of the M500 Series of Thermometers shall be for more than the price paid to GLA Agricultural Electronics for the price of the GLA Thermometer. GLA shall not be liable for any special, incidental, or consequential damages, whether arising in contract or tort, resulting from the use of a GLA Thermometer.

◆ The warranty period for GLA products (excluding negligence), is as follows:

M500 Series Thermometers-	2 years from date of purchase
M207 Probes-	2 years from date of purchase
B601 Battery Packs-	1 year from date of purchase
C725/316C Chargers-	90 days from date of purchase.

◆ The use or purchase of GLA Agricultural Electronics products to the general public is restricted. GLA products are intended for professional users only, including, but not limited to, animal health or livestock suppliers, veterinarians, physicians, or other professionals and qualified users. GLA products are surrendered by GLA with the understanding that it assumes no responsibility for resale or safe and knowledgeable handling. Neither GLA, its owners, nor its employees shall be held liable in any way for any personal or property damages resulting from, or relating, to the use of GLA products. Diagnostic errors resulting from malfunctioning GLA products remain the responsibility of the user.

Other than expressly stated herein, GLA Agricultural Electronics makes no warranties, express or implied, with regard to the M500 Series of Thermometers and M207 Series of Probes, including any warranty of merchantability of fitness for a particular purpose, and no claim of any kind against GLA Agricultural Electronics arising out of the use of the M500 Series of Thermometers shall be more than the price paid to GLA Agricultural Electronics for the price of the GLA Thermometer. GLA shall not be liable for any special, incidental, or consequential damages, whether arising in contract or tort, resulting from the use of a GLA Thermometer.

**For users in the state of California**, the passage of Proposition 65 requires that we advise you that the GLA M500 Series of Thermometers contain a standard rechargeable NiCad battery pack which, if not handled properly, could conceivably be considered toxic. Should it have to be replaced, please take precautions not to expose it to heat or flames, and not to let it come in contact with food or drink. Please use reasonable care in handling the battery pack.

◆ GLA's liability is limited to replacement or the repair of the GLA products purchased, or to the refund on undamaged items returned within 15 days. Returned items may be subject to a restocking fee.

#### **WARRANTY FORMS**

◆ Returning your warranty form allows us to serve you better and ensures validation of your warranty. It also allows us to contact you with any changes or updated information about your new GLA M500 Thermometer. Please, take a moment to fill out the form and return it to us.

## WHY TEMPERATURE YOUR ANIMALS?

- ◆ To monitor herd health and identify health problems early.
- ◆ To be able to correctly sort animals into the hospital pen.
- ◆ To know when to administer pharmaceutical products.
- ◆ To know when to stop administrating pharmaceutical products.

## RECTAL TEMPERATURES OF SELECTED ANIMALS

ANIMAL	FAHRENHEIT	CELSIUS
Horse*	100.5°	38.0°
Beef Cattle	101.0°	38.5°
Dairy Cattle	101.5°	38.5°
Sheep**	103.0°	39.0°
Swine	102.5°	39.0°
Dog	102.0°	39.0°
Cat	101.5°	38.5°
Goat	102.0°	39.0°

\* Body temperature is higher in young animals and lower in older animals

\*\* Sheep with fleece (s) have a higher body temperature

The temperatures listed above are average rectal temperatures under ideal conditions. Outside temperature, time of day, age of animal, infection, ovulation, estrus, or pregnancy may affect actual temperature.

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