

Jewett HemaPro¹⁰¹™ Digital Temperature Power Monitor

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Installation, Operation and Service Manual



Jewett HemaPro^{101™}

Digital Temperature Power Monitor

GENERAL INFORMATION

This *JEWETT HemaPro^{101™}* Temperature Power Monitor is designed to display temperature and to warn of temperature and power supply failures occurring in most controlled temperature applications. When an improper temperature is reached or the power supply is interrupted, the *HemaPro^{101™}* monitor will provide a visual and audible signal. It is designed to provide a different visual and audible signal for each type of occurrence. A chart describing these signals is included in this manual for location at the primary monitor installation. When a remote monitor is used, a copy of this chart should be kept at the remote location where 24 hour monitoring will take place.

The *HemaPro^{101™}* monitor is equipped with a replaceable alkaline 9 volt battery. In the event of a power failure, the monitor will continue to operate and monitor the problem for approximately 2 hours. Under normal conditions, the battery should be replaced annually or when the on/off audible signal is given for low battery.

The *HemaPro^{101™}* monitor comes standard with a feature that allows it to be connected to an existing remote powered station.

A remote location monitor, the DTPMR, is available optionally for those not wishing to connect the monitor to their existing master remote station. In the event of a failure, the monitor will signal the same visual and audible signal warnings as those being displayed at the master station, with the exception of the digital display.

The *HemaPro^{101™}* is available in a wide range of temperature categories with a single or dual setting maintaining an accuracy of +/- .1° C. (See the Styles of *HemaPro^{101™}* Monitor Chart for further information).

The *HemaPro^{101™}* monitor operates on a standard 120/60/1 or 220/50-60/1 A/C current.

INSTALLATION INSTRUCTIONS

1. If the **HemaPro^{101™}** monitor is to be used with a **JEWETT** Blood Bank Refrigerator, Plasma Freezer or other **JEWETT** product, locate the access hole and mounted bracket with solution bottle on the unit. (For other makes or models, it will be necessary to check with the equipment manufacturer to locate the proper area for installing an access hole so as not to damage your original equipment).

2. Fill the solution bottle with the appropriate solution:

Blood Banks and other refrigerators	10% Glycerin to water solution
Blood Plasma and other freezers	50% Glycol to water solution

3. Assemble the quick disconnect plug to the temperature sensor by aligning the indicators provided on each section of the plug. This will complete the temperature sensing circuit.
4. Insert the sensor through the access hole and position in the solution bottle. Seal the access hole with a sealing compound. The top of the bottle should also be sealed to prevent solution evaporation.
5. Connect the monitor to the same AC electrical outlet as the equipment being monitored so that if a power failure occurs, the monitor will sound immediately using battery power.
6. Connect the 9 volt alkaline battery, located in the recess on the back of the monitor case, to the snap clip supplied and replace the battery into the recess. Now the monitor is ready for mounting to a wall type surface.

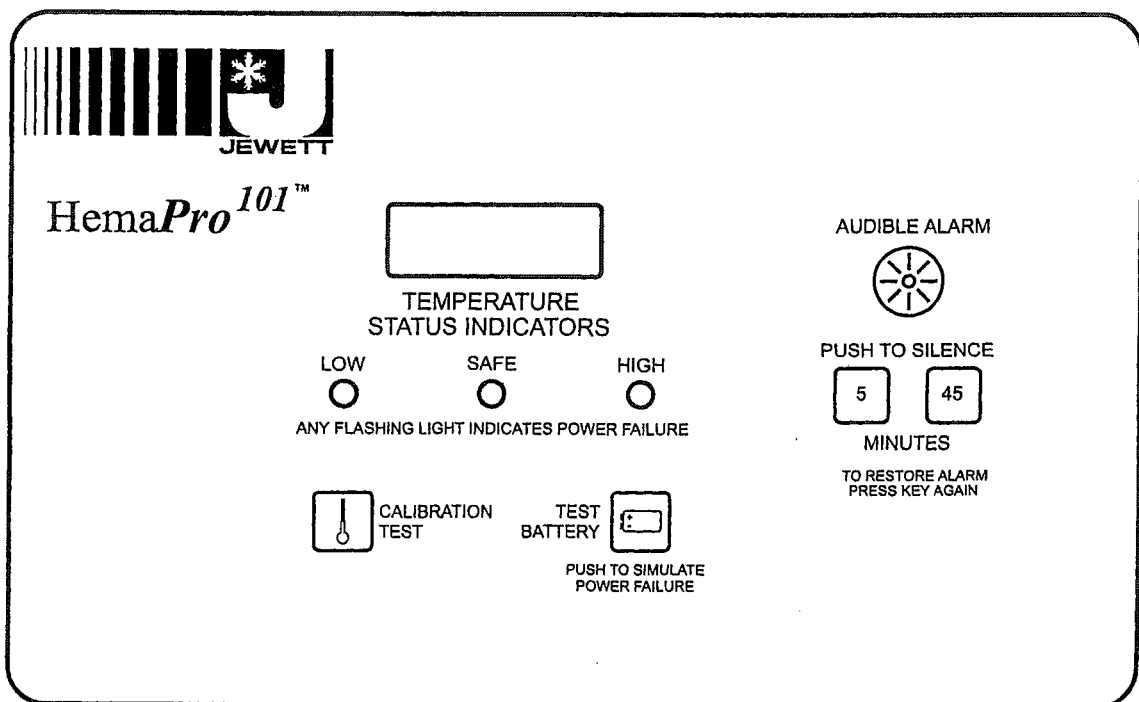
Note: Always connect AC power first, then the DC (battery).

7. A complete Quality Control Procedure should be performed on the **HemaPro^{101™}** monitor prior to storage of product to insure proper operation. Training of personnel should also be initiated at this time. A suggested Quality Control Procedure is included in this manual.

OPERATION DATA

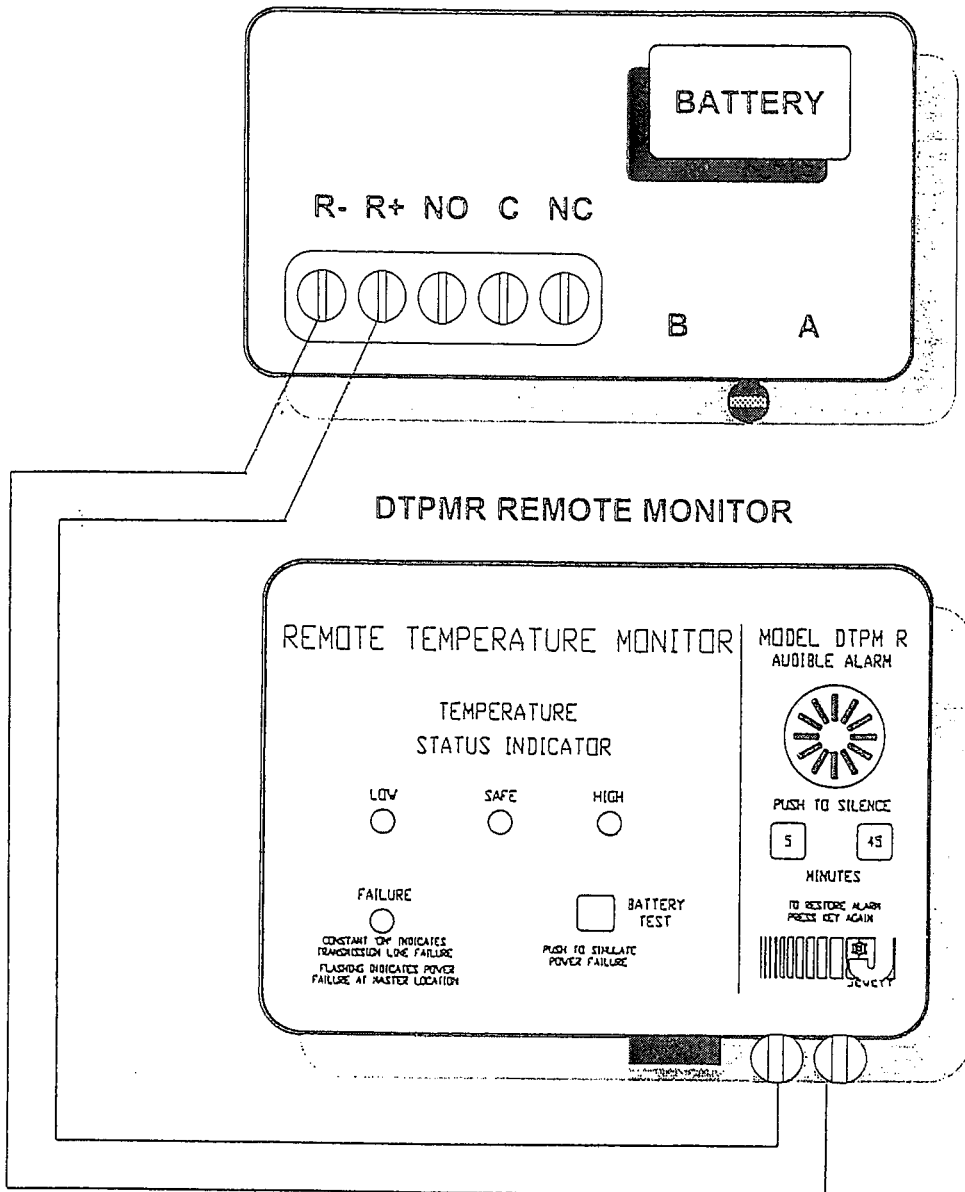
1. **Normal Operation** - When the temperature is safe, AC power is normal, the back up battery power is normal, the digital display is on, the green safe LED is on and the audible signal is silent.
2. **Temperature Failure** - If an improper temperature occurs, the audible signal will sound, the green safe LED will go off and the red high or low LED will light.
3. **Silence Timer Feature** - When an improper condition occurs, the audible signal can be silenced by pressing either the 5 minute or 45 minute selection switch. If the temperature returns to a safe range, the silence period will automatically cancel the remaining time.
4. **AC Power Failure** - In the event of an AC power failure, the monitor will continue to monitor temperature on the back up battery power. The digital display will extinguish, there will be a constant audible signal and the safe light will flash until an unsafe temperature is reached. The the appropriate red light will flash and the audible signal will continue to sound.
5. **Battery Test Switch** - The battery should be tested regularly by pushing the Battery Test Switch. If the battery becomes weak, an on/off audible signal will come on without any changes in the other features. To insure battery back up power, the battery should be replaced annually.
6. **Remote Monitor Selection Switch** - The monitor can be connected to a DTPMR (Position "A") or other brands (Position "B"), by selecting the appropriate position for your application. Switch location is noted on the Installation Diagram in this manual.

Note: Maintain Polarity - Transmission voltage is DC.



HemaPro¹⁰¹™ MASTER MONITOR

(Rear View)



JEWETT REMOTE LOCATION MONITOR APPLICATION: MODEL DTPMR

The optional *JEWETT* Model DTPMR Remote Monitor permits the temperature and power monitoring functions performed by the master monitor to be transmitted audibly and visually (no digital display) to a remote location. Transmission of data from the primary *HemaPro*¹⁰¹™ monitor to the remote monitor is by two conductor, low voltage (#24 to #20 gauge) wire that is easily connected to external terminals on each unit. Up to 2,600 feet of wire may be used between the master and the remote unit. Connection of two conductor wire between "R+" and "R-" terminals of each monitor is required. Maintain polarity - transmission voltage is DC.

USER SUPPLIED REMOTE INTERFACE

Connect two-conductor wire from the user's existing remote location with either normally open and common or normally closed and common terminals.

- A. A single pole, double throw, normally open switch inside the monitor is connected to the exterior terminals.
- B. The switch remains open when the green LED is on and temperature in monitored space is within operating range.
- C. Switch will close when the red LED is on and green LED is off. This indicates the temperature in the monitored space has varied above or below operating range or power has failed.

USER SUPPLIED REMOTE LOCATION EQUIPMENT INTERFACE

The **HemaPro^{101™}** monitor is equipped with three external terminals which are the Common (C), Normally Open (NO), and the Normally Closed (NC) dry contacts of a hermetically sealed relay. This relay is energized when all conditions are safe and de-energized when any unsafe condition occurs. The current carrying capability of this relay is 1 ampere at 115/60/1 VAC (resistive) or 1 ampere at 28 VDC (resistive). This feature permits the monitor to be connected to a master remote monitoring station that has its own source of power.

STYLES OF HemaPro^{101™} MONITORS

Model	Description	Activations
HP101-1000	Standard Blood Bank Monitor - Sounds on fall and rise.	+1° C. to +6° C.
HP101-1001	Standard Laboratory Monitor - Sounds on fall and rise.	+1° C. to +10° C.
HP101-3000	Standard Plasma Freezer Monitor - Sounds on rise only.	-20° C.
HP101-3001	Standard Laboratory Freezer Monitor - Sounds on rise only.	-10° C.
DTPMR-1B	Remote Monitor 120/60/1 - For use with units listed above.	Same as Primary
DTPMR-2A	Remote Monitor 230/50-60/1 - For use with units listed above.	Same as Primary
Additional special temperature settings can be provided upon request. Contact <i>JEWETT</i> for specific model numbers and current pricing.		

REPLACEMENT PARTS LIST

Part Number	Description
MON-D0050	Main Board Assembly - HemaPro^{101™}
MON-D0049	Front Overlay
MOD-D0050	Thermistor Sensor
	9 Volt Battery available at retail outlets

SUGGESTED QUALITY CONTROL TEST PROCEDURE

1. HemaPro^{101™} Low Alarm Activation *(Always check the low activation first)*

Models	Low Activation
HP101-1000	+1.5° C.
HP101-1001	+1° C.

- a. Fill an 8 ounce glass half full of chilled water (+4° C.).
- b. Crush ice 1/8" particles in a separate container.
- c. Remove the thermistor sensor from the solution bottle, tape or rubber band the probe to the test thermometer (NBS Certified) then insert into the glass. The thermistor sensor and the test thermometer must be at the same level.
- d. Slowly add crushed ice at the proper rate to provide a temperature drop of no more than 0.5° C. per minute (approximately 1 teaspoonful every 15 to 25 seconds).
- e. Stir the test thermometer and thermistor in a circular motion, keeping the ends in the lower liquid, not in the upper ice slurry.
- f. Log the low alarm activation.

2. HemaPro^{101™} High Alarm Activation

Model	High Activation
HP101-1000	+5.5° C.
HP101-1001	+10° C.
HP101-3000	-20° C.
HP101-3001	-10° C.

- a. Slowly add warm water to the ice slurry (refrigerators) or a container of pre-cooled (-30° C.) antifreeze solution (freezers) at the proper rate to provide a temperature rise of no more than 0.5° C. per minute.
 - b. Stir the test thermometer and thermistor in a circular motion, keeping the ends in the lower liquid, not in the upper ice slurry.
 - c. Log high alarm activation.
3. Check and log the reaction of the remote monitor during these test procedures if applicable.
 4. Push the calibration check button for the proper reading and log the results.

Models	Calibration Reading
HP101-1000 & HP101-1001	+10° C.
HP101-3000 & HP101-3001	-20° C.

5. Activate the battery test switch to check battery. Log results.
6. The rate of rise and fall of temperature used in testing is critical. Observe the 0.5° C. per minute rate of change or testing errors will occur.

GUIDE TO THE HemaPro^{101™} WARNING SYSTEM

Temperature Safe Indicators (Visual)			Audible Alarm	Condition of AC or Battery Power	Condition of Temperature
Low	Safe	High			
Off	On	Off	Silent	Normal	Safe
Off	Off	On	On	Normal	Above High Limit
On	Off	Off	On	Normal	Below Low Limit
Off	Flashing	Off	On	AC Failure	Safe
Off	Off	Flashing	On	AC Failure	Above High Limit
Flashing	Off	Off	On	AC Failure	Below Low Limit
Off	On	Off	Short On/Short Off	Battery Low	Safe

Reset Instructions: To silence the audible signal, select the desired amount of time, 5 or 45 minutes, press the Push to Silence button. The red LED will stay on until the temperature returns to normal. When the proper temperature is reached, the red LED will go off and the green LED will come on. The audible signal is silent for the selected period of time and is automatically reactivated when an unsafe temperature condition occurs.

Remote Terminal Voltage HemaPro^{101™}

Switch Position "A"			Switch Position "B"		
High Alarm	5.34	VDC	High Alarm	0	VDC
Low Alarm	4.5	VDC	Low Alarm	0	VDC
Safe Alarm	4.8	VDC	Safe Alarm	5	VDC

Note: These values are as seen on an oscilloscope.

GUIDE TO THE DTPMR WARNING SYSTEM

Temperature Safe Indicators (Visual)			Power Failure (Visual)	Audible Alarm	Condition of AC or Battery Power	Condition of Temperature at Master Monitor
Low	Safe	High				
Off	On	Off	Off	Silent	Normal	Safe
Off	Off	On	Off	Continuous	Normal	Above High Limit
On	Off	Off	Off	Continuous	Normal	Below Low Limit
Off	Flashing	Off	Flashing	Continuous	AC Failure at Master	Safe
Off	Off	Flashing	Flashing	Continuous	AC Failure at Master	Above High Limit
Flashing	Off	Off	Flashing	Continuous	AC Failure at Master	Below Low Limit
Off	On	Off	Off	Short On Short Off	Battery Low	Safe
Off	Off	Off	On	Continuous	Two wire transmission line between Master & Remote is broken or shorted.	

WEEE Compliance

Great Britain



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Deutschland



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Italia



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France



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Important

For your future reference and when contacting the factory, please have the following information readily available:

Model Number: _____

Serial Number: _____

Date Purchased: _____

The above information can be found on the dataplate attached to the equipment. If available, please provide the date purchased, the source of purchase (specific agent/rep organization), and purchase order number.

IF YOU NEED ASSISTANCE:

SALES DIVISION

Phone: 828/658-4455
800/879-7767

FAX: 828/645-0363

LABORATORY PARTS and SERVICE

Phone: 800/438-4851

FAX: 828/658-2576

TECHNICAL SUPPORT

Phone: 800/438-4851

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