

Vital Signs Monitor 300 Series (VSM) Train the Trainer Outline

A. Light Weight and Durable

1. Weighs approx 5 lbs
2. Made of heavy plastic

B. Battery

1. Sealed lead acid battery 6 V
2. Battery life provides approx 8 hours of continuous monitoring of B/P, Temperature and SpO₂.
3. The battery charges to 90% of capacity in 12 hours.
4. The VSM should be charging, unless it is being used.

C. Low Battery Warning

1. Battery indicator is located on front panel when the unit is turned on.
2. When battery is LOW, a warning tone sounds and the low battery indicator flashes. (To avoid shutdown, plug in and connect the AC power)
3. When the low battery indicator appears, there is enough charge remaining to perform at least ONE of the following functions over the next hour:
 - a. 20 NIBP cycles
 - b. 30 minutes of SpO₂
 - c. 20 temperatures
 - d. a single printing of 99 stored data sets

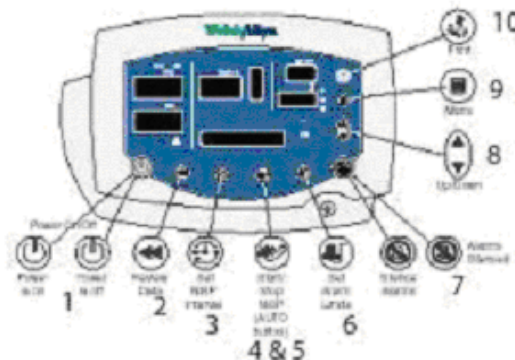
D. Transport Handle

E. Start Up

The VSM runs a self check upon power up (will see 888 in various parameter windows) and a short tone sounds twice.

Buttons on the front of the VSM 300 face plate:

1. Turn the VSM on by pressing On/ Off
2. Review
3. Set NIBP interval
4. Auto
5. B/P start/ stop
6. Limits
7. Suspend
8. Up/ Down arrows
9. Menu
10. Printer




F. Menu

1. Each time you press the Menu button, it will scroll through a series of menus that you can select to change. These include:
 - a. Patient Type
 - b. Target Cuff Inflation Pressure
 - c. Temperature Mode
 - d. SpO2/ Pulse Tone Volume

2. Patient Type

ADULT (ages over 12 yrs)
PEDIATRIC (ages 1 month - 12 yrs)
NEONATE (ages < 29 days, 0-44 weeks gestational)


- a. Press the Up/ Down ARROWS  until you reach the selected mode.
NOTE: Patient Type icon is on Left above ON/ OFF button



- b. To set the displayed new values, do nothing for 10 seconds.

3. Target Cuff Inflation Pressure

Allows you to change the initial cuff inflation pressure for each patient type. (This is the nominal starting point - if it is too low to take a measurement, the monitor takes another measurement using a higher initial pressure.)


- a. Press UP/DOWN  arrow to make changes to the target pressure.
- b. To set the displayed new values, do nothing for 10 seconds.

4. Temperature Mode (if applicable)




If configured with the temperature option, the monitor can obtain predictive or monitored temperature measurements.

Predictive measurement: a one-time temperature reading which takes only a few seconds.

Monitored measurement: continuous temperature monitoring used when the situation prevents an accurate predictive measurement.

- a. **F** Fahrenheit Predictive temperatures: approximately 4-6 second Oral, approximately 10-13 second pediatric Axillary, approximately 12-15 second adult Axillary, and approximately 10-13 second Rectal
- b. **F M** Fahrenheit Monitored temperatures: 3 minutes Oral, 5 minutes Axillary, and 3 minute Rectal
- c. **C** Celsius Predictive temperatures: approximately 4-6 second Oral, approximately 10-13 second pediatric Axillary, approximately 12-15 second adult Axillary, and approximately 10-13 second Rectal
- d. **C M** Celsius Monitored temperatures: 3 minutes Oral, 5 minutes Axillary, and 3 minute Rectal
- e. Press the UP/DOWN arrow  to choose the temperature mode you want.
- f. To set the displayed new values, do nothing for 10 seconds

5. SpO₂/Pulse Tone Volume

- a. Press MENU  repeatedly until VOLUME appears on the screen
- b. Press UP/ DOWN KEYS  or  to raise or lower the volume
- c. The pulse tone can be set from level 00 (volume Off) to 05 (volume On full)
- d. To set the displayed new values, do nothing for 10 seconds




NOTE: Changing the volume of the pulse tone has no effect on the volume of alarm tones.

G. Configuration Menu

1. This menu allows you to make configuration changes for:

- a. Time and Date:
 - Hour (0-23 or 1-12)
 - Minute
 - Year
 - Month
 - Day
- b. MAP Measurement (the value will be displayed in the message window):
 - Enabled
 - Disabled
- c. Blood Pressure Measurement units:
 - mmHg
 - kPa
- d. Print Mode(if applicable):
 - Batch** will print all data in memory up to 99 cycles
 - Stream** prints results as soon as each cycle is finished.

2. To Change a Configuration Parameter:



- a. PRESS and HOLD the MENU button  for 3 or more seconds.
- b. Then press MENU  repeatedly until you reach the parameter you wish to change.
- c. Now press the UP/ DOWN  until you reach the value you wish to change the parameter to.
- d. To set the displayed new values, do nothing for 10 seconds.


H. Limits

1. This feature allows you to make changes to the high and low alarm limits for the following vital signs:

- a. Systolic HIGH and Systolic LOW
- b. Diastolic HIGH and Diastolic LOW
- c. Pulse Rate HIGH and Pulse Rate LOW
- d. SpO₂ HIGH and SpO₂ LOW
- e. (if applicable) MAP HIGH and MAP LOW


2. To make changes to the limits:



- a. Press Limits button 
- b. For the selected vital sign, do one of the following:
 1. Leave the limit unchanged **or**
 2. Press UP/ DOWN  as needed to change the limit **OR** (--) to disable the alarm

- c. The alarm parameter you are changing, such as HR HIGH, will be displayed in the message window.
 - d. Press LIMITS button  to accept alarm limit and advance to next vital sign.
 - e. To return to normal operation, do nothing for 10 seconds.
3. Suspend Button
When an alarm sounds, pressing the suspend button will silence it for 90 seconds. NOTE: you will see a flashing display of the alarming parameter.

I. NIBP

1. Before starting the NIBP measurement, always perform the steps described below:
 - a. Select appropriate cuff. The cuff is the appropriate size when the artery index marker lies somewhere between the range markings on the NIBP cuff.
 - b. Position the cuff. The cuff should always be positioned on a bare arm, midway between the shoulder and the elbow, with the artery index marker over the brachial artery. It should fit comfortably to allow no more than 1-2 fingers space between the cuff and the arm. During the NIBP measurement cycle, the patient should have no movement to the extremity and should remain quiet.

NOTE: If the cuff is not level with the heart, subtract 1.8 mmHg to the displayed reading for each inch of elevation above the heart, or add 1.8 mmHg from the displayed reading for each inch below the heart.
2. Manual NIBP measurements
 - a. Attach the appropriate cuff to the patients arm
 - b. Press B/P 
 - c. When the B/P cycle is completed, a tone sounds and the NIBP results are displayed in the SYS, DIA, and Pulse rate windows
 - d. If MAP is enabled, the results are displayed in the message window
 - e. The results are displayed for 2 minutes or until another NIBP cycle is initiated.

NOTE: If the SpO₂ sensor is attached and generating valid pulse data, then the displayed Pulse Rate is derived from the SpO₂ sensor reading.
3. Automatic NIBP—Interval measurements
 - a. Attach the appropriate cuff to the patients arm
 - b. Press  to set the measurement interval which includes: ST (Stat), 1, 3, 4, 5, 10, 15, 30, 45, 60, 90, 120, and 240 minutes. The two dashes (--) in the message window indicate that the automatic mode for NIBP is turned OFF.
 - c. Ten seconds after you select an interval, and assuming that safe venous return pressure has been maintained for at least 30 seconds, the monitor starts the first automatic NIBP cycle.
 - d. When the cycle ends, a tone sounds and the monitor displays the reading. The measurement will remain on the screen until the next measurement cycle begins, 2 minutes pass, or the NIBP  is pressed again.

4. ST/ STAT Measurement

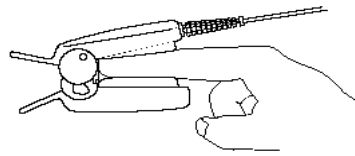
If the selected interval is STAT, the monitor takes repeated NIBP measurements for 5 minutes, starting a new cycle each time the cuff deflates below a safe venous return pressure (SVRP) for 2 seconds.


5. MAP Measurement

Is a calculated figure, available for adults, pediatric, and neonatal patients. Factory default setting is enabled MAP display for neonates, and disabled for adult and pediatric patients. If MAP is enabled, the monitor displays MAP readings in the message window at the end of a NIBP reading.

J. SpO₂ Monitoring

1. Verify that the SpO₂ sensor is connected to the monitor.
2. Attach the SpO₂ sensor to the patient's index finger. Do not attach the SpO₂ sensor to the same limb as B/P cuff.



3. Within a few seconds, the pulse amplitude indicator reflects the rate and strength of the pulse.
4. Within less than 20 seconds, the SpO₂ window displays the SpO₂ measurement and a numeric pulse rate value appears in the /min window.

K. Temperature Monitoring

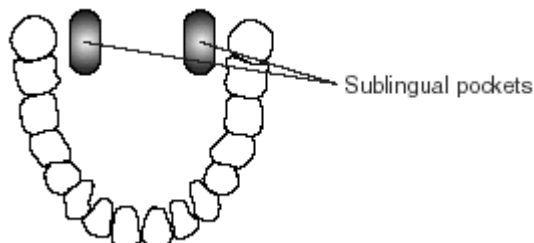
1. Prep Thermometer Probe

- a. Hold the probe handle with your thumb and two fingers on the indentations of the probe handle, then withdraw the probe from the probe well.
- b. Wait for the 188.8 and the ORL to appear in the temperature screen.
- c. Insert the probe into a new probe cover and press down firmly until a new probe cover engages onto the probe.

2. Taking Oral Temperatures

It is **IMPORTANT** while taking an Oral predictive temperature to:


- a. Instruct the patient not to talk or move during the temperature reading process.
- b. Place the probe deep into the patient's posterior sublingual pocket.
- c. Have the nurse hold the probe in place maintaining tissue contact until the temperature is complete.
- d. The predictive temperature reading will be displayed for 1 minute in window.

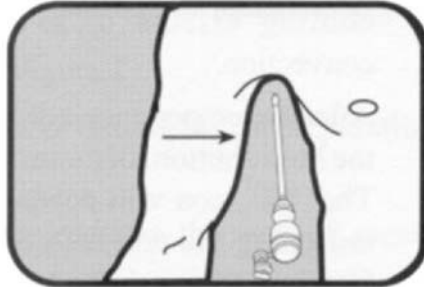


e. Interferences with oral measurements for up to 20 minutes include:

1. Ingesting hot or cold liquids
2. Talking
3. Eating food
4. Chewing gum or mints
5. Brushing teeth
6. Mouth care
7. Smoking
8. Performing strenuous exercises

3. Taking Axillary Temperatures

- a. Hold the probe handle with your thumb and two fingers on the indentations of the probe handle, then withdraw the probe from the probe well.
- b. Wait for the 188.8 and the ORL to appear in the temperature screen.
- c. Press the UP/ DOWN arrows  to change the display to:
AP(axillary pediatric 17 years and younger) or
AA (axillary adult 18 years and older)
- d. Insert the probe into a new probe cover, and press down firmly until a new probe cover engages onto the probe.
- e. Lift the patients arm to fully expose the axilla. Place the probe tip as high as possible in the axilla, aligning the probe vertically with the spine. Next, lower the patients arm down to make maximum contact with the probe tip. The patient should always remain still, maintaining good tissue contact throughout the process.
- f. The predictive temperature reading will be displayed for 1 minute in message window.




4. Taking Rectal Temperatures

For rectal temperatures, use only the **RECTAL PROBE with the RED** ejection button and the **RED** probe well.

- a. Hold the probe handle with your thumb and two fingers on the indentations of the probe handle, then withdraw the probe from the probe well.
- b. Wait for the **188.8** and the **rEC** to appear in the temperature window.
- c. Load the probe cover onto the probe.
- d. Apply a thin coat of water-based lubricant to the tip of the probe cover (optional).
- e. Insert the probe tip 5/8 of an inch for adults and approximately 1/2 inch for children, inside the rectal sphincter
- f. Tilt the probe slightly to ensure good tissue contact.
- g. The predictive temperature reading will be displayed for 1 minute in message window.
**** WARNING****: Use extreme care to avoid risk of bowel perforation.
**** NEVER** reuse probe covers; reusing covers will give inaccurate temperature readings.




L. Monitored Mode Temperatures

***Remember:** Press MENU  to select the correct Temperature Mode, **F M** (Fahrenheit Monitored), or **C M** (Celsius Monitored)

1. Continuous monitoring mode is not recommended for use over 5 minutes.
2. Measurements are not stored in memory.
3. 3-5 minute thermometer reading is equivalent to using a glass thermometer.
4. Useful for double-checking fast predictive readings; i.e. an infant exposed to cool ambient temperatures, or hypothermic patient.
5. To use monitor mode:
 - a. Select the correct probe/probe well.
 - b. Load probe cover.
 - c. Determine the site for the Temperature reading: Oral, Axillary, or Rectal.
 - d. Take the patient's reading in the appropriate site. Continue to hold the probe in position for the required duration:
Oral 3 minutes
Axillary 5 minutes
Rectal 3 minutes
 - e. Record the temperature before removing the probe from the site. Monitor Mode temperatures **are not** stored in memory.
 - f. Discard the probe cover. Upon returning the probe to the well, the thermometer will stay in the present mode used. Change as needed.

NOTE: The thermometer enters Monitor Mode automatically, if the probe is removed from the well and not used for 60 seconds, or if the patient's temperature is too low to allow the device to predict a reading.

M. Review Button

1. Press Review  to display most recent set of vital signs.
2. Press UP/ DOWN  or  to cycle through stored data. The monitor stores 99 sets.
3. The message window displays **READING** with data-set sequence number and time of displayed reading; the most recent is displayed first.

N. Nurse Call (if applicable)





When the cable is connected and operational, the monitor immediately notifies the Nurse Call system when a patient alarm occurs.

O. Error Codes

1. The VSM 300 is equipped with the technology to detect an error when calculating a patient's vital sign. The codes will display on the parameter that has the error.
2. The error code references are located on the right side of the VSM 300 and also in the VSM 300 Directions for Use.

P. Erasing Data

1. All patient vital sign data is erased when the monitor is powered Off, or when you change the date and time settings.

- a. To erase patient data during normal operation, press and hold Review  for 3 seconds.
 - b. When the monitor prompts for confirmation, press the Up  to confirm or the Down  to cancel.
2. You cannot change the date and time setting without also erasing all stored patient data.
 - a. When asked to erase patient data, press Up  for yes; the monitor erases the data and enables the date and time adjusted.

Q. Cleaning

1. Wipe the **Monitor** with a damp cloth with one of the following:
 - a. Mild detergent and water
 - b. Hospital disinfectant that is non-staining
2. Wipe the **Temperature Probe** with a damp cloth with one of the following:
 - a. Alcohol
 - b. Warm water
 - c. Hospital disinfectant that is non-staining
3. Wipe the **SpO2 Sensor** with a damp cloth with one of the following
 - a. 70% isopropyl Alcohol
 - b. 10% or less Bleach Solution

R. Replacing Printer Paper (if applicable)

1. Press Printer button to open the printer door.
2. Insert new roll of paper; use only WA thermal paper.
3. Thread end of roll over the roller and through slot in printer door.
4. Pull slightly on paper to take up any slack, then close printer door.