

# Pulse Biomedical QRS-Card Tango+ Interface Notes

To setup Tango+ with your stress system, simply follow the directions below.

## 1. Verify Correct RS-232 and ECG Trigger Cables

- **RS-232 Cable** – used to communicate with your stress system. This cable enables your stress system to prompt Tango+ when it needs a BP measurement, and allows the Tango+ BP reading to be transferred to the stress system's display and reports.
  - SunTech Part Number = 91-0013-00
  - Connection Ends:

**Stress System Connection**  
**9 pin female**

**Tango+ Connection**  
**9 pin female**



- **ECG Trigger Cable** – provides the ECG signal from the stress system to the Tango+.
  - **Contact Pulse Biomedical**
  - Connection Ends:

**Stress System Connection**  
**RJ45 to 9 pin female**

**Tango+ Connection**  
**BNC male**



## Tango+ Monitor

**RS-232 Connection**  
**Part # 91-0013-00**

**ECG Trigger Connection**  
**Contact Pulse**  
**Biomedical**



### 2. Connect the RS-232 Cable

From: the RS-232 connection on the rear panel of the Tango+.

To: the serial port on the back of the stress system PC (for use with a USB port, you will need the USB Adapter Cable - SunTech Part # 98-0057-00).

### 3. Connect the ECG Trigger Cable

From: the BNC External ECG connection on the rear panel of the Tango+.

To: the RJ45 splitter that is connected to the QRS-Card.

### 4. Tango+ Monitor Setup

- When the operating screen is displayed, press the **SELECT** button 2 times. This will bring up the **MAIN MENU** screen.
- Using the UP or DOWN arrows, highlight **MONITOR SET UP** and press the **SELECT** button.
- Using the UP or DOWN arrows, highlight **STRESS SYSTEM** and press the **SELECT** button.
- Using the UP or DOWN arrows, scroll through the list until **QRS Card** is highlighted and press the **SELECT** button to confirm the choice.
- Using the UP or DOWN arrows, select **EXIT** twice to return to the operating screen.

### 5. QRS-Card System Setup

Note: In order for the QRS-Card – Tango interface to work, the software, QRS Card for Windows must have the most up to date version of the file, st\_tango.bpd. You can check this using Windows Explorer. Go to the directory in which the software is installed and ensure that the file st\_tango.bpd is dated after 7/12/2001. Download the patch from <http://www.suntechmed.com/interfacenotes.htm> and save the file in the directory where QRS Card for Windows is installed.

- From the file menu bar at the top of the screen, select **Procedures > Stress > Setup**.

- b. In the Configure Stress screen on the **Stress** tab, select **Automatic** for Blood Pressure, Type.
- c. Select the appropriate selection for Controlled Device (contact stress system manufacturer).
- d. Click the **Test** button under Controlled Device. The software will search the available ports for the Tango and controlled device chosen. You may have to attempt this search more than once in order for the devices to be recognized.
- e. When the devices are recognized, you can use the **Blood Pressure** icon to test that the interface between the computer and Tango are working properly.
- f. Click **OK** in the Configure Exercise Device window and again in the Configure Stress window to return to the main screen.
- g. From the file menu bar, select **Procedures > Stress > Protocol Update**. In the Protocol Update window, you can add BP measurements to the protocols that you use. In addition to the BP measurements that the stress system will prompt the Tango to take, you may prompt the Tango to take one by selecting the **BPM** icon or pressing B on your keyboard. See the QRS-Card manual for details on editing protocols and controlling the Tango using the QRS-Card software.

## FAQs for Tango+

### **Q. The Tango+ displays a status message. What does it mean and what do I do?**

- A.** See the Quick Set-Up guide (that is attached to your Tango+) or the Troubleshooting section in your User's Guide for details on the Status Message and solution.

### **Q. The Tango+ monitor returns results of 0/0 after blood pressure measurements. What do I need to do to get a BP reading?**

- A.** There are certain noisy conditions where the Tango+ cannot accurately measure BP. When the Tango+ encounters these situations, it returns a reading of 0/0. Placement of the microphone attached to the cuff is critical for reliable operation of the Tango+. Follow the instructions in the **Cuff Tutorial** (located on the SunTech Medical website under Products → Tango+) for correct microphone placement. Follow steps 1 and 2 in Conducting the Stress Test in the User's Guide to provide the best conditions to obtain a measurement.

### **Q. Can I use a heart rate or blood pressure simulator to test whether the Tango+ is working correctly with my stress system?**

- A.** You cannot use a heart rate or blood pressure simulator to test whether the Tango+ is working with your stress system. The Tango+ monitor requires that the ECG signal and the Korotkoff sounds, collected by the microphone in the cuff, originate from the same source, meaning the patient.

### **Q. I cannot clearly see the Tango+ display. How do I fix this?**

- A.** If you cannot clearly read Tango+, you can adjust the contrast of the display by following these steps:
  1. When the operating screen is displayed, press the **SELECT** button 2 times. This will bring up the **MAIN MENU** screen.

2. Using the UP or DOWN arrows, highlight **MONITOR SET UP** and press the **SELECT** button.
3. Using the UP or DOWN arrows, highlight **CONTRAST** and press the **SELECT** button.
4. Using the UP or DOWN arrows, modify the contrast of the screen. When you are finished, and press the **SELECT** button to confirm the choice.
5. Using the UP or DOWN arrows, select **EXIT** twice to return to the operating screen.

**Q. My Tango+ displays a message, “Please VERIFY CALIBRATION” or “Equipment Maintenance and Calibration Required.” What do I do?**

**A. Verification of Pressure Calibration**

**Equipment Required:**

1. Calibrated electronic manometer or equivalent.
2. 500mL volume or the Orbit-K Adult Plus cuff wrapped around something that will not break or crush (no glass).
3. Hand Inflation Bulb with bleed valve.
4. Tubing, Tee pieces, and miscellaneous connectors or you can order the T-Tube Kit (SunTech Part # 98-0030-00).

**Procedure:**

5. When the operating screen is displayed, press the **SELECT** button 2 times. This will bring up the **MAIN MENU** screen.
6. Using the UP or DOWN arrows, highlight **MONITOR SET UP** and press the **SELECT** button.
7. Using the UP or DOWN arrows, highlight **VERIFY CALIBRATION** and press the **SELECT** button. The monitor will close its bleed valves and will display on its screen the pressure applied to the patient hose connector.
8. Verify the Tango+ calibration by manually inflating and checking the manometer against the pressure reading on the Tango+ display.
9. Once the calibration has been completed, use the UP or DOWN arrows to select **EXIT** twice and return to the operating screen.