

Hokanson[®]

Quick Start Guide AI6



Document # 87191

Setting up the AI6

- Before setting up the AI6 or turning it on, locate the large bolt on the bottom of the air compressor and **remove this bolt**. (The bolt keeps the compressor from moving during transport.)

The bolt is located under the cabinet in the center back.

Remove by hand and save for re-shipping the unit.

Follow instructions from printer manufacturer to install printer.

Installing the monitor:

–If shipped with 2 monitor cables coming out of top large hole:

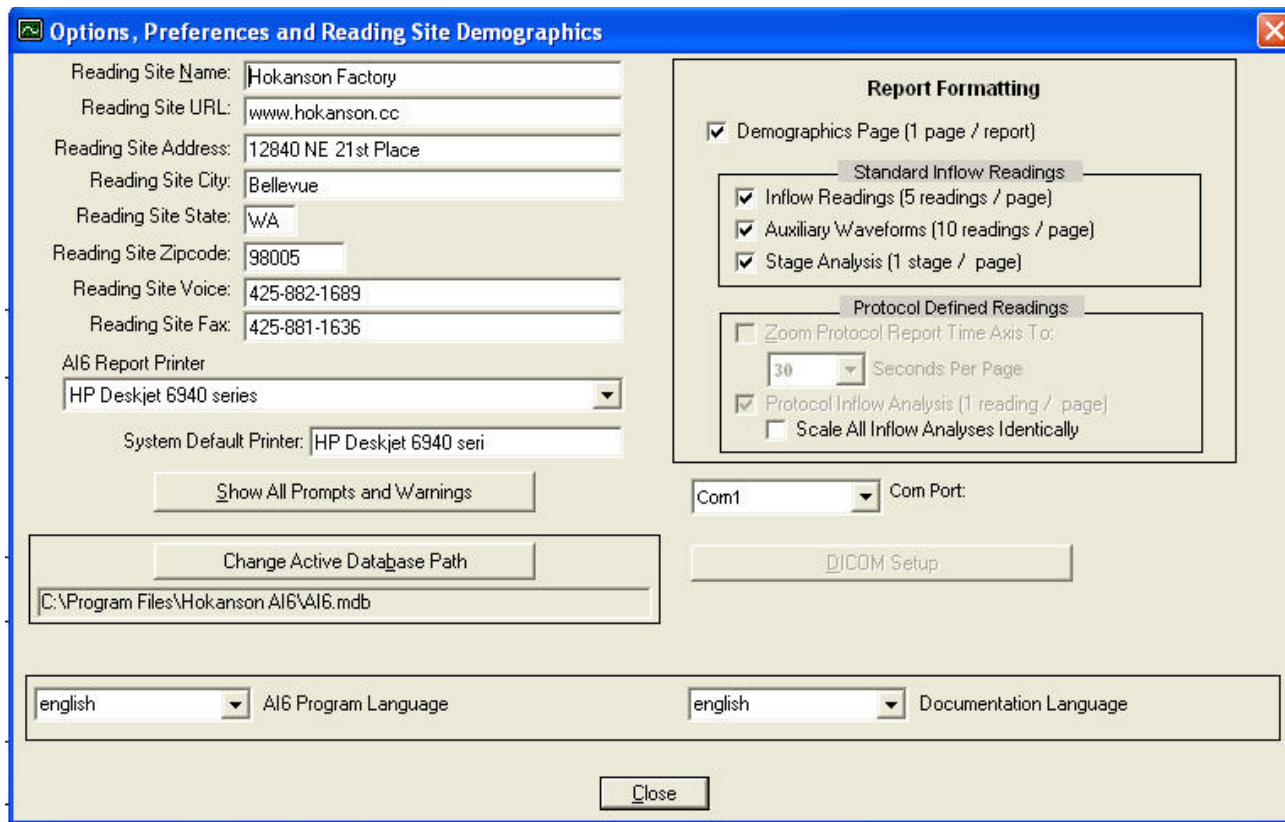
- Snap the monitor base (stand) onto the monitor and then screw the monitor stand onto the top of the AI6 with screw provided (no tools necessary.)

–If cables are not showing:

- Using a Phillips head screwdriver remove the 8 screws holding the back panel on the AI6 and bring the 2 cables up through the hole on the top. One cable is power and one connects the monitor to the computer.
- Replace the back of the AI6.

To turn on the AI6:

- To start the AI6, toggle the switch on the right top of the cabinet to the ON position.



- Open the Hokanson AI6 software application.
- Under Options choose User and System Setup
 - Fill in all of the fields as necessary.
 - The com port setting is factory set.
 - These fields remain unchanged from patient to patient.
- Under Options, you can also disable Tool Tips, but these are handy while you are learning the application. When you move your cursor over a button the tool tip appears with its name/function.



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Setting up the AI6 for Arterial Inflow

- Attach the following instruments or accessories to the front of the AI6 instrument panel:
 - The strain gauges and cuff hoses must match:
Strain Gauge 1 to Inflator 1A and
Strain Gauge 2 to Inflator 1B.
 - Connect the gray hoses with blue Y connectors to Inflator 1A and 1B.
 - To connect to ports on AI6, press down on the grey connector lock to open. To release press down again and pull off port.
 - The provided Utah Medical Deltran IV cable connects to the Pressure Transducer port.
 - The serial cable from the RT2000 is connected to the ECG 2000 port.
 - Connect the strain gauge extensions to Strain Gauge 1 and 2 ports. The strain gauges plug into the other end of the extensions.
 - The clear tubing that splits connects to the Inflator 2 port by pressing down on the metal lock to open.



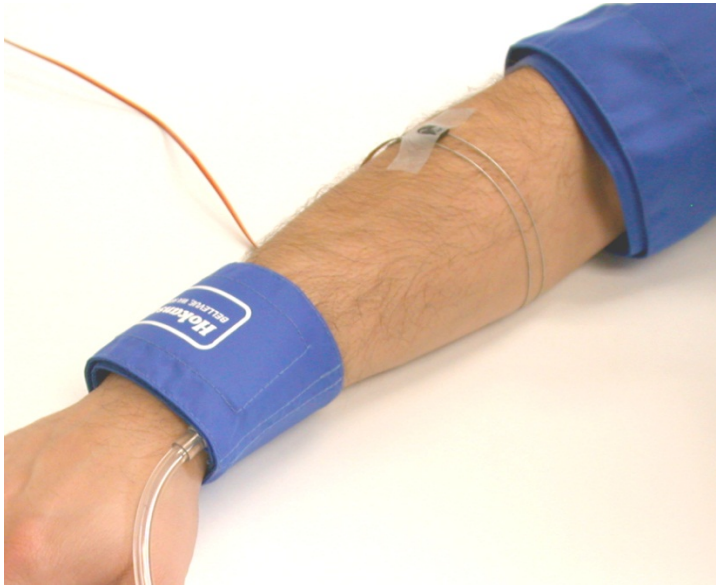
- There are no manual controls on the instrument panel; the AI6 computer software controls the cuff inflation and deflation, strain gauge balance and begin & end test according to the settings that you enter into the application.

Setting up patient for forearm arterial inflow testing:

- Start with both arms of the patient exposed.
- Patient should be supine with arms at level of heart, and comfortable and warm.
- Position rapid inflation cuffs (SC10D or SC12D) around the upper arms, and place occlusion cuffs (TMC7) around each wrist.
- Place foam blocks or other supports (PAK 8) under patient's hands and elbows to keep widest part of forearm from any contact.

- Connect one rapid inflation cuff to each blue Y connector.
 - Insert plug into the unused side of the Y tubing on both sides.
- Connect each TMC7 cuff to one of the male Luer fittings on the clear hose.
- Make sure the hoses are not tangled and free of the arms and strain gauges and their cables.
- Measure the circumference of the thickest part of the forearm (in centimeters) and place a strain gauge that is 2-3 cm shorter than the circumference on each forearm.

Strain gauge and cuff positions



Patient and limb positions



-Keep the strain gauge tubing parallel about 1 cm apart; put end over the loop on the end and use tape to hold the head of the gauge on the arm and another piece further away to keep the gauge from moving.

- If Inflator 1A is the left cuff then Strain Gauge 1 should be on the left forearm. Inflator 1B corresponds to Strain Gauge 2.
- Both of the TMC7 cuffs connect through a single tube to Inflator 2.
- If needed, reposition foam blocks so strain gauges do not touch anything except the forearm.
- Apply the ECG leads to the patient's chest and lower left abdomen; if the patient is hairy you may have to shave the areas before placing the electrodes, for good conductivity.
- Connect the RT2000 to the lead wires.
 - The connections are: Left Arm (black) lead on left chest, Right Arm (white) lead on right chest and Left Leg (red) lead on the left lower abdomen.

- Connect the RT2000 with a DB9 male/female cable to the ECG jack on the front left of the AI6 (labeled: ECG 2000). To turn on the RT2000, flip switch on the side. The green light turns on solidly during initial calibration, then blinks once with each detected heart beat.
 - Important: the ECG signal is filtered and enhanced for R-wave recognition to time the inflation of the venous occlusion cuff.

IT IS NOT A DIAGNOSTIC ECG.
- If using an invasive pressure such as an arterial line to measure arterial resistance, connect the pressure transducer to a catheter and connect the transducer to the AI6 (labeled: Pressure Transducer).
 - The transducer should be at the level where it will be used.
 - Flush the transducer and open to atmospheric pressure to zero. Click the orange Inv. Zero button on the screen this initiates a wizard to calibrate the transducer. After the transducer is zeroed the button turns gray.

Setting up AI6 software for measuring arterial inflow

- When you press the green start button in the Hokanson AI6 application you are asked to enter Tech ID code or accept the currently displayed information.
- Enter patient demographics with special attention to the patient ID number; this is the one method of linking multiple visits together as one patient record.
 - You can choose the Patient Directory to locate an existing patient to “copy” the data from a previous visit.

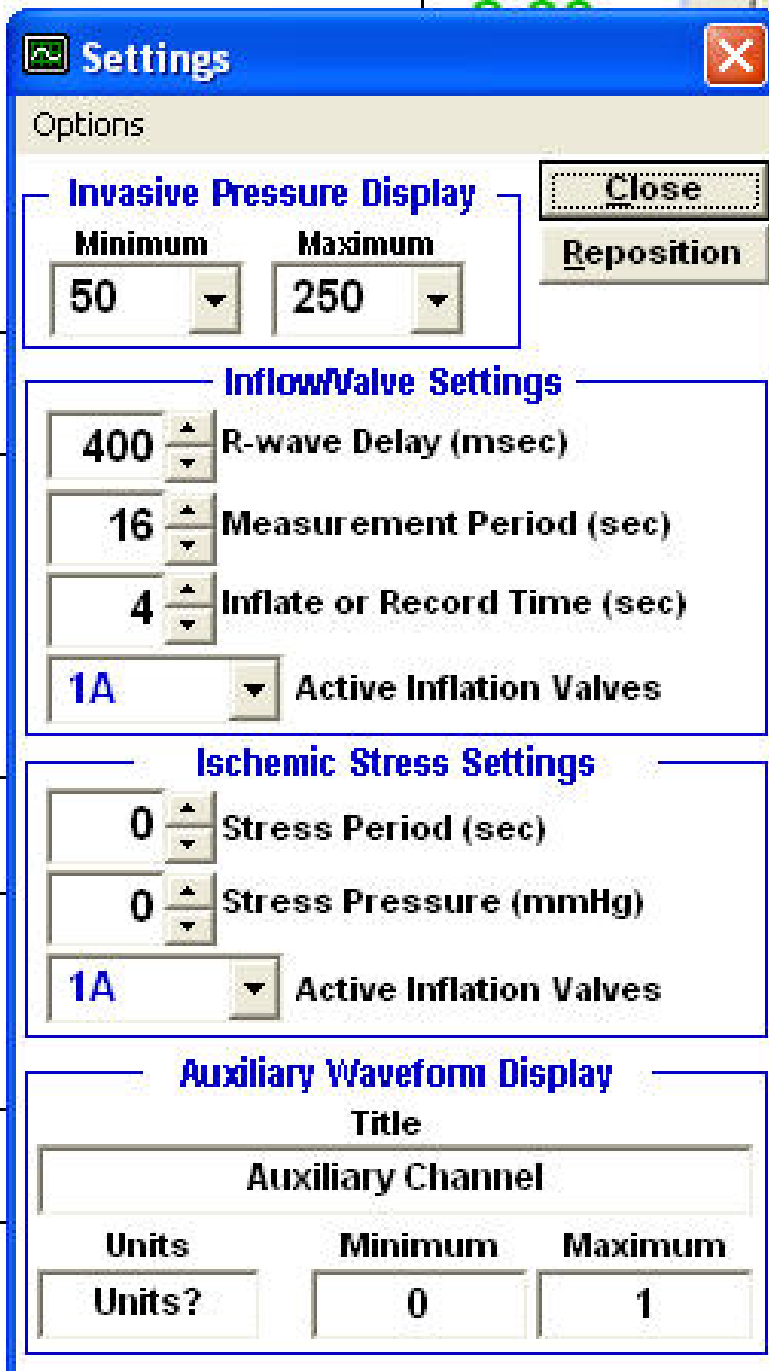


Patient

* Patient ID:	P	Patient Directory	<i>* Required</i> <i>Read Only</i>
* Last Name:	Murphy		
First Name:	Samuel		
Test Number:	1	Worklist	
Visit Number:	1		
Reading Site:	Hokanson Factory		
Comments:	Known Hx of Hypertension		
Tech Code:	Newer version as of 9/30/08		
Recording Date:	10-Feb-2009 15:40:44		
Date of Birth:	22-Sep-1934		
Gender:	M		
Height (Inches):	70	<input type="checkbox"/> Use Metric (kg/cm)	
Weight (lbs):	200		
Systolic BP:	190		
Diastolic BP:	95		
Referring Physician:	Dr. Jonas Saulk		

Close Cancel

- After entering the demographics, select close. A dialog box comes up for you to choose to store data. Click yes.
- The patient's demographics can be entered before the testing begins.
 - The height, weight, BP and MD are stored, however they do not copy from visit to visit.
- Enter protocol or set up for patient testing.
 - Even if you are using a standard protocol you should check these settings.
 - Under Options (menu bar) select Invasive.... settings.

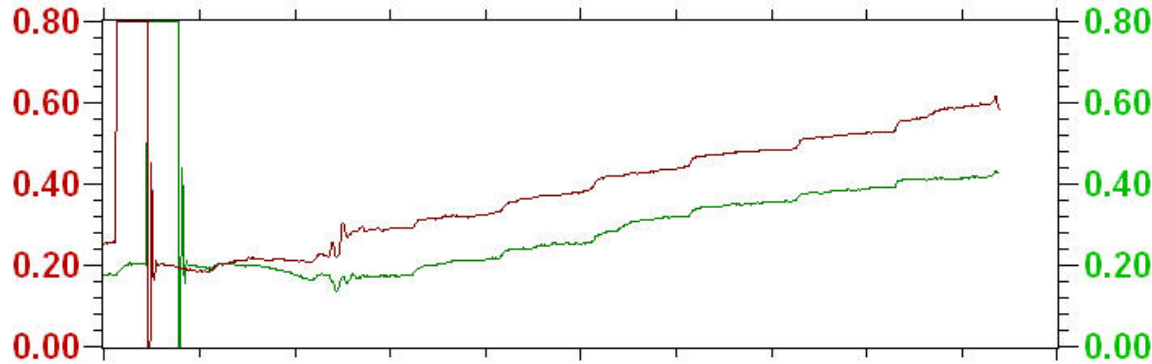


- Set the minimum and maximum pressures for the invasive pressure display (arterial line).
- Set the delay to inflate from first R-wave.
- Set the measurement period in seconds. This is the time from the beginning of one measurement to the beginning of the next.
- Set the inflation time or duration between inflation and deflation.
- Active inflation valves: select 1A & 1B if using both.
- For Ischemic stress select the amount of time for the stress period (inflation supersystolic) in seconds.
 - Set the stress pressure to a supersystolic pressure.
- Again select active inflation valves for reactive hyperemia. This can be different from the Inflow/Valve setting, above.
- If using Auxiliary waveform display type units and minimum & maximum.
 - Auxiliary input can be setup with a wizard, initiated by double clicking in the Aux waveform display.

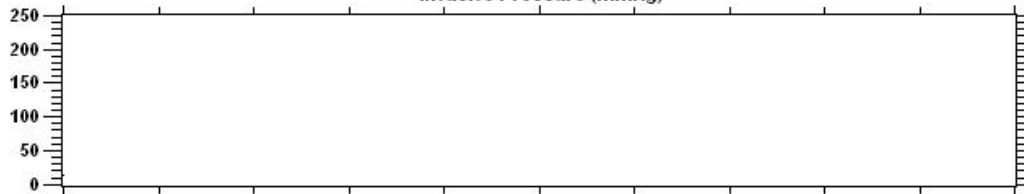
- You can choose to perform tests with or without a period of Ischemia to induce Reactive Hyperemia.
 - Checking the Ischemic Stress box activates the reactive hyperemia protocol when the next measurement is initiated.
- Each series of arterial inflow measurements constitutes a Visit.
- On the AI6 data acquisition screen (first screen) the display on the left shows the most recent 10 seconds of data.

Standard Inflow Readings

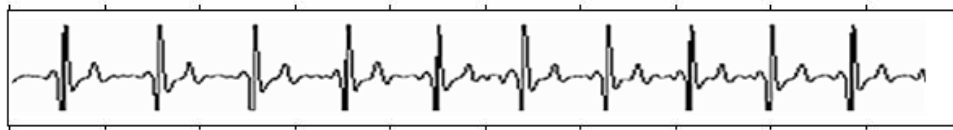
Strain Gauge Plethysmographs (% Volume Change)



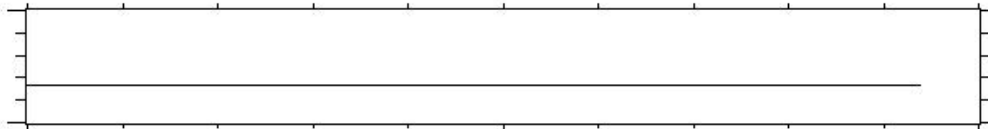
Invasive Pressure (mmHg)



ECG R-Waves



Auxiliary Channel



Sec

Comments:

Stage No. 2 / Reading No. 10

Status:

Recording In Progress

Range 1 Range 2

<input type="radio"/> 0.05	<input type="radio"/> 0.05
<input type="radio"/> 0.1	<input type="radio"/> 0.1
<input checked="" type="radio"/> 0.2	<input checked="" type="radio"/> 0.2
<input type="radio"/> 0.5	<input type="radio"/> 0.5
<input type="radio"/> 1.0	<input type="radio"/> 1.0
<input type="radio"/> 2.0	<input type="radio"/> 2.0

Mark Event

SPG Balance

Inv. Zero Inv. Noise Reduction

Current mmHg Capture 'Current' Pressure mmHg to Store

Average BPM

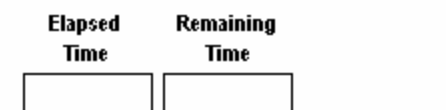
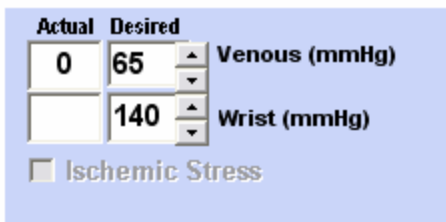
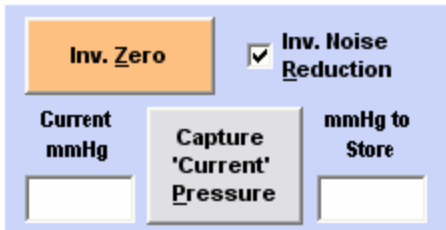
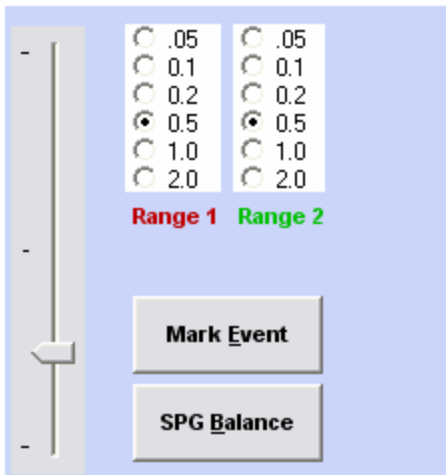
58 Mute

Actual Desired Venous (mmHg) 1A & 1B
55 55
130 130 Wrist (mmHg)

Ischemic Stress

Elapsed Time Remaining Time
00:09 00:01

Start Stop Pause



- The slider next to the Strain Gauge Plethysmograph (SPG) sets the baseline level. The slider cannot be moved during a record period.
- Manually zero the plethysmographs by clicking on the SPG Balance button.
 - When measurements are being made the program will auto re-zero the SPG's at the start of each measurement.
- The strain gauge ranges are set by selecting the radio buttons on the right labeled Range 1 and Range 2.
 - Double click one of the range buttons to set both settings to the same setting.
- Pressure regulators and settings: there are two regulators in the AI6,
 - Regulator 1 sets the pressure ports 1A and 1B for venous occlusion pressure during flow measurements and arterial occlusion pressure during ischemic stress tests using the same cuffs.
 - Regulator 2 sets the arterial occlusion pressure of the wrist cuffs (Inflator 2), so the circulation of the hands will not influence the tests.

- Box labeled “Actual” shows the real pressure and “Desired” is the pressure you are setting for 1A (and 1B). This should be the venous pressure. During reactive hyperemia this indicates the supersystolic pressure. Wrist indicates the pressures for the arterial occlusion.
- When pressure is delivered to the cuffs the corresponding Desired box will be yellow.
- Checking Ischemic Stress will cause the upper arm cuff to inflate to supersystolic pressure and time interval that you have set.
 - The setting box will open so that you can change or reset the pressures and the active inflation valve.
- Elapsed Time and Remaining Time are self explanatory.
- When you are ready to begin the measurements, press the Start button. The test sequence will begin automatically.
- To Pause or stop click the appropriate button.
 - During a pause period, a “resume” button will appear to continue measurements in the current patient visit.

- A complete cycle consists of:
 - Inflating wrist cuffs
 - Zeroing the plethysmographs
 - Baseline established
 - Inflation of venous occlusion cuffs
 - Deflating all cuffs
 - Pause until next measurement begins
- The ranges 1 & 2 can be changed during the wait by clicking on the radio buttons (if the waveform needs to be larger or smaller.)
- All recorded waveforms must be user analyzed. Access the patient visit database and the associated recordings using the patient menu. Select the Edit or Review Patient Visit Database.