

# InspectionWare Setup Notes

## Tecnatom SONIA FPR8A Module



### Introduction

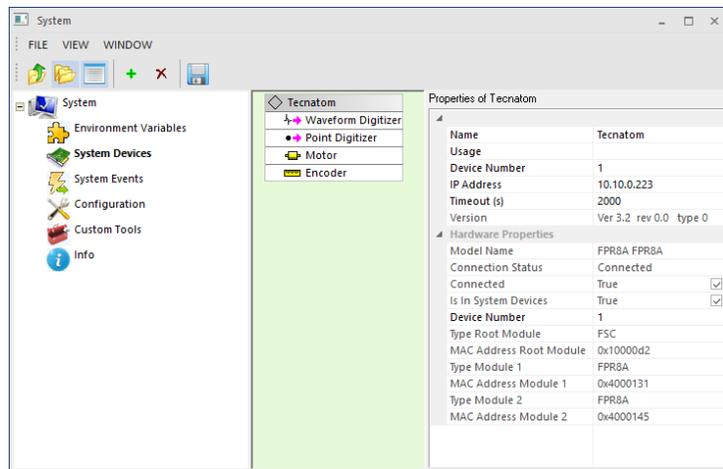
This document describes the setup steps required to add and use Tecnatom FPR8A module in InspectionWare. It includes the procedures for:

1. Adding the device to InspectionWare10's System Environment  
*Only InspectionWare10 32 Bit can be used as 64 bit Tecnatom drivers are not available.*
2. Creating an instance of the device in your workspace
3. Configuring A-Scans to set up Pulse-Echo and Through Transmission modes.
  - 3.1. Module Setup  
*Specify the physical probe connections and the pulse voltages for each channel.*
  - 3.2. Instrument Setup  
*Declare the number of channels, default PRF and Data Collection mode.*
  - 3.3. Channel Configuration  
*Setup channel properties such as modules used, UT mode, A-Scan display etc.*
  - 3.4. Adding Hardware Gates, IF Trigger and TVG
4. Sample Configurations

Before you begin, please consult the instrument documentation to learn more about connecting the Sonia UT, Communication and System Control modules.

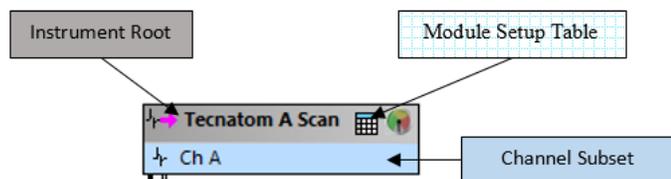
### 1. Add Tecnatom to InspectionWare10's System Devices:

1. Open InspectionWare10 (32 Bit Version)
2. Go to **Environment>System** to launch the System Window
3. Right-click on **System Devices** and open the **Add Device** dialog-box.
4. From the Device drop-down select Tecnatom Sonia.
5. Enter the instrument IP address, a custom name and click OK.
6. Right-click on the device and connect to the instrument.
7. All available modules are displayed on the System properties page.
8. Save and close the System Window.



### 2. Create an instance of the device in a workspace

1. Open the Digitizers folder in the Acquisition Toolbox
2. Drag the Tecnatom A-Scan to the Acquisition Manager
3. The Tecnatom A-Scan node contains Instruments Root, Module Setup Table and Channel Subsets.



### 3. Configure A-Scans

The Tecnatom FPR-8/ FPR-8A support up to 8 conventional channels that can be configured to work with both single element and dual element probes. This allows single element pulse/echo, dual element pulse/echo, through transmission, and TOFD configurations.

# InspectionWare Setup Notes

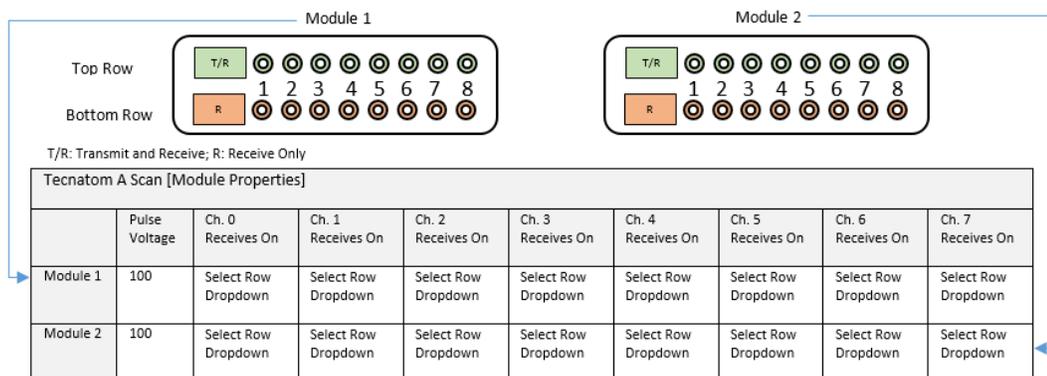
## Tecnatom SONIA FPR8A Module



### 3.1. Module Setup

In the module properties table the device can be setup to receive the UT signal on the transmit line (*Top row labeled T/R in the diagram*), or on the isolated receive line (*Bottom row labeled R*).

1. Double click on the **Module Setup Table** to open the table view. Connected Modules and available physical channels can be setup from here.
2. **Select Row Dropdown** allows the user to specify the row (*transmit-receive line or isolated receive line*) on the device that will be receiving the waveform signal.
3. If a two element probe is utilized an isolated receive line must be selected for receiving the waveform signal.
4. To communicate across channels two configurations need to be made. One on the transmit side and another on the receive side.



### 3.2. Instrument Setup

From the Instrument root the user is able to define how many outputs can be collected from the physical channels of the modules. Each waveform output is displayed on the Instrument Root as a Channel Subset. To add a channel subset to the parent, follow the directions below:

1. Open the **Instrument Root**.
2. Set the **Number of Channels** to the number of outputs required.
3. If **Use Channel PRF** is set to "True" the PRF set for the channel will be used during scanning.
4. Set the **Idle PRF**, this is the pulse repetition frequency when the instrument is not collecting data, unless otherwise specified in Step 3.

### 3.3. Channel Subset Properties

1. Right-click on **Channel Subset** to open the properties editor.
2. In **Tx Module**, select the device that will pulse the transducer.
3. In **Rx Module**, select the device that will receive the waveform.
4. For **Pulsing Channel** select the corresponding channel that the pulsing transducer is connected to.
5. For **Receiving Channel** select the corresponding channel that the receiving transducer is connected. For pulse-echo the same physical channel is used for pulsing and receiving.
6. Interface Triggered TVG requires **Hardware Gate** to be enabled.
7. **Ascan Number of Samples** allows the user to define the number of points collected in the Ascan window. This is for on-screen display only and does not impact the Gate's sampling frequency.

Hardware	
Tx Module	FPR8A#0 (0x4000131)
Rx Module	FPR8A#0 (0x4000131)
Pulsing Channel	0
Receiving Channel	0
Digitization	
Pulse Repetition Rate (Hz)	500
Hardware Gates Mode	True <input checked="" type="checkbox"/>
Ascan Number Of Samples	2048
Gate Ascan Sample Rate (MHz)	125
Gate Ascan Sample Size	16 bit
Iterative Filter	None

# InspectionWare Setup Notes



## Tecnomat SONIA FPR8A Module

8. The **Gate Ascan Sample Rate** is the frequency at which the data within the hardware gate is collected. The maximum gate length that can be collected at 125MHz is 262us.
9. **Gate Ascan Sample Size** specifies the waveform's amplitude resolution.
10. Other channel properties conform to standard InspectionWare behavior.

*Different physical channels can be used at the same time as long there exists a channel subset as a output for the waveform signal.*

### 3.4. Adding a Hardware Gate

1. Right-click on **Channel Subset** you would like to add the gate to
2. In the drop down task menu select **Add>Tecnomat Sonia Gate**.
3. This will attach a hardware gate to the channel node.  
*Only Eight Gates can be added to a channel at a time. This does not include the interface trigger gate as it does not collect a waveform.*

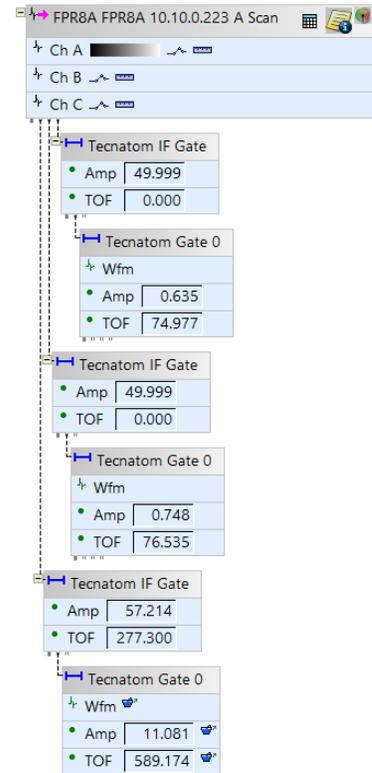
### 3.5. Adding a Interface Triggered Gate

1. To add an Interface triggered gate, right-click on **Channel Subset** to open the drop down task menu.
2. Click the **"Toggle IF Gate"** task.  
*This will add an interface triggered gate on the existing gates, and not remove one if you're at the maximum of eight hardware gates.*

### 3.6. Adding a Time Variable Gain Curve

The TVG curve is also found in the task menu under the channel subset.

1. Right-click on **Channel Subset** you would like to add the TVG curve.
2. In the drop down task menu select **Toggle TVG**.  
*This will attach a TVG curve to the channel output.*



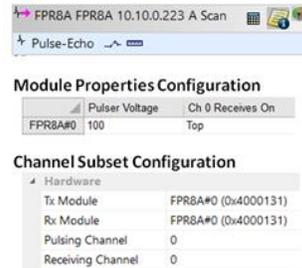
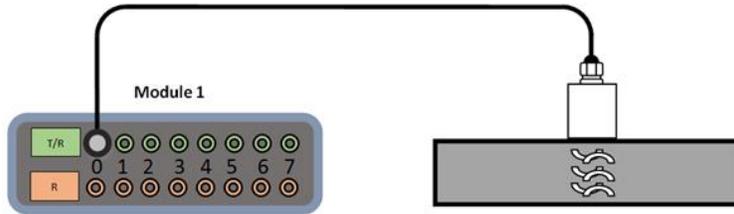
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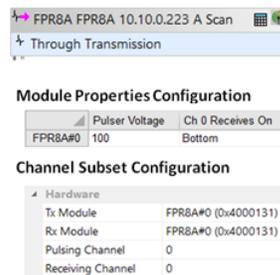
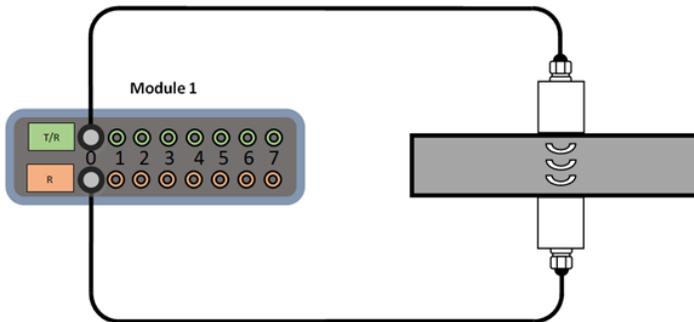


### 4. Sample Configurations

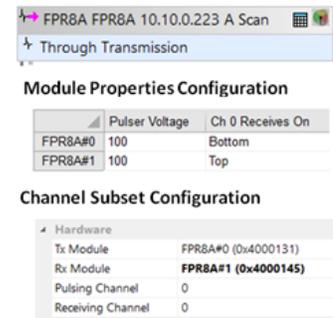
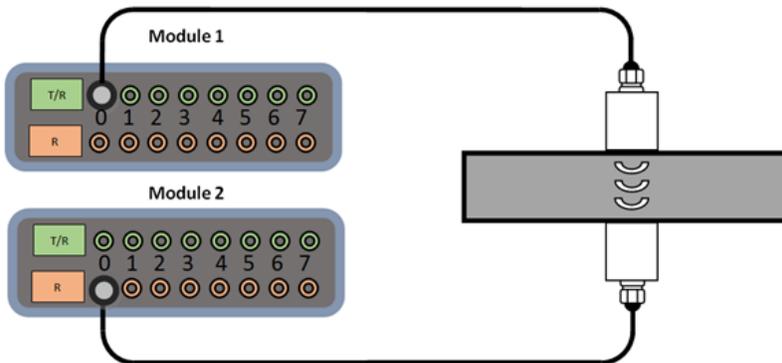
#### 4.1. Pulse Echo Only



#### 4.2. Through Transmission with One Module



#### 4.3. Through Transmission with Two Modules



#### 4.4. Pulse Echo and Through Transmission with Two Modules

