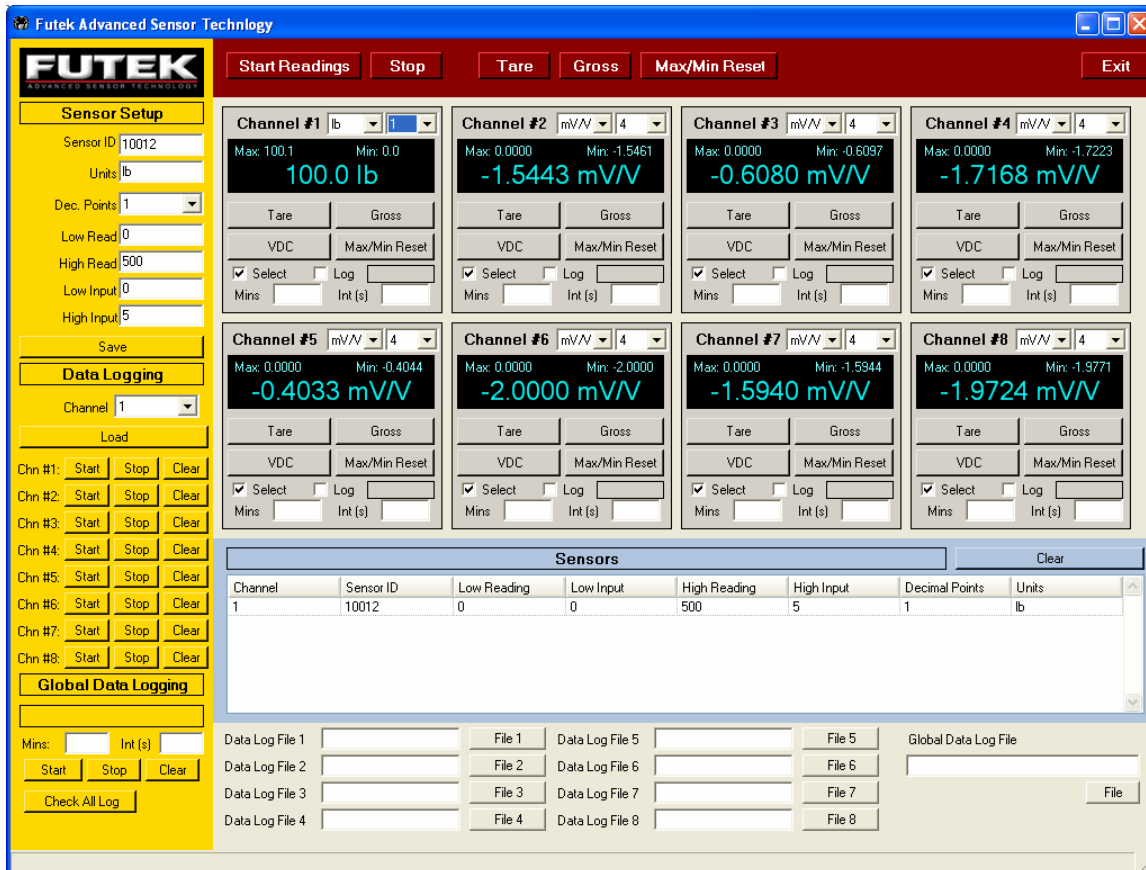# QSH00817 DATA LOGGING SOFTWARE VERSION 1.0
FUTEK ADVANCED SENSOR TECHNOLOGY

Overview:

8 channel data logging program. It allows simultaneous logging of all 8 channels as well as independent control of each channel. It supports scaled, mV/V and VDC measurements. Data logging datum are stored in comma delimited ASCII files for easy importation to any spreadsheet program. The program allows for independent or global "Tare" and "Gross" and real time capture of "Peak" and "Valley". On the fly unit conversions and decimal point adjustment are allowed. Sensors are interfaced through 8 independent signal conditioners that provide a high voltage ± 10 VDC output to data acquisition circuits.   The mV/V measurements are specially scaled profiles that provide equivalent ratio-metric measurements. The scales is as follows ±3mV/V = ±10 VDC.

Global Controls

| Start Readings | Stop | Tare | Gross | Max/Min Reset | Exit |
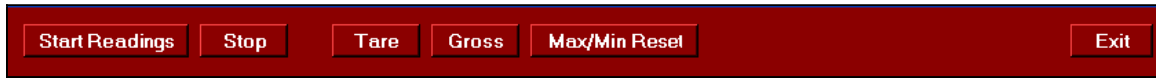
 "Start Readings"- Press this button to begin tracking and data acquisition. Each channel will display data as mV/V. *Note: mV/V is calibrated using a precision mV/V reference.*
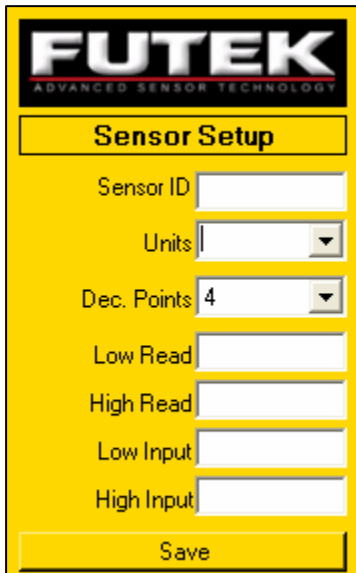
"Stop" – Press the button to stop tracking data**.**

"Tare"- Press this button to execute a global *Tare* of all active channels.   *Tare* is performed through software, so it's still possible to over-range DAQ electronics.

"Gross"- Press this button to execute a global *Gross* value of all active channels.

"Max/Min Reset"- Press this button to execute a *Reset* of all min and max values.

"Exit"- Press this button to exit program.

Sensor Setup

Sensor setup is used for setting scaling or calibration of sensors.

"Sensor ID"- Sensor serial number or identification number. Identification can be alphanumeric

"Units" – Select desired Engineering units from pull down menu or type in desired units.

"Dec. Points"- Choose desired resolution. Adjust to optimal readings per conditions.

Scaling: *Scaling is performed using a 2 point linear fitting using*

$Y = mX + B.$

2 Points = (Low Input, Low Read) , (High Input, High Read)

Input = *(Voltage VDC)*
Read = *(Desired Reading in Engineering Units)*

"Low Read"- The minimum reading desired.

"High Read"- The maximum reading desired.

"Low Input"- The minimum voltage displayed.

"High Input"- The maximum voltage displayed.

"Save"- Save Calibration Parameters. Important!!!

Example:

A sensor is calibrated at 2.5 mV/V @ 100 lb.

Method 1:
    Low Read = 0;
    High Read = 100;
    Low Input = 0;
    High Input = 2.5 mV/V

Method 2 (Best Method)
    TARE sensor;
    Low Read = 0;
    High Read = 100;
    Low Input = 0;
    High Input = {Use Displayed Reading in mV/V}

Enter pertinent information such as Sensor ID, Units, and Decimal Points. Then "Save"

Data Logging

Data Logging	
Channel 1 ▼	
Load	
Chn #1:	Start	Stop	Clear
Chn #2:	Start	Stop	Clear
Chn #3:	Start	Stop	Clear
Chn #4:	Start	Stop	Clear
Chn #5:	Start	Stop	Clear
Chn #6:	Start	Stop	Clear
Chn #7:	Start	Stop	Clear
Chn #8:	Start	Stop	Clear
Global Data Logging	
Mins: [ ] Int (s) [ ]	
Start	Stop	Clear
Check All Log	

Data Logging allows readings at predetermined intervals for a predetermined amount of time. Each channel can have it's own unique time interval and total logging time. Global Data Logging allows all channels or selected channels to be monitored. The resulting data points are stored in a arbitrary file chosen by the user. The files are comma delimited ASCII (*.csv) and can be opened by any spreadsheet application.

"Channel"- Channel in which a sensor is connected to.

"Load" – Load scaling files for sensor.

"Start" – Start data logging.

"Stop" – Stop data logging.

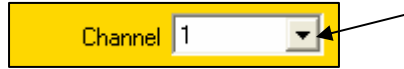**"Clear"**-Reset timers and re-start data logging from the beginning.

"Check All Log"-Checks all "Log" on the channel displays.

**"Mins"**-Total minutes of data logging time. (no max)

"Int (s)"- Interval of individual recorded readings in seconds. (minimum = 0.1 s)
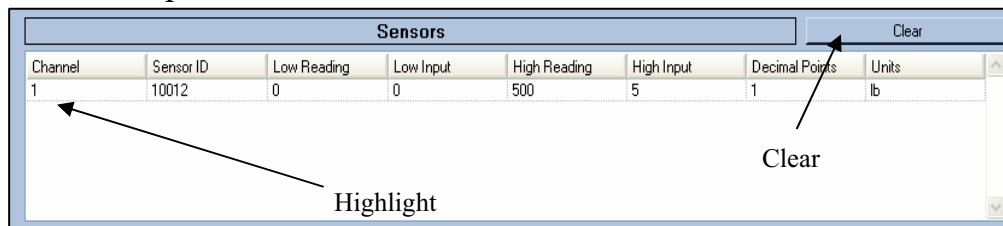
Loading Scaled Sensors

1. Choose the channel number where the sensor will be connected using pull down menu.

2. Press "Load" and point prompt to correct location of sensor files. Sensor files contain the necessary information to properly scale a sensor to engineering units. *Sensor files will be saved by Sensor ID followed by extension *.FTS*
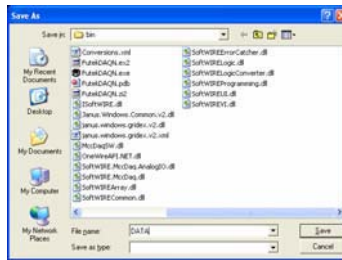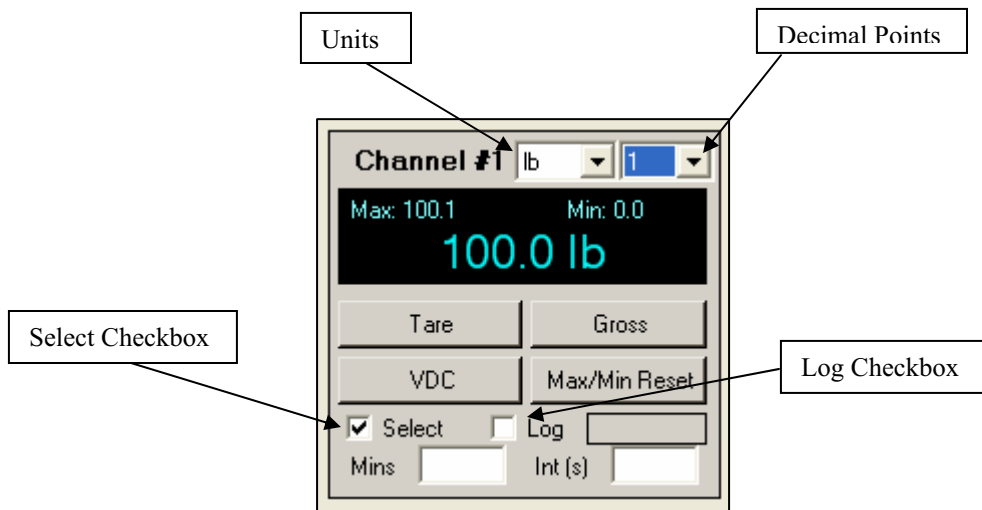

3. After loading the program will begin displaying real time scaled sensor output.

4. After loading sensor the profile will appear in the window above. The program will not let you load a new sensor into the same channel unless that channel is cleared. To clear you must highlight the channel using the mouse pointer and then click on the **"Clear"** button.

Channel Display

"Units"- Change Engineering units on the fly, choose desired unit using drop down menu.

"Decimal Points" – Change resolution using drop down menu. Values available are 0-5. Choose accordingly by application. Data acquisition system is 16 bits offers ±32768 steps of resolution at ± 3 mV/V or ± 10 VDC.

"Max" – Shows current *Peak* value during sensor tracking. Units and Decimal Points are the same as main display. Clear using **"Max/Min Reset"**

"Min" – Shows current *Valley* value during sensor tracking. Units and Decimal Points are the same as main display. Clear using **"Max/Min Reset"**

"Tare" – Performs *Tare* on that specific channel.

"Gross"- Performs *Gross* on that specific channel.

"Log Checkbox"- This option must be selected if data is to be stored in a file for that specific channel.   In a Global Data Logging you can uncheck the channels you don't want saved.

"Select Checkbox"-This option must be selected to activate tracking on channels. If unselected the channel will be blank, showing inactivity. The **"Start Readings"** button must always be pressed to refresh settings after making any changes.
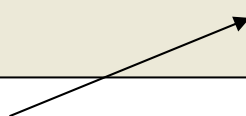
"Mins"-Total minutes of data logging time for that specific channel (no max)

"Int (s)"- Interval of individual recorded readings in seconds for that specific channels. (minimum = 0.1 s)
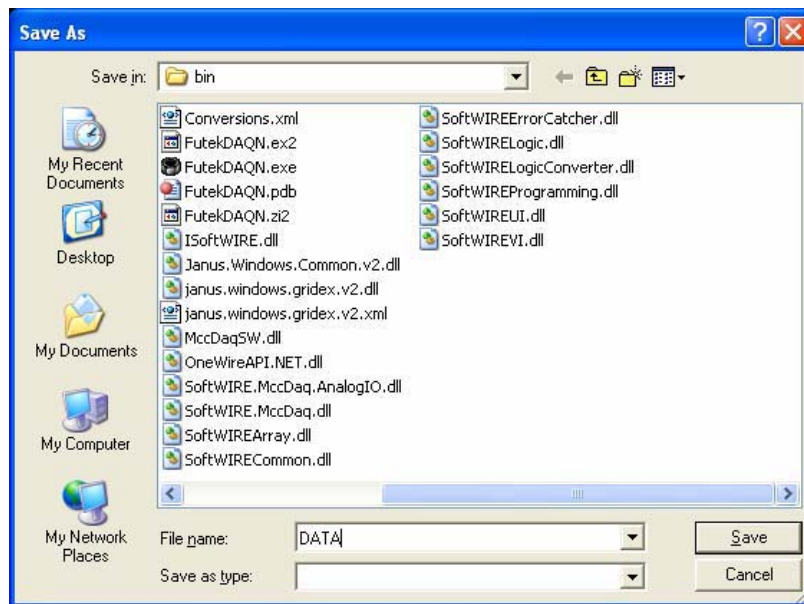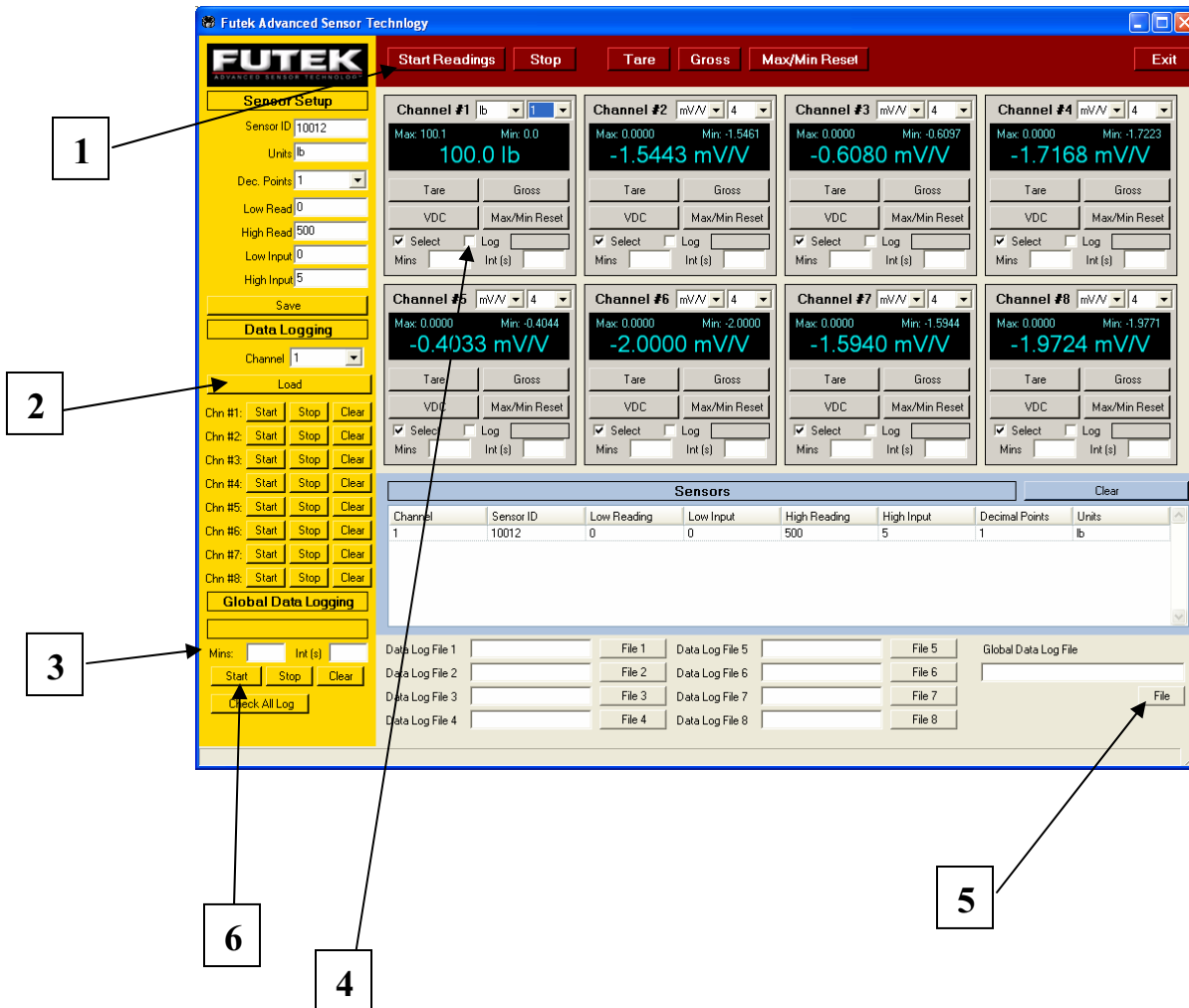
Data Logging Files

Data logging file paths must be entered in the shown boxes above. You can enter path manually or click on "File" buttons to access the "Save As" window below.

Global Data Logging Example

1. Press "Start Readings"
2. Load desired scaling for sensor or leave at mV/V.
3. Enter total test time and recording interval.
4. Choose which channels you want recorded by click on "Log". Press "Check All Log" to check all of them.
5. Choose file path for your data.
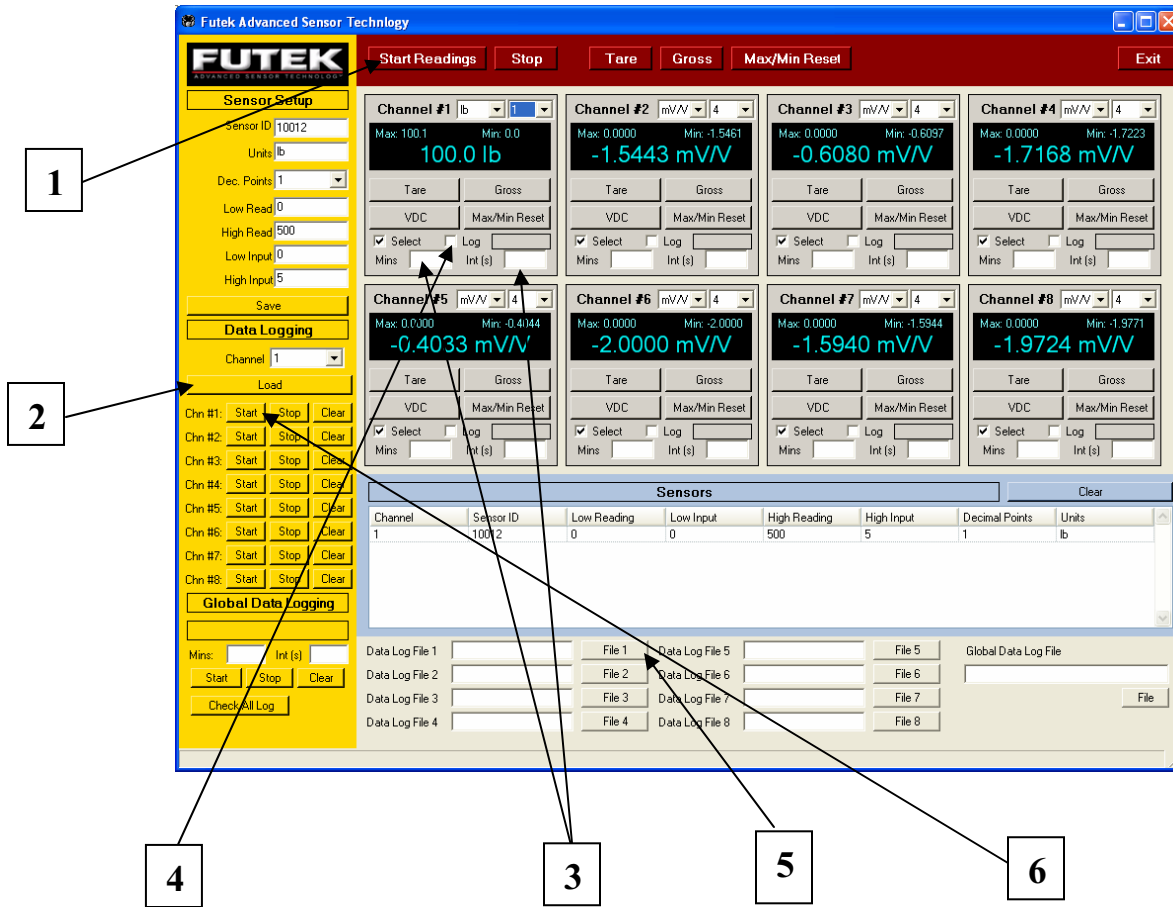6. Press "Start" to begin test.

Single Channel Data Logging Example

1. Press "Start Readings"
2. Load desired scaling for sensor or leave at mV/V.
3. Enter total test time and recording interval.
4. Choose which channels you want recorded by click on "Log"
5. Choose file path for your data.
6. Press "Start" to begin test.
7. Repeat steps 2-6 for other channels.

Software Installation Procedure (WinXP/2000)

1. Load CD into PC loading tray. The above screen should appear.
2. Proceed with .NET Framework Installation by selecting and clicking on menu options. Windows may signal that .NET framework has been previously installed. If so this installation can be skipped.
3. Proceed with MCC InstaCal and restart computer when prompted.
4. Plug USB cable to QSH00816 unit, please allow a few minutes for USB configuration to proceed and install itself.
5. After Installing MCC InstaCal Proceed to /Start Menu/Programs/Measurement Computing/InstaCal
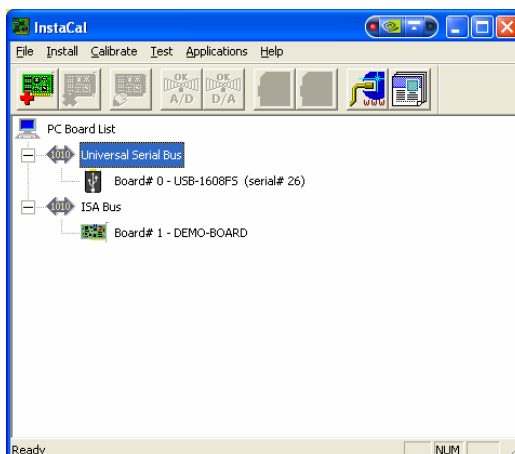
6. The "InstaCal" program should automatically configure the DAQ board (USB-1608FS) to Board # 0. Make sure board is under number 0 or program will not operate correctly. To change board number, right click on desired Board and follow menu options.

7. Close "InstaCal" and proceed with QSH00709 Software installation.

8. Shortcut is created in Start Menu and Desktop for **FutekDAQ**

Note: Installation procedures will require "Installation" permission to windows. Please see your IT administrator if permissions to install are required.

!!!Important!!!

1. *Make sure USB is fully configured and connected before connecting data acquisition system to AC power line.*
2. *USB must be able to supply 500mA of current. If using USB hub make sure it is self powered hub type, not bus powered.*
3. *Make sure windows has the latest updates. If using Windows 2000/XP, make sure the latest service packs are installed.*
4. *Program may not operate correctly under windows 98 or Me. Any issues encountered on these installations are the responsibility of user.*
5. *Do not short out Pins A and B at sensor connection or damage will occur to internal signal conditioning circuits.*
6. *Please observe all load cell recommended overload specification to prevent damage.*

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800-23-Futek or 959-465-0900

CH# 1

CH# 2

CH# 3

CH# 4

CH# 5

CH# 6

CH# 7

CH# 8