MINI-DAS Standard

User Manual

CASE TECHNOLOGIES

Revision 1.0

MINi-DAS Standard User Manual
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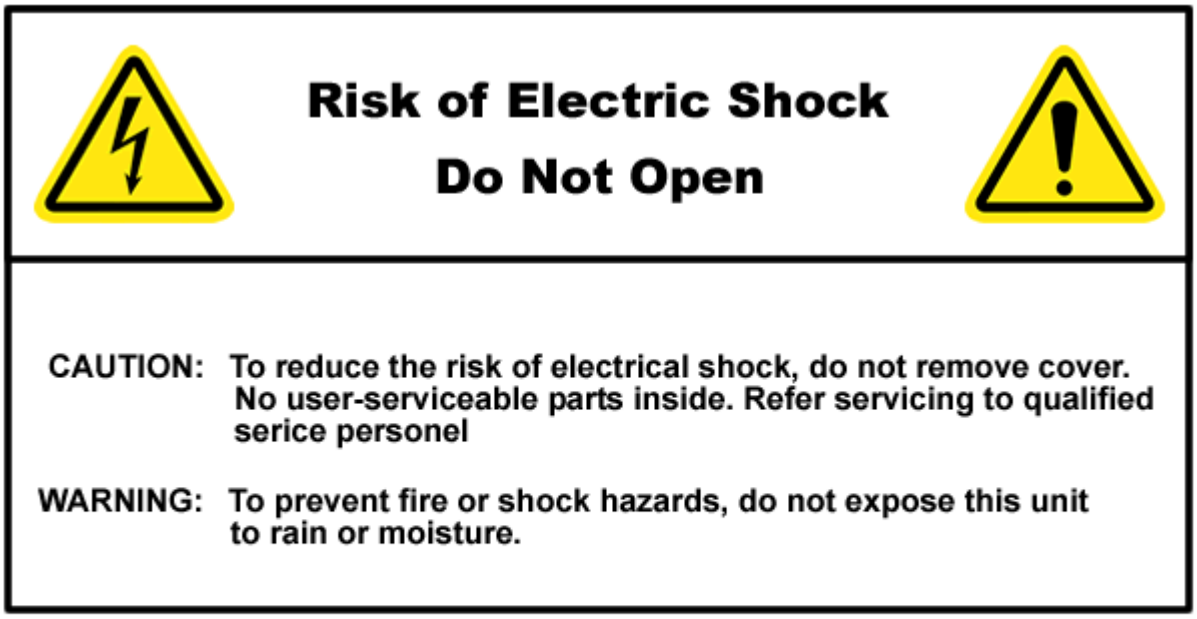
The information in this manual has been checked carefully and is believed to be accurate; however, CASE Technologies Ltd. assumes no responsibility for possible inaccuracies or omissions. Specifications are subject to change without notice.

CASE Technologies Ltd. warrants this product to be free from defects in material or workmanship for 6 months from the manufacturing date. The manufacturing date is encoded in the first six digits of your products serial number. The warranty is limited to the original cost of the hardware and software only and does not cover installation, labor, or any other contingent costs.

This software / hardware should not be used in any medical devices and/or medical situations. No software / hardware provided by CASE Technologies Ltd. should be used in a life support situation.



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1: Software Installation

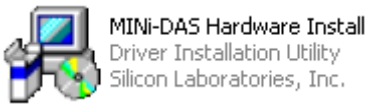
The software Installation is a 3 part process; please follow these instructions carefully to ensure proper operation of the MINi-DAS system.

WARNING

All software must be installed on your computer BEFORE plugging in the MINi-DAS hardware via the USB cable.

Part 1: MINi-DAS Hardware Install

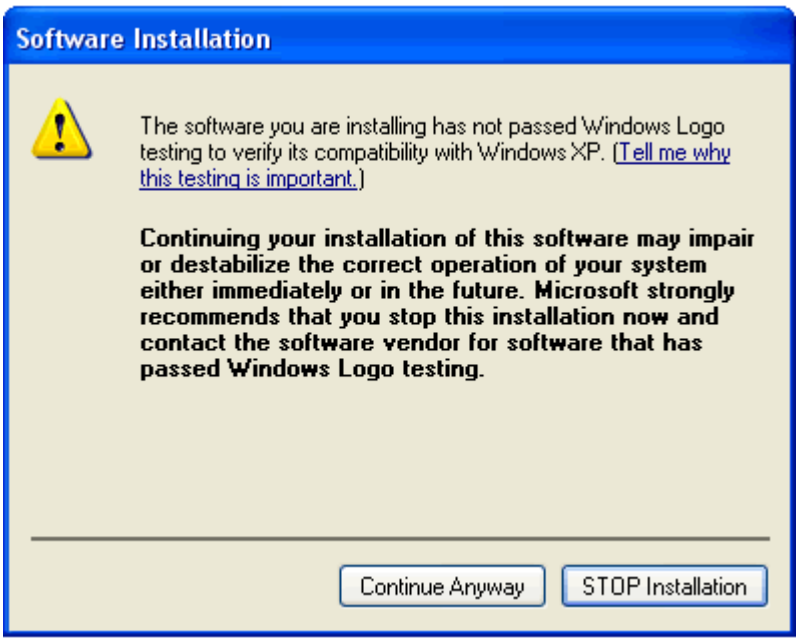
- Double Click the **MINi-DAS Hardware Install** Icon, to begin hardware installation.



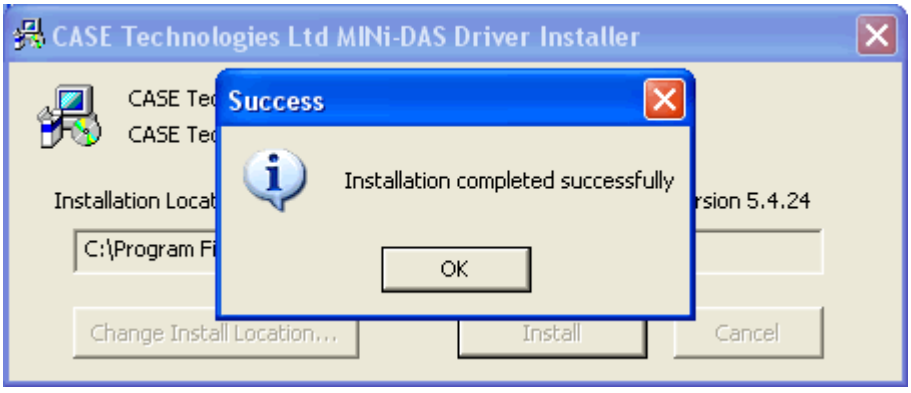
- Click the **Install** Button.

Your system will be scanned, and the proper drivers will be copied to your computer.

- Click **Continue Anyway** when you see the warning screen



- Click **OK** to finish the hardware installation.



Proceed to Part 2 MINi-DAS Software Install

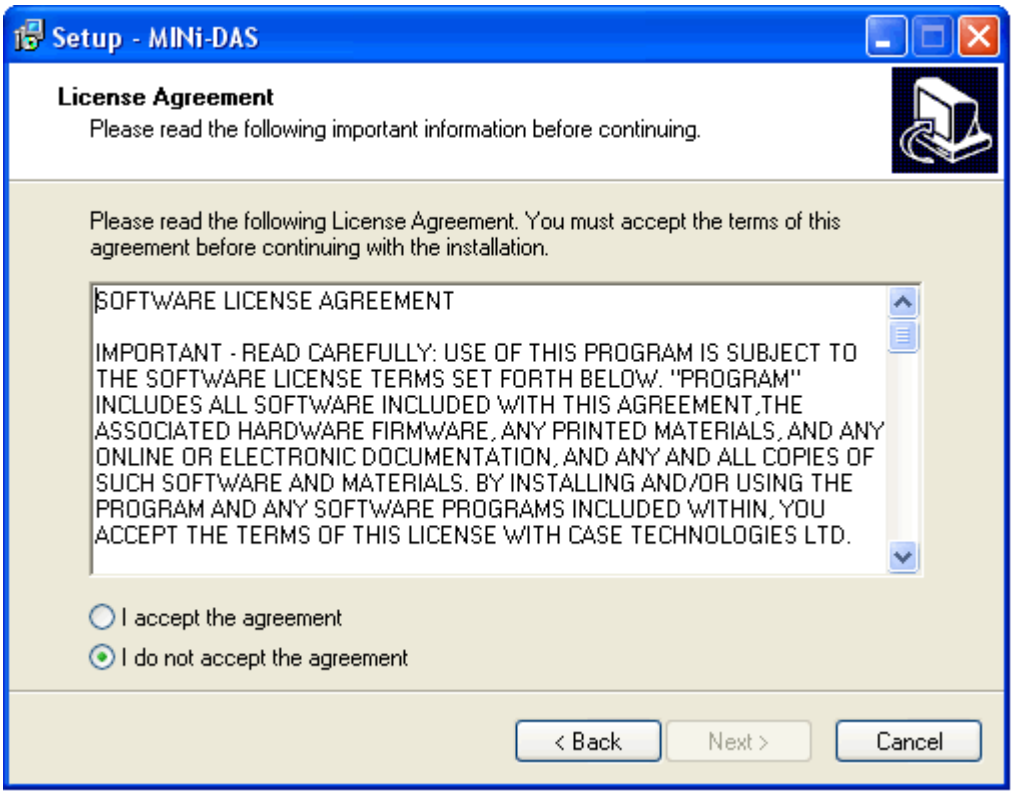
Part 2: MINi-DAS Software Install

- Double Click the **MINi-DAS Software Install** Icon

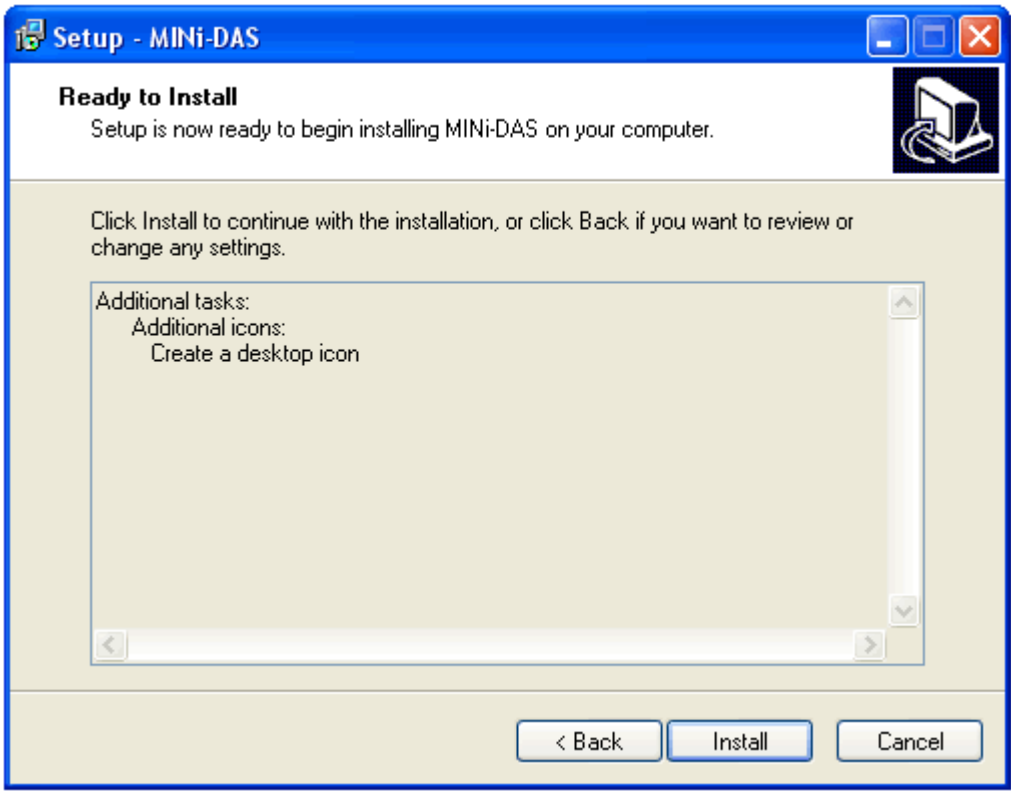
- Click **Next** to continue
- Read the License Agreement
- Click **I accept the Agreement** if you agree with the terms and conditions

*A copy of this License Agreement is included with this manual, as well as in the folder in which you install the program. (**C:\Program Files\MINi-DAS\Software License Agreement.txt** by default)*

- Click **Next** to continue



- If you would like a shortcut icon placed on your desktop select the **Create a desktop icon** check box and click **Next**
- Click **Install** to begin the installation



- Once the Installer is done click **Finish** to complete the install

Proceed to Optional Graph Report Software Install

Optional: Graph Report Software Install

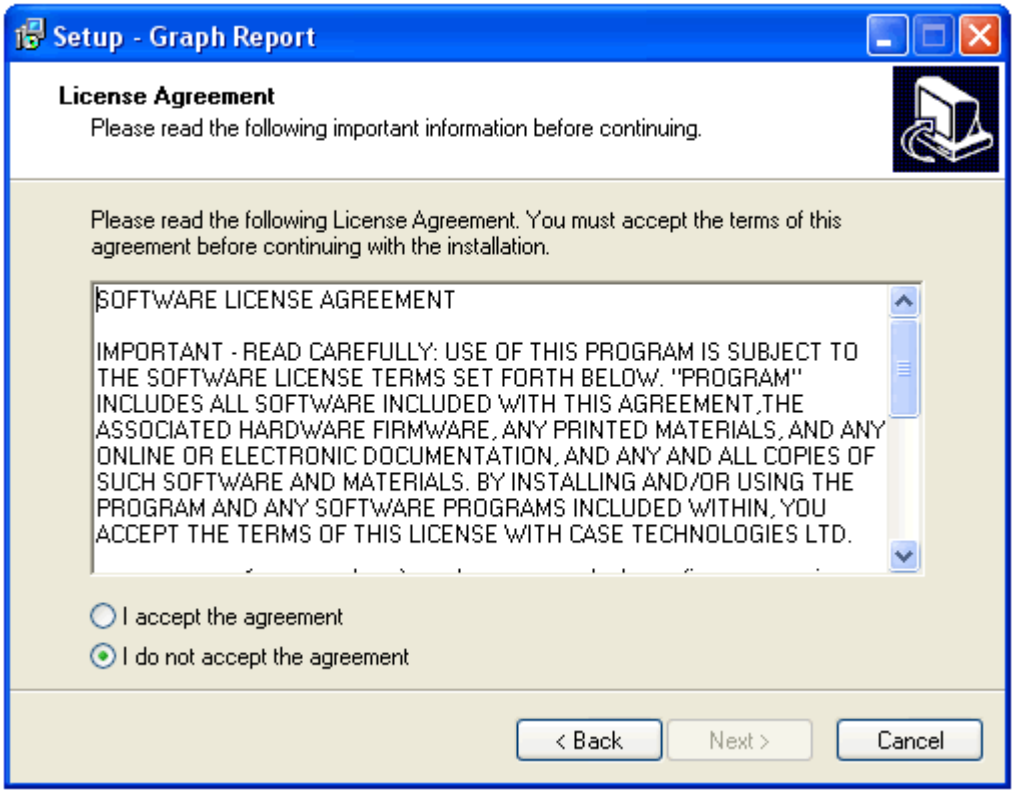
If you do not wish to use the included Graph Report software you can skip this step.

- Double click the **Graph Report Install** icon

- Click **Next** to continue
- Read the License Agreement
- Click **I accept the Agreement** if you agree with the terms and conditions

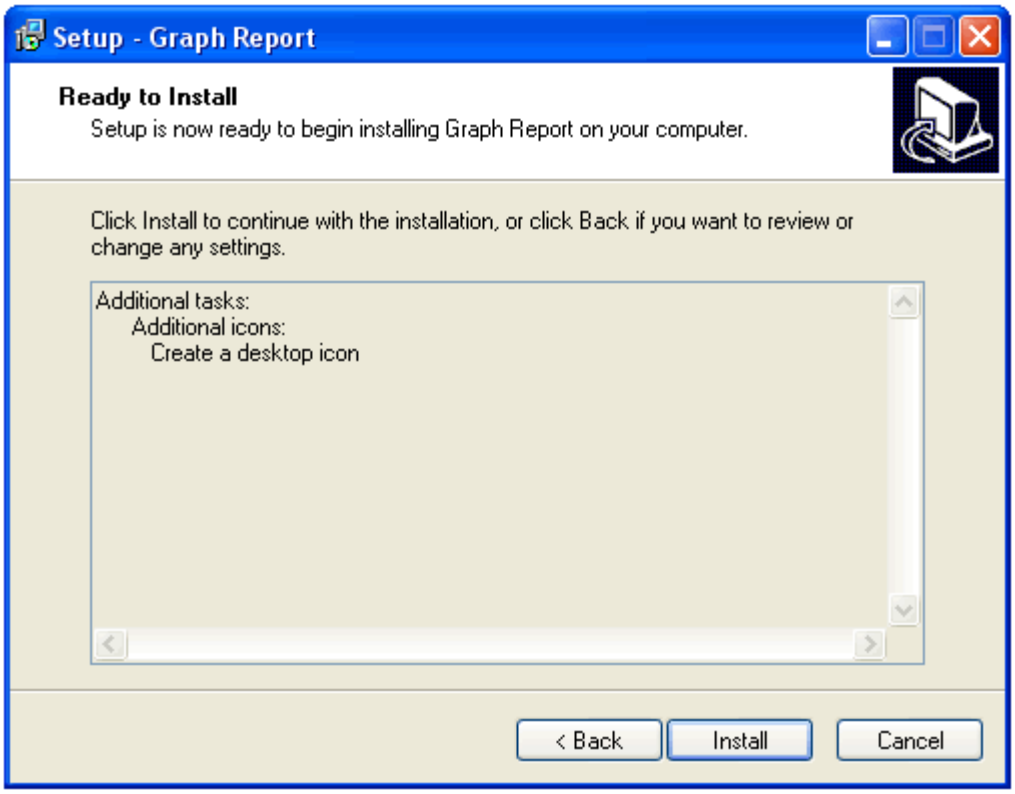
*A copy of this License Agreement is included with this manual, as well as in the folder in which you install the program. (**C:\Program Files\Graph Report\Software License Agreement.txt** by default)*

- Click **Next** to continue



- If you would like a shortcut icon placed on your desktop select the **Create a desktop icon** check box and click **Next**

- Click **Install** to begin the installation



- Once the Installer is done click **Finish** to complete the install

Proceed to Part 3 Connect MINi-DAS

Part 3: Connect MINi-DAS

- Using the supplied USB cable, connect the MINi-DAS system to your computers' USB 2.0 port.

You may use your own USB cable if you wish. The Maximum Length for a USB 2.0 Cable is 5 meters.

WARNING

The MINi-DAS system may not function properly if connected to a USB Hub device. The MINi-DAS system should be directly connected to a PC USB 2.0 port.

Once you plug in the MINi-DAS system you should see the **Found New Hardware** balloon in the system tray, which is located in the bottom right of your screen.

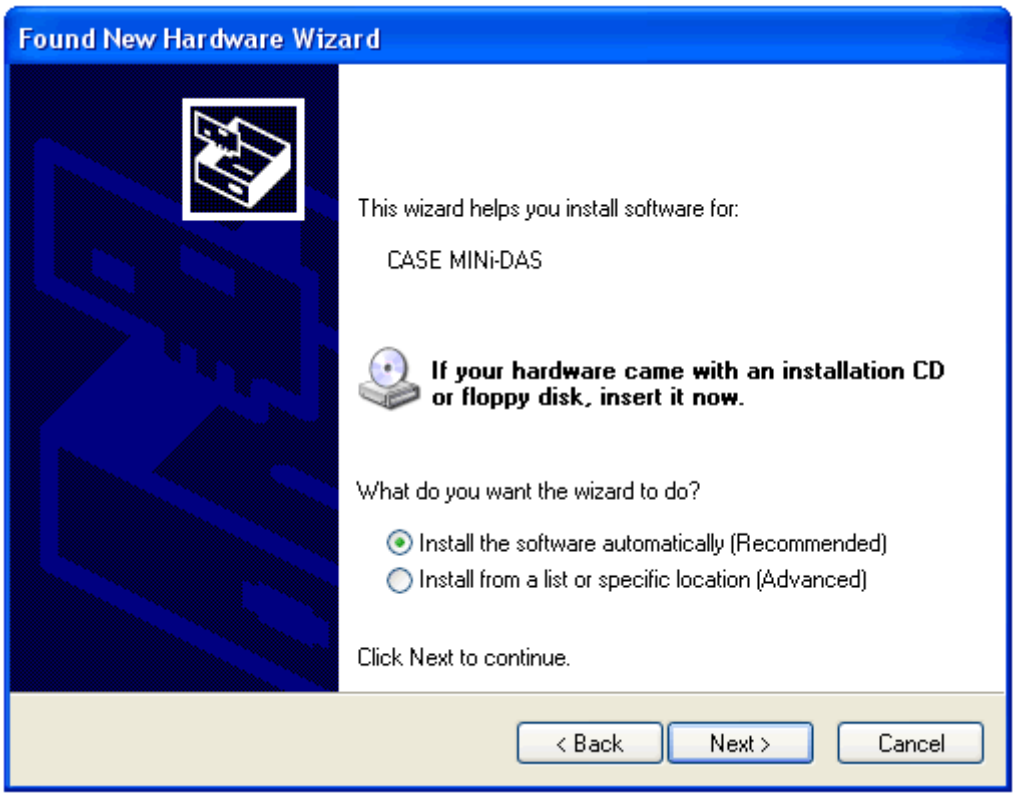
Depending on or computers configuration, you will see either the **Your new hardware is installed and ready to use** balloon (in which case your installation is complete)…

Or

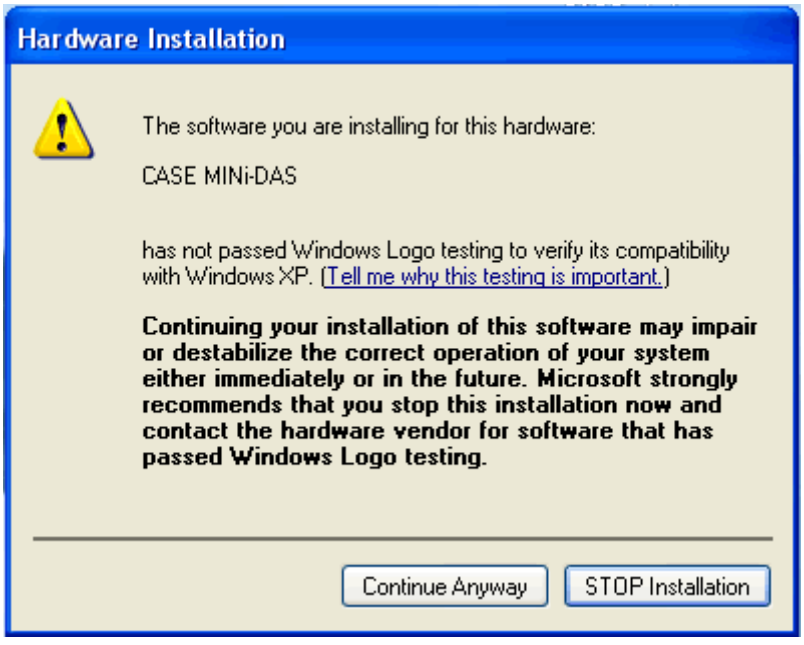
You will see the Found New Hardware Wizard

- Select **No, not this time**
- Click **Next**

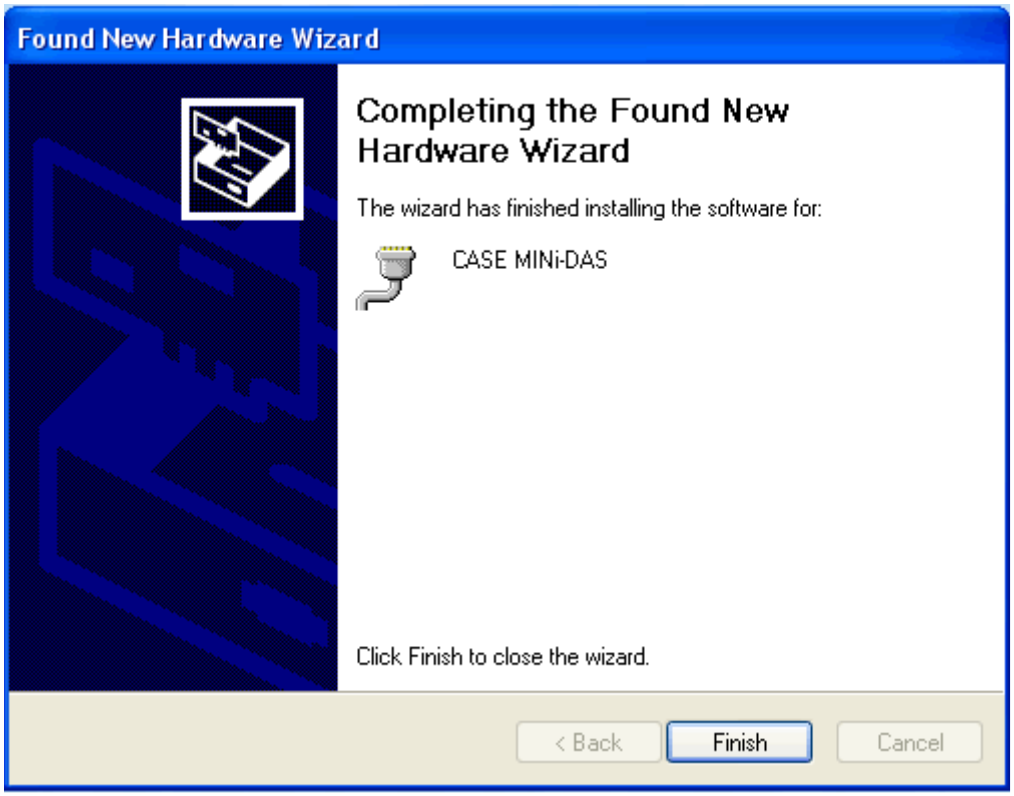
- Select **Install the software automatically (Recommended)**
- Click **Next**



- Click **Continue Anyway** when the warning appears



❖ Click **Finish** to complete the installation



You should now see the **Your new hardware is installed and ready to use** balloon in the system tray at the bottom right of your screen.

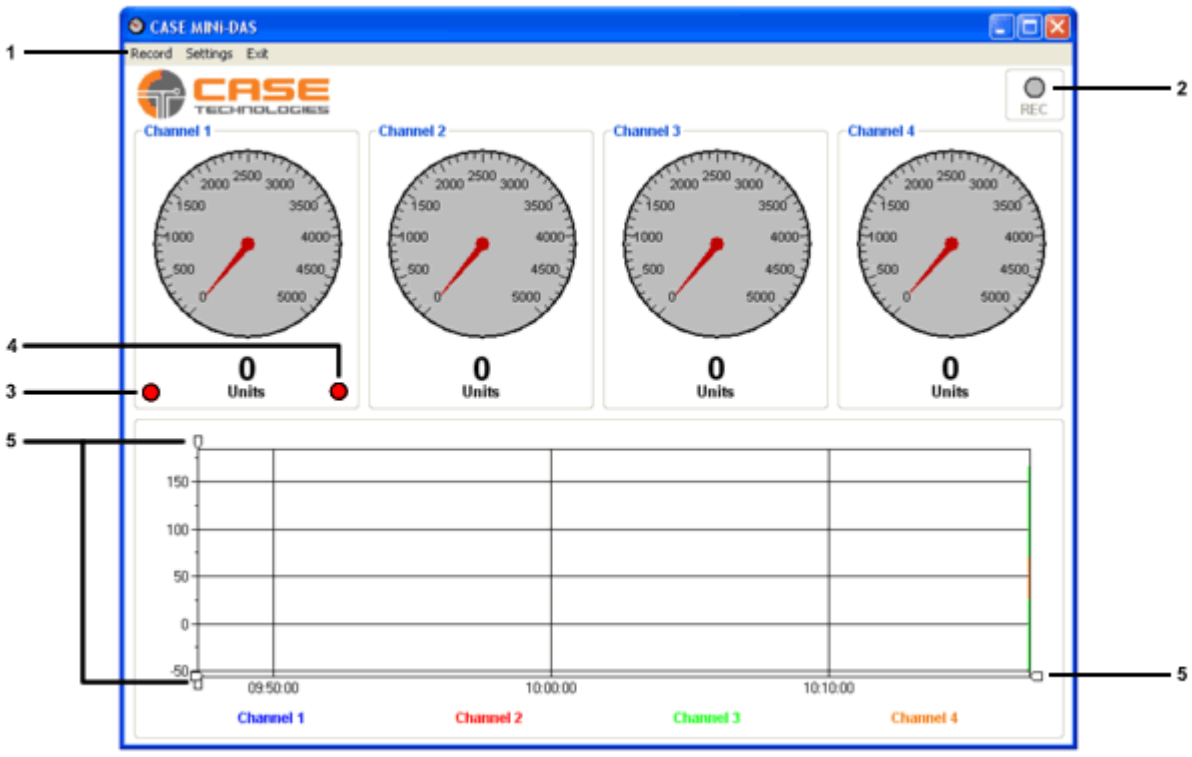
Your MINi-DAS system is now installed and ready to use.

2: MINi-DAS Introduction

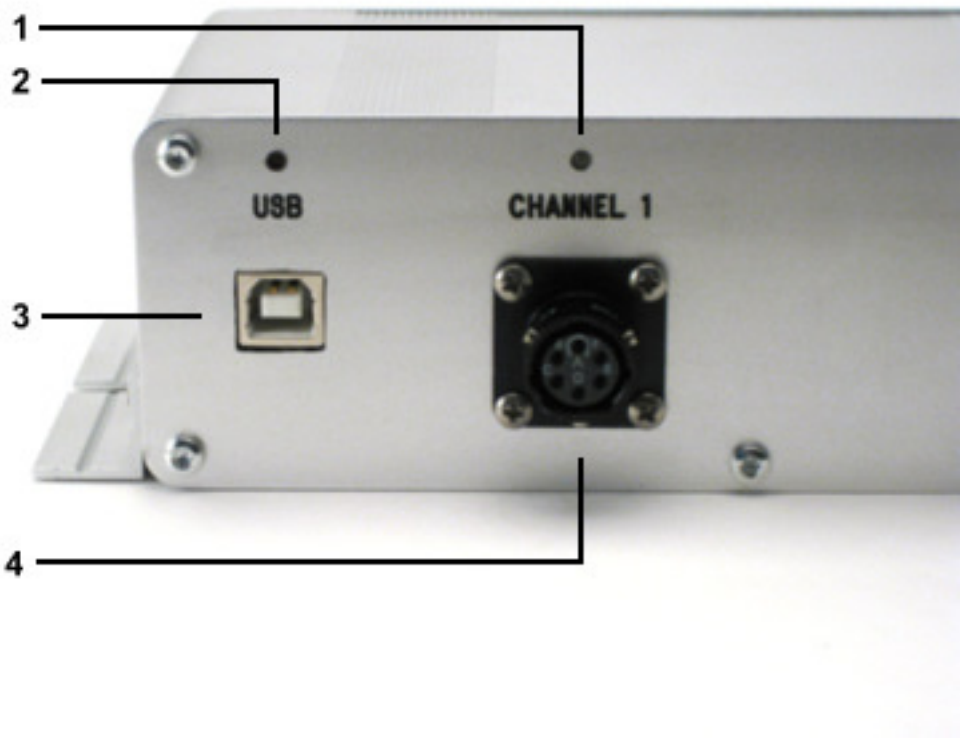
The MINi-DAS system is used as a real time display and data logger. You can display and log up to 4 channels (depending on the model purchased) of instrument data, at one time.

The system is powered from the computers' USB 2.0 port, so no external power supply is required to run the MINi-DAS or the sensors connected to it. This makes the system much simpler to setup, install, and use.

Main Display Screen



1: Menu Bar
2: Recording Indicator
3: High Alarm Override Indicator
4: Low Alarm Override Indicator
5: Graph Control Toggles



1: Channel Indicator
- Green = OK
- Red = Sensor/Cable Failure
- Off = Channel Disabled

2: System Power/Communications Indicator
- Red = System Powered
- Flashing = Communication
- Off = No System Power

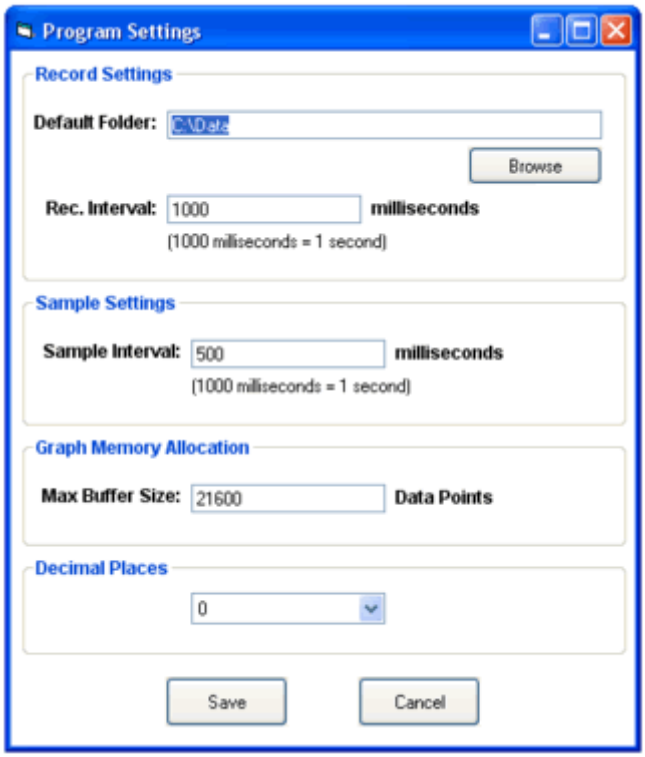
3: USB 2.0 Port

4: PT02A-10-6S Channel Input (Mates with PT06(A,E,P,W)-10-6P)
- Pin Out:
  - A: +24 Volts DC Out
  - B: Sig Return
  - C: NC
  - D: NC
  - E: NC (Can be connected to shield on request)
  - F: NC (Can be connected to shield on request)

3: Program Settings

To get to the program settings screen:

- Click **Settings** >> **Program Settings** in the menu bar



Default Folder

This is the folder where the data that you record is stored. The default folder ***C:\Data*** is created for you when you install the software.

- To change this setting click **Browse** and select the folder in which you would like the data to be stored.

When recording, all data is stored in a ***.csv*** (comma separated value) file, and this file is used to create graph reports with the ***Graph Report*** program.

Rec. Interval

This is the interval (in milliseconds) in which the program will record data. The default setting is 1000ms, which means data will be recorded every 1 second.

*Data is not recorded automatically, and you must start/stop recording manually. Refer to the **Recording** section for more information.*

Example:

If you wish to record data every 1 minute you would set this value to 60000
1000 milliseconds (1 second) X 60 seconds (1 minute) = 60000

The Recording Interval can not be lower than the Sample Interval as this would just record the same data more than once.

Sample Interval

This is the interval (in milliseconds) in which the program requests sensor data from the hardware, and then shows it on the screens displays (Gauge Display, Digital Display, and Graph Display). The default setting is 500ms, which means the displays will update every 0.5 seconds

The Sample Interval is limited by the number of Channels you have activated. See below

Number of Active Channels	Maximum Sample Interval
1	125 milliseconds
2	250 milliseconds
3	375 milliseconds
4	500 milliseconds

These limits are in place to ensure proper communication between the software and the hardware. When you have only one channel active it takes less time to Request-Sample-Report than it would if you had 4 channels active.

Max Buffer Size

This value is used to set the maximum amount of data points that will be visible on the graph before it starts to overwrite itself (this is called Historical Data). The default setting is 21600.

The formula used to calculate memory usage (in Bytes) is:

Number of Active Channels X 16 (Bytes) X Max Buffer Size = Memory Used (in Bytes)

Example:

Using the default settings
4 X 16 X 12600 = 806400 Bytes

To convert Bytes to Megabytes divide by 1048576:
806400 / 1048576 = 0.77 MB

WARNING

Do not set the Max Buffer Size to a value that is higher than your available system memory, as this will cause an error.

The formula used to calculate how many hours of historical data the graph will hold is:

Max Buffer Size / (60000 / Sample Interval (in ms)) / 60 = Historical Data Hours

---

Example:

Using the default settings
12600 / (60000 / 500) / 60 = 3.5 hours of Historical Data

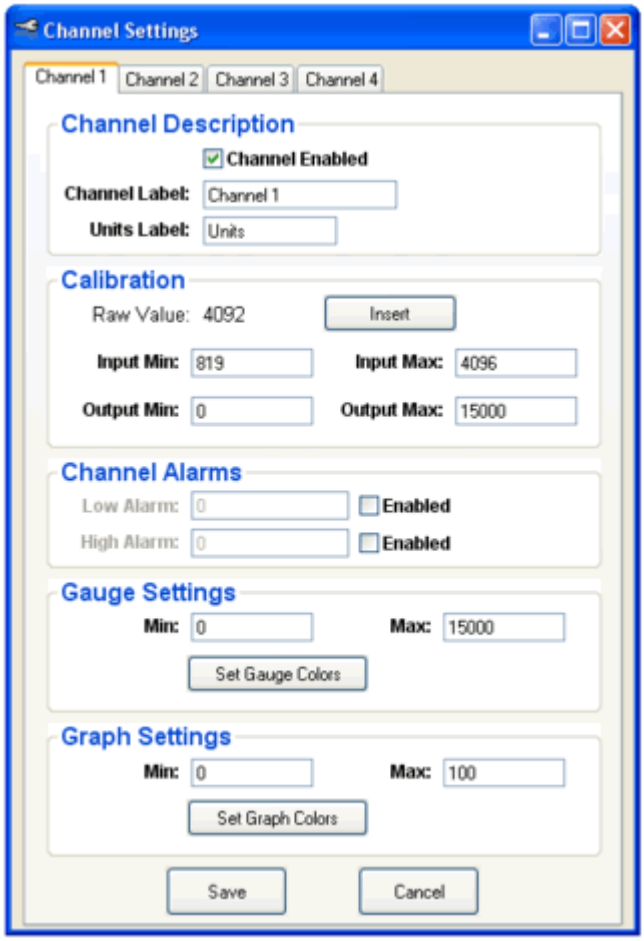
Decimal Places

This sets the number of decimal places that will be shown on the Digital Display, and recorded (when recording is activated). The Gauge Display and the Graph Display will always show data in whole numbers (no decimal places)

4: Channel Settings

To get to the channel settings screen:

- Click **Settings** >> **Channel Settings** in the menu bar



Channel Description

You can rename a channel to anything you wish, as well as set the units that you are measuring i.e. PSI, MPA, DaN and so on.

Calibration

*For proper calibration procedures, please see the **Calibration** section.*

Raw Value: This is a number, between 0 and 4096, that represents the raw signal coming into the MINi-DAS on the selected channel.

Input Min/Max: These values represent the min and max sensor input values, for instance if you had a 4-20mA 0-15000psi sensor the Input Min value would represent 4mA (Raw 819) and the Input Max value would represent 20mA (Raw 4096).

*For convenience, you will notice that when you select either the **Input Min** or **Input Max** value box, all of the text in that box is highlighted, if you click the **Insert** button, the value showing in the **Raw Value** box will be copied to the currently selected Input box.*

Output Min/Max: These values represent the scaled sensor output, for instance if you had a 4-20mA 0-15000psi sensor the Output Min value would be 0 and the Output Max value would be 15000

Channel Alarms

Each Channel can have a High and Low Alarm, to enable either alarm:

- Click the **Enabled** check box next to the corresponding alarm and enter a value in the corresponding text box

Alarm logic is as follows:

High Alarm: If Input is Greater Than or Equal To High Alarm Value Then Active Alarm

Low Alarm: If Input is Less Than or Equal To Low Alarm Value Then Active Alarm

Once an Alarm becomes active, you will hear an audible alarm through the PC speakers, if installed, and you will see the Active Alarm Screen.

If you purchased the Relay Option, the Internal Relay on the MINi-DAS hardware box will trip on all active alarms, and reset once the alarm is cleared or overridden.

The Active Alarm Screen will indicate which channel the alarm is on and whether it is a High or Low Alarm.

- Click **Clear** to clear the Active alarm. (The alarm will appear again immediately if the condition that tripped the alarm is still present)
- Click **Mute** to mute the audible alarm
- Click **Override** to ignore the alarm and all future alarms for that channel and alarm type

If you choose to override an alarm, an Override Alarm Indicator will be displayed on the Main Display Screen (see MINi-DAS Introduction)

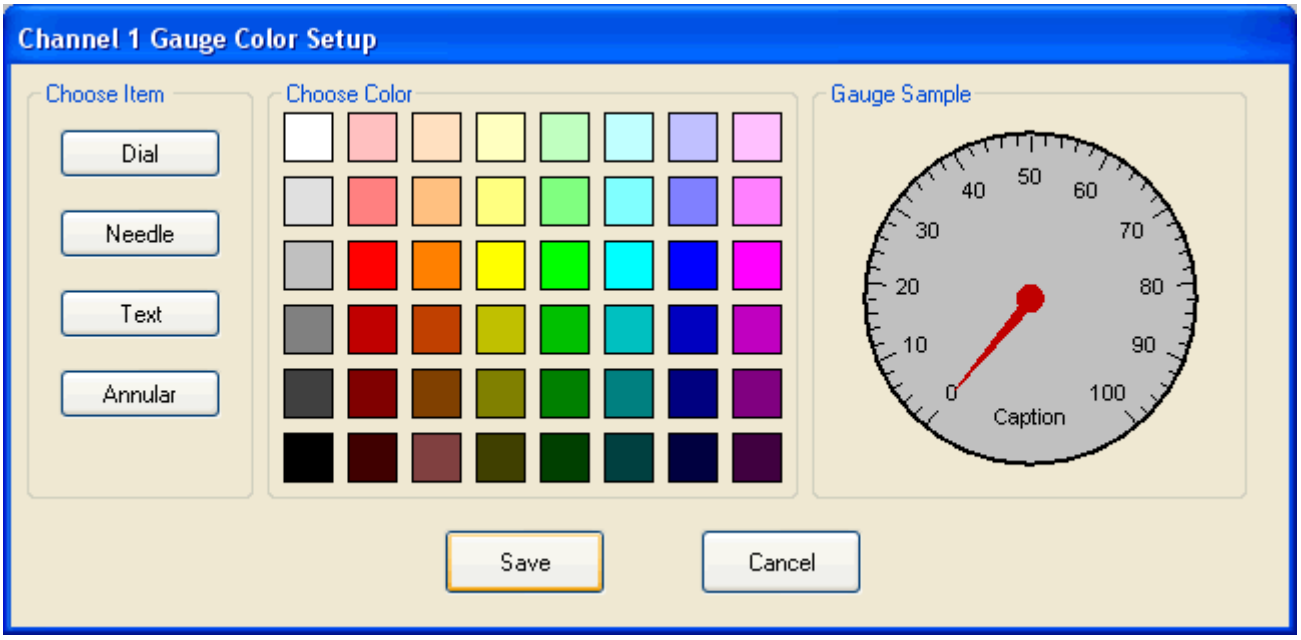
- Click the **High** or **Low Override Indicator** (round red LED) on the Main Display Screen to clear the override

The Clear Override Screen will be displayed to confirm.

Gauge Settings

Gauge Min/Max: Change these values to set the minimum and maximum value of the selected channels Gauge Display

Set Gauge Colors:



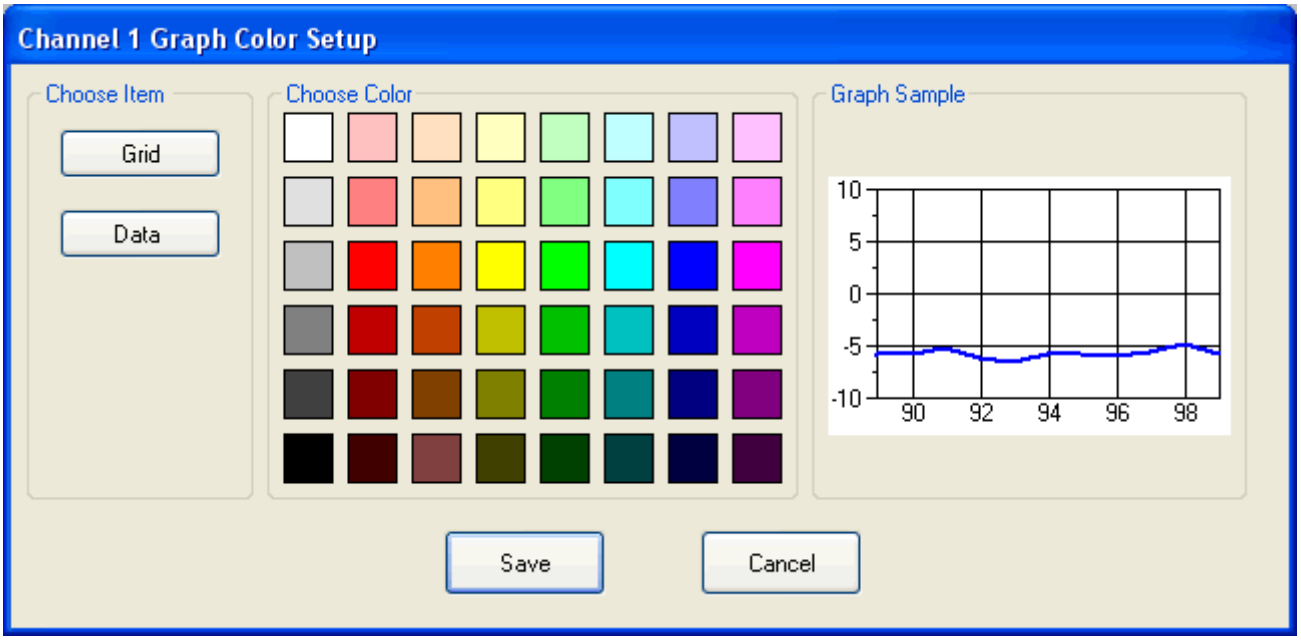
- Under the Choose Item column Click the button of the item you wish to change
- Click on a color

The changes will be updated on the sample gauge.

Graph Settings

Graph Min/Max: Change these values to set the minimum and maximum value of the Graph Display.

The graph will Auto Scale, so if your input is higher than the Graph Max the graph will automatically adjust itself.



- Under the Choose Item column Click the button of the item you wish to change
- Click on a color

The changes will be updated on the sample graph.

5: Calibration

There are multiple ways to properly calibrate the MINi-DAS system, which are beyond the scope of this manual. Some of these include:

- Connecting a Process Simulator (i.e. Pressure pump & gauge) to the sensor.
- Using the sensors shunt cal feature (if available)
- Using a calibrator / multi-meter and the sensors calibration certificate.

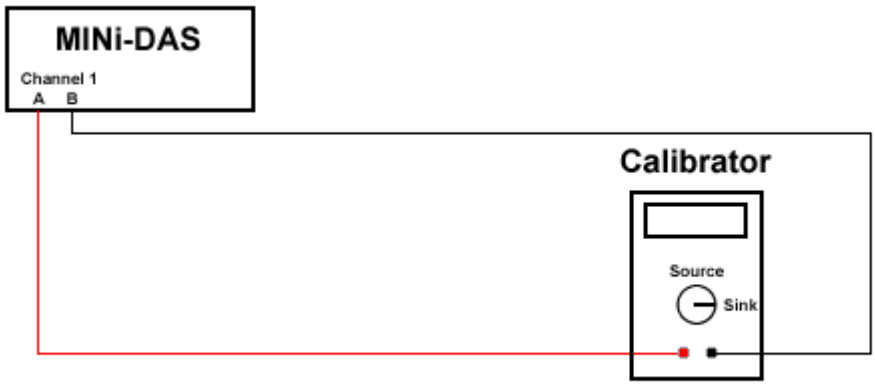
To ensure proper MINi-DAS operation, calibration should only be performed by a trained technician.

To help explain the MINi-DAS calibration procedure, we will be using the last option listed above as an example.

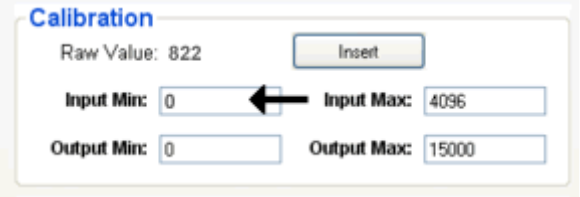
Calibration Example

Sensor Type: 0 to 15000 psi - 4 to 20 mA
Calibration Certificate Min: 0 psi = 4.01 mA
Calibration Certificate Max: 15000 psi = 20.02 mA

Setup:

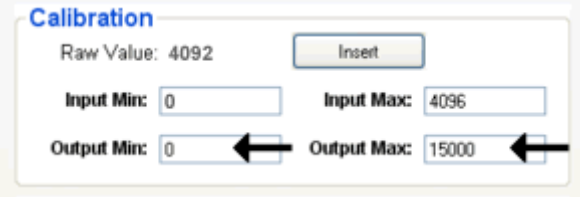


- On the Main Display Screen select **Settings** >> **Channel Settings** from the menu bar
- Select the **Channel** you wish to calibrate (Channel 1 for our example)
- Input Calibration Certificate Min. (4.01 mA for our example) on Calibrator
- Select the **Input Min** box



- Click **Insert**
- Input Calibration Certificate Max. (20.02 mA for our example) on Calibrator
- Select the **Input Max** box

- Click **Insert**
- Type your sensors Lower and Upper Range into the **Output Min** and **Output Max** boxes



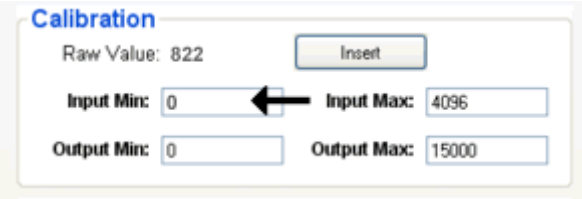
This channel is now calibrated.

The Raw Values shown in the example are estimated. Various factors affect Raw Channel values such as Temperature, Cable Length, and Sensor Type.

Zero a Sensor:

To quickly zero a sensor on any channel:

- On the Main Display Screen select **Settings** >> **Channel Settings** on the menu bar
- Select the Channel you wish to zero
- Select the **Input Min** box



- Click **Insert**

6: Product Customization

Custom Logo

You can change the logo that appears at the top left of the main display screen by:

- Browse to the folder that you installed MINi-DAS into (C:\Program Files\MINi-DAS by default)
- Open the **Resources** folder and replace **Logo.gif** with your own. (Logo size 300 X 80)

Custom Alarm

You can change the Alarm that sounds when a High or Low alarm is activated by:

- Browse to the folder that you installed MINi-DAS into (C:\Program Files\MINi-DAS by default)
- Open the **Resources** folder and replace **alarm.wav** with your own

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