

Pro 3600® Data Logger Installation and Operation

Pro 3600® Data Logger is designed to run on Windows XP and Windows 98. The .NET Framework 2.0 redistributable is required and is included on the installation disk.

Installing Pro 3600® Data Logger

1. Close all open programs.
2. Insert 3600 Data Logger into the CD drive.
3. There is an AutoRun feature on the CD. Once inserted into the drive the program will automatically detect your operating system and begin installation.
4. Click 'Next' or 'Finish' when prompted.
5. An icon will be placed on the desktop when installation is complete.
6. Double Click the icon on the desktop to start the program.

Using Pro 3600® Data Logger

Establishing a Connection

1. Connect the cable to the Pro 3600 and to a serial port on the back of the computer.
2. Press the Power button on the Pro 3600. The cable must be connected prior to powering the Pro 3600.
3. Double click the Pro 3600 Data Logger icon on the desktop.
4. Once the program opens select the **Connection** tab at the top of the main screen.
5. Select **Auto Detect** and **Connect**.
6. If you are using a direct cable connection without Push Button or Foot Switch the Red **Connect** button in the upper left of the Main Screen will change from Red to Green indicating a connection has been established. The current angle displayed on the Pro 3600 will also appear in the message box in the upper left corner of the main screen. If it does not, check all connections and turn power off and back on to the Pro 3600.
7. If you are using a cable with a Smart Tool Push Button or Foot Switch check the **Maximum Rate/External Trigger** button and press the push button or if you are using foot switch press the switch. The Red **Connect** button in the upper left of the Main Screen will momentarily change from Red to Green and back to Red indicating a connection has been established. **Note: The Connection Button will be constant Red until the Push Button or Foot Switch is depressed. Only when the depression is made will the contact be made and a connection established, changing the color of the button to Green. As soon as the Push Button or Foot Switch is released the Button returns to**

Red. The current angle displayed on the Pro 3600 will appear in the message box in the upper left corner of the main screen. If it does not, check all connections and turn power off and back on to the Pro 3600.

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Selecting Formats

If desired, select the appropriate Time Format. Both standard 12 hour and 24 hour formats are available. Click the appropriate button in the **Time Format** section to make your selection. If you make the wrong choice you may change it at any time even when logging data. The program will make the adjustments.

You may select any time interval desired for Pro 3600 Data Logger to log angle data. You may select up to 100 Seconds, Minutes or Hours or any combination thereof and the program will log the angle data in that selected time window. You may either use the up and down arrows beside each box to select the value or you may highlight the number inside the box. Now, merely type in the correct value and press enter. This feature is disabled when selecting **Maximum Rate/External Trigger**.

You may wish to log angles only when the angles change as displayed on the Pro 3600. If so, check the box titled **Log Only On Change**.

If you prefer to collect angular data at the Maximum Rate of 533 milliseconds or if you wish to collect angular data only when depressing the foot switch or the push button then check the box beside **Maximum Rate/External Trigger**.

If you are using the foot switch or push button cable it is a good idea to test that angles are updating when the Pro 3600 is displaying an angle. Rotate the Pro 3600 to a different angle and depress the foot switch or push the push button. The angle displayed in the upper left corner of the Main Screen should update to reflect the angle displayed on the Pro 3600.

Please note: The display of the Pro 3600 ranges from 0° – 90° – 0° – 90° – 0° when rotated through a full 360°. However the serial data output ranges from 0° - 180° - 0 when rotated through a full 360°. In this mode angles may be either + or – depending on whether the angle is an inclination or a declination. The Pro 3600 was designed in this manner to allow the user greater flexibility.

In lieu of a push button the user may force a sample at any time by clicking on the **Force Sample** button. Regardless of the setting, the program will then log the angle. This is convenient for those users who do not have either a push button cable, a foot switch cable, or for testing the connection.

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Logging Angle Data

Logging angle data is simple. Once a connection has been established and the format settings have been selected click on the **Start** button. Pro 3600 Data Logger will record angular data dependent upon the configuration of the format settings or at the depression of the push button or foot switch.

As Pro 3600 Data logger logs the angular data it displays the **Sample Number**, **Sample Time**, and the **Sample Angle** in the text box in the bottom half of the Main Screen. When the text box fills up, the collected data scrolls upwards allowing the user a view of the most recently logged samples.

To pause data logging without disrupting existing angular data collected, click on the **Pause** button. Pro 3600 Data Logger will pause until the **Start** button is clicked again.

To stop the logging of data completely click on the **Stop** button. **Caution: If the Start button is clicked after stopping, all collected angular data will be lost and Pro 3600 Data Logger will begin collecting new angular data. Use the Pause button if more data will be collected as part of the current sample.**

After pausing or stopping a user may use the elevator bar beside the text box to scroll back to a previous angle.

Exporting the Logged Data

To export the logged data into Excel™ click on the **Export** button, the Export Form will open.

Note: Excel™ must already be installed on the computer. Excel™ is not supplied with Pro 3600 Data Logger. See your System Administrator if you do not have Excel™.

To Export the logged data into a blank Excel™ workbook click on the button labeled **Export to blank workbook**.

To Export the logged data into an existing Excel™ File click on the button labeled **Export to existing workbook**. Type the drive number, path and filename into the message box or use the **browse** function to locate the file.

To Export the logged data into a comma separated text file click on the button labeled **Export to CSV file** in the Export File Section. A comma separated text file may be read using any standard text editor such as Notepad.

Select the orientation to place the data either vertically or horizontally in the new file by clicking the designated button in the Orientation section.

Pro 3600 Data Logger will export the sample number and the time of the sample taken. To do so, the designated box beside **Time** or **Sample Number** should be checked. If either box is unchecked Pro 3600 Data Logger will not transfer that specific data into the new file. **Note: If the data in the Time column of the Excel™ Workbook does not display hours then the problem resides in Excel™ formatting of the cells not within Pro 3600 Data Logger. Pro 3600 Data Logger has transferred the data, Excel™ needs formatted to display the Time properly. Select the cells to be formatted in the Excel™ Workbook. Select Format, Cells, Custom. Scroll down and select the time formatting desired.**

To place the data into a specific cell in Excel™ merely type in the cell location in the text box titled **Data Placement**. The default is A1. If the cell location is unknown click the **Select...** button. An Excel™ worksheet will open. Locate the desired cell and click on it. Do not close the Excel™ file. Return to Pro 3600 Data Logger and note the **Select...** button now reads **Set**. Click the **Set** button and the text message box will display **Selected**.

Click the **Export** button and a new Excel™ file will open. The logged data will be placed into the Excel™ file beginning with the selected cell.

Pro 3600[®] Data Logger

Data recording made simple

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Features

- Remotely monitor and record angles.
- Software has auto-install feature for quick and easy installation.
- Connect to any PC equipped with a serial port using either a footswitch available through our distributors Mitutoyo and SPI or an interface cable you can purchase directly from M-D (see cable information below).
- Single click export of logged data into new or existing Microsoft[®] Excel workbooks or into comma delimited files.
- Both Auto and Manual Detect features to recognize Pro 3600.
- Flexible data logging options
 - User set time interval from twice per second to every 99 hours
 - Manual logging using footswitch or on-screen button
 - Log data automatically upon change in measured angle
- User definable Standard or 24 Hour Time formats changeable on the fly.
- Built in Help screens.
- Printable installation and operation manual on the CD.

No other digital level or protractor in the world offers this convenient, time saving tool.

System Requirements

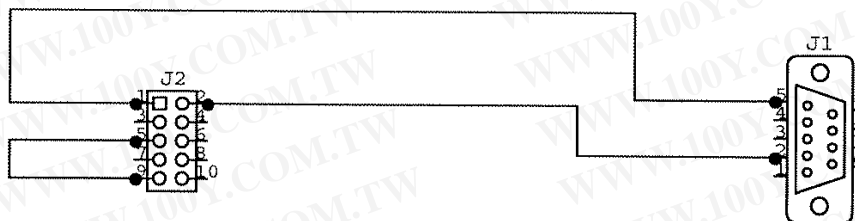
Windows XP[™] or 98[™]

Microsoft[®] Excel[™]

Serial Port

Interface Cable

The interface cable is standard RS-232 wired as shown with a DB-9 Female connector for the computer's serial port and an Amp P/N 1658621-1 connector to interface with the Pro 3600.



Pin 1 is on
keyed side

Rear View of DB9

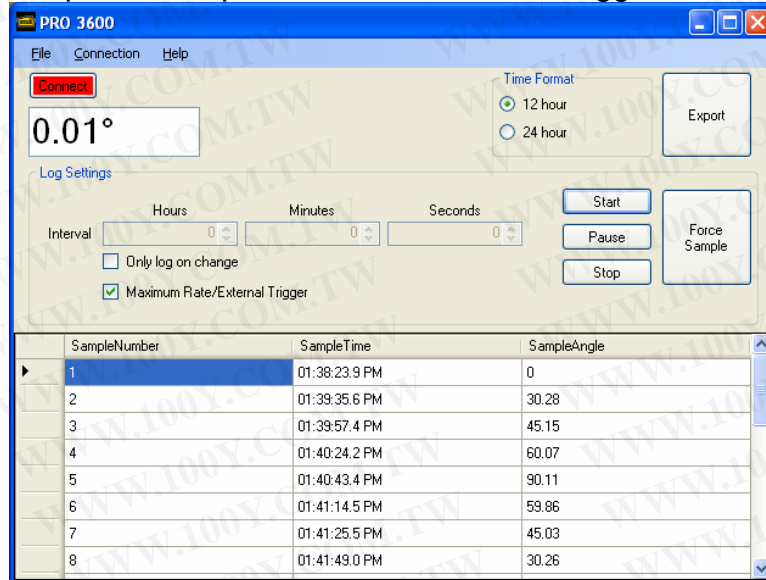
J2-1 Level Ground ==> J1-5 Computer Ground

J2-2 TX of Level ==> J1-2 RX of Computer

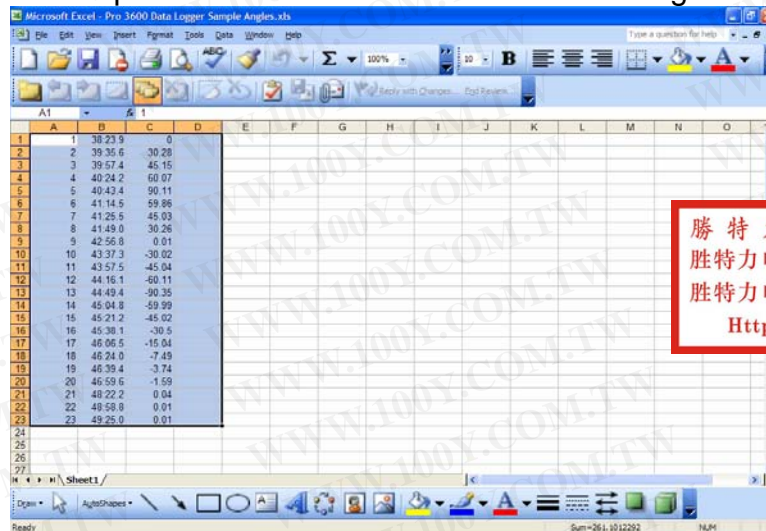
J2-5 RX of Level ==> J2-9 Batt+ of Level

Note: This cable will allow the 3600 to Tx data every 533 Ms.

Sample screen print of Pro 3600® Data Logger software



Microsoft® Excel™ spreadsheet created with Pro 3600® “single click” data export



Example of user created Microsoft Excel graph of the Pro 3600 data

