

WireLog Plus™

WireTrak™ Sensor Program

User's Manual

Manual Part Number: A8M5018
Revised: 7/16/2002

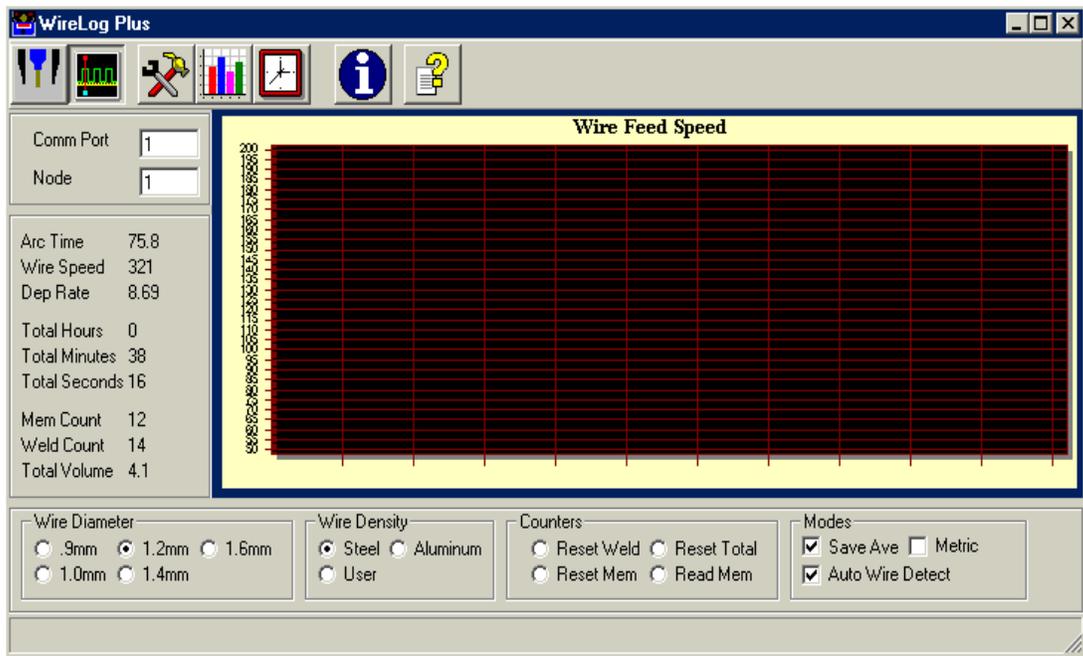


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1.0 System Overview

1.1 General Overview

The WireLog Plus™ Program is used with the WireTrak™ Sensor and provides a simple MODBUS™ terminal to program and download data from multiple WireTrak™ Sensors. The program uses the MODBUS™ RTU protocol to establish communication with multiple WireTrak™ devices. The interface to the Sensor is via a RS-485 duplex network.

The WireTrak™ sensor (A3A0211) is a lightweight; compact sensor unit designed for monitoring and telemonitoring service purposes in a welding environment. The WireTrak™ Sensor includes an embedded micro-controller to provide the necessary data acquisition, signal processing and communications firmware to allow remote logging of the following basic welding parameters.

- Actual Wire Feed Speed
- Arc Time based on wire feed motion
- Summary of Wire Feed Speed and Arc Time Wire Feed for last weld
- Totalized Wire Feed Speed and Arc Time
- Volume deposited for last weld
- Totalized volume deposited based on average wire speed and time

2.0 System Requirements and Software Installation

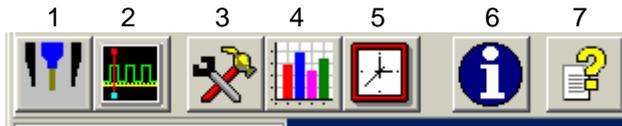
The WireLog Plus™ program is designed for use with Windows 95/98® or Windows NT® 3.51 or later platforms. The program has been tested with Windows 95®, Windows 98® and Windows NT® 4.0. The following are the minimum system requirements:

Processor:	150mhz Pentium™ or higher microprocessor
Memory:	24 Megs minimum for Windows 95/98®, 32 Megs for Windows NT®
Hard Drive:	25 Megs of available hard drive space
Graphics:	Minimum SVGA graphics. XVGA recommended
Serial Port:	RS-232 serial port

The following is the installation procedures for the WireLog™ software

1. Insert disc into CD-ROM drive. The setup program should start automatically. If the setup program does not start automatically, double click SETUP.EXE from your directory window for your CD-ROM drive.
2. Follow the instructions on your screen.
3. To access the WireLog Plus™ program click on the Windows Start button then select the Programs option. Select the Computer Weld Tech menu then select the WireLog™ option. Double click on the WireLog™ short cut.

3.0 Program Tool Bar



The Tool Bar Contains Speed buttons that can be used to invoke various program functions.

1. **Arc On**
2. **Plot Data**
3. **Tool Box**
4. **Read Data**
5. **Set Clock**
6. **Information**
7. **Help**

To select a specific function click the associated button.

3.1 Arc On Button

Click this button to toggle the Auto Detect mode. The Icon will indicate the current status of the wire speed sensor. When the wire sensor detects wire speed the Icon will display the ARC active symbol.

3.2 Tool Button

Press this button to open the Setup Parameter window.

3.3 Plot Button

To collect and display run time data press this button and a sweep chart will be generated using the current wire speed values and arc time. The data will also be saved in a raw data file. Each weld will be stored in an automatically generated sequential file. The files are Text based, comma-delineated and can be directly loaded into an Excel spread sheet.

3.4 Read Button

To download the data summary records from the *Wire Trak*TM sensor press this button and the data will be read from the Sensor to a SPC summary data file. The file generated is a comma-delineated file and can be directly load into an Excel spread sheet.

3.5 Clock Button

To set the *Wire Trak*TM internal Real Time Clock press this button and the program will send the current Date and Time to the selected Sensor.

3.6 Info Button

The Info Button is used to display the version number and copyright information for the program.

3.7 Help Button

The Help button is used to invoke the online help manual.

4.0 Communication Configuration And Status

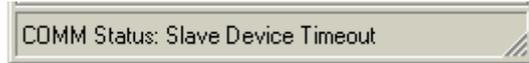


The image shows a configuration window titled 'Comm Frame'. It contains two input fields: 'Comm Port' and 'Node'. Both fields have the number '1' entered. The 'Comm Port' field is on the top line and the 'Node' field is on the bottom line.

The Comm Frame allows the user to specify the serial port and the MODBUS™ Node number. The Node number is the unique Device ID number set in each of the *Wire Trak™* Sensors.

- Comm Port -** Specifies the serial port number to be used for communications.
- Node -** Specifies the MODBUS™ Device ID node to be used for communications.

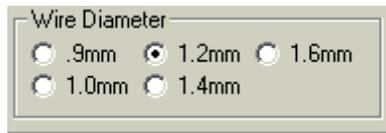
To change the Active Node click on the Node window and enter a new node number. The program will begin communication with the selected device. If a Communication error occurs the program will display the error message in the Status Bar at the bottom of the Main program window.



The Status bar displays the current status of the MODBUS™ communications driver.

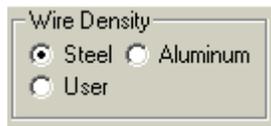
5.0 Sensor Configuration And Setup

5.1 Wire Frame



The wire frame contains the control buttons that can be used to select and display the wire diameter used to calculate the deposition rate and usage values.

5.2 Density Frame



The density frame is used to select and display the current wire density used by the *Wire Trak™* sensor to calculate the deposition rate and total usage values. Two predefined values are defined in the *Wire Trak™* sensor. The user may also specify a download value that can be used.

- Steel -** Selects the mild steel density value.
- Aluminum -** Selects the Aluminum density value
- User -** Enables the User defined value as specified in the Setup Parameters Window.

5.3 Mode Frame



The Mode frame contains the mode check boxes that are used to configure and display the current modes set in the *Wire Trak™* sensor. When connected to a selected device the current status will be displayed. The following is a description of the Modes:

- Save Ave -** Enables data to be saved in the *Wire Trak™* memory.
- Metric -** Enables metric unit of measure.
- Auto Wire Detect -** Enables the Auto wire start/stop detection

To change the status click on the desired function.

5.4 Counter Frame

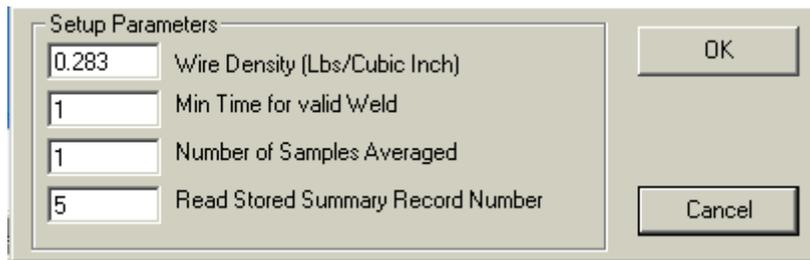


The Counter frame contains the control buttons that can be used to reset the various counters and to read stored data from the *Wire Trak™* sensor. The following is a brief description of the *Wire Trak™* counters:

- Reset Weld** - Check this box to reset the *Wire Trak™* Weld cycle counter
- Reset Total** - Check this box to reset the total Arc Timer and Total Volume accumulators.
- Reset Mem** - Check this box to reset the *Wire Trak™* weld memory.
- Read Mem** - Check this box to read the stored data from the *Wire Trak™* memory specified by the Read Memory Value in the Tool Box window.

When the item is checked the request command is sent and the checked item will be cleared indicating completion of the command.

5.5 Setup Parameters



The Setup parameters window is used to configure various parameters used by the *Wire Trak™* sensor. The following items can be configured from this window:

- Wire Density** - The density for the type of welding wire being used for a specific application. To enable this value the user must select the **User** option in the Wire density Frame.
- Min Time** - This value specifies the minimum arc on time that must be exceeded to accept the weld as a valid weld event. If a valid weld has occurred then the summary data will be saved, if enabled, and the weld count will be incremented.
- Number of Samples Averaged** - This value specifies the number of raw data samples that are averaged to generate a single sample of wire speed data.
- Read Stored Summary Record Number** - This value is used to request a single record read from the sensor. The value set is error checked against the current memory count and will only allow values less than or equal to this count.

6.0 Collect Data

To collect raw data and save to a file press the **Plot Button** and a Sweep Chart will appear. The incoming data will be appended to the sweep chart and stored in a raw data file. When an Arc Off condition is detected the raw data file will be closed. When the next Arc On is detected the Sweep Chart will be updated with the new data and a new Raw Data file will be generated.

To halt the collect routine press the **Plot Button**.

6.1 Read Single Stored Data Record

To read a single stored summary data from the Wire Trak™ to the Data Frame, enter the desired memory count number into the **Read Stored Summary Record Number** window in the Setup Parameters Window. Then click the **Read Mem** button on the Counter frame. When the data has been read the **Read Mem** button will be cleared and the resulting data is displayed in the Data Frame.

6.2 Read All Stored Data Records

To read all of the stored data records press the **Read Button** and the program will read all available data records into a single SPC summary data file. The Read Button will remain pressed until all records have been read. Each record read will update the Display Frame and the parameters will be updated. The memory count will indicate the current record being displayed.

6.3 Raw Data Files

When reading run time data from the Wire Trak™ sensor the Program will generate a comma-delineated file. The Device Node number will be used to generate a weld data subdirectory with the following format:

```
{App.Path}\Data\Node # \Weld\
```

Where: # is the Node Device ID number where the data was read from.

The Data file name will be generated using the P.C. current Date and a sequential file number. The following is an auto generated summary Data file name.

```
12JUL02-1.cvs  
(DyMnYr-#.cvs)
```

Where: **Dy** is the P.C. current day, **Mn** is Current month, **Yr** is the current Year and **#** is a sequential file number.

6.4 Summary Data File

When reading stored summary data from the *Wire Trak™* sensor the Program will generate a comma-delimited file. The Device Node number will be used to generate a SPC subdirectory with the following format:

{App.Path}\Data\Node # \SPC

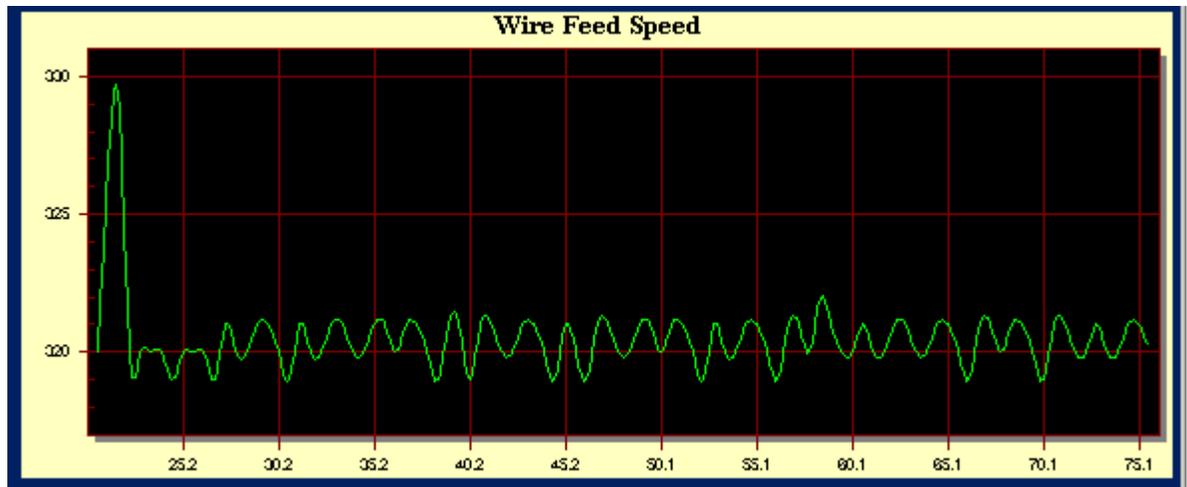
Where: # is the Node Device ID number where the data was read from.

The Data file name will be generated using the P.C. current Date and a sequential file number. The following is an auto generated summary Data file name.

12JUL02-1.csv
(DyMnYr-#.csv)

Where: **Dy** is the P.C. current day, **Mn** is Current month, **Yr** is the current Year and **#** is a sequential file number.

6.5 Sweep Chart



When the Plot function is enabled the Program will generate a sweep chart for the data collected. The chart X-axis will display the Arc time (in Seconds) when the data was read and the Y-axis will display the associated value. As time progresses, new data is appended to the right most position on the graph and old data is pushed to the left. The Y-axis is auto scaled based on the current data. When a new weld is detected the X-axis time will reflect the new arc time. When the Plot functions is disabled the old data will remain. When reactivated the new data will be appended to the old chart.

6.6 Data Frame

Arc Time	93.7
Wire Speed	243
Dep Rate	6.58
Total Hours	0
Total Minutes	30
Total Seconds	14
Mem Count	6
Weld Count	8
Total Volume	3.4

The Data Frame displays the current values of the various parameters generated by the WireTrak™ sensor. The following is a description of the parameters:

- Arc Time -** During Arc On displays the running time in seconds. During Arc Off displays the Total time for last weld cycle.
- Wire Speed -** During Arc On displays the running value of wire speed. During Arc Off displays the last weld average value in IPM or mm/sec.
- Dep Rate -** Displays the deposition rate for the last complete weld cycle in lbs/hour or Kgms/hour.
- Total Hours -** Displays the total accumulated arc time hours since last reset.
- Total Minutes -** Displays the total accumulated arc time minutes since last reset.
- Total Seconds -** Displays the total accumulated arc time seconds since last reset.
- Mem Counter -** Total number of wire summaries stored in the WireTrak™ sensor memory.
- Weld Counter -** Total weld counts since last reset. A valid weld is based on the total arc time when the wire speed stops. The arc time must be greater than the Min Arc time specified in the Setup Parameters window.
- Total Volume -** This is the total accumulated volume of wire deposited since last reset in lbs or Kgms. The total volume is based on the accumulate arc time and depositions rates for each individual weld since last reset.