

## NOTES

### INTRODUCTION

Thank you for purchasing an Advanced MicroSystems Inc. Distance Measuring Instrument! You now have the most reliable and accurate DMI on the market today! The Microline series of DMI's are packed with features that are easy to use, day or night, and will last for many years to come. At Advanced Microsystems we use only the highest quality, state of the art components available and manufacture the DMI's right here in the USA.

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## PRE-INSTALLATION

Several variables can affect the proper operation of your DMI. However, observing a few simple precautions, you will be able to control these variables and eliminate potential problems.

1. When routing wires make sure you are not near any ignition wires (spark plug wires, etc.). Also stay away from any exhaust pipes, hinges, etc. that might burn or cut the wires.
2. Tires should be of good quality. Steel belted tires are recommended. Tire pressure should be the maximum allowed by the tire manufacturer, typically 32-35 psi cold.
3. Prior to calibration of your DMI, drive the vehicle 3 to 5 miles in order to warm the tires up to normal operating temperature. Refer to the calibration section of this manual for detailed instructions.

## INSTALLATION PROCEDURES

1. Your Distance Measuring Instrument is designed to be mounted using the Velcro strips that are included with the installation kit. Determine where you want the DMI mounted. You might want to angle the DMI so the operator will be able to see the display and keyboard.
2. Remove the self-adhesive protective covering from one of the Velcro strips. Place the sticky side down where you are mounting the DMI. Take the other Velcro strip and connect it to the one you just mounted. Remove the self-adhesive protective covering and press the DMI firmly onto the Velcro strips. Allow 5 minutes for the Velcro to set before trying to lift the DMI.
3. Plug the instrument's wiring harness into the DMI. Route the other end of the wiring harness through the firewall at an existing rubber grommet (usually this is where the speedometer cable or other wiring passes through the firewall). If you can not locate an existing hole you will have to CAREFULLY drill a 1/4 to 3/8 inch hole through the firewall. Be careful not to drill or cut any existing wiring or anything mounted to the firewall. You should put a rubber grommet in the hole you just drilled. Also you may want to leave enough slack in the cable to permit a passenger to hold the instrument.
4. With the screws provided mount the terminal block somewhere in the engine compartment. (We suggest the driver's side fender well.) Route the wiring harness as far as possible from any ignition wires (spark plugs, coil, etc.) and attach to the terminal block as shown on page #13.

## WARRANTY INFORMATION

Advanced MicroSystems, Inc. provides a two (2) year limited warranty on parts and a one (1) year limited warranty on labor against defects in workmanship and material on the distance measuring instrument. Sensors, wiring, connectors, and other hardware are warranted for one (1) year against defects in material and workmanship.

Advanced MicroSystems, Inc. warrants each new instrument manufactured by the company to be free from defective material and workmanship and agrees to remedy any such defect or, at its option, to furnish a new part in exchange for any part of any instrument of its manufacture, which, under normal installation, use, and service discloses such defect, provided the instrument is returned to our factory or authorized service agent, intact, for examination, with all transportation charges prepaid.

This warranty does not extend to any of our products which have been subject to misuse, neglect, accident, incorrect wiring that is not our own, improper installation or to use in disregard of instructions furnished by AMS, nor extended to products which have been repaired or altered outside our factory or authorized service agent.

Any part of an instrument or accessory approved for remedy or exchange will be remedied or exchanged by the factory or authorized agent without cost to the owner. This warranty is in lieu of all other warranties either expressed or implied and no representative or person is authorized to assume for us any other liability in connection with the sale of our products.

Any questions concerning this warranty should be directed to:

**ADVANCED MICROSYSTEMS, INC.**  
**654 PITTSBURGH ROAD**  
**UNIONTOWN, PA 15401**  
**Phone(724) 438-7500**  
**Fax(724)438-7501**

**Microline-2000 Optional RS-232 Cable Pinout  
Interfaced To Various Desktop Computers**  
Cable Shown is 3 Conductor 24 ga. Aprox. 6' Long

**DB25P-25 pin D Connector  
Male**



IBM 25 pin Male	IBM 9 pin Male	Signal	Microline	2000
3	2	RXD	WHITE	3 RED
2	3	TXD	RED	5 WHITE
7	1	GND	BLACK	1 BLACK

Since there are many different computers that utilize different RS-232 Input Connectors, we do not provide the necessary connector to your computer.

The following will describe the Pin Number, Color Code and Function of our RS-232 Connector:

- Pin Number 1-Black = Ground**
- Pin Number 5-White = Receive Data (Rxd)**
- Pin Number 3-Red = Transmit Data (Txd)**

Refer to your Computer Operators Manual prior to attaching the required connector to our RS-232 Wiring Harness.

Our RS-232 Output is standard ASCII Character, 8 Data Bits, No Parity, 1 Stop Bit with software hand-shake, X on - X off.

Should you have a communications problem between the 2000 and your Computer check to make sure your solder connections to the RS-232 Input Connector, as well as the pin-out are correct. Check the Baud Rate communications between the 2000 and your computer and adjust as required.

5. When connecting the positive and negative wires, they must go DIRECTLY to the vehicle's battery. NOT A FUSE PANEL OR CHASSIS GROUND!  
Connect the other end to the terminal block as shown on page #13.

**INSTALLATION PROCEDURES  
AES-4 ELECTRONIC SENSOR**

1. Install the terminal block and wiring harness as previously stated under installation procedures. Also shown on page #13.
2. Locate your vehicle speed sensor. It is usually located where you would normally find the mechanical speedometer cable coming from your transmission. You will find two wires coming from the vehicle speed sensor.

**Special Note:**

The color codes may vary depending on year make or model and can be found in the service manual under vehicle speed sensor (VSS) which can be obtained from the dealership of purchase.

**Special Note:**

If the signal is weak at the vehicle speed sensor you can tap into the wire going into the instrument cluster behind the dash.

3. Route the red and black end of the long cable that came in the package with the AES-4 sensor to the vehicle speed sensor. Using the splice clips provided place one on a wire coming from the vehicles speed sensor. Take one of the wires coming from the long cable and put it in the other opening in the splice clip. Take a pair of pliers and squeeze the metal splice onto the wire. Then snap the plastic clip over the splice. Repeat the procedure with the other wire.

4. The opposite end of the long cable goes directly to the terminal block as shown on page #13. Nylon ties are provided to secure the wire.

5. Attach the AES-4 to the terminal block as shown on page #13. Depending on the vehicle the pulse rate can range from 4,000 pulses to 128,000 pulses per mile. We have provided a selector switch to divide the pulse rate. A small screwdriver will be needed to turn the switch. The outputs are as follows:

- 1: Direct 1 to 1 signal output
- 2: Divide signal output by 2
- 3: Divide signal output by 4
- 4: Divide signal output by 8
- 5: Divide signal output by 16
- 6: Divide signal output by 32
- 7: Divide signal output by 64

6. We suggest that starting out you select position number 3. The object is to have the calibration number below 1.00. If the calibration number is too high, you need to divide by a smaller factor ie: 2 or 1. If the number is too low you need to divide by a larger factor ie: 8 or 16. It may take several runs to see which position works best for your vehicle. Refer to the calibration section of this manual for more specific instructions.

7. If the instrument fails to calibrate, counts erratically, will count even while the vehicle is stopped, or will not count at all, go to the terminal block and disconnect the ground wire coming from the transmission. Repeat the calibration process and adjust the selector switch as necessary.

8. If your vehicle has an especially noisy electrical system you may experience a condition where the instrument will count when the brakes are applied, or the turn signals are flashing. Should this occur there are two filter positions internal to your AES-4. Move the signal wire coming from the transmission to the next position on the terminal block. If the condition still persists then use the next position on the terminal block. Repeat the calibration procedures and adjust the divide signals as necessary.

## **Operating Your Custom Microline™ Periodic Distance Output Option (PDO)**

**\*Note all the following steps are performed while the count hold is on.**

**This option is used for firing photo logging equipment, paint solanoids, providing distance pulse to a laptop computer, etc.**

**1. To activate this automatic feature the PDIST button now has two functions. Depress this Switch once and the Microline now Displays P.O. in the Left hand side of the display. This stands for Pulse Output (How often you wish to output pulses) this can be any unit of measurement. Input distance then depress enter.**

**2. After entering the P.O. Distance you can select the output duration of this pulse anywhere from 10 Milliseconds .01 To 2.55 Seconds. For this application I suggest around .05 (50 Milliseconds) to .10 (100 Milliseconds).**

### **Disabling Custom Feature**

**VERY IMPORTANT : entering a 0 (zero) for the P.O.(Periodic Output) Distance disables this custom feature. Count HOLD on, Depress PDIST key once on keyboard, Depress 0 (zero) and Enter.**

**Pre-distance : To activate the pre-distance feature depress the PDIST key twice.**

**For More information on key functions, Please Refer to page 5 of this manual.**

## Microline™-2000 Optional RS-232 Laptop (Capital D) Procedures

Print 5 function is the same as the Print 2 function except for the output port used. Print 5 uses the RS-232 Port , Print 2 uses the parallel printer port.

Operation of Print 5:

1. Press the Print key, display shows "Print - 0".
2. Press the 5 key, display shows "Print - 5"
3. Press the ENTER key, display shows "baud 2400".
4. Use the UP /DOWN keys to select the baud rate desired (19200 Max ).
5. Press the ENTER key, display shows "dt".
6. Use the numeric keys to key in the date mmddyy.
7. Press the ENTER key, display shows " id. ".
8. Use numeric keys to key in a identification number ( 6 digit Max. ) .  
This could be a code number to identify the operator, district, county, etc.
9. Press the ENTER key.

At this point two methods of sending data are available. First, from the Microline -2000 instrument you are able to key in a two digit code to identify an event and then press ENTER as the event occurs. Data will be transmitted to the Laptop via the RS232 line. Second, from some external source. eg. Laptop type or P.C. Computer transmits a Capital D. (Cap. D, Hex 44 or Decimal 68) the distance data will be transmitted back. Every time the DMI sees a Capital D on the RS-232 line, the data string is transmitted.

## OPERATING PROCEDURES and KEY FUNCTIONS MODEL 1000

You will notice that as each key is depressed there is both a "CLICK" feel as well as a "TONE" feedback. This will allow you to determine that the instrument received your instruction without having to look at the display.

ON/OFF Provides power to the instrument. When the unit is turned on it will conduct a Self Test. After the test it will set the instrument to certain conditions. they are as follows:

- A. Instrument is in Count Hold.
- B. Instrument will count Up (when C-HOLD is depressed)
- C. Unit of Measurement is Feet.

C-HOLD When depressed C.H. will be shown on left side of display. The LED for the unit of measurement will be steady on and the other LED's will flash. Stops and starts distances from being computed.

D-HOLD When depressed D.H. will be shown on left side of display. This key will freeze the display; however the instrument will continue to count distance. When depressed again the display will show the actual measurement.

CALB When depressed C.L. will be shown on left side of display. This key is used to calibrate your DMI, and is also used to view or enter a new calibration number. See the Calibration section of this manual for specific instructions.

P-DIST The Pre-Distance key will allow you to enter a known distance into your display. The procedures are as follows:

- A. Depress the C-HOLD key. C.H. will be on the display.
- B. Select the Unit of Measurement with UNIT key
- C. Depress the CLEAR key.
- D. Depress the P-DIST key. P.d. will be shown on left side of display.
- E. Key in the distance desired using the numeric keys.
- F. Depress the ENTER key. P.d. will go out but the value entered will remain on the display.
- G. Depress the C-HOLD key prior to measuring.

UNIT Each time this key is depressed the Unit of Measurement will be converted from total Feet, Miles, and Meters. The appropriate LED indicator will be lit. The Unit of Measurement can be changed anytime while measuring or while stopped.

**MODE** The MODE key allows you to select to display your vehicle's speed or elapsed time.

- A. **TIME:** When depressing the MODE key to select Time, your elapsed time in Hours Minutes and Seconds will be displayed. time is only calculated only while the unit is not on C-HOLD.
- B. **SPEED:** When depressing the MODE key to select speed, the appropriate LED will light and d.s. (display speed) will be in the left two digits with the current mode in the right of the display. Entering a 1 will select the speed to be displayed simultaneously with the distance and a 0 will disable the speed. Press the mode key again to display distance. When measuring, the speed is displayed along with the distance if selected.

**CLEAR** The CLEAR key resets the distance or time to zero. To do this you must have C-HOLD on, then make sure the LED for TIME is lit to clear the time or no LED lit to clear the distance. Then depress the CLEAR key to reset.

**ENTER** The ENTER key tells your instrument to accept the value displayed i.e: Calibration Number, Pre-Distance etc. Anytime you key in a value you must depress the ENTER key for the instrument to accept the value.

**UP** The UP ARROW key instructs the instrument to count up. It will add distance from zero or to a value previously entered

**DOWN** The DOWN ARROW key instructs the instrument to count down. It will subtract from the current distance displayed or from a value previously entered. The LED for Unit of Measurement selected will flash indicating you will be subtracting from the measurement in the display. The instrument will count down to zero, then you will hear a BEEP and then automatically begin to count up.

**OPERATING PROCEDURES and  
KEY FUNCTIONS MODEL 2000**

(same as 1000, plus: )

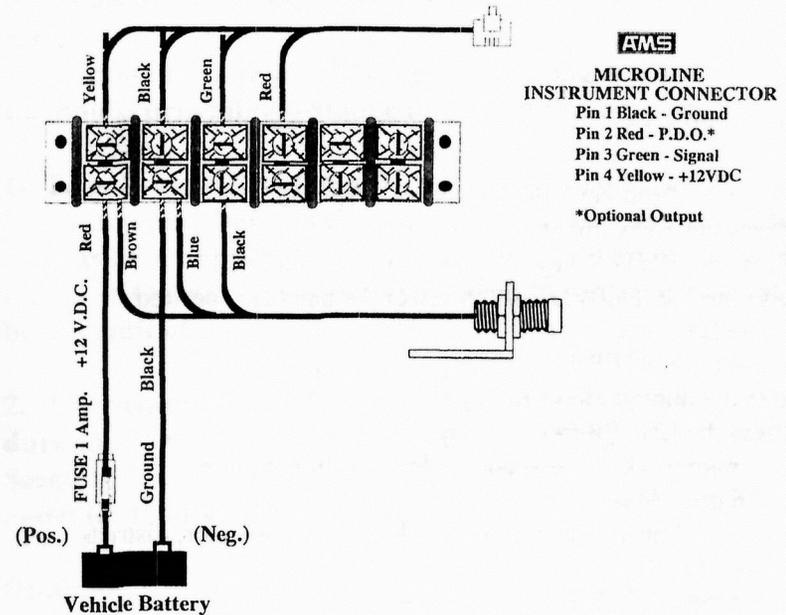
**STORE** Instructs the instrument that you wish to use the Memory Store function. See Memory Procedures for specific instructions.

**VIEW** Allows you to View data previously stored in Memory. See Memory Procedures for specific instructions.

**ERASE** Clears all data previously stored in memory. See Memory Procedures for specific instructions.

**PRINT** This key is only used with the RS-232, Laptop D, and printer. Instructions are included with each option.

**Microline Wiring for Vehicles  
requiring Proximity Sensor Interface**



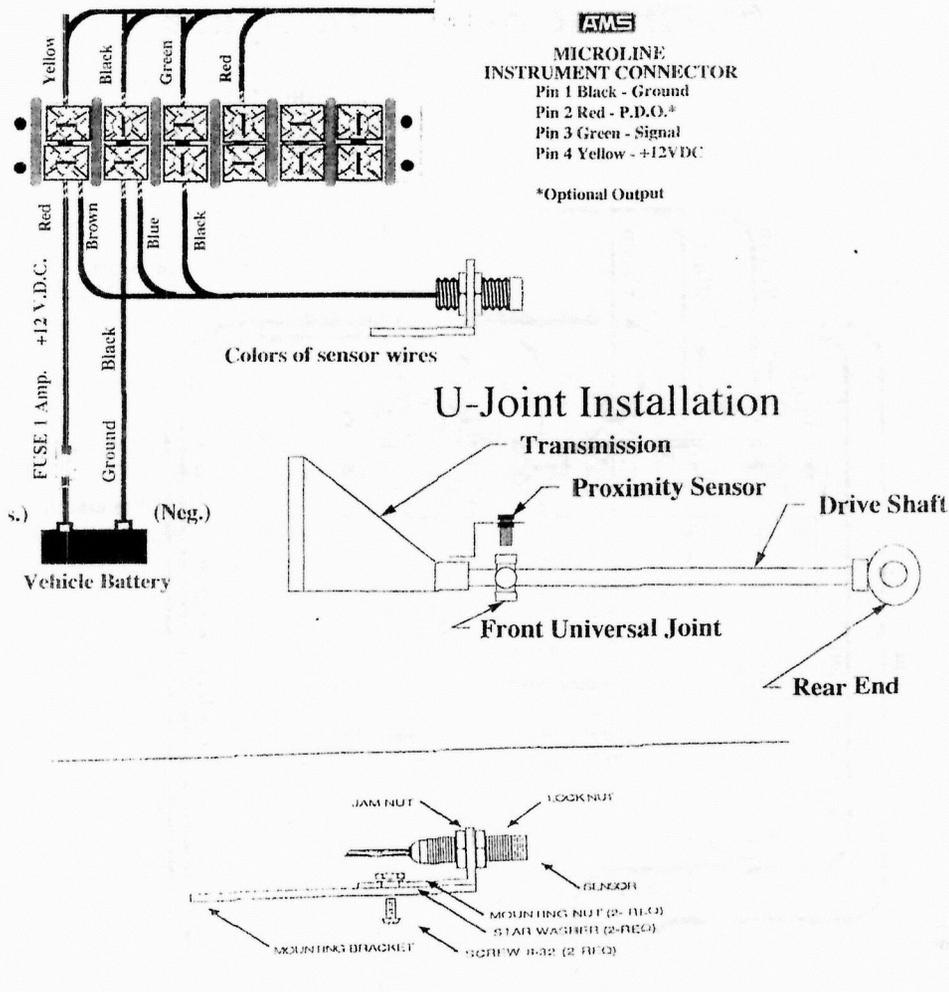
**Wheel Sensor Installation**

Mounting Wheel Targets:

10 Stainless steel targets are provided, but use no more than 8. The remaining are extras.

1. Jack front of vehicle safely using wheel chucks. Remove either front wheel. Place targets evenly on the inside of the wheel as you would wheel weights.
2. Do not remove wheel weights to place targets if possible.
3. It's a good idea to clean the rim before installation

## Microline Wiring for Vehicles requiring Proximity Sensor Interface



Align proximity sensor approximately 1/8" from U-Joint.

## CALIBRATION PROCEDURE

Prior to calibrating your DMI you must first lay out a calibration course of ideally 1000 feet. If it is more convenient you can use a lesser distance of at least 500 feet. It is important that the course is straight and accurate. For this purpose you can use a measuring tape or rule. Mark the beginning and end points of the course so that they are visible from inside your vehicle.

1. Using a reference point on your vehicle, (side view mirror, door lock, antenna, etc.) align your vehicle to the beginning of the course.
2. Turn the unit on. The DMI will conduct the Self-Test. The display will read C.H. on left and 0 on the right. The LED for feet will be steady on. Depress the CALB key.
3. id. will be displayed on the left and 0 on the right, id represents what vehicle the unit is calibrating for. There are 6 id. numbers for 6 different vehicles numbered 0 thru 5. After deciding what id. number you will use for a specific vehicle, key in that number, then depress the Enter key. Proceed to step 4.
4. C.L. (course length) will be on the left side of the display and 0 on the right. Using the Number keys, key in the course length (1000 ft, 800 ft etc.) and then depress the ENTER key. A.C. (Auto Calibration) will be displayed on the left and a 0 on the right.
5. Depress th C-HOLD key and begin driving the calibration course. The DMI will be calibrating as you drive. Remember the number being displayed is not the distance but the number of pulses being received from the sensor.
6. At the end of the calibration course, stop your vehicle making sure that the reference point on your vehicle is aligned with the end mark of the course. Depress the C-HOLD key and then the CALB. key. C.F. (calibration factor) will be displayed. This number should be .999 or less. Record the number in the back of this manual for future reference. Depress ENTER key to store the Calibration Factor in the memory. That calibration number will stay in the memory for approximately 100 years. However the unit should be re-calibrated at least twice a year to remain accurate. Also, if you get new tires, or any kind of wheel work done, re-calibrate.
7. Align your vehicle on the calibration course again. Depress the C-HOLD key and measure the course in order to verify your DMI has been properly calibrated.

The MULTICAL system automatically stores the correct calibration factor with the vehicle ID#. In the event of an accidental clearing of the calibration factor it is suggested that you make a record for each vehicle provided below.

Vehicle #0

Vehicle #1

Vehicle #2

Vehicle #3

Vehicle #4

Vehicle #5

### CALIBRATION VIEW OR CHANGE

Turn the unit on, Unit will run the Self-Test.

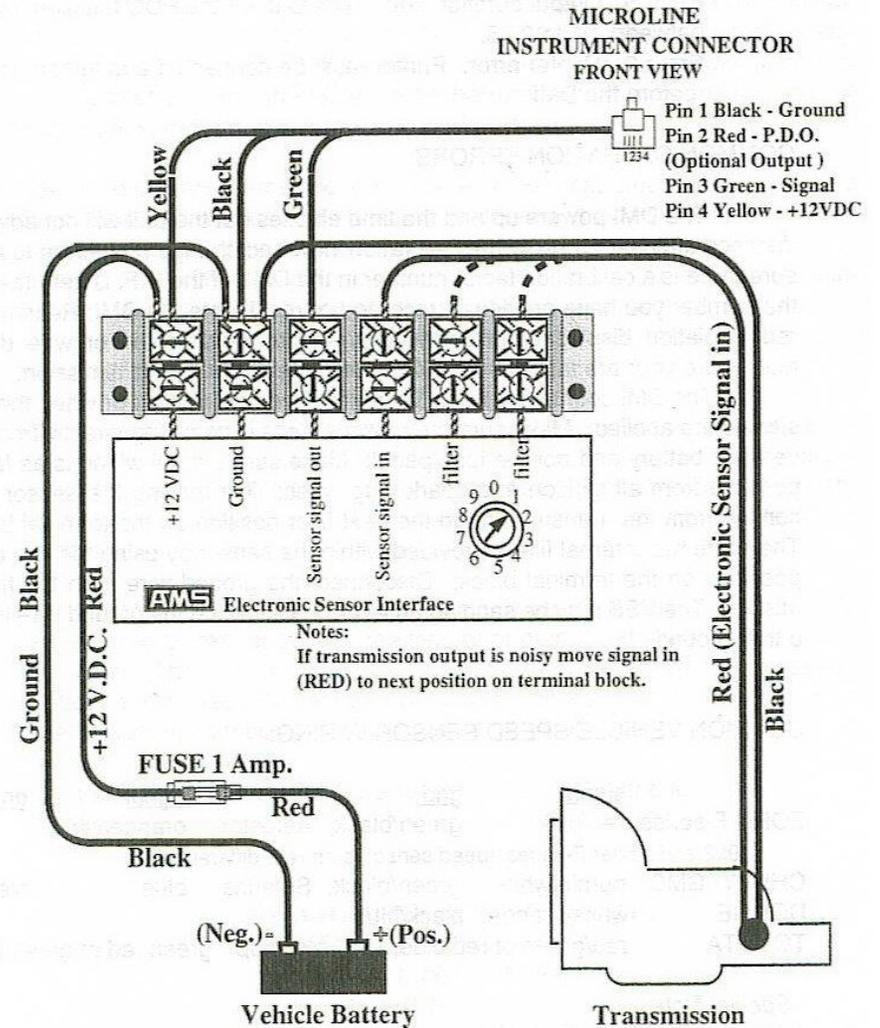
**TO VIEW:** Depress the CALB. key. Id will be displayed on the left and the current vehicle number on the right. If the vehicle number is correct press Enter. C.L. will be displayed on the left and 0 on the right. Then depress the ENTER key. C.F. and your current calibration number will be displayed. Push the ENTER key again and C.H. will be displayed. the unit is now ready to measure with after depressing the C-HOLD key.

**TO CHANGE:** Go through the View Procedures and when C.F. and the calibration factor is being displayed, using the NUMBER keys, key in the calibration factor you want. After doing that, depress the ENTER key. Your new calibration factor is stored in memory and C.H. will on be on the display.

### INTRODUCTION TO MEMORY

The memory has three functions STORE, VIEW, and ERASE. There are 1000 memory locations. There are also 100 EVENT CODES to identify certain types of events. For example: All railroad crossings will be code number 11. You have 10 crossings in the area that you are surveying. After you enter each crossing, you will have used 10 locations in the memory all labeled code 11.

## Microline Wiring for Vehicles requiring Electronic Sensor Interface



## TROUBLE SHOOTING GUIDE

### INSTRUMENT ERROR CODES:

Error 3 - Key sequence error. Most function keys operate only in count hold.

Error 4 - Sensor error. No distances pulses were received while auto calibrating. Double check the sensor wiring at the terminal block and transmission.

Error 5 - Output duration error. The O.d. for the PDO function must be between .01 to 2.55.

Error 9 - Printer error. Printer must be connected and turned on before the DMI.

### COMMON OPERATION ERRORS:

The DMI powers up and the time elapses but the unit will not advance distance or speed: Follow the calibration view and change procedure to make sure there is a calibration factor number in the DMI. If the C.F. is zero re-enter the number you have previously recorded or recalibrate the DMI; Recrimp the red insulation displacement connectors at the transmission or wire direct; Make sure your are tapped into the correct wires from the transmission.

The DMI counts erratically without the vehicle moving or when the turn signals are applied: Make sure the power source is coming directly from the vehicles battery and not the fuse panel; Make sure that all wiring is as far as possible from all ignition and spark plug wires; Try moving the sensor wire coming from the transmission to the next filter position on the terminal block. There are two internal filters provided within the sensor by using the two extra positions on the terminal block; Disconnect the ground wire from the transmission, The VSS may be sending an AC signal in which the ground wire is not a true ground.

## MEMORY PROCEDURES

### STORE

1. Depress the C-HOLD key. Select the Unit of Measurement desired using the UNIT key. Depress the STORE key.
2. E.Loc (event location) and the first memory location will be shown. This will be a zero if there is nothing in Memory. If there is data in Memory the next available location will be shown.
3. If you want to use the memory location shown depress the ENTER key. If you want to use a different location, using the NUMBER keys, key in that location (0-999) and depress the ENTER key. (Remember if you already have events in memory and you decide to start at a location that has data in it, you will overwrite the previous data.)
4. Once you pick a memory location two zeros will be displayed on the left. This for the EVENT CODE. You are able to enter a two digit code (0-99) to identify the type of event (intersection, sign, railroad crossing, etc.). While you are measuring and you see an event, using the NUMBER keys enter in the event code that you designate for that particular event. Using the reference point on your vehicle (antenna, door lock), when you get to that event depress the ENTER key. The code number, distance, speed, and elapsed time will be stored in memory. Note: If you key in an incorrect Code number you can overwrite this number by keying in a new number. This must be done prior to depressing the ENTER key.
5. To exit Memory Store, depress the C-HOLD key then the STORE key. The code digits will go out and C.H. will appear on the display and you are now back to the standard measuring function. If you wish to set the distance back to zero, depress the CLEAR key.

### VIEW

1. Depress the C-HOLD key, then depress the VIEW key.
2. E.Loc (event location) and the number of memory locations used will be shown. Depress the CLEAR key and key-in the memory location you wish to start with. Normally this will be location no. 1, however you can view any memory location just by using the NUMBER keys. Key in the location and depress th ENTER key.
3. E. CODE (Event Code) and 0 will be on the display. By entering a specific code number for a specific event and using the UP and DOWN keys you will

be able to view all EVENTS with that event number. If you wish to view all memory locations just depress the ENTER key. The first code and distance location will be displayed. By using the UP and DOWN keys you can step through all memory locations.

4. If you wish to view the SPEED and elapsed TIME associated with each event simply use the MODE key.

5. To exit MEMORY VIEW, depress the VIEW key and the instrument will return to its normal operating state.

### **CLEAR**

To clear ALL memory locations, depress the C-hold key. Then depress the ERASE key and then the ENTER key. The display will sequence through all the memory locations (0-999) erasing all of the memory. If after depressing the ERASE key you decide not to clear the memory, simply depress any other key except the ENTER key and you will exit the memory CLEAR function.

### **PRINT PROCEDURES**

The print key is used to output data in several different configurations. The following will explain the various capabilities & procedures.

**PRINT-0:** There is really no Print (0) zero function. Anytime the Print key is depressed, the display will show Print "0" and you must key in the Print # you want and then depress ENTER. If you depress the ENTER key without keying in a number other than zero, the DMI will exit the Print mode.

**PRINT-1:** This is a Print Test which will instruct the Printer to print a complete Test of every character, digit and upper/lower case alphabet.

**Procedures:** Depress the PRINT key, the #1 key, ENTER key. The Printer will do a complete print test. After completion the DMI will automatically exit the Print mode.

**PRINT-2:** This will instruct the DMI to output to the Printer real-time without having any data stored in the Microline 2000's memory. In this mode the Printer will print the Event Code-Distance-Time-Speed.

**Procedures:** Depress the PRINT key, #2 key, ENTER key. dt (date) and the last date used will be on display, if no date was used, no other digits will be on display. Key in the current date, ie: August 21, 2010 would be 82110, depress the ENTER key. id (identification number) will be displayed. This allows you to key in an ID# which could be a route number or operator code. There are six digits available for the ID#. After keying in the number depress the ENTER key. The Printer will print a Header showing the Date:, Survey ID:, and columns for Event-Distance-Time-Speed. Prior to beginning the inventory, depress the C-HOLD key. As you see an event ahead of you, key in the code number for that

event, the code number will be shown on the far left digits. As you pass the event, using a reference point on your vehicle, depress the ENTER key. The Event Code, Distance, Time and Speed will be printed but not stored in memory. Continue this procedure until the inventory is completed. There is no limit to the number of events that can be printed as long as you have enough paper.

To exit the Print #2 mode, depress the C-HOLD key, PRINT key, ENTER.

**PRINT-3:** This instructs the DMI to "DUMP" any data previously stored in Memory to the Printer.

**Procedures:** Depress the PRINT key, #3 key, ENTER. E.Loc. 0 will be displayed. Key in the memory location you wish to start, normally this is 0 or 1, depress the ENTER key. E.CodE 0 will be displayed. If you wish to dump only memory locations with a specific code number, ie: all code # 45, key in that code. If you want ALL memory locations just depress ENTER. dt (date) and the last date used will be displayed. Key in the current date, ie: 82110 and ENTER. id will be displayed. This Identification Number can be a route # or operator code. There are six digits available. Key in the ID# and depress ENTER. The Printer will print a Header indicating the Date & ID Number. Following the Header will be the Memory Location-Event Code-Distance-Interval Distance-Time and Speed data that were stored in memory. The "DUMP" will print ALL memory locations beginning at the location selected even if there are no data in those locations. To stop the Printer, depress the CLEAR key. The Printer will show Printing Aborted and the DMI will automatically exit the Print mode.

**PRINT-4:** If you have purchased the Optional RS-232 output capabilities, you can "Dump" the memory data via Serial RS-232 with software hand-shake (x-on, x-off).

**Procedures:** Depress the PRINT key, #4 key, ENTER. The word Baud and the last baud rate used will be on display. Using the UP/DOWN arrows you can select Baud rates of 300, 1200, 2400, 4800, 9600 or 19200. After selecting the baud rate required for your equipment, depress the ENTER key. E.Loc. 0 will be displayed, key in the Memory location you wish to start at, normally 0 or 1, depress the ENTER key. E.CodE 0 will be displayed. If you wish to output a specific code number (0-99) key in that code and depress ENTER. dt (date) will be displayed, key in the current date, ie: 82110, depress ENTER. id will be displayed. This allows you to key in a Identification Number which could represent a route or operator number. After keying in the ID #, depress the ENTER key. The Microline-2000 will now "Dump" the memory data beginning at the location or code number previously selected. To STOP the memory dump, depress the CLEAR key.

**NOTE:** If Error 9 is displayed you probably do not have the Printer or other device plugged in and turned on and the Microline-2000 can not communicate to the equipment being used.

**OPERATORS MANUAL  
FOR**

**MICROLINE™ 1000 & 2000**



***DISTANCE MEASURING  
INSTRUMENTS***

**BY:**

**ADVANCED MICROSYSTEMS INC.**



Copyright 1994 by AMS®

Advanced MicroSystems, Inc.  
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