

DATA SHEET

Microlog 8-Channel Engine Data Logger

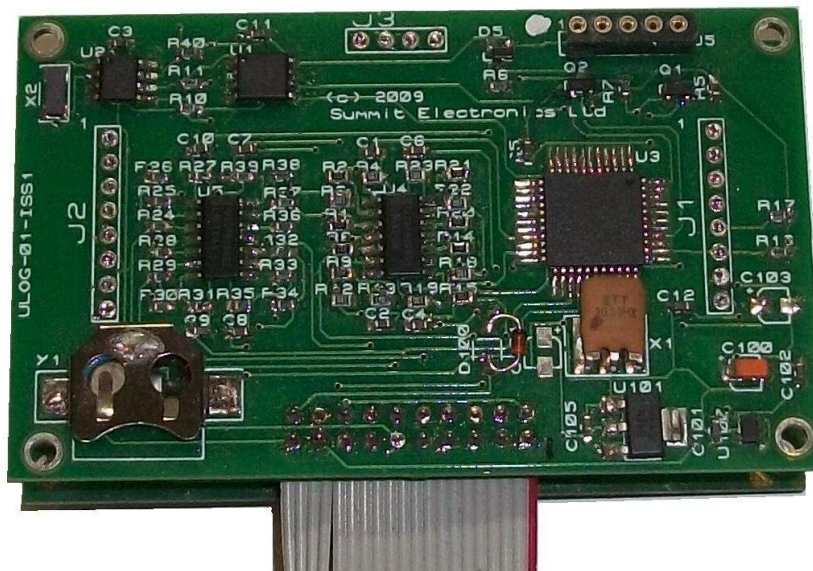
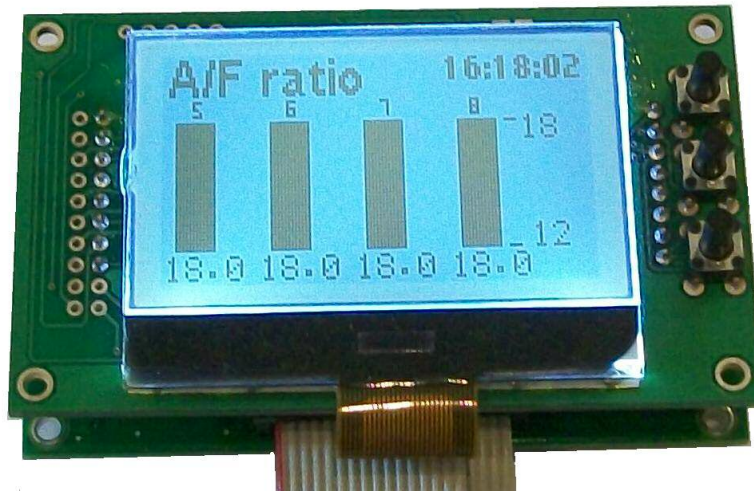


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1 Introduction

Microlog is an 8-channel engine data logger with 126x64 graphic LCD interface. Four channels are dedicated for K-type thermocouple temperature sensor inputs and four channels are dedicated for Lambda air fuel ration sensor inputs.

2 Specification

Parameter	Min.	Typ.	Max.	Units
VIN	6	12	15	V
I _{IN}		50		mA
Logger size			10,000	Records
Logger time resolution	2			Seconds
Channels 1-4 input range	0 (0°C)	-	10.455 (255°C)	mV
Channels 1-4 input sensitivity (K-type thermocouple)		41		uV/°C
Channels 5-8 input range	0 (18:1) ⁽¹⁾	-	1000 (12:1) ⁽¹⁾	mV
TXD		19200		Baud
Parameter display refresh rate.		5		Seconds

Notes:

- 1) Air fuel ratio is non-linear versus input voltage (see Figure 1).

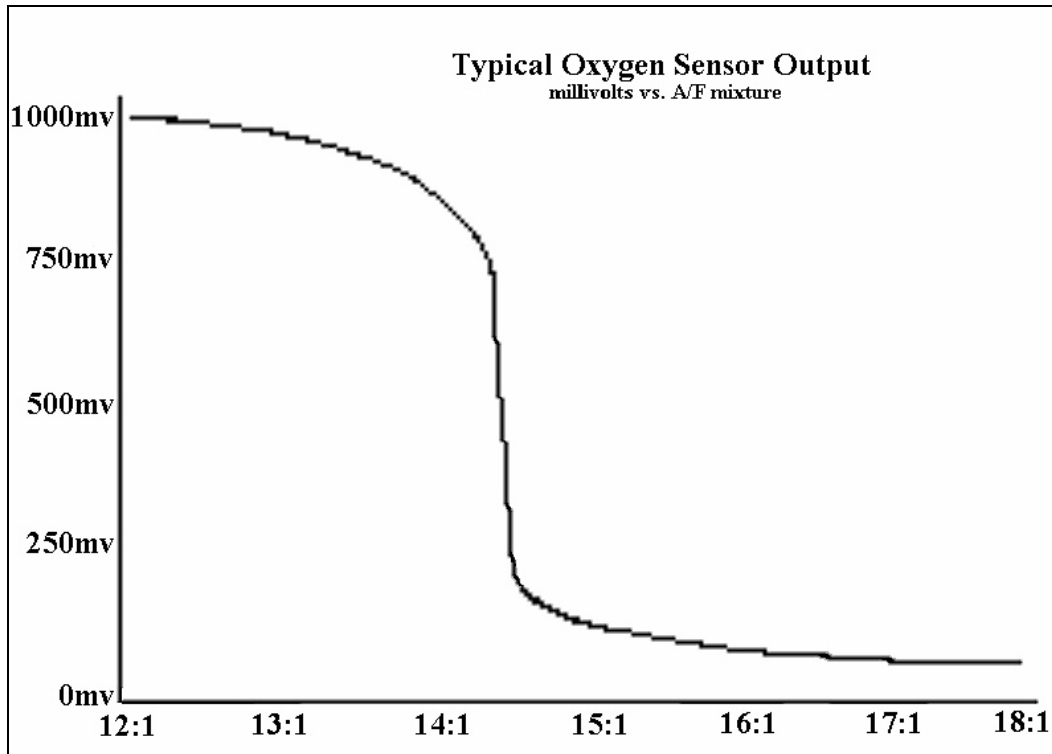


Figure 1 Lambda sensor transfer characteristics

3 User interface

The user interface consists of a 128x64 dot monochrome graphics LCD and three soft keys as shown in Figure 2.

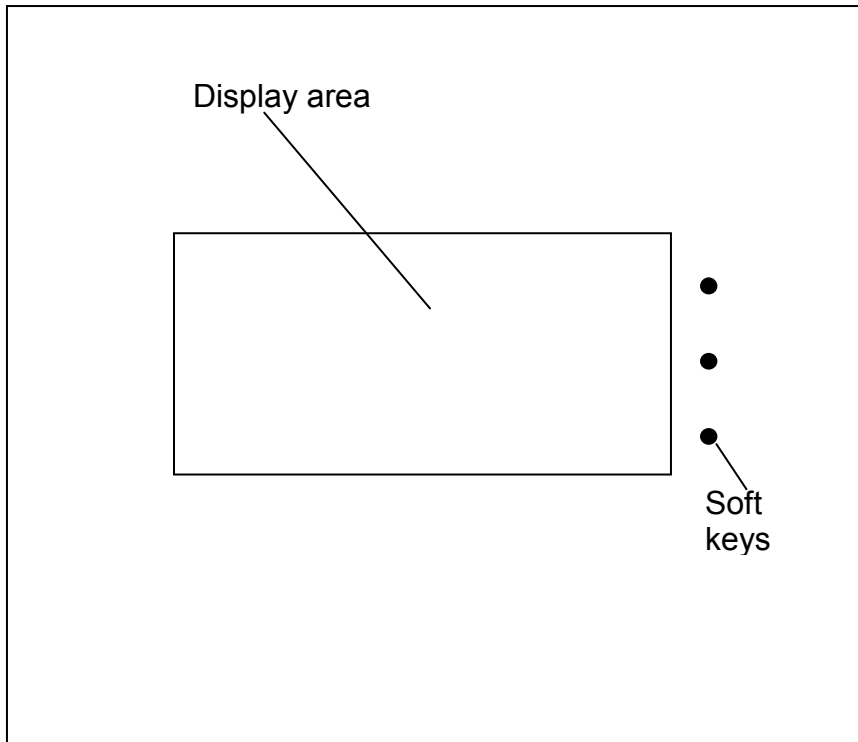


Figure 2 User interface

The display area either shows the cylinder head temperature (CHT), air fuel ratio (A/R) or an alternation of both (see Figure 3 and Figure 4). Each display shows the time and the logger record icon. When the record icon (a filled circle) flashes, this indicates the logger is recording. When the record icon is absent, logger recording is off. When the logger is full the text 'FULL' is shown in place of the record icon.

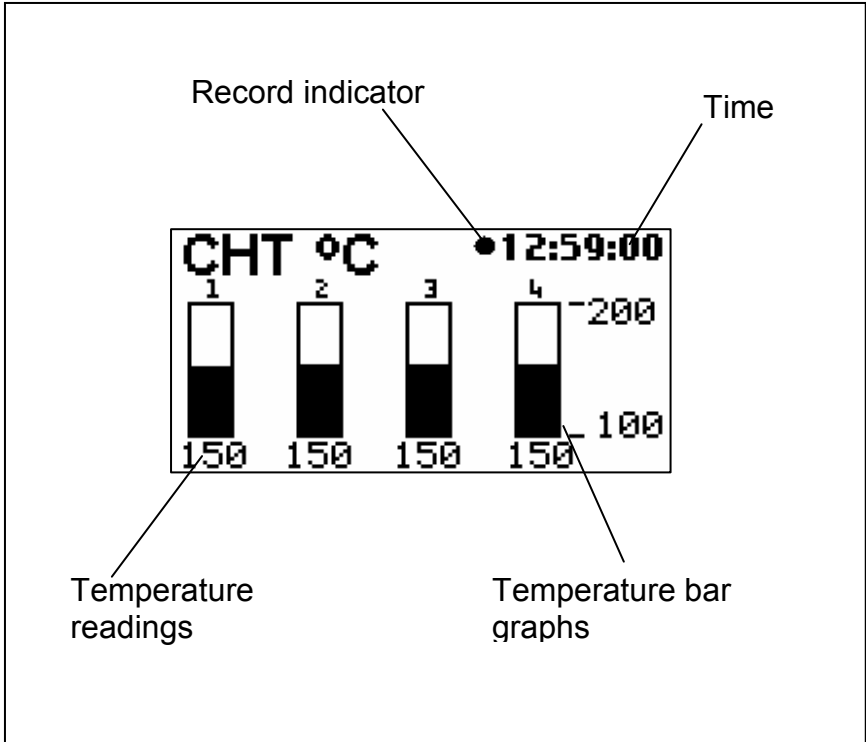


Figure 3 Cylinder head temperature display

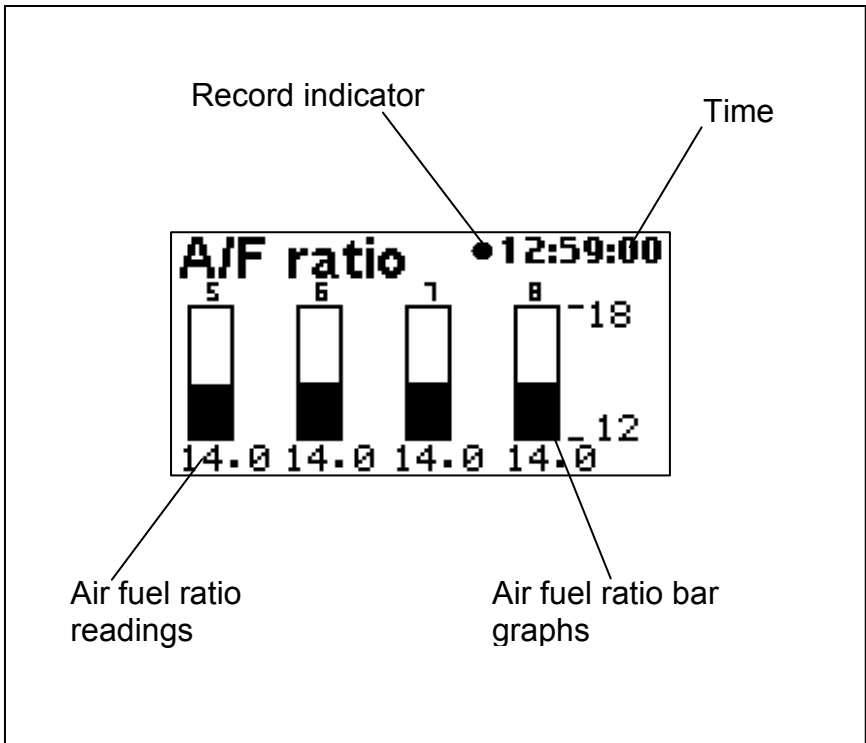


Figure 4 Air fuel ratio display

3.1 Menu System

The menu system is entered into from the main display by pressing the *bottom* soft key. The 'Display' menu is the first menu. The menu system is exited by pressing \equiv repeatedly until the main display appears or after 10 seconds in the absence of key presses when not in a sub-menu.

3.1.1 Main Display Options Menu

This menu is accessed by pressing the *bottom* soft key from the main display.



Press the \blacktriangledown key to iterate through the main display selection options.

3.1.2 Settings Menu

This menu is accessed by pressing the \equiv soft key from the Display menu.

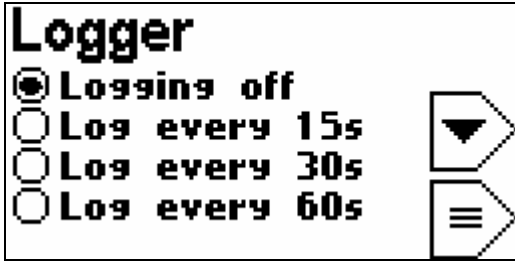


Press the \blacktriangledown key to iterate through the sub-menu options.

Once the desired sub-menu has been selected, press the \blacktriangleright key to enter the selected sub-menu.

3.1.3 Logger Options Menu

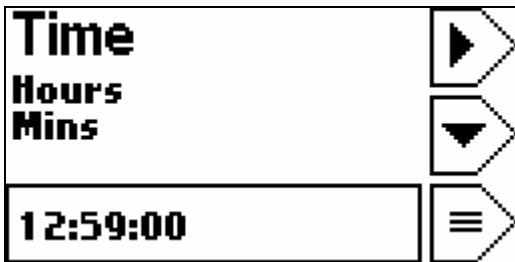
This sub-menu is accessed from the Settings Menu,



Pressing the ▼ key will iterated through the logger options.
Press the = key to exit this menu.

3.1.4 Set Time Menu

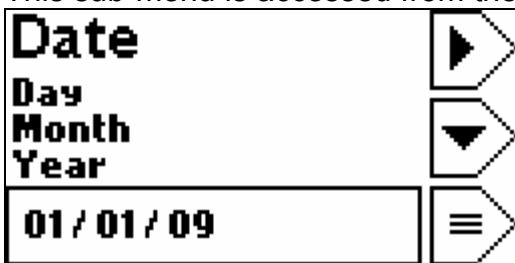
This sub-menu is accessed from the Settings menu.



Press the ▼ key to select 'Hours' or 'Mins'
Once a selection has been made, press the ► key to increment the selected item.
Press the = key to exit this menu.

3.1.5 Set Date Menu

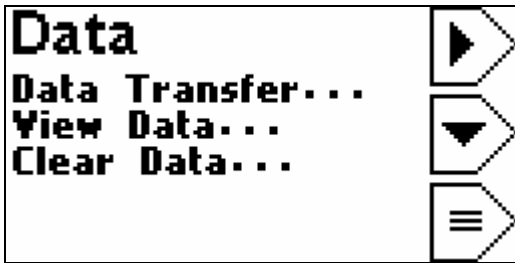
This sub-menu is accessed from the Settings menu.



Press the ▼ key to select 'Day', 'Month' or 'Year'
Once a selection has been made, press the ► key to increment the selected item.
Press the = key to exit this menu.

3.1.6 Data Menu

This menu is accessed by pressing the = soft key from the Settings menu.



Press the ▼ key to iterate through the sub-menu options.
Once the desired sub-menu has been selected, press the ► key to enter the selected sub-menu.

3.1.7 Data Transfer Menu

This sub-menu is accessed from the Data menu,

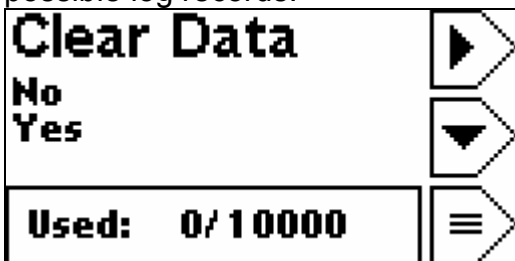


Press ▼ to select start.
Connect an RS232 serial cable as per Sec 5 and press the ► key to start transferring data.
Press the ► key at any time during data transfer to stop the transfer operation.
Press the ≡ key to exit this menu.

Note: Data logging is suspended during data transfer.

3.1.8 Clear Data Menu

This menu is accessed from the Data menu. The information panel at the bottom of this menu shows the number of used records out of the total number of possible log records.



Press the ▼ key to select 'Yes' or 'No'.
When 'Yes' is selected press the ► key to erase all logged data. The information panel will show '0/10000'
Press the ≡ key to exit this menu.

3.1.9 View Data Menu

This menu is accessed from the Data menu.



Press the ◀ key to view the previous four log records.

Press the ▶ key to view the next four log records.

Press the ≡ key to exit this menu.

4 Connections

Table 1 Microlog Pin connections

Pin	Name	Description
1 ⁽¹⁾	CH1-	Channel 1. K-type thermocouple negative input.
2	CH1+	Channel 1. K-type thermocouple positive input
3	CH2-	Channel 2. K-type thermocouple negative input.
4	CH2+	Channel 2. K-type thermocouple positive input.
5	CH3-	Channel 3. K-type thermocouple negative input.
6	CH3+	Channel 3. K-type thermocouple positive input.
7	CH4-	Channel 4. K-type thermocouple negative input.
8	CH4+	Channel 4. K-type thermocouple positive input.
9	CH5-	Channel 5. Lambda sensor negative input.
10	CH5+	Channel 5. Lambda sensor positive input.
11	CH6-	Channel 6. Lambda sensor negative input.
12	CH6+	Channel 6. Lambda sensor positive input.
13	CH7-	Channel 7. Lambda sensor negative input.
14	CH7+	Channel 7. Lambda sensor positive input.
15	CH8-	Channel 8. Lambda sensor negative input.
16	CH8+	Channel 8. Lambda sensor positive input.
17	RXD	RS232 receive data in.
18	TXD	RS232 transmit data out.
19	VIN	Battery positive supply 9V to 15V @ 50mA.
20	0V	Battery negative.

Notes:

- 1) Ribbon cable red wire when IDC header fitted.

5 Transferring logged data

Logged data is transferred from Microlog using a PC and RS232 serial cable. Data is transferred in human readable comma separated text records. Each record has the format shown in Figure 5.

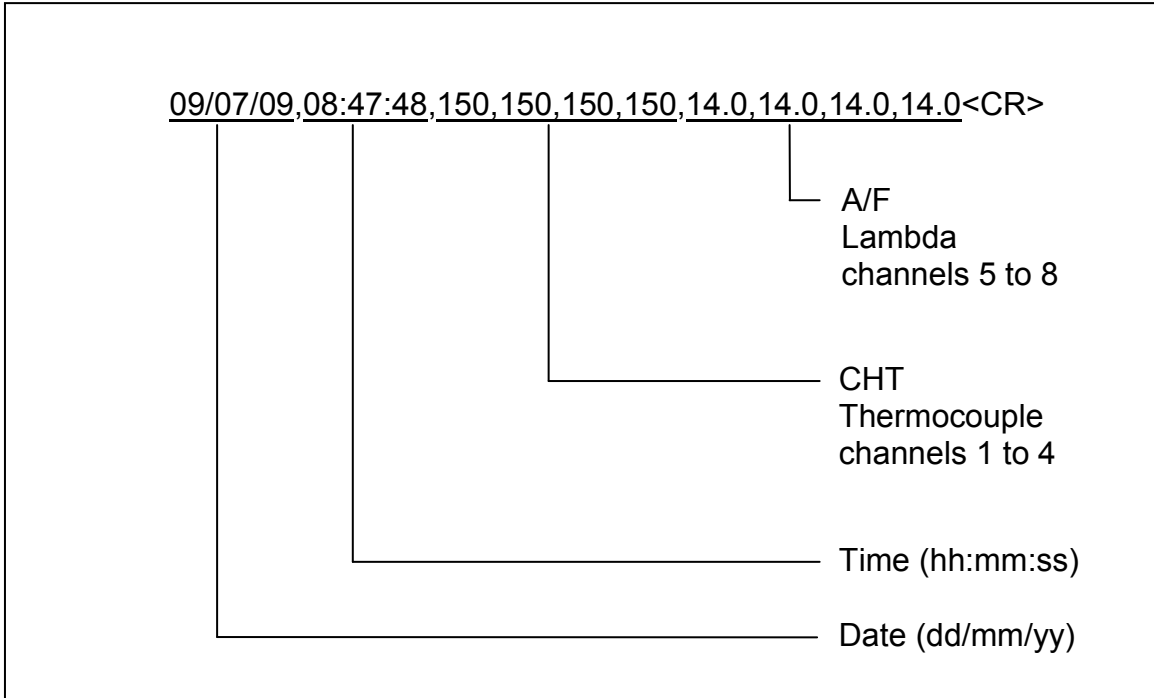


Figure 5 Data format

To transfer data follow:

1. Microlog: Select Data Transfer from 'Data > Data Transfer...' See sec 3.1.7.
2. PC: Start MS Hyperterminal and configure the relevant serial port to the settings shown in Figure 6.
3. Connect a serial lead from the PC to Microlog using the connection shown in Table 2.
4. PC Hyperterminal: Select 'Transfer > Capture text..', enter a file name and click 'Start'.
5. Microlog: Select 'Start'. Data will now be transferred to the PC and can be seen scrolling on Hyperterminal.
6. PC Hyperterminal: At the end of the transfer select 'Transfer > Capture text > Stop'

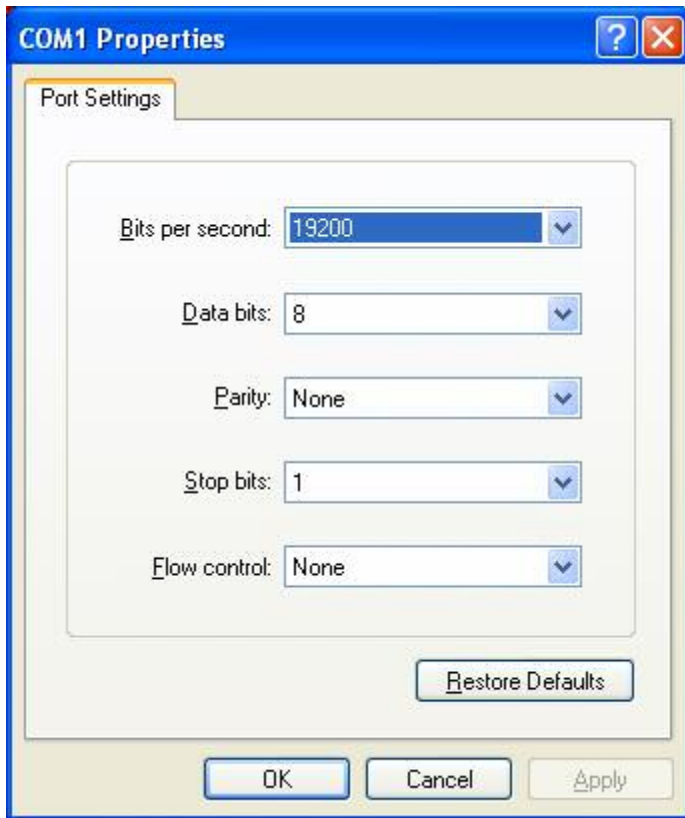


Figure 6 Hyperterminal serial port settings

Table 2 Microlog to PC RS232 pin connections

Microlog	9-way D socket
17 (RXD) ⁽¹⁾	3 (TXD)
18 (TXD) ⁽¹⁾	2 (RXD)
20 (0V)	5 (GND)

Notes:

- 1) Both RXD and TXD must be connected.