



Manual
MicroLogger
Model 8007

Revision History

File name / Revision	Date	Authors
Previous version BX	2004	RS/ JH
Unidata Manual - 8007 Micrologger V2 Issue 2.0	2007	AB/CB/JH/MS/KC

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1. INTRODUCTION

The MicroLogger is an OEM product from Unidata. It is supplied in a PCB only configuration and is designed to allow quick interfacing to a range of sensors.

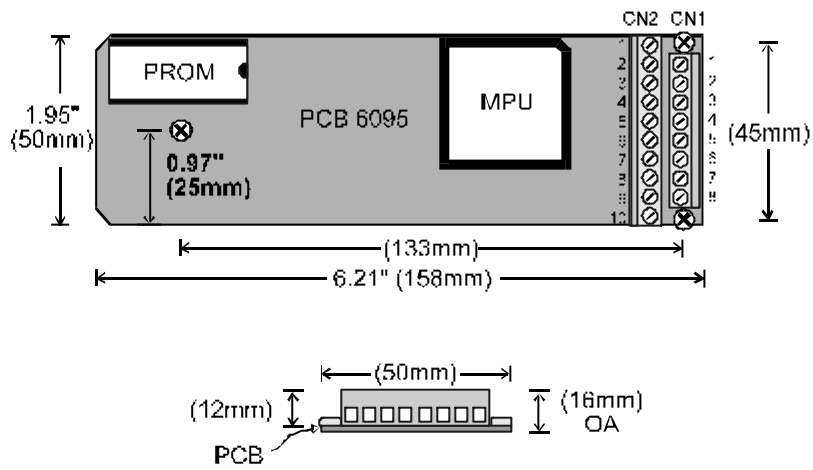
The MicroLogger is program compatible with the STARLOGGER, supporting many of its extended features such as SDI-12 and HSIO communications.

2 SPECIFICATIONS

- Memory: 128K RAM & Reprogrammable 8K EEPROM.
- Inputs/Outputs: 1 x 16 bit Counter Channel .
2 x Analog Channels .
(Hi-res 0...2.5V scaled 1.221mV/bit - A0 & A1.
2 x Digital Inputs (Potential Free) Log Start , SENSE 1.
1 x High Speed Serial I/O Channel .
1 x Open Collector control output OUT 0.
Precision 5V Reference scan synchronised with pre-scan.
Analog & Digital Ground.
- Power: Operating voltage 6.8 to 18VDC (6V if 5V Ref is not required) .
Operating current: 60mA; standby current: 50 μ A.
UPS (User Power Supply) may be regulated to any voltage up to battery.
Battery Voltage measurement (100mV/bit) A2.
Low Battery Detect & Shutdown (hardware & firmware) .

3. MOUNTING

- Provision for 5mm terminals (Phoenix MKDSN) .
- 3 x M3 mounting holes.
- RS-232 & SDI-12 comms.
- New UPS instruction to control UPS synchronisation.



4. SIGNAL CONNECTIONS

CONNECTOR#1	
Pin	Description
1	SENSE 1 (IN)
2	RS-232 Data to com puter (OUT)
3	RS-232 Data from com puter (IN)
4	+ve Bat tery/Power 7-18VDC (IN)
5	Power/Dig italGround
6	SDI-12(Bi-Directional)
7	RS-232 RTS from com puter (IN)
8	OUT 0 (Open Col lec tor) (OUT)

CONNECTOR#2	
Pin	Description
1	HSIO Clock (OUT)
2	HSIO Data (Bi-D)
3	5V Reference (OUT)
4	An a log Chan nel 0 (IN)
5	An a log Ground
6	An a log Chan nel 1 (IN)
7	SENSE 0 Log-start (IN)
8	UPS (op tional OUT1) (OUT)
9	Coun ter 0 (IN)
10	Power/Dig italGround

5. THE USER POWER SUPPLY (UPS)

In the MicroLogger, the UPS may be used in two modes. The default mode switches the UPS on every scan, with the pre-scan defined in the CDT (default 15ms). The other way is to enable the UPS as programmable (set Byte 10, Bit 3 of the CDT). In this mode, a new instruction is available to control the UPS.

The UPS Instruction has this form (op-code 132):

UPS, #_of_ON_scans, Pre-scan_in_15.625ms_(lsb/msb)

of On scans = 0 = UPS re mains OFF
 1 = UPS ON next scan only
 2-255 = UPS ON next 2...255 scans

Pre-scan = 0 = UPS turns ON after I/O measurement
 1 = UPS turns ON at I/O measurement (no
 prescan)
 2 = UPS turns ON 15ms before I/O
 measurement

■ Example

132, 4, 64, 0

This example instruction switches ON the UPS 1 sec (64 * 15ms) before the next scan and leaves the UPS ON for 3 more Scans (4 in total).

Hardware Setting for UPS Instruction – To use the UPS Instruction, ensure that Jumper #4 and Jumper #6 are linked. This connects the timer to the UPS counter and the UPS output to the terminal block.

Pulse and Switch Instructions – Pulse (op-code 24/26) and Switch (op-code 25/27) instructions can be used to program the UPS (Channel #1) if the UPS is configured in programmable mode (see above). (Channel #0 is the open collector output).

6. SOFTWARE COMPATIBILITY

The MicroLogger can in most cases be treated as a STARLOGGER. Note that the “Log Start” signal must be linked to ground or that test in the scheme needs to be removed.

Instrument scaling is the same as a MACRO and STARLOGGER.

The Battery Voltage is not available as a Lo-Res channel (there is not enough range to store it).

Using Version 2 – Program it as a STARLOGGER.

Using Version 3 – Define your own Logger structure for a “MicroLogger”.

7. REGISTER ALLOCATION

The Model 8007 MicroLogger, operating the standard instruction set, has the following fixed memory assignments in the Hardware Register:

Address	Size	Description
0	1	Software Revision Number (20 onwards)
1	2	Logger runtime in milliseconds (16 bit integer)
3	1	Error flags
4	4	Logger scan counter (32 bit integer)
8	1	Reserved
10	1	Reserved
11	2	msb of address (bits 8-23) used in LDBLK and MVBLK instructions
13	2	Reserved
14	1	Binary states of analog channels
16	1	Analog channel (a0) unsigned low resolution representation (8 bit)
17	1	Analog channel (a1) unsigned low resolution representation (8 bit)
24	2	Counter channel (C0) 16-bit
32	1	Digital input values (normally high) Bit 3 Log Start Detect: Bit set=not detected Bit 6 High speed serial Data 0
33	1	User Power Supply status register Bit 0 = 1 UPS will be ON next scan Bit 1 = 1 UPS was ON for this scan Bit 2 = 1 UPS is currently ON Bit 7 = 1 (set by log program) to synchronize UPS to come on next scan (auto reset).

34	1	<p>Arithmetic status register set by ADD, SUB, MUL, DIV instructions.</p> <p>Bit 2 = Arithmetic overflow</p> <p>Bit 7 = Arithmetic carry</p> <p>Logic status register set by CMP (compare) instruction.</p> <p>Bit 4 set Operand 1 = Operand 2</p> <p>Bit 5 set Operand 1 < Operand 2 (unsigned)</p> <p>Bit 6 set Operand 1 < Operand 2 (signed)</p>
35	1	Reserved
80	6	Version 2 Software stores Scheme Name here.
200	2	Analog channel (A0) signed 16 bit channel
202	2	Analog channel (A1) signed 16 bit channel
204	2	Battery voltage measurement (A2)

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