Manual

LCD Display Module

Model 2504E, 6526LCD and 6701S-LCD

Revision History

File name / Revision	Date	Authors & Change Details	Checked/ Approved
Previous version BX	2004	RS/ JH	MS
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Unidata Manual 6526 LCD Display Module Manual Issue 3.0	12 11 10	CB	MS
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1.0 INTRODUCTION

The liquid crystal display modules can be used with the Model 6526H Starflow or any NRT module or terminal.

- The 6701S-LCD product is weatherproof polycarbonate enclosure that has the LCD mounted on the hinged lid. Enclosure is fitted with a Starflow field termination strip Model 6103K, mounting plate for 12V 14AH sealed lead-acid battery (Battery is sold separately), and drying tube Model 6603DT. Four pre-wired SQL type connectors for direct connection to the Starflow, computer, solar panel/external power, and auxiliary equipment are wired to the FTS.
- The 6526LCD is packaged in a small enclosure, fitted with pre-wired SQL type connectors for direct connection to an instrument, and computer/external power using a 6603D-SDI cable assembly. The SQL connections are designed to be 'pass through' so that the computer can connect to the instrument without disconnecting the power or display.

Both 6701S-LCD and 6526LCD modules use the HSIO data bus to communicate with the Starflow.

To use the HSIO bus two signal lines (data + clock) and ground are required – the 'sync' line used on older HSIO instruments is not required.

- The 2504E module interfaces with all Neon remote terminals and modules.
  It displays the values obtained from the most recent scan. The Neon's scheme defines which parameters will be displayed. For example, one of the supplied schemes displays battery supply voltage, analogue and counter channel values or SDI 12 channel values (if in integer format).

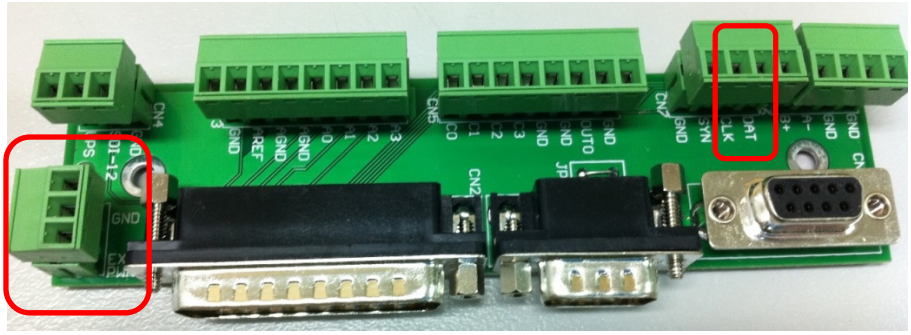
Connecting 2504E LCD module to:

1. NRT Terminal (2014E,2015E,2016D,2017E,2018E,2019E,2020E,2021E or 2022E)

   To connect 2504E to any NRT terminal use 2103E FTS and connect 2504E cable

   Note: External Power must be provided E.g. 12 V Battery

2103E FTS	Cable
CN7 DAT	Blue
CN7 CLK	Yellow
CN8 EXT PWR	Red
CN8 GND	Green

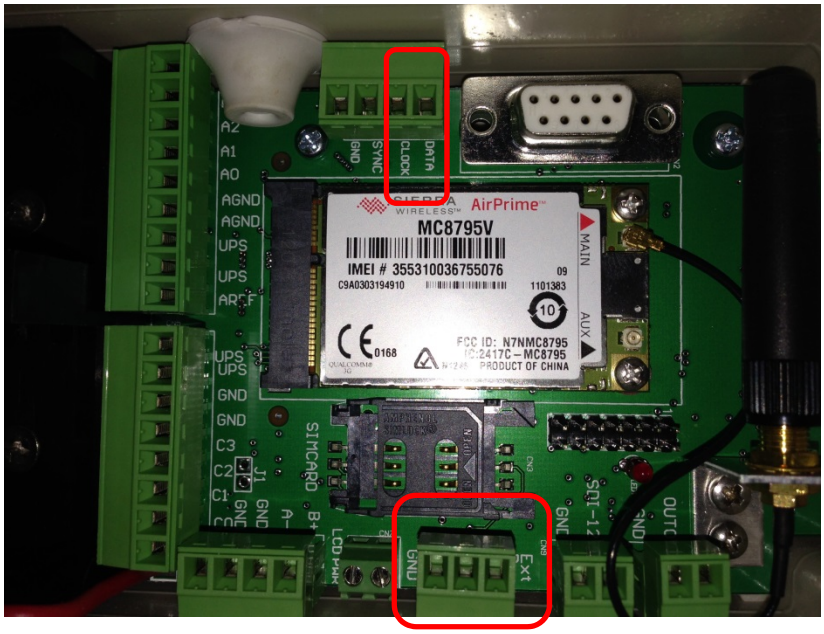


2. NRT Module (2011E or 2013D)

   Connect 2504E cable directly to the module:

   Note: External Power must be provided E.g. 12 V Battery

2011E or 2013D	Cable
CN4 DATA	Blue
CN4 CLOCK	Yellow
CN8 EXT PWR	Red
CN8 GND	Green



The module display is refreshed every scan (normally 15 seconds) and will display a test message when power is applied until a message from the instrument is received. Pressing the button on the front panel resets the display.

1.1 Specifications

Display Format:	4 lines x 16 characters Super Twist Display – no backlight
Power Supply:	8 to 18 VDC @ 3.5mA
Operating Temperature:	0° to 50°C (32° to 122°F)
Storage Temperature:	–10° to 60°C (14° to 140°F)
Type II Connectors:	SQL 7 pin connectors (pass through – 1 x male, 1 x female) Only 6526LCD and 6701S-LCD
Serial Signal:	Unidata HSIO standard Synchronous Protocol
Serial Protocol:	ASCII text

2.0 INSTALLATION

2.1 Scheme

The Scheme that the instrument uses must be set up to accommodate the display module as an additional instrument. If this is not done the display will remain blank. There is a standard instrument defined for the display module called '6526LCD'– this instrument will set the scheme to display the appropriate data required from the selected instrument.

As an example, the '6526LCD' instrument will cause the display module to show the following information when there is no data.

2.2 Jumper settings and power consumption

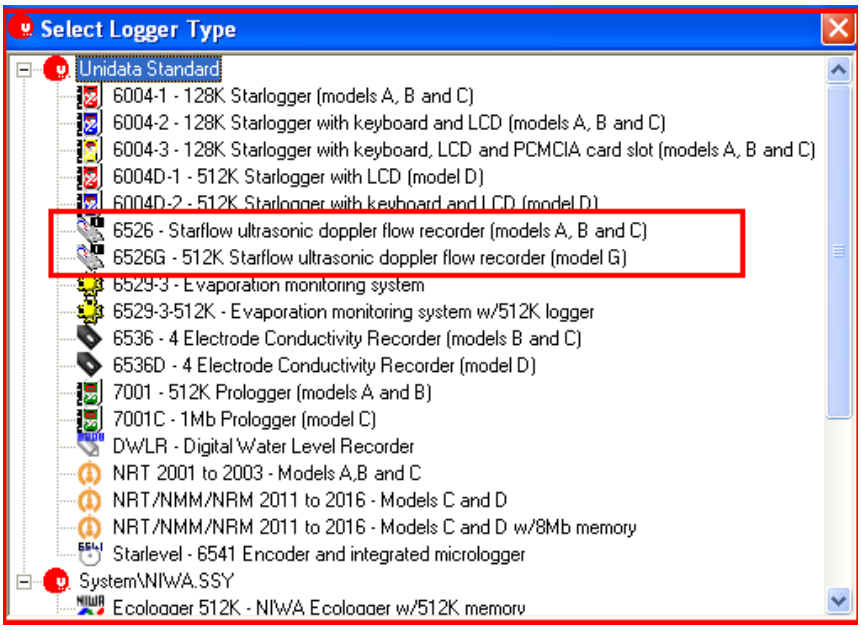
There are two jumper settings on the PCB, one selection is ON and the other selection is OFF.

ON This jumper setting allows the LCD to be on all the time without being turned OFF, the power consumption in this state is around 3.5mA continuous.

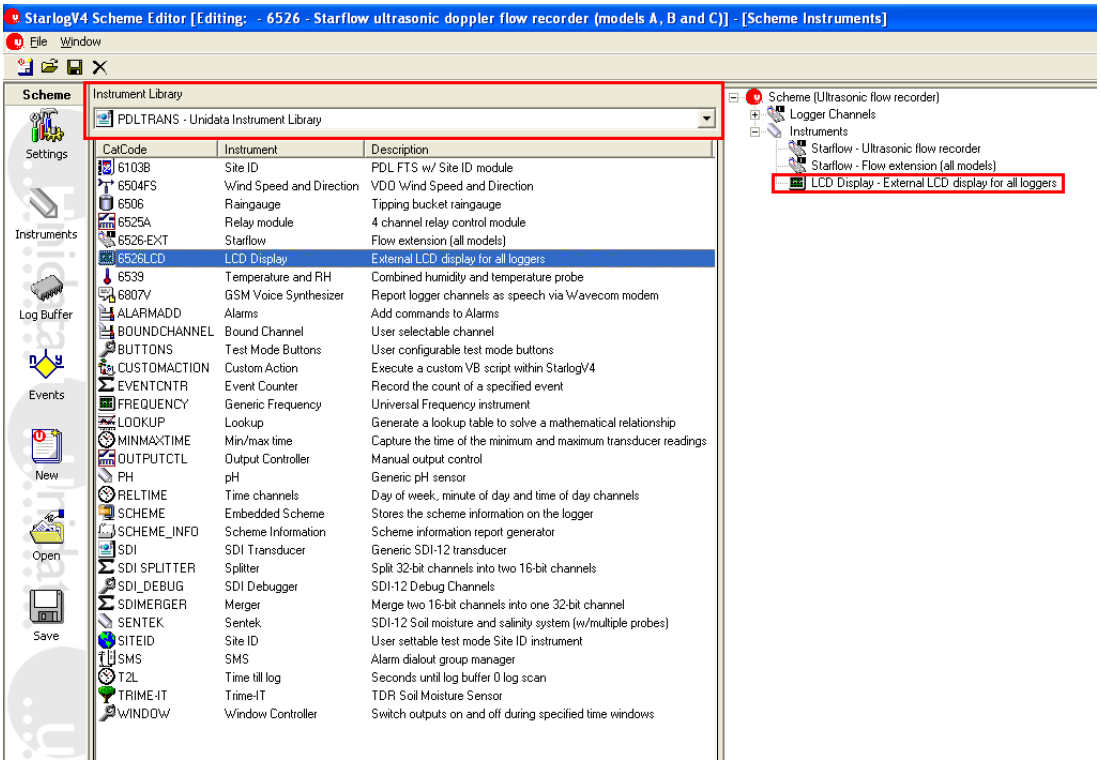
OFF This jumper setting allows the LCD to be switched OFF after a 10 minute period, it goes into sleep mode after 10 minutes which has a power consumption around 60uA and 3.5mA when ON. To turn the LCD back on the front power button needs to be pressed again.

2.3 Creating a Scheme using 6526LCD or 6701S-LCD Module

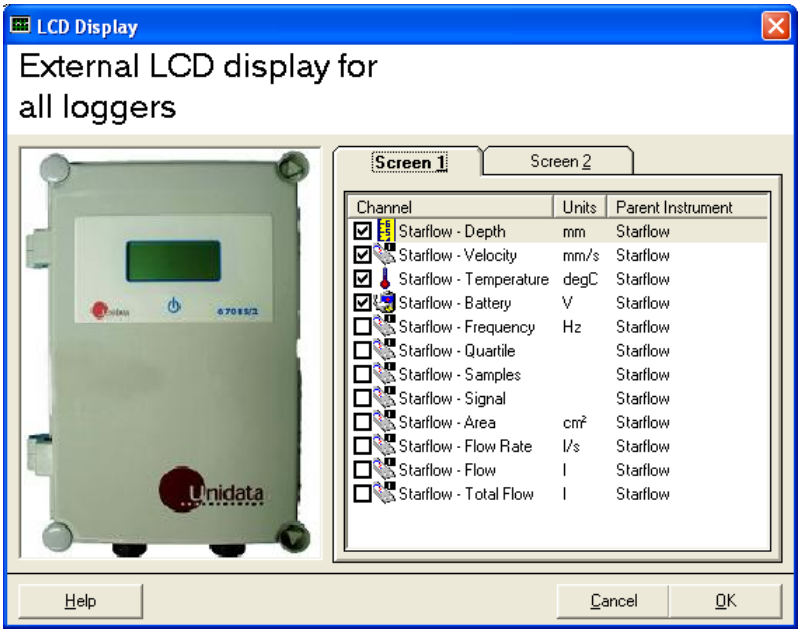
1. Using the V4 Software, select a new scheme selecting the correct Starflow model you have (128k or 512k) version.

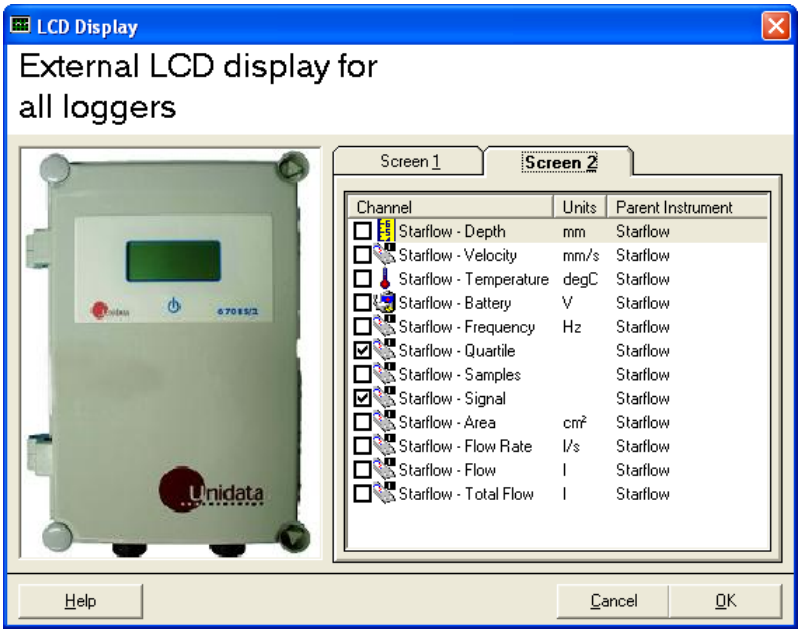


2. Add the 6526LCD instrument from the PDLTRANS library and it will be added on the right hand side of the Starlog V4 screen.



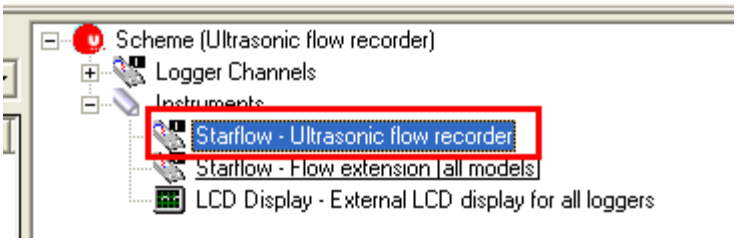
3. Double click on the instrument and select the channels to display on the 2 screens, note that the screen will change every scan.
4. A minimum of 1 channel must be selected per screen with a maximum of 4 per screen.

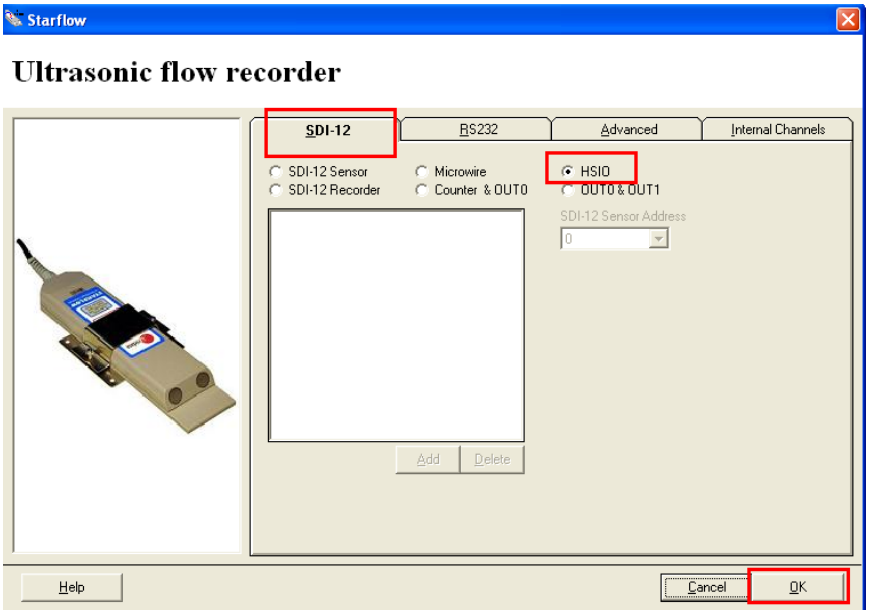




5. Click the Ok button once the correct channels have been selected on each screen.
6. Double click on the Starflow Ultrasonic flow recorder instrument and then select the SDI-12 TAB.

7. Make sure that the HSIO radio button is ticked and then click OK.





8. Set all other scheme parameters as normal, note that the LCD display will change between screen 1 and screen 2 every scan rate.
9. Save the scheme.
10. Program the Starflow with the scheme just created, once it starts scanning the LCD will show the parameters selected.

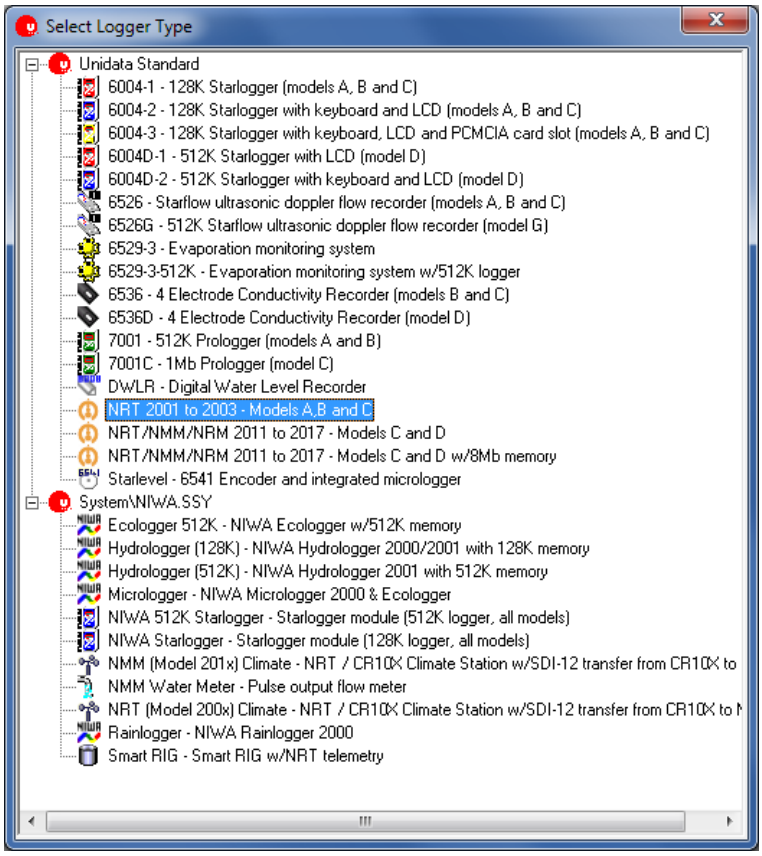
Screen 1

Screen 2

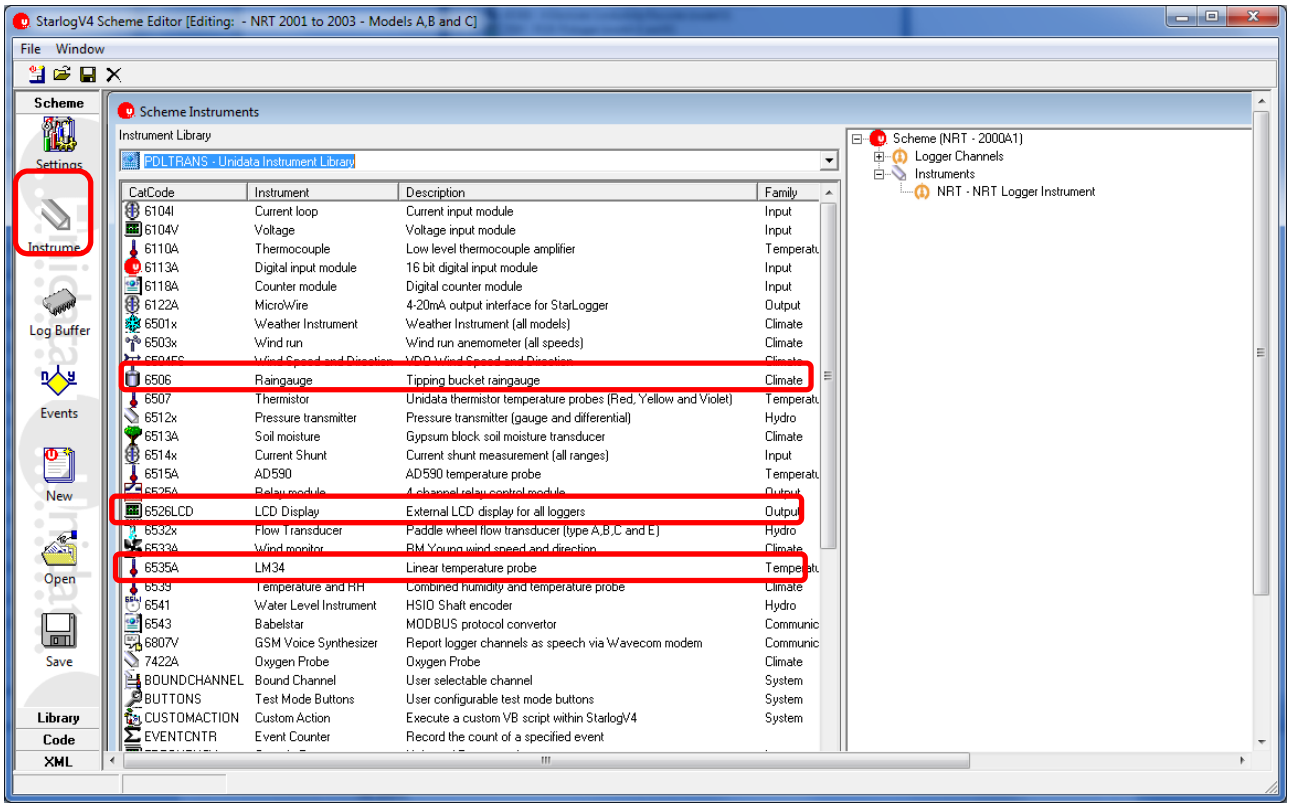
2.4 Creating a Scheme using 2504E Module

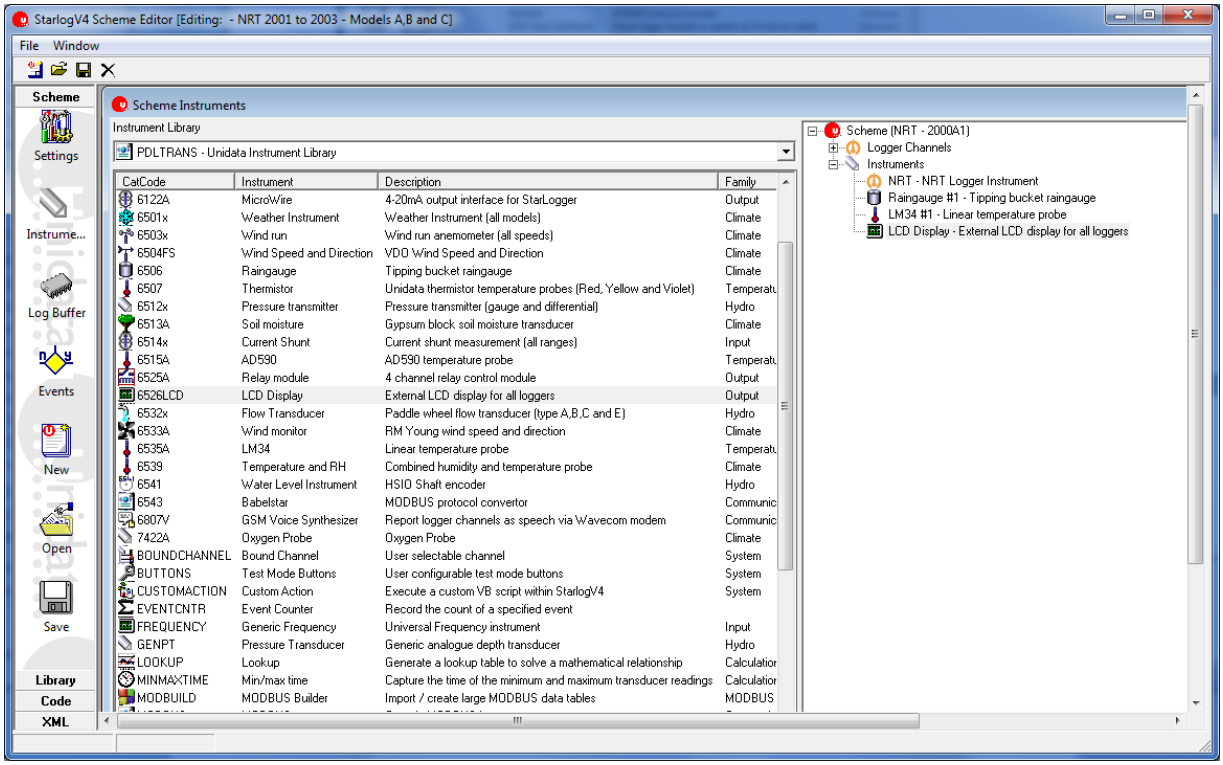
In this example we have 6506C Tipping Bucket and LM34 temperature probes Connected to 2013D NRT (For how to set up 6506C and LM34 temperature probe consult corresponding manuals)

1. To write the scheme select logger:

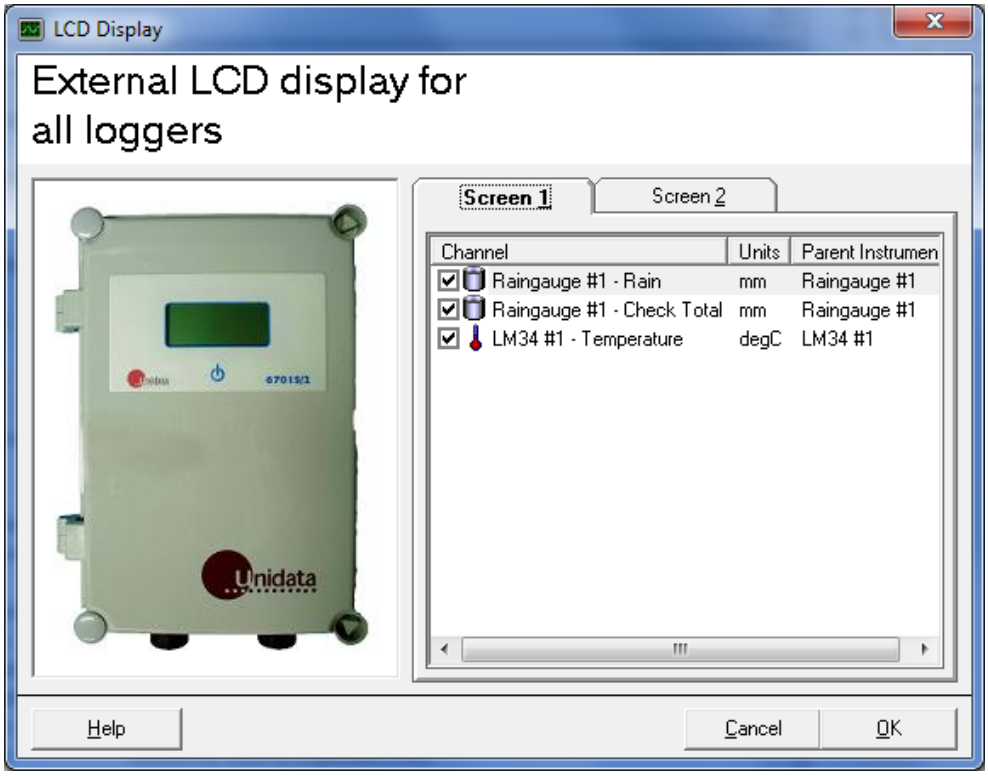


2. Select instruments (6506, 6526LCD and 6535A)





3. Double click on the LCD Display instrument and select the channels to display on the 2 screens, note that the screen will change every scan.
4. A minimum of 1 channel must be selected per screen with a maximum of 4 per screen.



5. Click the Ok button once the correct channels have been selected on each screen.
6. Save the scheme.
7. Program the NRT with the scheme just created, once it starts scanning the LCD will show the parameters selected.

3.0 APPENDIX A – HSIO SPECIFICATIONS

Each logger scan the High-Speed Serial ports are read. The Sync signal (Pin 13) is used to indicate to the remote equipment that a logger read scan is about to begin. The signal is usually used to load the serial shift register(s) in the remote equipment in preparation of being read. Serial transfer rate is 50 Microseconds per bit with a 30-microsecond gap between each byte (see timing diagrams for both Serial In and Serial Out below)

Note: The first data bit LSB must be present on the Data (0/1) signal within 7ms after the Sync signal.

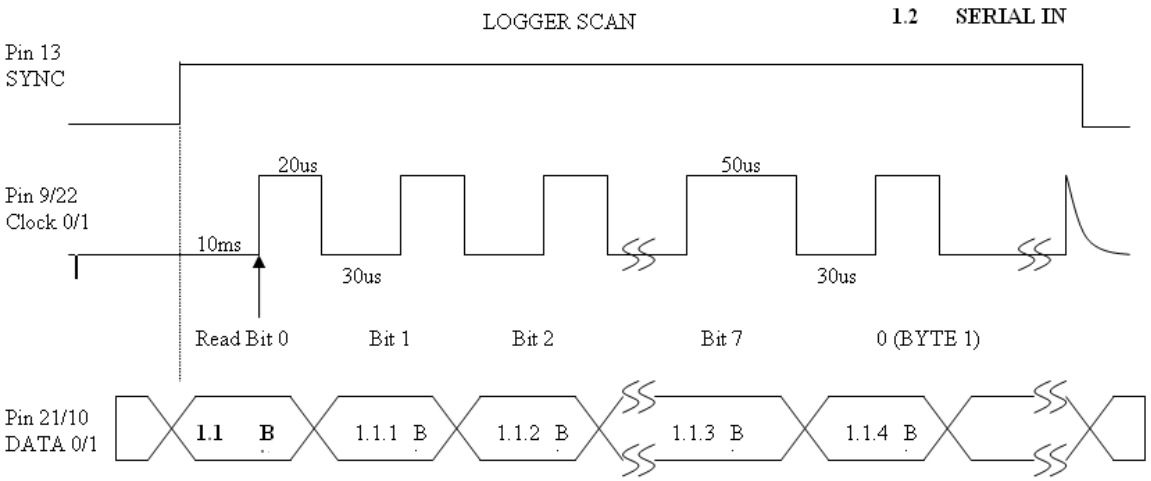


Figure1: Serial Timing Diagram

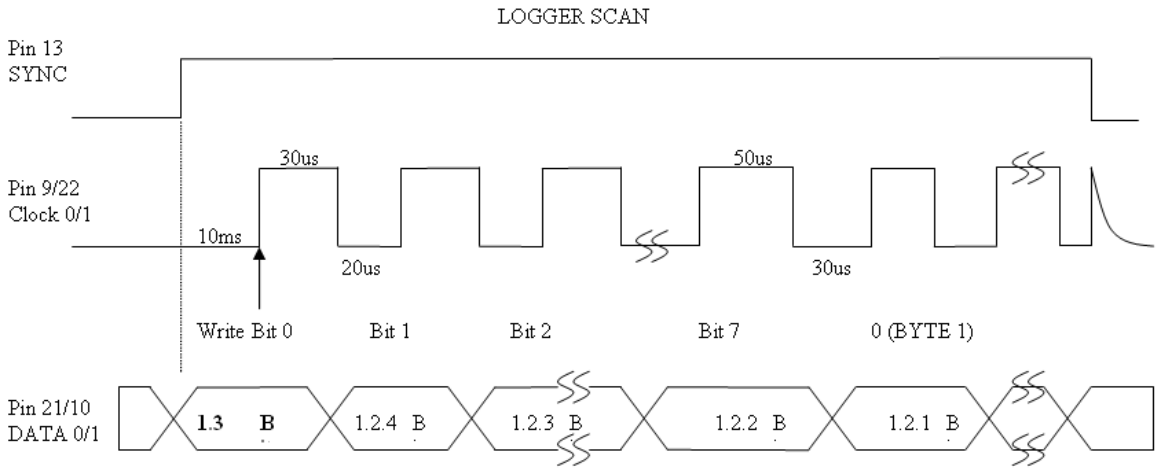


Figure2 Serial Out Timing Diagram