



**MultiSense Calibrator
MCAL08 / MCAL 16 / MCAL 24**

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MultiSense Calibrator

MCAL08 / MCAL 16 / MCAL 24

1) Introduction



The MCAL is designed to test the Hycontrol / Charis MultiSense system. It can connect directly to the controller via the sensor cable or alternatively there is a test cable designed to connect to a sensor. There are three versions with 8, 16 or 24 switches.

The calibrator has one switch to operate each channel in the controller. The switches are labelled 1 to 24 and have 3 positions each. The positions set the conditions which represent air/foam/liquid as follows:

- A – air - very low response
- B – foam - medium response
- C – liquid - high response

The switches are labelled according to which section of the sensor they drive. So switch S1 is section 1 and so on.

The calibrator should be used together with the diagnostic menu on the controller. The data which can be collected via the diagnostic menu can be used to check the operation of the MultiSense controller.

2) Connection the Calibrator

2.1) There are two methods of using the calibrator:-

- a) It can be connected directly to the controller using the sensor cable. In this case the sensor is not used.
- b) It can be connected to the sensor using the calibration cable supplied. In this case the sensor, cable and controller are tested together.

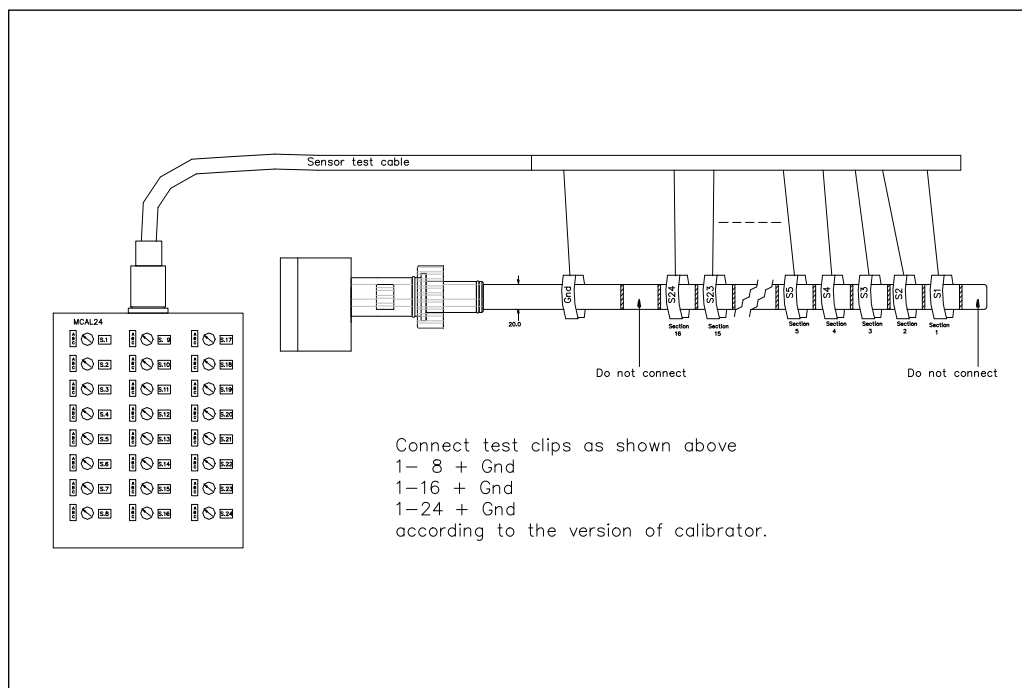
2.2) Connecting the calibrator directly to the Controller

Remove the sensor cable from the sensor and connect the cable directly to the calibrator. The sensor cable should be connected to the connector, which can be seen in the picture above. The sensor itself is not used for this test as only the controller is being tested. The special calibrator test cable with test clips is not required for this test.

Set all the switches to position “A”
Then read section 3) below -“ Making Measurements”

2.3) Connecting the calibrator to the Sensor

Connect the special test lead to the calibrator and ensure the sensor is connected to the controller with its normal cable. Connect all the test clips to the appropriate section on the sensor as shown in the diagram below.



3) Making Measurements with the Calibrator

The results can be recorded on the test sheet given on page 4. This page can be copied for multiple use if required. The section data values are readings of microamps flowing from each section in the sensor but normalised for a sensor energisation voltage of 1.0 V.

Tests can be carried out as follows:-

- a) Set all the switches to position “A”
- b) Select the Diagnostic menu on the controller and Section data option. Press enter to store 16 channels of data measured from the calibrator. (See appendix for controller operation.)
- c) Record the 16 channels of data. The measured values should all be < 100.
- d) Set the calibrator switches to “B” and repeat the data collection. The measured readings should be all close to 1000.
- e) Set the calibrator switches to position “C” and repeat the data collection. The measured readings should be all close to 10,000.

4) Interpreting the Results

The allowable range of readings are as follows:-

- a) <100 (typical value ~30). This is the zero level of the system
- b) 980 – 1020 : Expected range – foam setting
- c) 9800 – 10200 : Expected range – liquid setting

The data will vary slightly from channel to channel and from time to time but should stay within the allowed range on average.

Measured Results

The tables below can be used to record the results of testing.

Date:

Ref:

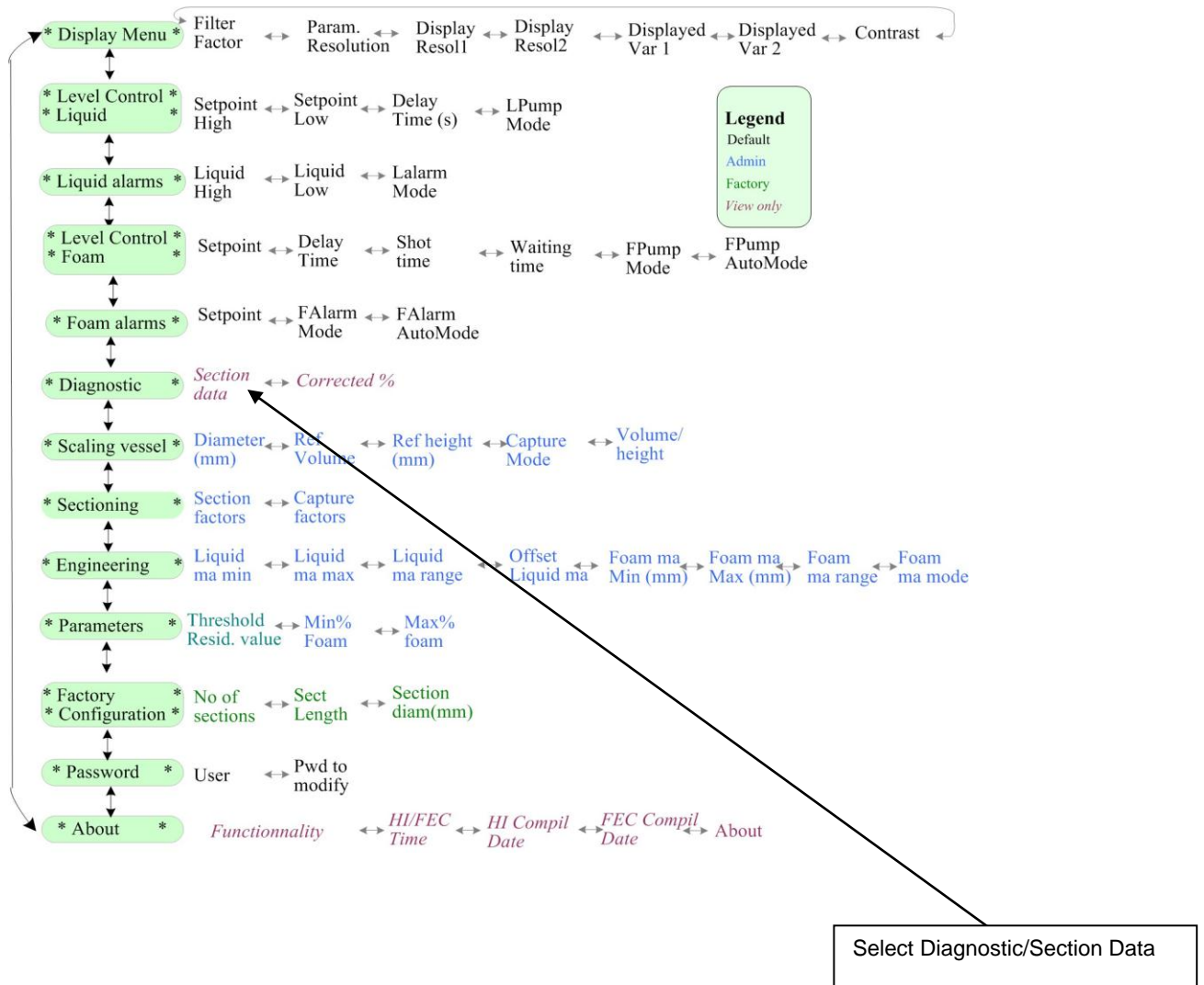
Channel	A	B	C	Notes
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
Typical	30	1000	10,000	
Range	<100	980 - 1020	9,800 – 10,200	

Date:

Ref:

Channel	A	B	C	Notes
17				
18				
19				
20				
21				
22				
23				
24				
Typical	30	1000	10,000	
Range	<100	980 - 1020	9,800 – 10,200	

Appendix 1 - How to Set MultiSense to the Diganostic Menu



To select Section data option:-

Press “ Enter” \downarrow on keypad then down arrow \downarrow until “Diagnostic” shows on display.

Then press “ Enter” \downarrow to see “Section data” then press “ Enter” \downarrow to collect the data.

The 16 channels can be displayed by using the right arrow key \rightarrow to se each channel in turn.

To collect more data press Esc and \downarrow again.