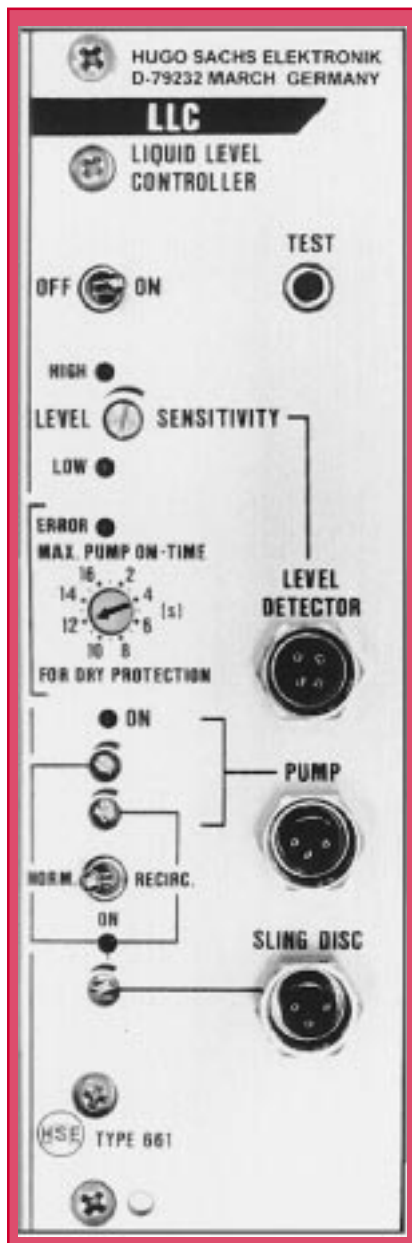


## HSE-Harvard Liquid Level Controller Module (LLC)

- For controlling the constant perfusate level in the oxygenator of HSE-Harvard Isolated Heart Size 3 or Isolated Lung Size 2 and 4

This module is used for monitoring and controlling the liquid level in the HSE-Harvard glass oxygenator of the Langendorff/Working Heart Apparatus Size 3 or the Isolated Lung Apparatus Size 2 and 4. A level probe inside the oxygenator controls the solution. If the liquid level drops the LLC switches on a pump and the sling disc in the oxygenator.



### Specifications

<b>Probe Input</b>	1/4 bridge, AC voltage signal $f=4$ kHz through 4-pin connector from level electrode; Measurement Principle: Comparison of resistance of electrodes immersed in solution with internal resistor
<b>Sensitivity</b>	Of level electrode adjustable in range of 2 k $\Omega$ to 50 k $\Omega$
<b>Outputs</b>	<ul style="list-style-type: none"> <li>— Output sockets for two motors (pump and sling disc, adjustable from 2 V to 10 V, 1 A max. each)</li> <li>— Motor on/off signal on system bus to send this signal to Flow Measurement module (TTL level)</li> <li>— Error signal on system bus to send status of LLC to Flow Measurement (TTL level)</li> </ul>
<b>Indication:</b>	
Level High	LED Green
Level Low	LED Yellow
Error	LED Red
Pump On	LED Green
Sling Disc On	LED Green
<b>Error</b>	To avoid empty oxygenator when flow increases too much, special circuit (dry protection) is installed on module. If on-time of pump is longer than selected Max. Pump On-Time, error beep occurs and pump operates at max. speed to refill oxygenator as fast as possible
<b>Max. Pump On-Time</b>	Selectable from 1 to 16 s in steps of 1 s (for error detection)
<b>Test Button</b>	For rapid filling of oxygenator (pump operates at max. speed)
<b>Power Supply</b>	5 V/130 mA, +12 V/2 A max., -12 V/1 A max; isolation between level detector and pump control to prevent signal interference from pump
<b>Dimensions, H x W x D</b>	128.7 x 40.5 x 220 mm (5.1 x 1.6 x 8.7 in)

Catalog No.	Product
CGS 8448.71	LLC Liquid Level Controller