

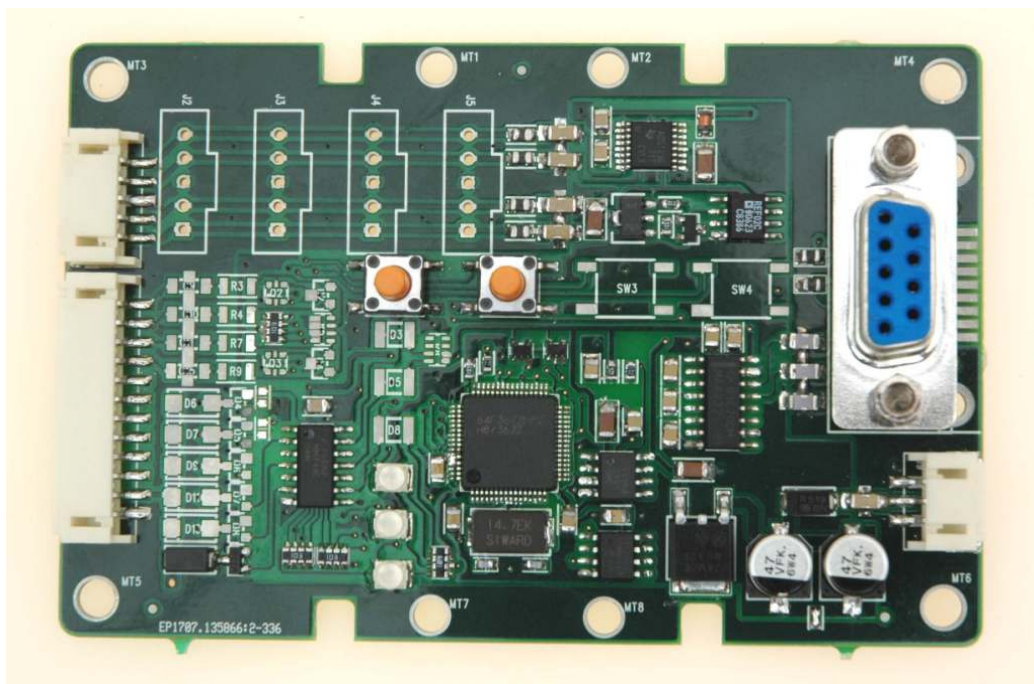
## Load Logic Board LLB111.1

Digital controller for custom applications 111.100.3. Ver. 1.00

Weighing device and controller for simple **logic operations** and supervision based on a load cell input. The LLB111 offers **flexibility** and a highly **economic solution** when simple logic control is required.

The LLB111 offers a wide selection of **logic inputs, logic outputs and interfaces** as required at:

- Vending machines for coin container supervision
- Automatic filling devices
- Grading operations
- Supervision of lifts and elevators
- Empty bottle return machines
- Etc.



The LLB111 is custom populated for the specific application and must therefore be produced in large quantities. The minimized costs owe to the standard board and basic components are being made in very high quantities, but populated only with the I/O's and interfaces as required for the specific purpose. Furthermore, the microprocessor programme needs to be made for the task. H&B work out this special programme at reasonable costs.

Fully populated and trial programmed evaluation samples are available.

H:\Internal\Development\LLB\spec111.doc

The building concept is an open PCBoard, 96x63mm, basically equipped with a header for the logic I/O's, a header for the load cell and a header for the power supply.

The fully populated LLB111-board offers:

- 6 pc. aux. LED lamps
- 4 pc pushbuttons
- 4 pc logic inputs, protected, paralleled with the pushbuttons
- 4 pc logic outputs, protected, low drive of 1 Amp.
- I<sup>2</sup>C interface for aux. purposes, i.e. a remote display, or 2 pc logic outputs as above.
- RS232 interface port for downloads, programming and data com.

The above devices, inclusive the RS232 interface, can be populated/left out as appropriate. Chassis, enclosures and cable threes etc. are application specific but may be supplied by H&B.

|                      |   |  |
|----------------------|---|--|
| <b>Input and A/D</b> | Linearity   | <0,001% of full scale.                         |
|                      | Load cell excitation voltage                        | 5 Vdc  |
|                      | Load cell drive capability                          | R <sub>LC</sub> 250-2000 ohm                   |
|                      | Load cell wiring system                             | 4 wires (exclusive sense)                      |
|                      | Load cell input range                               | ±3.8 mV/V equivalent to ±19 mVdc.              |
|                      | Load cell input resolution                          | <200 nV/incr. (>50 000 counts at 2 mV/V input) |
|                      | A/D-performance                                     | 80 updates/second                              |
|                      | Analog LP filter performance                        | 700 Hz; 20 db/decade                           |
|                      | Digital 1 <sup>st</sup> order LP filter performance | 5 – 0.02 Hz; Bessel, selectable in 8 steps     |
|                      | Digital 2 <sup>nd</sup> order LP filter performance | 5 – 0,02 Hz, Bessel, selectable in 8 steps     |
|                      | Display update rate                                 | 5 updates/second                               |

|                |                             |   |
|----------------|-----------------------------|---|
| <b>General</b> | Hardware interface          | RS232 – full duplex                                 |
|                | Data transmission, rates    | 9.6; 19.2; 38.4; 57.6; 115.2 kBaud                  |
|                | Data transmission, protocol | Get results or auto transmit                        |
|                | Display                     | 7 digit 8 seg. green LED's, 14mm. Spectral filtered |
|                | Keyboard                    | 6 pc 13x13mm robust, short travel push buttons      |
|                | Power supply                | 12-24Vdc ≤15% ripple; ≤4Watt (isolated, protected). |

|                   |   |   |
|-------------------|---|---|
| <b>Influences</b> | Temperature effect on Zero              | Typical ±2ppm/°K, Max ±4ppm/°K              |
|                   | Temperature effect on Span              | Typical ±4ppm/°K, Max ±8ppm/°K              |
|                   | Temperature range                       | Operating: -25°C/+55°C; Storage -30°C/+60°C |
|                   | Relative humidity                       | 0-95 % non condensing                       |
|                   | General I/O protection, all connections | Reversed polarity, excess voltage and surge |
|                   | Vibration                               | 2.5 G operational; 5 G non-operational      |
|                   | Protection un-installed, environment    | IP20  |
|                   | Protection installed, environment       | IP40  |

|                  |                                       |   |
|------------------|---------------------------------------|---|
| <b>Standards</b> | Cabinet and panel cut out comply with | -   |
|                  | Conform to Council Directive          | CE in accordance with 93/98/EEC; 89/336/EEC |
|                  | Certificate of approval               | OIML R76 (Pending)                          |
|                  | Accuracy (When certificate obtained)  | Class III: 10000e; 0,5 µV/VSI               |