PLUG & WEIGH™

DIGITAL LOAD CELL BOARD

The P&W board has been designed to convert the analogue load cell signal into a digital, calibrated, weight output. Multiple boards may be connected together via a dedicated RS232 interface and are supervised by one of them which is designated to be the “Master” or “Boss”. The “Boss” communicates directly to a PC, PLC or dedicated instrument via a separate RS232 or RS485 interface (user selectable) and provides powerful software routines for system calibration, corner balancing, batching, filter rates, etc.
The extensive software also facilitates high speed, multi-head, check-weighing. The “Boss” transmits, initialised by a software or hardware trigger, one string of data which contains the individual calibrated weight data from all connected units.
Various cable assemblies and accessories are available for easy installation while the initial system configuration runs automatically. System integrity and error reporting is via an extensive diagnostics structure incorporating visible (LED) status information local to each cell plus extensive host port diagnostics.

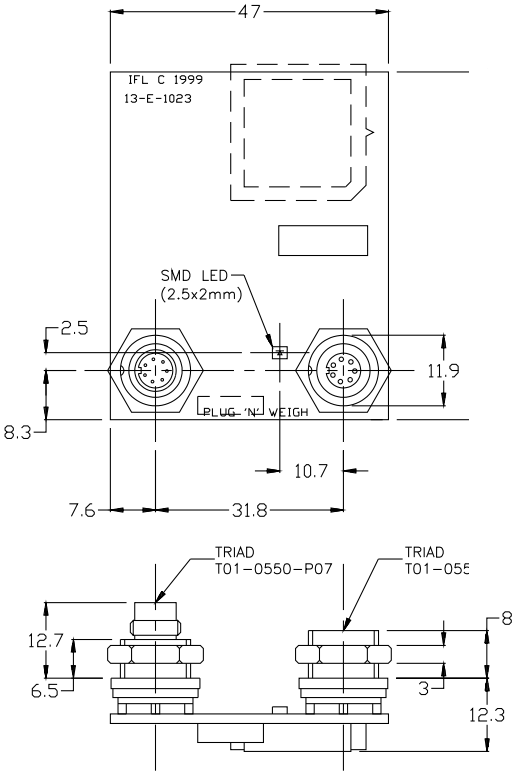
TYPICAL APPLICATIONS:

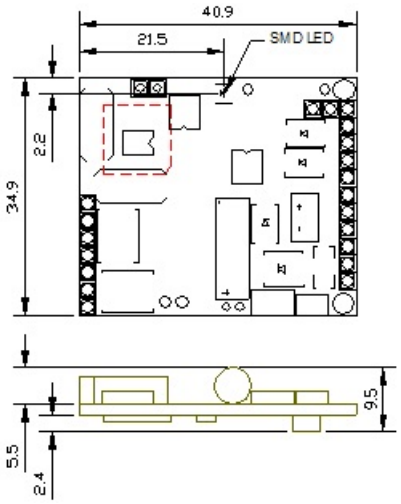
- ❒ Multiple digital load cell applications
- ❒ High speed multi head check weighers
- ❒ Digital weight transmitter

FEATURES:

- ❒ Certified to OIML 10,000d (single cell) or 6,000d (multiple cells)
- ❒ Direct connection to PC or PLC via RS232 or RS485 interface
- ❒ “Boss” software for multiple cell control and calibration
- ❒ On-board I/O
- ❒ Internal diagnostics with visible LED status information
- ❒ Connector version for easy installation or replacement
- ❒ Connectors for easy installation or replacement
- ❒ EMC and surge protected

VERSIONS / DIMENSIONS:





Version BS: 7p TRIAD connectors

Version BS2: Solder connections

SPECIFICATIONS:

General specifications:

Resolution (internal)		24-bit maximum (1 part in > 16,777,215
Resolution, external	counts	1,000,000
Linearity error	%FS	≤± 0.0015, digitally corrected to ≤±0,000001
Overall accuracy	%	≤± 0.01
Span temperature coefficient	ppm/°C	≤ 1.6
Zero temperature coefficient	µV/°C	≤ 0.005
Maximum number of divisions - n (Approved)		10000 (NMI TC5789)
Operating voltage	Vdc	8.5 - 15
Current consumption without RS485 con.	mA	< 65
Current consumption with full RS485	mA	< 100
Common Mode Rejection	dB	120
Power Supply Rejection	dB	120
Cut-Off Frequency	Hz	0.03 to 200
Settling time	mS	100

Transducer input specifications:

Transducer type		Resistive, full bridge
Transducer input resistance	Ω	> 300 if RS485 Host comms; >85if RS232 Host comms
Excitation voltage	Vdc	5 (short circuit protected)
Maximum sensitivity	mV/V	6
Minimum signal requirement (non-approved)	µV/div.	0.02/internal count
Minimum signal requirement (approved)	µV/div.	1
Input impedance	MΩ	≥20 (Sense and signal)
Input common mode range	V	0.7-3.3

Serial communication Com1 = RS232; Com2 = RS485:

Baudrate	b/s	2400, 4800, 9600, 19200, 38400, 57600, 115200
Protocol		7/8 data bits, odd/even/no parity, 1/2 stop bits
Communication protocol		IFL - Modbus
Output update rate (single PCB @ 57k6 b/s)	Hz	0 - 500
Output update rate (four x PCB @ 57k6 b/s)	Hz	0 - 125

Inter-cell serial communication:

Inter cell update rate (max/typical)	Hz	800/50

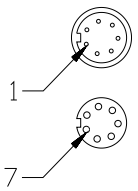
Environmental specifications:

Compensated temperature range	°C	-10 → 40
Operating temperature range	°C	-20 → 70
Storage temperature range	°C	-40 → 85
EMC according to OIML R76 / EN45.501		EN5501, EN50082-2 (tests per IEC801)

Pin connections:

Pin	Function (male)	Function (female)
1	Power in	Power out
2	Ground	Ground
3	Not connected	Not connected
4	RS485B (-)	RS485B (-)
5	RS485A (+)	RS485A (+)
6	RS232 TX (transmit out)	Ground
7	RS232 RX (Receive in)	Ground

Top view of Triad connector:



Pin (male) input connector P07
Socket (female) output connector S07

Connector type:
TRIAD™
1x T01 P07 (7 pins)
1x T01 S07 (7 pins socket)
Suitable cable mount plugs:
T01-0550-P07
T01-0550-S07
Maximum current via connectors or connector / cable assembly: 1A.

Additional information:

Application note 05/99-02/01 “Plug & Weigh systems” describes various system configurations, features, benefits and accessories.
Plug & Weigh electronics are available in enclosures and load cell or load cell / mount combinations. More information is available on request.

Ordering information:

PnW - BS Part Number 100010-00
PnW - BS2 Part Number 100010-20