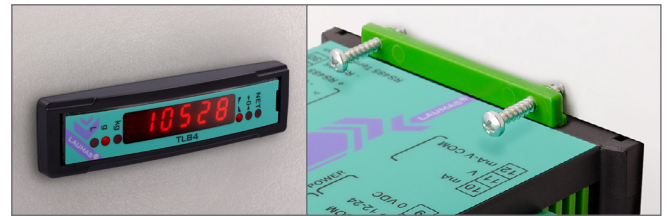




### DESCRIPTION

- Weight transmitter with 4 independent reading channels with display of the total weight.
- The TLB4 series allows to have same benefits and performance of an advanced digital weighing system even using analog load cells.
- Back panel mounting on Omega/DIN rail (space-saving vertical shape).
- Front panel mounting (except PROFIBUS DP version) with fixing kit included (panel drilling template: 96x23 mm; panel thickness: 2.5 mm).
- Dimensions: 115x26x120 mm.
- 6-digit semi-alphanumeric red LED display (8 mm height).
- 6 signalling LED.
- Four buttons for the system calibration.
- IP30 front panel protection rating.
- Removable screw terminal blocks.
- The instrument can be configured and managed using the free "Instrument Manager" PC software, which you can download from [www.laumas.com](http://www.laumas.com).

Front panel mounting (fixing kit included)



### INPUTS/OUTPUTS AND COMMUNICATION

- RS485 serial port for communication via protocols ModBus RTU, ASCII Laumas or continuous one way transmission.
- 3 relay outputs controlled by the setpoint values or via protocols.
- 2 optoisolated PNP digital inputs: status reading via serial communication protocols.
- 4 load cell dedicated inputs.

### CERTIFICATIONS

- OIML R76:2006, class III, 3x10000 divisions, 0.25  $\mu$ V/VSI / OIML R61, R51 - WELMEC Guide 8.8:2017 (MID)
- UL Recognized component - Complies with United States and Canada regulations
- Complies with the Eurasian Customs Union regulations
- Equivalent of the CE marking for the United Kingdom
- NMI Trade Approved - Complies with Australian market regulations for legal for trade use
- Complies with New Zealand regulations for legal for trade use
- Complies with the Brazilian regulations for legal for trade use

CERTIFICATIONS ON REQUEST

**M** Conformity assessment (initial verification) in combination with Laumas weighing module

### FIELD BUSES



### DESCRIPTION

	<p><b>RS485 serial port.</b> Baud rate: 2400, 4800, 9600, 19200, 38400, 115200 (bit/s).</p>
	<p><b>Optoisolated 16 bit analog output.</b> Current: 0÷20 mA; 4÷20 mA (up to 300 Ω). Voltage: 0÷10 V; 0÷5 V; ±10 V; ±5 V (min 10 kΩ). Equipped with RS485 serial port.</p>
	<p><b>CANopen port.</b> Baud rate: 10, 20, 25, 50, 100, 125, 250, 500, 800, 1000 (kbit/s). The instrument works as <i>slave</i> in a synchronous CANopen network. Equipped with RS485 serial port.</p>
	<p><b>DeviceNet port.</b> Baud rate: 125, 250, 500 (kbit/s). The instrument works as <i>slave</i> in a DeviceNet network. Equipped with RS485 serial port.</p>
	<p><b>CC-Link port.</b> Baud rate: 156, 625, 2500, 5000, 10000 (kbit/s). The instrument works as <i>Remote Device Station</i> in a CC-Link network and occupies 3 stations. Equipped with RS485 serial port.</p>
	<p><b>Profibus DP port.</b> Baud rate: up to 12 Mbit/s. The instrument works as <i>slave</i> in a Profibus DP network. Equipped with RS485 serial port.</p>
	<p><b>Modbus/TCP port.</b> Type: RJ45 10Base-T or 100Base-TX (auto-sensing). The instrument works as <i>slave</i> in a Modbus/TCP network. Equipped with RS485 serial port.</p>
	<p><b>Ethernet TCP/IP port.</b> Type: RJ45 10Base-T or 100Base-TX (auto-sensing). The instrument works in an Ethernet TCP/IP network and it is accessible via web browser. Equipped with RS485 serial port.</p>
	<p><b>2x Ethernet/IP ports.</b> Type: RJ45 10Base-T or 100Base-TX (auto-sensing). The instrument works as <i>adapter</i> in an Ethernet/IP network. Equipped with RS485 serial port.</p>
	<p><b>2x PROFINET IO ports.</b> Type: RJ45 100Base-TX. The instrument works as <i>device</i> in a Profinet IO network. Equipped with RS485 serial port.</p>
	<p><b>2x EtherCAT ports.</b> Type: RJ45 10Base-T or 100Base-TX (auto-sensing). The instrument works as <i>slave</i> in an EtherCAT network. Equipped with RS485 serial port.</p>
	<p><b>2x POWERLINK ports.</b> Type: RJ45 10Base-T or 100Base-TX (auto-sensing). The instrument works as <i>slave</i> in a Powerlink network. Equipped with RS485 serial port.</p>
	<p><b>2x SERCOS III ports.</b> Type: RJ45 10Base-T or 100Base-TX (auto-sensing). The instrument works as <i>slave</i> in a Sercos III network. Equipped with RS485 serial port.</p>

### TECHNICAL FEATURES

Power supply and consumption	12÷24 VDC ±10%; 5 W
Number of load cells • Load cells supply	up to 16 (350 Ω) - 4/6 wires • 5 VDC/240 mA
Linearity • Analog output linearity (only for TLB4)	<0.01% full scale • <0.01% full scale
Thermal drift • Analog output thermal drift (only for TLB4)	<0.0005% full scale/°C • <0.003% full scale/°C
A/D Converter	4 channels - 24 bit (16000000 points) - 4.8 kHz
Divisions (with measurement range ±10 mV and sensitivity 2 mV/V)	±999999 • 0.01 μV/d
Measurement range	±39 mV
Usable load cells sensitivity	±7 mV/V
Conversions per second	600
Display range	±999999
Decimals • Display increments	0÷4 • x1 x2 x5 x10 x20 x50 x100
Digital filter • Readings per second	21 levels • 5÷600
Relay outputs	3 - max 115 VAC/150 mA
Optoisolated digital inputs	2 - 5÷24 VDC PNP
Serial ports	RS485
Baud rate	1200, 2400, 4800, 9600, 19200, 38400, 115200 (bit/s)
Optoisolated analog output (only for TLB4)	16 bit = 65535 divisions. 0÷20 mA; 4÷20 mA (up to 300 Ω) 0÷10 V; 0÷5 V; ±10 V; ±5 V (min 10 kΩ)
Humidity (condensate free)	85%
Storage temperature	-30 °C +80 °C
Working temperature	-20 °C +60 °C

	Relay outputs	3 - max 30 VAC, 60 VDC/150 mA
	Working temperature	-20 °C +60 °C
	Equipment to be powered by 12-24 VDC LPS or Class 2 power source	

METROLOGICAL SPECIFICATIONS OF TYPE-APPROVED INSTRUMENTS	OIML	INMETRO
Applied standards by region	EU: 2014/31/UE - EN45501:2015 - OIML R76:2006 Australia: National Measurement Regulations 1999 New Zealand: Weights and Measures Regulations 1999 United Kingdom: Non-automatic Weighing Instrument Regulations 2016	Brazil: Portaria Inmetro N°157/2022
Operation modes	single interval, multi-interval	single interval, multi-interval, multiple range
Accuracy class	III or IIII	III
Maximum number of scale verification divisions	10000 (class III); 1000 (class IIII)	10000 (class III)
Minimum input signal for scale verification division	0.25 μV/VSI	0.25 μV/VSI
Working temperature	-10 °C +40 °C	-10 °C +40 °C

### OPTIONS ON REQUEST

	DESCRIPTION
	Alibi memory.

### MAIN FUNCTIONS

- 4 independent channels for load cells: monitoring and direct management of each connected load cell.
- Immediate reporting of anomalies (also on the connected weight indicator display).
- TLB4 functions can be managed by a W series weight indicator connected via RS485 serial port (excluding instruments with graphic display) or remotely via the communication interfaces.
- Digital equalization of active channels for a single load cell or an axis.
- Load distribution analysis on the 4 channels with backups archive: storing, consultation, printing.
- Single channel overload function.
- Detailed diagnostics of each load cell (max 4): depending on the type of weighing system you can perform:
  - load automatic diagnostics;
  - automatic diagnostics on zero.
- Tilt compensation of the weighing system up to  $\pm 10$  degrees via inclinometer (not included). The weight correction is also valid for systems approved for legal for trade use.
- Archive of the last 50 significant events (zeroing, calibration, equalization, alarms): storing, consultation, printing.
- Transmission via RS485 (Modbus RTU) or fieldbus of the divisions for the 4 reading channels. Only the points of each load cell connected are transmitted, with no filter applied; the calculation of the weight value, the zero setting and calibration are made by the customer.
- Transmission of load distribution percentages via RS485 (Modbus RTU) or fieldbus.
- Connections to:
  - PLC via analog output or fieldbus;
  - PC/PLC via RS485 (up to 99 instruments with line repeaters, up to 32 without line repeaters);
  - remote display, inclinometer and printer via RS485;
  - up to 16 load cells in parallel;
  - W series weight indicator via RS485;
  - IoT gateway for cloud connection via RS485.
- TCP/IP WEB APP: integrated software in combination with the Ethernet TCP/IP version for remote supervision, management and control of the instrument.
- Digital filter to reduce the effects of weight oscillation.
- Possibility to define the condition of stable weight.
- Theoretical calibration (via keyboard) and real calibration (with sample weights and the possibility of weight linearization up to 8 points).
- Tare weight zero setting.
- Automatic zero setting at power-on.
- Gross weight zero tracking.
- Semi-automatic tare (net/gross weight) and preset tare.
- Semi-automatic zero.
- Direct connection between RS485 and RS232 without converter.
- Hysteresis and setpoint value setting.

### Approved versions for legal for trade use

- System parameters management protected by qualified access via software (password), hardware or fieldbus.
- Weight subdivisions displaying (1/10 e).
- Two operation mode: single interval or multi-interval.
- Net weight zero tracking.
- Calibration.
- Alibi memory (option on request).

### SINGLE PRODUCT LOADING PROGRAM

- Settable dosage formula.
- Automatic fall calculation.
- Tolerance error control.
- Precision batching through slow function.
- Precision batching through tapping function.
- Consumption storage.
- Printing of batching data.
- Alarm contact management.
- Batching start via external contact or fieldbus.
- Autotare at batching start.

### DIGITAL EQUALIZATION

The TLB4 does not require the use of the junction box thanks to the support of 4 independent channels; the digital equalization function simplifies the procedure to a single step and it is free of drift over time.

#### CORNER mode

The sample weight is positioned in correspondence with each load cell



#### AXIS mode

The sample weight is positioned in correspondence with the axes formed by the pairs of load cells

