TLB4

WEIGHT TRANSMITTER - 4 INDEPENDENT CHANNELS
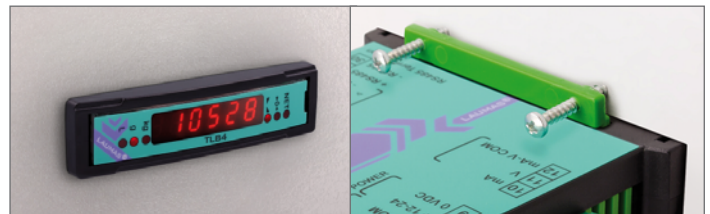
LAUMAS®
ELETTRONICA

CE · OIML · M · EAC · c UL us · RS485 · ANALOG OUTPUT · ALIBI

MODBUS RTU

FRONT PANEL MOUNTING (fixing kit included)

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 or front panel with fixing kit included (panel drilling template 23x96 mm; panel thickness 2.5 mm).
- Dimensions: 26x115x120 mm.
- Six-digit red LED semialphanumeric display (8 mm height), 7 segment.
- Six indicator LED.
- Four buttons for the system calibration.
- Extractable screw terminal boards.

INPUT/OUTPUT

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

FIELDBUSES

MODBUS RTU · MODBUS/TCP · ETHERNET POWERLINK certified product · DeviceNet · EtherNet/IP · PI CERTIFIED PROFIBUS · PROFINET

PROFIBUS · CC-Link · CANopen · SERCOS interface · ETHERNET TCP/IP · EtherCAT

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| DESCRIPTION	CODE
RS485 serial port Baud rate: 2400, 4800, 9600, 19200, 38400, 115200 (bit/s)	TLB4RS485
16 bit **analog output** = 65535 divisions 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). It is equipped with RS485 serial port.	TLB4
CANopen port Baud rate: 10, 20, 25, 50, 100, 125, 250, 500, 800, 1000 (kbit/s). The instrument operates as *slave* in a synchronous CANopen network. It is equipped with RS485 serial port.	TLB4CANOPEN
DeviceNet port Baud rate: 125, 250, 500 (kbit/s). The instrument operates as *slave* in a DeviceNet network. It is equipped with RS485 serial port.	TLB4DEVICENET
CC-LINK port Baud rate: 156, 625, 2500, 5000, 10000 (kbit/s). The instrument works as *Remote Device Station* in a CC-LINK network and occupies 3 stations. It is equipped with RS485 serial port.	TLB4CCLINK
PROFIBUS DP port Baud rate: up to 12 (Mbit/s). The instrument operates as *slave* in a Profibus-DP network. It is equipped with RS485 serial port.	TLB4PROFIBUS
Modbus/TCP port Type: RJ45 10Base-T or 100Base-TX (auto-sensing) The instrument operates as *slave* in a Modbus/TCP network. It equipped with RS485 serial port.	TLB4MODBUSTCP
Ethernet TCP/IP port Type: RJ45 10Base-T or 100Base-TX (auto-sensing). The instrument operates as *slave* in an Ethernet TCP/IP network and it is accessible via web browser. It is equipped with RS485 serial port.	TLB4ETHETCP
2x Ethernet/IP port Type: RJ45 10Base-T or 100Base-TX (auto-sensing) he instrument operates as *adapter* in an Ethernet/IP network. It is equipped with RS485 serial port.	TLB4ETHEIP
2x PROFINET IO ports Type: RJ45 10Base-T or 100Base-TX (auto-sensing) The instrument operates as device in a Profinet IO network. It is equipped with RS485 serial port.	TLBPROFINETIO
2x EtherCAT ports Type: RJ45 10Base-T or 100Base-TX (auto-sensing) The instrument operates as *slave* in an EtherCAT network. It is equipped with RS485 serial port.	TLB4ETHERCAT
2x POWERLINK ports Type: RJ45 10Base-T or 100Base-TX (auto-sensing) The instrument operates as *slave* in a Powerlink network. It is equipped with RS485 serial port.	TLB4POWERLINK
2x SERCOS III ports Type: RJ45 10Base-T or 100Base-TX (auto-sensing) The instrument operates as *slave* in a Sercos III network. It is equipped with RS485 serial port.	TLB4SERCOS

MAIN FUNCTIONS

- 4 independent channels for load cells: monitoring and direct management of the individual load cells connected.
- Digital equalization: the instrument allows to equalize the connected load cells response, in a fast and reliable way over time.
- Load distribution signaling on 4 channels with archive backups: storing, retrieving, printing.
- Automatic diagnostics: the instrument is designed to store the percentage value of load distribution for each channel. The diagnostic function makes comparisons between the recorded values and if a significant variation between the values is detected during normal operation, the instrument displays an alarm alternating with the weight value.
  Depending on the weighing system type it's possible to perform:
  - Load automatic diagnostics: load distribution control in constant barycentre systems (e.g. liquids silo).
  - Automatic diagnostics on zero: check on load cells drift state (e.g. silo, weighbridge, platformes).
- Event log: data backups archive in chronological order of the last 50 events related to calibrations, zero settings, errors and equalizations. The information can be stored, retrieved and printed.
- All TLB4 functions can be managed by a weight indicator W series connected via RS485 serial port (excluding indicators with graphic display).
- Transmission of the divisions for the 4 independent reading channels via RS485 (Modbus RTU) or fieldbus. Only the points of each load cell connected are transmitted, without any filter applied; the calculation of the weight value, the zero setting and calibration are performed by the customer.

- Connections to:
  - PLC via analog output or fieldbuses
  - PC/PLC via RS485 (up to 99 instruments with line repeaters, up to 32 without line repeaters).
  - W series weight indicator via RS485.
  - remote display and printer via RS485.
  - max. 16 load cells in parallel.
- Digital filter to reduce the effects of weight oscillation.
- Theoretical calibration (via keyboard) and real (with sample weights and the possibility of weight linearization up to 5 points).
- Tare weight zero setting.
- Automatic zero setting at power-on.
- Gross weight zero tracking.
- Semi-automatic tare (net/gross weight) and predetermined tare.
- Semi-automatic zero.
- Direct connection between RS485 and RS232 without converter.
- Hysteresis and setpoint value setting.
- **TCP/IP WEB APP** Integrated software in combination with Ethernet TCP/IP version, for supervision, management and remote control of the weight transmitter.

CE-M version: 2014/31/EU-EN45501:2015-OIML R76:2006
- Weight subdivisions displaying (1/10 e).
- Two operation modes: single interval or multiple ranges (max 3) or multi-interval (max 3).
- Net weight zero tracking.
- Calibration correction via keyboard is protected through seals for the access to a setting jumper or installer password or hardware device.
- Alibi memory (option on request).

EQUALIZATION WITH JUNCTION BOXES

The equalization procedure with junction boxes and trimmer requires more manual steps and over time it can undergo drift phenomena over time, requiring subsequent repetitions of the same procedure.
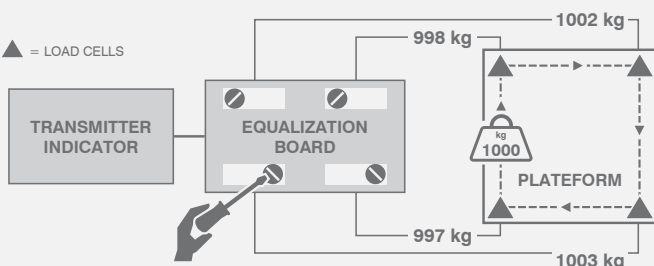
DIGITAL EQUALIZATION

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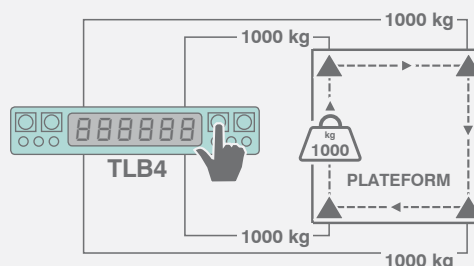
CERTIFICATIONS

OIML	OIML R76:2006, III class, 3x10000 divisions 0.2 μV/VSI

CERTIFICATIONS ON REQUEST

M	Initial verification (Legal Metrology)
c ℞ us	UL Recognized component - Complies with the United States and Canada regulations
EAC	Complies with the Eurasian Custom Union regulations (Russia, Belarus, Kazakhstan)

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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 • Linearity of the analog output (only for TLB4)	<0.01% full scale • <0.01% full scale
Thermal drift • Thermal drift of the analog output (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 measure range ±10 mV and sensitivity 2 mV/V)	±999999 • 0,01 μV/d
Measure range	±39 mV
Load cell's sensitivity	±7 mV/V
Conversion per second	600/s
Display range	±999999
Decimals • Display increments	0÷4 • x1 x2 x5 x10 x20 x50 x100
Digital filter • Conversion rate	0.006÷7 s • 5÷600 Hz
Relay logic outputs	n. 3 - 115 VAC/150 mA
Optoisolated logic inputs	n. 2 - 5÷24 VDC PNP
Serial ports	RS485
Baud rate	2400, 4800, 9600, 19200, 38400, 115200 (bit/s)
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

c**UL**us	Relay digital outputs	n. 3 - 30 VAC, 60 VDC/150 mA
	Working temperature	-20°C +50°C
	Power supply device marked "LPS" (limited power source) or "Class 2"	

METROLOGICAL SPECIFICATIONS OF TYPE-APPROVED INSTRUMENTS

Applied standards	2014/31/UE - EN45501:2015 - OIML R76:2006
Accuracy class	III or IIII
Maximum number of scale verification divisions	10000 (class III); 1000 (class IIII)
Minimum input signal for scale verification division	0.25 μV/VSI
Working temperature	-10°C +40°C

OPTIONS ON REQUEST

	DESCRIPTION	CODE
	Alibi memory	OPZWALIBI

The Company reserves the right to make changes to the technical data, drawings and images without notice.

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