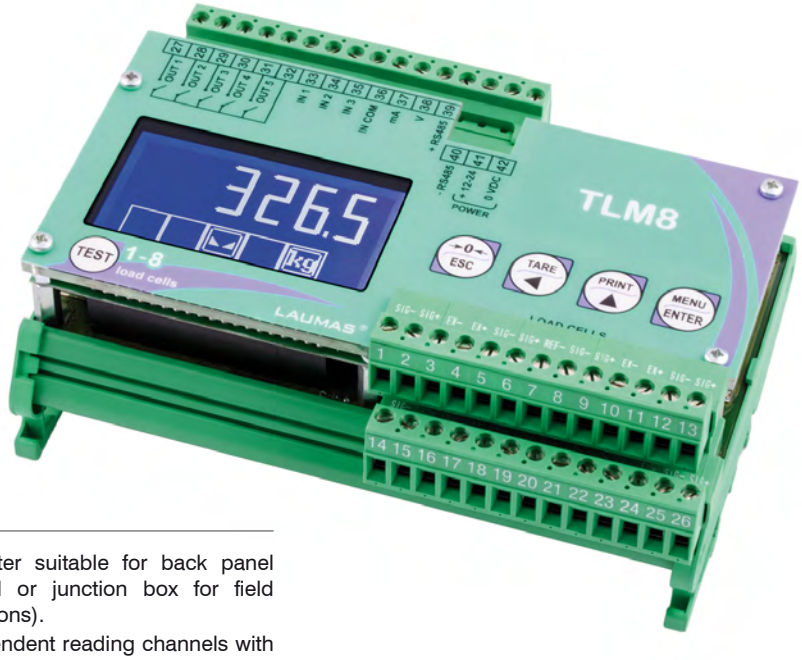
TLM8

DIGITAL/ANALOG WEIGHT TRANSMITTER - 8 INDEPENDENT CHANNELS

LAUMAS® ELETTRONICA

IP67 RS485 ANALOG OUTPUT ALIBI MODBUS RTU



DESCRIPTION

- Digital/analog weight transmitter suitable for back panel mounting on Omega/DIN rail or junction box for field mounting (on request box versions).
- Weighing system with 8 independent reading channels with display of the total weight.
- The TLM8 transmitter allows to have same benefits and performance of an advanced digital weighing system even using analog load cells.
- Dimensions: 148x92x60 mm.
- Backlit graphic LCD display, transmissive STN, white on blue, 128x64 pixel resolution, 60x32 mm visible area.
- Five-key keypad for the system calibration.
- TEST key for direct access to the diagnostic functions.
- Extractable screw terminal boards.

IP67 VERSION BOX (on request)

INPUT/OUTPUT

- Current or voltage 16 bit analog output
- RS485 serial port for communication via ModBus RTU protocol, ASCII Laumas bidirectional or continuous one way transmission.
- 5 relay digital outputs controlled by the setpoint values or via protocols.
- 3 optoisolated PNP digital inputs: status reading via serial communication protocols.
- 8 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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ISO 9001:2008
ISO 14001:2004

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	DESCRIPTION	CODE
	RS485 port Baud rate: 2400, 4800, 9600, 19200, 38400, 115200 (bit/s). 16 bit **analog output** = 65535 divisions Current: 0÷20 mA; 4÷20 mA (up to 400 Ω). Voltage: 0÷10 V; 0÷5 V (min 2 kΩ)	TLM8
	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. and analog output.	TLM8CANOPEN
	DeviceNet port + RS485 + Analog output Baud rate: 125, 250, 500 (kbit/s). The instrument operates as *slave* in a DeviceNet network. It is equipped with RS485 serial port. and analog output.	TLM8DEVICENET
	CC-LINK port + RS485 + Analog output 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. and analog output.	TLM8CCLINK
	PROFIBUS DP port + RS485 + Analog output Baud rate: up to 12 (Mbit/s). The instrument operates as *slave* in a Profibus-DP network. It is equipped with RS485 serial port. and analog output.	TLM8PROFIBUS
	Modbus/TCP port + RS485 + Analog output Type: RJ45 10Base-T or 100Base-TX (auto-sensing) The instrument operates as *slave* in a Modbus/TCP network. It is equipped with RS485 serial port. and analog output.	TLM8MODBUSTCP
	Ethernet TCP/IP port + RS485 + Analog output 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. and analog output.	TLM8ETHETCP
	Ethernet/IP port + RS485 + Analog output 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. and analog output.	TLM8ETHEIP
	PROFINET IO ports + RS485 + Analog output 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. and analog output.	TLM8PROFINETIO
	2x EtherCAT ports + RS485 + Analog output 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. and analog output.	TLM8ETHERCAT
	2x POWERLINK ports + RS485 + Analog output 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. and analog output.	TLM8POWERLINK
	2x SERCOS III ports + RS485 + Analog output 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. and analog output.	TLM8SERCOS

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CERTIFICATIONS

OIML	OIML R76:2006, III class, 3x10000 divisions 0.2 μV/VSI
	CERTIFICATIONS ON REQUEST
M	Initial verification (Legal Metrology)
c UL us	UL Recognized component - Complies with the United States and Canada regulations
EAC	Complies with the Eurasian Custom Union regulations (Russia, Belarus, Kazakhstan)

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	<0.01% full scale • <0.01% full scale
Thermal drift • Thermal drift of the analog output	<0.0005% full scale/°C • <0.003% full scale/°C
A/D Converter	8 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. 5 - 115 VAC/150 mA
Optoisolated logic inputs	n. 3 - 5÷24 VDC PNP
Serial ports	RS485
Baud rate	2400, 4800, 9600, 19200, 38400, 115200 (bit/s)
Analog output	16 bit = 65535 divisions. 0÷20 mA; 4÷20 mA (up to 400 Ω) 0÷10 V; 0÷5 V (min 2 kΩ)
Humidity (condensate free)	85%
Storage temperature	-30°C +80°C
Working temperature	-20°C +60°C

c UL us	Relay digital outputs	n. 5 - 30 VAC, 60 VDC/150 mA
	Working temperature	-20°C +50°C
	Power supply device marked "LPS" (limited power source) or "Class 2"	

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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	0.2 μV/VSI
Working temperature	-10°C +40°C

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MAIN FUNCTIONS

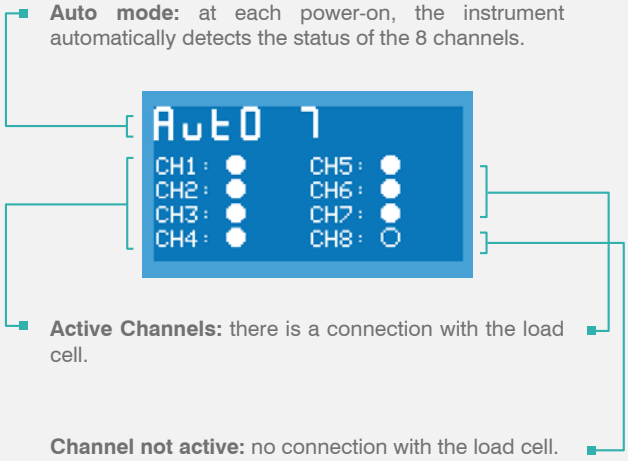
- 8 independent channels for load cells: monitoring and direct management of the individual load cells connected.
- Digital equalization: the instrument allows to equalize the connected load cells response, in a fast and reliable over time.
- Load distribution synoptic analysis on 8 channels with archive 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 (eg. 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 TLM8 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 8 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.
  - PC/PLC via fieldbus.
  - 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).
- Three operation mode: 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).

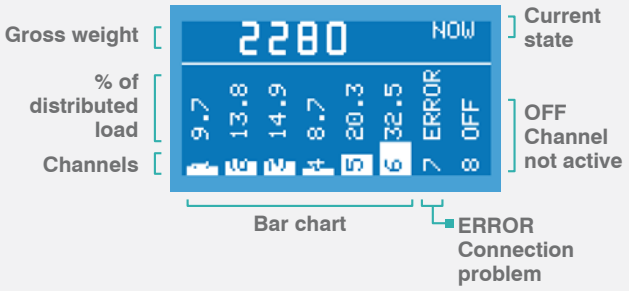
8 INDEPENDENT CHANNELS

The screen shows the automatic standard operating mode and the activation/deactivation status of individual channels to indicate the presence/ absence of connection with load cells.

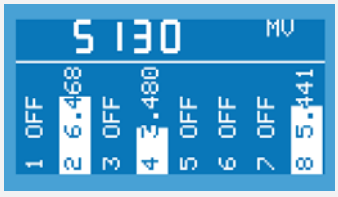


LOAD DISTRIBUTION

The TLM8 displays graphically the current load distribution on each active channel.



The TLM8 displays graphically the load cells response signal in mV for each active channel.



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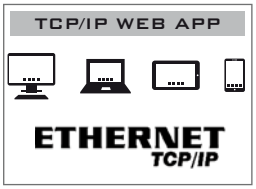
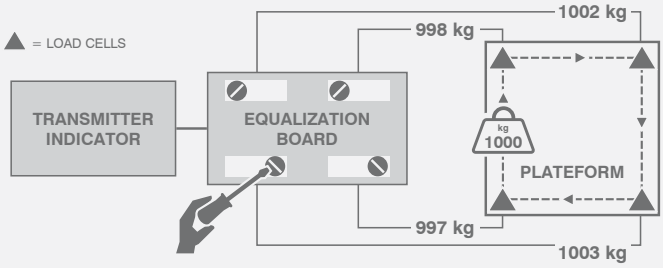


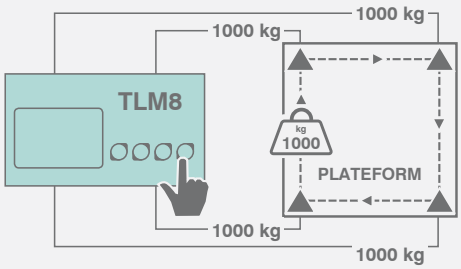
EQUALIZATION WITH JUNCTION BOXES

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 TLM8 does not require the use of junction box, thanks to the support of 8 independent channels; furthermore the digital equalizer function simplifies the procedure to a single step and it is free of drift over time.



OPTIONS ON REQUEST

	DESCRIPTION	CODE
	Alibi memory	OPZWALIBI
	IP67 ABS waterproof box 190x190x130 mm (4 fixing holes Ø4 mm; centre distance164x164 mm)	
	- transparent cover	CASTLG
	- transparent cover; 8+3 PG9 cable glands-plugs	CASTLG8PG9
	- transparent cover; 8+3 PVC fittings for sheath	CASTLG8GUA
	- external keyboard	CASTLGTAST
	- external keyboard; 8+3 PG9 cable glands-plugs	CASTLGTAST8PG9
	- external keyboard; 8+3 PVC fittings for sheath	CASTLGTAST8GUA

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