TLM8

WEIGHT TRANSMITTER - 8 INDEPENDENT CHANNELS



DESCRIPTION

- Weight transmitter with 8 independent reading channels with display of the total weight.
- The TLM8 series allows to have same benefits and performance of an advanced digital weighing system even using analog load cells.
- TEST key for direct access to the diagnostic functions.
- Back panel mounting on Omega/DIN rail or junction box (on request).
- Dimensions: 148x92x60 mm.
- Backlit LCD graphic display, resolution: 128x64 pixel, visible area: 60x32 mm.
- 5-key keyboard.
- Extractable 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.

INPUTS/OUTPUTS AND COMMUNICATION

- RS485 serial port for communication via protocols ModBus RTU, ASCII Laumas or continuous one way transmission.
- 5 relay 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.

CERTIFICATIONS

OIML	OIML R76:2006, class III, 3x10000 divisions, 0.2 μV/VSI
c UL us	UL Recognized component - Complies with United States and Canada regulations
EAC	Complies with the Eurasian Customs Union regulations
UK CA	Equivalent of the CE marking for the United Kingdom
INMETRO	Complies with the Brazilian regulations for legal for trade use
	CERTIFICATIONS ON REQUEST
M	Conformity assessment (initial verification) in combination with Laumas weighing module

FIELDBUSES

MODBUS RTU · MODBUS/TCP · ETHERNET POWERLINK certified product · DeviceNet · EtherNet/IP · PI CERTIFIED PROFIBUS • PROFINET · CANopen · CLPA CC-Link PARTNER ASSOCIATION · CC-Link · PROFIBUS · PROFINET · SERCOS interface · ETHERNET TCP/IP · EtherCAT

LAUMAS S.r.l.
Fax: (+39) 0521 681091
• SALES DEPARTMENT: sales@laumas.it
• Phone: (+39) 0521 683124

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	DESCRIPTION
	**RS485** serial port. Baud rate: 2400, 4800, 9600, 19200, 38400, 115200 (bit/s). 16 bit **analog output.** Current: 0÷20 mA; 4÷20 mA (up to 400 Ω). Voltage: 0÷10 V; 0÷5 V (min 2 kΩ).
	**CANopen** port. Baud rate: 10, 20, 25, 50, 100, 125, 250, 500, 800, 1000 (kbit/s). The instrument works as *slave* in a synchronous CANopen network. Equipped with RS485 serial port.
	**DeviceNet** port. Baud rate: 125, 250, 500 (kbit/s). The instrument works as *slave* in a DeviceNet network. Equipped with RS485 serial port.
	**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. Equipped with RS485 serial port.
	**Profibus DP** port. Baud rate: up to 12 Mbit/s. The instrument works as *slave* in a Profibus DP network. Equipped with RS485 serial port.
	**Modbus/TCP** port. Type: RJ45 10Base-T or 100Base-TX (auto-sensing). The instrument works as *slave* in a Modbus/TCP network. Equipped with RS485 serial port.
	**Ethernet TCP/IP** port. 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.
	**2x Ethernet/IP** ports. Type: RJ45 10Base-T or 100Base-TX (auto-sensing). The instrument works as *adapter* in an Ethernet/IP network. Equipped with RS485 serial port.
	**2x PROFINET IO** ports. Type: RJ45 100Base-TX. The instrument works as *device* in a PROFINET IO network. Equipped with RS485 serial port.
	**2x EtherCAT** ports. Type: RJ45 10Base-T or 100Base-TX (auto-sensing). The instrument works as *slave* in an EtherCAT network. Equipped with RS485 serial port.
	**2x POWERLINK** ports. Type: RJ45 10Base-T or 100Base-TX (auto-sensing). The instrument works as *slave* in a Powerlink network. Equipped with RS485 serial port.
	**2x SERCOS III** ports. Type: RJ45 10Base-T or 100Base-TX (auto-sensing). The instrument works as *slave* in a Sercos III network. Equipped with RS485 serial port.

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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 • Analog output linearity	<0.01% full scale • <0.01% full scale
Thermal drift • Analog output thermal drift	<0.0005% full scale/°C • <0.003% full scale/°C
A/D Converter	8 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
Conversion rate	5÷600 Hz
Display range	±999999
Decimals • Display increments	0÷4 • x1 x2 x5 x10 x20 x50 x100
Digital filter	21 levels
Relay outputs	5 - max 115 VAC/150 mA
Optoisolated digital inputs	3 - 5÷24 VDC PNP
Serial ports	RS485
Baud rate	1200, 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 outputs	5 - 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 United Kingdom: Non-automatic Weighing Instrument Regulations 2016	Brazil: Portaria Inmetro N°157/2022
Operation modes	single interval, multi-interval, multiple range	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	0.2 μV/VSI	0.2 μV/VSI
Working temperature	-10°C +40°C	-10°C +40°C

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MAIN FUNCTIONS

- 8 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).
- TLM8 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 8 channels with backups archive: storing, consultation, printing.
- Single channel overload function.
- Detailed diagnostics of each load cell (max 8): 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 ±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 8 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 and 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

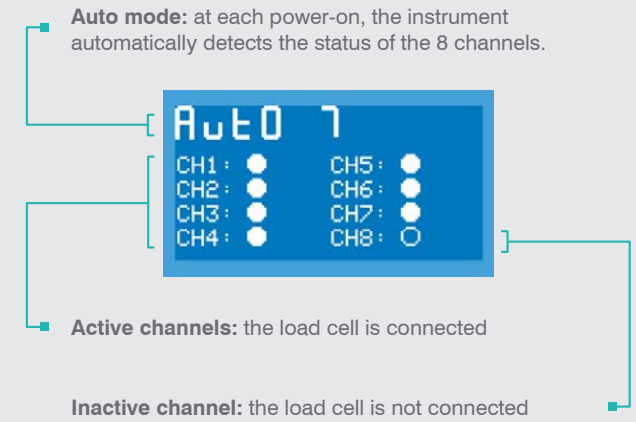
- System parameters management protected by qualified access via software (password), hardware or fieldbus.
- Weight subdivisions displaying (1/10 e).
- Three operation mode: single interval or multiple ranges or multi-interval.
- Net weight zero tracking.
- Calibration.
- Alibi memory (option on request).

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.

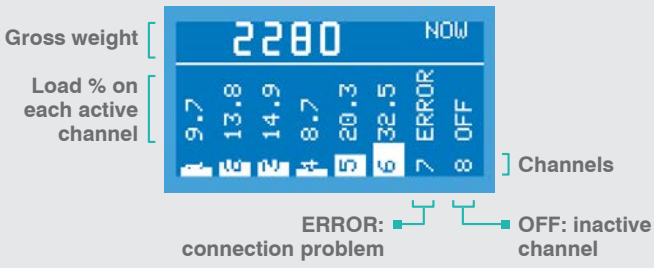
8 INDEPENDENT CHANNELS

The screen shows the standard automatic operating mode: the activation/deactivation status of each channel indicates the presence/ absence of connection with the load cells.



LOAD DISTRIBUTION

The TLM8 displays, in graphical form, the current load distribution on each active channel.



LOAD CELLS INPUT TEST

The TLM8 displays, in graphical form, the load cells response signal in mV for each active channel.



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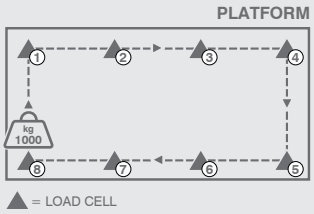
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DIGITAL EQUALIZATION

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

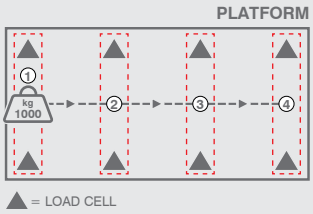
CORNER mode

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



OPTIONS ON REQUEST

	DESCRIPTION
	Alibi memory.
	AISI 304 stainless steel box; dimensions: 286x206x85 mm
	CASTLM8I - IP68 protection rating. - 10 M12x1.5 cable glands. - Adjustable stainless steel bracket included. - Dimensions with bracket: 290x206x187 mm. - Kit for front panel mounting (option on request). Available versions: Standard ATEX (zone 2-22)
	CASTLM8I 3A - IP69K front panel protection rating - Hygienic version RPSCQC authorized by 3-A SSI - 6 M12x1.5 cable glands - Supports for front panel mounting included
	IP67 polycarbonate box; dimensions: 188x188x130 mm (four fixing holes Ø4 mm; centre distance: 164x164 mm)
	CASTLG - transparent cover - transparent cover; 8+3 M16x1.5 cable glands - plugs - transparent cover; 8+3 PVC end-fittings for sheath
	CASTLGTAST - external keyboard - external keyboard; 8+3 M16x1.5 cable glands - plugs - external keyboard; 8+3 PVC end-fittings for sheath
	IP67 polycarbonate box; dimensions: 188x278x130 mm (four fixing holes Ø4 mm; centre distance: 164x254 mm)
	CASTLGBUS - transparent cover; 8+4 M16x1.5 cable glands - plugs

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