

TLB

WEIGHT TRANSMITTER

LAUMAS®



M c RU[®] US



DESCRIPTION

- Weight transmitter suitable for back panel mounting on Omega/DIN rail.
- Space-saving vertical shape.
- Dimensions: 115x25x120 mm.
- 6-digit semi-alphanumeric red LED display (8 mm height).
- 6 signalling LED.
- Four buttons for the system calibration.
- 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.

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.
- 1 load cell dedicated input.

FIELD BUSES

MODBUS RTU

MODBUS/TCP

ETHERNET
POWERLINK
certified product

DeviceNet

EtherNet/IP

PI^{CERTIFIED}
PROFIBUS • PROFINET

PROFI[®]
BUS

CC-Link

CANopen

SERCOS
interface

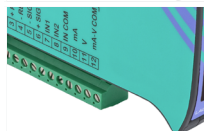
ETHERNET
TCP/IP

EtherCAT

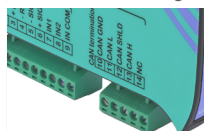
DESCRIPTION



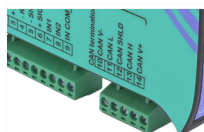
RS485 serial port.
Baud rate: 2400, 4800, 9600, 19200, 38400, 115200 (bit/s).



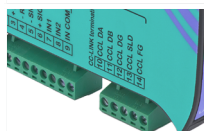
Optoisolated 16 bit analog output.
Current: $0 \div 20$ mA; $4 \div 20$ mA (up to 300 Ω).
Voltage: $0 \div 10$ V; $0 \div 5$ V; ± 10 V; ± 5 V (min 10 k Ω).
Equipped with RS485 serial port.



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.

CERTIFICATIONS

	OIML R76:2006, class III, 3x10000 divisions, 0.2 $\mu\text{V}/\text{VSI}$ / OIML R61 - WELMEC Guide 8.8:2011 (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
	Measurement Canada - n_{max} 5000 - Class III - Complies with Canadian regulations for legal for trade use
	NTEP - n_{max} 5000 - Class III - Complies with United States 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
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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 8 (350 Ω) - 4/6 wires • 5 VDC/120 mA	
Linearity • Analog output linearity (only for TLB)	<0.01% full scale • <0.01% full scale	
Thermal drift • Analog output thermal drift (only for TLB)	<0.0005% full scale/°C • <0.003% full scale/°C	
A/D Converter	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	300	
Display range	±999999	
Decimals • Display increments	0÷4 • x1 x2 x5 x10 x20 x50 x100	
Digital filter • Readings per second	10 levels • 5÷300	
Relay outputs	3 - max 115 VAC/150 mA	
Optoisolated digital inputs	2 - 5÷24 VDC PNP	
Serial ports	RS485	
Baud rate	2400, 4800, 9600, 19200, 38400, 115200 (bit/s)	
Optoisolated analog output (only for TLB)	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	NTEP	INMETRO
Applied standards by region	EU: 2014/31/UE; OIML R76:2006; EN45501:2015 United Kingdom: Non-automatic Weighing Instrument Regulations 2016	USA: NIST HANDBOOK 44, 2020; NCWM PUB 14, 2021 Canada: Weights and Measures Regulations, 2019	Brazil: Portaria Inmetro N°157/2022
Operation modes	single interval, multi-interval	single interval, multi-interval	single interval, multi-interval, multiple range
Accuracy class	III or IIII	III	III
Maximum number of scale verification divisions	10000 (class III); 1000 (class IIII)	5000 (class III)	10000 (class III)
Minimum input signal for scale verification division	0.2 $\mu\text{V}/\text{VSI}$		0.2 $\mu\text{V}/\text{VSI}$
Working temperature	-10 °C +40 °C	-10 °C +40 °C (+14 °F +104 °F)	-10 °C +40 °C

MAIN FUNCTIONS

- 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 via RS485;
 - up to 8 load cells in parallel by junction box.
- 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.
- 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.
- Displaying of the maximum weight value reached (peak).
- 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.

SPACE SAVING COMPACT DESIGN



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