



**MODBUS RTU**



### DESCRIPTION

- Weight transmitter suitable for back panel mounting on Omega/DIN rail.
- Space-saving vertical shape.
- Dimensions: 25x115x120 mm.
- 6-digit semi-alphanumeric red LED display (8 mm height).
- 6 signalling LED.
- Four buttons for the system calibration.
- Extractable screw terminal blocks.

### INPUTS/OUTPUTS AND COMMUNICATION

- RS485 serial port for communication via protocols ModBus RTU, ASCII Laumas bidirectional 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.

### FIELDBUSES

**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   | CODE          |
|---|---|---------------|
|    | <b>RS485</b> serial port.<br>Baud rate: 2400, 4800, 9600, 19200, 38400, 115200 (bit/s).   | TLB485        |
|    | <b>Optoisolated 16 bit analog output.</b><br>Current: 0÷20 mA; 4÷20 mA (up to 300 Ω).<br>Voltage: 0÷10 V; 0÷5 V; ±10 V; ±5 V (min 10 kΩ).<br>Equipped with RS485 serial port.                                   | TLB           |
|    | <b>CANopen</b> port.<br>Baud rate: 10, 20, 25, 50, 100, 125, 250, 500, 800, 1000 (kbit/s).<br>The instrument works as <i>slave</i> in a synchronous CANopen network.<br>Equipped with RS485 serial port.        | TLBCANOPEN    |
|    | <b>DeviceNet</b> port.<br>Baud rate: 125, 250, 500 (kbit/s).<br>The instrument works as <i>slave</i> in a DeviceNet network.<br>Equipped with RS485 serial port.  | TLBDEVICENET  |
|    | <b>CC-Link</b> port.<br>Baud rate: 156, 625, 2500, 5000, 10000 (kbit/s).<br>The instrument works as <i>Remote Device Station</i> in a CC-Link network and occupies 3 stations. Equipped with RS485 serial port. | TLBCCLINK     |
|   | <b>PROFIBUS DP</b> port.<br>Baud rate: up to 12 Mbit/s.<br>The instrument works as <i>slave</i> in a Profibus-DP network.<br>Equipped with RS485 serial port.   | TLBPROFI      |
|  | <b>Modbus/TCP</b> port.<br>Type: RJ45 10Base-T or 100Base-TX (auto-sensing).<br>The instrument works as <i>slave</i> in a Modbus/TCP network.<br>Equipped with RS485 serial port.                               | TLBMODBUSTCP  |
|  | <b>Ethernet TCP/IP</b> port.<br>Type: RJ45 10Base-T or 100Base-TX (auto-sensing).<br>The instrument works in an Ethernet TCP/IP network and it is accessible via web browser. Equipped with RS485 serial port.  | TLBETHETCP    |
|  | <b>2x Ethernet/IP</b> ports.<br>Type: RJ45 10Base-T or 100Base-TX (auto-sensing).<br>The instrument works as <i>adapter</i> in an Ethernet/IP network.<br>Equipped with RS485 serial port.                      | TLBETHEIP     |
|  | <b>2x PROFINET IO</b> ports.<br>Type: RJ45 100Base-TX.<br>The instrument works as <i>device</i> in a Profinet IO network.<br>Equipped with RS485 serial port.   | TLBPROFINETIO |
|  | <b>2x EtherCAT</b> ports.<br>Type: RJ45 10Base-T or 100Base-TX (auto-sensing).<br>The instrument works as <i>slave</i> in an EtherCAT network.<br>Equipped with RS485 serial port.                              | TLBETHERCAT   |
|  | <b>2x POWERLINK</b> ports.<br>Type: RJ45 10Base-T or 100Base-TX (auto-sensing).<br>The instrument works as <i>slave</i> in a Powerlink network.<br>Equipped with RS485 serial port.                             | TLBPOWERLINK  |
|  | <b>2x SERCOS III</b> ports.<br>Type: RJ45 10Base-T or 100Base-TX (auto-sensing).<br>The instrument works as <i>slave</i> in a Sercos III network.<br>Equipped with RS485 serial port.                           | TLBSERCOS     |

### CERTIFICATIONS



OIML R76:2006, class III, 3x10000 divisions, 0.2  $\mu$ V/VSI / OIML R61 - WELMEC Guide 8.8:2011 (MID)

#### CERTIFICATIONS ON REQUEST

|              |  |
|--------------|--|
| <b>M</b>     | Initial verification in combination with Laumas weighing module                |
| <b>UL US</b> | UL Recognized component - Complies with the United States and Canada standards |
| <b>ERC</b>   | Complies with the Eurasian Custom Union standards                              |
| <b>NTEP</b>  | NTEP - $n_{max}$ 5000 - Class III - United States and Canada                   |

### TECHNICAL FEATURES

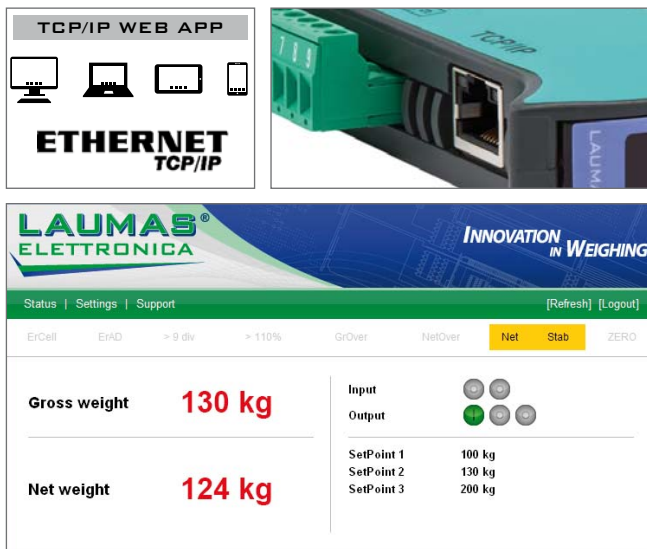
|   |   |                                   |
|---|---|-----------------------------------|
| Power supply and consumption  | 12÷24 VDC $\pm$ 10%; 5 W  |                                   |
| Number of load cells • Load cells supply                              | up to 8 (350 $\Omega$ ) - 4/6 wires • 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/ $^{\circ}$ C • <0.003% full scale/ $^{\circ}$ C  |                                   |
| A/D Converter   | 24 bit (16000000 points) - 4.8 kHz  |                                   |
| Divisions (with measurement range $\pm$ 10 mV and sensitivity 2 mV/V) | $\pm$ 999999 • 0.01 $\mu$ V/d   |                                   |
| Measurement range   | $\pm$ 39 mV   |                                   |
| Usable load cells sensitivity   | $\pm$ 7 mV/V  |                                   |
| Conversions per second  | 300/s   |                                   |
| Display range   | $\pm$ 999999  |                                   |
| Decimals • Display increments   | 0÷4 • x1 x2 x5 x10 x20 x50 x100   |                                   |
| Digital filter • Readings per second                                  | 10 levels • 5÷300 Hz  |                                   |
| 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 $\Omega$ )<br>0÷10 V; 0÷5 V; $\pm$ 10 V; $\pm$ 5 V (min 10 k $\Omega$ ) |                                   |
| Humidity (condensate free)  | 85%   |                                   |
| Storage temperature   | -30 $^{\circ}$ C +80 $^{\circ}$ C   |                                   |
| Working temperature   | -20 $^{\circ}$ C +60 $^{\circ}$ C   |                                   |
| <b>UL US</b>  | Relay outputs   | 3 - max 30 VAC, 60 VDC/150 mA     |
|   | Working temperature   | -20 $^{\circ}$ C +50 $^{\circ}$ 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 |
| Operation modes                                      | single interval, multi-interval           |
| 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 $\mu$ V/VSI                           |
| Working temperature                                  | -10 $^{\circ}$ C +40 $^{\circ}$ C         |

### MAIN FUNCTIONS

- 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);
  - remote display via RS485;
  - up to 8 load cells in parallel by junction box.
- 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 5 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.
- TCP/IP WEB APP**  
Integrated software in combination with the Ethernet TCP/IP version for remote supervision, management and control of the instrument.



### CE-M version: 2014/31/EU-EN45501:2015-OIML R76:2006

- 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

