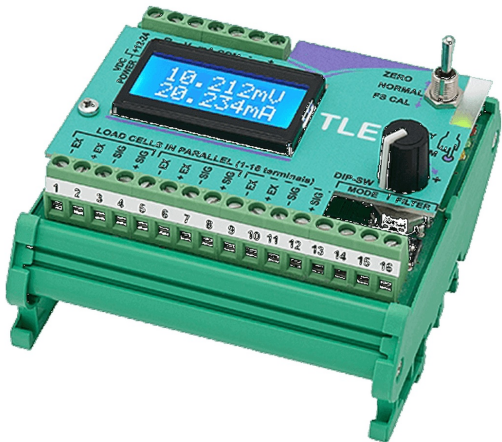


ANALOGUE WEIGHT TRANSMITTER, RS485



WEIGHT
TRANSMITTER

Type: **TLE**

- UP TO 8 LOAD CELLS
- ANALOGUE OUTPUT 16 bit, 3 ms
- RS485 · ModBus RTU
- 2 × 8 DIGIT LCD

RS485

4...20 mA
0...10 V

Display

ORDERING

Basic device	TLE — analogue weight transmitter with RS485
Mounting	omega or DIN rail; IP67 box CASTL on request
ATEX box	CASTLATEX for zone 2-22, on request



OVERVIEW

The TLE turns the millivolt signal of up to eight load cells into a fast analogue signal and, at the same time, into a serial one. The 16-bit output answers within 3 ms and can be set to current or voltage; the RS485 interface speaks ModBus RTU, ASCII or a continuous one-way transmission, with up to 99 instruments on one line when amplifiers are used. Zero and full scale are set without a multimeter: the backlit LCD shows the answer of the load cells in mV and the value of the analogue output at the same time, which is what makes the device quick to commission. Calibration is possible theoretically over the keys or really with test weights, and a digital filter with eight levels smooths the effect of a moving load. The device is built for the back wall of a control cabinet on an omega or DIN rail; an IP67 polycarbonate box is available on request, also in an ATEX version for zone 2-22.

MEASUREMENT AND OUTPUT	DEVICE AND SUPPLY
• Up to 8 load cells of 350 Ω, 4- or 6-wire • Load cell supply 5 V DC / 120 mA • Measuring range ± 39 mV, ± 7 mV/V • A/D 24 bit, 4.8 kHz, 300 conversions/s • Analogue output 16 bit, response 3 ms • 0 ... 20 mA · 4 ... 20 mA up to 300 Ω • 0 ... 10 V · 0 ... 5 V · ± 10 V · ± 5 V • RS485 — ModBus RTU, ASCII	• Supply 12 ... 24 V DC ± 10 %, 5 W • Dimensions 90 × 95 × 60 mm • Omega or DIN rail mounting • LCD 2 lines × 8 digits, backlit • Selector, DIP switches and knob • Operating temperature -20 ... $+60$ °C • Storage -30 ... $+80$ °C • Option IP67 box, also ATEX zone 2-22



TECHNICAL DATA

LOAD CELLS AND MEASUREMENT

Number of load cells	up to 8 of 350 Ω · 4- or 6-wire
Load cell supply	5 V DC / 120 mA
Measuring range	± 39 mV · load cell sensitivity ± 7 mV/V
A/D converter	24 bit (16 000 000 digits) · 4.8 kHz · 300 conversions per second
Linearity	< 0.01 % of full scale
Thermal drift	< 0.0005 % of full scale per °C

DISPLAY AND OPERATION

Display	alphanumeric LCD, backlit · 2 lines of 8 digits · digit height 5 mm · visible area 38 × 16 mm
Shown at the same time	answer of the load cells in mV and value of the analogue output
Operating elements	3-position selector · DIP switches · rotary knob
Display range	± 999999 · decimals 0 ... 4 · resolution $\times 1 \dots \times 100$
Digital filter	8 levels · 10 ... 300 readings per second
Calibration	theoretical over the keys or real with test weights · tare to zero

OUTPUT AND INTERFACE

Analogue output	16 bit = 65535 divisions · response time 3 ms
Current	0 ... 20 mA · 4 ... 20 mA, up to 300 Ω
Voltage	0 ... 10 V · 0 ... 5 V · ± 10 V · ± 5 V, minimum 10 k Ω
Linearity of the output	< 0.01 % of full scale · thermal drift < 0.003 % per °C
Serial interface	RS485 — ModBus RTU, ASCII or continuous one-way transmission
Baud rate	2400 · 4800 · 9600 · 19200 · 38400 · 115200 bit/s
Instruments on one line	up to 99 with amplifiers, up to 32 without

CALIBRATION VALUES AND ENVIRONMENT

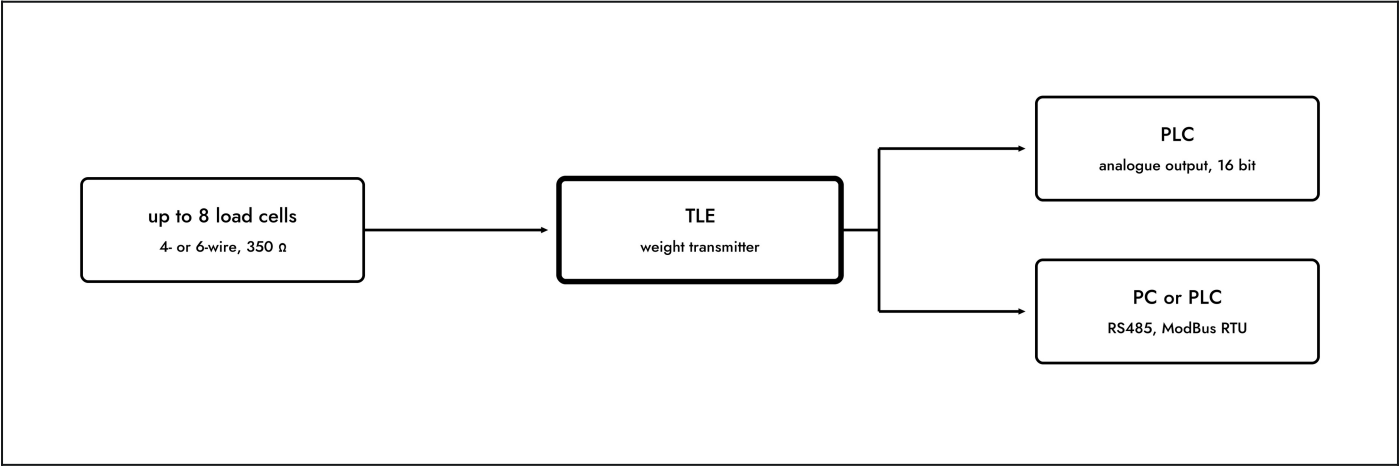
Calibration values (RS485)	± 200000 at ± 10 mV and 2 mV/V · ± 300000 at ± 15 mV and 3 mV/V, each 0.01 μ V/d
Humidity	85 %, no condensation
Storage temperature	-30 ... +80 °C
Operating temperature	-20 ... +60 °C

DEVICE, SUPPLY AND MOUNTING

Supply	12 ... 24 V DC ± 10 % · 5 W · use an external LPS or class 2 power supply
Dimensions	90 × 95 × 60 mm
Mounting	back wall of the control cabinet, omega or DIN rail — or in a box on request
Option box	CASTL, IP67 polycarbonate, 170 × 140 × 95 mm — transparent lid, with 4 + 2 M16 × 1.5 cable glands or 4 + 2 PVC sleeve connections
Option box ATEX	CASTLATEX, zone 2-22, transparent lid, 4 + 2 M16 × 1.5 cable glands



CONNECTIONS



ACCESSORIES

Junction box	for connecting up to 8 load cells in parallel
CASTL	IP67 polycarbonate box with transparent lid
CASTLATEX	the same box in the ATEX version for zone 2-22

The box is ordered with the device; its fixing holes are 4 × Ø 4 mm at a spacing of 152 × 122 mm.

COMPLIANCE

 RS485	Serial interface	RS485 — ModBus RTU, ASCII, continuous
 4...20 mA 0...10 V	Analogue output	16 bit — 0 ... 20 mA, 4 ... 20 mA, 0 ... 10 V, 0 ... 5 V, ± 10 V, ± 5 V
 Display	Display	backlit LCD, 2 lines of 8 digits

Approvals: UL recognized component for the USA and Canada · conforming to the rules of the Eurasian Customs Union · equivalent to the CE certification for the United Kingdom.



DIMENSIONS (mm)

Item	Value
Device	90 × 95 × 60 mm
IP67 box CASTL	170 × 140 × 95 mm, polycarbonate
Fixing holes of the box	4 × Ø 4 mm, spacing 152 × 122 mm
Visible display area	38 × 16 mm, digit height 5 mm

