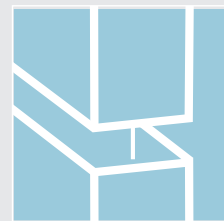


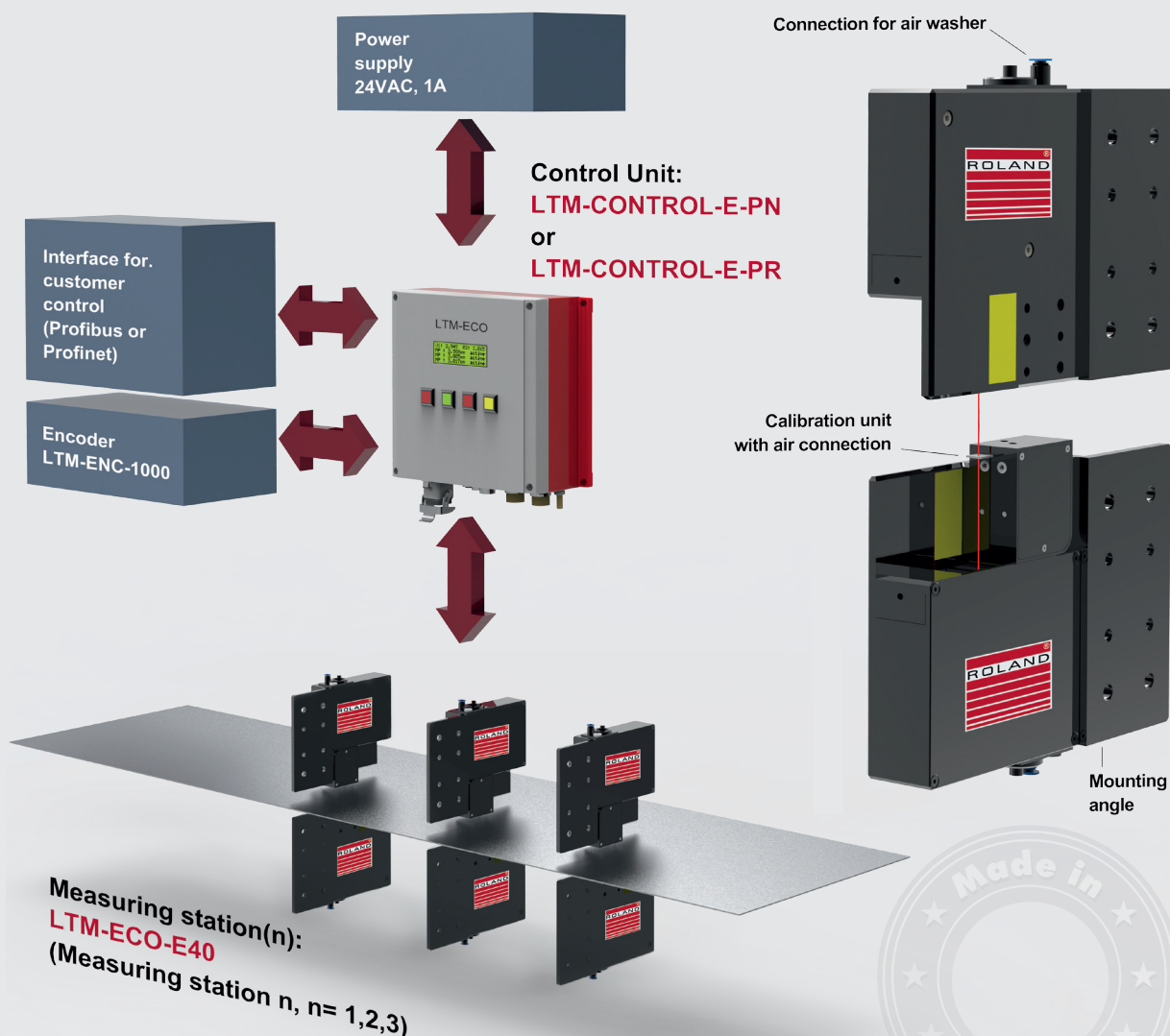
Thickness Gauging System LTM-ECO

High performance measuring system for Static Thickness Gauging
with maximum 3 tracks



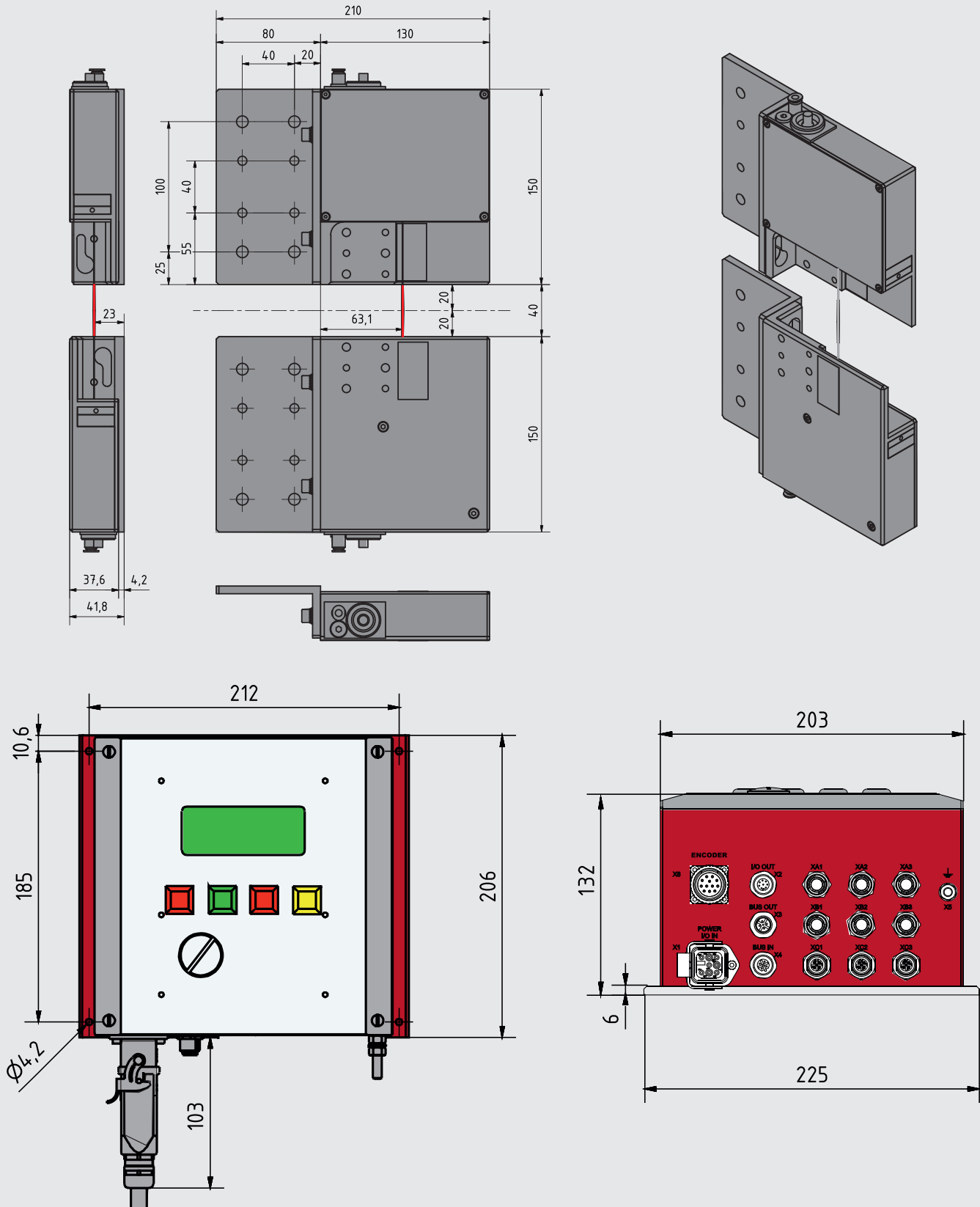
- Measurable material thickness from 0.2 to 15mm
- Non-contacting measurement during continuous operation
- Measurement mode: Line measurement
- Simple integration
- Compact enclosure, display information
via Dot Matrix Display (4x20)
- Possible interfaces: Profibus, Profinet

THICKNESS GAUGING



THICKNESS GAUGING SYSTEM LTM-ECO

Dimensions



Dimensions of LTM-ECO (All information in mm).

Technical Data

System configuration		
Type of measurement / Measurement mode	Static / Line measuring	
Number of measuring stations ¹⁾ :	1 to max. 3	
Operation:	Compact enclosure with four integrated keys display information via Dot Matrix Display (4x20)	
Electric interface / Data interface:	Profibus respectively Profinet	
Data type:	Minimal, maximal and determined average thickness per current measurement interval	
Integrated measuring system analysis:	Not present	
Calibration of the system:	Pneumatic-mecanic	
	Control via external customer PLC	
Track unit transversal to the material transport direction:	Not present	
Max. measuring distance ²⁾ :	---	
Positioning accuracy	---	
Positioning velocity	---	
Measurement speed	---	
Process parameters		
Measuring material:	Fe-, NF - materials (non-transparent)	
Material velocity ³⁾ :	max. 1.800m/min	
Material temperature ⁴⁾ :	max. 100°C (212°F)	
Permissible residual moisture on the strip surface	500mg/m² per side, evenly distributed	
Metrological characteristics		
Measurable material thickness:	0.2 ... 15mm	
Max. deviation of measurement at calibration normal ⁵⁾ :	15µm	
Work space:	40mm (± 20mm around measuring focus)	
Resolution:	1µm	
Repeatability ⁶⁾ :	± 6.0µm	
	± 3 mm	The specified repeat accuracy respectively measurement deviation applies to an angle deviation ≤ 1° and variation of the pass line
Sampling interval:	500 µs	
Laser characteristics		
Linearity:	± 40µm	
Light spot dimensions:	0.26mm x 1.2mm	
Measuring principle:	Laser triangulation	
Laser type, wave length:	Semi conductor, red, 658 nm	
Laser class:	2 (DIN / IEC), max. 1mW	
Connections, consumption, ambient conditions		
Electric connection:	24VDC, 1A	
Protection class:	Operating unit IP65 / Sensors IP54	
Ambient temperatures:	Measuring stations ⁶⁾ : 5 – 45°C (41-113°F) / Control unit: 5 – 45 °C (41-113°F) / relative air humidity:10 – 95%	
Air supply:	Pressure: min. 6bar; max. 8bar / ammount approx. 15m³/h	
Compressed air quality ⁷⁾ :	Solid particles: quality class 5 = max. 40µm / particle density < 10mg/m³ / water content: quality class 5 = 9.4g/m³ at 10°C / oil content: quality class 4 < 5mg/m³	
Mechanic connection of compressed air	Hose 6 / 4mm	

¹⁾ A measuring station consists of 2 laser sensors

²⁾ The measuring path depends on the selected system and at the same time it describes the max. possible material width that can be measured.

³⁾ The distance of the measuring points increases with increasing speed, depending on the selected sampling interval.

⁴⁾ Other material temperatures upon request

⁵⁾ The specified repeatability respectively the deviation of measurement applies to an angular deviation of ≤ 1° and variation of the passing line

⁶⁾ Only if the prescribed calibration protocol is followed

⁷⁾ DIN ISO 8573-1, before the maintenance unit (scope of delivery)

THICKNESS GAUGING SYSTEM LTM-ECO

Order information

Designation	Part name	Description
Control unit	LTM-CONTROL-E-PN¹⁾	Compact and robust aluminum enclosure with four-line display and operating keys all necessary electric connections included, pluggable version.
	LTM-CONTROL-E-PR²⁾	
Measuring station	LTM-ECO-E40	Up to three measuring stations can be connected to a control unit. Each measuring station consists of a pair of laser sensors, incl. mounting unit and a calibration unit with parallel end gauge of 1.000mm, class 1. The control of the calibration unit is performed by the customer (pneumatically switched).
Connection cables	LTM-E-SCSENSS-GG	Connection cable for measuring stations (2 pcs. required for each station). Both cable ends are pluggable, with straight cable connector on unit side, straight cable socket on sensor side. Standard cable length 2m ³⁾
	LTM-E-SCENCODS-GG	Connection cable for encoder to ROLAND unit, with straight M23 cable connector and straight M23 cable socket ³⁾ .
Encoder	LTM-ENC-1000	Mounting at the customer-side system to generate the necessary path signals. Clamping flange 58mm and shaft diameter of 10mm.

¹⁾ For all provided thickness values a path information is always allocated and provided.

²⁾ For each provided path information the corresponding thickness values are provided, depending on the status of the measuring station.

³⁾ Other lengths upon request.

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