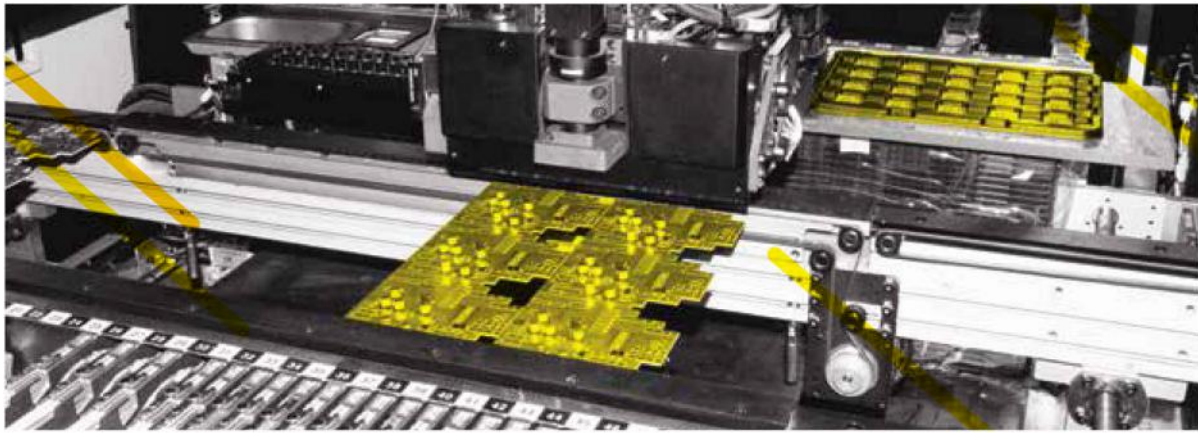


**MSA**  
**ELECTRONICS**

Industrial Automation , Weighing Systems



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## About Us

**Maad Sanat was founded in 2005, and for more than a decade has designed, produced, and implemented industrial automation systems and related components.**

In 2006, Maad Sanat's "TENDER" brand was launched, producing its first in a line of weight indicators and controllers. The TENDER industrial weight controller was patented and registered internationally with the General Office of Industrial Property in 2008, achieved the European CE Standard in 2012.

In 2015, the research and development team at Maad Sanat's produced a variety of weight transmitters, temperature transmitter and power transmitter (and more) which were branded under the name "TRANCEL". Due to its professional design, high quality, and precision, TRANCEL has become one of the most widely used market transmitters.

In 2016, Maad Sanat began to produce the TENDER Series 6 weight indicator and controller. Although the outer appearance resembles the Series 5, the new model boasts substantial upgrades to its internal and technical structures. These improvements, which include superior accuracy and speed, as well as special features, make it competitive in the global market.

Maad Sanat has remained stable in the market despite the economic recession by focusing on research and development (R&D), receiving continuous feedback from customers, and updating products regarding market demands. Our use of electronic components and raw materials, which are prepared by the most reliable brands in the world, are assembled with automatic equipment to enhance their quality and reduce human errors. Every singly product is then tested to ensure quality control.

Belt Weighing Systems



Food Industry



Packing Machinery



Batching Plant Manufactures



Test Equipment Manufacturers



Petrochemical Industries



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# TENDER

Weight Indicator and Controller

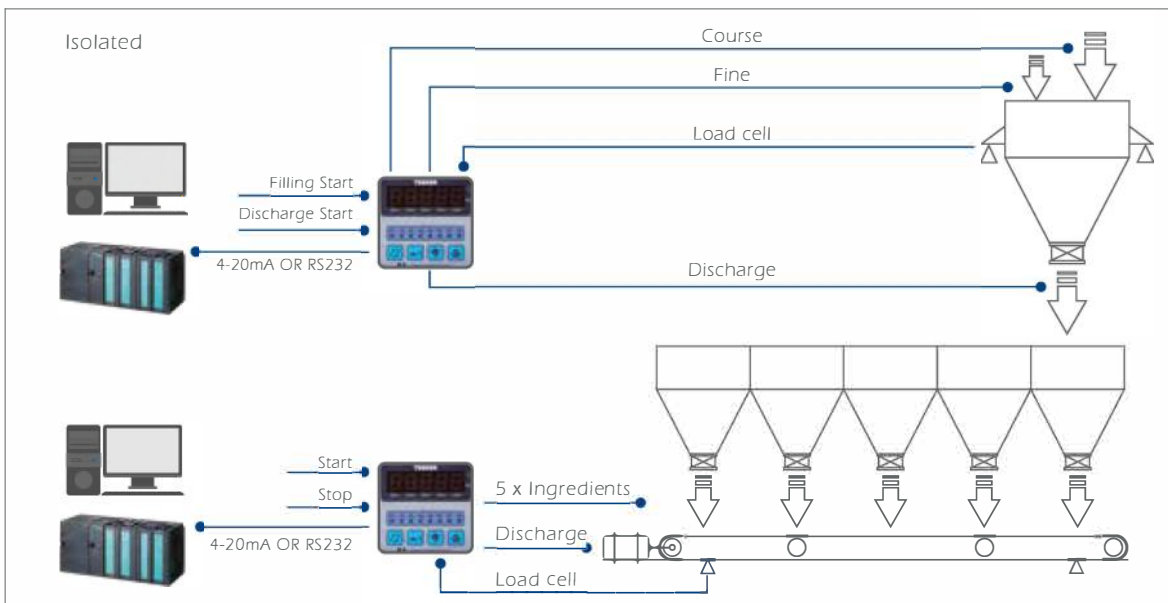
TENDER weight controller has been designed to control and indicate filling and batch dispensing processes. TENDER's versatile structure and variant models make it an ideal and optimum cost solution for a broad variety of weighing applications. Benefiting from the highest interference resistance and long-term reliability, problem-free operation is guaranteed in the harshest environments. TENDER weight controller is also able to connect to central controller through de facto digital and analogue interfaces.



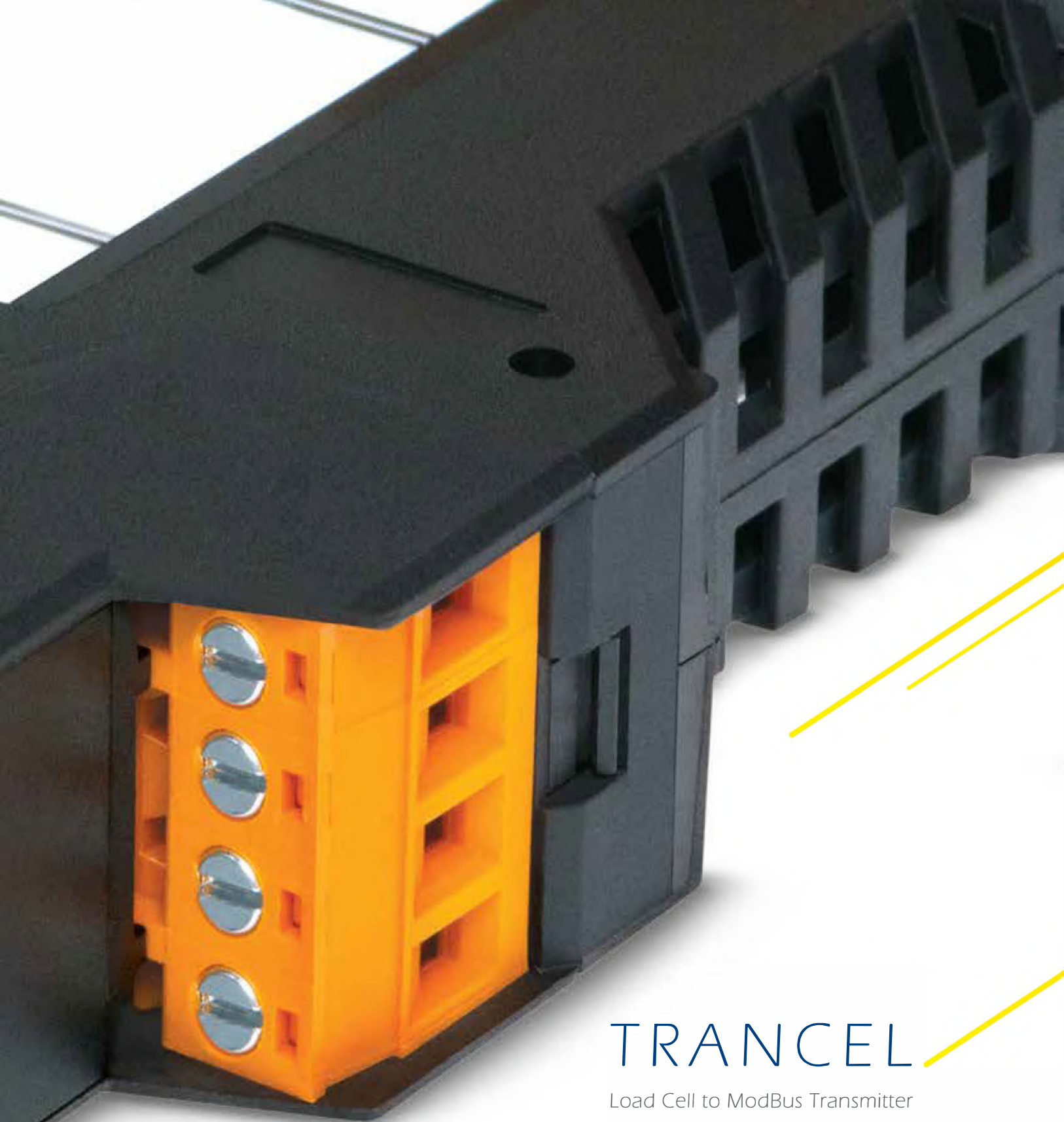


## Features

- Fast and Accurate (1/100000)
- Programmable up to 8 Formulas
- Adjustable Digital Filter
- RFI/EMI Screening
- Ultra Low Drift vs. Temperature and Time
- User-friendly
- Parametric or Manual Calibration
- Hold Peak Function
- Load Cell Error Detection
- Up to 6 Output Relays
- Two Isolated digital inputs
- Continuous RS-232 Output (WI 620-4 Optional)
- Isolated Analog Output (WI 630-4 Optional)



TECHNICAL SPECIFICATIONS	WI 601	WI 602	WI 604	WI 606
Supply	230 VAC, ±10%, < 3W			
A/D Converter	24-bit Sigma-Delta, Linearity < 0.0015 % FS			
External Resolution , MAX	1/100000			
Load Cell Excitation	5 VDC, 120mA, 8x350ohm		5 VDC, 100mA, 6x350ohm	
Measurement Range	±40 mV			
Digital Filter Update Rate	5 – 50 Hz			
Display	5 Digit – 7segment LED			
Digital Outputs	6-Relay <5A	2-Relay <5A	5-Relay <5A	6-Relay <5A
Digital Inputs	230 VAC - Isolated			
Operation Temperature	-20 <sup>o</sup> C to +60 <sup>o</sup> C			
Case	96 x 96 x 72 mm, IP20			



# TRANCEL

Load Cell to ModBus Transmitter  
**TML 1210 , TML 1220**

TRANCEL (TML 1210, TML 1220) has been designed to provide a highly reliable and fast, isolated connection between load cell and PLC, through RS-485. It is ideal for fast filling, batch dispensing, and dynamic weighing applications. Benefiting from the highest interference resistance and long-term reliability, problem-free operation is guaranteed in the harshest environments.



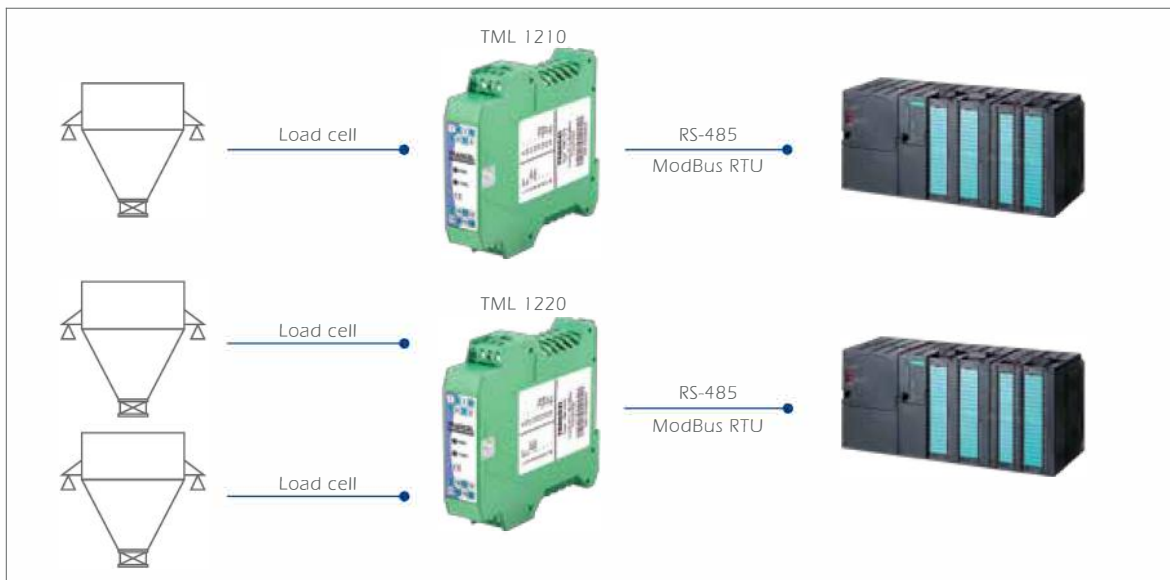
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## Features

- Fast and Highly Accurate (1/100000)
- Adjustable Digital Filter
- RFI/EMI Screened
- Parametric or Manual Calibration
- User-friendly
- Ultra Low Drift vs. Temperature and Time
- Load Cell Error Detection System
- High Speed Serial Interface
- Isolated Power and Serial Port
- Transient Suppression on RS-485 Line
- Compact Case with DIN-rail Mounting



CE



TECHNICAL SPECIFICATIONS	TML 1210	TML 1220
Supply	21.6 - 26.4 VDC , < 1W	21.6 - 26.4 VDC, < 2W
Isolated Voltage	1.5 KV RMS, <1min	
A/D Converter	24-bit Sigma-Delta, Linearity < 0.0015 % FS	
External Resolution, MAX	1/100000	
Load Cell Excitation	5 VDC 100mA, 6x350ohm	5 VDC 120mA, 4x350ohm/CH
Digital Filter Update Rate	5 – 200 Hz	1 – 50 Hz
Serial Port	RS-485 2-wire, Isolated, ModBus (RTU)	
Baud Rates	9600-19200-38400-115200 bps - Dipswitch Configurable	
Address Range	1 ... 32 – Dipswitch Configurable	
Operation Temperature	-20 <sup>0</sup> C to +60 <sup>0</sup> C	
Case	115 x 100 x 23 mm, IP20	





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# TRANCEL

RTD to ModBus Transmitter

## TML 2140

TRANCEL TML 2140 has been designed to provide a highly reliable isolated connection between (up to four) RTD and PLC through RS-485. Linearizing the measurement signal with extreme accuracy makes it ideal for the most exacting temperature measuring applications. Benefiting from lead resistance compensation and the highest interference resistance, problem-free application is guaranteed with long transfer distances in the harshest environments.

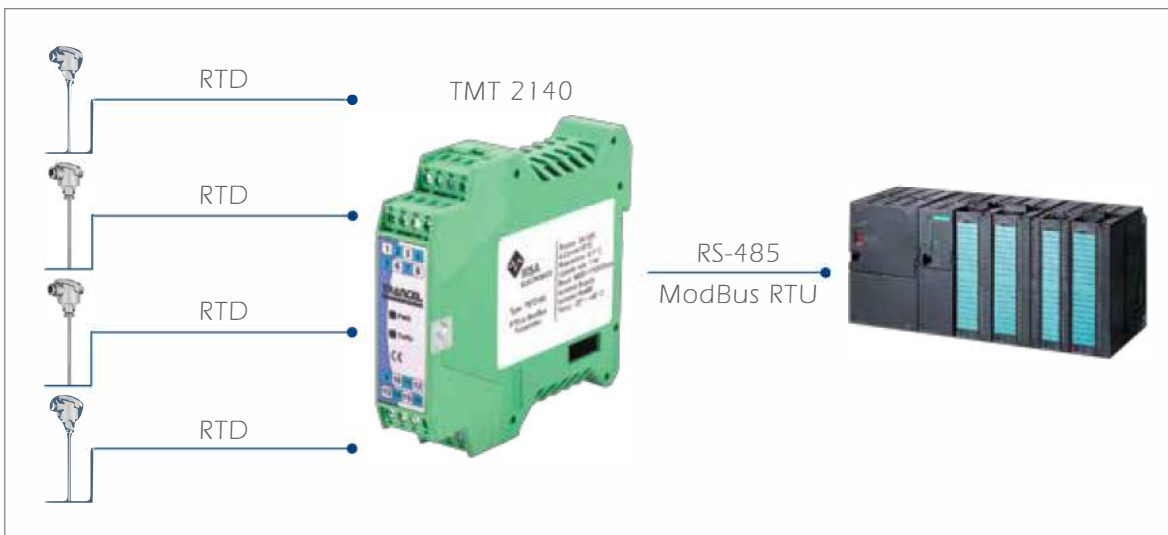


## Features

- High Accuracy ( $\pm 0.2^{\circ}\text{C}$ )
- Lead Resistance Compensation
- Input Surge-voltage Protection
- Sensors Wiring Burned-out Detection
- RFI/EMI Screened
- High Speed Serial Interface
- Isolated Power and Serial Port
- Transient Suppression on RS-485 Line
- Compact Case with DIN-rail Mounting



CE



## TECHNICAL SPECIFICATIONS

Supply	21.6 - 26.4 VDC, < 1W
Isolated Voltage	1.5 Kv RMS, <1min
A/D Converter	16-bit Sigma-Delta
Resolution	0.1 $^{\circ}\text{C}$
RTD Type	PT100, 2,3-wire, ( $\alpha = 0.00385$ )
Range	-200 $^{\circ}\text{C}$ to +800 $^{\circ}\text{C}$
Serial Port	RS-485 2-wire, Isolated, ModBus (RTU)
Baud Rates	9600-19200-38400-115200 bps- Dipswitch Configurable
Address Range	1 ... 32 - Dipswitch Configurable
Operation Temperature	-20 $^{\circ}\text{C}$ to +60 $^{\circ}\text{C}$
Case	115 x 100 x 23 mm, IP20





# TRANCEL

3-phase Power to ModBus Transmitter  
**TMP 3100**

TRANCEL TMP 3100 has been designed to measure 3-phase power network parameters, and transmit them to PLC or SCADA, through RS-485. Six 24-bit A/D converters with a high speed DSP make the TMP 3100 ideal for extremely accurate power metering applications.



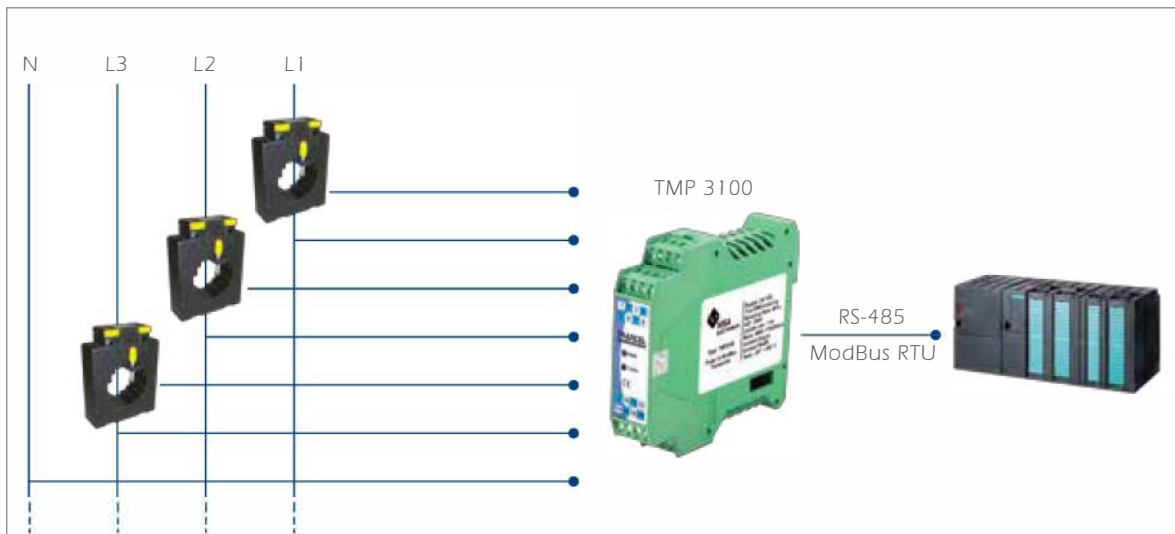
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## Features

- Highly Accurate
- 0.1% Error Over a Dynamic Range of 1000 to 1
- RFI/EMI Screened
- High Speed Serial Interface
- Isolated Power and Serial Port
- Transient Suppression on RS-485 Line
- Compact Case with DIN-rail Mounting



CE



TECHNICAL SPECIFICATIONS	TMP 3100
Supply	21.6 - 26.4 VDC , < 1W
Isolated Voltage	1.5 Kv RMS, <1min
A/D Converters	Six 24-bit with 8 kSPS
Resolutions	0.1 Volt (Range 0-350 VRMS)
Current Resolution	0.1 Ampere (Range 0-1000 A)
Frequency Resolution	0.1 Hz (Rang 10-400Hz)
Serial Port	RS-485 2-wire, isolated, ModBus (RTU)
Baud Rates	9600-19200-38400-115200 bps-Dipswitch Configurable
Addresses Range	1 ... 32 – Dipswitch Configurable
Operation Temperature	-20 <sup>o</sup> C to +60 <sup>o</sup> C
Case	115 x 100 x 23 mm, IP20

