

enelean
We Measure

PRODUCT PORTFOLIO



Flow



Pressure



Level



Temperature



Datalogger



Control and
Automation

en.ensan.com



ABOUT US



Enelsan Endüstriyel Elektronik A.Ş. was founded in 1976 in Kocaeli. In 2019, Enelsan moved to its new production facility, which has a closed area of 5,000 m². By the end of 2024, with the opening of its second additional production facility, the company will reach a total production area of 8,000 m². With the new facility structure, the first facility has been designated for calibration and storage, while the second facility is dedicated to machining and mechanical manufacturing. This investment strengthens Enelsan's high-tech production infrastructure while also enhancing its competitive advantage in the industry. We are excited to continue working towards larger projects and providing the best service to our customers.

Enelsan manufactures flow meters based on different measurement principles, including electromagnetic, vortex, ultrasonic, turbine, orifice, and open-channel meters, as well as pressure transmitters, temperature sensors, level meters, data loggers, and control automation systems. We have an annual production capacity of 56,400 units for electromagnetic flow meters with DN10-DN200 diameters, 12,600 units for electromagnetic flow meters with DN200-DN2400 diameters, and 80,000 units for pressure and temperature transmitters.

Enelsan's internationally accredited calibration laboratory, certified by TÜRKAK under the TS EN ISO/IEC 17025:2017 standard, can perform calibrations up to DN600 and provide measurement services up to DN3000 through reference flowmeter comparisons. With our extensive product portfolio, we export to more than 60 countries worldwide and are confidently progressing toward becoming a global brand in industrial measurement technologies.



OUR VISION

As Türkiye's first and biggest industrial flowmeter manufacturer, our vision is to increase our product diversity by closely following current technologies and to offer the sustainable quality of our products and all the advantages of domestic production, especially price and early delivery, to the service of our esteemed customers in the most optimum way.

OUR MISSION

In order to realize the issues we have determined in our vision, ENELSAN A.S. has adopted the following principles as its mission.

DOING WHAT HAS NEVER BEEN DONE, BEING INNOVATIVE AND FIRST IN THE FIELD

Our company has set itself the goal of producing equipment in our country for the measurement of physical parameters, which is the greatest need in the industry, and has set out with the aim of "DOING WHAT HAS NOT BEEN DONE" in this field. Our company, which has succeeded in being the "FIRST" in its field in our country with the new products it adds to its portfolio every day, serves its customers with the happiness of realizing the concept of "INNOVATIVE IN ITS FIELD".

TRAIN TALENT, USE EXPERIENCE, TRANSFORM POTENTIAL WORKFORCE INTO KINETICS

ENELSAN A.S. All of our personnel serving in our company are selected from among talented candidates and are subjected to regular and continuous training. Our staff, working in an environment of mutual trust and sincerity, spend years with us and gain experience in their field. As a company, our aim is to benefit from the experience of our trained talents and transform our potential workforce into kinetics for our esteemed customers with the aim of "PRODUCING THE BEST IN THE SHORTEST TIME" on which we focus entirely.

DOMESTIC PRODUCTION, NATIONAL GAIN

Our company, which aims to produce all intermediate equipment and parts used in obtaining the final product with "DOMESTIC PRODUCTION", contributes to "NATIONAL GAIN" by increasing its cooperation with its domestic production partners day by day.

DETECT DEMAND, BE QUICK, SOLVE PROBLEMS

Thanks to our expert sales team, we have taken it upon ourselves to do more effective and active marketing than our competitors with our ability to perceive our customers' demands and solve their problems as soon as possible.

ELECTROMAGNETIC FLOWMETERS

Electromagnetic flowmeters are devices used to measure the flow rates of conductive liquid flows. Electromagnetic flowmeters work according to Faraday's Law of Induction, the flow rate of the liquid moving in the magnetic field is converted into electricity and the flow rate is measured. There are no moving parts in the internal structure so it requires less maintenance, the measurement scale is 10 times higher than other flow meters. In liquids with corrosive properties, sensor and electrode selection can be changed to provide healthy and long-lasting measurement.

Square Designed Remote Type Electromagnetic Flowmeter

IP68



ETRANS-M410R (Teflon)-S
ETRANS-M210R (Ebonite)-S

Square Designed Compact Type Electromagnetic Flowmeter

IP67



ETRANS-M410C (Teflon)-S
ETRANS-M210C (Ebonite)-S

Circle Designed Compact Type Electromagnetic Flowmeter

IP67



ETRANS-M410K (Teflon)-S
ETRANS-M210K (Ebonite)-S



TURKAK Accredited
Calibration Opportunity



Made In Türkiye



Technical Specifications

Pipe Sizes	DN10...DN3000
Measuring Range	0,2 ... 12 m/s
Accuracy	±0.50% or ±0.2% (of Measured Value)
Process Temperature	Ebonite -10°C...+60°C / Teflon(PTFE) -20°C...+150°C
Process Conductivity	>5 µS/cm (>20 µS/cm for demineralised water)
Process Pressure	PN10, PN16, PN25, PN40, PN100 (depend on pipe size)
Power Supply	85-265 VAC 50-60 Hz, 24 VDC, Battery Operated
Output	Pulse, Frequency, RS485 MODBUS, 4...20mA, (Opt. HART)
Alarms	1x passive pulse (12-36VDC, 100 mA, 1.5 kΩ) (selectable one of Empty Pipe, Sensor Error, Over Limit)
Straight Pipe Distance	5x DN front 3x DN behind of the flowmeter
Indicator	3 Line 30 digit with 4 push buttons LCD
Special Options	Stainless Steel Body, Loose Flange, Wafer Type

NO STRAIGHT PIPE DISTANCE REQUIRED ELECTROMAGNETIC FLOWMETERS

Standard electromagnetic flowmeters need linear flow for correct measurement. Therefore it needs straight pipe before and after flowmeter to prevent turbulence. Due to its specific design, Enelsan ETRANS-M0 Electromagnetic flowmeter offers "no straight pipe need" for correct measurement which is very economic and customer friendly for difficult mechanical processes.

Square Designed Remote Type Electromagnetic Flowmeter



IP68

ETRANS-M0410R (Teflon)
ETRANS-M0210R (Ebonite)

Square Designed Compact Type Electromagnetic Flowmeter



IP67

ETRANS-M0410C (Teflon)
ETRANS-M0210C (Ebonite)

Circle Designed Compact Type Electromagnetic Flowmeter



IP67

ETRANS-M0410K (Teflon)
ETRANS-M0210K (Ebonite)



TURKAK Accredited
Calibration Opportunity



Made In Türkiye



Technical Specifications

Pipe Sizes	DN40...DN3000
Measuring Range	0,2 ... 12 m/s
Accuracy	±0.50% or ±0.2% (of Measured Value)
Process Temperature	Ebonite -10°C ... +60°C / Teflon(PTFE) -20°C ... +150°C
Process Conductivity	>5 µS/cm (>20 µS/cm for demineralised water)
Process Pressure	PN10, PN16, PN25, PN40, PN100 (depend on pipe size)
Power Supply	85-265 VAC 50-60 Hz, 24 VDC, Battery Operated
Output	Pulse, Frequency, RS485 MODBUS, 4-20mA, (Opt. HART)
Alarms	1x passive pulse (12-36VDC, 100 mA, 1.5 kΩ) (selectable one of Empty Pipe, Sensor Error, Over Limit)
Straight Pipe Distance	It does not require straight pipe distance
Indicator	3 Line 30 digit with 4 push buttons LCD
Special Options	Stainless Steel Body, Loose Flange, Wafer Type

INSERTION TYPE ELECTROMAGNETIC FLOWMETERS

Insertion type electromagnetic flowmeters are an economic alternative to inline flowmeters. They comprise an electromagnetic sensing head mounted on the end of a support rod. Insertion type electromagnetic flowmeter finds application in existing water distribution systems where provision for flow metering was not originally made and where a full bore flow meter would be uneconomic. The assembly can be installed in existing pipelines without the need for major excavations or alterations to pipe work normally associated with the installation of full bore meters.

**Square Designed Remote Type
Insertion Electromagnetic Flowmeter**



ETTRANS-INS-R

**Square Designed Compact Type
Insertion Electromagnetic Flowmeter**



ETTRANS-INS-C

**Circle Designed Compact Type
Insertion Electromagnetic Flowmeter**



ETTRANS-INS-K



TURKAK Accredited
Calibration Opportunity



Technical Specifications

Pipe Sizes	DN200...DN1000 (Standard Probe) DN1000...DN2000 (Extended Probe)
Measuring Range	0,3 ... 10 m/s
Accuracy	< 1m/s $\pm 1,5\%$, >1m/s, <10m/s $\pm 0,5\%$ (of full scale)
Process Temperature	Teflon(PTFE) -20°C ... +150°C
Process Conductivity	>50 $\mu\text{S/cm}$
Process Pressure	PN16
Power Supply	85-265 VAC 50-60 Hz, 24 VDC, Battery Operated
Output	Pulse, Frequency, RS485 MODBUS, 4-20mA, (Opt. HART)
Alarms	1x passive pulse (12-36VDC, 100 mA, 1.5 k Ω) (selectable one of Empty Pipe, Sensor Error, Over Limit)
Straight Pipe Distance	5x DN front 3x DN behind of the flowmeter
Indicator	3 Line 30 digit with 4 push buttons LCD
Special Options	Hastelloy, Tantal, Titanium electrode options

ELECTROMAGNETIC AND ULTRASONIC CALORIMETERS

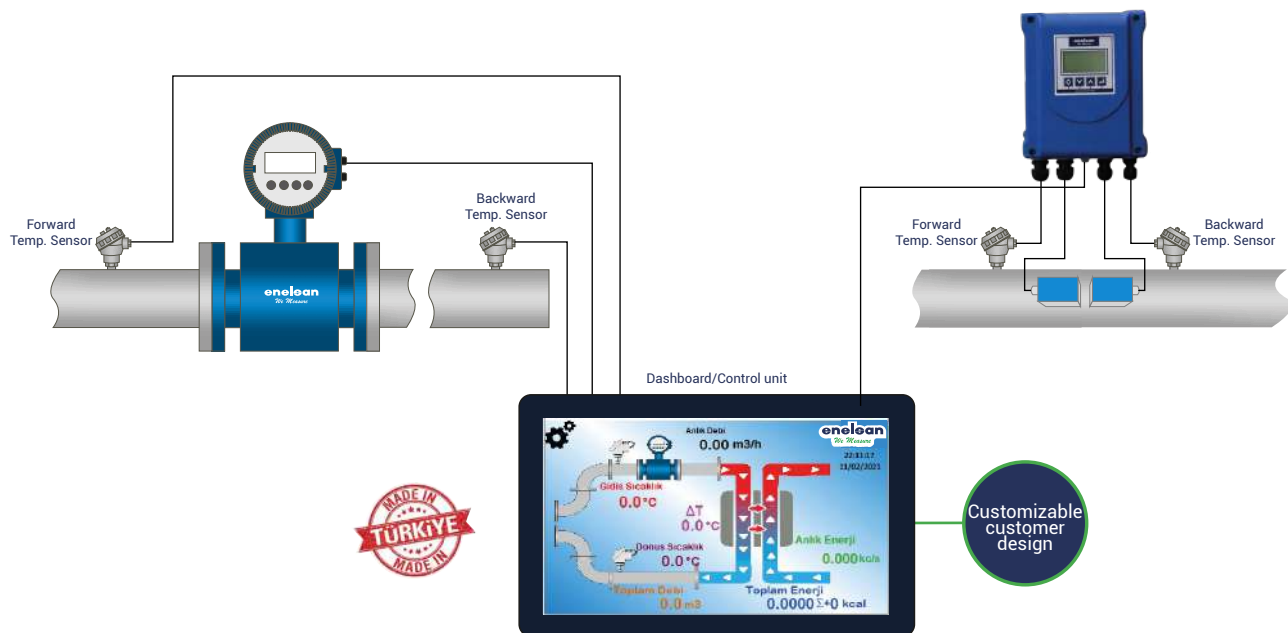
Calorimeters are used devices which used to measure the energy consumption in heating and cooling systems. Electromagnetic or ultrasonic flowmeters measures the flow in the system and the control unit calculates the temperature difference between the forward and backward line temperature sensors. Then it automatically shows the energy consumption and efficiency of the system. The control unit converts this data to RS232, RS485 and Ethernet outputs and allows reporting by storing these values in its memory.

Electromagnetic Flowmeter Technical Specifications

Measuring Range	0,3 ... 15 m/s
Accuracy	±0,5% or ±0,25% (TURKAK Accredited)
Process Temperature	Ebonite -10°C ... 60°C / Teflon -20°C ... +150°C
Process Pressure	PN10, PN16, PN40, PN100
Power Supply	85-265 VAC 50 Hz veya 24VDC, Battery Operated
Output	Pulse, Frequency, RS485 MODBUS, 4...20mA, (Opt. HART)
Protection Class	IP67 / Opt. IP68

Ultrasonic Flowmeter Technical Specifications

Measuring Range	0.3 ... 15 m/s
Accuracy	±0,5% (of M.V.)
Process Temperature	-40...+110°C (Standard) -40...+160°C (Optional)
Power Supply	24 VDC, 220 VAC
Output	4-20 mA, Pulse, RS485 MODBUS
Protection Class	IP67, IP68
Pipe Sizes	DN20...DN6000 (With different sensor types)



Temperature Sensor Technical Specifications

Measuring Range	-50...600 °C
Accuracy	±0,1 °C
Measuring Element	Class A PT100 (2, 3, 4 wires)
Output	PT100
Protection Class	IP68 DIN B from cast aluminum head
Process Connection	G1/4"...G1" male thread
Options	Thermowell, Neckpipe

Control Unit Technical Specifications

Power Supply	220 VAC 50 Hz
Input	3x Universal Input (Frequency, Thermo Element, 4...20mA, 0...10V)
Output	1x RS485 MODBUS, Ethernet
Measuring Element	Class A PT100 (2, 3, 4 wires)
Display/Protection Class	4,3" or 7" touch panel / IP67
Dimensions	200mm x 309mm x 167mm wall mounted
Internal Datalogging	USB Connection

Calories can be calculated in the following units.

Giga Joule (GJ)

Kwh

Kilocalories (KC)

BTU

VORTEX FLOWMETER

Vortex flow meters operate under the vortex shedding principle which is inspired Karman's vortex Street principle, where an oscillating vortices occur when a fluid such as water flow past a bluff (as opposed to streamlined) body. The frequency that the vortices are shed depend on the size and shape of the body. This principle is the unique solution for volumetric and mass flow measurement of all types of industrial liquids, vapours and gases thanks to its no moving part design. Due to the integrated temperature and pressure sensors it performs accurate and reliable mass flow measurement. Well designed mechanical body provides the most effective results at high temperature and high pressure

Wafer Type Vortex Flowmeter



ETTRANS-V-S

Flange Type Vortex Flowmeter



ETTRANS-V-F

Remote Type Vortex Flowmeter



ETTRANS-V-R

Technical Specifications

Pipe Sizes	DN15...DN300
Measuring Range	0,3...7 m/s Liquid 1...70 m/s Gas and Steam
Accuracy	±0,5% (Standard) ±0,2 % (Optional) (of M.V.) (with TURKAK Calibration)
Process Temperature	-50...+250°C (Standard) -100...+350°C (high temperature)
Process Pressure	Maximum 100 Bar (depend on the sizes)
Measured Material	Liquid, Gas, Steam
Power Supply	12...32 VDC
Output	Pulse (active/passive), RS485 MODBUS, 4...20 mA (optional HART)



TURKAK Accredited
Calibration Opportunity



Made In Türkiye

FLOW COMPUTER / CONTROLLER

Technical Specifications

Power Supply	85...265 VAC 50/60 Hz, 24 VDC
Input	0...10 mA, 4...20 mA, Pulse, Frequency, PT100
Output	RS485 MODBUS, 2 x SPDT Relay (250 V, 10 A)
Accuracy	± 0,2% (Under 1 m/s up to ± 1,5%)
Medium Temperature	-20...+55°C
Dimensions	160 mm x 80 mm x 100 mm (Flow Comp.) 72x72x90 mm (Flow Controller)
Protection Class	IP65

Flow Computer / Controller



FLOWMETERS

TURBINE FLOWMETERS

Turbine flowmeters work by using the energy of the fluid passing through it to move a rotor within the fluid passing through. There are blades on this rotor that they use the fluid to create a rotation and move the rotor around in. The rotor blades are attached to a rod, which is able to spin through the use of bearings. The speed of blades can be monitored by attaching a magnet onto. Using the magnetic method, the magnets are attached onto the blades and as they spin, they pass a small piece of metal embedded at a certain point within the flowmeter itself. This way, using the time it takes between each time the magnet connects with the piece of metal, the speed of the fluid can be judged accurately. The brilliance of this system is that these sensors can work whichever way the fluid flows through the turbine flowmeter. Due to its compact electronics and complete stainless steel mechanical design it is suitable to use in harsh conditions with multiple output versions.

**Flanged Type Stainless Steel
Turbine Flowmeter**



ETTRANS-TD-F

**Thread Type Stainless Steel
Turbine Flowmeter**



ETTRANS-TD-D

**Stainless Steel Turbine Flowmeter
with Indicator**



ETTRANS-TD-GF

STAINLESS STEEL TURBINE FLOWMETERS (LIQUID)

Technical Specifications

Measuring Areas	Liquids under 20 cSt viscosity
Pipe Sizes	DN02...DN50 (Male thread) DN15...DN300 (Flange)
Measuring Range	0,036...1.400 m³/h
Accuracy	±0,5% (Standard), ±0,2% (Optional) of M.V.
Process Temperature	-20°C ... 120°C
Process Pressure	Up to 63 Bar
Power Supply	5...24 VDC, 3.6 V Lithium Battery
Protection Class	IP65, IP67 (Depend on electronics)
ATEX Class	Ex d IIC T6 Gb
Output	Pulse, 4...20 mA, 0...10 V, RS485 (selectable)
Special Option	Local Display OLED



TURKAK Accredited
Calibration Opportunity

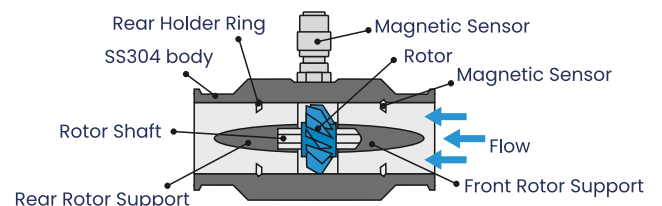


Made In Türkiye

STAINLESS STEEL TURBINE FLOWMETERS (GAS)

Technical Specifications

Measuring Areas	All homogenous gases
Pipe Sizes	DN15...DN300 (Flange)
Measuring Range	1,5...4.000 nm³/h (0,1...25 m/s)
Accuracy	±1% F.S.
Process Temperature	-20°C ... 120°C
Process Pressure	Up to 63 Bar
Power Supply	5...24 VDC, 3.6 V Lithium Battery
Protection Class	IP65, IP67 (Depend on electronics)
ATEX Class	Ex d IIC T6 Gb
Output	Pulse, 4...20 mA, 0...10 V, RS485 (selectable)
Special Option	Local Display OLED



ULTRASONIC FLOWMETERS

The ultrasonic flowmeters works on the principle that it uses sound waves to resolve the velocity of the liquid in the pipe. The construction of an ultrasonic flow meter can be accomplished by using upstream and downstream sensors, sensor pipes and reflectors. There are two cases of no flow and flow in the pipe. In the first case, the frequency of the ultrasonic waves is transmitted into the pipe and the indication from the fluid is similar. In the second case, the frequency of the reflected wave is different due to the Doppler effect. The frequency shift increases linearly whenever the fluid flows rapidly through the pipe. The transmitter processes the signal from the wave, whose reflection determines the flow rate. The transmitter timer sends and receives ultrasonic waves in both directions in the pipe. Under no-flow conditions, the flow time is the same between the flow sensor upstream and downstream. Because it has no moving part and block the path of fluid it offers maintenance free with high accuracy good dynamic response and bi-directional flow measurement.

Clamp-On Ultrasonic Flowmeter



ETTRANS-UD

Inline Ultrasonic Flowmeter



ETTRANS-U

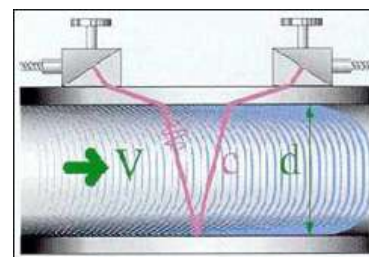
Portable Ultrasonic Flowmeter



ETTRANS-UP

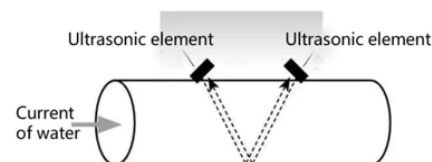
ETTRANS-UD Clamp-On Ultrasonic Flowmeter Technical Specifications

Measuring Range	0,3 ... 15 m/s
Accuracy	±0,5% (of M.V.)
Process Temperature	-40...+110°C (Standard) -40...+160°C (Optional)
Power Supply	24 VDC, 220 VAC
Output	4...20 mA, Pulse, RS485 MODBUS
Protection Class	IP67, IP68
Pipe Sizes	DN20...DN6000 (With different sensor types)
Recording	SD Card 4GB



ETTRANS-U Inline Ultrasonic Flowmeter Technical Specifications

Measured Range	0,3...15 m/s
Accuracy	±0,5% (of M.V.)
Process Temperature	-40...+110°C
Power Supply	24 VDC, 220 VAC
Output	4...20 mA, Pulse, RS485 MODBUS
Protection Class	IP67
Pipe Sizes	DN50...DN3000
Recording	SD Card 4GB (Optional)



ETTRANS-UP Portable Ultrasonic Flowmeter Technical Specifications

Measuring Range	0,3 ... 15 m/s
Accuracy	±0,5% (of M.V.)
Process Temperature	-40...+110°C (Standard) -40...+160°C (Optional)
Power Supply	Rechargeable Battery
Output	RS232
Protection Class	IP67
Pipe Sizes	Sensor1: DN15...DN100 Sensor2: DN50...DN800 Sensor3: DN800...DN6000
Recording	Internal datalogger with max. 1000 datas



Flow Monitoring Software For Monitoring and Datalogging

OPEN CHANNEL FLOWMETERS

Open channel flow meters measure the level, flow rate and total volume of water flowing through weirs, flumes, channels and partially filled pipes. The flow meter uses a non-contact level sensor as radar or ultrasonic to detect the water level and then uses Manning's equation and channel characteristics to calculate flow rate and volume. It offers low cost and almost no maintenance flow measurement which unaffected by siltation and suspended matter for large pipelines, irrigation channels and large streams.

Eagle eye contactless flowmeter take flow; it is a non-contact flow measuring instrument that accurately measures the flow without changing the boundary conditions of channels, rivers, pipes, etc.

Open Channel Flowmeter Radar/Ultrasonic Level Sensor



ENL-ULBS | ETRANS-RDR-1 | OPN-2

Doppler Open Channel Flowmeter



ENL-DOF6000-W

Eagle Eye Contactless Flowmeter



ENL-GRDR-300

Open Channel Flowmeter Radar/Ultrasonic Level Sensor Technical Specification:

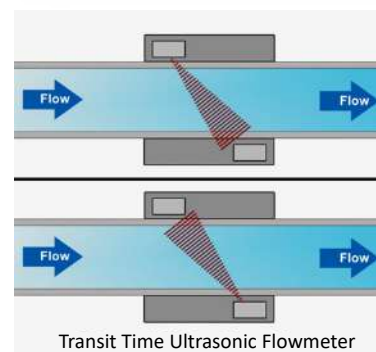
Working Principle	Radar or ultrasonic with special designed flume
Flume Types	Parshall, Rectangular, Triangular, Trapezoidal
Flume Width	7,6...400 cm
Measuring Range	Max. 1453 m³/h
Power Supply	220 VAC, 50 Hz, 24 VDC, Solar Panel
Output	4...20 mA, RS485 MODBUS, Ethernet
Protection Class	IP67
Process Temperature	-20...+50°C
Local Display	4,3" TFT Touch Panel with USB Recording

Doppler Open Channel Technical Specifications

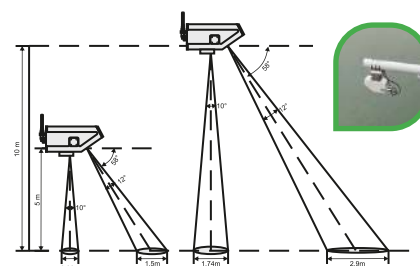
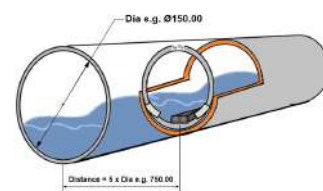
Working Principle	Level and velocity measuring and auto flow calculating
Measuring Areas	Non filled pipes, channels, rivers
Measuring Range	Level 0...10 m, Velocity 0...12 m/s, Conductivity 0...200,000 µS/cm
Accuracy	± 1% (of M.V.)
Power Supply	85-265 VAC 50Hz or 24 VDC, Battery Operated
Output	RS485 MODBUS
Protection Class	IP67, IP68
Process Temperature	0...+60°C

Eagle Eye Contactless Flowmeter Technical Specifications

Working Principle	Radar Level and Velocity measurement
Process Temperature	-30...+80°C
Power Supply	7...30 VDC
Communication	RS232, RS485, 4...20 mA
Max Level	35 m
Velocity Range	0,03...20 m/s
Velocity Accuracy	0,01 m/s
Level Accuracy	± 1 cm
Velocity Measurement Angle	11°



Transit Time Ultrasonic Flowmeter



PRESSURE SENSORS

The term piezoresistive is composed by the Greek word "piezo" (meaning squeeze or press) and resist. In piezoresistive sensors, four resistors are placed on a silicon diaphragm in order to measure the result of strain or physical pressure applied upon them. Any perceptible change in resistance is being converted, through a Wheatstone bridge circuit into an output voltage. This is an economic pressure measurement for clear liquids and non aggressive gases and air.

Piezoresistive Pressure Sensor



ETTRANS-P01

Piezoresistive Pressure Sensor With Local Display



ETTRANS-P02

Piezoresistive Pressure Sensor With ATEX Approval



ETTRANS-PX5 | ETRANS-PX1

Piezoresistive Pressure Sensor Technical Specifications

Pressure Range	-1...+2000 barg
Accuracy	±0,5% F.S. (<1 barg) ±0,2% F.S. (>1 barg)
Process Temperature	-40... +80°C (Standard) -40...+250°C (Optional)
Process Connection	G1/4" , G1/2" , 1/4" NPT, 1/2" NPT Male Thread
Wet Parts/Housing Material	1.4404 (316L) Stainless Steel / 1.4301 (304) Stainless Steel
Power Supply	10...36 VDC
Output	4...20 mA, 0...10 V
Protection Class	IP65

Piezoresistive Pressure Sensor With Local Display Technical Specifications

Pressure Range	-1...+2000 barg
Accuracy	±0,5% F.S. (<1 barg) ±0,2% F.S. (>1 barg)
Process Temperature	-40... +80°C (Standard) -40...+250°C (Optional)
Process Connection	G1/4" , G1/2" , 1/4" NPT, 1/2" NPT Male Thread
Wet Parts/Housing Material	1.4404 (316L) Stainless Steel / 1.4301 (304) Stainless Steel
Power Supply	10...36 VDC
Output	4...20 mA, 0...10 V, PNP/NPN alarm contact
Protection Class	IP65
Options	Plug on local display

Piezoresistive Pressure Sensor With ATEX Approval Technical Specifications

Pressure Range	-1...+2000 barg
Accuracy	±0,5% F.S. (<1 barg) ±0,2% F.S. (>1 barg)
Process Temperature	-40... +80°C (Standard) -40...+250°C (Optional)
Process Connection	G1/4" , G1/2" , G1" , 1/4" NPT, 1/2" NPT, G1" Flush, 1/2" Flush, Clamp
Wet Parts/Housing Material	1.4404 (316L) Stainless Steel / 1.4301 (304) Stainless Steel
Power Supply	10...36 VDC
Output	4...20 mA, 0...10 V
Protection Class	IP65
ATEX Approval	Zone 0, Zone 1, Zone 2 (II 1G Ex ia IIC T4 Ga)



G1/2"



G1/4"

FLUSH DIAPHRAGM PRESSURE SENSORS

Piezoresistive strain gauges are among the most common types of pressure sensors. They use the change in electrical resistance of a material when stretched to measure the pressure. The strain gauge can be attached to a flush diaphragm that recognises a change in resistance when the sensor element is deformed. These sensors are suitable for a variety of applications because of their simplicity and robustness. They can be used for absolute, gauge, relative and differential pressure measurement, in both high- and low-pressure applications as level meter.

Flush Diaphragm Pressure Sensor



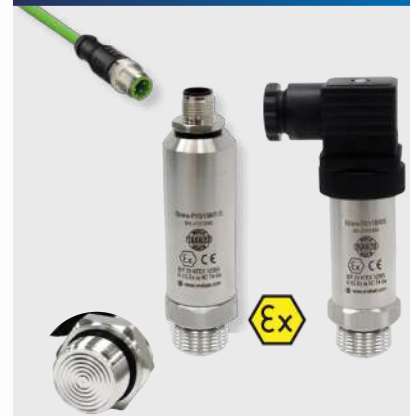
ETTRANS-P01F

Flush Diaphragm Pressure Sensor With Local Display



ETTRANS-P02F

Flush Diaphragm Pressure Sensor With ATEX Approval



ETTRANS-PX5 | ETRANS-PX1

Flush Diaphragm Pressure Sensor Technical Specifications

Pressure Range	-1...+2000 barg
Accuracy	±0,5% F.S. (<1 barg) ±0,2% F.S. (>1 barg)
Process Temperature	-40... +80°C (Standard) -40...+250°C (Optional)
Process Connection	G1/2", G1", Clamp
Wet Parts/Housing Material	1.4404 (316L) Stainless Steel / 1.4301 (304) Stainless Steel
Power Supply	10...36 VDC
Output	4...20 mA, 0...10 V
Protection Class	IP65

Flush Diaphragm Pressure Sensor With Local Display Technical Specifications

Pressure Range	-1...+2000 barg
Accuracy	±0,5% F.S. (<1 barg) ±0,2% F.S. (>1 barg)
Process Temperature	-40... +80°C (Standard) -40...+250°C (Optional)
Process Connection	G1/2", G1", Clamp
Wet Parts/Housing Material	1.4404 (316L) Stainless Steel / 1.4301 (304) Stainless Steel
Power Supply	10...36 VDC
Output	4...20 mA, 0...10 V, PNP/NPN alarm contact
Protection Class	IP65
Options	Plug on local display

Flush Diaphragm Pressure Sensor With ATEX Approval Technical Specifications

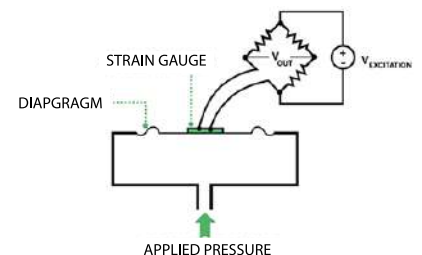
Pressure Range	-1...+2000 barg
Accuracy	±0,5% F.S. (<1 barg) ±0,2% F.S. (>1 barg)
Process Temperature	-40... +80°C (Standard) -40...+250°C (Optional)
Process Connection	G1/4", G1/2", G1", 1/4" NPT, 1/2" NPT, G1" Flush, 1/2" Flush, Clamp
Wet Parts/Housing Material	1.4404 (316L) Stainless Steel / 1.4301 (304) Stainless Steel
Power Supply	10...36 VDC
Output	4...20 mA, 0...10 V
Protection Class	IP65
ATEX Approval	Zone 0, Zone 1, Zone 2 (II 1G Ex ia IIC T4 Ga)



Clamp



Flush Diaphragm Standard Sensor 350 Bar Max



PRESSURE TRANSMITTERS

The term piezoresistive is composed by the Greek word "piezo" (meaning squeeze or press) and resist. In piezoresistive sensors, four resistors are placed on a silicon diaphragm in order to measure the result of strain or physical pressure applied upon them. Any perceptible change in resistance is being converted, through a Wheatstone bridge circuit into an output voltage. With combination of smart type electronics and local LCD it offers ultra high accurate pressure measurement with the various output options for different applications.

Smart Type Pressure Transmitter



ETrans-P09 / ETrans-P10

Differential Pressure Transmitter



ETrans-DP02

Smart Type Differential Pressure Transmitter



ETrans-DP08

Smart Type Pressure Transmitter Technical Specifications

Pressure Range	-1...+2000 barg
Accuracy	±0,5% F.S. (<1 barg) ±0,2% F.S. (>1 barg)
Process Temperature	-40...+80°C (Standard) -40...+250°C (Optional)
Process Connection	G1/4", G1/2", G1", 1/4" NPT, 1/2" NPT, G1" Flush, 1/2" Flush, Clamp
Wet Parts/Housing Material	1.4404 (316L) Stainless Steel / Aluminum
Power Supply	10...36 VDC
Output	4...20 mA, 0...10 V
Protection Class / ATEX Approval	IP65 / II 1G Ex ia IIC T4 Ga (Optional)
Special Option	LCD Local Display with 2 push buttons



Flange

Differential Pressure Transmitter Technical Specifications

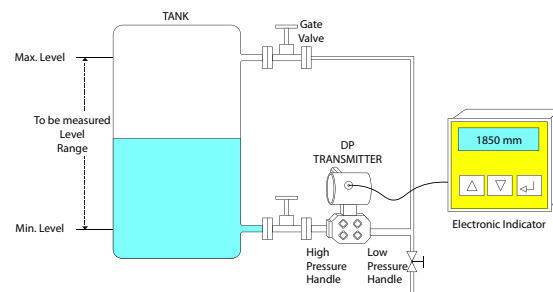
Pressure Range	0...+35 barg
Accuracy	±0,5% F.S. (<1 barg) ±0,2% F.S. (>1 barg)
Process Temperature	-40...+80°C (Standard) -40...+250°C (Optional)
Process Connection	G1/4", G1/2" Male Thread
Wet Parts/Housing Material	1.4404 (316L) Stainless Steel / 1.4301 (304) Stainless Steel
Power Supply	10...36 VDC
Output	4...20 mA, 0...10 V
Protection Class	IP65



String Gauge Pressure Sensor 2000 Bar Max

Smart Type Differential Pressure Transmitter Technical Specifications

Pressure Range	-1...+400 barg
Accuracy	±0,075% F.S.
Process Temperature	-40...+80°C (Standard) -40...+250°C (Optional)
Process Connection	1/4" NPT Female Thread
Wet Parts/Housing Material	1.4404 (316L) Stainless Steel / Aluminum
Power Supply	10...36 VDC
Output	4...20 mA (HART Optional), 0...10 V, RS485 MODBUS
Protection Class	IP67
ATEX Approval	Zone 0, Zone 1, Zone 2 (II 1G Ex ia IIC T4 Ga)



LEVELS

An ultrasonic level transmitter is mounted on the top of the tank and transmits an ultrasonic pulse down into the tank. This pulse, travelling at the speed of sound, is reflected back to the transmitter from the liquid surface. The transmitter measures the time delay between the transmitted and received echo signal and the on-board microprocessor calculates the distance to the liquid surface.

The radar level sensor is a measuring instrument based on the time travel principle. The radar wave runs at the speed of light, and the running time can be converted into a level signal by electronic components. The probe sends out high-frequency pulses and conducts them along the cable and rod probes. When the pulses meet the surface of the material, they are reflected back by the receiver in the meter, and the distance signal is converted into a level signal. With the smart electronics it offers various output signals with reliable and accurate measuring.

Ultrasonic Level Transmitter



ETTRANS-ULT

Radar Level Transmitter



ETTRANS-RDR-30

Radar Level Transmitter



ETTRANS-RDR-80

Ultrasonic Level Transmitter Technical Specifications

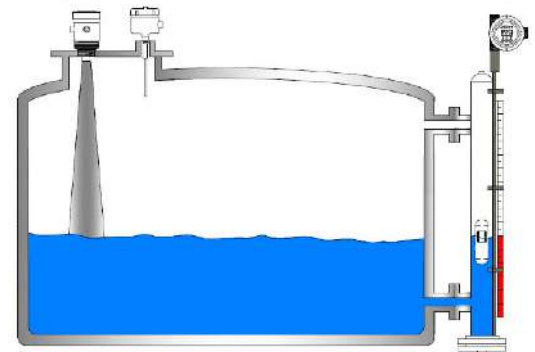
Measuring Range	0,3...5 m, 0,3...10 m, 0,5...15 m, 0,5...20 m, 0,8...50 m
Accuracy	±0,5% F.S. (Standard) ±0,25% F.S. (Special Option)
Process Temperature	-20... +60°C (Standard) -20...+80°C (Optional)
Process Connection	M48x2, M60x2, M78x2, M108x2, G1", G1 ½", G2" Male Thread
Housing Material	ABS
Power Supply	20...36 VDC
Output	4...20 mA, RS485, 2 x SPDT Relay (250 V, 10 A)
Protection Class / ATEX Approval	IP65 / Ex db IIC T6 Gb (Optional)
Special Option	LCD Local Display with 4 push buttons

Radar Level Transmitter Technical Specifications

Measuring Range	0,1...30 m (Liquids and Solids)
Accuracy / Beam Angle	±3 mm / 6°
Process Temperature	-40... +85°C
Process Connection	M24x1,5
Housing Material	Plastic
Power Supply	12...30 VDC
Output	RS485 MODBUS, Bluetooth, LORA and 4G (Optional)
Protection Class	IP67

Radar Level Transmitter Technical Specifications

Measuring Range	0,1...50 m (Liquids and Solids)
Accuracy / Beam Angle	±2 mm / 8°
Process Temperature	-40... +120°C
Process Connection	G1" Male Thread, DN50...DN100 Flange
Wet Parts/Housing Material	1.4404 (316L) Stainless Steel / Aluminum
Power Supply	220 VAC, 24 VDC
Output	4...20 mA, HART
Protection Class	IP67
ATEX Approval	Ex ia IIC T6 6a



HYDROSTATIC LEVEL TRANSMITTERS

A hydrostatic level sensor is a submersible pressure transmitter that has a pressure diaphragm where the inner side of the diaphragm is vented to atmospheric pressure through a vent tube in the cable and the outer side is in contact with the liquid and measuring the static pressure of the liquid column above the transmitter. This static pressure is basically caused by the weight of the fluid on top of the transmitter and is used to calculate the level of the liquid. It has a wide application area in water and waste water industries with easy installation and

Hydrostatic Level Transmitter
(Ø26mm)

ETTRANS-L01

Hydrostatic Level Transmitter
(Ø19mm)

ETTRANS-L01S

Conductivity, Pressure And Temperature
Transmitter

ETTRANS-UWA03

Hydrostatic Level Transmitter (Ø26mm) Technical Specifications

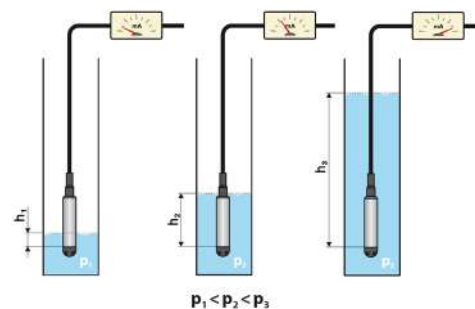
Measuring Range	0...500 mWC (0...50 barg)
Accuracy	± 0,3% F.S.
Process Temperature	0... +70°C
Sensor Diameter	26 mm
Sensor Material	1.4404 (316L) Stainless Steel
Cable Material	PE
Power Supply	10...36 VDC
Output	4...20 mA (HART Optional), 0...10 V
Protection Class	IP68

Hydrostatic Level Transmitter (Ø19mm) Technical Specifications

Measuring Range	0...500 mWC (0...50 barg)
Accuracy	± 0,3% F.S.
Process Temperature	0... +60°C
Sensor Diameter	19 mm
Sensor Material	1.4404 (316L) Stainless Steel
Cable Material	PE
Power Supply	10...36 VDC
Output	4...20 mA, 0...10 V
Protection Class	IP68

Conductivity, Pressure And Temperature Transmitter Technical Specifications

Measuring Range	0...400 mWC (Level), -20...+85°C (Temperature), 0...200mS/cm (Conductivity)
Accuracy	±0,3% F.S. (Level), ±0,1°C (Temperature), ±2% F.S. (Conductivity)
Process Temperature	0... +60°C
Sensor Diameter	26 mm
Sensor Material	1.4404 (316L) Stainless Steel
Cable Material	PE
Power Supply	6...36 VDC
Output	RS485 MODBUS
Protection Class	IP68



$$p_1 < p_2 < p_3$$

RESISTANCE TEMPERATURE TRANSMITTERS

RTD PT100 temperature sensors operate based on the principle that the electrical resistance of platinum changes predictably with temperature variations. As temperature increases, the resistance of the platinum element also increases. This change in resistance is measured accurately and converted into temperature readings using appropriate algorithms or conversion tables. It offers excellent accuracy over a wide temperature range (from -200 to +850 °C)

Resistance Temperature Transmitter (PT100)



ETTRANS-T01

Compact Resistance Temperature Transmitter (PT100)



ETTRANS-T06 / ETRANS-T07

Smart Type Resistance Temperature Transmitter (PT100)



ETTRANS-T03 (ATEX) / ETRANS-T04 (ATEX)
ETTRANS-T02

Resistance Temperature Transmitter (PT100) Technical Specifications

Measuring Range	-50...+600°C
Accuracy	±0,1°C
Process Pressure	Max. 25 barg
Process Connection	G1/4" , G1/2" , G1" , 1/4" NPT, 1/2" NPT, 1" NPT Male Thread, Clamp and Flange Opt.
Probe/Housing Material	1.4404 (316L) Stainless Steel / Aluminum
Sensing Element	PT100 A Class Sensor
Output	2, 3, 4 Wire PT100 (4...20 mA with Transmitter)
Protection Class	IP67
Special Option	Thermowell, Neck Pipe, Inset

Compact Resistance Temperature Transmitter (PT100) Technical Specifications

Measuring Range	-50...+200°C
Accuracy	±0,1°C
Process Pressure	Max. 25 barg
Process Connection	G1/4" , G1/2" , G1" , 1/4" NPT, 1/2" NPT, 1" NPT Male Thread, Clamp and Flange Opt.
Probe/Housing Material	1.4404 (316L) Stainless Steel / 1.4301 (304) Stainless Steel
Sensing Element	PT100 A Class Sensor
Output	2, 3, 4 Wire PT100 (4...20 mA with Transmitter)
Protection Class	IP65
Special Option	Thermowell, Neck Pipe, Plug On Display

Smart Type Resistance Temperature Transmitter (PT100) Technical Specifications

Measuring Range	-50...+600°C
Accuracy	±0,1°C
Process Pressure	Max. 25 barg
Process Connection	G1/4" , G1/2" , G1" , 1/4" NPT, 1/2" NPT, 1" NPT Male Thread, Clamp and Flange Opt.
Probe/Housing Material	1.4404 (316L) Stainless Steel / Aluminum
Sensing Element	PT100 A Class Sensor
Output	2, 3, 4 Wire PT100 (4...20 mA with Transmitter)
Protection Class / ATEX Approval	IP67 / II 2 GD EExd IIC T6
Special Option	Thermowell, Neck Pipe, Inset, LCD with 3 Push Buttons

THERMOCOUPLE TEMPERATURE TRANSMITTERS

A thermocouple is a device for measuring temperature. It comprises two dissimilar metallic wires joined together to form a junction. When the junction is heated or cooled, a small voltage is generated in the electrical circuit of the thermocouple which can be measured, and this corresponds to temperature. Thermocouples can be made to suit almost any application. They can be made to be robust, fast responding and to measure a very wide temperature range.

Thermocouple Temperature Transmitter



ETTRANS-T01

Bayonet Thermocouple



ETTRANS-T10

Temperature Transmitters and Thermowells

ETTRANS-ENT205 / ETRANS-ENTD148
ETTRANS-TW

Thermocouple Temperature Transmitter Technical Specifications

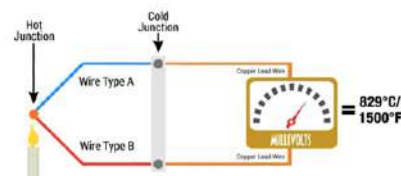
Measuring Range	-200...+1260°C
Accuracy	±0,75 % F.S.
Process Pressure	Max. 25 barg
Process Connection	G1/4", G1/2", G1", 1/4" NPT, 1/2" NPT, 1" NPT Male Thread, Clamp and Flange Opt.
Probe/Housing Material	1.4404 (316L) Stainless Steel / Aluminum
Sensing Element	K Type, J Type, E Type, T Type, N Type Thermocouple
Output	2 Wire Thermocouple (4...20 mA with Transmitter)
Protection Class	IP67
Special Option	Thermowell, Neck Pipe, Inset

Bayonet Thermocouple Technical Specifications

Measuring Range	-60...+350°C
Accuracy	±1°C
Process Pressure	Max. 25 barg
Process Connection	11.5mm I.D. single slot, G1/4", G1/2" NPT (Customized Design)
Probe Material	1.4404 (316L) Stainless Steel, 1.4301 (304) Stainless Steel, Brass, Copper
Sensing Element	J Type, K Type
Output	2 Wire Thermocouple
Protection Class	IP65
Special Option	Plug Connector

Temperature Transmitters and Thermowells Technical Specifications

Temperature Transmitter Version	Head Type, DIN Rail Type
Power Supply	12...36 VDC
Input	Resistance Thermometer, Thermocouple
Output	4...20 mA / RS485 MODBUS, 0...10 V (Only with Rail Type)
Protection Class	IP65 (Head Type), IP54 (Rail Type)
Thermowell Version	Welded, Drilled, Tapered
Process Connection	Thread, Clamp, DIN/ANSI Flange
Material	1.4301 (304) Stainless Steel, 1.4404 (316L) Stainless Steel
Option	Special Design According to Customer Request



DATALOGGERS

BILGE is an advanced datalogger device with optional external antenna and powered battery features and can be used in many different applications together. It is specially designed for the control of water networks with fully integrated GSM/GPRS communication module. BILGE is able to record data transmission, and suitable to work with different sensors at desired intervals to be used in every network. Recorded data, meter values, pressure measurements and alarm messages are sent to the central system over GSM / GPRS network. Providing fast data transfer by using GPRS communication in the most effective way and low current consumption of the device provides extremely long battery life.

Bilge GSM/GPRS Datalogger



BILGE

GSM Datalogger



ENL -802

Paperless Recorder



ENL -R4000D

Bilge GSM/GPRS Datalogger Technical Specifications

Working Principle	GSM/GPRS Datalogger (Connected Sensors)
Input	2x Pressure Sensor, Logic, RS485 MODBUS, Pulse
Output	GSM/GPRS, RS232
Working Temperature	-20...+50°C
Reading Accuracy	±0,05% F.S.
Housing Material	ABS
Power Supply	3,6 V Battery
Display	None
Internal Storage	512.000 data

GSM Datalogger Technical Specifications

Working Principle	GSM/GPRS Datalogger (Connected Sensors)
Input	2x Temperature-Humidity Sensor, 2x 4...20 mA, 0...10 V, Logic, RS485 MODBUS
Output	GSM/GPRS, RS485 MODBUS, 4 x SPDT Relay (250 V, 5A)
Working Temperature	-40...+85°C
Reading Accuracy	±0,05% F.S.
Housing Material	ABS
Power Supply	10...32 VDC
Display	2x16 LCD Display 7 button
Internal Storage	100.000 data

Paperless Recorder Technical Specifications

Working Principle	Datalogger (Connected Sensors)
Input	4...40 Channel (Universal) (mA, V, Frequency, PT100, Thermocouple, Pulse)
Output	1...4 x SPDT Relay (250 V, 2A), USB 2.0, RS485 MODBUS
Working Temperature	0...+50°C
Reading Accuracy	±0,02% F.S.
Housing Material	ABS
Power Supply	85...264 VAC 50...60 Hz, 24 VDC
Display	3,5"... 19,4" TFT LCD Resolution 640x480
Internal Storage	64 Mega Bytes

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YERLİ MALİ BELGESİ



Belgenin Verili Tarihi : 27.05.2023 Belgesinin Geçerlilik Tarihi : 27.05.2024 Belge No : 2023/0853 / 13452

Çıktısı Üzerine: EKİLEBİLİR ENDÜSTRİYEL ELEKTRONİK SANAYİ ANONİM ŞİRKETİ

İşletni Adı: İLÖLÜMASI KOCAELİ

Çıktıların Veriliş Kuruşu No: 2340077320 TC Kuruluş No: _____

MERKEZİS No : 03340673300000044

Tefahat No: 262-75490313

FABRİ: 262-75490393

Veriliş Kuruşu No: 11048

E-posta: info@ilmasi.com.tr

Web Adresi: www.ilmasi.com.tr

Gözetim No: 620

Ölçün Adı: Bıyıcı İhale

Ölçün Kodu (PROCEDURE): 26.51.52.39.00 /

Teknik Özellikler(Marka Adı, Model, San. Numarası, Enerji): EMİLİBİLİR SÜREYİ ÖLÇER

Kapasite Kapasitesi: Tarih: 26.05.2022 No : 72667 Geçerlilik Süresi :30.05.2024

Seraylı Belge Numarası Tarih : 04.12.2022 No : 622287

Yerli Kuruşu Öne : 54.646

Çıktıların Teknolojik Düzeyi (ülke/üretim-dışlama-yerli/özellik/teknik/ekonomik) : ydık ak

Dijital İmza ve Belgeler :

İmza Sahibi Bilgin, Ticaret ve Teknoloji Bakanlığı/İM : 15/09/2014 tarihli ve 2918 sayılı Kanun, Güçlendirme yasası ile " Yerli Mali Tevizi (SGM 2014.32) ile istisnaya ve FOBH istisnaya nasırlan "Yerli Mali Belgesinin Durulmasını Uygulama Yönetmeliği" ile 27.05.2023 tarihinde Bakanlar Kurulu, Belgesinin geçerlilik süresi sonuna kadar ilazımı bu tür güncellemeler.

Düzenleyen Özetle

KOCAELİ SANAYİ ODASI



[illegible]

Giden Evrak Tarih ve Sayısı: 09/05/2022 - 44073043-650.05.01 - 2328

 KOCAELİ SANAYİ ODASI KOCAELİ TİCARET VE SANAYİ ODASI	
ENELSAN ENDÜSTRİYEL ELEKTRONİK SANAYİ ANONİM ŞİRKETİ	
[DİLÖVAŞI / KOCAELİ]	
KONU: İmalat Yetenliklik	
İLGİ :	6.9.2022
<u>İMALAT YETERLİLİK</u>	
Firma Ünvanı	ENELSAN ENDÜSTRİYEL ELEKTRONİK SANAYİ ANONİM ŞİRKETİ
İşyeri Adresi	ÇERKEŞLİ OSB MAH.İNİS 4 BULVARI NO:11 DİLÖVAŞIKOCAELİ
Ticaret Sicil No	11048
Öde Sicil No	623
Üretim Konusu	Bağcı Transmitter, Sıcaklık Transmitteri, Elektromanyetik dehşetleme, Seyve değir, Akyarlık dolcu sistemleri, Devir bekleşi, Sızdırmazlık test cihazı, Panel metre, Deği gürtenleme, Dozajlama sistem, Bari kapıları, Vites sistemleri, Teçerben dehşetleme, Ultrasonik dehşetleme
Sanayi Sicil Belgesi	Tarih : 4.12.2014 No : 625267
Kapasite Raporunun TOBB Onayı	Tarih : 8.4.2022 Güçlendirilme Süresi Sonu : 09.04.2024
Onay	No : 16917

Yukarıda isim ve ünvanı yazılı firmamız, Odamızca düzenlenen kapasite raporuna göre; işyeri adresindeki tesis, makine-teçhizat ve personeli (mühendislik, tekniker, işletçi) ile, üretim konusunu olan ve kapasite raporu TABLO IV'de isim ve yükün (t/mt) miktarı belirtilen ürün / ürünleri aynı kapasite raporu TABLO IV'de belirtilen tüketim maddelerini kullanarak, Odamız eksperlerinin tarzını adıyla ekspertiz raporuna sâhnen imat ettiği belirtilmiştir.

(e-imzab)

M. Egehan NERT
Başveçe, 0876 sayılı Elektronik İmza Kanununa göre Görevli Elektronik İmza ile imzalamıştır.
Evinin Değişikliği İçin İlgili Kurumlarca Onaylanmıştır.
Bu belge, 0876 sayılı Elektronik İmza Kanununa göre Görevli Elektronik İmza ile imzalanmıştır.
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CERTIFICATE OF MEMBERSHIP

The Board of Directors hereby acknowledges that

Enelsan Endustriyel Elektronik San. A.Ş.

has accepted and fulfilled the requirements of the Bylaws
and all rights and privileges of membership are hereby granted.

Membership Term: April 2023 - March 2024

Y. Y. Kuntay
President and CEO

OUR DOCUMENTS



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TEST REPORT

TEST REPORT NUMBER : TUR190180386 DATE: 24 October, 2019
 APPLICANT: Beşim Endüstriyel Elektronik Sanayi
 ADDRESS: Oğuzlar, Çerkeşli Mahallesi B01-1, Kuvvet Sokağı Cad. No:40
 Oğuzlar, İstanbul
 SAMPLE DESCRIPTION: One sample of PDI BUBBLETITE T20 (3)
 DATE IN: 18 October, 2019 (13:59)
 DATE OUT: 24 October, 2019
 COUNTRY OF ORIGIN: TURKEY
 MODEL/STYLE NO: P-PDI
 REQUEST: R002 Test was performed according to 2019/03/20 Directive.
 RESULTS: E00 ATTACHMENT
 CONCLUSION:

Testing Item	Conclusion
Sample	Pass

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Herne Aydınlar
 Customer Care Manager
 Beşim Endüstriyel Elektronik Sanayi
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