

For Measure of: WEIGHT, FORCE, PRESSURE, DISPLACEMENT, TORQUE



Risoluzione STANDARD
±20.000 div
STANDARD Resolution

ACCURATEZZA
≤ ±0.02%
ACCURACY

Stabilità a lungo termine
Long term high stability

CE RoHS

Smart

Alta Affidabilità
High Reliability

The new **MP1^{Plus}** Professional Digital Panel Indicator is capable of receiving signals from strain gauge transducer, transmitter sensors with voltage or current output and potentiometers. It is particularly suitable for static and dynamic applications in industrial environments where it is necessary to measure WEIGHT, FORCE, PRESSURE, ISPLACEMENT and TORQUE.

The acquisition frequency can be set from 2.5 sampling per second to 1200 (1.2kHz), thus meeting the needs of applications where high response speed is required.

The instrument works with a resolution of $\pm 20,000$ divisions and exceeds 0.02% accuracy thanks to a 24-bit internal Sigma Delta converter.

To suit every application, the instrument features **ZERO**, **PEAK**, **HOLD** functions, which can be activated via keyboard or remote control and 2 programmable setpoints with relay outputs.

The input channel can be supplied in 4 different configurations:

- Version with input for **strain gauge transducer**, suitable for working with load cells, force transducers, pressure, displacement and torque with output $\pm 1\text{mV} / \text{V}$, $\pm 2\text{mV} / \text{V}$ or $\pm 3\text{mV} / \text{V}$ with 4 wire connection system. Possibility of connecting multiple transducers in parallel.
- Version with **voltage input**, suitable for working with pressure transmitters, torsionimeters ... with output $\pm 10\text{V}$ or $\pm 5\text{V}$.
- Version with **current input**, suitable for working with pressure transmitters, torsionimeters ... with output 4-20mA or 0-20mA and 2 or 3 wire connection.
- Version with **POTENZIOMETER** input, suitable for working with linear or displacement transducers.

The instrument is equipped with:

1 DIGITAL INPUT with programmable function.

2 SET POINT programmable in positive, negative, or absolute range.

2 RELAY OUTPUTS with exchange contact that can be used in conjunction with set points for simple automation or intervention logic.

As **OPTION**, the instrument can be equipped with:

- **ANALOG OUTPUT** programmable in voltage ($\pm 10\text{V}$, 0-10V, $\pm 5\text{V}$, 0-5V) and current (4-20mA) with refresh rate equal to the acquisition frequency of input channel conversion.

Other important features and functions are:

- **ZERO** function
- **ZERO BLOCK** function to prevent tampering by unauthorized persons.
- **HOLD, PEAK, FILTER, SAMPLING FREQUENCY, PROGRAMMABLE RESOLUTION.**

Calibration of the input channel can be performed both in the **POSITIVE FIELD** and in the **NEGATIVE FIELD** to correct the measurement in both directions of the sensor (traction and compression example) by:




- Calibration of the **Full Scale**: to program the full scale of the connected sensor.
- **Gain** Calibration: Real-time correction of the read error by a known measurement.

Typical applications:


- Automatic weighing systems and small dosages.
- Level control systems for tanks, silos and hoppers.
- Integrated measuring systems on test and test benches.
- Measuring systems integrated in automatic processes.
- Industrial process control systems.
- Automatic Testing and Quality Control Systems in Production Lines.
- Testing of measurements on board material testing machines.
- Measurement of springs, friction detection, tear forces, leak tests.
- Tests on protection and safety devices.

BASE CONFIGURATION


INPUT	±2 mV/V ±10 V, ±5 V 4-20 mA, 0-20 mA POTENTIOMETER
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FUNCTION	<p>POWER SUPPLY 220 Vac</p>  <p>NO need for external power supply</p>	<p>PEAK HOLD</p> <p>REGULATION: FILTER FREQUENCY ZERO DIGITAL CALIBRATION</p>	<p>2 Set point 2 programmable Relays</p>  <p>Can be used for:</p> <ul style="list-style-type: none"> • ON / OFF motor • ON / OFF solenoid valve 	<p>1 Programmable digital input</p>  <p>Used for:</p> <ul style="list-style-type: none"> • Manual command (KEYBOARD) • PLC command
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OPTIONS

OPTIONS	<p>POWER SUPPLY</p> <p>115 Vac</p> <p>24 Vdc</p>	<p>ANALOG OUTPUT</p> <p>The analog signal update frequency is equal to the programmed frequency conversion.</p> 
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TECHNICAL DATA

ACCURACY	$\leq \pm 0,02\%$
LINEARITY ERROR	$\leq \pm 0,02\%$
INTERNAL DIVISION	24 bit
STRAIN GAUGE INPUT	$\pm 2\text{ mV/V}$ (max $\pm 2,5\text{ mV/V}$)
RESOLUTION	$\pm 20.000\text{ div}$
POWER SUPPLY FOR TRANSDUCERS	5 Vdc
TYPE OF CONNECTION	4 filii
TRANSDUCER RESISTANCE	da $100\ \Omega$ a $2000\ \Omega$
TRANSDUCER THAT CAN BE CONNECTED IN PARALLEL	4@350 Ω or 8 @700 Ω
VOLTAGE INPUT AMPLIFIED TRANSDUCER	$\pm 10\text{ V} / \pm 5\text{ V}$
RESOLUTION	$\pm 20.000\text{ div}$
POWER SUPPLY FOR TRANSDUCERS	18 Vdc ($\pm 1\text{ Vdc}$)
CURRENT INPUT AMPLIFIED TRANSDUCER	0-20 mA 4-20 mA
RESOLUTION	+20.000 div +20.000 div
POWER SUPPLY FOR TRANSDUCERS	18 Vdc ($\pm 1\text{ Vdc}$)
INPUT FOR POTENTIOMETERS	R min. 1 k Ω
POWER SUPPLY	5 Vdc
7 SEGMENT DISPLAY COLOR	RED
NUMBER OF DIGIT	5
CHARACTER HEIGHT	14 mm
SENSOR CALIBRATION	POSITIVE AND NEGATIVE range
TYPE OF DIGITAL CALIBRATION	Full Scale
ZERO FUNCTION	100% (allowed on all measurement range)
ZERO LOCK FUNCTION (LOC) 	YES
PEAK FUNCTION	POSITIVE AND NEGATIVE
PROGRAMMABLE RESOLUTION	1 ... 100
PROGRAMMABLE DIGITAL FILTER	0 ... 5
POINT POSITION PROGRAMMABLE	0 ... 5
PROGRAMMABLE ACQUISITION FREQUENCY	From 2,5 to 1200 samples for second
PROGRAMMABLE SET POINT	2
DIGITAL INPUT with programmable function	1
RELAYS OUTPUT with exchange contacts	2
MAX VOLTAGE TO THE CONTACTS	24 Vdc
MAX CURRENT	500 mA
MAX POWER	12 W
NOMINAL TEMPERATURE RANGE	0... +50 °C
MAX TEMPERATURE RANGE	0... +50 °C
STORAGE TEMPERATURE RANGE	-20... +70 °C
EFFECTS ON A 10°C TEMP. VARIATION on zero	$\leq \pm 0,005\%$
EFFECTS ON A 10°C TEMP. VARIATION on full scale	$\leq \pm 0,005\%$
EXTERNAL POWER SUPPLY	230 Vac $\pm 10\%$
FREQUENCY	50/60 Hz
EXTERNAL PROTECTION FUSE	250 mA / 250 V
MAX POWER	10 VA
PANEL CONTAINER	DIN 43700
CONTAINER MATERIAL	NORYL UL94 V-O
MATERIAL FRONT AND REAR PANEL	UL94 V-2
PROTECTION CLASS (EN 60529)	IP40 (only front panel)
ENVIRONMENTAL POLLUTION GRADE	1
DIMENSIONS (A x L x P) mm	48 x 96 x 153mm
HOLE GAUGE (A x L) mm	44,5 x 91,5 mm
WEIGHT	~ 0,5 kg

OPTIONS

STRAIN GAUGE INPUT	$\pm 1\text{ mV/V}$ (max $\pm 1,5\text{ mV/V}$)
STRAIN GAUGE INPUT	$\pm 3\text{ mV/V}$ (max $\pm 3,5\text{ mV/V}$)
ANALOG OUTPUT	
Current	4-20 mA
VOLTAGE (max 20mA – RL min: 1k Ω)	0-5 V, 0-10 V, $\pm 10\text{ V}$, $\pm 5\text{ V}$
POWER SUPPLY	115 Vac
POWER SUPPLY	24 Vdc

INCLUDED ACCESSORIES

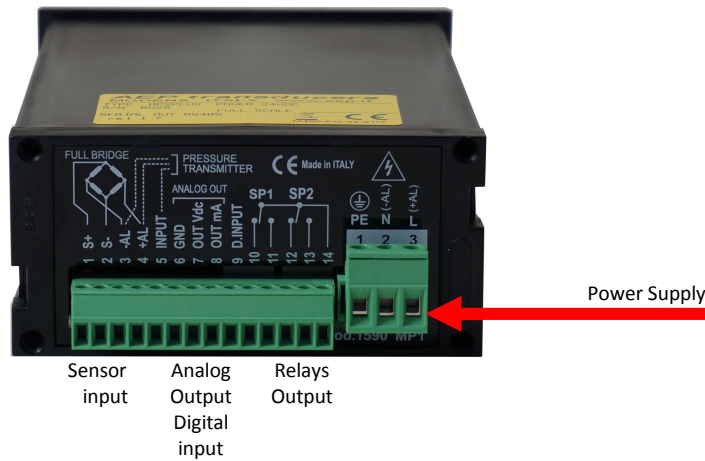


Brackets for fastening



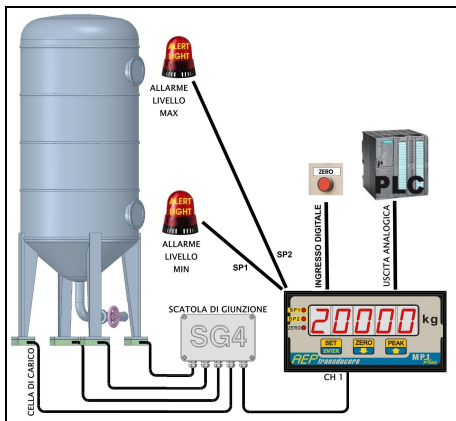
English-Italian Manual

Electrical connections

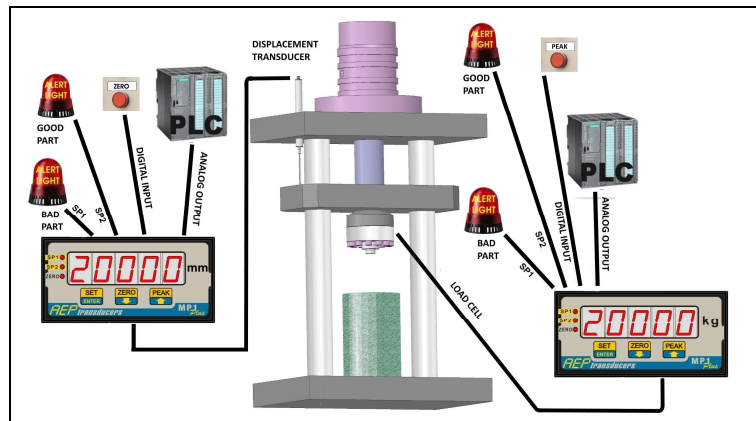


Sensor input Analog Output Relays Output
Digital input

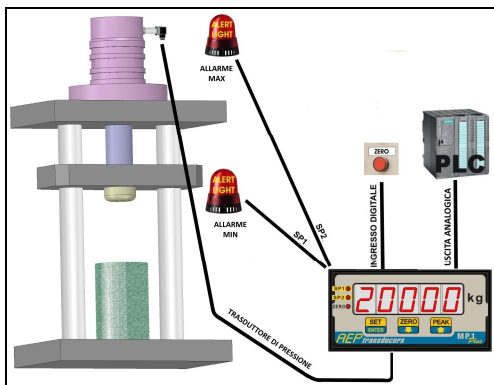
Typical Applications



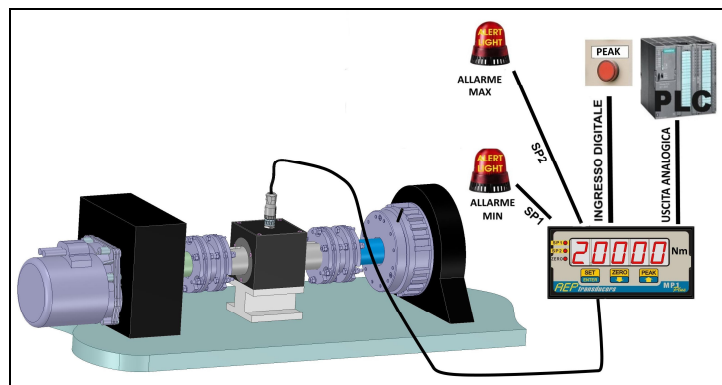
WEIGHT system of a silos.



Pressure measuring system with FORCE control and DISPLACEMENT.

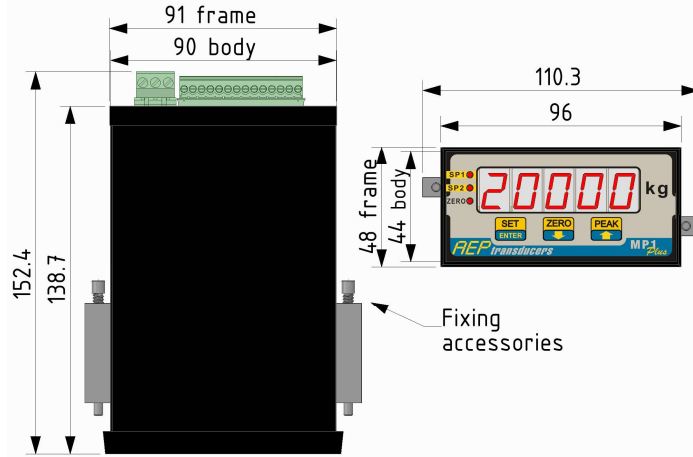


Measuring system on hydraulic or pneumatic press. With direct PRESSURE control.

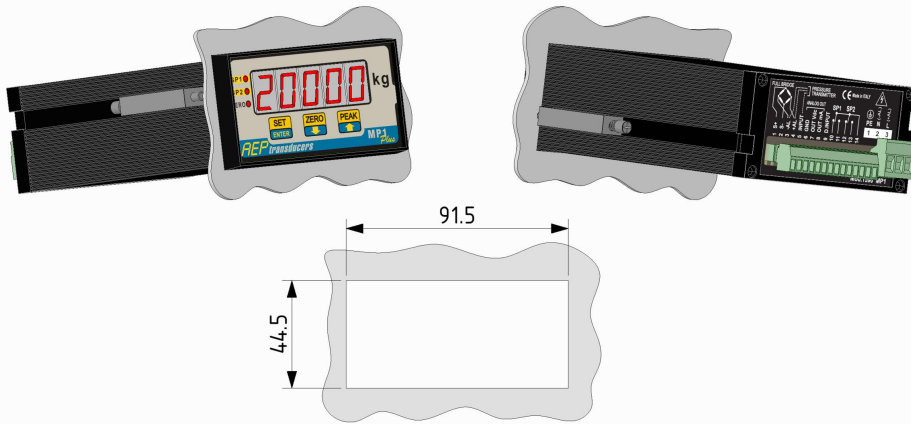


Measuring system on brake test bench with TORQUE control.

Dimensions (mm)



BUILT-IN APPLICATIONS



PURCHASE CODES

	POWER SUPPLY	ANALOG OUTPUT
EMP1P	XXX	X
	230 230 Vac	A
	115 115Vac	
	24 24Vdc	



ALWAYS SPECIFY the input channel and the unit of measure required.
After the sale the input type and the unit of measure **cannot be modified by the customer.**

Strain Gauge Input: 1mV/V - 2mV/V – 3mV/V
Amplified Input: ±10V - ±5V – 0-20mA – 4-20mA - Potentiometer

Example:

MP1P230A: MP1Plus power supply 230Vac + Analog output - Configuration: **2mV/V - 500.0 kg**



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In order to improve the technical performances of the product, the company reserves the right to make any change without notice.



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