GAUGE FOR GRINDING MACHINE

Increased production and real-time quality control are key elements of any industrial process. The **P3up** electronic amplifier, connected to Marposs measuring heads, represents an economical, practical and reliable solution for in-process work-piece monitoring on grinding machines.
The P3up has been designed as a direct, pin-to-pin replacement for E9 electronics. It is also possible to upgrade other Marposs relay gauges (E5 or BLU, as required).

Requirements:
- Upgrade for an E9 (pin to pin) or other Marposs relay gauges.
- Parts with tight tolerances
- Reduced cycle times
- Parts with interrupted surfaces
- Mounting options for ease of installation
- Integration with the machine logic
- Aggressive working environment
- Compensate effects of grinding wheel wear on the production process
- Reduce operator influence in the production process

Solution:
Using the **P3up** together with Marposs measuring heads permits you to monitor, in real time, the state of the machining process. As the part is being ground, the stock removal is measured and is compared to set points that the process requires in order to control the machining process and part quality.
All the mechanical parts have been designed for use in working environments in direct contact with coolants and other aggressive agents. The **P3up** and Marposs measuring heads Ingress Protection (IP) ratings mean that they are suitable for use in a workshop environment.

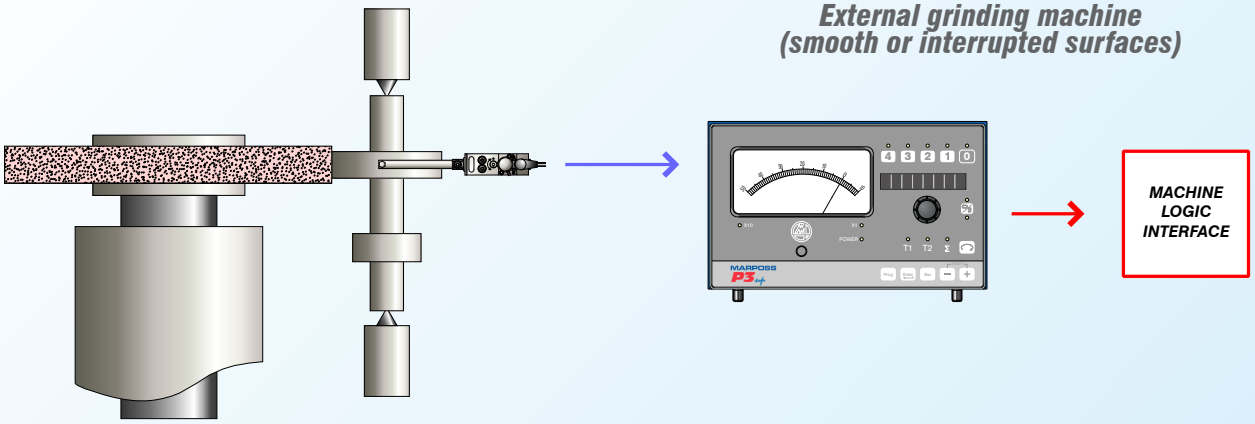
Benefits

- Part production within tolerance
- Cycle time optimization
- Reduced operator influence
- Constant productivity is assured and maintained
- Grinding wheel wear compensation
- Immediate payback due to production throughput improvement

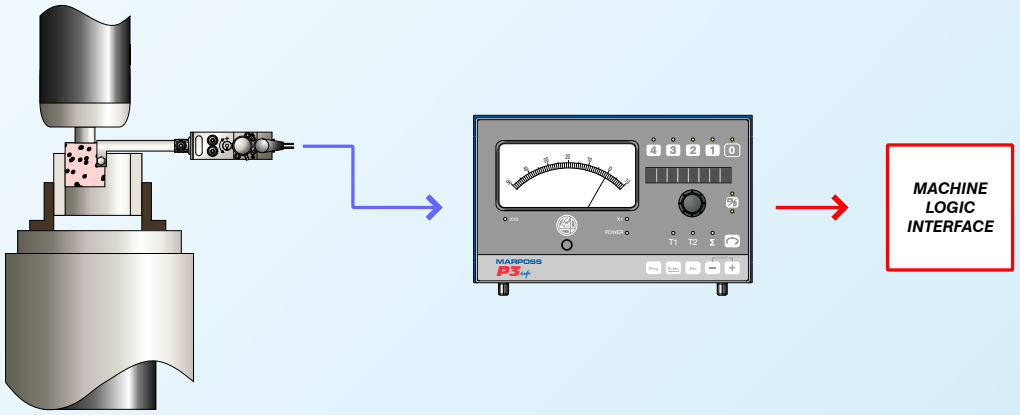
System application

Application examples

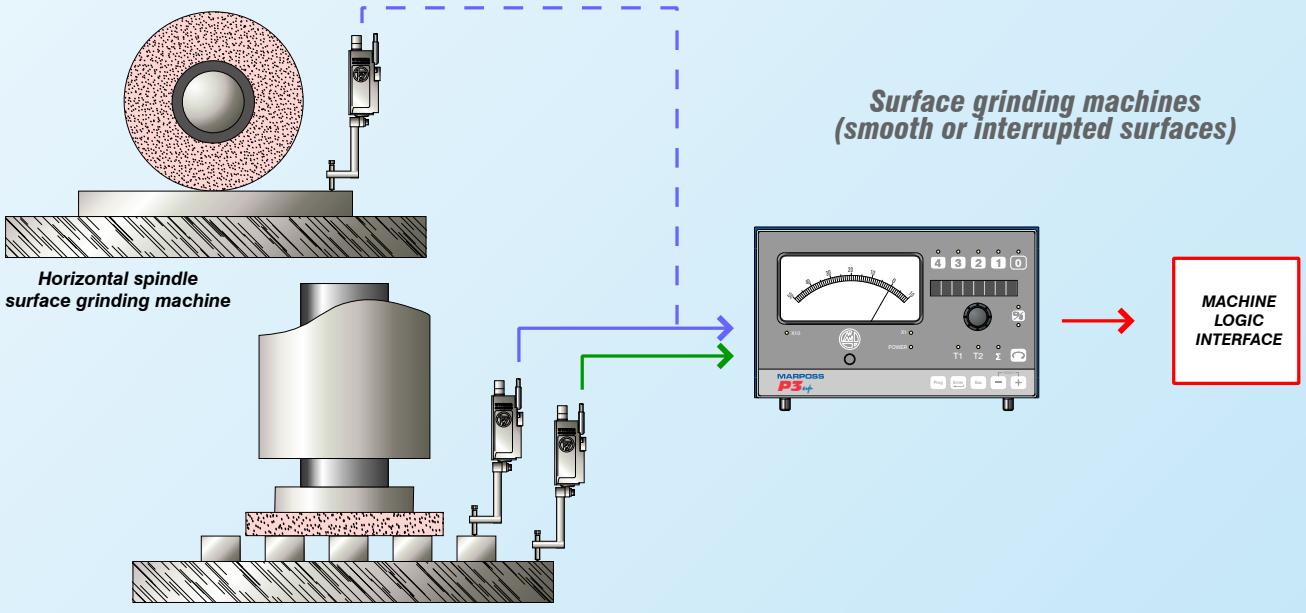
External grinding machine (smooth or interrupted surfaces)



Internal or reciprocating grinding machine (smooth or interrupted surfaces)



Surface grinding machines (smooth or interrupted surfaces)

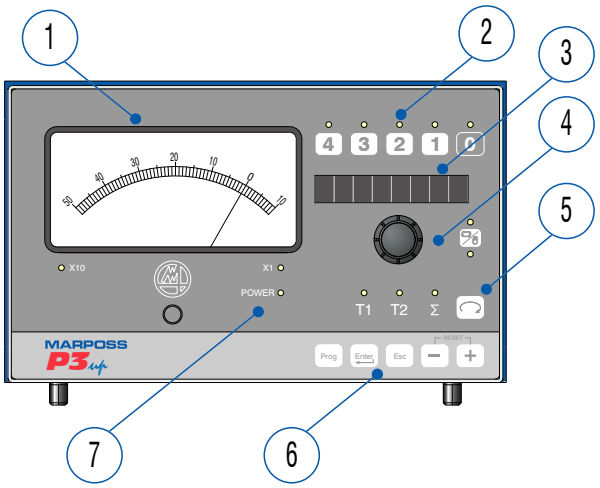


Horizontal spindle surface grinding machine

Vertical spindle surface grinding machine with rotary table

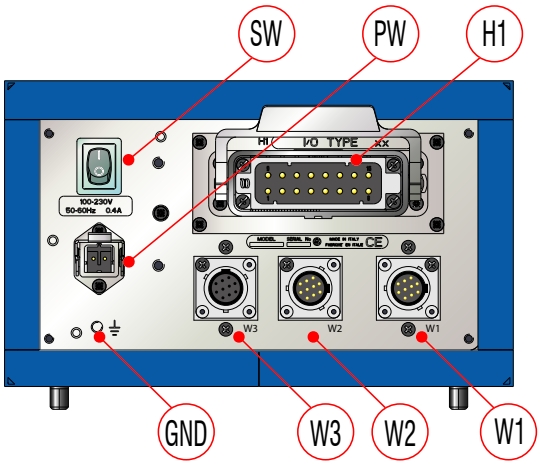
Layout

Front panel



1	**Analogue indicator** In-process cycle measure
2	**In-process cycle controls** Grinding wheel progress indication (LED) Controls trigger regulation (buttons)
3	**Alphanumeric display** Programming menu display Zero adjust display Viewing alarms
4	**Regulation knob** Zero adjust Menu programming selection
5	**Channel selector** Selection of the measuring head and single transducer
6	**Keypad** Programming and data modification
7	**Power supply** Multi-coloured LED display that indicates the state of the unit

Rear

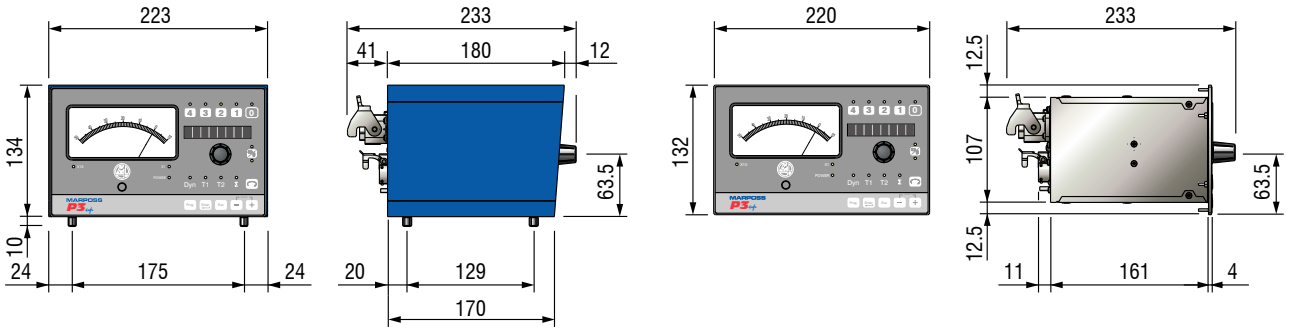


W1	Channel #1 / 2 *Veam connector 10 pin (male)*
W2	Channel #2 *Veam connector 10 pin (male) - optional*
W3	Analogue output *Veam connector 10 pin (female) - optional*
H1	Machine logic interface *Harting 16 pin connector*
PW	110-220 Vac power supply *Hirschmann 2P + E connector*
SW	Power switch on/off
GND	Ground connection *M5 threaded pin*

I/O features

Measuring cycle	Type	Signal	Use at machine side
In-Process grinding	Out	3/4 controls	Grinding wheel feed and spark-out cycle control
	Out	Alarm	Power supply, I/O, gauge, head failure indication
	In	Memory synchronization	The memory is locked when the measuring head is not in contact with the part (this control can be executed automatically by the gauge itself)
	In	Pulse Feedback	Wheel wear compensation
	In	Retract fingers	The measuring head fingers are retracted

Specification and dimensions



Cabinet version ***Rack version***

***Note**: In the case of the cabinet version, taking into account the measuring head, I/O and power supply connectors, it is necessary to allow a space of approximately 100 mm behind the unit and use connectors with lateral cable connections.*

Technical specifications

STRUCTURE	Cabinet or Rack
VERSION	1 to 2 channels *(LVDT or air-gap Marposs heads connection)*
MEASURING CYCLES	In-process grinding
MEASURE RANGE *(In-process gauging)*	According to dial indicator scale: 100-0-20 (+1000÷-200 µm) 50-0-10 (+500÷-100 µm)* 10-0-2 (+100÷-20 µm)
POWER SUPPLY	110-230 Vac, 50-60 Hz
POWER CONSUMPTION	55 W (max)
POWER On/Off LED	On front panel
WORKING TEMPERATURE	5° ÷ 40°C
STORAGE TEMPERATURE	-20° ÷ 60°C
WEIGHT	4 kg *(cabinet version)*
PROTECTION DEGREE *(Norma IEC 60529)*	IP20 *(rack version)* IP40 *(cabinet version)* *(front panel = IP54)*
MACHINE CNC CONTROL I/O's	Relays or opto-isolators *(compatibility with E9, BLU or E5)***

ANALOGUE OUTPUT	T1	10 mV/µm
	T2	10 mV/µm
	In-process *(according to dial indicator)*	10 mV/µm (100-0-20 scale) 20 mV/µm (50-0-10 scale) 100 mV/µm (10-0-2 scale)
DISPLAY	8 alphanumeric digits	
ELECTRICAL SAFETY STANDARD	EN 61010-1	
EMC IMMUNITY STANDARD	EN 61326-1	

(*) = also available in inches
(**) = BLU or E5 depending on the version

For a full list of address locations, please consult the Marposs official website

D6I04200G0 - *Edition 07/2014 - Specifications are subject to modifications*

Marposs has an integrated system to manage the Company quality, the environment and safety, attested by ISO 9001, ISO 14001 and OHSAS 18001 certifications. Marposs has further been qualified EAQF 94 and has obtained the Q1-Award.

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