



## ELECTRONIC MEASURING SYSTEM

Measuring the part during the machining process provides real time information on the variable that occurs, such as size, shape, hardness, wheel sharpness, which affect process capability. By monitoring these features through the stock removal, the P7ME can send commands to the grinder CNC to adapt the grinding cycle, optimizing the process to produce the highest quality part at the lowest cost. When real time measurement is not possible, the P7ME can be used in a post-process mode to automatically send corrections back to the machine CNC to keep the process under control.

The modular design of the P7ME both in hardware and software, allows the use of a common platform in different applications using a common humane interface resulting in simple operator use over multiple applications.

The P7ME has fieldbus and serial communication connection available to allow machine OEMs to integrate the product into their machine control network.

### Benefits

- Real time grinding cycle check without the need for a dedicated unit. Avoids production of reject parts and ensures high quality levels
- Increased machine efficiency (improved operating time relative to down time)
- Automatic compensation for wear on the grinding wheel or other tools
- Automatic machine and/or process deviation check
- Measurement insensitive to environmental conditions (coolant pressure and temperature) and to electromagnetic interference generated by machine power devices

### Applications

- Check of external and internal diameters and lengths during grinding cycle
- Positioning of surfaces to be machined (shoulders, eccentricity, excess material, etc.)
- Check of surfaces and thicknesses during and after grinding
- Check of bars and other cylindrical parts during centerless grinding
- Post process control on cutting machines with automatic tool wear compensation

## Panel types



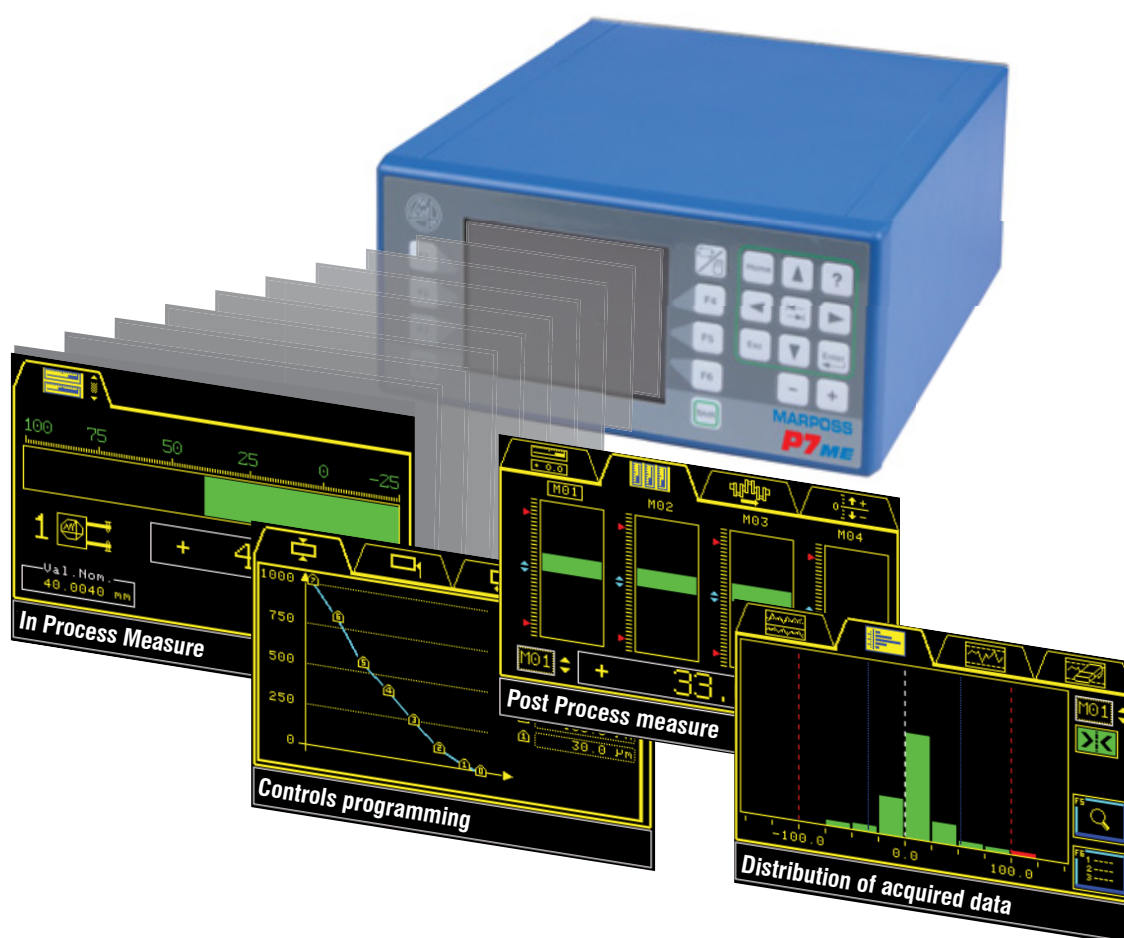
Solution with local panel



Solution with remote panel



Solution with display integrated in CNC



### Economical

A single platform using personalized hardware and software modules, can perform many functions such as part measurement, part positioning and acoustic sensing for gap and crash control between a grinding wheel and part or grinding wheel and dresser.

### User-friendly

The graphic display and simple keypad allows easy operator use through the icon based (ISO 7000 standard) and interactive software. Hotkeys can be programmed to jump to the most frequently used functions. Hardware system and diagnostic program insures the operator enters a correct and logical order.

### Flexible and modular

Through the use of easily installed modules, the P7ME can be configured to use various type of measuring transducers, touch probes, acoustic sensors and temperature sensors for require application. Modules for discreet I/O and fieldbus allows for the most efficient machine interface. On board memory allows multiple function to be called up by machine control for agile production.

### Versatile

The P7ME can be connected to the standard and wide range measuring heads, contact on pneumatic plugs, touch probes, acoustic and thermal sensors.

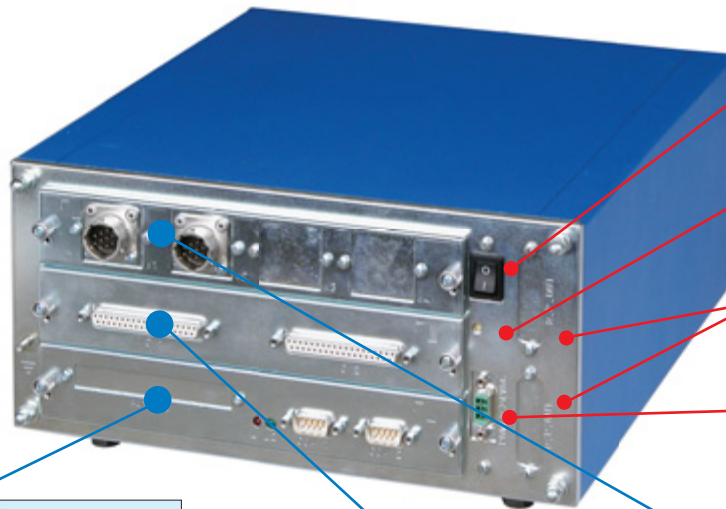
## Hardware



Stand-alone gauge



Remote gauge



**Power**  
power ON/OFF switch  
(24V dc)

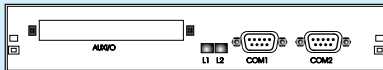
**Power ON LED**  
indicates that power is ON

**RPOUT1, RPOUT2**  
for connection to the  
remote panel

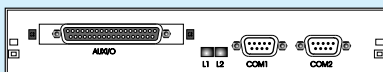
**Power**  
power ON/OFF switch  
(24V dc)

### SLOT 1 Master CPU card (always present)

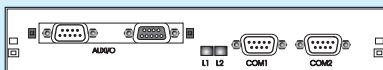
All master CPUs have two RS232 serial ports, a system software check LED and a card power check LED. Possible configurations:



Master CPU card



Master CPU card with 32 optoisolated I/Os for communication with machine PLC



Master CPU card with fieldbus (Profibus or Interbus-S) card

### SLOT 2

#### Card for I/Os, acoustic sensors and touch sensors

Measurement values are supplied in BCD or binary format through the I/Os.

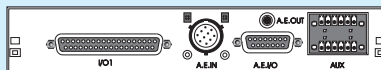
Cards which can be inserted in slot 2:



Card with 32 optoisolated I/Os for communication with machine PLC.



Card with 64 optoisolated I/Os for communication with machine PLC.



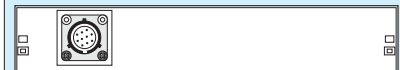
Card with 32 optoisolated I/Os for communication with machine PLC with interface for acoustic sensor (Gap/Crash function) and a Mida touch probe.



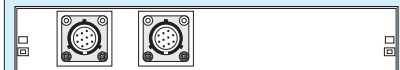
Interface card for acoustic sensor (Gap/Crash function) and a Mida touch probe.

### SLOT 3 Measurement CPU card

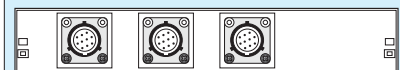
The card which acquires and conditions the signal has connectors for connecting the measuring heads, analog output and temperature sensors with a maximum of 8 channels (4 connectors with modularity level 2).



Two-channel card.



Four-channel card.



Six-channel card.



Eight-channel card.

## Hardware specifications

Power supply unit		
	Operating voltage	24V dc (-15/+20%) (IEC 1131-2)
	Absorption	50 W
Panel		
	Colour display	320 x 240 pxls, ¼ VGA (5,5") TFT
	B/w display	320 x 240 pxls, ¼ VGA (5,5") STN
	Remote panel	Max. distance 30 m
Master CPU		
	Serial interface COM1, COM2 (RS232E)	Serial printer output protocols, E9066 data transfer protocols, protocols created in response to specific requirements
	Serial transmission speed	Programmable from 9600 to 115000 baud
	Maximum serial connection distance	15 m (50 feet)
Measurement CPU		
	Measurement resolution	1 µm, 0,1 µm, 0,01 µm
	Measuring range	±500 µm, ±1000 µm, ±2000 µm
	Number of transducer channels (W1 - W4)	8 canali / 4 connettori (modularità 2)
	Transducer types	Air Gap, LVDT, HBT
	Sampling speed	2.000 samples/second/channel
Fieldbus (AUX I/O)		
	Protocols	Profibus or Interbus-S
Optoisolated inputs and outputs (I/O1 - I/O2 - AUX I/O)		
	Number of signals	96 I/O programmables
	Operating voltage	24 Vdc (-15/+20%) (IEC 1131-2)
	Circuit types	Sink/Source programmable
	Input current	5 mA/24V dc (IEC 1131-2, tipo 1)
	Output current	100 mA/24V dc
Gap/Crash card		
	Number of channels (AE IN)	2 (1 Gap + 1 Crash)
	Number of sensors (fixed or rotary)	1
	Logic I/Os (AE I/O): input operating voltage	24 Vdc
	Logic I/Os (AE I/O): types	Sink/Source
	Logic I/Os (AE I/O): outputs	Relays 24V dc/ac and optoisolated 24V dc 10 mA
	Analog output (AE OUT)	1 Vpp
Touch probe card (positioning)		
	Outputs (AUX)	Solid state relays ±50 V/40 mA
	Response time to touch	30 µs (opening), 50 µs (closing)
Dimensions		
	Stand alone structure (including panel)	279 (w) - 320 (d) - 132.5 (h) (14 mm supporting feet)
	Remote unit structure (without panel)	320 (w) - 317 (d) - 132.5 (h)
	Remote panel ½ 19"	226 (w) - 75 (d) - 132.5 (h)
	Remote panel 19"	482 (w) - 57 (d) - 132.5 (h)
Electrical safety		
	EN 61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use
EMC immunity		
	EN 61326	Radiated magnetic fields Electrostatic discharge Magnetic fields induced on cables Radio frequency electromagnetic fields Power frequency magnetic fields High frequency and conducted electromagnetic emissions Electrical fast transient/burst Surge
	CFR 47 part 15 (FCC class A equipment)	High frequency and conducted electromagnetic emissions
Protection degree		
		IP 54



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www.marposs.com

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

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