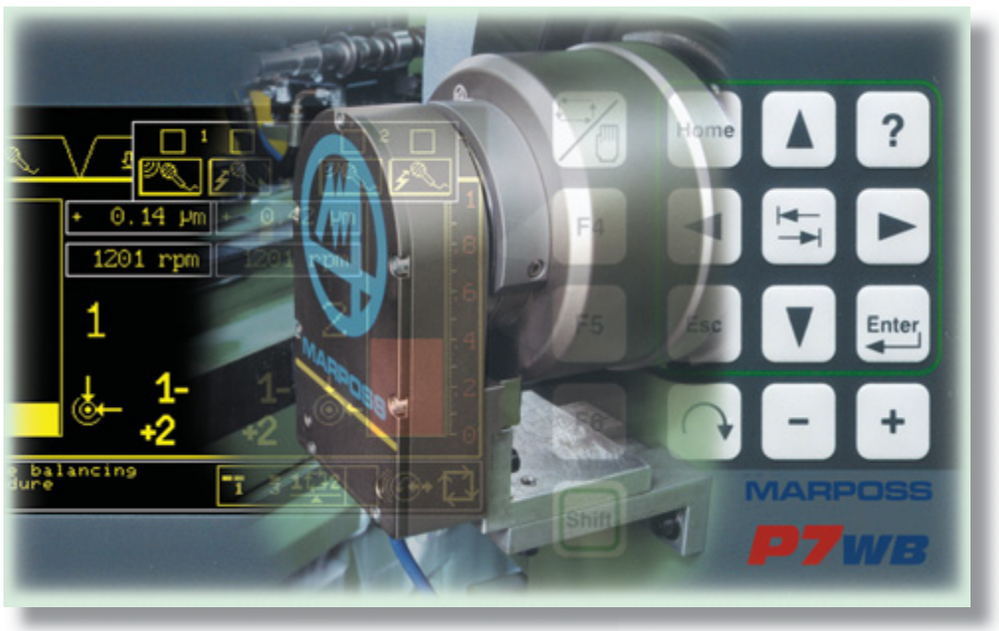


ELECTRONIC GRINDING WHEEL BALANCING SYSTEM

A properly balanced grinding wheel can improve the form and finish of the work piece, while extending spindle life. The P7WB automatic grinding wheel balancer control in conjunction with Marposs wheel balancers offer the best solution for continuous monitoring of the wheel vibration and automatically correcting an imbalance during production. The use of automatic balancers can quickly and efficiently balance your grinding wheel improving the process capability.

A Marposs P7WB automatic grinding wheel balancer is a low cost system which results in fast return on investment through improved product quality without negative impact on production time.

The P7WB has fieldbus and serial communication connection available to allow machine OEMs to integrate the product into their machine control network.

Benefits

- Improved surface finish quality
- Real time check of grinding wheel vibrations and automatic imbalance correction. The system prevents the production of parts with shape defects
- Increased machine efficiency (automatic balancing time shorter than time required for manual balancing)
- Fully automated balancing cycle without the presence of trained personnel to add or remove balancing weights
- Constant check of vibrations during the entire life of the grinding wheel, to prevent the breakage of rotary parts (preventive maintenance and machine safety)

Applications

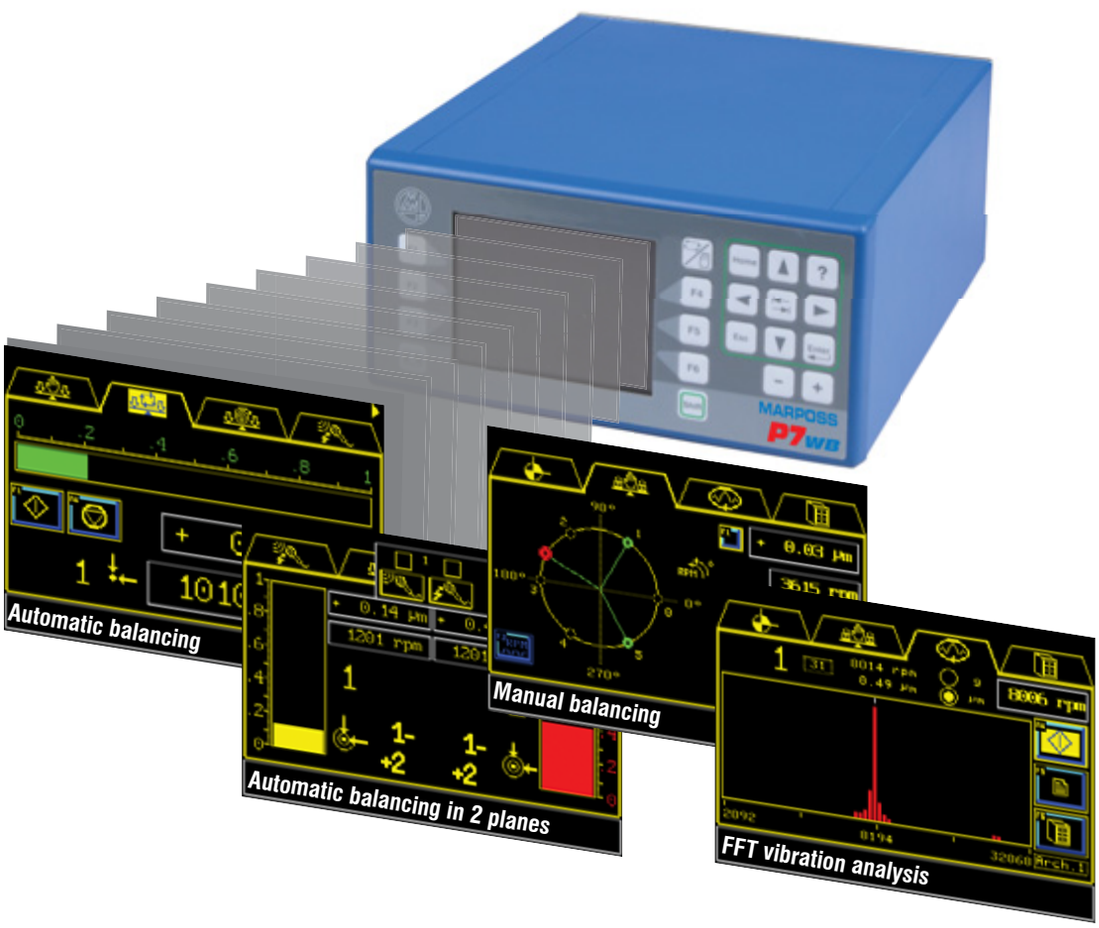
- Automatic balancing for grinding wheels with one or more spindles
- Automatic balancing algorithms in one or more planes
- Balancing check limits programmable according to grinding wheel type and dimensions
- Check of vibrations and operator guide for balancing small grinding wheels
- Monitoring of vibrations and alarms triggered by excessive imbalance
- Spectrum analysis of vibration frequencies for machine maintenance, to find cause and origin of faults

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 manual and automatic balancing of the grinding wheel, two planes balancing, FFT vibration analysis, air gap control and grinding wheel-part or grinding wheel-dresser collision.

Flexible and modular

Through the use of easily installed modules, the P7WB can be configured to use various type of electromechanical grinding wheel balancers and acoustic emission sensors. 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.

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 entries a correct and logical order.

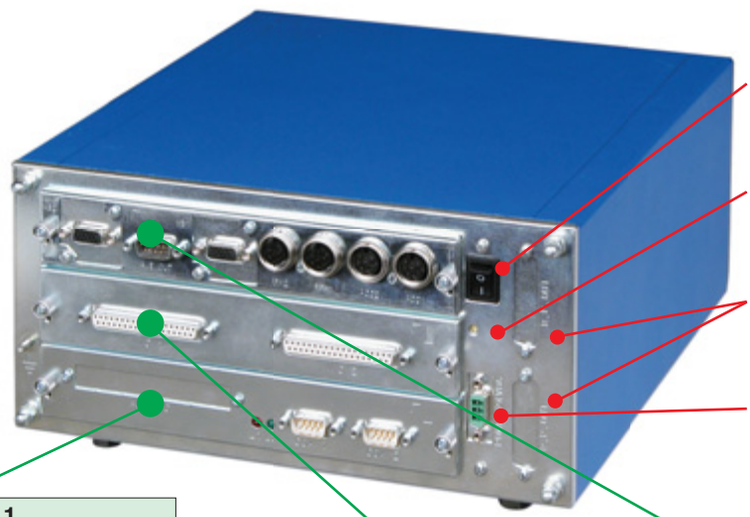
Versatile

The P7WB can be connected heads with retractable contacts or contact-less transmission, accelerometers, speed sensors and acoustic emission sensors.

Hardware

Stand-alone gauge

Remote gauge



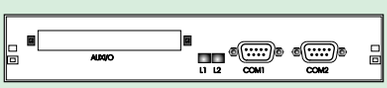
Power
power ON/OFF switch (24V dc)

Power ON LED
indicates that power is ON

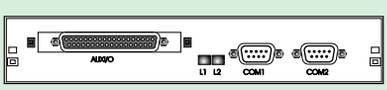
RPOUT1, RPOUT2
for connection to the remote panel

Power
power ON/OFF switch (24V dc)

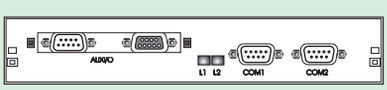
SLOT 1
Master CPU card
(always present)
All master CPUs have two RS232 serial ports, a system software check LED and a card power check LED.
Possible configurations:



Master CPU card



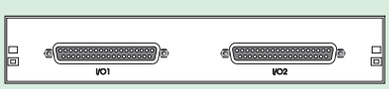
Master CPU card with 32 optoisolated I/Os for communication with machine PLC



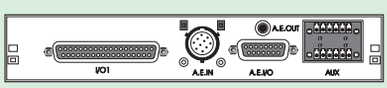
Master CPU card with fieldbus (Profibus or Interbus-S) card

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.



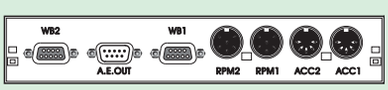
Card with 32 optoisolated I/Os for communication with machine PLC with interface for acoustic sensor (Gap/Crash function) and a Mida touch probe.

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

SLOT 3
Balancer CPU card
The card which acquires and conditions the signal has connectors for connecting the balancing heads, vibration sensors (accelerometers) and speed of rotation sensors, with a maximum of 2 channels.

Manual balancing card.

1-channel automatic/manual balancing card.



2-channel automatic/manual balancing card.

Hardware specifications

Power supply unit		
	Operating voltage	24V dc (-15/+20%) (IEC 1131-2)
	Absorption	50 W
Panel		
	Colour screen	320 x 240 pxls, ¼ VGA (5,5") TFT
	B/w screen	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)
Balancing CPU		
	Number of channels	Up to 2 balancers, 2 accelerometer, 2 rpm sensors
	Balancer types	Retractable contacts / Contactless transmission
	Grinding wheel speed of rotation	300 ÷ 20000 rpm
	Imbalance unit of measurement	µm - inch - mm/s
	Imbalance measuring range	50 µm / 5 µm / 0,5 µm
	Imbalance measurement resolution	1 µm / 0,1 µm / 0,01 µm
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 programmable
	Operating voltage	24V dc (-15/+20%) (IEC 1131-2)
	Circuit types	Sink/Source programmable
	Input current	5 mA/24V dc (IEC 1131-2, type 1)
	Output current	100 mA/24V dc
Gap/Crash card		
	2 (1 Gap + 1 Crash)	2 (1 Gap + 1 Crash)
	Number of sensors (fixed or rotary)	1
	Logic I/Os (AE I/O): input operating voltage	24V dc
	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	

MARPOSS
www.marposs.com

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

D6P00702G0 - *Edition 10/2011 - 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.