MARPOSS

SYSTEM MONITORING FOR GRINDING MACHINES

Increased productivity and reduced maintenance costs are key elements of an economic process. The optimum solution is real-time control of events not belonging to workpiece machining or machine conditions. Controlling events such as the grinding wheel - workpiece, grinding wheel - dresser approach speeds and dressing depth of the machine, increases the productivity.

Needs:

- Shorten grinding cycle
- Increase grinder safety
- Improve dressing cycle
- Optimize dressing of CBN wheel
- Reduce grinding cost
- Save maintenance cost

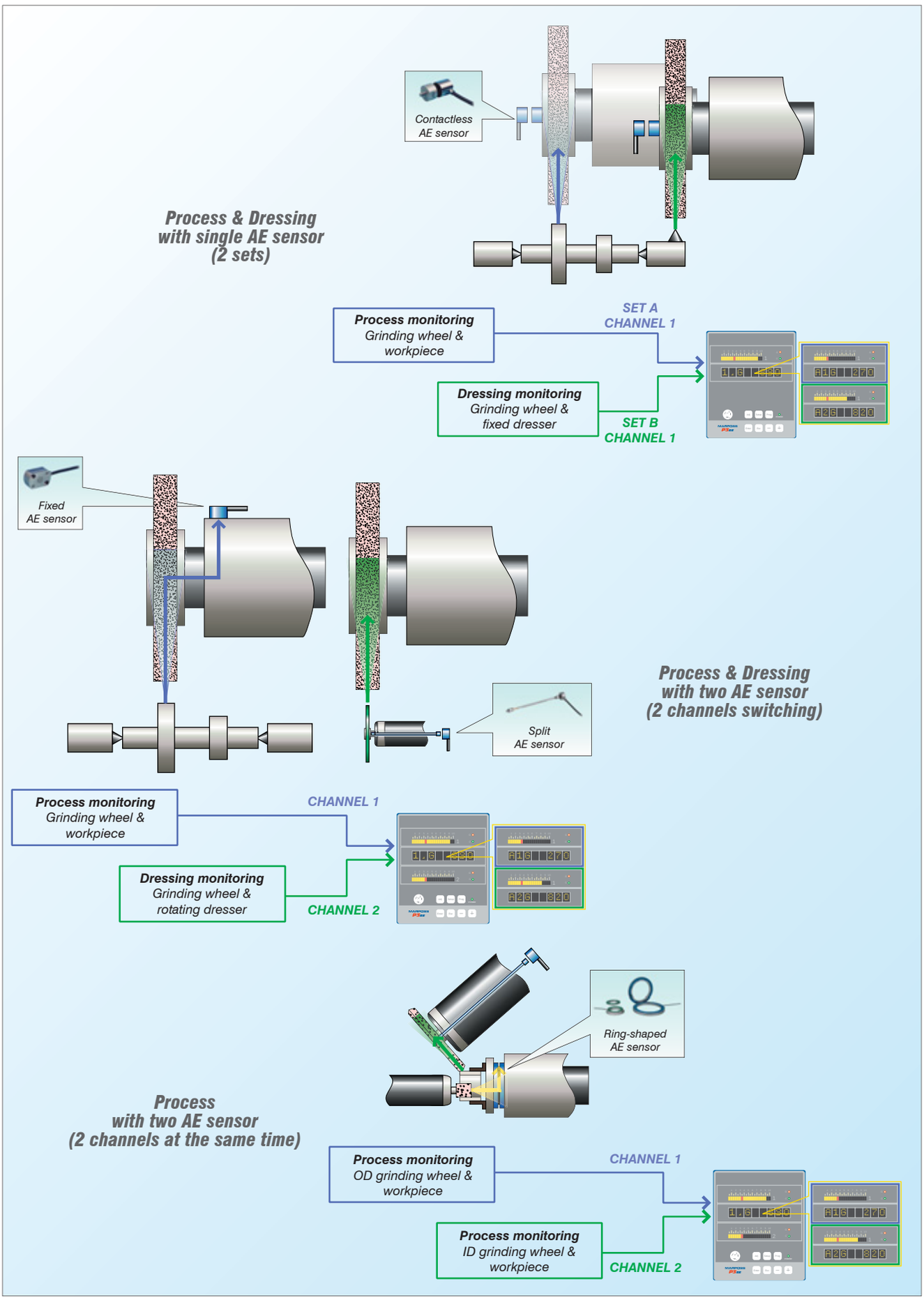
Solution:

MARPOSS P3SE is a system monitoring for grinding machines based on acoustic emission technology, able to satisfy various requirements including continuous process control and air gap check, dressing, grinding wheel and workpiece collision.

Benefits

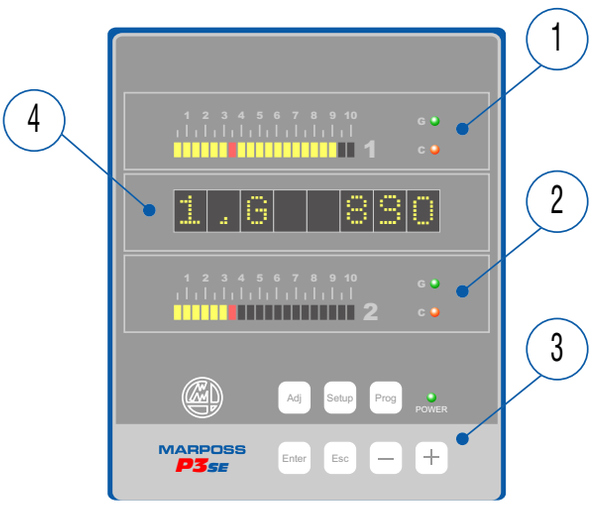
- P3SE air gap eliminator reduces cycle time optimizing the change of feed rate
- P3SE workpiece collision control eliminates the risk of catastrophic damages to operator, wheel and machine
- P3SE dressing control detects the contact wheel-dresser to speed up the dressing cycle and avoid damages to the wheel
- Due to the extreme cutting condition and the high cost of the abrasive, CBN wheels require a specific acoustic analyzer to optimize the dressing operation: P3SE
- P3SE system monitoring reduces cost of grinding operation, saving wheel abrasive
- P3SE system monitoring increases safety of the working personal and prevent damages and heavy maintenance costs

System applications



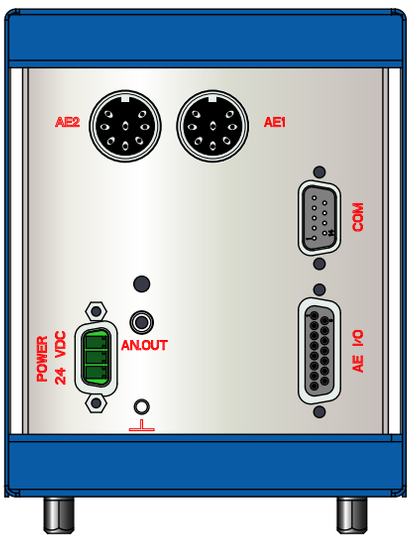
Layouts

Front



1	**Physical channel #1** GAP & CRASH Measures, alarms and I/O state ● GAP 1 ● CRASH 1
2	**Physical channel #2** GAP & CRASH Measures, alarms and I/O state ● GAP 2 ● CRASH 2
3	**Keyboard** For programming and visualization GAP & CRASH Measures, alarms and I/O state ● Power on
4	**Digital display** Currently selected measure view Part data - Set A/B Physical channel - 1/2 Logical measure - GAP & CRASH

Rear



AE1	Connection of acoustic sensor #1 *Connector Amphenol 8 pins*
AE2	Connection of acoustic sensor #2 *Connector Amphenol 8 pins*
COM	Serial port RS232 *Connector Cannon 9 pins*
A.E. I/O	I/O signals of Gap/Crash function *Connector Cannon 15 pins*
AN. OUT	Analog output interface *Jack socket 3.5 mm*
POWER 24 VDC	Power supply unit
⏚	Grounding connection *Terminal type M5*

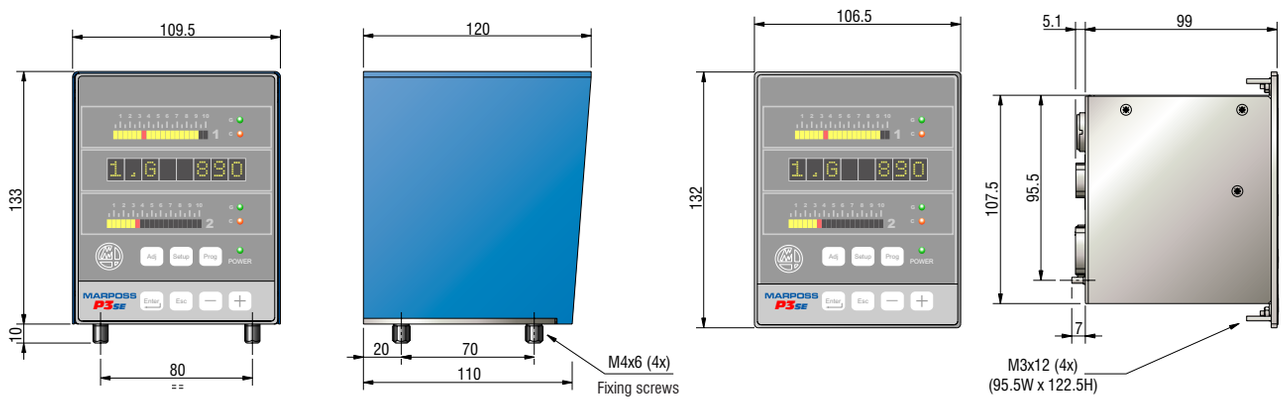
P3SE can manage two physical channels (AE sensors) and four logical channels (Gap & Crash controls)...

Physical channels	Logical channels
AE 1	GAP 1
	CRASH 1
AE 2	GAP 2
	CRASH 2

... as well two sets (A & B), as part/cycle, are available

	AE 1		AE 2	
SET A	GAP 1	CRASH 1	GAP 2	CRASH 2
	A1G	A1C	A2G	A2C
SET B	GAP 1	CRASH 1	GAP 2	CRASH 2
	B1G	B1C	B2G	B2C

Specification and dimensions



Cabinet version *Rack version*

Technical specifications

STRUCTURE	Rack or Cabinet
VERSION	1 to 2 ch's
No. AE SENSORS	1 to 2 *(independent)*
POWER SUPPLY	24 Vdc ± 20%
POWER CONSUMPTION	13 W
POWER On/Off LED	On front panel
WORKING TEMPERATURE	0° to 50°C
STORAGE TEMPERATURE	-25° to 70°C
WEIGHT	1.2 Kg
PROTECTION DEGREE *(IEC 60529 standard)*	IP54 *(frontal panel only)*
MACHINE CNC CONTROL I/O's	24 Vdc optoinsulated *15 pin Cannon connector*
I/O SIGNALS	Sink & Source
OUT SIGNAL SPEED	1 ms
SERIAL INTERFACE	RS232 *9 pin Cannon connector*
ANALOGUE OUTPUT	0 to 10 V
BARGRAPH DISPLAY	Double - 20 elements
ADDITIONAL DISPLAY	8 alphanumeric digits
FREQUENCY RANGE	0 to 1000 KHz
CONTROLS	Gap & Crash
THRESHOLDS	Programmable
PART CYCLES	2 set
ELECTRICAL SAFETY STANDARD	EN 61010-1
EMC IMMUNITY STANDARD	EN 61326

System codes

RACK VERSION - 1 CHANNEL	83028EA054
RACK VERSION - 2 CHANNELS	83028EB054
CABINET VERSION - 1 CHANNEL	83028FA054
CABINET VERSION - 2 CHANNELS	83028FB054

Analysis software package *(optional)*

Marposs can provide an optional software package (Windows® based) for a numerical and graphical analysis of the controlled functions. This software runs on a PC, while this one is connected via RS232 to the P3SE.

PROCESSED FUNCTIONS	• FFT analysis (0 to 1000 Hz) • Sensor signal • Gap channel parameters • Crash channel parameters • Gap & Crash acoustic signals • Files memorization

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MARPOSS
www.marposs.com

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

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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.