Crash

Vibration Overload

Unbalance

Wear

This is what we can do for you!

With our *PulseNG* system, your machines are fully protected automatically in real time and around the clock. We are compatible with the following CNC systems: Siemens, Bosch Rexroth, Heidenhain, Fanuc, Mitsubishi ...
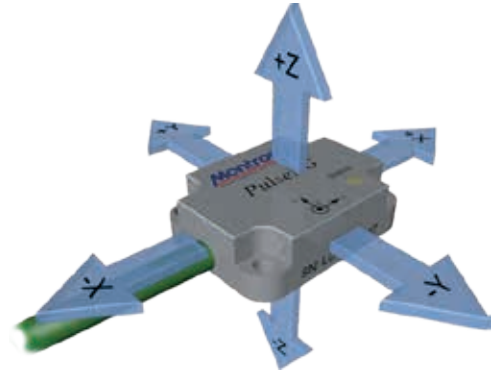
We can detect:

- High-Speed-Impact-Crash and Low-Speed-High-Force-Crash, no matter from which direction
- Overload of vibration, force and power
- Condition of machine components (ball screw, linear guide, spindle, etc.)

Response time < 1 ms *

- Machine emergency stop
- NC Stop

* Valid for basic systems! May vary depending on the configuration.

Axes of *PulseNG* sensor

■ Variable Configurations

Basic System

(IBU-NG + *PulseNG* sensor) Effective protection with just one sensor

Extension Solutions

(e.g. with MUX-NG + StrainLink Sensors + SLA-NG Amplifier + *PulseNG* Sensor + *PulseNG* M12 Sensor) Enhanced deliverables with combined physical measurements

Application-dependent Sensor Selection

PulseNG

- Machine protection
- Machine diagnostics
- High-Speed-Impact-Crash

3 axes acceleration sensor

PulseNG M12

- Machine protection
- Machine diagnostics
- High-Speed-Impact-Crash
- Space-saving installation

3 axes acceleration sensor

StrainLink250-DA

- Machine protection
- Low-Speed-High-Force-Crash
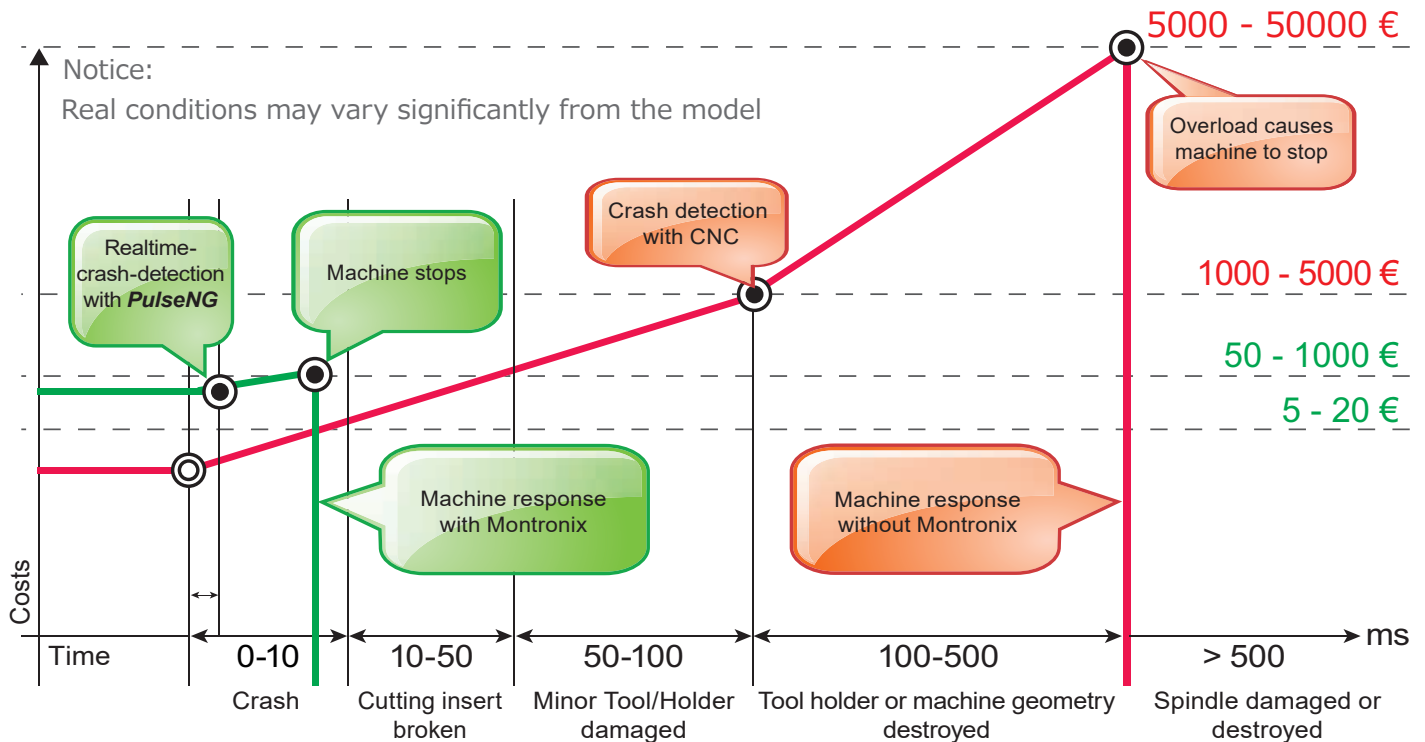
Strain gauge sensor

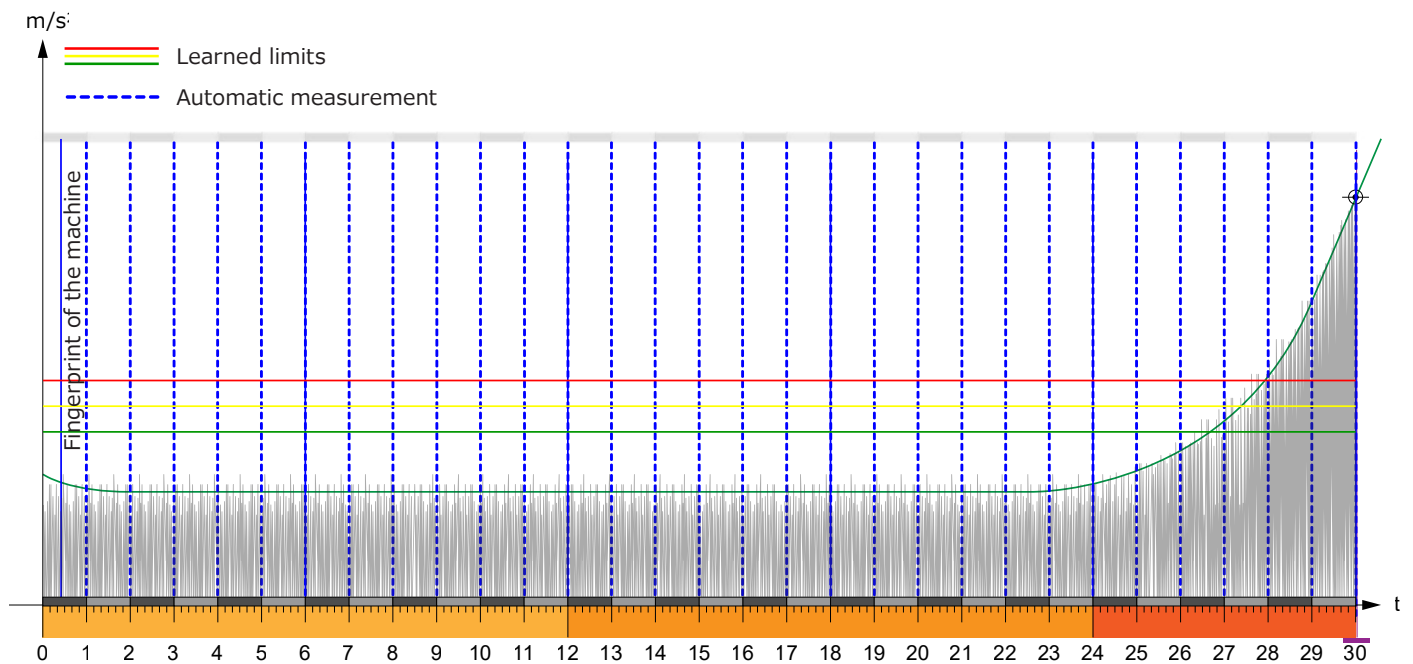*PS200-NG*

- Machine protection
- Overload

Power sensor

One Product - Three Solutions

■ Machine Protection

Notice:
Real conditions may vary significantly from the model

5000 - 50000 €

Overload causes machine to stop

Realtime-crash-detection with *PulseNG*

Machine stops

Crash detection with CNC

1000 - 5000 €

50 - 1000 €

5 - 20 €

Machine response with Montronix

Machine response without Montronix

Costs

Time

0-10	10-50	50-100	100-500	> 500

ms

Crash	Cutting insert broken	Minor Tool/Holder damaged	Tool holder or machine geometry destroyed	Spindle damaged or destroyed

➡ Fast reaction – increased machine availability – enormous costs reduction

■ Automatic Machine Condition Diagnostics – Trend Diagram

m/s²

— Learned limits

--- Automatic measurement

Fingerprint of the machine

t

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

Automated Alerts at Wear & Damages

➡ Regular automatic trend-measurements for early detection of machine wear.

Application Examples

Equal protection in different operating conditions, *PulseNG* offers Eight Monitoring scenarios. Each scenario defines one Monitoring status. Under each scenario, Three limits can be selected and set. A typical scenarios configuration is presented below.*

Scenario No.	Operating Status	Monitoring Task	Reaction
1	Rapid feed (G00)	Crash	Emergency stop
2	Feed (G1)	Crash & vibration overload	NC stop, feed rate adjustment
3	Tool change	Crash	Emergency stop
4	Wear measurement run	Condition of X-Axis	Automatic alert message
5	Wear measurement run	Condition of Y-Axis	Automatic alert message
6	Wear measurement run	Condition of Z-Axis	Automatic alert message
7	Wear measurement run	Spindle condition	Automatic alert message
8	Wear measurement run	Condition of B-Axis	Automatic alert message

*recommended, however individually adaptable

■ Text Event Recorder

MTX-PulseNG-hmi

Index	Type	Date/Time	Unit	Scenario #	Sensor #	Sensor type	Limit #	Axes (X,Y,Z,M)	DSP	Limit type	Limit	Max	HP (Hz)	LP (Hz)	Alarm	Stop
0001	Alarm	02.02.2017 00:24:46	a [m/s²]	2	A	PulseNG	1	Module	Average	Upper	8.0 a[m/s²]	42.5 a[m	300	600	On	On
0002	Alarm	23.01.2017 01:31:04	v [mm/s]	1	A	PulseNG	3	Module	Average	Upper	10.0 v[mm/s]	23.0 v[m	1	50	On	On
0003	Alarm	20.01.2017 04:13:53	v [mm/s]	5	A	PulseNG	1	X axis	Average	Upper	32.5 v[mm/s]	48.9 v[m	40	1600	On	Off
0004	Alarm	20.01.2017 04:13:53	µЄ	2	B	SLA-NG	2	Channel 2	Average	Upper	2.0 µЄ	11.8 µЄ	400	600	On	On
0005	Power on	18.01.2017 00:48:44	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0006	Power off	10.01.2017 20:37:47	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0007	Alarm	09.01.2017 13:06:18	v [mm/s]	1	A	PulseNG	2	Module	Average	Upper	7.0 v[mm/s]	9.3 v[m	400	600	On	Off
0008	Alarm	06.01.2017 01:45:26	µЄ	2	B	SLA-NG	3	Channel 1	Average	Upper	2.0 µЄ	12.1 µЄ	1	50	On	On
0009	Alarm	05.01.2017 14:13:58	v [mm/s]	6	A	PulseNG	2	Y axis	Average	Upper	32.5 v[mm/s]	52.3 v[m	400	600	On	Off
0010	Alarm	04.01.2017 18:27:17	µЄ	1	B	SLA-NG	2	Channel 1	Average	Upper	6.0 µЄ	18.3 µЄ	1	50	On	On

		Grafic EL	Text EL partial view	Export csv file			Back

Connected with Montronix_001   Monitoring: ▨   Teaching: ▢   Scenario #: 1 / Collision   **Montronix®** MONITORING SOLUTIONS

➡ Every limit crossing will be recorded in a ring buffer, which is not editable or erasable

➡ The text event recorder stored in the Monitoring hardware can save up to 4000 text events, which can be exported as a csv file

➡ The graphical event recorder can save up to 64 graphic events (5 seconds before and after each limit crossing) - see the following page
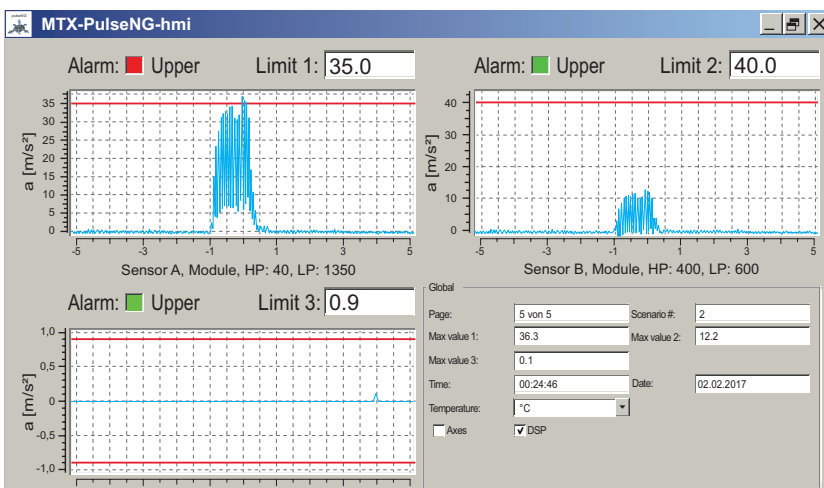
■ Graphical Event Recorder
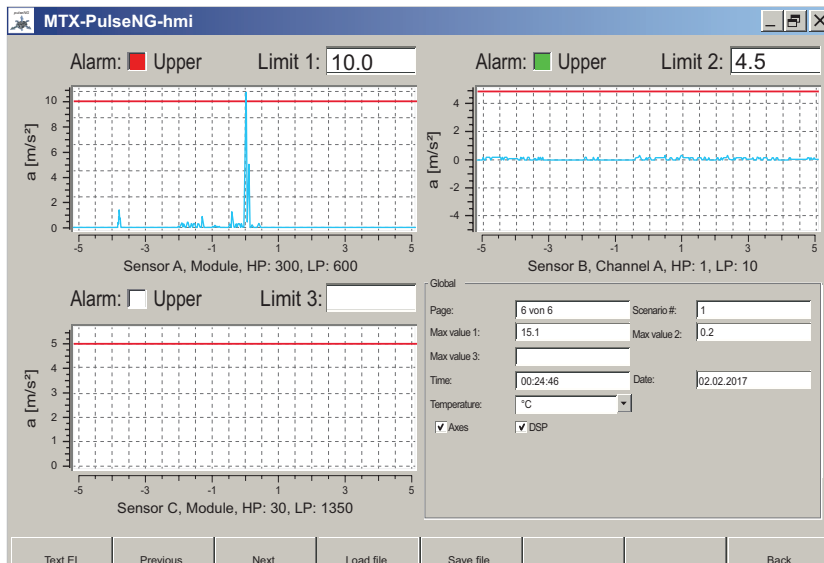
Crash

Limit 1	**High-Speed-Impact-Crash**
Limit 2	**Low-Speed-High-Force-Crash**
Limit 3	**Spare for customer use**

➡ Response time < 1 ms
➡ Emergency stop
➡ Reduce consequential damages

Vibration Overload

Limit 1	**Vibration overload**
Limit 2	**Vibration overload**
Limit 3	**Force overload**

➡ Response time < 1 ms
➡ NC stop, feed rate adjustment
➡ Limits can be set individually

Model of the health trend

Automatic Machine Condition Diagnostics

Limit 1 (Statistics)	**Health trend of longitudinal axis (x)**
Limit 2 (Statistics)	**Health trend of transverse axis (y)**
Limit 3 (Statistics)	**Health trend of vertical axis (z)**

➡ Early detection of worn machine components
➡ Assist with preventive maintenance
➡ Automatic measurement run and alerts at wear detection

Industry 4.0

Industry 4.0
Big Data

Server

◼ Suitable for Industry 4.0

➡ We will provide the collected data over your factory-network
➡ For a central machine management
➡ For an overview of all machines' condition
➡ For a planable preventive maintenance
➡ Client/Server functionality

Machining Centers

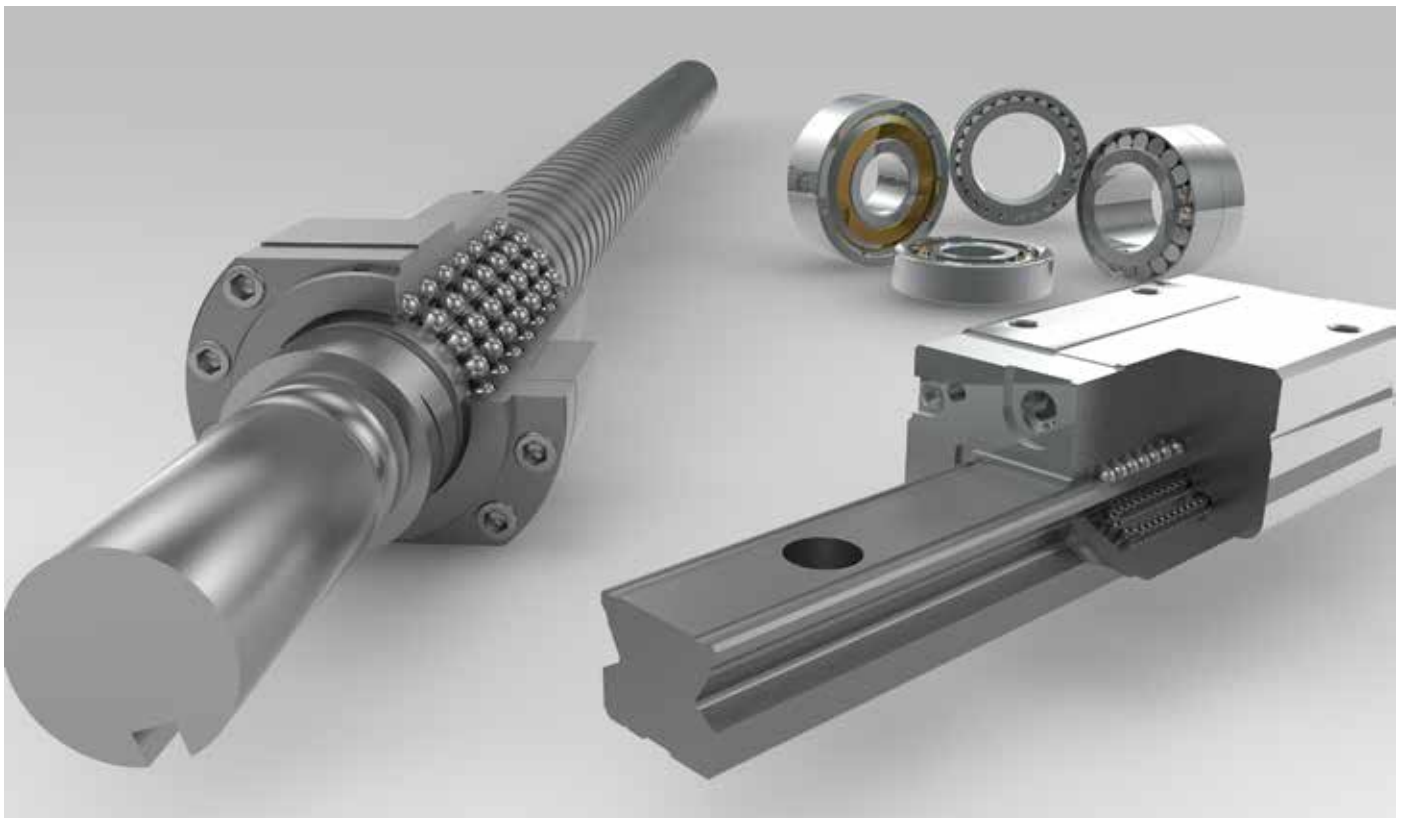Turning Machines

Grinding Machines

Drilling/Milling Machines

Robots

Handling Systems

Automatic Diagnostics of Machine Components

Montronix®

■ Product Properties

IBU-NG Interface	
Dimensions (HxWxD) in mm	approx. 121 x 42 x 120
Weight	approx. 370 g
Protection class	IP40
Response time	< 1 ms
Relative humidity	0 to 95 % noncondensing
Voltage supply	18-30 V DC

Attachable Components	
PulseNG	3 axes acceleration sensor
PulseNG M12	3 axes acceleration sensor
MUX-NG	Multiplexer
SLA-NG	StrainLink amplifier
StrainLink250-DA	Strain gauge sensor
PS200-NG	Power sensor / amplifier

■ Global Competency

Consulting from one single source, from the initial idea to a complete turn-key solution. We provide the entire workflow: Conception, installation, commissioning, training, optimization and also data for your industry 4.0!

RS AUTOMATION

RS AUTOMATION

YashSanul Co. Op. Hsg. Soc. Bld A-8, Flat no. 2, Pimple Saudagar
Pune – 411027 Mob: +91 9850957065 Email:rks@rsaautomation.in
I ON LINE UPS I AXIS DROP PREVENTER IStabilizer I UPS I Isolation Transformer I Power
Factor Controller I Control Panels I ILED I SOLAR I BATTERY CHARGES I DC POWER SUPPLY I