



# CSM circular saw monitoring

Acoustic optimization of circular saw systems  
Higher productivity and lower costs



SAWING  
WITHOUT  
WORRIES

**fellner**  
engineering gmbh

Return of investment in a few months



# Listen to your saws!

Even with automated systems, the saw blades are often jammed! It then takes hours before the sawing system runs at full speed again - and that costs.



## We have the solution for you! CSM Heartbeat - circular saw monitoring

With CSM Heartbeat you have the option of acoustically monitoring saw blades and reacting in a fraction of a second in case of a problem. The function of the saws is determined by many parameters. As soon as one of these factors deviates from its normal value, the saw blade starts to oscillate. This is recognized by CSM and the feed is optimized to a dimension that prevents the saw blades from vibrating.

Feed increase by braking? Yes, because not every log causes problems. Therefore, the feed can be increased for all logs that do not cause any problems. CSM intervenes only when a log causes problems.

CSM is equipped with numerous variable functions and can therefore be optimally used for different challenges in all company sizes. CSM works fully automatically. An ideal tool to increase the added value and efficiency of your production.



The systems include a highly sensitive microphone, an electronic part and the CSM software, which is integrated into the existing control software.





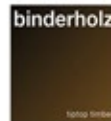
## Your advantages

CSM Heartbeat offers you a variety of optimization options that you can use individually:

- increase in feed and increase in output
- optimal protection of your saw blades
- significantly reduce production errors such as cut deviations caused by overheated, soft saw blades
- use of thinner saw blades
- almost completely prevent downtimes due to defective saw blades
- return of investment typically within 12 months
- increase in the quality of the cut surface

## What our customers say?

With the help of the CSM Heartbeat system we could significantly reduce the costs of saw blades and decrease waste production. We also could better approach the speed limits of thinner saw blades.  
– **Matteo Binder, Managing Director of Binderholz GmbH**



At the start, I could not have imagined that this system would deliver such a big increase in efficiency, especially as the measurement is so inconspicuous. Our saw manager and the sharpening experts are impressed – and I am now, too.  
– **Wolf-Christian Küspert, Managing Director of GELO Holzwerke**



The CSM Heartbeat system enables us to determine the optimum time for changing the saw blades. This has allowed the service life of the saw blades to be extended from about 8 hours up to 24 hours.  
– **Günter Hilmer, former Managing Director of HIT Holzindustrie Torgau OHG**

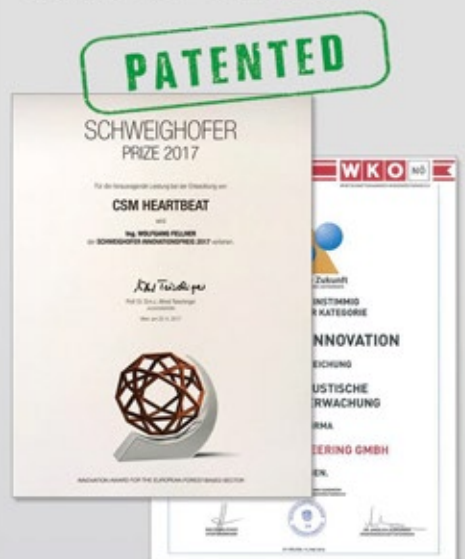


The additional control of the feed rate by the CSM system means the saw blades keep their rigidity significantly longer and do not become soft. This leads to considerably longer service lives and delivers a substantial cost saving.  
– **Heinrich M. Seuffert, Managing Director of the HMS-HOLZ Group**



## Patented system

The patented CSM Heartbeat system was awarded innovation prizes by Schweighofer and the Lower Austrian Chamber of Commerce.

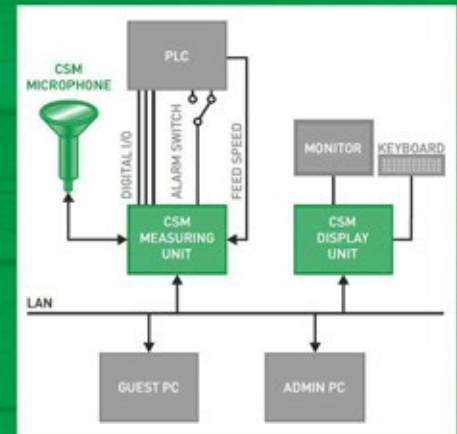




# Construction, installation & service

Acoustic circular saw monitoring consisting of:

- microphone with frequency-optimized sound cone design
- chip and dust protection filter and machine mounting
- A/D converter and floating switch for communication with the control software of the saw line
- monitor to show the results
- two independent Linux systems, one for the measurement and the measurement software, the other for the control and the graphical representation of the measurement
- software for the automatic determination of the instantaneous sound level, the energy-equivalent, average sound level and the statistical level L5 for the automatic determination of the switching value



Depending on the size of the system, two to four measuring systems are used per saw line. The installation of CSM Heartbeat is done in a few hours. It is carried out by our technicians while the plant is running. The maintenance and control of the system is possible worldwide by remote maintenance in 24/7/365 mode.

By "listening ahead" there is the possibility to increase the feed rate considerably - up to 30%! It is also safe to use up to 1/3 thinner and higher saw blades.

In addition, the maintenance cycle of the saw blades is optimized by measuring the average sound level (MAV). If the saw teeth become blunt, the average level increases. In this way, the optimal time for maintenance can be determined. The resharpener is determined by the actual wear and not by the time of use. The service life of the saw blades can be extended many times over.



Sound level measurement curve SPL (top): At 16:35:59 the SPL exceeds the set limit (red area), the feed (blue line) is immediately slowed down briefly. This effectively prevents damage to the saw blades.

Lower measurement curve: long-term curve.





## Modules and expansion options

### Option Recording Events

The sound level values measured to control the sawing line are saved in chronological order as a txt file and graphically displayed. All alarm overruns, average overruns and pauses are also saved and displayed.

### Option Recording Feed

It is important to be able to describe and store the entire process of machining. This option can be used to document whether and how quickly the feed rate of the sawing system is reduced when the set alarm value is exceeded.

### Option Event Statistics

This option is based on Recording Events and Recording Feed and provides the user with the most important parameters determined with CSM at the touch of a button.

### Option Auto Trigger

When wet cutting or cutting frozen wood, the acoustic environment may change due to the wet heavy sawdust. This option adapts the initially set alarm level to the actual acoustic environment parameters.

### Option Multi Alarm

In the case of frequently changing cuts, a calibration measurement must be carried out for each new start to determine the new alarm value. This option assigns alarm switching values to specific cutting programs. 16 different production programs or groups can be read in automatically via digital I/O and the defined alarm values can be set.

CSM Heartbeat options	Standard	Standard+	Premium	Premium+	Superior
Recording Events	✓	✓	✓	✓	✓
Recording Feed	✓	✓	✓	✓	✓
Event Statistics		✓		✓	✓
Auto Trigger			✓ *	✓ *	✓
Multi Alarm			✓ *	✓ *	✓

\* With the Premium and Premium+ options, you have to choose between Auto Trigger and Multi Alarm.



**CSM** circular saw monitoring

## Some of our satisfied customers

**Admonter**  
NATURE'S FAVOURITE DESIGNER



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**Technical support** - remote maintenance in 24/7/365 mode