

# Advanced Machine Condition Monitoring

[Tester T30 with Condmaster® Pro]



● ● ● Strategic monitoring – control your costs



Avoid unplanned  
downtime

Monitor your  
plant stoppers

Early warning  
maintains profit

# Efficient and profitable production [protect it!]

The Tester T30 is a hand-held instrument for periodic machine condition monitoring. It is applied by leading industries all over the world for early fault detection, to avoid production losses through unplanned downtime, and to reduce the overall costs for maintenance.

The Tester T30 uses all three leading condition monitoring methods. On each machine you can select the combination of measurements that best meets your technical requirements:

**Shock pulse measurement on rolling bearings** supplies data on bearing damage, lubrication condition and the effects of alignment and load. In many applications, the bearings are the only machine elements which need monitoring.

**Vibration severity measurement** is the ISO recommended method for general condition monitoring. It detects the most common mechanical faults, such as unbalance, structural weakness, and loose parts.

**Vibration monitoring with spectrum analysis** allows you to target individual fault symptoms and get a machine specific condition evaluation.

In addition, the Tester T30 measures rotational speed and temperature.

You can use the instrument for spot checks, for large scale data collection, and for long-time recording on a single measuring point. The Tester T30 is available in three versions: Basic, Logger and Expert. At all levels, the measuring results are automatically evaluated and displayed against a green - yellow - red condition scale, highlighting all potential trouble spots. By calibrating and adjusting limit values, you can tune the automatic evaluation process with great precision and get an immediate, reliable diagnosis.

The Basic version requires manual recording of measuring results. Logger and Expert communicate with the SPM software **Condmaster<sup>®</sup>Pro**. This fifth generation program downloads measuring rounds from the PC to the T30, and uploads the measuring results for trend evaluation and data presentation.



# What do you need to know?

## [One instrument, many answers]



The latest labour-saving technique: contact-free ID tags load the instrument with all measuring point data and also save the latest measuring results. Aerials for RF transponders are built into the Logger and Expert versions of the T30.



Special transducers for shock pulses and vibration assure accurate measurements. On measuring points that are inaccessible during normal operation, the transducers are permanently installed and connected to measuring terminals.



Speed data are necessary for condition evaluation, and monitoring the machine temperature often supplies valuable information. T30 uses temperature probes for solids and liquids. Speed is measured by contact, or optically from a safe distance.

Condition monitoring is a money saver and in many cases a necessary safety precaution. The aim is to detect developing faults before they become a problem. This becomes ever more important as the production pace increases and unmanned operation is getting more common.

The signals generally used to diagnose machine condition are shocks and vibrations. There are different ways of processing these signals. Make a strategic choice and employ the most cost-efficient method that provides a correct condition evaluation in a given technical situation.

The T30 offers you all the options. With our EVAM® method, you have a powerful tool for vibration spectrum analysis whenever that is needed.

Measuring ISO vibration severity is an easy way to detect most machine faults except bearing problems, and for these you have the SPM method, still unsurpassed in accuracy and reliability.

The Tester T30 has many extra functions. You can measure rotational and peripheral speed. You can measure the temperature of solids and liquids. You can record the readings of dials and meters. You can save written comments to the T30 and attach them to the measurement.

For up to 50 hours, you can make a continuous recording of shock values, vibration, and temperature or rpm. You can put memory tags on your measuring points, loaded with all measuring instructions and the results of the last measurement.

You get evaluated condition readings, immediately. An arrow on the display points at a green - yellow - red condition scale. While still on the spot, you can investigate the causes of any measuring result in the red or yellow zone. That saves time and money.

Take out insurance – it pays ● ● ●



LCD screen, 4 x 16 characters, with automatic backlight

Contact free measuring point identification with CondID™ tags

Instant condition evaluation on green - yellow - red scale

Memory for 500 typical measuring points

Continuous recording of shock pulses, vibration plus speed or temperature for up to 50 hours

Fast data logging: download measuring round, upload results to PC

Saves up to 11 results per point, plus the top 200 spectrum lines and a comment

Sealed membrane keypad for selection and programming

Battery life typical 5000 measurements

Shock pulse transducers: hand-held probe, adapter probe, permanently installed

 EX-proof version available 

Probes for temperature and speed. Connection to PC

Vibrations transducers: hand-held, attached by magnet, permanently installed

Comprehensive measuring functions

Instant condition evaluation

Fast and easy operation

● ● ● Reliable information – stay on top



Perfect overview  
with your own  
location pictures

Alarms highlighted  
in easy to grasp  
colour code

Machine specific  
evaluation of  
vibration records

# Full control with on-line condition data [the best program of its kind]

**Condmaster®Pro** is SPM's universal condition monitoring program, used for hand-held data loggers as well as on-line systems. It operates under all 32-bit Windows versions and uses SQL Server as a database handler.

Purely administrative data is kept at a minimum - you can set up one measuring point for as many as 9 different monitoring tasks, including two free value, user defined measuring functions. You work with your familiar administrative machine data and simply instruct Condmaster®Pro to accept your name and number formats.

The expert knowledge needed to evaluate machine condition is integrated in the program: an extensive bearing catalogue, lubricant data, bearing life calculation, the SPM evaluation rules, the ISO limit values, mathematical models for spectrum analysis and fault symptom detection, and much more.

You define the alarm conditions and set up measuring rounds and measuring intervals. Time planning and other administrative routines connected with measuring, lubricating and other maintenance activities are assisted by the software.

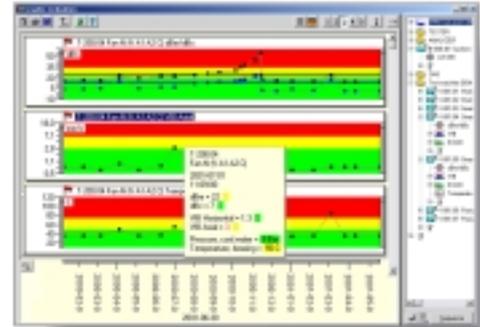
You only activate the measuring functions you need, and automatically blank out all others. Thus, you can work exclusively with hand-held instruments or combine these with the CMS System for on-line condition monitoring.

## A perfect tool for efficient maintenance

For required input data, you get instructive menus, default values and on-line help texts. You have copy and edit functions to save time when you register machines and measuring points.

The most powerful part is EVAM® – Evaluated Vibration Analysis Method. It is much more than the normal spectrum analysing product. In addition to 5 general condition parameters, you can select fault symptoms for special analysis and work with machine specific evaluation criteria.

As always, SPM puts the emphasis on the main requirements of industrial condition monitoring: fast and easy fault detection through automatic data evaluation.



The Condmaster®Pro graphics functions make it easy to follow condition development. Comparing the diagrams for different measured quantities pinpoints the cause of faults, allows estimates regarding the urgency of repairs, and thus efficient maintenance during planned machine stops.

Date/Time	Alarm type	Number	Name
1999-18-27 16:08:00	VIB<380Hz: Unbalance	F-208.02	Fanmotor 0
1999-18-27 16:08:00	VIB<380Hz: Acc	F-208.04	Fan N
1999-18-27 15:59:00	VIB vertical	F-208.01	Fanmotor HD
1999-18-27 15:54:00	VIB horizontal	V-182.07	Fanmotor H
1999-08-22 09:15:00	Oil-Acc	T-202.04	Fan N
1999-07-01 11:09:00	VIB axial	T-202.04	Fan N
1999-07-01 11:09:00	Temperature: bearing	T-202.04	Fan N
1999-04-04 07:38:00	FAOS Out of balance	A-202.04	Fan N

Your main tool for fast fault detection is the alarm list. It is generated on the basis of automatically applied evaluation rules. These you can modify by setting your own alarm limits. After completing a measuring round you can download the alarm list to the T30 and re-check all measuring points with high values.



An Evam® spectrum highlights the selected fault symptom and displays its velocity value in relation to overall machine vibration.

## Some hard facts

Condition monitoring demands more than smart instruments and computer programs. You have to work in an industrial environment and cope with heat, noise, oil, chemicals, and your machines are neither built nor located to give you accessible measuring points.

SPM has solved these environment problems in all branches of industry. We can offer you all the necessary equipment, from remote measuring points for hand-held instruments to full-scale automatic monitoring systems, and worldwide technical support and service.



## Technical data for Tester T30

### Shock pulse (SPM® dBm/dBc)

Measuring range: - 9 to 99 dBsv  
Resolution: 1 dBsv  
Accuracy: ± 1 dBsv

### Vibration severity (ISO 10816)

Measuring range: 0.5 to 49.9 mm/s RMS  
Resolution: 0.1 mm/s  
Accuracy: ± (0.2 mm/s + 2% of reading)  
Frequency range: 3 to 1000 Hz

### Vibration analysis (EVAM®)

Window: Hanning  
Number of samples: 1024 / 2048  
FFT result: 400 / 800 spectrum lines  
Frequency range: 3 to 5000 Hz  
Lines displayed: 15 highest, toggle Hz / cpm  
Lines saved: 1 to 200 highest

### Speed measurement

Measuring range: 10 to 19 999 rpm optical  
Measuring distance: max. 0.6 m  
Resolution: 1 rpm  
Accuracy: ± (1 rev. + 0.1% of reading)

### Temperature measurement

Measuring range: -20 to +350 °C  
Resolution: 1 °C

### Instrument specifications

Temperature range: 0 to +50 °C  
Power supply: 6 x 1.5 V LR6 alkaline cells  
Battery life: power down 1 year, or 5000 readings, or 50 hours recording  
Instrument size: 255 x 105 x 60 mm  
Weight: 0.85 kg  
Casing / cover: ABS / polyurethane  
Keypad: sealed membrane  
Display: LCD, 4x16 characters, LED backlight  
Memory: typical 500, max. 999 points  
Backup, memory/clock: approx. 24 hours

## It grows on you . . .

More basic functions than ever, and more additional features. Choose what you need now. You can deselect measuring functions by choosing only those accessories you want to use.

You can easily upgrade, at any time.

Measuring techniques and other features	Tester T30		
	Basic	Logger	Expert
Shock pulse, dBm/dBc	●	●	●
Vibration severity, ISO 10816	●	●	●
Temperature measurement	●	●	●
Speed, contact and optical	●	●	●
Continuous reading	●	●	●
Transducer line test	●	●	●
Battery test	●	●	●
Time and date display	●	●	●
Version ID display	●	●	●
Language selection	●	●	●
Automatic display light	●	●	●
Automatic idle, power off	●	●	●
Ex-proof design available	●	●	●
Data logging with Condmaster®Pro		●	●
Measuring point recognition		●	●
Long-time recording		●	●
Free value recording		●	●
Comment recording		●	●
Check point reminder		●	●
Vibration spectrum			●
Evaluated vibration analysis			●

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CE Ex Ex-proof design available



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