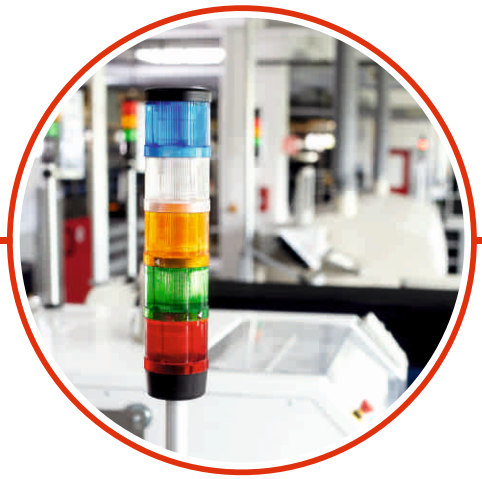
WERMA
SIGNALTECHNIK

Improve Operation Efficiency

Lean Production Solutions

Made in Germany



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"It is not that we have too little time in which to do things, rather that we have too much time which we do not use."

Lucius Annaeus Seneca

LEAN PRODUCTION. WITH WERMA SIGNALTECHNIK

Optimisation of production techniques and processes are part of the daily challenges facing many companies today. Mature structures and less than transparent processes often lead to mistakes and wastage.

RECOGNISE THE POTENTIAL

In operations with complex machinery, processes and systems it is often difficult to quickly recognise potential for improvement and take action. A production team will however have a great interest in this and will want to improve productivity and use of assets.

BE MORE PRODUCTIVE

WERMA has taken a particular interest in Lean Production techniques and is in a position to offer support to other companies. Various products and system solutions have been developed which can contribute to reducing costly processes, release hidden capacity and lead to improvements in competitiveness. All in the interests of your company and employees.

From data collection to a simple "call for action" system, WERMA Signaltechnik offers low cost solutions to aid Lean Production.

FACTS AND FIGURES

Improve or reduce your key performance indicators with Lean Management techniques.

5 % Productivity increase

3 % Improvement in efficiency

50 % Reduction in lost production time*

100 % Reduction in non essential activities*

The figures quoted above were achieved following the introduction of Lean Production techniques in the WERMA manufacturing facility.

*direct on the line

- Improve transparency
- Increase productivity
- Strengthen flexibility
- Reduce downtime
- Save costs and time

"THE WIN SYSTEM CAN BE RETRO-FITTED TO EXISTING INSTALLATIONS WITHOUT DIFFICULTY. THE SELF-EXPLANATORY SOFTWARE WHICH GIVES CONTINUOUS INFORMATION ON STATUS CHANGE AND FAULTS IS IMPRESSIVE."

Joachim Gottwald, Maintenance Manager
Hansgrohe SE (Bathroom equipment)

Machine Shop Monitoring.
Quickly and simply with WIN

It can be difficult to obtain a comprehensive visual overview of machine activity in large machines shops where some may often be hidden from view.

WERMA offers an easy to install simple low cost wireless monitoring system called WIN (Wireless Information Network) which can be fitted to virtually any piece of equipment or machinery, irrespective of age and specification. WIN combines signal tower technology with wireless technology and an ingenious software package. The common interface point on machines is a WERMA signal tower to which the WIN (MDC – machine data collection) system can be easily fitted and commissioned.

Analyse Productivity at the touch of a button. With WIN

An additional element called the "WIN slave" is fitted to the Kombi*SIGN* signal tower. This transmitter transfers machine status information wirelessly to the "WIN master" (Receiver). The "WIN master" is connected by USB to a PC and can receive data from up to 50 "WIN slaves" each reporting a maximum of 8 different status conditions. Status changes are saved to a database and the software provides you with a comprehensive overview of the status of the machine shop or workstations.

Excellent transmission range. With wireless technology

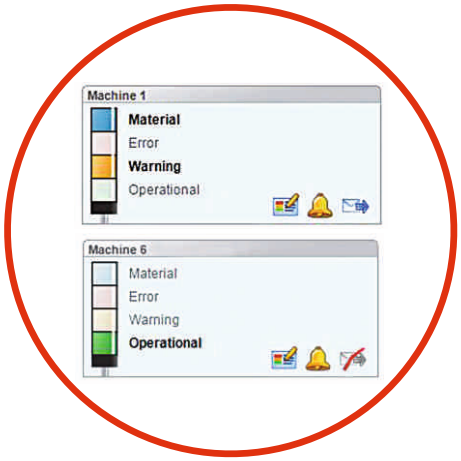
The WIN system has a transmission range (unobstructed line of sight) of 300 m although this will vary according to the construction of the building.

In addition, as each "WIN slave" acts as a repeater, effective transmission distances in a network of "WIN slaves" can be extended to a maximum of 900 m distance between "WIN slave" and "WIN master". The low 868MHz frequency the system uses provides better transmission characteristics than other systems such as WLAN and Bluetooth.

- No hard wiring
- Can be retro-fitted
- Impartial monitoring system
- Reduction in downtime

Intuitive. The WIN software

The software supplied with the system is licence-free and easy to install. There is no restriction on the number of users who may wish to install and run the program. The software displays the status condition of signal lights installed in the system and the user can select from three languages, German, English or French. The software enables the user to analyse runtimes, identify causes of disruption in operations and therefore improve efficiency.

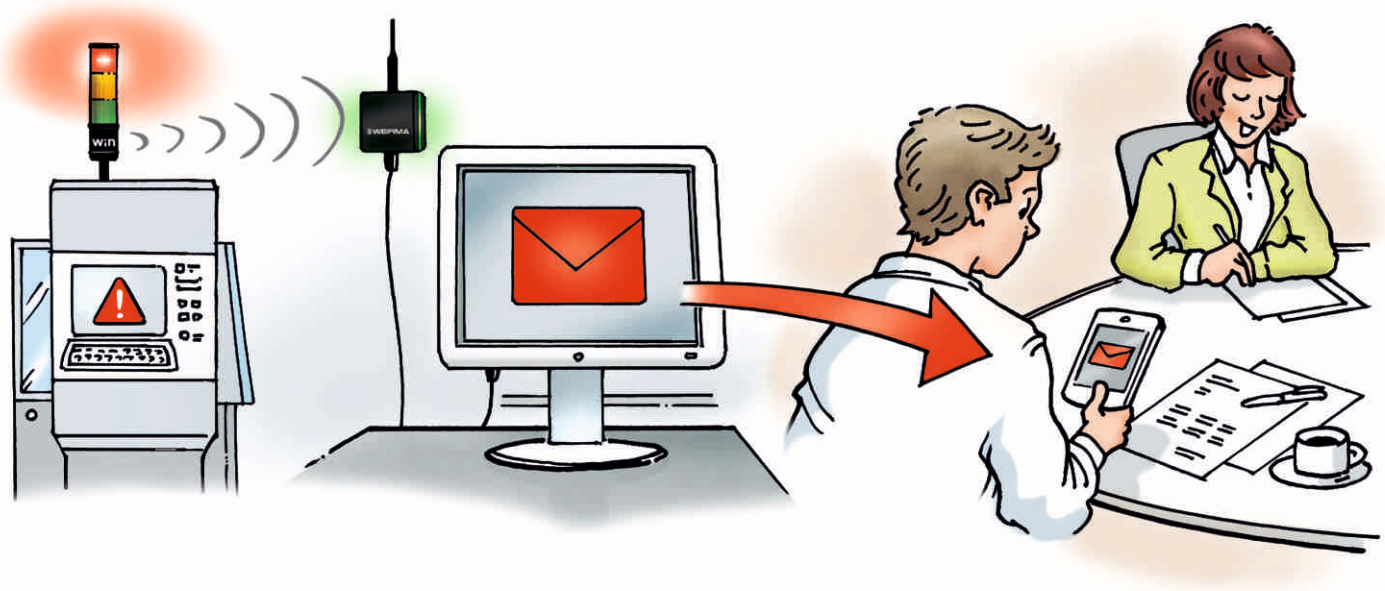


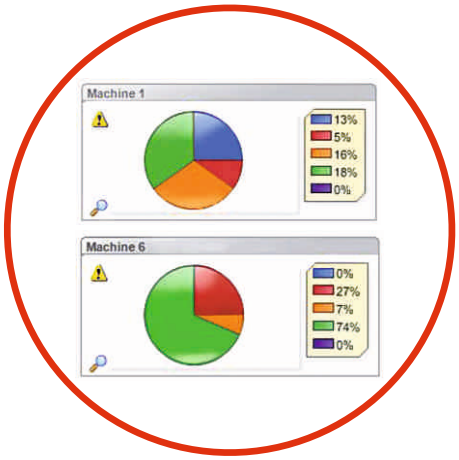
React quickly. Control Station

Do you know which machine is currently not operational?
The Control Station shows you the operating condition of all machines or workstations being monitored so you can quickly see if a machine is in an error condition or running normally. This module helps you to quickly take action to reduce downtime. You can install a layout of your workshop in the control station view.

Keep up to date with changes. Messaging Service

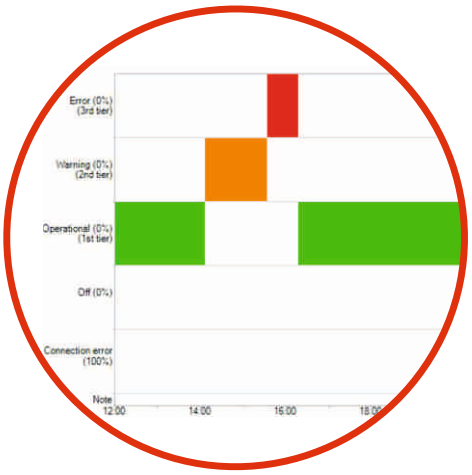
How quickly can you react to breakdowns?
It is no problem for WIN to keep you informed anytime anywhere about condition changes. For example a condition change can trigger an email to be sent automatically to a PC or smart phone. You can select for which machines and which condition changes an email is generated and also set a time delay before the email is sent.





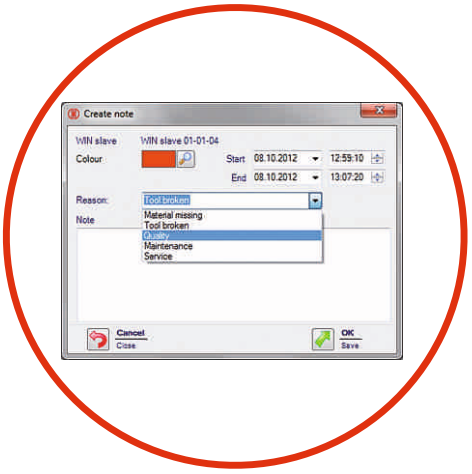
Increase Efficiency. Productivity Module

Do you know how productive your machines or workstations are?
Using the Productivity Module you can check the productivity of your machines and workstations over any time period. You can look for example at the last working day, or define specific time periods such as shift patterns. Using this module it is possible to retrospectively analyse downtime and fault conditions and thus help improve efficiency in the future.



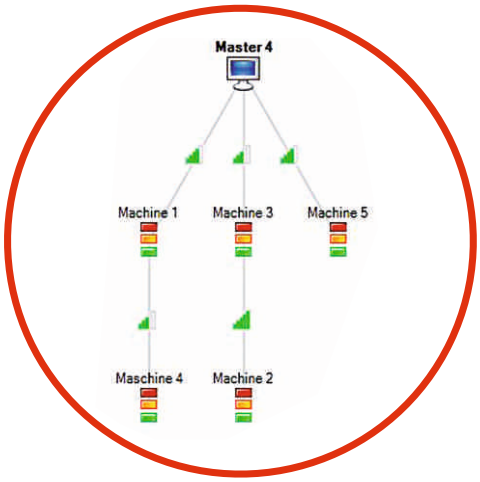
Obtain Transparency. Runtime Module

Do you for how long your machines or workstations are down?
The Runtime Module allows you to check the operation and downtimes of your machines or workstations. Using this module you will quickly establish if there are patterns of downtime or fault conditions thus giving you a better transparency of production. This will then form the basis for improving the efficiency of your production processes.



Document problems. Error analysis

Why is the machine or workstation out of action so often?
Identify, comment and analyse the fault conditions. First of all define the most common reasons for fault status occurring, for example material shortage. Should this condition, or any other defined condition arise, once you have identified the reason for the fault condition this can be entered as a "note" in the Runtime Module. The number of fault conditions will also be shown and thus will assist in resolving the reasons for the frequency of particular fault conditions.



Stability of the Network. Routing Module

How is the WIN network actually set up?
The Routing Module assists in setting up or adjusting the best network for WIN. The route network graphic shows the current set up of the WIN network and the signal strength of each "WIN slave". Each "WIN slave" will automatically select the best route back to the "WIN master" either directly, or indirectly.

Include a range of users. Multiple Operator Access

Who can use the WIN system?
The software uses a structure based on a database and can be used by any number of users. The database needs to be copied over to a shared drive on your network to allow multiple users access to the system. There is no restriction on the number of users who can install the licence-free software and work with it. All users who have the software installed on their PC and have access to the shared drive database can see the performance of machines or workstations in real time and edit the views to their personal requirements.

- No licence fees
- Easy to install
- Free of charge updates
- Analyse and optimise production processes
- Intuitive software

STARTER KITS. WIN ORDER SPECIFICATIONS

WERMA offers two starter kits for immediate use to monitor your machines or workstations. Just select the appropriate kit for your application. Extensions to the network are possible at any time simply by adding additional products.

WIN complete

The **"WIN complete"** starter kit contains everything you need to monitor three machines or workstations wirelessly - plug and play.

WIN complete for Kombi*SIGN* 71 **860 640 03**

- Three Kombi*SIGN* 71 signal towers (three LED permanent light elements in red, yellow and green, terminal element and base with integrated tube)
- Three WIN slaves (Transmitters) - pre-configured
- WIN master with USB cable (Receiver)
- Software CD

WIN system

The **"WIN system"** starter kit is designed for those users who already have WERMA signal towers in use or who wish to configure their own signal towers. The modular "WIN slave" units are simply fitted to the existing WERMA signal tower and the system is ready for use once the "WIN master" and the software have been installed.

WIN system for Kombi*SIGN* 71 **860 640 01**
WIN system for Kombi*SIGN* 70 **860 840 01**

- Three WIN slaves (Transmitters) - pre configured
- WIN master with USB cable (Receiver)
- Software CD

ADDITIONAL ITEMS. ORDER SPECIFICATIONS

If you wish to extend your network simply select from the items listed below. The WIN network can handle up to **50 "WIN slaves"** and **four** "WIN masters" within an installation.

WIN slave

WIN slave for Kombi*SIGN* 71 **860 640 02**
WIN slave for Kombi*SIGN* 70 860 840 02

- WIN slave - not pre-configured

WIN master

WIN master **860 000 00**

- WIN master with USB cable (Receiver)
- Software CD

"Thanks to the WIN System we have clear transparency of our manufacturing process and have achieved an increase in productivity of 1-2%. The pre-requisites for this success? Working with it daily and acceptance of it by staff members."

Zoran Zemun, Production Manager
pretema GmbH (Precision engineering for electromechanical applications)

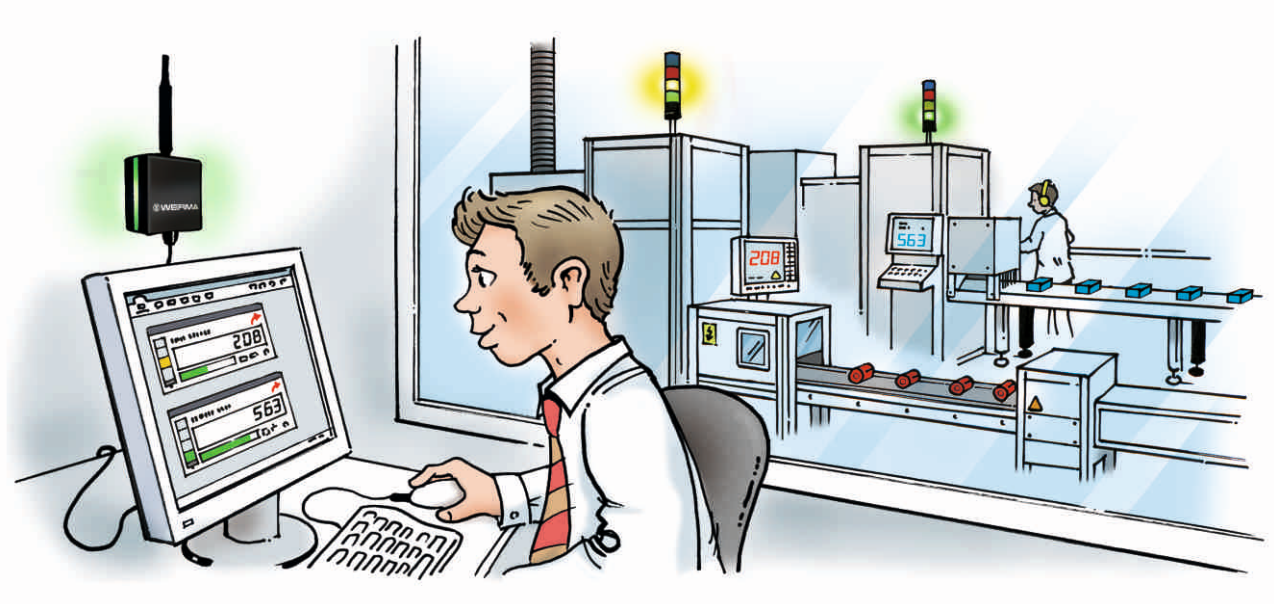
Enhanced Functionality.
With WIN slave performance

Delivery performance, smaller batch sizes, increasing competition and pressure on costs are all common issues for companies nowadays. In order to deal with all of these issues greater attention has to be paid to flexibility, transparency and efficiency. Without technical support it is virtually impossible to reduce downtime, shorten production times and at the same time install a comprehensive works monitoring system in order to make the best use of the capacity available.

Counter module. With WIN slave performance

WERMA is able to offer you a further Lean Production solution. The new software called "WIN slave performance" offers alongside the traditional monitoring functions a counting module. The "WIN slave performance" monitors up to six different status conditions and counts the piece part output signal from a machine. The data is then transferred wirelessly to the "WIN master" and saved in the database.

The WIN system can be extended to include additional functionality. The introduction of the "WIN slave performance" into the WIN system network offers increased functions.



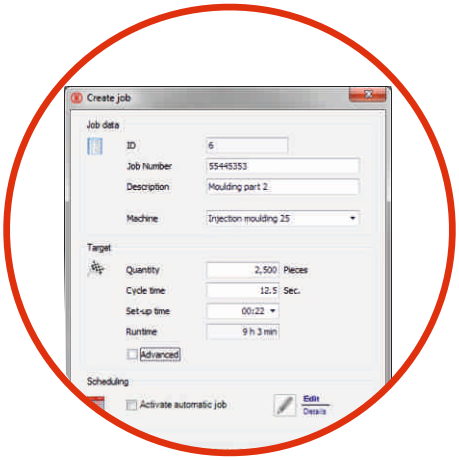
Monitor the progress of a job.
With the WIN software package

Together with the new hardware the WIN software offers enhanced functions. The status conditions of the signal towers in the network are displayed on the PC. You can input a job with the planned number of pieces which can then be compared with the actual numbers being recorded by the system. In this way you have an immediate view of the progress of a job up to completion.

- Capture part count, set up time and cycle time
- Reduce throughput time
- Continuous comparison of plan/actual values
- Improve capacity utilisation

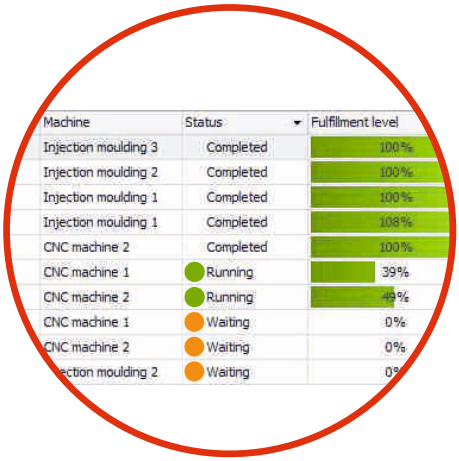
Additional functions.
With WIN slave performance

The new WIN software offers additional functions and analytical capabilities with the new hardware. The new functions allow you to reduce downtime, help to reduce wastage and identify process problems quickly. Both the standard "WIN slave" and the new "WIN slave performance" can be used within the same network.



Management of the job

How do you enter machine job information?
The Job Module allows you to enter job detail manually. Input for example the plan numbers such as the number of pieces to be produced and then select the machine on which the job is to be run. The software allows you to input and save future jobs.



Overview of jobs being run

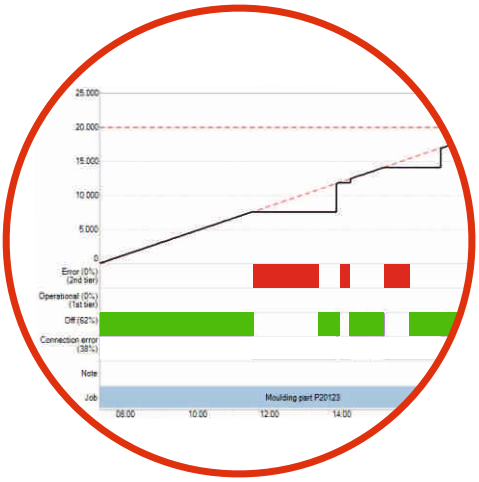
Do you know what is being produced on which machine?
The module gives you a comprehensive overview of which job is running on which machine and how the job is progressing. Future planned jobs are shown as "waiting" and can be initiated as soon as the machine required is available.

React quicker. Control station module

Do you know how each machine is progressing with a job?
The Control Station view shows the status of up to 50 machines and the jobs being worked on. Any change in status can thus be reacted to promptly. You can see the performance progress of jobs on each machine immediately.

Improve Performance. Productivity Module

Do you know the capacity utilisation of your machines?
Time frames, such as the night shift, can be selected and analysed. The analysis is carried out in just seconds. The planned against actual analysis of parts produced gives an immediate view of the performance of the machine.



Transparency of Orders in Progress. Runtime Module

Why did the night shift produce so little?
The runtime module helps you to analyse jobs in progress and identify interruptions or errors and document them. Help to reduce inefficiencies by identifying the duration of and frequency of interruptions to production.

- Optimised planning
- Overview of jobs running
- Real time view of performance
- Reduce downtime
- System can be extended

Starter Kits.
Order Specifications WIN slave performance

WERMA offers two "WIN performance" starter kits for machine status and part count monitoring. Just select the appropriate kit for your application. Extensions to the network are possible at any time simply by adding additional products.

WIN complete performance

The **"WIN complete performance"** starter kit contains everything you need to monitor three machines or workstations wirelessly - plug and play.

WIN complete with WIN slave performance for Kombi*SIGN* 71 860 640 13

- Three Kombi*SIGN* 71 signal towers (three LED permanent light elements in red, yellow and green, terminal element and base with integrated tube)
- Three WIN slaves (Transmitters) - pre-configured
- WIN master with USB cable (Receiver)
- Software CD

WIN system performance

The **"WIN system performance"** starter kit is designed for those users who already have WERMA signal towers in use or who wish to configure their own signal towers. The modular "WIN slave" units are simply fitted to the existing WERMA signal tower and the system is ready for use once the "WIN master" and the software have been installed.

WIN system with WIN slave performance for Kombi*SIGN* 71 860 640 11
WIN system with WIN slave performance for Kombi*SIGN* 70 860 840 11

- Three WIN slaves performance (Transmitters) - pre-configured
- WIN master with USB cable (Receiver)
- Software CD

Additional Items. Order Specifications

If you wish to extend your network simply select from the items listed below. The WIN network can handle up to **50 "WIN slaves** performance" and four "WIN masters" within an installation.

WIN slave

WIN slave performance for Kombi*SIGN* 71 860 640 12
WIN slave performance for Kombi*SIGN* 70 860 840 12

- WIN slave performance - not pre-configured

WIN master

WIN master 860 000 00

- WIN master with USB cable (Receiver)
- Software CD

A WORTHWHILE INVESTMENT.
ALSO FOR YOUR OPERATION

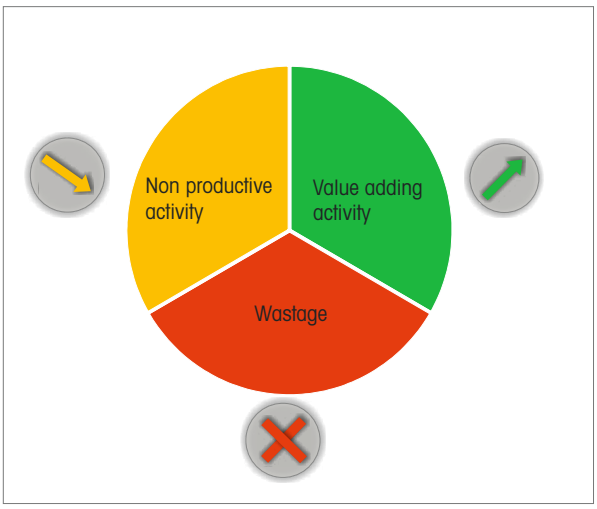
Lean Production solutions offered by WERMA Signaltechnik have helped improve productivity in many companies, and we are sure that they will help you in your company too.

OPTIMISE, REDUCE AND ELIMINATE. WITH WIN

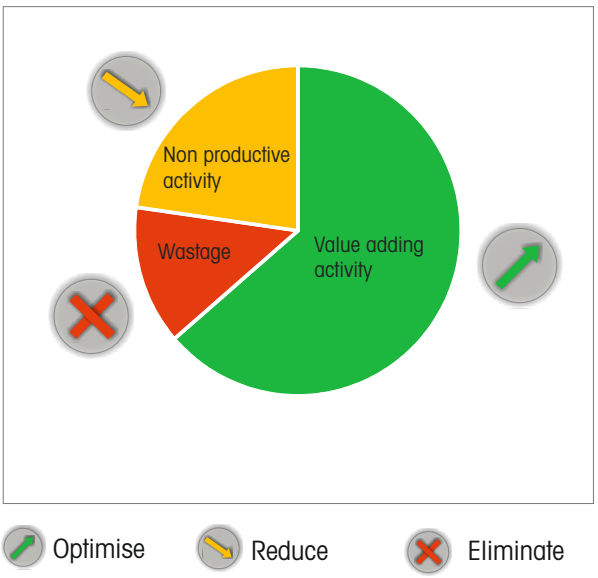
Excess production, long waiting times, high stock levels and operation errors are just a few examples of wastage. In addition there are other daily non productive occurrences such as unnecessary handling or movement of parts and inadequate processes.

A process thought to be essential today may be redundant tomorrow. In order to reduce wastage and non essential activities short term counter measures alone are not enough. The WIN products from WERMA help you to continuously monitor the status of machines, equipment and workstations and to carry out analysis with a simple mouse click. In this way you can evaluate and optimise all elements in your value added chain.

Value added chain before installation of Lean Production solutions from WERMA



Value added chain after installation of Lean Production solutions from WERMA



AMORTISATION CALCULATION

The low cost MDC system WIN can be amortised quickly.

By installing WIN wastage and downtime of a particular machine or workstation is reduced by x%:

Planned utilisation 2 816 hrs p.a.
(On the basis of two shifts and 80% capacity utilisation)

Saving p.a. x%	Saving p.a. Hours	Saving p.a. Euro
1%	28	1.830,00
2%	56	3.661,00
3%	84	5.491,00

Conclusion: With an **investment of €3000** and a reduction in wastage and down time of 2% WIN has paid for itself in 0.8 years.

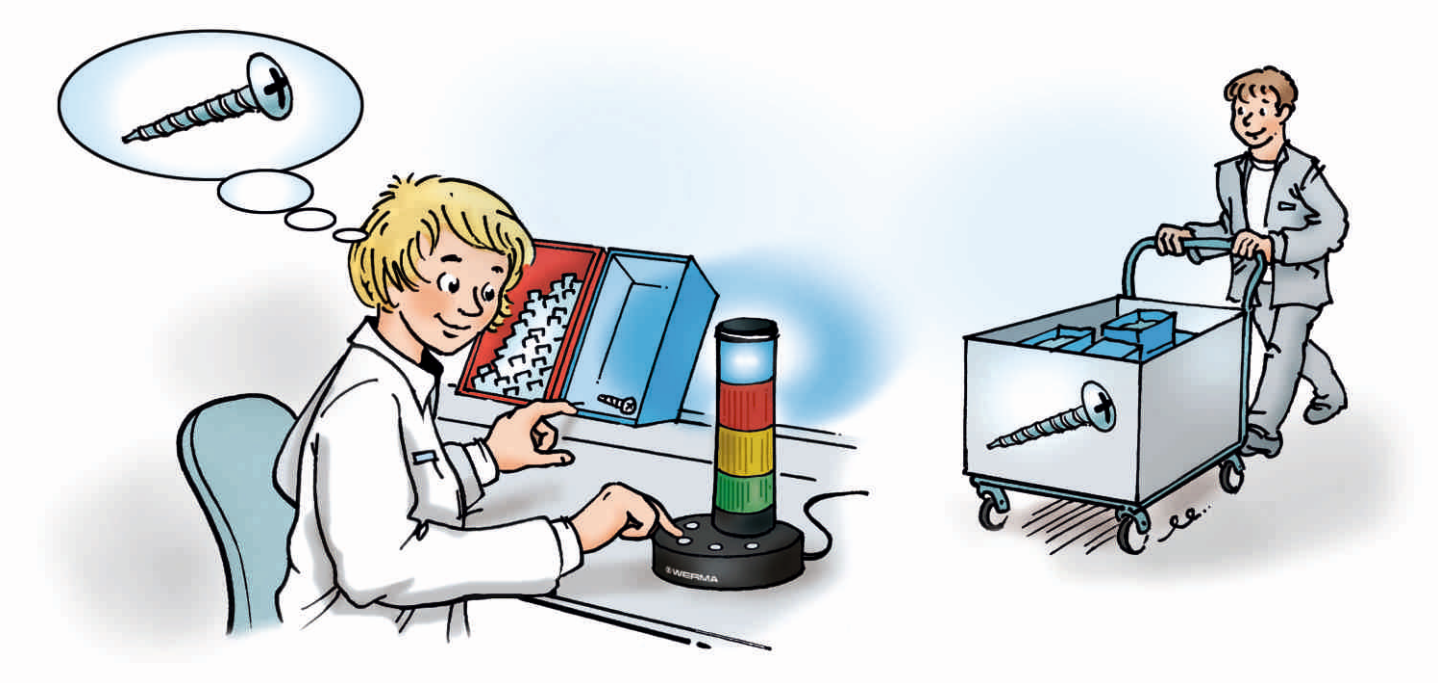
"Thanks to the simple wireless Andon system we now have the ability to organise a rapid response to problems and disruptions to production and therefore reduce downtime."

Erich Martin, Manufacturing Director
WERMA Signaltechnik GmbH + Co. KG

EVENT-SIGNALISATION-ACTION. WITH ANDON

The word "Andon" comes from the Japanese language for a lantern or warning light and is used nowadays to describe a lighting system clearly visible to all to indicate a change in a status or a warning that immediate action is to be taken. Using Andon lights not only improves the efficiency of production processes but also optimises valuable resources leading to cost reductions and becoming more flexible to changes in market demand.

The activation of a signal light or sounder by the operator alerts the supervisor or the relevant department that immediate action is required. Each workstation equipped with an Andon light allows the operator to signal exactly what the problem is by pressing the appropriate switch for the optical or audible signal device installed.



THE RIGHT SOLUTION. FOR EACH APPLICATION

WERMA Andon lights can be used in a wide number of applications; for optimising kanban processes to packing lines or assembly areas.

A particular feature is that all Andon products can be used in combination with the WIN system enabling a large network of up to 50 call points to be built up either as a monitoring tool or as a simple "call for action".

- Quick process optimisation
- Visualisation of status condition
- Call for action
- Very simple installation

ANDON PRODUCTS. ORDER SPECIFICATIONS

WERMA offers a wide range of Andon product solutions for a variety of applications. These options may include whether or not the signal tower is positioned away from the Andon product or if the tower would be an integral part of it. The signal tower is not supplied with the Andon product so you might be able to use the signal towers already in place or select the signal tower for your specific requirements.

Andon*CONTROL* (for integral signal towers)

The Andon*CONTROL* from WERMA can activate up to eight different status conditions. The call system is fitted with smart electronics using four switches to activate the required status change. For example a shortage of material A can be signalled by the permanent yellow light whilst material B shortage could be indicated by the yellow light blinking. The switch buttons on Andon*CONTROL* can be labelled according to your specific status conditions.

Andon*CONTROL* for Kombi*SIGN* 71 **860 640 07**
Andon*CONTROL* for Kombi*SIGN* 70 **860 840 07**

- Andon*CONTROL*
- Power supply unit
- Plug adaptors for EU, UK and North America
- Non slip rubber feet on base

Andon*SWITCH* (for remote signal towers)

This is the ideal solution for applications where the signal tower will be installed remotely from the Andon product. As the signal tower can be installed virtually anywhere suitable in the workshop to ensure optimum visibility when the signal light is activated the operator still only switches the appropriate light on by the touch of a switch. The relevant member of staff will be able to see the signal light illuminated as a call for action and respond accordingly. The call system is fitted with smart electronics and illuminated switches using four switches to activate the required status change with up to eight different status condition changes being available. The switch buttons on Andon*SWITCH* can be labelled according to your specific status conditions.

Andon*SWITCH* **860 000 04**

- Andon*SWITCH*
- Power supply unit
- Plug adaptors for EU, UK and North America
- Non slip rubber feet on base

Andon*BOX* (for remote signal towers)

Activating one of up to four push button switches illuminates up to four different signal tower lights. The simple switch box is robust and lends itself to industrial applications. The push button switches are supplied with colour coded caps and in addition each push button can be labelled for the appropriate function.

Andon*Box* **860 000 03**

- Andon*BOX* with M12 mounting
- Power supply unit
- Plug adaptors for EU, UK and North America
- Non slip rubber feet on base
- Push button switch caps in red, green, yellow, white and blue

Andon Product Accessories. Order Specifications

Bracket

The bracket can be used with Andon*CONTROL* and Andon*SWITCH* for wall and rail mounting.

Bracket, metal	975 883 01

Cable

A 5m cable with single connector for use with Andon*SWITCH* or Andon*BOX* to ensure optimum location of a signal tower positioned away from the Andon product.

M12 connector with 5m cable	960 860 01

The right product for the job

Wireless Monitoring

All Andon products can be used together with the WIN system. The WIN functionality enhances the practical solutions provided by the Andon products. Quicker response times to status changes can be obtained with WIN in combination with Andon products as the WIN software shows the status changes locally on individual PC screens which can be particularly useful in more complex operations.

Signal towers

Andon products function best when combined with WERMA signal towers. Select for yourself from the range of modular and pre-assembled signal towers to be found in our main catalogue.

Choosing the appropriate signal tower combination couldn't be easier by using our "Signal Tower Configurator", a selection tool to be found on our website www.werma.com. Alternatively scan the QR code alongside and enter the online world of WERMA.

TEAMWORK. WIN COMBINED WITH ANDON PRODUCTS

In large manufacturing operations or manual working environments it is often not possible to have good visual contact with each and every workstation. WERMA has an appropriate package of solutions – by combining the WIN wireless monitoring system with Andon products a central overview of up to 50 machines or workstations can be obtained. This capacity can be increased by installing up to a maximum of four "WIN master" receivers.

This solution is achieved simply by adding the "WIN slave" to the signal tower combined with the Andon product. The slave then send status condition changes wirelessly to the "WIN master" connected to a central PC. The user friendly WIN software can then show additional functions such as productivity and run time analyses. The comprehensive software layout on the PC screen simplifies the overview of the operation of both machines and workstations.

THE WHOLE PROCESS IN VIEW.

THANKS TO LEAN PRODUCTION SOLUTIONS

Unacceptable delays become a thing of the past with this neat wireless monitoring solution. Better transparency of both machines and workstations will ensure capacity and resources are better employed. Delays will be reduced. WERMA products have an additional advantage in being able to combine different families of products with each other. The combination of Andon products with both "WIN slaves" and "WIN slaves performances" is possible at any time without the need for additional costly hard wiring.

- Monitor machines and workstations with just one software package
- Very simple installation
- Can be extended at any time

Satisfied Customers. Some of our references

"Thanks to the WIN System we have clear transparency of our manufacturing process and have achieved an increase in productivity of 1-2%. The pre-requisites for this success? Working with it daily and acceptance of it by staff members."

Zoran Zemun, Production Manager
pretema GmbH
Precision engineering for electromechanical applications

"The WIN system can be retrofitted to existing installations without difficulty. The self-explanatory software which gives continuous information on status change and faults is impressive."

Joachim Gottwald, Maintenance Manager
Hansgrohe SE
Bathroom equipment

WERMA
SIGNALTECHNIK

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