

Архангельск (8182)63-90-72
Астана (7172)727-132
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06

Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81
Киргизия (996)312-96-26-47

Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Казахстан (772)734-952-31

Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Россия (495)268-04-70

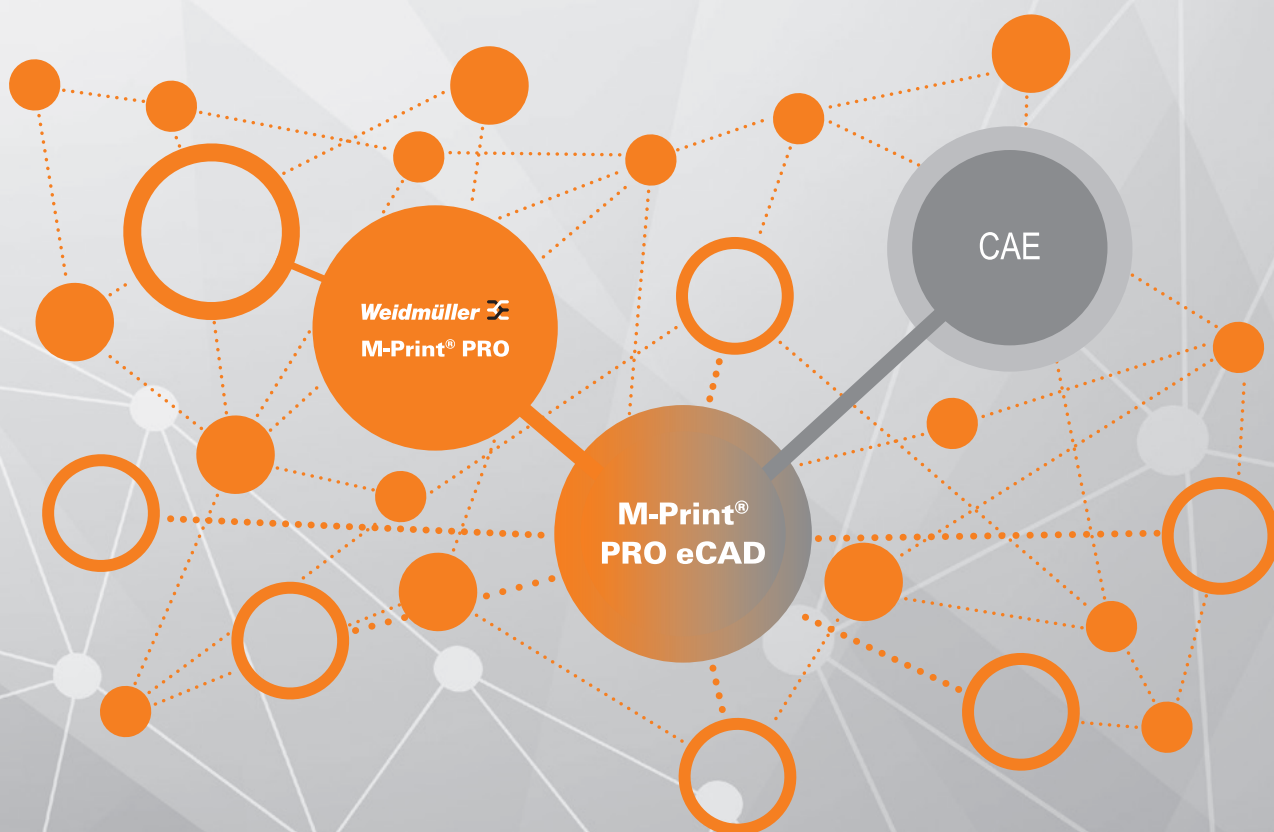
Сургут (3462)77-98-35
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

<https://weidmuller.nt-rt.ru/> || wde@nt-rt.ru

Integrating marking into the configuration process

Systemised marking with M-Print® PRO eCAD

Let's connect.







Contents

Labelling in the process – integrated, customised, automated

- 4 The automated marking process
- 5 Data management
- 6 Integrated marking process
- 8 Savings potential
- 9 Synergy effects
- 10 Improved efficiency
- 11 Potential

Introduction

The value of the M-Print® PRO eCAD interface

To the point

In conjunction with the M-Print® PRO software and electrical engineering tools, the interface M-Print® PRO eCAD integrates reference labelling into the entire product development process. This means the interface makes a valuable contribution to increasing quality, accelerating market readiness and ensuring more satisfied customers despite reduced development costs.

Motivation for integrating the marking process into configuration

There is no doubt that the demand for '*made in Germany*' machines and systems remains as high as it has ever been worldwide. But demands have changed, and people now want more performance for less outlay.

The fast-growing complexity of systems calls for an increasing number of elements to the automation process. These need to be cleverly organised and interconnected. For the operator, the key goals are error-free operation and transparency in the network of applications and interfaces.

In line with the statutory regulations on product liability and quality assurance, clear, permanent marking of equipment is becoming increasingly important. It provides the option of seamless traceability of all system components.

This is why we have extended our entire system of software, marking and printers to incorporate the M-Print® PRO eCAD interface. This user-friendly interface is an add-on to electrical engineering software and enables intelligent, automated component marking.

The fact is that if you draw up plans today without using the intelligence of modern eCAD systems, you will lose valuable time at the production stage. After all, it is only detailed documentation together with evaluation runs which makes interactions in the control cabinet transparent. If equipment labels are transferred manually from the plans, or the markers are labelled by hand, both quality and efficiency suffer. The same applies to the use of markers which are not tailored to the components and installation site.

The aim of embedding the marking process into planning with CAE software is therefore specifically to optimise the downstream processes. This means that the marker information defined during configuration will be constantly available at every stage of product development.

This method specifically digitalises the work steps which require the greatest precision, but are currently mostly carried out by hand. It offers huge potential in terms of improving efficiency and quality in procurement, assembly, commissioning and later maintenance. M-Print® PRO eCAD is therefore a pioneer in terms of Industry 4.0.



A valuable connection

M-Print® PRO eCAD, the add-on for electrical engineering software

To the point

The built-in marking process guarantees that all components are labelled. This helps assembly and service technicians to identify components more quickly and assign them clearly. This reduces project lead times and increases project throughput.

Once saved as a template, the marker data can be reused and makes a significant contribution to standardisation when it comes to product development and quality control.

Data management for the digitalised marking process

The M-Print® PRO eCAD interface combines electrical engineering software with M-Print® PRO for the design and output of markers. The basis for the optimum design of a control cabinet with marking is complete documentation.

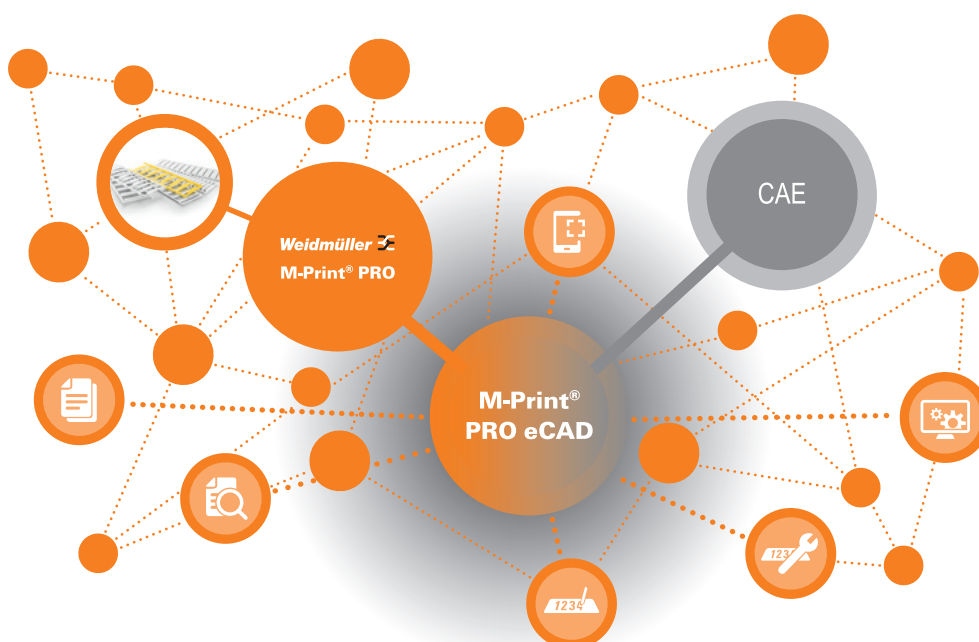
This requires some information:

- What is the best marker for the equipment?
- Is it a component or spare part for which labelling is mandatory?
- How should the labelling be formatted?
- Does the marking need to include information in the form of bar codes, images, pictograms or similar?

For project-specific, manufacturer-independent marking of all components, information is collated from a range of data sources:

- The consistently digitised marking process requires the use of article libraries including the Weidmüller Industrial Connectivity range and all marker data.
- M-Print® PRO eCAD combines assigned markers and labelling texts and transfers them to M-Print® PRO.
- The M-Print® PRO labelling software defines the content of the labelling, its format and the printers to be activated.

The combination of labelling, marker types and content data, including formatting and printer activation can be saved as a template in M-Print® PRO for future projects.



The desire for comprehensive automation in control cabinet construction

Marking in the automatic process chain

To the point

Data generated at the beginning of the engineering process can be reused in all phases of the project. The continuous flow of data offers potential for synergies and increased efficiency along the whole production chain.

M-Print® PRO eCAD



PRELIMINARY PLANNING

- Definition of labelling system
- Norms and standards
- Import of macros
- Use of pre-defined component/marker relations (templates)



DETAILED PLANNING

- Component labelling as per application (font type, size and colour)
- Virtual wiring incl. marking
- Terminal connection diagram
- M-Print® PRO import script

Marking process as an integrated element of engineering

The markers defined in the engineering process pay off at every project milestone.

Preliminary planning

Even at the preliminary planning stage, additional labelling information can be of use, this means that while the system is being designed according to the specifications, potential solutions and methods can be evaluated and the latest technologies researched. This is particularly recommended for plant components which, due to their operating environment, require particularly robust labelling or specialised safety instructions to ensure personnel safety.

Detailed planning

During the project, the different labelling systems and markers are defined with their relevant information.

They are part of the circuit diagram and can be considered in the project parts list.

Marking

The marking corresponds to the file generated in M-Print® PRO. This contains all the labelling information and provides the output to the relevant printers in the right order for assembly. Using the optimum marker type for each component does not necessarily mean an ever-growing marker store. The labelled markers can be produced internally or procured partially or in full from Weidmüller, even for small quantities. M-Print® PRO offers a convenient order function for this.



MARKING

- Generation of print data for the marking process with M-Print® PRO eCAD
- Project parts lists
- Printing of markers
- Ordering of individually printed markers



INSTALLATION

- Assignment by drawing
- Assembly of all control cabinet elements



COMMISSIONING

- Testing acc. to drawing
- Option for exact traceability



MAINTENANCE

- Orientation based on consistent marking of components
- Option for exact traceability

Installation

Based on the complete documentation consisting, among other things, of wiring diagrams, connection and setup plans, the installers can assign the components and their markers quickly and accurately.

Commissioning and Maintenance

Commissioning and maintenance technicians can also benefit from the combination of complete plant documentation and professional, durable labelling: components can be quickly identified and are easily traceable thanks to barcode labelling.

The optimised marking process

Significant cost saving along the entire value chain

Savings potential of M-Print® PRO eCAD

In order to survive in highly dynamic markets, there is a need for continuous optimised efficiency in product development. Streamlined processes ensure improved cost and time management. Safe and optimised processes increase quality and reinforce delivery reliability- which all helps with increasing customer satisfaction and quicker return on investment.

Standard marker

Time consuming

- Installation of individual markers

High costs

- Manual identification and labelling

Limited quality

- Component assignment not clear
- Inflexible markers because of fixed specifications

Markers from plans

Time consuming

- Manual identification from plans

High costs

- Manual identification

Low quality

- High potential for errors
- Manual recording from plans

Markers based on Excel

Optimised time required

- Manual Excel data import

Reduced costs

- Improved process for identification, labelling and marking

High quality

- Flexibly printed marking

Preliminary planning as the source of automated marking

The first optional project phase is used for machine and system design. Among other things, project parameters such as standards and customer specifications are defined and automation macros imported.

Even at this early project phase, labelling information can be assigned and new component/marker relations defined or existing ones extended. This can be relevant, for example, for operators in specific industries or applications. Specifically when guidelines such as REACH

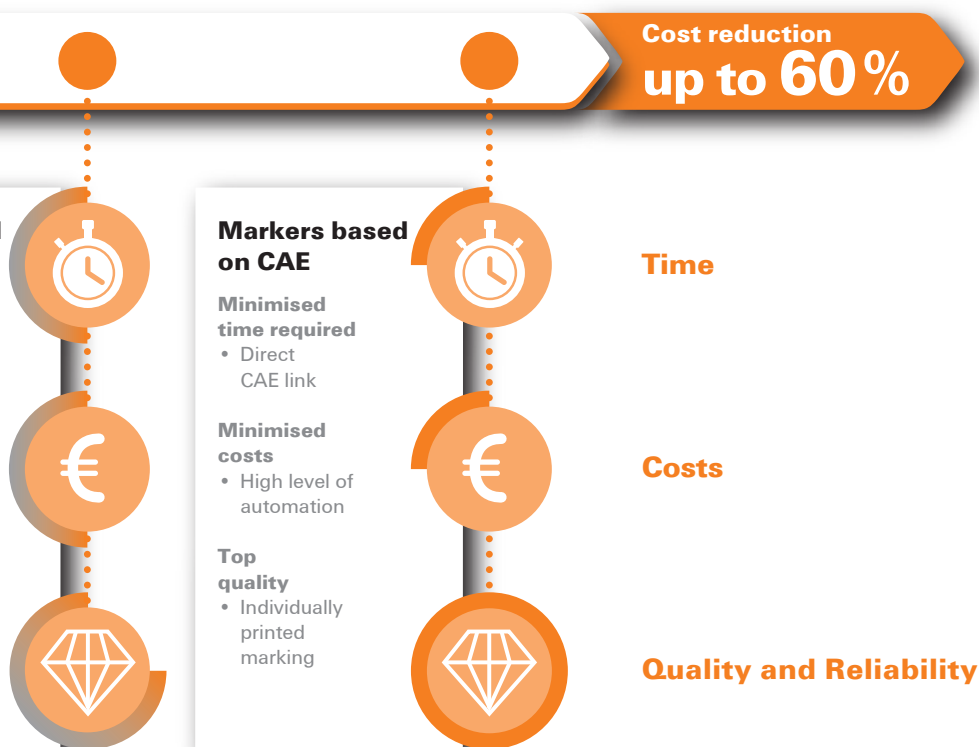
(Registration, Evaluation, Authorisation and Restriction of Chemicals) or the British WEEE directive (Waste Electrical and Electronic Equipment) need to be complied with. These require special markers, as does ISO 7010 for the global standardisation of hazard symbols. It also applies to the labelling of machines, devices, applications and control cabinets.

The integration of preliminary planning into the configuration guarantees that the project data defined at this stage is applied continuously.

The marker data can be expanded during the detailed planning phase.

Reduced time-to-value thanks to automated marking

Subsequent processes benefit from real synergy effects



To the point

The planning of the markers is very flexible. Labelling templates improve standardisation, reduce maintenance and improve the quality of the end product.

M-Print® PRO eCAD digitises the downstream processes, eliminates error sources and gives a clear overview in the control cabinet.

Utilising the benefits of both systems in detailed planning

M-Print® PRO eCAD supports CAE software users wishing to add permanent labelling of their switches control cabinets and associated devices.

When producing circuit diagrams, the symbols are linked to the relevant components in the used library. Missing components can be downloaded and marker information added if the information is not already available.

In this best-practice process of assigning symbols and part data, suitable markers are suggested to the user from which he can select the optimum marker type.

This information is supplied by the engineering software to M-Print® PRO, the software used to define and manage the labelling in detail in terms of font type, size, text position, etc.

The perfect transfer of this project data in M-Print® PRO is either via the M-Print® PRO eCAD CAE interface or via an import process. A wide range of different file formats can be processed.

There is an option whereby the import assistant generates a script which is saved and used as a template for future projects.

Ultimate efficiency in procurement

Generated print-ready in the project: the markers

To the point

The user receives a print-ready file which is complete and free of errors. This reduces the creation time for markers and guarantees increased quality.

The right marker for every application

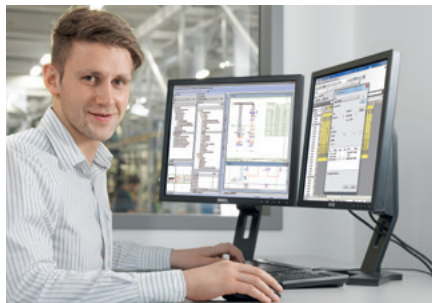
Weidmüller part data provides the optimum marker option for terminals, devices and cables.

This part data is prepared centrally in M-Print® PRO for automatic printout on Weidmüller printing systems - individually and flexibly for every order. This means that it is project-specific for the industry, the application, the control cabinet and independent of the product.

For the generation of different markers, such as MultiCard, MetalliCard, labels or heat shrink sleeves, the relevant system printers, such as PrintJet, THM or MCP are activated.

The markers can be produced internally or on site. Depending on the component and the environment, different printing technologies can be used. Ink technology is recommended for smudge-proof markers, thermo-transfer technology for heat shrink sleeves and colour printing for pictures and safety instructions in the form of pictograms.

Alternatively, users can use the Weidmüller delivery services - even for small quantities.



Complete documentation speeds up control cabinet construction

High levels of transparency means components are easy to identify

Installation, commissioning, maintenance and orientation made easy

Complete product documentation speeds up assembly, as all the components can be clearly assigned. Based on this documentation, markers are generated and suggested to the installers in the correct working sequence.

Whether individual wires, cables, switchgear, terminal clamps, components, devices or whole systems to be labelled - the correct selected marker types can be affixed without tools. This guarantees not only fast installation but also norm-compliant and durable labelling.

For commissioning and maintenance, the combination of complete documentation and clear labelling of all components makes interactions within the control cabinet immediately transparent. It is easier for the technicians to find their way around, which makes their work simpler. The documentation can also be searched for a specific label and checked for completeness.

The markers with barcodes also guarantee seamless traceability of components. This makes additional procurement much easier, especially when components have been discontinued.

Last but not least, the directive-compliant markers help technicians by means of colours, symbols and graphics, as well as conspicuous safety instructions - without relying on a specific language.

To the point

The marking integrated at the configuration stage increases the safety and quality of the processes along the whole value added chain. This has a positive effect on product development costs.

If users capitalise on the standardisation potential of best practices with EPLAN and the complete M-Print®-PRO package, the consistent structure of switchgear and marking has a positive effect on speed and quality in the workshop, on site and in operation. After all, the different systems are characterised by consistent labelling.



Weidmüller – Your partner in Industrial Connectivity

As experienced experts we support our customers and partners around the world with products, solutions and services in the industrial environment of power, signal and data. We are at home in their industries and markets and know the technological challenges of tomorrow. We are therefore continuously developing innovative, sustainable and useful solutions for their individual needs. Together we set standards in Industrial Connectivity.

Архангельск (8182)63-90-72
Астана (7172)727-132
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06

Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81
Киргизия (996)312-96-26-47

Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Казахстан (772)734-952-31

Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Россия (495)268-04-70

Сургут (3462)77-98-35
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

<https://weidmuller.nt-rt.ru/> || wde@nt-rt.ru