

LOTO MSL 1.1 Standard

GUIDE

MSL 1.1 Standard - Lockout/Tagout

2024




JUST
3 STEPS TO
A SECURE
LOTO SYSTEM!

LOTO ACCORDING TO MSL 1.1 STANDARD
Locking and marking - finally easy & safe!

LOCKING SYSTEMS
For every area, the perfect locking.

LABELING SYSTEMS
With our systems, clearly marked.



Our Environmental Promise 

MAX Systems produces over **60% solar power** from its own PV system. Most of the plastics for our products are made from recycled materials.

You can help:
Return empty spools, cores, cassettes and sleeves. We will reward you. Or make sure that the plastics get back into the plastic cycle
Thank you!

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MSL 1.1 Standard

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FOREWORD

Over 90% of all accidents are caused by human error. There are always situations that cannot be premeditated or excluded, so that protection from accidents due to human error are not 100% possible. However, there are safeguards that can reduce the number of these errors, especially in the area of occupational safety. LOTO can help here.

Are you interested in LOTO and would like to familiarize yourself with the LOTO System? Or do you already have a security system and want to improve it?

In order for the LOTO system you introduce to be understood and followed by your co-workers, you should follow the following guiding principle:
Keep it simple!

In the following guide, we will show you a way to introduce a simple LOTO system in just three steps. Many lock manufacturers and dealers make this subject very complicated and complex in order to earn money with uncertainty and fear. That is unnecessary! The simpler a LOTO system is, the safer it is, because it is understood by everyone and can be easily applied while working on machinery and energy sources. If all workers can trust the system, it is a secure system. A LOTO system must be run in the respective national language with all its components. We at MAX Systems will be glad to help you with the implementation and will be happy to assist you in all your needs! MAX Systems is a distributor for LOTO products from different manufacturers and is a manufacturer of customized labelling solutions. MAX Systems has created the MSL 1.1 standard for German as well as other country specific requirements, to make work safer.

SECURE LOTO SYSTEM? - KEEP IT SIMPLE.

What is LOTO?

LOTO is the abbreviation of Lockout Tagout, in english „lock and tag“. Lockout Tagout stands for the secure locking and tagging of energy sources during the maintenance and repair of machines and equipment. It was developed in the US, where the number of accidents at work has already been reduced by over 70% thanks to LOTO. Lockout Tagout is becoming increasingly popular in Europe too.

What is the MSL 1.1 Standard?

The MSL 1.1 Standard was developed by MAX Systems to simplify the introduction of a secure lockout tagout system. According to our standard, the start in a LOTO system can already be made with three locks. The use of different closing locks avoids accidents resolving from the incorrect removal of locks, since it is not possible to switch on the system until every employee has removed their lock. The clear labelling of systems and energy points according to MSL 1.1 is the cornerstone of a successful and secure LOTO concept. It ensures understanding and avoids errors during use. A successful implementation of the concept requires training of all concerned employees. Due to the simple system, this can be done in a maximum of 30 minutes.

In 3 steps to a safe LOTO system according to MSL 1.1 standard:





INTRODUCTION OF A LOTO SYSTEM ACCORDING TO MSL 1.1

Step 1:

Naming and labelling of machines, equipment and areas

A clear identification of the machines, systems and work areas enables a clear identification and creates clarity for all employees.

- Attach identification label to the machine
- Attach notes (notes on the applicable shut-down procedure, for the main responsible employee, on the energy points (number, type and location) and on possible non-unlockable energies)
- Mark energy points
- Clearly identify non-releasable energies
- Create shutdown procedure (lockout)

See Pages 15-17 for more information on our LOTO labels.

What are shutdown procedures?

A shutdown procedure is a description of the steps required to safely shut down a particular machine and installation for service and maintenance. The processes, together with information about the responsible person and the required equipment, are summarized in a checklist.

Development of shutdown procedure:

Create your shutdown procedures based on the created identification labels and energy point labels. The development of shutdown procedures requires knowledge of the machines and equipment. Because of this, we advise you to do this work step by step together with the relevant staff. Subsequently, the checklists for the shutdown procedures should be made available to every employee. This can be done analogously (e.g. as a notice, sign or folder) or digitally (e.g. PDF or software).

The gradual establishment of a shutdown procedure (checklist) avoids errors.

Example:

- Preparation, prepare tools and materials
- Inform staff (Reason? How long? Goal?)
- Shut down in the prescribed order
- Observe special cases in case of emergency shutdown etc.
- Drain, discharge, block, secure or dissolve stored energies and kinetic energies
- Isolation of energy points with locking systems. Lock and Flag Arrow-Circle-Right Lockout Tagout
- Check freedom of energy!

Step 2:

Provide interlocks

According to your machinery and equipment, you should have sufficient shut-off devices in stock and locks with a locking system that suits your operation. For this we recommend padlocks in different colours according to MSL 1.1. For many areas there are universally applicable locks. This saves you money and makes every lock efficient.

Our staff would gladly take the time to display the various locks on site with samples - or you can use our LOTO sample boxes.

Just contact us! Tel.: +49 (0) 47 63 / 9 45 950 or info@maxsystems.de.

- Provide shut-off devices for the identified energy points
- Provide interlocking locks in the appropriate colours
- Provide attachment labels

Step 3:

Instructing staff

After the MSL 1.1 Standard, you create an easy to understand and effective Lockout Tagout system. The training of the employees takes a maximum of 30 minutes. Afterwards each employee understands the function of the LOTO system and can use it reasonably.

Further notes:

- Scope: The LOTO system should apply to all internal and external staff.
- The Industrial Safety Ordinance may need to be adjusted and changed.
- If necessary, adapt the regulations for work on the corresponding energies.



CLASSIFICATION OF LOCKS ACCORDING TO MSL 1.1

Green: Signal Lock

It is the first lock placed on the group lock and it is the last lock that is taken to release the keys for the power points (machine locks). Every machine, facility, area or process has a green lock and a group lock.



Red: Machine Lock

The machine locks are group locks, which must be available starting with a number of two energy points to be locked.



Blue, Yellow & Orange: Staff Locks

The locks for the employees are personalized and have only one key (different closing). There is no MasterKey for these locks. Locks marked with the name of each employee provide a direct overview of which employee is currently working on the machine or system. For this, engravings on the locks or individual labels, possibly with a QR code can be used as a more flexible variant.



Turquoise, Violet & White: colours for employees or group assignments

Depending on the employee structure or worker columns, these colours can be used. These are also personalized locks.



Black: Manager Lock

Can be used if it is only allowed to be switched on again after certain consideration and consultation with the management or for work that extends over several shifts or days.



Example of Use

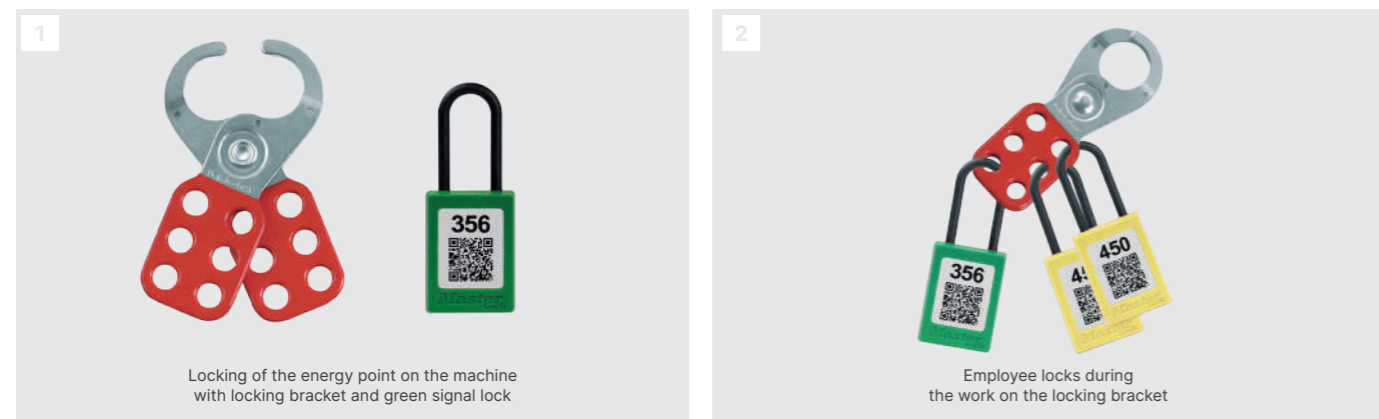
A lock for electrical connections with a locking bracket and three employee padlocks.

Here: yellow by an electrician, blue by a locksmith and a green signal lock.

EXAMPLES OF LOCKING SYSTEMS ACCORDING TO MSL 1.1

Example 1:

Machine with 1 energy point: electrical energy
2 employees: 2 electricians



Process:

The machine is switched off by the department manager and secured against being switched back on with a locking bracket and a green lock.

As the two electricians start their work, they each bring their yellow lock to the interlocking bracket for intrinsic safety. Once the work is done, it will be reported to the supervisor and both electricians will remove their yellow lock from the interlocking bar.

The supervisor then removes his green lock and the machine can be turned on again. A red machine lock is not necessary here, as there is only one energy point.

Example 2:

Machine with 3 energy points: electrical energy, compressed air and process water
5 employees: 2 locksmiths, 2 electricians and 1 contractor employee



Process:

The department head takes the red machine locks for the 3 energy points and locks the energy points of the machine.

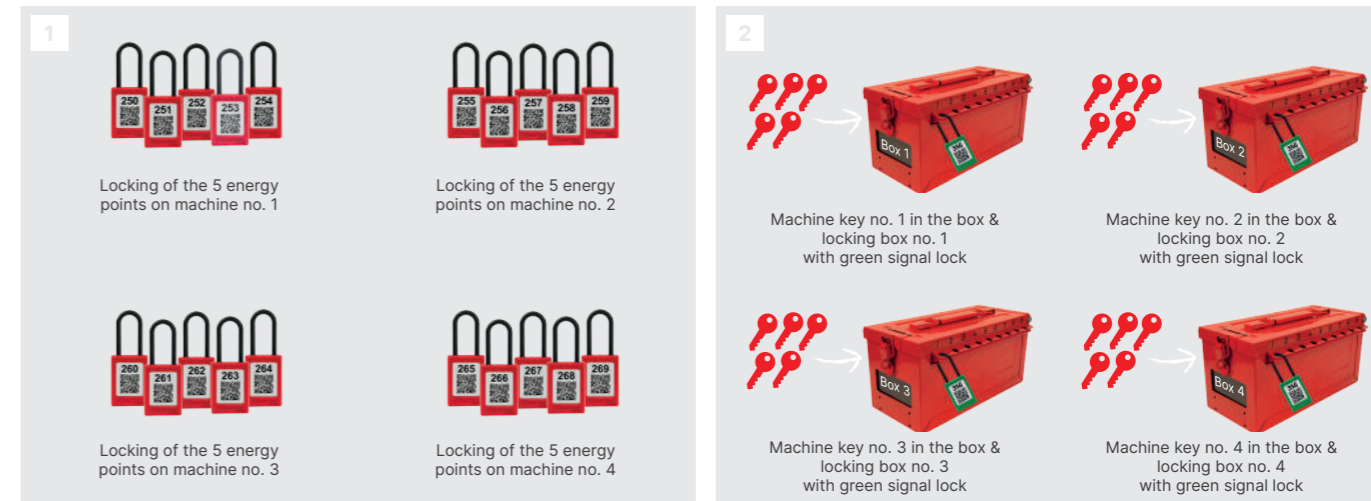
He then puts the three keys of the red locks in the group locking box and locks them with the green signal lock.

The five employees can now safely start their work. Everyone puts their personal lock into the group locking box.

After the work is completed and staff have gradually removed their personal locks from the group locking box, the head of department can remove the green lock and release the power points with the keys of the red locks he removes from the group locking box. Then the machine is restarted.

Example 3:

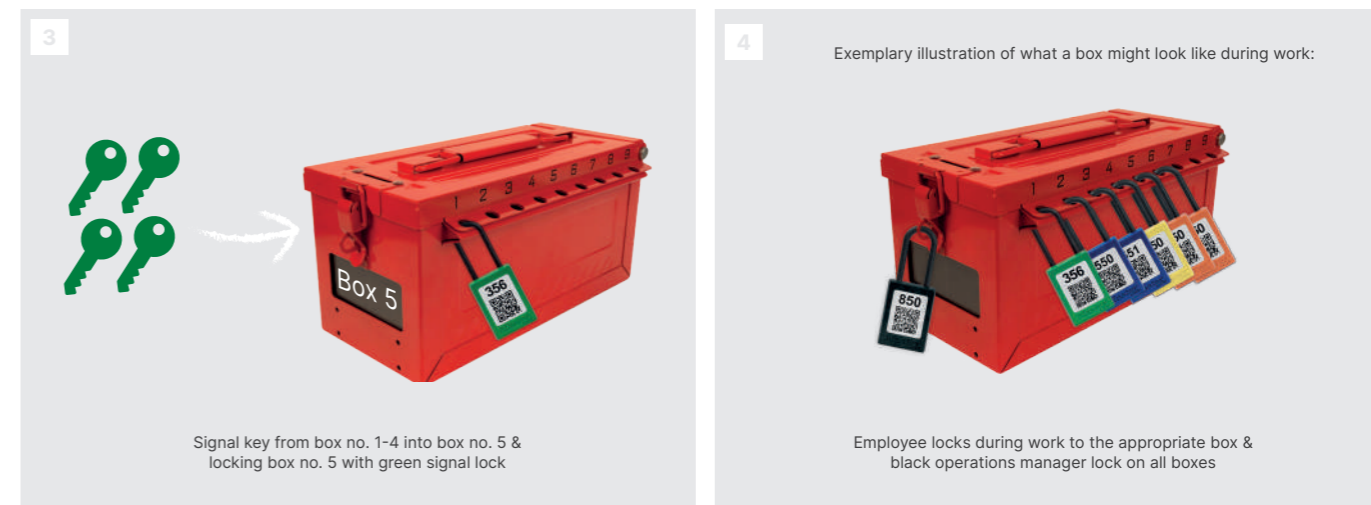
Plant with 4 machines in 3 buildings integrated in one process. Each machine has 5 energy points.
8 locksmiths, 4 electricians and 6 contractors worked on the overhaul of the system for 4 days.



Process:

The manager or the authorized person switch off all 4 machines. The energy points are secured against reconnection with the red locks.

The keys are inserted into the corresponding group locking box. The authorized person places the green locks on the group locking box for the respective system. There is now a group locking box for each machine.



The keys of the 4 green locks are now placed in a fifth group locking box and secured again with a green lock.

All internal and external employees hang their personalized lock on the respective group locking box of the machine they are working on. The works manager hangs a black lock on each group locking box while working, thus preventing general restarting.

When all the work has been completed, the employees have removed their locks and the works manager has taken over the work, the system can be restarted completely to specification.

It is clear in all examples that you can start with only three locks in a LOTO system and this system is extensible to infinity. A system purchased from MAX Systems is always expandable!

EVERY LOCKING SYSTEM - TRY IT OUT NOW!



LOTO SAMPLE BOXES

Try our locking systems for yourself! We have put together a selection for different application areas for you. Test for 4 weeks which system suits you best and send the rest back for free!

LOTO Sample Boxes For free / Item No. 304943



Example: Electric locks



Order selected LOTO products or the starter set and test the entire assortment free of charge on request!

Phone: +49 (0) 47 63 / 945 950
Mail: info@maxsystems.de

ORDER - TEST
KEEP OR RETURN!



We give on all LOTO products in the first year 10% special discount - When purchasing a labeling system from us.

Just talk to us!

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LOTO MARKING

Attachment Labels

An important part of Lockout Tagout is the unique marking. Simply point out possible dangers and prohibitions with our attachment labels! The labels can be universally attached to any lock.

- Can be used indoors or outdoors
- Material: plastic 0.5 mm



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Or visit our onlineshop:
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Item No.	Description	Size	Content	Pice/UoS
304894	Portrait format with print "Do not operate"	80 × 147 mm	10 Pc.	15,00 €
304893	Portrait format with print "Do not operate! Work is underway"	80 × 147 mm	10 Pc.	15,00 €
304892	Portrait format with print "Work is underway"	80 × 147 mm	10 Pc.	15,00 €
304897	Portrait format with print "Do not operate"	80 × 147 mm	10 Pc.	14,00 €
304895	Portrait format with print "Do not operate! Work is underway"	80 × 147 mm	10 Pc.	14,00 €
304896	Portrait format with print "Work is underway"	80 × 147 mm	10 Pc.	14,00 €
301315	Deluxe label storage	558 × 279 × 101 mm (WxHxD)	empty	128,00 €

Lockout Tagout Labels

With our LOTO labels you automatically label according to MSL 1.1 standard! All you need is a LabelMax labeling system from MAX Systems. Talk to us - we will be happy to advise you!

SCAN ME & ORDER ONLINE!
Or visit our onlineshop:
shop.maxsystems.de/LOTO/



LOTO Identification Label
Contains all the important information about Machine/System/Area: Shutdown, Main Responsibility, Employees, E-points, non unlockable energies.



LOTO Energy Point Label
Identification of the energy points



Lock Labels
Easy allocation of your locks for a smooth workflow.



LOTO Energy Point Label
Marking non unlockable energy points.



Key Labels
Easy assignment of your keys. Made of tear resistant polyester film.



LOTO Foil Tape Marking
Beginning/end of non-releasable energies.

**WITH OUR LOTO LABELS YOU
AUTOMATICALLY LABEL
ACCORDING TO MSL 1.1 STANDARD!**

LOTO MARKING

Just use our LOTO labels - with these you automatically mark according to MSL 1.1 Standard. The labels are compatible with the entire LabelMax Series (including the LabelMax SP3, LabelMax One LabelMax VS1 and the TagRec Station). New in the bunch is the LabelMax MP1 - your compact companion! Specially developed for mobile use, we have also provided a selection of LOTO labels for this system.

For more information on our labeling systems, see page 20-21.



We offer our LOTO labels in two different film variants:

The vinyl films are cadmium-free and feature excellent resistance to UV light, chemicals and moisture. They are perfect for indoor and outdoor use. The film cassettes are protected by a sleeve so that you always have optimum protection of the material when changing the film.

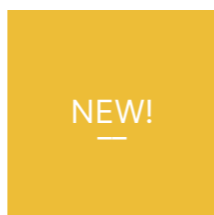
Max Premium

A highly adhesive vinyl film for extremely long-lasting markings. Max Premium is the perfect film for, for example, plant and machine labeling.

Max Premium Plus

Very strong adhesive vinyl film that adheres excellently to low energy surfaces and also has very good adhesion to lightly soiled surfaces. Ideally suited for permanent markings in harsh environments.

Lockout Tagout Labels for LabelMax MP1:



LOTO Identification Label

Size in mm	pc./Roll	Max Premium		Max Premium Plus	
		Item No.	€/Roll	Item No.	€/Roll
50x25	300	112197	49,00	112557	59,00
50x75	120	112196	49,00	112558	59,00

Lock Labels

Size in mm	pc./Roll	Max Premium		Max Premium Plus	
		Item No.	€/Roll	Item No.	€/Roll
30x25	300	112133	43,00	112559	49,00

LOTO Energy Point Label

Size in mm	pc./Roll	Max Premium		Max Premium Plus	
		Item No.	€/Roll	Item No.	€/Roll
50x50	190	113102	68,00	113103	78,00

LOTO Energy Point Label

Size in mm	pc./Roll	Max Premium		Max Premium Plus	
		Item No.	€/Roll	Item No.	€/Roll
Ø50	190	113100	68,00	113101	78,00



Lockout Tagout Labels for LabelMax Series:

LOTO Identification Label

Size in mm	pc./Roll	SignMax Template	Max Premium		Max Premium Plus	
			Item No.	€/Roll	Item No.	€/Roll
100x150	175	MSL100x150	110508	193,00	113092	226,00
50x75	450	MSL50x75	110509	175,00	113093	204,00

Lock Labels

Size in mm	pc./Roll	SignMax Template	Max Premium		Max Premium Plus	
			Item No.	€/Roll	Item No.	€/Roll
30x25*	750	MSL30x25	109941	93,00	113098	112,00

*More sizes on request.

Key Labels

Colour	P	Size in mm**	pc./Roll	SignMax Template	Polyester film	
					Item No.	€/Roll
white	P10	35x10	1000	MSL35x10	110514	109,00
yellow	P13	35x10	1000	MSL35x10	110734	109,00
black	P21	35x10	1000	MSL35x10	110735	109,00
safety green	P24	35x10	1000	MSL35x10	110736	109,00
orange	P30	35x10	1000	MSL35x10	110737	109,00
safety red	P32	35x10	1000	MSL35x10	110738	109,00
silver	P34	35x10	1000	MSL35x10	110739	109,00
violet	P38	35x10	1000	MSL35x10	110740	109,00
traffic grey	P43	35x10	1000	MSL35x10	110741	109,00
safety blue	P44	35x10	1000	MSL35x10	110742	109,00
transparent	P50	35x10	1000	MSL35x10	110743	109,00

**two parts.

LOTO Energy Point Label

Size in mm	pc./Roll	SignMax Template	Max Premium		Max Premium Plus	
			Item No.	€/Roll	Item No.	€/Roll
100x100	250	MSL100x100	110510	192,00	113904	224,00
50x50	450	MSL50x50	110511	165,00	113095	175,00

LOTO Energy Point Label

Size in mm	pc./Roll	SignMax Template	Max Premium		Max Premium Plus	
			Item No.	€/Roll	Item No.	€/Roll
Ø100	250	MSL100	110512	191,00	113096	223,00
Ø50	300	MSL50	110513	114,00	113097	134,00

LOTO Foil Tape Marking


Description	Colour	Size	Item No.	€/pc.
Film Cartridge	red/white striped	30 mm x 30 m	113122	105,00

LOTO STARTER SET



ONLY
189 €

instead of 506,40 € plus VAT

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LOTO LABELING SET








When buying a LabelMax labeling system & a LOTO starter set:

FOR FREE*
You save 702 €!

LOTO Starter Set

Item No.	Product	Colour	Locking system	Number	Price per pc.	Total
 304692	Group Locking Box	red	-	1	169,40 €	169,40 €
 305072	Lock SF40AN	red	Various locking	4	13,00 €	52,00 €
 305073	Lock SF40AN	green	Various locking	1	13,00 €	13,00 €
 305183	Lock SF40AN	blue	Various locking	3	13,00 €	39,00 €
 305227	Lock SF40AN	yellow	Various locking	2	13,00 €	26,00 €
 305076	Lock SF40AN	orange	Various locking	2	13,00 €	26,00 €
Item No.	Product	Size	Motive	Number	Total	
 304945	Lock Label	-	Number range 001-012	24	18,00 €	
 304946	LOTO-Ident-Label	100 × 150 mm	Number range 100-150	50	50,00 €	
 304947	LOTO-Energy Point-Label	100 × 100 mm	Number range 300-450	150	100,00 €	
 304894	LOTO Attachment Label	80 × 147 mm	„Do not operate“ (portrait format)	10	13,00 €	
PDF template for the shutdown procedures						
12x LOTO key bands						
					TOTAL VALUE:	506,40 €
					OUR OFFER:	189,00 €

LOTO Labeling Set

Item No.	Product	Size	Pc./Roll	Number	Total	
 110508	LOTO-Ident-Label	100 × 150 mm	175 Stück	1	193,00 €	
 110510	LOTO-Energy Point-Label	100 × 100 mm	250 Stück	1	192,00 €	
 109941	Lock Labels, white	30 × 25 mm	750 Stück	1	112,00 €	
 110514	Key Labels, white	35 × 10 mm (two piece)	1000 Stück	1	109,00 €	
 101972	Ribbon for LabelMax, black	150 metres	Endless material	1	99,00 €	
					TOTAL VALUE:	705,00 €
					OUR OFFER:	FOR FREE!*



Interested in a labeling system? We are happy to advise you!

Phone: +49 (0) 47 63 / 945 950
Mail: info@maxsystems.de



LABELING SYSTEMS - IDEAL FOR MARKINGS ACCORDING TO MSL 1.1

Just use our LOTO labels - with these you automatically mark according to MSL 1.1 Standard. The labels are compatible with the entire LabelMax Series (including the LabelMax SP3, LabelMax One, LabelMax VS1 and the TagRec Station). New in the bunch is the LabelMax MP1 - your compact companion! Specially developed for mobile use, we have also provided a selection of LOTO labels for this system. For more information on our LOTO labels, see page 15-17.



- **Ideal all-rounder**
Whether in the office, industry, laboratory or workshop - the LabelMax SP3 creates the perfect sign for every area.
- **Particularly durable print quality**
The labels are resistant to many solvents, alkalis, acids, seawater and external environmental influences.
- **Simple sign software**
Simple sign design without prior knowledge with SignMax v10.



- **Stand-alone system**
No PC and no graphics programme necessary.
- **Numerous templates**
Simply select a suitable template via the control panel on the LabelMax One and label it with individual texts.
- **Complete set incl. keyboard**
You only need a power socket.



- **Mobile labeling system**
Extremely powerful battery operation.
- **Robust & for the most extreme conditions**
For outdoor use, splash-proof (IP 54) and extremely robust (US military standard MIL-STD-810G).
- **Compatible with the LabelMax Series**
You already have a LabelMax? The VS1 is compatible with the consumables of the LabelMax series and can also be used for outdoor applications.



- **Mobile workplace**
Efficient working without unnecessary ways.
- **Complete set incl. labeling system, software & power supply**
The LabelMax SP3 and the SignMax Basic are the perfect team for labelling solutions.
- **Charge once and go a whole day without power connection!**
Our proven battery system ensures that the TagRec Station is powered for a complete working day.*
- **Industrial castors & sturdy construction**
Perfect for moving on rough surfaces.

- **Compact and always with you**
The LabelMax MP1 can be easily attached to a carrying strap.
- **Mobile labeling system**
Extremely powerful battery operation.
- **Easily design via app**
Design signs with the SignMax MP app without any previous knowledge.
- **Complete set incl. Ribbon, film & tablet***
Simply design and print directly on site.

*Optional including tablet.

*Depending on the actual utilization.



Personal advisement?
We'd love to! We also
come by.

Phone: +49 (0) 47 63 / 945 950
Mail: info@maxsystems.de



MANY THANKS!

Thank you for reading this guide and for making your future and that of your employees safer. And even if you are not a customer of MAX Systems, take the 3 point guide to heart. Introduce a simple LOTO system to your organization so that your employees understand, accept, and hopefully enjoy this system.

Because only if everyone internalizes the system and everyone adheres to it, it is also a secure system.

Greetings from Gnarrenburg

Michael Max Meyer
Executive Director MAX Systems GmbH

LOTO LOCKOUT / TAGOUT

AT LAST!
EASY. INEXPENSIVE. SECURE.



LABELING SYSTEMS SIGNS & LABELS LOCKOUT TAGOUT

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Shop: shop.maxsystems.de

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