# Marking solutions for electronics production

## MARKING system

PHOENIX CONTACT
INSPIRING INNOVATIONS

# The complete marking range for electronics production

Phoenix Contact can provide marking solutions for numerous applications, from unique identification of components, through traceability in the production process, to protection against tampering and counterfeiting.

## Printed circuit board

Protect the traceability of your products with resistant marking. Phoenix Contact labels will help you to cut costs but not quality. High-definition barcodes ensure that information remains permanently available.

## Housing marking

Professional device labeling is a walking advertisement for your products. Labeling materials from Phoenix Contact can be relied upon for clear and durable marking from front panel to rating plate.

## Marking systems benefiting from the expertise of electronics specialists

Phoenix Contact is one of the world's leading manufacturers of electronic components and systems for industrial automation technology. Our production activities have helped us build up a wealth of expertise in all aspects of marking, which we are now happy to share with our customers. Here at Phoenix Contact, you can expect products that have already proven their worth in thousands of practical applications.

We can provide you with materials and devices that have been customized to meet the specific challenges encountered when marking

- PCBs
- Housings
- PCB terminal blocks and plug-in connectors
- Cables and lines

The complete marking portfolio for electronics production.

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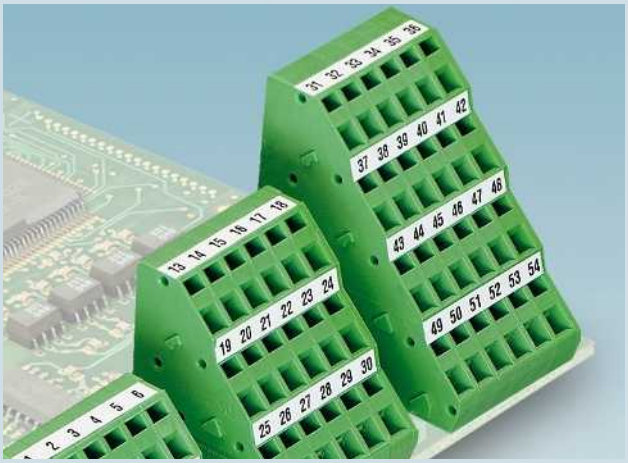
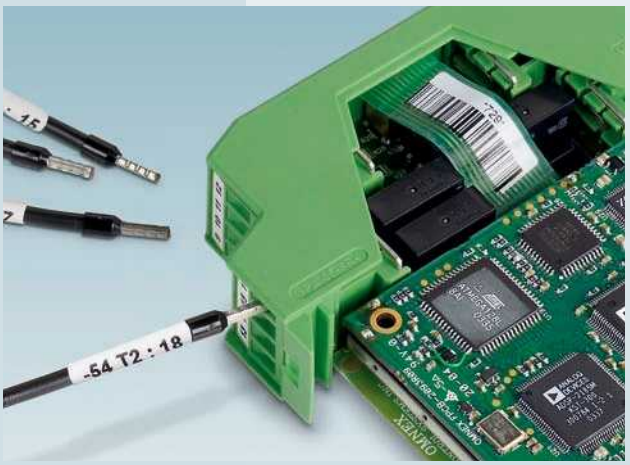


## PCB terminal block and plug-in connector marking

With clear and rugged terminal marking, your products can be wired reliably and conveniently. Choose materials from the market leader in PCB connection technology when marking your device connections.

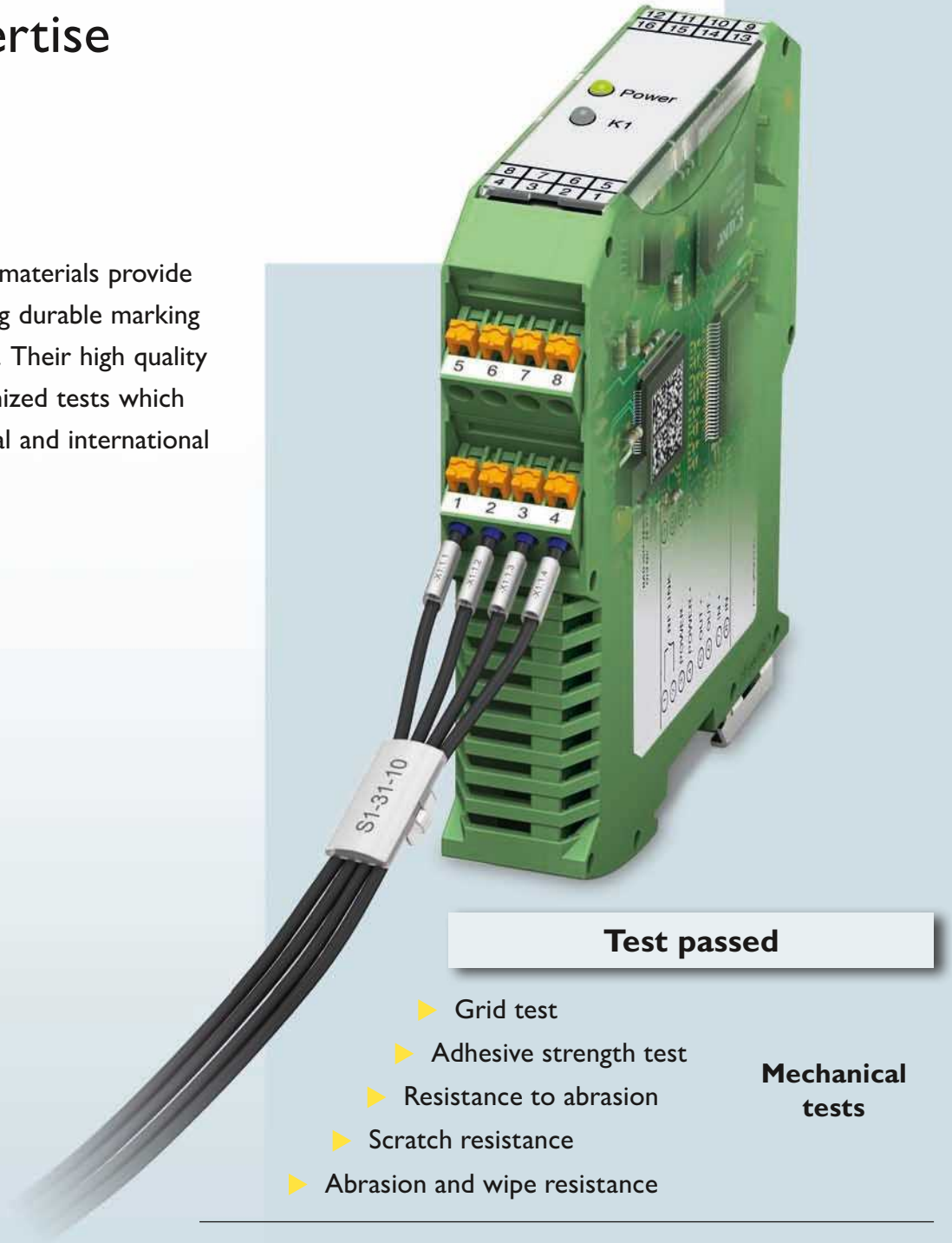



## Cable and conductor marking

Thanks to our optimized printing technologies and resistant materials, even markings exposed to significant stress remain permanently legible.

# Marking expertise

Phoenix Contact marking materials provide an assurance of long-lasting durable marking for components and parts. Their high quality is demonstrated by recognized tests which are documented in national and international standards.




**Test passed**

**Mechanical tests**

- Grid test
- Adhesive strength test
- Resistance to abrasion
- Scratch resistance
- Abrasion and wipe resistance

**Environment tests**

- UV light resistance
- Solvent resistance
- Resistance to oil and chemicals

**Material tests**

- Halogen-free protection against flames
- Inflammability classification
- Material properties

## Material properties

**Polyvinyl chloride (PVC)**
PVC has a long service life. It is characterized by its high mechanical strength and chemical resistance. Neither oxygen nor ozone affects PVC. The material is resistant to corrosive salt solutions and most acids. The polyvinyl chloride used by Phoenix Contact is silicone-free and is suitable for use in temperatures between -30°C and +80°C.

**Polyester**
Polyester is a chemical-resistant material. It is ideally suited to printing, shaping, and punching. Polyester is resistant to UV radiation and absorbs little moisture. The polyester used by Phoenix Contact is silicone and halogen-free. Depending on its composition, it is suitable for use in temperatures between -40°C and +150°C.

**Polyolefin**
Polyolefines are semi-crystalline thermoplastics, which can be easily processed as extrusion profiles (shrink sleeves). They are characterized by good chemical resistance. Silicone-free, temperature range: -55°C to +125°C.

**Polycarbonate (PC)**
Polycarbonate has high mechanical strength and chemical resistance. Rigidity, dimensional stability, and good heat distortion resistance are further distinguishing features of this material. Polycarbonate is used to manufacture particularly smooth and stable marking materials. The polycarbonate used by Phoenix Contact is silicone and halogen-free. It absorbs little moisture and is suitable for use at temperatures between -40 °C and +125 °C.

**Polyurethane (PU)**
Thermoplastic polyurethane is a highly-flexible and also extremely tear-proof material. PU is chemically very resistant. The material used by Phoenix Contact is free from halogen and attains the inflammability class UL 94 V0. Temperature range: -25 °C to +80 °C.

**Polyimide (PI)**
Polyimide is a high-performance plastic and is distinguished by its high resistance to weather conditions and chemicals. The material is free from silicon and halogen. In addition, it also has a very high resistance to temperature. Temperature range of polyimide foil: permanent exposure from -40 °C to +170°C, brief exposure up to +398 °C.

**Polyamide (PA)**
Even at high operating temperatures, polyamide has excellent electrical, mechanical, chemical and thermal properties. Brief peak temperatures of up to 200°C are permitted as a result of heat aging stabilization. PA belongs to inflammability class V2 to V0 as per UL 94. The polyamide used by Phoenix Contact is silicone and halogen-free and is suitable for use in temperatures between -60°C and +125°C.

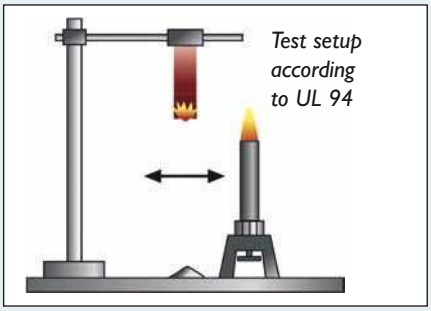
## Inflammability classification

### UL 94

UL 94 describes inflammability tests that have gained particular importance in the field of electrotechnology. Behavior in fire is the main focus. Items are classified according to either UL 94 HB (Horizontal Burn) or UL 94 V (Vertical Burn). The test setup is such that the 94 V0/1/2 classifications are stricter than the 94 HB classification.

**UL 94 V0/1/2**
After conditioning, the test bar is vertically clamped and flame-treated several times for 10 seconds each. Between the flame treatments, the time until the test bar is extinguished is measured. Afterwards, the afterburning times and the drip behavior are evaluated. The test procedure laid down by this standard is not suitable for foils and/or very thin test objects that shrink under the heat of the flame.

The plastic used for Phoenix Contact products fulfills the higher-grade criteria.


*Test setup according to UL 94*

**Classification**

| | UL 94 V0 | UL 94 V1 | UL 94 V2 | UL 94 HB |
|---|---|---|---|---|
| Burning time after each flame treatment | ≤ 10 s | ≤ 30 s | ≤ 30 s | – |
| Total burning time after 10 flame treatments | ≤ 50 s | ≤ 250 s | ≤ 250 s | – |
| Glowing time after the 2nd flame treatment | ≤ 30 s | ≤ 60 s | ≤ 60 s | – |
| Complete burn-off | No | No | No | Yes |
| Inflammation of the absorbent cotton under the sample | No | No | Yes | – |

## Halogen-free protection against flames

### DIN EN ISO 1043-4

Halogens are the chemical elements astatine, fluorine, chlorine, bromine, and iodine. One characteristic of the halogen compounds of bromine and chlorine relates to the reduction in the degree of inflammability when used in plastics. In the event of fire, poisonous corrosive gases are formed, which can also lead to secondary damage as a result of the extinguishing water. For this reason, wherever possible, Phoenix Contact does not use any flame protection agents which contain halogen or other additives. Polyamide, polycarbonate, polyester, polyurethane and polyolefines feature halogen-free flame protection systems.

## Resistance to oil and chemicals

### DIN EN ISO 175

Physical and/or chemical processes/reactions can occur as a result of external media, such as liquids or gases. This can result in a change to the plastic's properties, the plastic becoming damaged or even destroyed. Imprints and labels can also be affected by these changes.

In order to prevent this from happening, Phoenix Contact uses only plastics and printing/labeling materials which have been tested in accordance with DIN EN ISO 175.

| Chemical | Weight % |
|---|---|
| **Alkalis** | |
| Sodium hydroxide solution | 3 |
| Potassium hydroxide solution | 3 |
| Ammonium hydroxide (ammonia water) | 25 |
| **Alcohols** | |
| Ethanol | 100 |
| 1-propanol | 100 |
| 2-propanol | 100 |
| Diethylene glycol | 100 |
| **Aldehyde/ketones** | |
| Ethyl acetate | 100 |
| **Oils, greases, aliphatic and aromatic hydrocarbons** | |
| IRM 902 | 100 |
| IRM 903 | 100 |
| ASTM No. 1 | 100 |
| Xylol | 100 |
| Test benzene (180/220) | 100 |
| Hycut SU 68 | 100 |
| Hycut SET 46 | 100 |
| Shell Tellus 92 | 100 |
| **Aqueous salt solutions** | |
| Sodium chloride | 5 |
| Potassium chloride | 5 |
| Ammonium chloride (ammonia solution) | 100 |

## Resistance to solvents

### EN 60464-2:2001

Imprints and labels must be resistant to solvent vapors. Therefore, in accordance with the aforementioned standard, exposure to solvents is continued over 10 days in the following atmospheres:

- Acetone
- n-hexane
- Ethanol

The labels and imprints must still be legible after the 10-day exposure.

Phoenix Contact marking materials are solvent-resistant and fulfill the stringent requirements.

## UV light resistance

### DIN EN ISO 4892-2 and DIN EN ISO 60068-2-5

In addition to infrared radiation, the solar radiation affecting the surface of the earth has radiation ranges from the UV-A and UV-B spectrum. Depending on the plastic used, the UV-B part of the wavelength of 320 nm induces a more or less strong molecular decomposition that is responsible for a considerable restriction of the plastic's mechanical property profile. Even the properties of imprints and labels can sustain damage to a greater or lesser extent due to this UV radiation. This results in fading and can even lead to complete illegibility.

If plastics and their imprints and labels are often subjected to day/night cycles outdoors, condensation may appear on the surface in the form of water droplets, which can act in a similar way to magnifying glasses when the sunshine returns, thus intensifying the radiation effect. The UV-B part of the solar spectrum in particular leads to an impairment of the plastic's mechanical property profile.

Marking materials from Phoenix Contact can be stored in dry as well as humid atmospheres under UV radiation and are tested in accordance with the aforementioned standards. The properties of the plastic and the legibility of the imprints and labels are checked after the test.

## Abrasion and wipe resistance

### DIN EN 61010-1

Labels and imprints must be resistant to the standard cleaning agents used in the industry. Therefore, at Phoenix Contact, labels and imprints are rubbed using a soft cloth with water, isopropanol, petroleum ether, and n-hexane. The labels and imprints must still be legible after the test.

Phoenix Contact marking materials meet stringent requirements with regard to abrasion and wipe resistance and can thus be used in all applications.

## Scratch resistance

### DIN EN ISO 1518

Labels and imprints must also be resistant to external, point and/or linear mechanical loads. For this reason, Phoenix Contact tests all labels and imprints for scratch resistance in accordance with the aforementioned standard. The test is carried out by applying a scratching tool with a hemispherical tip (Ø 1 mm) to the test objects. Depending on the printing procedure, a force of between 2 N and 6 N is applied. This is followed by a visual and microscopic inspection of the test objects.

Phoenix Contact marking materials meet these stringent mechanical requirements.

## Resistance to abrasion

### KIMW 003, Part 1 In-house standard of the Lüdenscheid Plastics Institute

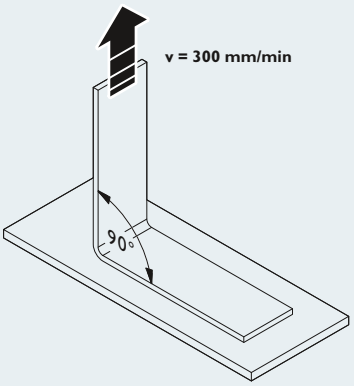
Labels and imprints must be resistant to externally applied surface loads. Therefore, at Phoenix Contact, labels and imprints are subjected to various numbers of strokes (1000, 10,000, 30,000) using a felt disk (hardness H1 according to DIN 61200) with a specific pressure force (1 N, 2 N and/or 4 N). Classification into the various load classes presented in the standard depends on the pressure force that leads to damage to the printing with reference to the number of strokes.

The imprints and labels at Phoenix Contact comply with the highest load class K9 (30,000 strokes with 4 N pressure force).

## Adhesive strength test

### based on FINAT test method No. 2

The purpose of this test is to compare the adhesive strength of labels on various basic materials. To this end, a strip of labels (25 mm x 175 mm) is applied to the respective basic material with a specified force. After a defined storage period, the strip is removed from the basic material at an angle of 90° and with a speed of 300 mm/min. The adhesive strength is specified in N/25 mm. The test thus enables the selection of the most suitable label for the application.



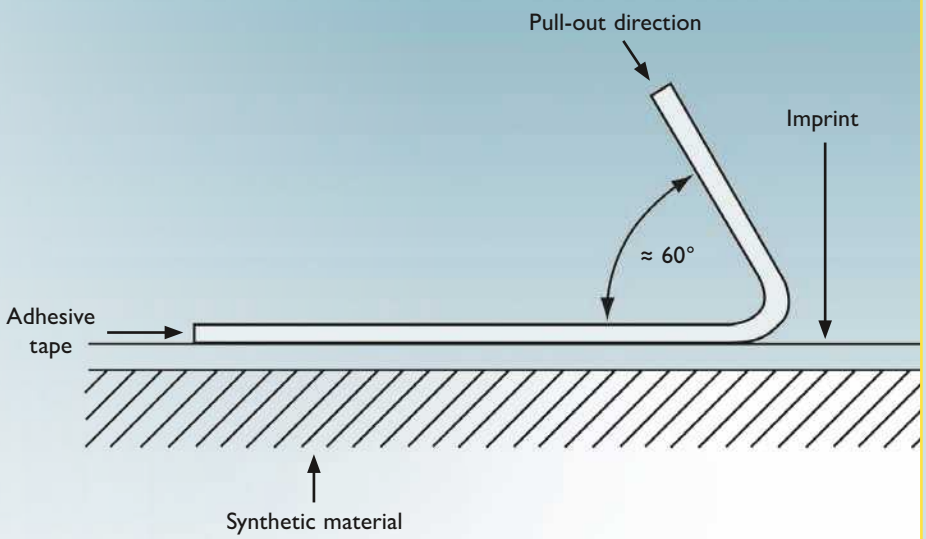

## Grid test

### DIN EN ISO 2409

A "Sellotape test" is conducted in accordance with this standard.
A transparent self-adhesive tape (e.g., Sellotape) with an adhesive force of 10±1 N is applied to the labeling or printing to be tested and is then removed from the surface with an angle of 60° to the pull-out direction with a speed of approx. 1 cm/s.

There should be no marks from the printing on the adhesive tape after the test.

Phoenix Contact marking materials are tough and resistant to peeling.



# Printed circuit board

Use Phoenix Contact labels for secure and reliable marking of your PCBs.

We can provide ESD-safe materials for labeling and marking components that are particularly sensitive.

Our range features residue-free removable labels for temporary marking during production.

Our high-temperature-resistant material is easily able to withstand the prevailing temperatures in reflow and wave soldering procedures.

**Protection against static discharge**

ESD-safe labels can be used to mark components and PCBs that are at risk from electrostatic discharge.

**Removable labeling**

A special adhesive ensures both the durability of the marking throughout the production process and residue-free removal (should this be necessary).

**Reliable marking**

Labels that are resistant to high temperatures ensure reliable marking of components and PCBs during the production process and beyond.

# Product overview for marking PCBs

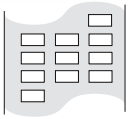
**EML-ESD labels for sensitive components**

EML-ESD labels can be used to mark PCBs without the risk of the component being damaged by electrostatic discharge.

**Material data EML-ESD**

Material: Polyester
Free from silicone and halogen
Temperature: -40 °C to +150 °C

Multi-web version



Single-web version

| | Lettering field size [mm] | Markers per roll | Type | Order No. WH |
|---|---|---|---|---|
| **Standard roll, multi-web version – printing with THERMOMARK ROLL and THERMOMARK ROLL X1** | | | | |
| | 8x8 | 4000 | EML-ESD (8x8)R | 0830564 |
| | 15x6 | 4000 | EML-ESD (15x6)R | 0830565 |
| | 15x15 | 4000 | EML-ESD (15x15)R | 0830566 |
| | 20x7 | 4000 | EML-ESD (20x7)R | 0830567 |
| | 24x4 | 4000 | EML-ESD (24x4)R | 0830568 |
| | 25x8 | 4000 | EML-ESD (25x8)R | 0830569 |
| | 25.4x12.7 | 2500 | EML-ESD (25,4x12,7)R | 0830570 |
| | 32x10 | 2500 | EML-ESD (32x10)R | 0830571 |
| | 35x6.5 | 2500 | EML-ESD (35x6,5)R | 0830572 |
| | 40x15 | 2500 | EML-ESD (40x15)R | 0830573 |
| | 45x5 | 2500 | EML-ESD (45x5)R | 0830574 |
| | 50x10 | 1000 | EML-ESD (50x10)R | 0830575 |
| **Large roll, single-web version – printing with THERMOMARK ROLL X1 or with THERMOMARK ROLL with external media hub** | | | | |
| | 8x8 | 10000 | EML-ESD (8x8)RL-T | 0830576 |
| | 15x6 | 10000 | EML-ESD (15x6)RL-T | 0830577 |
| | 15x15 | 8000 | EML-ESD (15x15)RL-T | 0830578 |
| | 20x7 | 10000 | EML-ESD (20x7)RL-T | 0830579 |
| | 24x4 | 10000 | EML-ESD (24x4)RL-T | 0830580 |
| | 25x8 | 10000 | EML-ESD (25x8)RL-T | 0830581 |
| | 25.4x12.7 | 10000 | EML-ESD (25,4x12,7)RL-T | 0830582 |
| | 32x10 | 10000 | EML-ESD (32x10)RL-T | 0830583 |
| | 35x6.5 | 10000 | EML-ESD (35x6,5)RL-T | 0830584 |
| | 40x15 | 8000 | EML-ESD (40x15)RL-T | 0830585 |
| | 45x5 | 10000 | EML-ESD (45x5)RL-T | 0830586 |
| | 50x10 | 10000 | EML-ESD (50x10)RL-T | 0830587 |

# Product overview for marking PCBs

### EML-HT labels for high-temperature applications

EML-HT labels are particularly suitable for marking PCBs. As they are resistant to extremely high temperatures (up to 398 °C), they will come through reflow and wave soldering procedures unscathed.

### Material data EML-HT

Material: Polyimide
Free from silicone and halogen
Temperature:
-40 °C to +170 °C (permanent
Up to +398 °C (short-term)

| | Lettering field size [mm] | Markers per roll | Type | Order No. WH |
|---|---|---|---|---|
| **Standard roll, multi-web version – printing with THERMOMARK ROLL and THERMOMARK ROLL X1** | | | | |
| | 8x8 | 4000 | EML-HT (8x8) R | 0800340 |
| | 15x6 | 4000 | EML-HT (15x6)R | 0830644 |
| | 15x15 | 4000 | EML-HT (15x15) R | 0800341 |
| | 20x7 | 4000 | EML-HT (20x7)R | 0830645 |
| | 24x4 | 4000 | EML-HT (24x4)R | 0830646 |
| | 25x8 | 4000 | EML-HT (25x8)R | 0830647 |
| | 25.4x12.7 | 2500 | EML-HT (25,4x12,7)R | 0830648 |
| | 32x10 | 2500 | EML-HT (32x10)R | 0830649 |
| | 35x6.5 | 2500 | EML-HT (35x6,5)R | 0830650 |
| | 40x15 | 1000 | EML-HT (40x15) R | 0800339 |
| | 45x5 | 2500 | EML-HT (45x5) R | 0800337 |
| | 50x10 | 1000 | EML-HT (50x10) R | 0800338 |
| **Large roll, single-web version – printing with THERMOMARK ROLL X1 or with THERMOMARK ROLL with external media hub** | | | | |
| | 8x8 | 10000 | EML-HT (8x8)RL-T | 0830651 |
| | 15x6 | 10000 | EML-HT (15x6)RL-T | 0830652 |
| | 15x15 | 8000 | EML-HT (15x15)RL-T | 0830653 |
| | 20x7 | 10000 | EML-HT (20x7)RL-T | 0830654 |
| | 24x4 | 10000 | EML-HT (24x4)RL-T | 0830655 |
| | 25x8 | 10000 | EML-HT (25x8)RL-T | 0830656 |
| | 25.4x12.7 | 10000 | EML-HT (25,4x12,7)RL-T | 0830657 |
| | 32x10 | 10000 | EML-HT (32x10)RL-T | 0830658 |
| | 35x6.5 | 10000 | EML-HT (35x6,5)RL-T | 0830659 |
| | 40x15 | 8000 | EML-HT (40x15)RL-T | 0830660 |
| | 45x5 | 10000 | EML-HT (45x5)RL-T | 0830661 |
| | 50x10 | 10000 | EML-HT (50x10)RL-T | 0830662 |

# Product overview for marking PCBs

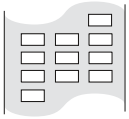
**EML-RM removable labels**

EML-RM labels can be removed without leaving behind any residue. As such they are particularly suitable for temporary marking.

**Material data EML-RM**

Material: Polyester
Free from silicone and halogen
Temperature: -40 °C to +120 °C

Multi-web version



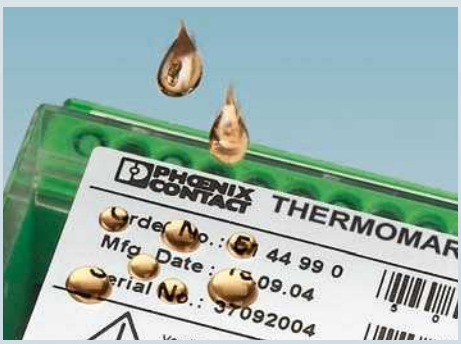
Single-web version

| | Lettering field size [mm] | Markers per roll | Type | Order No. WH |
|---|---|---|---|---|
| **Standard roll, multi-web version – printing with THERMOMARK ROLL and THERMOMARK ROLL X1** | | | | |
| | 8x8 | 4000 | EML-RM (8x8)R | 0830528 |
| | 15x6 | 4000 | EML-RM (15x6)R | 0830529 |
| | 15x15 | 4000 | EML-RM (15x15)R | 0830530 |
| | 20x7 | 4000 | EML-RM (20x7)R | 0830531 |
| | 24x4 | 4000 | EML-RM (24x4)R | 0830532 |
| | 25x8 | 4000 | EML-RM (25x8)R | 0830533 |
| | 25.4x12.7 | 2500 | EML-RM (25,4x12,7)R | 0830534 |
| | 32x10 | 2500 | EML-RM (32x10)R | 0830535 |
| | 35x6.5 | 2500 | EML-RM (35x6,5)R | 0830536 |
| | 40x15 | 2500 | EML-RM (40x15)R | 0830537 |
| | 45x5 | 2500 | EML-RM (45x5)R | 0830538 |
| | 50x10 | 1000 | EML-RM (50x10)R | 0830539 |
| **Large roll, single-web version – printing with THERMOMARK ROLL X1 or with THERMOMARK ROLL with external media hub** | | | | |
| | 8x8 | 10000 | EML-RM (8x8)RL-T | 0830540 |
| | 15x6 | 10000 | EML-RM (15x6)RL-T | 0830541 |
| | 15x15 | 8000 | EML-RM (15x15)RL-T | 0830542 |
| | 20x7 | 10000 | EML-RM (20x7)RL-T | 0830543 |
| | 24x4 | 10000 | EML-RM (24x4)RL-T | 0830544 |
| | 25x8 | 10000 | EML-RM (25x8)RL-T | 0830545 |
| | 25.4x12.7 | 10000 | EML-RM (25,4x12,7)RL-T | 0830546 |
| | 32x10 | 10000 | EML-RM (32x10)RL-T | 0830547 |
| | 35x6.5 | 10000 | EML-RM (35x6,5)RL-T | 0830548 |
| | 40x15 | 8000 | EML-RM (40x15)RL-T | 0830549 |
| | 45x5 | 10000 | EML-RM (45x5)RL-T | 0830550 |
| | 50x10 | 10000 | EML-RM (50x10)RL-T | 0830551 |

# Housing marking

Clear housing labels can make your products more successful. Impress your customers with perfectly designed front panels, protect yourself against piracy with anti-forgery rating plates, and ensure traceability with serial numbers that are affixed permanently.

Resistant labels from Phoenix Contact are ideal for use on plastic housings and lend your device a professional design.




**High resistance**

High-quality materials provide an assurance of high resistance to oils and solvents.

**Permanently legible**

Housing labels that are wipe-proof and scratch-proof ensure that your product will remain clearly identifiable for its entire service life.

**Protection against tampering**

As these rating plates clearly show attempts at tampering, they cannot be reused.

# Product overview for housing marking

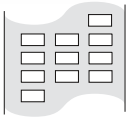
**EML rugged polyester labels**

EML labels can be used for universal marking. They are particularly resistant to solvents and oils.

**Material data EML**

Material: Polyester
Free from silicone and halogen
Temperature: -40 °C to +150 °C

Multi-web version



| Lettering field size [mm] | Markers per roll | Type | Order No. WH | Order No. YE | Order No. SR |
|---|---|---|---|---|---|
| **Standard roll, multi-web version – printing with THERMOMARK ROLL and THERMOMARK ROLL X1** | | | | | |
| 10x4 | 10000 | EML (10x4) R | 0815583 | | |
| 10x7 | 10000 | EML (10x7) R … | 0816663 | 0816676 | |
| 15x6 | 2500 | EML (15x6) R YE | | 0819288 | |
| 15x9 | 2500 | EML (15x9) R … | 0815677 | 0816045 | 0816032 |
| 16.5x5 | 2500 | EML (16,5x5) R … | 0816702 | 0816728 | |
| 16x7 | 2500 | EML (16x7) R … | 0818001 | 0816731 | |
| 17.5x8 | 2500 | EML (17,5x8) R … | 0816744 | 0816757 | |
| 19x6 | 2500 | EML (19x6) R | 0816760 | 0800107 | |
| 20x7 | 2500 | EML (20x7) R YE | | 0816773 | |
| 20x8 | 2500 | EML (20x8) R … | 0816786 | 0816799 | |
| 21.5x21.5 | 2500 | EML (21,5x21,5) R SR | | | 0816812 |
| 24x4 | 2500 | EML (24x4) R | 0800061 | | |
| 25.4x12.7 | 2500 | EML (25,4x12,7) R … | 0816825 | 0816838 | |
| 26.5x7.5 | 1000 | EML (26,5x7,5) R | | | 0816841 |
| 26.5x12 | 2500 | EML (26,5x12) R | | | 0816854 |
| 26.5x17.5 | 2500 | EML (26,5x17,5) R … | | 0816896 | 0816883 |
| 26.5x18.5 | 2500 | EML (26,5x18,5) R | | | 0816906 |
| 26.5x26.5 | 2500 | EML (26,5x26,5) R … | | | 0816919 |
| 30x20 | 2500 | EML (30x20) R … | 0816922 | 0816935 | |
| 32x25 | 1500 | EML (32x25) R YE | | 0800020 | |
| 38x17 | 2500 | EML (38x17) R | 0816951 | | |
| 40x8 | 1000 | EML (40x8) R | 0816980 | | |
| 40x15 | 2500 | EML (40x15) R SR | | | 0815729 |
| 40x25 | 1000 | EML (40x25) R … | 0818027 | 0816977 | |
| 51x25 | 1000 | EML (51x25) R … | 0817028 | 0817031 | 0817002 |
| 70x32 | 1000 | EML (70x32) R … | 0817060 | 0817073 | 0817057 |
| 70x50 | 400 | EML (70x50) R … | 0817099 | | 0817086 |
| 90x5 | 2500 | EML (90x5) R | 0817109 | | |
| 100x40 | 300 | EML (100x40) R | 0800286 | | |
| 100x73 | 300 | EML (100x73) R … | 0817125 | 0817138 | 0817112 |
| 100x90 | 250 | EML (100x90) R … | 0817154 | | 0817141 |
| **Large roll – printing with THERMOMARK ROLL X1 or with THERMOMARK ROLL with external media hub** | | | | | |
| 16.5x5 | 10000 | EML (16,5x5) RL | 0816113 | 0816126 | |
| 17.5x8 | 10000 | EML (17,5x8) RL | | 0816139 | |
| 18x6 | 10000 | EML (18x6) RL YE | | 0828460 | |
| 25.4x12.7 | 10000 | EML (25,4x12,7) RL | 0816087 | | |
| 38.1x19 | 10000 | EML (38,1x19) RL | 0816171 | | |
| 50.8x25.4 | 3000 | EML (50,8x25,4) RL | 0816184 | | |
| 69.8x31.8 | 10000 | EML (69,8x31,8) RL | 0816197 | | |
| 76.2x6.5 | 10000 | EML (76,2x6,5) RL YE | | 0816207 | |
| 101.6x25.4 | 10000 | EML (101,6x25,4) RL SR | | | 0815790 |

# Product overview for housing marking

### US-EML rugged polyester labels

EML material is also available in card format for printing with the THERMOMARK CARD.

**Material data US-EML**

Material: Polyester
Free from silicone and halogen
Temperature: -40 °C to +150 °C

| Lettering field size [mm] | Markers per card | Type | Order No. WH | Order No. YE | Order No. SR |
|---|---|---|---|---|---|
| **UniSheet card format – printing with THERMOMARK CARD** | | | | | |
| 17.5x8 | 80 | US-EML (17,5x8) | 0800461 | 0800463 | |
| 20x8 | 64 | US-EML (20x8) | 0800458 | 0800460 | |
| 104x3.8 | 34 | US-EML (104x3,8) | 0800464 | | |
| 104x140 | 1 | US-EML (104x140) | 0800465 | 0800467 | 0800466 |

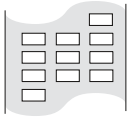
### EML-HA high adhesive strength labels

The particularly high adhesive strength of EML-HA labels makes for optimum adhesion to low-energy materials or materials with complex structures.

**Material data EML-HA**

Material: Polyester
Free from silicone and halogen
Temperature: -40 °C to +150 °C

Multi-web version



| Lettering field size [mm] | Markers per roll | Type | Order No. WH | Order No. SR |
|---|---|---|---|---|
| **Standard roll, multi-web version – printing with THERMOMARK ROLL and THERMOMARK ROLL X1** | | | | |
| 15x9 | 2500 | EML-HA (15x9)R | 0830600 | |
| 19x6 | 2500 | EML-HA (19x6)R | 0830601 | |
| 20x20 | 2500 | EML-HA (20x20)R | 0830602 | |
| 26.5x12 | 2500 | EML-HA (26,5x12)R | 0830603 | |
| 40x8 | 2500 | EML-HA (40x8)R | 0830604 | |
| 40x15 | 1000 | EML-HA (40x15)R | 0830605 | |
| 51x25 | 1000 | EML-HA (51x25)R | 0830729 | |
| 60x30 | 1000 | EML-HA (60x30)R | 0830606 | |
| 70x32 | 1000 | EML-HA (70x32)R | 0830607 | |
| 70x50 | 1000 | EML-HA (70x50)R | 0830730 | |
| 70x150 | 250 | EML-HA (70x150)R | 0830608 | |
| 76x51 | 1000 | EML-HA (76x51)R | 0830609 | |
| 85x32 | 1000 | EML-HA (85x32)R | 0830610 | |
| 100x73 | 300 | EML-HA (100x73)R | 0830731 | |
| 100x90 | 250 | EML-HA (100x90)R | 0830732 | |
| 15x9 | 2500 | EML-HA (15x9)R SR | | 0830611 |
| 19x6 | 2500 | EML-HA (19x6)R SR | | 0830612 |
| 20x20 | 2500 | EML-HA (20x20)R SR | | 0830613 |
| 26.5x12 | 2500 | EML-HA (26,5x12)R SR | | 0830614 |
| 40x8 | 2500 | EML-HA (40x8)R SR | | 0830615 |
| 40x15 | 1000 | EML-HA (40x15)R SR | | 0830616 |
| 51x25 | 1000 | EML-HA (51x25)R SR | | 0830733 |
| 60x30 | 1000 | EML-HA (60x30)R SR | | 0830617 |
| 70x32 | 1000 | EML-HA (70x32)R SR | | 0830618 |
| 70x50 | 1000 | EML-HA (70x50)R SR | | 0830734 |
| 70x150 | 250 | EML-HA (70x150)R SR | | 0830619 |
| 76x51 | 1000 | EML-HA (76x51)R SR | | 0830620 |
| 85x32 | 1000 | EML-HA (85x32)R SR | | 0830621 |
| 100x73 | 300 | EML-HA (100x73)R SR | | 0830735 |
| 100x90 | 250 | EML-HA (100x90)R SR | | 0830736 |

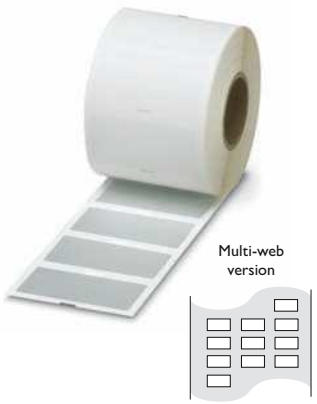
# Product overview for housing marking

### Tamper-proof labels EMLS

EMLS labels show evidence of tampering by leaving behind a pattern both in the label and on the surface of the device.

**Material data EMLS**

Material: Polyester
Free from silicone and halogen
Temperature: -40 °C to +150 °C




| | Lettering field size [mm] | Markers per roll | Type | Order No. SR |
|---|---|---|---|---|
| **Standard roll, multi-web version – printing with THERMOMARK ROLL and THERMOMARK ROLL X1** | | | | |
| | 15x9 | 2500 | EMLS (15x9) R SR | 0800347 |
| | 19x6 | 2500 | EMLS (19x6) R SR | 0800343 |
| | 20x20 | 1000 | EMLS (20x20) R SR | 0800344 |
| | 26.5x12 | 1000 | EMLS (26.5x12) R SR | 0800353 |
| | 38.1x19 | 1000 | EMLS (38.1x19) R SR | 0800354 |
| | 40x8 | 1000 | EMLS (40x8) R SR | 0800348 |
| | 45x15 | 1000 | EMLS (45x15) R SR | 0800345 |
| | 60x30 | 500 | EMLS (60x30) R SR | 0800355 |
| | 70x32 | 500 | EMLS (70x32) R SR | 0800346 |
| | 70x150 | 100 | EMLS (70x150) R SR | 0800351 |
| | 76x51 | 250 | EMLS (76x51) R SR | 0800350 |
| | 85x32 | 250 | EMLS (85x32) R SR | 0800356 |

### EMLC and EMLF labels offering particular flexibility

The material from which the EMLC labels are made makes them very flexible; they can even be attached around edges. EMLF is particularly suited for uneven and rough surfaces.

**Material data EMLC**

Material: PA
Free from silicone and halogen
Temperature: -40 °C to +150 °C

**Material data EMLF**

Material: PVC
Free from silicone
Temperature: -40 °C to +110 °C

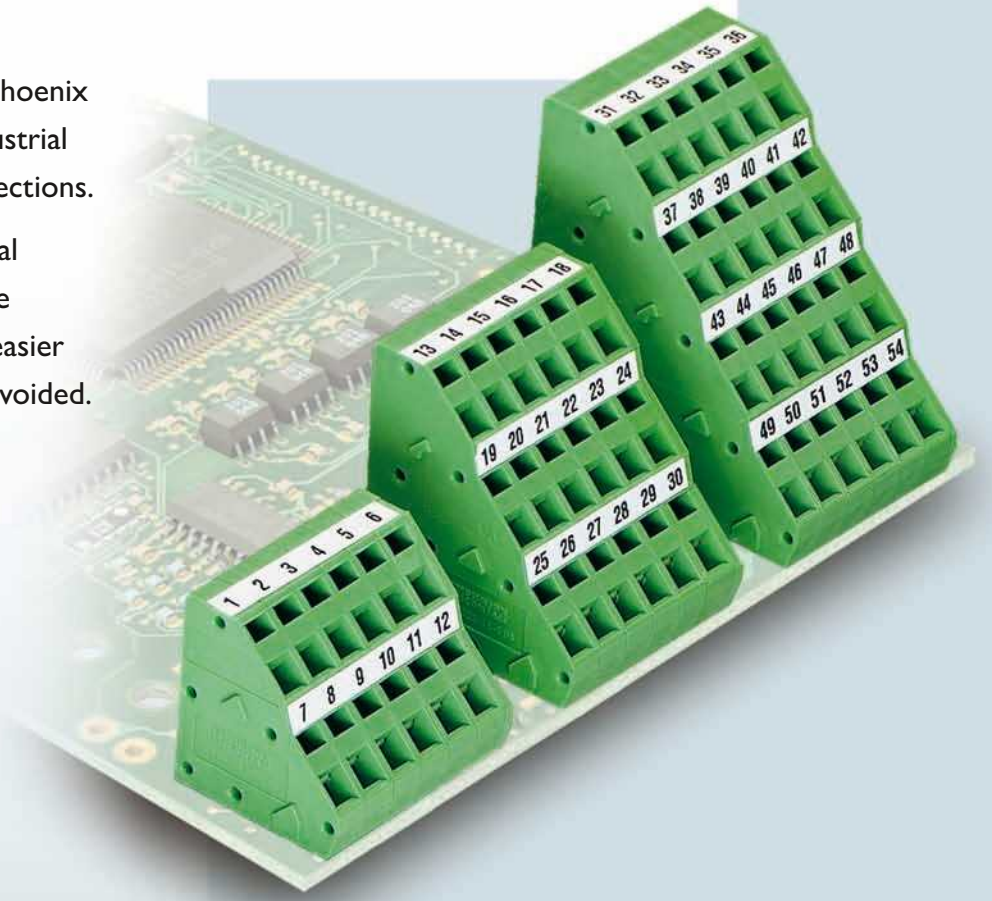
| | Lettering field size [mm] | Markers per roll | Type | Order No. WH | YE | SR | TR |
|---|---|---|---|---|---|---|---|
| **Standard roll, multi-web version – printing with THERMOMARK ROLL and THERMOMARK ROLL X1** | | | | | | | |
| | 15x9 | 2500 | EMLC (15x9) R YE | | 0800236 | | |
| | 17.5x8 | 2500 | EMLC (17,5x8) R YE | | 0800237 | | |
| | 20x8 | 2500 | EMLC (20x8) R YE | 0815680 | 0800235 | | |
| | 25x8 | 2500 | EMLC (25x8) R YE | | 0800240 | | |
| | 25.4x12.7 | 2500 | EMLC (25,4x12,7) R YE | | 0800238 | | |
| | 38x17 | 1000 | EMLC (38x17) R YE | | 0800557 | | |
| | 40x8 | 1000 | EMLC (40x8) R … | 0800554 | 0800555 | | |
| | 51x25 | 750 | EMLC (51x25) R YE | | 0800558 | | |

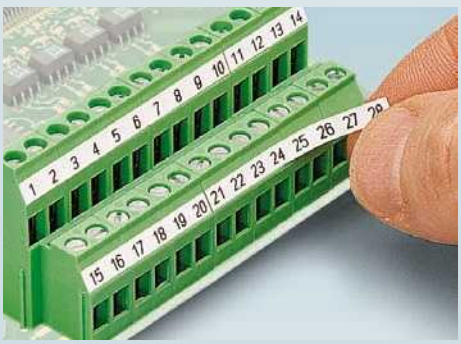
| | Lettering field size [mm] | Meter per roll | Type | Order No. WH | YE | SR | TR |
|---|---|---|---|---|---|---|---|
| **Standard roll, continuous version – printing with THERMOMARK ROLL and THERMOMARK ROLL X1** | | | | | | | |
| | 108xE | 40 m | EMLF (108xE) R | 0800549 | 0800550 | 0800551 | 0800552 |

# PCB terminal block and plug-in connector marking

TML and SK marker strips from Phoenix Contact are the international industrial standard for marking device connections.

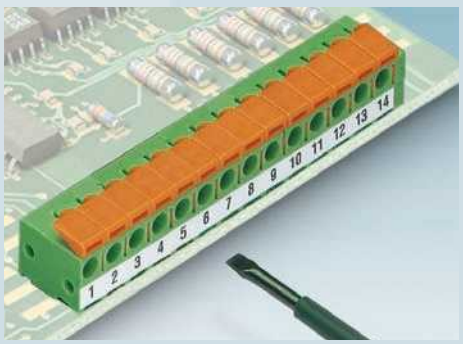
By labeling the connection terminal blocks individually, you simplify the wiring process. Connections are easier to identify and wiring errors are avoided. This increases acceptance of your products by users.





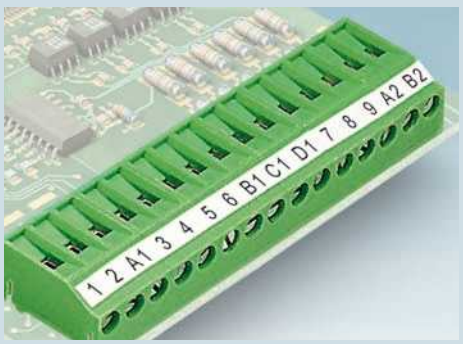
**Marking after installation**

Unprinted PCB terminal blocks can be labeled quickly and clearly even after they have been installed.



**Permanent marking**

With TML and SK labeling strips, you get an absolute assurance of optimum adhesion to the high-quality plastics from which your connection terminal blocks are made.



**Individual labeling**

Even very specific marking requirements such as special symbols can be met with ease.

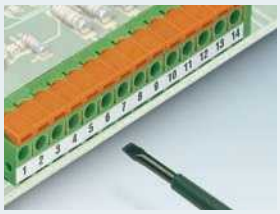
# Product overview for labeling PCB terminal blocks and plug-in connectors

**Self-adhesive marker strips for TML and SK terminal blocks**

TML and SK strips were developed specifically for marking connection terminal blocks and plugs. They are a reliable option for long-lasting marking.

**Material data TML and SK**

Material: Polyester
Free from silicone and halogen
Temperature: -40 °C to +150 °C



| | Height of strip [mm] | Length of strips [mm] | Labels per roll | Type | Order No. WH |
|---|---|---|---|---|---|
| | **Standard roll, strips horizontally on the role – printing with THERMOMARK ROLL and THERMOMARK ROLL X1** | | | | |
| | 2.8 | 104 | 2500 | TML (104x2,8) R | 0801832 |
| | 3.8 | 104 | 2500 | TML (104x3,8) R | 0801833 |
| | 5 | 104 | 2500 | TML (104x5) R | 0801834 |
| | 10 | 104 | 1500 | TML (104x10) R | 0801835 |

| | Height of strip [mm] | Length per roll [m] | Strips per roll | Type | Order No. WH |
|---|---|---|---|---|---|
| | **Standard roll, strips vertically on the role – printing with THERMOMARK ROLL and THERMOMARK ROLL X1** | | | | |
| | 2.8 | 30 | 14 | TML (Ex2,8) R | 0801836 |
| | 3.8 | 30 | 12 | TML (Ex3,8) R | 0801837 |
| | 5 | 30 | 10 | TML (Ex5) R | 0801838 |
| | 10 | 30 | 6 | TML (Ex10) R | 0801839 |

| | Height of strip [mm] | Length of strips [mm] | Strips per card | Type | Order No. WH |
|---|---|---|---|---|---|
| | **UniSheet card format – printing with THERMOMARK CARD** | | | | |
| | 2.8 | 104 | 14 | US-TML (104x2,8) | 0830767 |
| | 3.8 | 104 | 12 | US-TML (104x3,8) | 0830768 |
| | 5 | 104 | 10 | US-TML (104x5) | 0830769 |
| | 10 | 104 | 6 | US-TML (104x10) | 0830770 |

| | Height of strip [mm] | Pitch [mm] | Strips per card | Type | Order No. WH |
|---|---|---|---|---|---|
| | **Cards, preprinted with numbers (1 – 10, 11 – 20, ..., 91 – 100)** | | | | |
| | 2.8 | 2.54 | 14 | SK 2,54/2,8:FORTL.ZAHLEN | 0804853 |
| | 2.8 | 3.5 | 14 | SK 3,5/2,8:FORTL.ZAHLEN | 0804073 |
| | 2.8 | 3.81 | 14 | SK 3,81/2,8:FORTL.ZAHLEN | 0804109 |
| | 2.8 | 5.08 | 14 | SK 5,08/2,8:FORTL.ZAHLEN | 0804280 |
| | 3.8 | 5 | 12 | SK 5/3,8:FORTL.ZAHLEN | 0804183 |
| | 3.8 | 5.08 | 12 | SK 5,08/3,8:FORTL.ZAHLEN | 0804293 |
| | 3.8 | 6.2 | 12 | SK 6,2/3,8:FORTL.ZAHLEN | 0804374 |
| | 3.8 | 7.5 | 12 | SK 7,5/3,8:FORTL.ZAHLEN | 0804455 |
| | 3.8 | 7.62 | 12 | SK 7,62/3,8:FORTL.ZAHLEN | 0804549 |
| | 5 | 7.5 | 10 | SK 7,5/5:FORTL.ZAHLEN | 0804468 |
| | 5 | 7.62 | 10 | SK 7,62/5:FORTL.ZAHLEN | 0804552 |

printed horizontally

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|

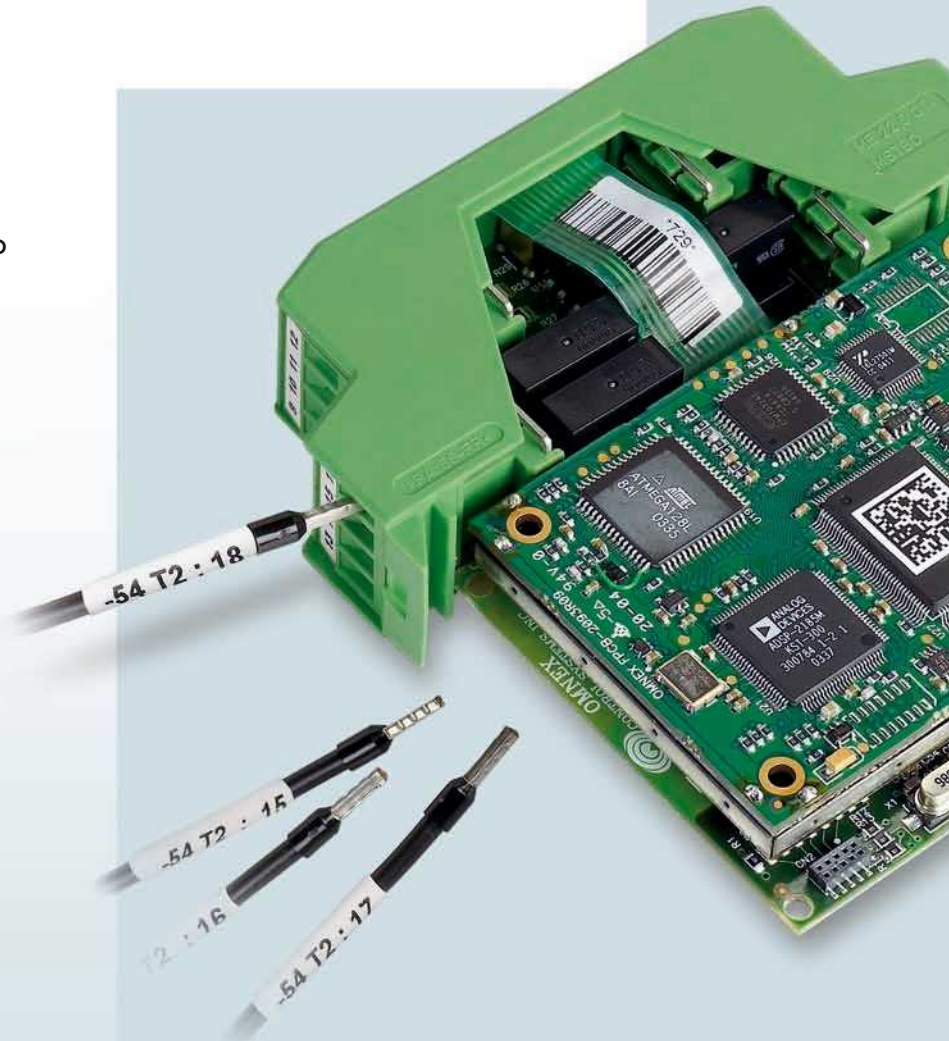
**Example configuration: standard labeling**

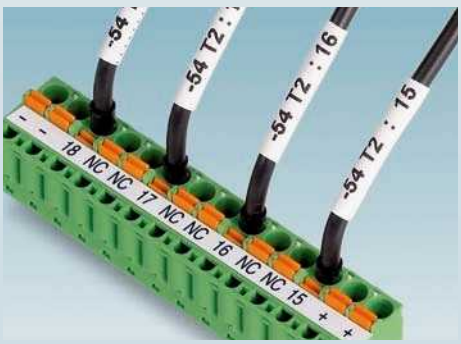
Horizontal consecutive numbering from 1 to 10 is required for 120 identical PCB terminal block strips with 5 mm pitch. Since each marker card has 12 strips, order as follows:

| Quantity | Product no. | Numbers from | Numbers to |
|---|---|---|---|
| 10 | 0804183 | 1 | 10 |

# Cable and conductor marking

Phoenix Contact can provide the ideal marking option for any application. Just select an assembly method. The markers can be threaded on, clipped or glued into place, or attached with cable binders.




**Marking that stays put**

Printed shrink sleeve is a particularly durable method of marking.

**Fast mounting**

Thread-on markers enable multiple wires to be marked in next to no time.

**Versatility in application**

With self-laminating labels, even flat-ribbon cables can be marked clearly and without abrasion.

# Product overview for cable and conductor marking

**WMS shrink sleeve (pre-assembled)**

The shrinkable WMS marker sleeves are ideally suited to captive cable and conductor marking. The halogen-free, perforated material can be easily separated into smaller sections. They are attached to the conductor by simply threading them on and removing them from the carrier.

**Material data WMS**

Material: Polyolefine
Free from halogen
Temperature: -55 °C to +135 °C

| | Conductor diameter [mm] | Lettering field size [mm] | Markers per roll | Type | Order No. WH | Order No. YE |
|---|---|---|---|---|---|---|
| **Standard roll – printing with THERMOMARK ROLL X1 or with THERMOMARK ROLL with external media hub** | | | | | | |
| | 0.8 – 2.4 | 15x4 | 1000 | WMS 2,4 (15x4) R | 0800379 | 0800412 |
| | 0.8 – 2.4 | 30x4 | 500 | WMS 2,4 (30x4) R | 0800373 | 0800407 |
| | 0.8 – 2.4 | 60x4 | 250 | WMS 2,4 (60x4) R | 0800363 | 0800398 |
| | 1.0 – 3.2 | 15x5 | 1000 | WMS 3,2 (15x5) R | 0800380 | 0800413 |
| | 1.0 – 3.2 | 30x5 | 500 | WMS 3,2 (30x5) R | 0800374 | 0800408 |
| | 1.0 – 3.2 | 60x5 | 250 | WMS 3,2 (60x5) R | 0800364 | 0800399 |
| | 1.6 – 4.8 | 15x9 | 1000 | WMS 4,8 (15x9) R | 0800382 | 0800414 |
| | 1.6 – 4.8 | 30x9 | 500 | WMS 4,8 (30x9) R | 0800375 | 0800409 |
| | 1.6 – 4.8 | 60x9 | 250 | WMS 4,8 (60x9) R | 0800366 | 0800400 |
| | 2.1 – 6.4 | 30x10 | 500 | WMS 6,4 (30x10) R | 0800376 | 0800410 |
| | 2.1 – 6.4 | 60x10 | 250 | WMS 6,4 (60x10) R | 0800367 | 0800401 |
| | 3.1 – 9.5 | 30x16 | 500 | WMS 9,5 (30x16) R | 0800377 | 0800411 |
| | 3.1 – 9.5 | 60x16 | 250 | WMS 9,5 (60x16) R | 0800368 | 0800402 |
| | 4.2 – 12.7 | 60x20 | 250 | WMS 12,7 (60x20) R | 0800369 | 0800403 |
| | 6.4 – 19.1 | 60x30 | 250 | WMS 19,1 (60x30) R | 0800370 | 0800404 |
| | 8.5 – 25.4 | 60x40 | 250 | WMS 25,4 (60x40) R | 0800371 | 0800405 |
| | 12.7 – 38.1 | 60x60 | 250 | WMS 38,1 (60x60) R | 0800372 | 0800406 |
| **Large roll – printing with THERMOMARK ROLL X1 and THERMOMARK ROLL with external media hub each** | | | | | | |
| | 0.8 – 2.4 | 15x4 | 4000 | WMS 2,4 (15x4) RL | 0800389 | |
| | 0.8 – 2.4 | 30x4 | 2000 | WMS 2,4 (30x4) RL | 0800386 | |
| | 0.8 – 2.4 | 60x4 | 1000 | WMS 2,4 (60x4) RL | 0800383 | |
| | 1.0 – 3.2 | 15x5 | 4000 | WMS 3,2 (15x5) RL | 0800390 | |
| | 1.0 – 3.2 | 30x5 | 2000 | WMS 3,2 (30x5) RL | 0800387 | |
| | 1.0 – 3.2 | 60x5 | 1000 | WMS 3,2 (60x5) RL | 0800384 | |
| | 1.6 – 4.8 | 15x9 | 4000 | WMS 4,8 (15x9) RL | 0800391 | |
| | 1.6 – 4.8 | 30x9 | 2000 | WMS 4,8 (30x9) RL | 0800388 | |
| | 1.6 – 4.8 | 60x9 | 1000 | WMS 4,8 (60x9) RL | 0800385 | |
| **Extra large roll – printing with THERMOMARK ROLL X1 and THERMOMARK ROLL with external media hub each** | | | | | | |
| | 0.8 – 2.4 | 15x4 | 10000 | WMS 2,4 (15x4) RXL | 0800396 | |
| | 0.8 – 2.4 | 30x4 | 5000 | WMS 2,4 (30x4) RXL | 0800394 | |
| | 0.8 – 2.4 | 60x4 | 2500 | WMS 2,4 (60x4) RXL | 0800392 | |
| | 1.6 – 4.8 | 15x9 | 10000 | WMS 4,8 (15x9) RXL | 0800397 | |
| | 1.6 – 4.8 | 30x9 | 5000 | WMS 4,8 (30x9) RXL | 0800395 | |
| | 1.6 – 4.8 | 60x9 | 2500 | WMS 4,8 (60x9) RXL | 0800393 | |

# Product overview for cable and conductor marking

**WMS shrink sleeve (continuous)**

The shrinkable WMS marker sleeves are perfectly suited to captive cable and conductor marking. The shrinkable WMS… marker sleeves are perfectly suited to captive cable and conductor marking. The halogen-free, thin-walled sleeves can be cut to any length using the perforation cutter and are then easy to separate.

**Material data WMS**

Material: Polyolefine
Free from halogen
Temperature: -55 °C to +135 °C

| Conductor diameter [mm] | Length per roll [m] | Type | Order No. WH | Order No. YE | Order No. BK |
|---|---|---|---|---|---|
| **Standard roll – printing with THERMOMARK ROLL X1 and THERMOMARK ROLL with external media hub each** | | | | | |
| 0.8 – 2.4 | 30 | WMS 2,4 (Ex4) R | 0800289 | 0800300 | 0800415 |
| 1.0 – 3.2 | 30 | WMS 3,2 (Ex5) R | 0800290 | 0800301 | 0800416 |
| 1.6 – 4.8 | 30 | WMS 4,8 (Ex9) R | 0800291 | 0800302 | 0800418 |
| 2.1 – 6.4 | 25 | WMS 6,4 (Ex10) R | 0800292 | 0800303 | 0800419 |
| 3.1 – 9.5 | 20 | WMS 9,5 (Ex16) R | 0800293 | 0800304 | 0800421 |
| 4.2 – 12.7 | 20 | WMS 12,7 (Ex20) R | 0800294 | 0800305 | 0800422 |
| 6.4 – 19.1 | 20 | WMS 19,1 (Ex30) R | 0800295 | 0800306 | 0800423 |
| 8.5 – 25.4 | 15 | WMS 25,4 (Ex40) R | 0800296 | 0800308 | 0800424 |
| 12.7 – 38.1 | 15 | WMS 38,1 (Ex60) R | 0800298 | 0800309 | 0800425 |
| 16.9 – 50.8 | 15 | WMS 50,8 (Ex80) R | 0800299 | 0800311 | 0800426 |
| **Large roll – printing with THERMOMARK ROLL X1 and THERMOMARK ROLL with external media hub each** | | | | | |
| 0.8 – 2.4 | 120 | WMS 2,4 (Ex4) RL | 0800319 | 0800328 | 0800427 |
| 1.0 – 3.2 | 120 | WMS 3,2 (Ex5) RL | 0800320 | 0800329 | 0800428 |
| 1.6 – 4.8 | 120 | WMS 4,8 (Ex9) RL | 0800321 | 0800330 | 0800429 |
| 2.1 – 6.4 | 100 | WMS 6,4 (Ex10) RL | 0800322 | 0800331 | 0800430 |
| 3.1 – 9.5 | 80 | WMS 9,5 (Ex16) RL | 0800324 | 0800332 | 0800431 |
| 4.2 – 12.7 | 80 | WMS 12,7 (Ex20) RL | 0800325 | 0800333 | 0800432 |
| 6.4 – 19.1 | 80 | WMS 19,1 (Ex30) RL | 0800326 | 0800334 | 0800434 |
| 8.5 – 25.4 | 60 | WMS 25,4 (Ex40) RL | 0800327 | 0800335 | 0800435 |

# Product overview for cable and conductor marking

**WML and US-WML labels for cable lamination**

The conductor marker labels consist of a labeling field and a transparent protective foil. This is wound over the labeling and protects it permanently against contamination and abrasion.

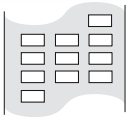
**Material data WML**

Material: PVC
Free from silicone
Temperature: -50 °C to +70 °C

**Material data US-WML**

Material: PVC
Free from silicone
Temperature: -50 °C to +70 °C

Multi-web version



Single-web version

| | Conductor diameter [mm] | Lettering field size [mm] | Markers per roll | Type | Order No. WH | Order No. YE |
|---|---|---|---|---|---|---|
| **Standard roll, multi-web version – printing with THERMOMARK ROLL and THERMOMARK ROLL X1** | | | | | | |
| | < 3 | 13x10 | 5000 | WML 3 (13x10) R | 0800073 | |
| | < 5 | 25x10 | 3000 | WML 5 (25x10) R | 0817523 | 0830673 |
| | < 6 | 13x13 | 7000 | WML 6 (13x13) R | 0816252 | 0830674 |
| | < 7.5 | 13x13 | 4000 | WML 7,5 (13x13) R | 0800074 | |
| | < 7.5 | 17x9 | 1500 | WML 7,5 (17x9) R | 0828444 | |
| | < 7.5 | 25x13 | 2100 | WML 7,5 (25x13) R | 0800075 | |
| | < 12 | 25x19 | 1000 | WML 12 (25x19) R | 0800076 | |
| | < 14 | 25x19 | 1500 | WML 14 (25x19) R | 0817536 | 0817549 |
| | < 14 | 38x19 | 1000 | WML 14 (38x19) R | 0817552 | 0830675 |
| | < 18 | 12x12 | 2500 | WML 18 (12x12) R | 0817507 | |
| | < 20 | 31x25 | 500 | WML 20 (31x25) R | 0828457 | |
| | < 22 | 25x25 | 900 | WML 22 (25x25) R | 0800078 | |
| | < 36 | 25x38 | 500 | WML 36 (25x38) R | 0817510 | |
| | < 36 | 25x38 | 500 | WML 36 (25x38) R | 0817510 | |
| | < 46 | 25x38 | 250 | WML 46 (25x38) R | 0800067 | |
| **Large roll, single-web version – printing with THERMOMARK ROLL X1 or with THERMOMARK ROLL with external media hub** | | | | | | |
| | < 5 | 25x10 | 10000 | WML 5 (25x10) RL | 0830676 | |
| | < 6 | 13x13 | 15000 | WML 6 (13x13) RL | 0830677 | |
| | < 14 | 25x19 | 5000 | WML 14 (25x19) RL | 0830678 | |
| | < 14 | 38x19 | 3000 | WML 14 (38x19) RL | 0830679 | |

| | Conductor diameter [mm] | Lettering field size [mm] | Markers per card | Type | Order No. WH | Order No. YE |
|---|---|---|---|---|---|---|
| **UniSheet card format – printing with THERMOMARK CARD** | | | | | | |
| | < 6 | 13x13 | 32 | US-WML 6 (13x13) | 0800472 | |
| | < 14 | 25x19 | 8 | US-WML 14 (25x19) | 0800473 | |
| | < 36 | 25x25 | 4 | US-WML 36 (25x25) | 0800474 | |

# Product overview for cable and conductor marking

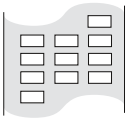
### WMT thread-on markers

WMT markers are made of polyester foil. They are used to label conductors. The printed individual markers thread onto the conductor easily and are captively mounted.

### Material data WMT

Material: Polyester
Free from silicone an halogen
Temperature: -40 °C to +120 °C

Multi-web version



| | Conductor diameter [mm] | Lettering field size [mm] | Markers per roll | Type | Order No. WH | Order No. YE |
|---|---|---|---|---|---|---|
| **Standard roll, multi-web version – printing with THERMOMARK ROLL and THERMOMARK ROLL X1** | | | | | | |
| | 1.0 – 2.4 | 15x4 | 4000 | WMT 2,4 (15x4) R | 0816281 | |
| | 2.0 – 3.5 | 15x5 | 4000 | WMT 3,5 (15x5) R | 0817222 | |
| | 3.0 – 4.2 | 15x6 | 4000 | WMT 4,2 (15x6) R | 0817235 | |
| | 4.0 – 5.5 | 15x8 | 4000 | WMT 5,5 (15x8) R | 0817248 | |
| | 5.0 – 8.4 | 17x10 | 4000 | WMT 8,4 (17x10) R | 0817251 | |

### UCT-WMS thread-on markers

UCT-WMS markers thread onto the conductor easily. They are held securely in place by three internal studs. UCT-WMS sheets are printed using the THERMOMARK CARD printer with UCT magazine 3.

### Material data UCT-WMS

Material: PC V0
Free from silicone an halogen
Temperature: -40 °C to +120 °C

| | Conductor diameter [mm] | Lettering field size [mm] | Markers per card | Type | Order No. WH | Order No. YE |
|---|---|---|---|---|---|---|
| **UniCard card format – printing with THERMOMARK CARD** | | | | | | |
| | 1.5 – 3.2 | 12x4 | 55 | UCT-WMS 3,2 (12x4)… | 0828570 | 0828572 |
| | 2.5 – 4.7 | 12x5.5 | 45 | UCT-WMS 4,7 (12x5,5) | 0828571 | 0828573 |
| | Magazine | | THERMOMARK CARD UCT-MAG3 | | 5146613 | |

# Product overview for cable and conductor marking

### Marking for for attachment using cable binders WMTB, US-WMTB, and WMTB-HF

WMTB marking labels are attached with cable binders. As such, they can be used to label conductors after they have been connected. US-WMTB is an alternative in UniSheet card format. WMTB-HF are manufactured from polyurethane so are particularly flexible.

**Material data**

**WMTB** free from silicone and halogen
Material: Polyester -40 to +120 °C

**US-WMTB** free from silicone
Material: Polyester -30 to +80 °C

**WMTB-HF** free from halogen
Material: PUR -25 to +80 °C

| Conductor diameter [mm] | Lettering field size [mm] | Markers per roll | Type | Order No. WH | Order No. YE |
|---|---|---|---|---|---|
| **Standard roll, multi-web version – printing with THERMOMARK ROLL and THERMOMARK ROLL X1** | | | | | |
| > 6 | 24x8 | 4000 | WMTB (24x8) R | 0816278 | |
| > 6 | 35x15 | 1700 | WMTB (35x15) R | 0817316 | |
| **Standard roll, single-web version – printing with THERMOMARK ROLL and THERMOMARK ROLL X1** | | | | | |
| > 6 | 40x12 | 1000 | WMTB-HF (40x12) R | 0830407 | 0830408 |
| > 6 | 55x15 | 1000 | WMTB-HF (55x15) R | 0830409 | 0830410 |
| > 6 | 55x25 | 500 | WMTB-HF (55x25) R | 0830411 | 0830412 |

| Conductor diameter [mm] | Lettering field size [mm] | Markers per card | Type | Order No. WH | Order No. YE |
|---|---|---|---|---|---|
| **UniSheet card format – printing with THERMOMARK CARD** | | | | | |
| > 4 | 24x5 | 35 | US-WMTB (24x5) | 0828771 | 0828958 |
| > 6 | 29x8 | 24 | US-WMTB (29x8) | 0828772 | 0828959 |
| > 6 | 44x15 | 12 | US-WMTB (44x15) | 0828773 | 0828960 |

### WT cable binders

Cable binders have been used for decades for binding control lines and cables. They are ideal for fixing cables and as an accessory for various cable markers.

**Material data WT**

Material: Polyamide
Free from silicone and halogen
Temperature: -40 °C to +85 °C

| Length/width [mm] | Pcs. / Pkt. | Color | Type | Order No. |
|---|---|---|---|---|
| 98x2,5 | 1000 | transparent | WT-HF 2,5X98-L | 3240735 |
| 160x2,6 | 1000 | transparent | WT-HF 2,6X160-L | 3240739 |
| 200x2,6 | 1000 | transparent | WT-HF 2,6X200-L | 3240743 |
| 140x3,6 | 1000 | transparent | WT-HF 3,6X140-L | 3240747 |
| 200x3,6 | 1000 | transparent | WT-HF 3,6X200-L | 3240751 |
| 290x3,6 | 1000 | transparent | WT-HF 3,6X290-L | 3240755 |
| 160x4,5 | 1000 | transparent | WT-HF 4,5X160-L | 3240759 |
| 200x4,5 | 1000 | transparent | WT-HF 4,5X200-L | 3240763 |
| 98x2,5 | 1000 | black | WT-HF 2,5X98 BK-L | 3240734 |
| 160x2,6 | 1000 | black | WT-HF 2,6X160 BK-L | 3240738 |
| 200x2,6 | 1000 | black | WT-HF 2,6X200 BK-L | 3240742 |
| 140x3,6 | 1000 | black | WT-HF 3,6X140 BK-L | 3240746 |
| 200x3,6 | 1000 | black | WT-HF 3,6X200 BK-L | 3240750 |
| 290x3,6 | 1000 | black | WT-HF 3,6X290 BK-L | 3240754 |
| 160x4,5 | 1000 | black | WT-HF 4,5X160 BK-L | 3240758 |
| 200x4,5 | 1000 | black | WT-HF 4,5X200 BK-L | 3240762 |

# Product overview for cable and conductor marking

**Conductor marking for insertion into EMT marking collars**

EMT markers are inserted into PATG, PATO or PAB-KTL marking collars which provide protection against environmental influences and abrasion.

**Material data EMT**

Material: Polyester
Free from silicone and halogen
Temperature: -40 °C to +100 °C

| Lettering field size [mm] | Markers per roll | Type | Order No. WH | Order No. YE |
|---|---|---|---|---|
| **Standard roll, multi-web version – printing with THERMOMARK ROLL and THERMOMARK ROLL X1** | | | | |
| 10x4 | 7500 | EMT (10x4) R | 0816235 | |
| 15x4 | 7500 | EMT (15x4) R | 0817329 | 0817358 |
| 23x4 | 5000 | EMT (23x4) R | 0817361 | 0817374 |

**Conductor marking for insertion into US-WMT / UCT-WMT marking collars**

US-WMT / UCT-WMT markers are also used in conjunction with PATG, PATO and PAB-KTL marking collars. As the marker strips can be replaced, both versions can also be used to mark conductors after they have been connected or if changes need to be made to imprints or labels.

**Material data**

**US-WMT** free from silicone
Material: PVC
Temperature: -30 °C to +80 °C

**UCT-WMT**

Free from silicone and halogen
Material: PC V0
Temperature: -40 °C to +120 °C

| Lettering field size [mm] | Markers per card | Type | Order No. WH | Order No. YE |
|---|---|---|---|---|
| **UniSheet card format – printing with THERMOMARK CARD** | | | | |
| 10x4 | 112 | US-WMT (10x4) | 0828765 | 0828952 |
| 12x4 | 98 | US-WMT (12x4) | 0828766 | 0828953 |
| 15x4 | 84 | US-WMT (15x4) | 0828767 | 0828954 |
| 18x4 | 70 | US-WMT (18x4) | 0828768 | 0828955 |
| 23x4 | 56 | US-WMT (23x4) | 0828769 | 0828956 |
| 30x4 | 42 | US-WMT (30x4) | 0828770 | 0828957 |
| **UniCard card format – printing with THERMOMARK CARD** | | | | |
| 10x4 | 60 | UCT-WMT (10X4) | 0801430 | |
| 12x4 | 50 | UCT-WMT (12X4) | 0801438 | |
| 15x4 | 50 | UCT-WMT (15X4) | 0801446 | |
| 18x4 | 40 | UCT-WMT (18X4) | 0801462 | |
| 23x4 | 30 | UCT-WMT (23X4) | 0801453 | |
| 30x4 | 30 | UCT-WMT (30X4) | 0801422 | |

# Product overview for cable and conductor marking

**Marking collars PATG/PATO**
**Marker carriers PAB KTL**

The PATG marking collars are pushed onto the conductor before it is connected. PATO can also be used to mark conductors after they have been connected. The PAB-KTL marker carriers can be used for simultaneous bundling and marking of cables and wires.

| | Conductor diameter [mm] | Type | Length of lettering field | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 10 | 12 | 15 | 18 | 23 | 30 |
| | **PATG** | | | | | | | |
| | 0.6 – 1.2 | PATG 0/… | 1013795 | 0827076 | 1013740 | 0820507 | 0828046 | – |
| | 1.5 – 2.5 | PATG 1/… | 1013805 | 0827077 | 1013025 | 0820510 | 1013847 | 0822440 |
| | 2.0 – 4.0 | PATG 2/… | 1013818 | 0827078 | 1013038 | 0820523 | 1013850 | 0822453 |
| | 4.0 – 7.0 | PATG 3/… | 1013821 | 0827079 | 1013041 | 0820536 | 1013863 | 0822466 |
| | 6.0 – 10.0 | PATG 4/… | – | 0827080 | 1013054 | 0820549 | 0808011 | 0822479 |
| | 10.0 – 14.0 | PATG 5/… | – | – | 1013067 | 0828059 | 0808024 | 0822482 |
| | 14.0 – 22.0 | PATG 6/… | – | – | 1013070 | 0828062 | 0808037 | – |

**Material data PATG**
Material: PVC
Free from silicone
Temperature: -50 °C to +80 °C

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **PATO** | | | | | | | |
| | 2.0 – 3.5 | PATO 01/… | 1013876 | 0827081 | 1013119 | 0823740 | 1013892 | 0822495 |
| | 2.8 – 5.0 | PATO 02/… | 1013889 | 0827082 | 1013122 | 0823753 | 1013902 | 0822505 |
| | 5.0 – 8.0 | PATO 03/… | – | – | 1013135 | – | – | – |
| | 8.0 – 10.0 | PATO 04/… | – | – | 1013148 | – | – | – |

**Material data PATO**
Material: PVC
Free from silicone
Temperature: -50 °C to +80 °C

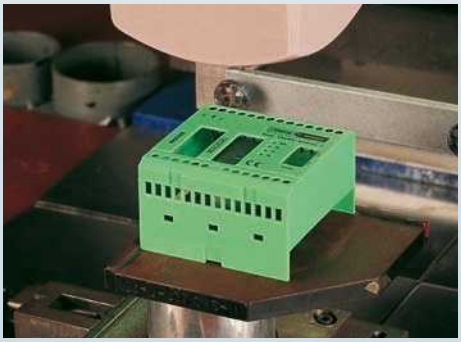
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **PAB-KTL** | | | | | | | |
| | | PAB-KTL | | | | | | 1013261 |

**Material data PAB-KTL**
Material: PVC
Free from silicone
Temperature: -50 °C to +80 °C

# Marking expertise for the electronics industry

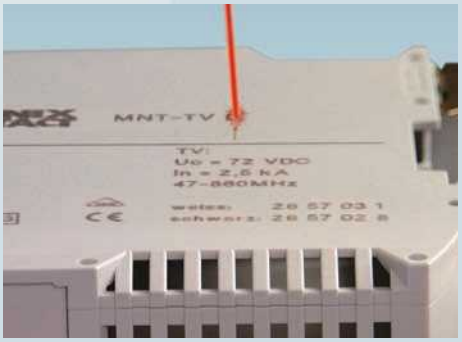
Phoenix Contact can offer you a wide range of marking options for components and parts in electronics production. If you are buying in large quantities, we can supply your components labeled ex-works if you like. Whether you need PCB terminal blocks pre-printing or individual housings labeled, we have both the know-how and the necessary production technologies.

If you are buying in smaller quantities or require custom imprinting or labeling, we can offer you a variety of printers and marking materials for your components.



**1. Pad printing**

Pad printing is widely recognized for labeling electronics housings. A legible and high-contrast print can be made based on your electronic print copy. A wide range of printing colors is available.




**2. Laser printing**

Generally all technical thermoplastics can be labeled by laser beam. Readability and contrast ratios largely depend on the particular plastic/color combination, the wavelength of the laser, and the process parameters, and, therefore, need to be determined accordingly.

**3. Individual marking**

Professional marking systems like thermal transfer systems are able to provide quick and flexible solutions for individual marking requirements on site.

## THERMOMARK ROLL

The THERMOMARK ROLL can print markers supplied in roll format for terminal, conductor, cable, and device marking applications

## THERMOMARK ROLL X1

The THERMOMARK ROLL X1 is able to process large rolls and thus produce large quantities in industrial production applications.

## THERMOMARK CARD

THERMOMARK CARD prints materials in card and sheet format, providing quick and easy solutions for a wide variety of marking requirements.

## CLIP PROJECT

CLIP PROJECT is a high-performance marking software solution for customized labeling materials. CLIP PROJECT supports all output devices from Phoenix Contact.

# THERMOMARK ROLL

This thermal transfer printer has been designed for printing rolls and continuous media. You can easily create accurately printed labels, markers and shrink sleeves for terminal block, conductor and device marking. The compact printer is also suitable for mobile use.

| Technical data | | Description | Type | Order No. |
|---|---|---|---|---|
| Print resolution | 300 dpi | **THERMOMARK ROLL**, thermal transfer printer for roll material, CLIP PROJECT advanced software, one roll of EML (20x8) labels containing 1000 labels, one ink ribbon (50 m sample roll) | THERMOMARK ROLL | 5146477 |
| Interfaces | USB and Ethernet | | | |
| Power supply | 100 – 240 V ~ 50/60 Hz, | | | |
| Operation | Touch screen | | | |
| Printable material | Labels and shrink sleeve in roll format | | | |
| Dimensions (W x H x D) | 253 x 189 x 320 mm | | | |
| Weight | approx. 3.5 kg | | | |
| | | THERMOMARK ROLL SET, consisting of THERMOMARK ROLL and MARKING NOTEBOOK with German keyboard and the CLIP PROJECT professional software | THERMOMARK ROLL SET | 5147300 |
| | | THERMOMARK ROLL SET EN, consisting of THERMOMARK ROLL and MARKING NOTEBOOK with English keyboard and the CLIP PROJECT professional software | THERMOMARK ROLL SET EN | 5147301 |

## THERMOMARK ROLL X1

The dimensions of the THERMOMARK ROLL X1 thermal transfer printer mean that it is also able to process large rolls.

| Technical data | | Description | Type | Order No. |
|---|---|---|---|---|
| Print resolution | 300 dpi | **THERMOMARK ROLL X1**, thermal transfer printer for roll material, Software CLIP PROJECT advanced, one roll of EML (20x8) labels containing 1000 labels, one ink ribbon (50 m sample roll) | THERMOMARK ROLL X1 | 5146723 |
| Interfaces | USB and Ethernet | | | |
| Power supply | 100 – 240 V ~ 50/60 Hz, | | | |
| Operation | Touch screen | | | |
| Printable material | Labels and shrink sleeve in roll format | | | |
| Dimensions (W x H x D) | 264 x 245 x 412 mm | | | |
| Weight | approx. 5 kg | | | |

| THERMOMARK ROLL and THERMOMARK ROLL X1 accessories | Description | Type | Order No. |
|---|---|---|---|
| | External media hub, for rolls of 150 to 305 mm outside diameter (RL rolls) for THERMOMARK ROLL | THERMOMARK ROLL-ERH | 5146448 |
| | External media hub, for rolls of up to 500 mm outside diameter (RXL rolls) for THERMOMARK ROLL | THERMOMARK-ERH 500 | 5146309 |
| | Ink ribbon, ink color: black, length 300 m, width 110 mm | THERMOMARK-RIBBON 110 | 5145384 |
| | Ink ribbon, ink color: blue, length 300 m, width 110 mm | THERMOMARK-RIBBON 110 BU | 0829544 |
| | Ink ribbon, ink color: green, length 300 m, width 110 mm | THERMOMARK-RIBBON 110 GN | 0829542 |
| | Ink ribbon, ink color: red, length 300 m, width 110 mm | THERMOMARK-RIBBON 110 RD | 0829543 |
| | Ink ribbon, ink color: black, length 300 m, width 110 mm, for high-temperature labels | THERMOMARK-RIBBON 110-EMLHT | 0800342 |
| | Ink ribbon for labeling shrink sleeves, ink color: black, length 300 m, width 110 mm | THERMOMARK-RIBBON 110-WMSU | 0801358 |
| | Ink ribbon for labeling shrink sleeves, ink color: white, length 300 m, width 110 mm | THERMOMARK-RIBBON 110-WMSU WH | 0801359 |
| | Ink ribbon, ink color: black, for labeling WMTB-HF, length 300 m, width 110 mm | THERMOMARK-RIBBON 110-WMTB | 5148007 |
| | Stable transport case with aluminum edges for printers and accessories, for THERMOMARK ROLL or CARD | TL CASE | 0800613 |

### Cutters and perforation devices

Continuous media can be cut and perforated with a high degree of positioning accuracy with cutters and perforation devices.

| Cutters and perforation devices | Description | Type | Order No. |
|---|---|---|---|
| | Cutter, can be assembled later, for cutting continuous media precisely to length for THERMOMARK ROLL | THERMOMARK ROLL-CUTTER | 5146422 |
| | Perforation device, can be assembled later, for perforating continuous media | THERMOMARK ROLL-CUTTER/P | 5146435 |
| | Cutter, can be assembled later, for cutting continuous media precisely to length for THERMOMARK ROLL X1 | THERMOMARK ROLL X1 CUTTER | 5146765 |
| | Perforation device, can be assembled later, for perforating continuous media for THERMOMARK ROLL X1 | THERMOMARK ROLL X1 CUTTER/P | 5146766 |

# THERMOMARK CARD

This thermal transfer printer prints marking materials in card and sheet format. You can mark your terminal blocks, conductors and devices easily and to a high quality. The low weight and compact design of the printer also allow for mobile use on-site. The automatic material detection reduces the risk of print errors.

| Technical data | | Description | Type | Order No. |
|---|---|---|---|---|
| Print resolution | 300 dpi | **THERMOMARK CARD**, thermal transfer printer for card and sheet material, CLIP PROJECT advanced software, magazines for US and UCT materials, one UCT-TM 6, one US-EMP (85.6 x 54), one ink ribbon (50 m sample roll) | THERMOMARK CARD | 5146464 |
| Speed | 8 sec/sheet | | | |
| Interfaces | USB and Ethernet | | | |
| Power supply | 100 - 240 V ~ 50/60 Hz, | | | |
| Operation | Touch screen | | | |
| Printable material | Plastic sheets, UCT and US format | | | |
| Dimensions (W x H x D) | 253 x 189 x 320 mm | | | |
| Weight | approx. 6 kg | | | |
| | | THERMOMARK CARD SET, consisting of THERMOMARK CARD and MARKING NOTEBOOK with German keyboard and the CLIP PROJECT professional software | THERMOMARK CARD SET | 5147200 |
| | | **THERMOMARK CARD SET EN**, consisting of THERMOMARK CARD and MARKING NOTEBOOK with English keyboard and the CLIP PROJECT professional software | THERMOMARK CARD SET EN | 5147201 |

| THERMOMARK CARD accessories | Description | Type | Order No. |
|---|---|---|---|
| | Magazine for US cards (included in the scope of supply of the THERMOMARK CARD) | THERMOMARK CARD – US-MAG1 | 5146451 |
| | Magazine for UCT sheets [UCT-WMS…] | THERMOMARK CARD – UCT-MAG3 | 5146613 |
| | Ink ribbon, ink color: black, length 300 m, width 110 mm | THERMOMARK-RIBBON 110-TC | 0801371 |

# CLIP PROJECT software and MARKING NOTEBOOK

## CLIP PROJECT

The high-performance marking software provides a solution for the quick and individual labeling of all Phoenix Contact marking materials. CLIP PROJECT supports all output devices from Phoenix Contact and, thanks to automatic Internet updates, is always up-to-date. CLIP PROJECT advanced is supplied as standard with our THERMOMARK printers.

| Technical data | | Description | Type | Order No. |
|---|---|---|---|---|
| CPU<br>Main memory/<br>hard disk space<br>Drive<br>Monitor resolution<br>Operating equipment<br>Operating systems | Pentium II > 400 MHz<br><br>128 MB/2 GB<br>CD-ROM<br>1024x768<br>Mouse recommended<br>Windows Vista<br>Windows XP<br>Windows 7 | **CLIP PROJECT advanced**, planning and marking software in German, English, French, Italian, Spanish, Russian, Polish, Hungarian, Czech, Portuguese, Chinese, Turkish, Dutch, Japanese<br>Software is included in the scope of supply of the THERMOMARK CARD and THERMOMARK ROLL. | CLIP PROJECT ADVANCED | 5146040 |
| | | **CLIP PROJECT professional**, extended version of CLIP PROJECT advanced with additional template designer, for designing your own marking material. | CLIP PROJECT PROFESSIONAL | 5146053 |

## MARKING BOX / MARKING NOTEBOOK

The MARKING BOX contains the THERMOMARK CARD and THERMOMARK ROLL thermal transfer printers, plus the MARKING NOTEBOOK with the CLIP PROJECT professional marking software pre-installed.

The notebook from the Dell Latitude TM E range transforms the new THERMOMARK printers into a complete marking system. It is characterized by reliability, a long service life and a professional design.

Windows 7, CLIP PROJECT professional planning and marking software and all of the required drivers are pre-installed and ensure quick startup of the entire system. Simply connect the notebook and printer via USB and you're done (Plug'n'Print).

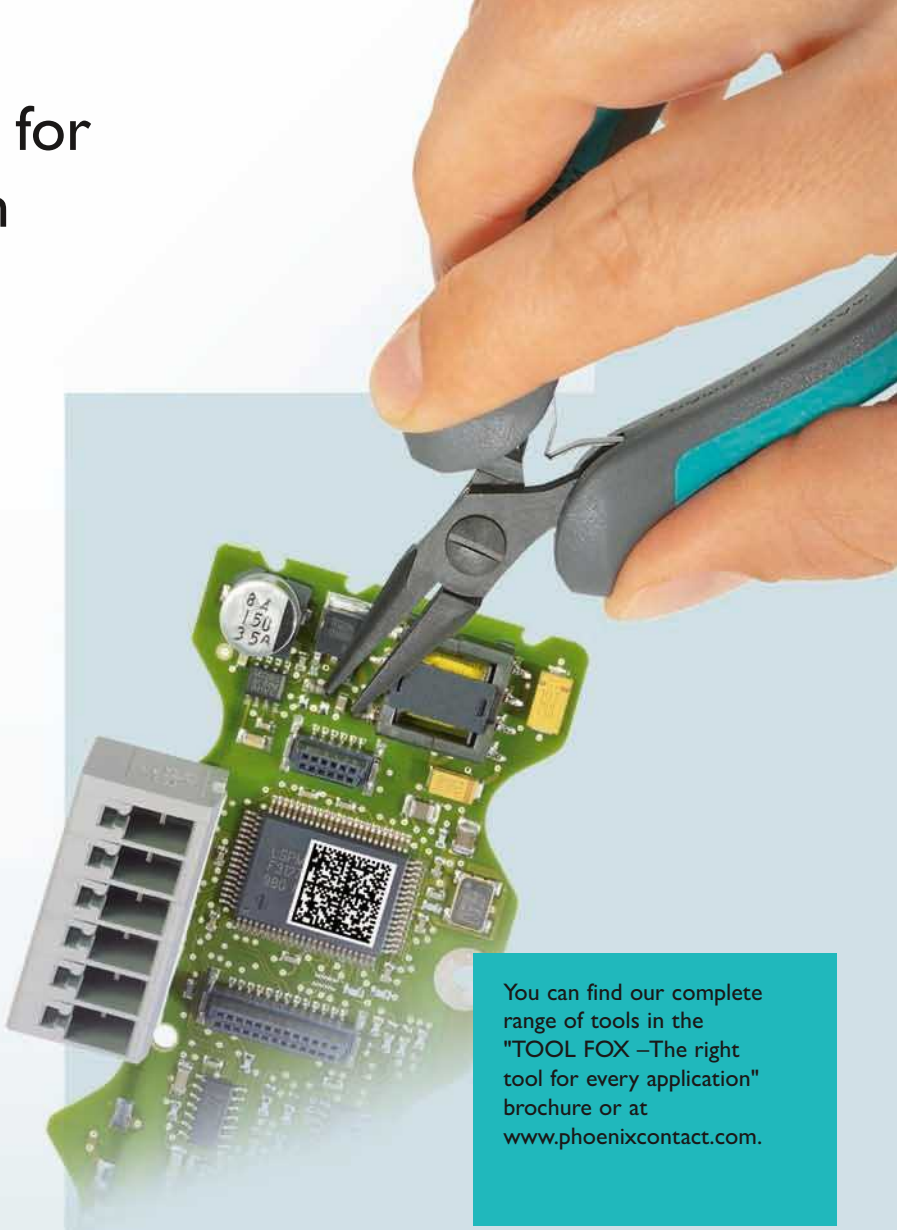
| Description | Type | Order No. |
|---|---|---|
| **MARKING BOX**, consisting of the THERMOMARK CARD and THERMOMARK ROLL printers, plus the MARKING NOTEBOOK with German keyboard | MARKING BOX | 5147100 |
| **MARKING BOX EN**, consisting of the THERMOMARK CARD and THERMOMARK ROLL printers, plus the MARKING NOTEBOOK with German keyboard | MARKING BOX EN | 5147101 |

| Technical data | | |
|---|---|---|
| Processor<br>Display<br>Hard disk<br>Main memory<br>Battery | Intel Celeron B840<br>14” 1366 x 768<br>320 GB serial ATA (7200 RPM)<br>2 GB and 1600 MHz<br>Li-ION battery with 40 Wh | The information describes the configuration at the time of going to print. Subject to modifications in the interest of technical progress or product improvements. |

# **MICROFOX** – Tools for electronics production

MICROFOX – the range of pliers for all tasks in electronics and electromechanical engineering.

Like all Phoenix Contact tools, the micro pliers are equipped with two-component handles which have been designed specifically to ensure a safe grip and eliminate fatigue. For the protection of sensitive electronics components, we recommend the ESD versions with special handles, as they are able to discharge electrostatic charges in a controlled manner conforming to applicable standards and regulations.



You can find our complete range of tools in the "TOOL FOX –The right tool for every application" brochure or at www.phoenixcontact.com.

**Durable**

The tools are made from special C 60 tool steel. They are hardened and precision-ground for excellent cutting performance and are particularly durable.

**Precision**

The integrated double leaf spring and the ergonomic non-slip handle ensure accuracy and precision when working with electronic components.

**Protective**

The handles of the MICROFOX… ESD electronics pliers are made from conductive plastic. This means that electrostatic energy is discharged in a gradual and controlled manner.

# Tools for electronics production

## Electronics pliers

MICROFOX electronics pliers feature a through-connected joint for permanent stability and optimum distribution of force. The surfaces are finely polished and oiled.

| Type | Order No. | MICROFOX-SB | 1212489 |
|---|---|---|---|
| Description | | Diagonal cutter | |
| | | Rounded head with chamfer | |
| Type | Order No. | MICROFOX-SP | 1212488 |
| Description | | Needle-nose pliers | |
| | | Tapered head, no chamfer | |

| Type | Order No. | MICROFOX E | 1212494 |
|---|---|---|---|
| Description | | Front cutter | |
| | | No chamfer | |
| Type | Order No. | MICROFOX-EO | 1212495 |
| Description | | Angled front cutter | |
| | | Angled, 20°, no chamfer | |

| Type | Order No. | MICROFOX-P | 1212491 |
|---|---|---|---|
| Description | | Needle-nose pliers | |
| | | Smooth gripping surface | |

| Type | Order No. | MICROFOX-PC | 1212492 |
|---|---|---|---|
| Description | | Needle-nose pliers | |
| | | 45° angle, smooth gripping surface | |

| Type | Order No. | MICROFOX-F | 1212493 |
|---|---|---|---|
| Description | | Flat-nose pliers | |
| | | Smooth gripping surface | |

| Type | Order No. | MICROFOX-R | 1212490 |
|---|---|---|---|
| Description | | Round-nose pliers | |
| | | Smooth gripping surface | |

## ESD electronics pliers

The ESD MICROFOX electronics pliers conform to applicable standards and regulations including DIN EN 61340-5. The screwed precision joint makes for optimum results. Mirror-polished and phosphate-treated metal surfaces ensure that there is no glare when working.

| Type | Order No. | MICROFOX-S ESD | 1212480 |
|---|---|---|---|
| Description | | Diagonal cutter | |
| | | Rounded head, no chamfer | |

| Type | Order No. | MICROFOX-E ESD | 1212485 |
|---|---|---|---|
| Description | | Front cutter | |
| | | No chamfer | |

| Type | Order No. | MICROFOX-P ESD | 1212482 |
|---|---|---|---|
| Description | | Needle-nose pliers | |

| Type | Order No. | MICROFOX-PC ESD | 1212483 |
|---|---|---|---|
| Description | | Needle-nose pliers | |
| | | Smooth gripping surface. 45° angle | |

| Type | Order No. | MICROFOX-F ESD | 1212484 |
|---|---|---|---|
| Description | | Flat-nose pliers | |
| | | Smooth gripping surface | |

| Type | Order No. | MICROFOX-R ESD | 1212481 |
|---|---|---|---|
| Description | | Round-nose pliers | |
| | | Smooth gripping surface | |

Further information on the products presented here and on the world of solutions from Phoenix Contact can be found at

**www.phoenixcontact.net/catalog**

**Or contact us directly.**

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PHOENIX CONTACT GmbH & Co. KG
32823 Blomberg, Germany
Phone: +49 (0) 52 35 3-00
Fax: +49 (0) 52 35 3-4 12 00
www.phoenixcontact.com

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