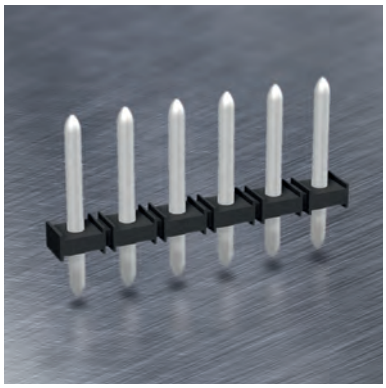
CONNECTION WITHOUT LIMITS

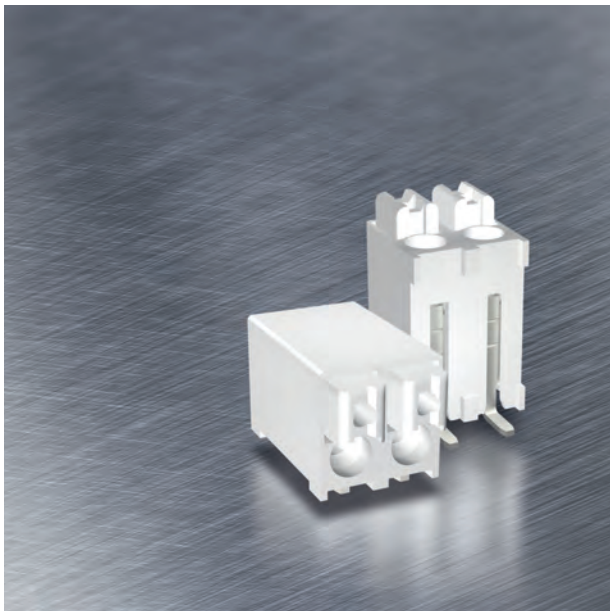
WECO®

Connection Technology on Printed Circuit Boards SMD & THR

6



SMARTCONN®



Electronic

Content

Do you know ....

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Pin strip in 3.5 mm pitch, with „Floating Anchor“
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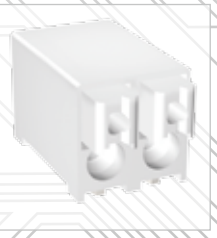

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Pin strip in 3.5 mm pitch
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950-THR
PCB connector for THR in 5.0 mm pitch
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Symbols on data sheets

These symbols can be found on our data sheets on the right side of the product image.

RoHS COMPLIANT

RoHS compliant

These articles comply with the RoHS regulations.

„no flame“ after glow-wire test according to household appliance standard DIN EN/IEC 60335-1

The housing materials used are VDE-tested and approved according to the glow-wire tests specified in DIN EN/IEC 60335-1. They meet the requirements of the household appliance standard.

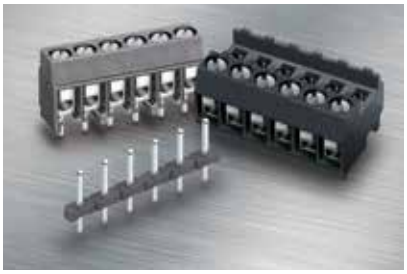
pottable

Through its geometry, this product is specially suitable for potting.

Tape-on-Reel Product

This product is available in Tape-on-Reel.
Detailed information about number of poles, part numbers, tape width, belt height and packing units is given on the data sheet.

Overview



Connectors for printed circuit boards

WECO PCB connectors always offer a good solution for almost any connection problem by its big variety of types. The screw connections are available in socket terminal style, in elevator clamping style or as head contact terminals. The plug connectors are especially designed for the connection of components or peripheral devices. Tab connectors and screwless types complete the product program.

Plug-In connector systems

The plug-in connector system consisting of plug connectors with screw and their corresponding pin strips.
Due to four different pitch sizes, lateral flange executions, tier versions and different plug directions, this product serie suit almost every application on the PCB. All connectors offer coding possibilities to avoid incorrect plugging.

SMD & THR

“SMarTconn” covers terminals and plug connectors for surface mount and reflow soldering technique. Apart from the proven Through-Hole-Technology (THR) we focus on genuine SMD - Surface Mount Devices – in this product serie. With their reliable adhesive forces and their good reflow soldering capabilities, we offer products, which are a worthy replacement for the conventional soldering technique. All products of this series are packed in tape-on-reel or tube magazines for the automatic assembling with a pick & place machine.

Terminal strips

This group contains socket terminals, plug-in connectors, screwless types and additionally the combination of screw and solder tag for the wire-to-wire connection. All types are available for different cross sections, with and without wire protectors. The used Polyamide plastic material pass the ball pressure test with 125°C according to VDE 0470, which is demanded in many IEC and VDE regulations for insulants.

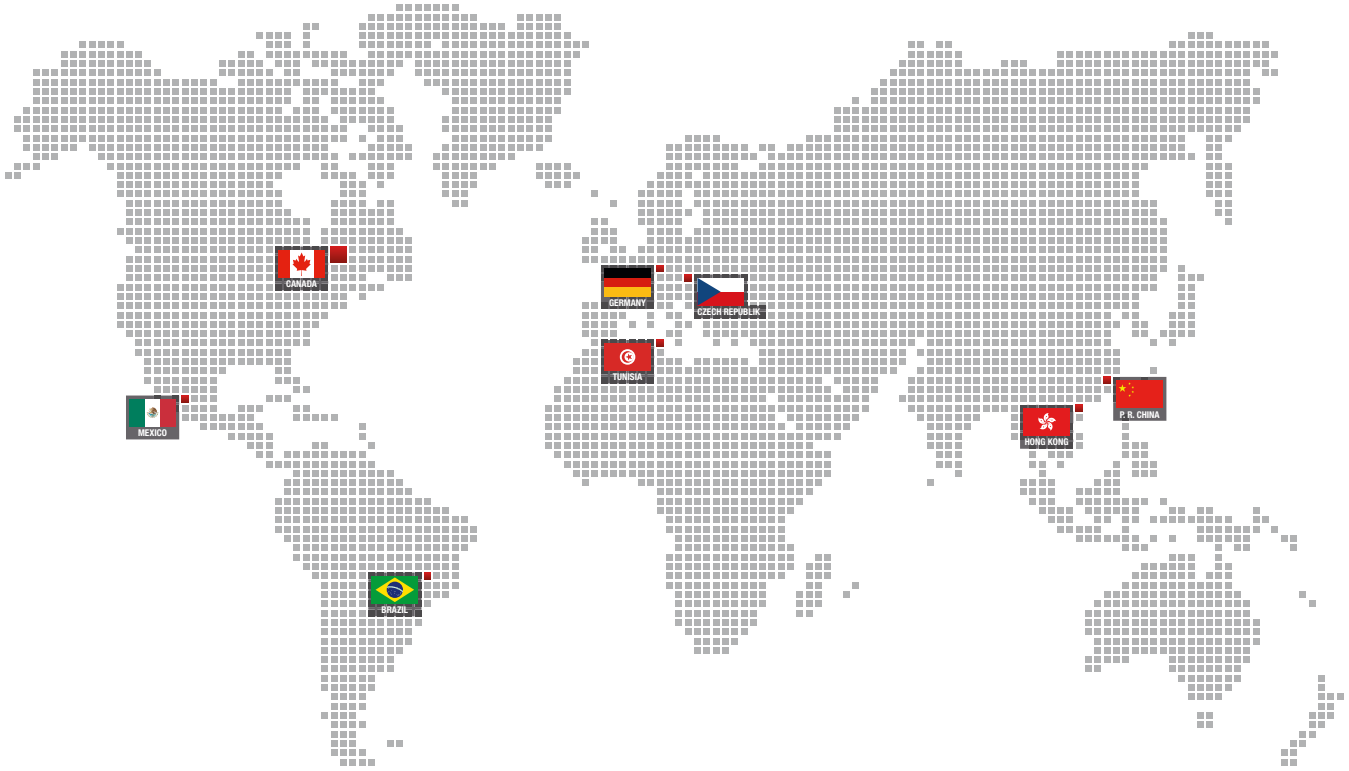
Tab connectors

These connectors are equipped with receptacles in different sizes and styles. Mixed arrangements per terminal block as well as per pole (Multi-Point Tab Connectors) are possible. Combinations of tab / solder connectors, flat plug couplers and space saving tier versions increase the density of connections. The tab connectors offer a wide spectrum of possible combinations, whereby many connection problems can be solved.

Ceramic terminal blocks

This group covers mantle terminals, ceramic terminal strips and terminals for explosion and firedamp-hazard areas. Various sizes and designs permit them to be used for wire cross sections up to 120 mm² and including applications in furnace construction and ship building, for engines and intrinsically safe electrical equipment. The terminal blocks with ceramic insulator can be used at increased temperatures.

The WECO Group



For more than 90 years, WECO has been one of the leading recognized partners for safe and top-quality connectors in the field of electronics and electrical engineering.

With our globally operating sales network, own production plants, competent and experienced contact partners, we are always at your disposition on-site. From our extensive portfolio of 17,000 different articles but also with customized products, our team of about 450 employees will find you the optimum solution for your specific requirements. All of our products comply with the pertinent regulations of Household Appliance, UL, CSA and VDE Standards.

Our unique customer-specific developments prove the high level of innovation power of WECO products and services. The fast and flexible project implementation in combination with delivery reliability ultimately enables us to flexibly respond to the increasingly challenging demands of the market.

Our patented product series for Surface Mount Technology (SMD), suitable even for rough surfaces, provide you with significant cost savings in production and quality control processes.

Customer satisfaction and the durability of our products are our top priorities.

You can always count on WECO as your competent, cooperative and reliable partner for secure connections - worldwide.

Household Appliance Standard DIN EN/IEC 60335-1

What is the household appliance standard all about?

The household appliance standard DIN EN/IEC 60335-1:2012-10 standardizes the safety features of electrical appliances for household and commercial use whose rated voltages do not exceed 250 V for single-phase appliances and 480 V for other appliances.

Which aspects of the household appliance standard are particularly important for WECO products?

Chapter 30: Heat- and flame-resistance. Components made of non-metallic materials holding active components (e.g. connection elements) in position must be resistant against ignition and fire propagation.
Electrical appliances are divided into several classes. Depending on their application, they are tested according to different methods.
Most WECO products meet the requirements for unattended appliances with currents > 0.2 A. These requirements stipulate the glow-wire resistance test for non-metallic materials and refer to other glow-wire tests.

These flame-resistance requirements shall prevent self-ignition of unattended appliances. On the market, they are designated as “no flame”.

Who is affected by this household appliance standard?

The standard is applicable for manufacturers of electric and electronic components in household appliances, such as terminals and switches, e.g. in:

- Dishwashers, washing machines, refrigerators
- Kitchen stoves, microwaves
- Small household appliances, such as mixers, coffee machines

Also affected is unattended equipment used in small and medium-sized enterprises, particularly:

- Pump components
- Illuminant components
- Industrial and commercial cleaning equipment
- Hair salon equipment etc.

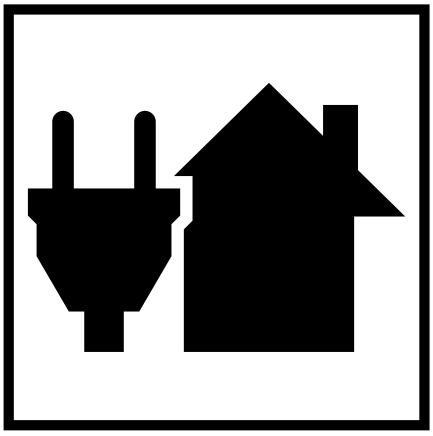
WECO products are compliant with the glow-wire test of the household appliance standard!

For the white goods market segment, WECO Contact GmbH offers an extensive range of PC board terminals and PC board plug connectors which meet the flame-resistance requirements of the Household Appliance Standard DIN EN/IEC 60335-1.

Molding materials used by WECO are tested and VDE-approved according to the glow-wire test requirements specified in DIN EN/IEC 60335-1. This applies for all standard WECO colors!

WECO products made of these molding materials are:

- All products with PC board connection technology, except for versions with higher number of poles such as series 95.., 96.. and 97…,
- Terminal strips (catalogue 7), if purchased made of V-0 molding material (for unprinted versions, the part number ends with “EN6”),
- Other products. Feasibility must be checked individually.



WECO “no flame” products are designated with a small symbol on our label:

Our customer service

WECO takes technical support and after-sale service for our customers very seriously.
For your information, we have therefore compiled a list of all manufacturer products affected by the household appliance standard on our website. At a glance, you can gather information on whether your appliances are affected or not.

The list is also a valuable tool for both our sales staff and our field reps, helping them to resolve unclear issues in project meetings, and enabling them to optimally support the customer.

RoHS - Restriction of Hazardous Substances

Declaration

The directive 2002/95/EC (RoHS 1) on the restriction of the use of certain hazardous substances in electrical and electronic equipment controls since 1st July 2006 the use of hazardous substances in devices and components. The directive is generally named with the short term RoHS (Restriction of Hazardous Substances). It affects manufacturers, sellers, distributors and recyclers of electrical and electronic equipment containing mercury, cadmium, lead, chromium VI, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE).

This directive has been replaced on 3rd January 2013 by the revised version 2011/65/EU (RoHS 2). Thus, the ranges of validity of the RoHS have been extended. Earlier given exceptions are reduced step by step.

WECO Contact is a responsible manufacturer of components for electrical connection technology and thus provides products in RoHS - compliant versions since the implementation of the EU Directive 2002/95/EC in 2006. All products are now RoHS compliant since the recast 2011/65/EU.

Labeling of our products

Customers can clearly see the RoHS Compliance of the product on the right bottom of our product labels, marked with a little icon:

Looking for a Customer Designed Solution?

Our unique customer-specific developments prove the high level of innovation power of WECO products and services. The fast and flexible project implementation in combination with delivery reliability ultimately enables us to flexibly respond to the increasingly challenging demands of the market.

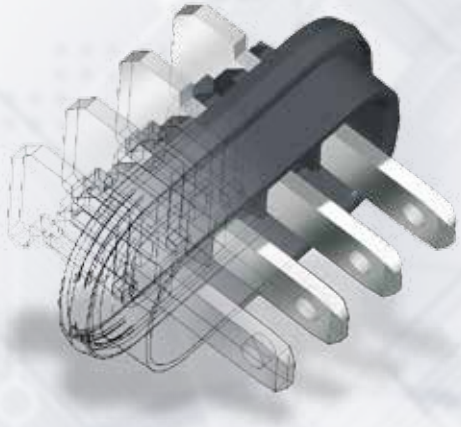
Our Product Information Center is ready to assist you with any technical issues.

- Please call us under +49 6181 105-151.
- Contact us via e-mail at products@wecogroup.com.
- You want us to pay you a visit? We are pleased to arrange an appointment.
- You would prefer a visit in Hanau?
  Of course, you are welcomed anytime.

We are looking forward to your contact.

„Top“

Version of a terminal our series 970 in 5 mm pitch.
In order to achieve a distance of 100 mm from the PCB, a housing was constructed, which not only does protect the pins but also positions them in a special arrangement. In the terminal area are also placed elongated ribs.



„Sealed“

With a pitch of 3.5 mm, this insert with four tabs 2.8 x 0.8 mm was designed to seal the contacts to fulfill the application according to protection class IP54.

„Well Contacted“

This plug connector with the pitch of 5 mm is designed with outer gold-plated contact surfaces. Additionally, the side walls provide ribs for receiving a corresponding locking hook.

Visual Guide: 3.5 mm pitch

Visual Guide for all SMD & THR products with a pitch of 3.5 mm

SMD

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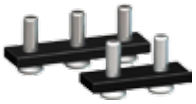

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110-M-221-THR
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930-THR
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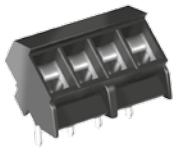

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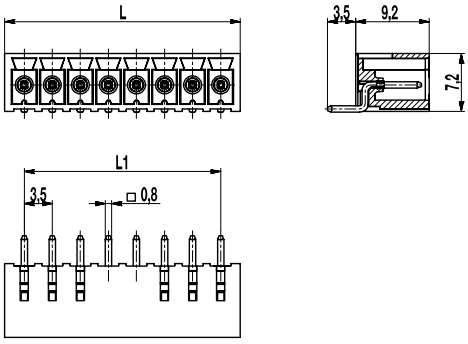
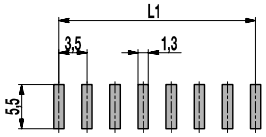
Pin strip for SMD
110-M-211-SMD
Plug-in direction parallel to PCB



PCB Layout



L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,2 mm

The 110-M-211-SMD is a pin strip for the reflow soldering process in a horizontal version with a pitch of 3.5 mm and available in 2 to 12 poles.
It is compatible with all standard connectors series 110 and 110-A-IDC (Insulation Displacement Contacts).
The housing of the pin strips meets the requirements of the elevated soldering temperatures in the lead-free soldering process.

Part Numbers

No. of poles	110-M-211-SMD	Length	PU
2	10.843.102	8,40	1116
3	10.843.103	11,90	792
4	10.843.104	15,40	612
5	10.843.105	18,90	486
6	10.843.106	22,40	414
7	10.843.107	25,90	360
8	10.843.108	29,40	306
9	10.843.109	32,90	270
10	10.843.110	36,40	252
11	10.843.111	39,90	234
12	10.843.112	43,40	216

General Information

Pitch	3,5 mm
No. of poles	2 - 12
Usable with	all plug connectors of series 110
Additonal Information	Version with solder flanges see also 110-M-216-SMD

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	8 A		
Soldering process	Reflow solder		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	0,8 x 0,8 mm; tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	8	300	B, D		
	8	300	B		

Options / Accessories

- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-3,50 [1]
- Coding elements 120-K-HT-WS

Part Numbers: Tape-on-Reel

No. of poles	110-M-211-SMD	Tape Width	Tape Height	PU
4	10.843.104.A00	56 mm	8 mm	475
5	10.843.105.A00	56 mm	8 mm	475
6	10.843.106.A00	56 mm	8 mm	475
7	10.843.107.A00	56 mm	8 mm	475
8	10.843.108.A00	56 mm	8 mm	475
9	10.843.109.A00	56 mm	8 mm	475
10	10.843.110.A00	56 mm	8 mm	475

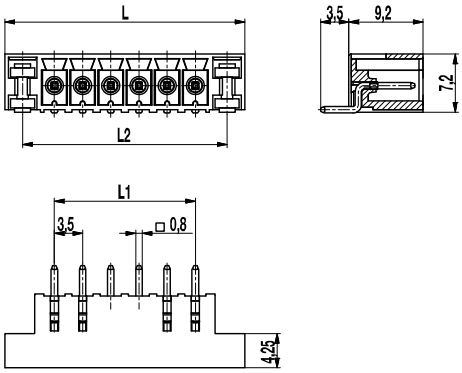
further number of poles on request

[1] To be fitted after reflow soldering process

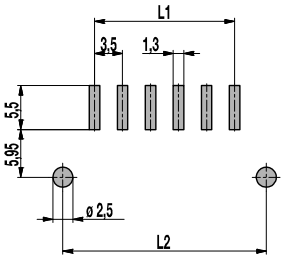
Pin strip for SMD

110-M-216-SMD

Plug-in direction parallel to PCB, with solder flanges



PCB Layout



L1 = (No. of poles - 1) x pitch
L2 = L - 4,4
Solder paste thickness: 0,2 mm

The 110-M-216-SMD is a pin strip for the reflow soldering process in a horizontal version with a pitch of 3.5 mm and available in 2 to 12 poles.
This product is characterized by the "Floating Anchors". They are movable in vertical direction and achieve 100% coplanarity. Side flanges improve the stability and increase the adhesion force on the PC board.
The pin strip is compatible with all standard connectors series 110 and 110-A-IDC (Insulation Displacement Contacts).
The housing of the pin strips meets the requirements of the elevated soldering temperatures in the lead-free soldering process.

Part Numbers

No. of poles	110-M-216-SMD	Length	PU
2	10.843.126	15,80	594
3	10.843.127	19,30	486
4	10.843.128	22,80	414
5	10.843.129	26,30	360
6	10.843.130	29,80	306
7	10.843.131	33,30	270
8	10.843.132	36,80	252
9	10.843.133	40,30	234
10	10.843.134	43,80	216
11	10.843.135	47,30	198
12	10.843.136	50,80	180

General Information

Pitch	3,5 mm
No. of poles	2 - 12
Usable with	all plug connectors of series 110

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	8 A		
Soldering process	Reflow solder		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	0,8 x 0,8 mm; tin plated brass
Solder cylinder	tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	8	300	B, D		
	B	300	B		

Options / Accessories

- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-3,50 [1]
- Coding elements 120-K-HT-WS

Part Numbers: Tape-on-Reel

No. of poles	110-M-216-SMD	Tape Width	Tape Height	PU
2	10.843.126.A00	56 mm	8 mm	475
3	10.843.127.A00	56 mm	8 mm	475
4	10.843.128.A00	56 mm	8 mm	475
5	10.843.129.A00	56 mm	8 mm	475
6	10.843.130.A00	56 mm	8 mm	475
7	10.843.131.A00	56 mm	8 mm	475
8	10.843.132.A00	56 mm	8 mm	475

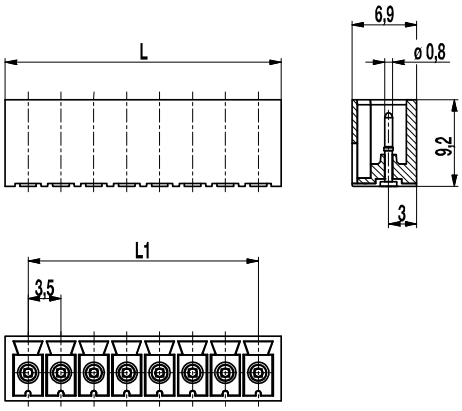
further number of poles on request

[1] To be fitted after reflow soldering process

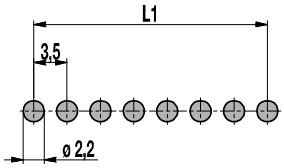
Pin strip for SMD

110-M-221-SMD

Plug-in direction vertical to PCB



PCB Layout



L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm

The 110-M-221-SMD is a pin strip for the reflow soldering process in a vertical version with a pitch of 3.5 mm and available in 2 to 12 poles.
This product is characterized by the so-called "Floating Pins". They are movable in vertical direction and achieve a 100% coplanarity.
It is compatible with all standard connectors series 110 and 110-A-IDC (Insulation Displacement Contacts).
The housing of the pin strips meets the requirements of the elevated soldering temperatures in the lead-free soldering process.
The pin strips of this series are available in Tape-on-Reel for automatic pick & place and are equipped with high temperature resistant Pick Caps which can easily be removed after the soldering process.

Part Numbers

No. of poles	110-M-221-SMD	Length	PU
2	20.843.152	8,40	200
3	20.843.153	11,90	200
4	20.843.154	15,40	100
5	20.843.155	18,90	100
6	20.843.156	22,40	100
7	20.843.157	25,90	50
8	20.843.158	29,40	50
9	20.843.159	32,90	50
10	20.843.160	36,40	50
11	20.843.161	39,90	50
12	20.843.162	43,40	50

General Information

Pitch	3,5 mm
No. of poles	2 - 12
Usable with	all plug connectors of series 110
Additonal Information	Version with solder flanges see also 110-M-226-SMD

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	8 A		
Soldering process	Reflow solder		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	ø 0,8 mm; tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	8	150	B		
	8	300	D		
	8	150	B		

Options / Accessories

- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-3,50 [1]
- Coding elements 120-K-HT-WS

Part Numbers: Tape-on-Reel

No. of poles	110-M-221-SMD	Tape Width	Tape Height	PU
5	20.843.155.A00	56 mm	10,9 mm	550
6	20.843.156.A00	56 mm	10,9 mm	550
7	20.843.157.A00	56 mm	10,9 mm	550
8	20.843.158.A00	56 mm	10,9 mm	550
9	20.843.159.A00	56 mm	10,9 mm	550
10	20.843.160.A00	56 mm	10,9 mm	550

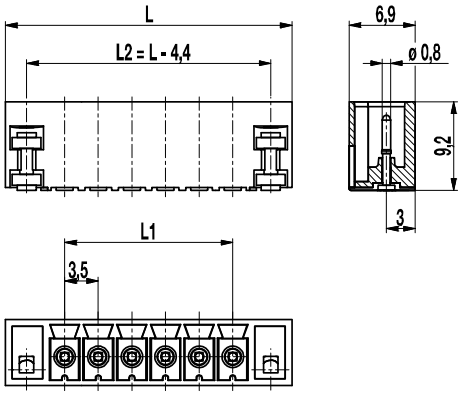
further number of poles on request

[1] To be fitted after reflow soldering process

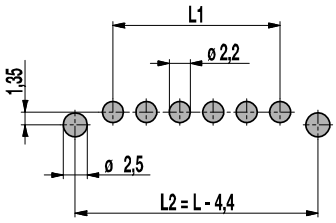
Pin strip for SMD

110-M-226-SMD

Plug-in direction vertical to PCB, with solder flanges



PCB Layout



L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm

The 110-M-226-SMD is a pin strip for the reflow soldering process in a vertical version with a pitch of 3.5 mm and available in 2 to 12 poles.
This product is characterized by the "Floating Anchors" and "Floating Pins". They are movable in vertical direction and achieve a 100% coplanarity. Side flanges improve the stability and increase the adhesion force on the PC board.
It is compatible with all standard connectors series 110 and 110-A-IDC (Insulation Displacement Contacts).
The housing of the pin strips meets the requirements of the elevated soldering temperatures in the lead-free soldering process.
The pin strips of this series are available in Tape-on-Reel for automatic pick & place and are equipped with high temperature resistant Pick Caps which can easily be removed after the soldering process.

Part Numbers

No. of poles	110-M-226-SMD	Length	PU
2	20.843.176	15,80	200
3	20.843.177	19,30	200
4	20.843.178	22,80	100
5	20.843.179	26,30	100
6	20.843.180	29,80	100
7	20.843.181	33,30	50
8	20.843.182	36,80	50
9	20.843.183	40,30	50
10	20.843.184	43,80	50
11	20.843.185	47,30	50
12	20.843.186	50,80	50

General Information

Pitch	3,5 mm
No. of poles	2 - 12
Usable with	all plug connectors of series 110

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	8 A		
Soldering process	Reflow solder		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	ø 0,8 mm; tin plated brass
Solder cylinder	tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	8	150	B		
	8	300	D		
	8	150	B		

Options / Accessories

- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-3,50 [1]
- Coding elements 120-K-HT-WS

Part Numbers: Tape-on-Reel

No. of poles	110-M-226-SMD	Tape Width	Tape Height	PU
3	20.843.177.A00	56 mm	10,9 mm	550
4	20.843.178.A00	56 mm	10,9 mm	550
5	20.843.179.A00	56 mm	10,9 mm	550
6	20.843.180.A00	56 mm	10,9 mm	550
7	20.843.181.A00	56 mm	10,9 mm	550
8	20.843.182.A00	56 mm	10,9 mm	550

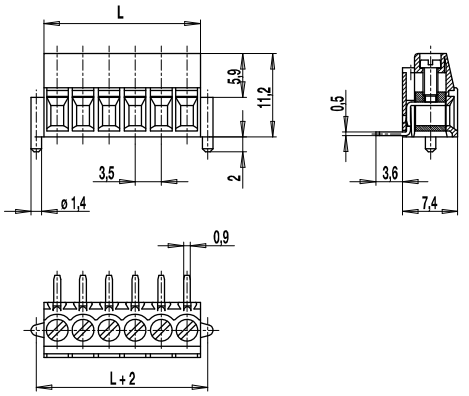
further number of poles on request

[1] To be fitted after reflow soldering process

PCB connector for SMD

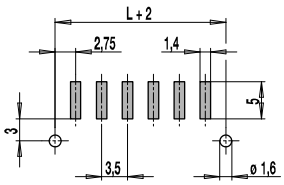
210-A-SMD

Screw connection, with anti-twist peg



L = No. of poles x pitch

PCB Layout



Solder paste thickness: 0,2 mm

The PCB connectors for surface mounting comprise several types for reflow processes.
The SMD connector 210-A-SMD with a pitch of 3,5 mm is designed with screw connections in elevator clamping style and available in 2 to 12 pole design.
The terminal clamp and the soldering tag are manufactured as a single unit and permanently engaged in the housing. The solder pins are exactly aligned parallel to the printed circuit board in order to create a coplanar connection after the reflow soldering process.
The moulding is made of heat resistant thermoplastic material and equipped with plastic pegs on both sides to prevent twisting.
The use of a strain relief is recommended. This article is only available in tubes or in Tape-on-Reel.

Part Numbers

No. of poles	210-A-SMD	Length	PU
2	10.804.202	7,00	900
3	10.804.203	10,50	684
4	10.804.204	14,00	540
5	10.804.205	17,50	450
6	10.804.206	21,00	378
8	10.804.208	28,00	288
10	10.804.210	35,00	234
12	10.804.212	42,00	198

further number of poles on request

General Information

Pitch	3,5 mm
No. of poles	2 - 12

Technical Data

Clamping Range	*solid / flexible / AWG*		
	0,14 - 1,5 mm² / 0,14 - 1,5 mm² / 30 - 16 AWG		
Rated Cross Section	1 mm²		
Wire Stripping Length	5,5 mm ± 0,5 mm		
Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	12,5 A		
Soldering process	Reflow solder		
Torque	0,2 Nm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Terminal body	Nickel plated brass
Pressure clamp	Copper alloy, tin plated
Screw	M2; Copper alloy, tin plated
Solder pin	Copper alloy, tin plated

Approvals

	Current	Voltage	Group	AWG	Nm
	10	300	B	30 - 16	0,23
	10	300	B	30 - 16	0,22

Options / Accessories

- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-3,50 [1]

Part Numbers: Tape-on-Reel

No. of poles	210-A-SMD	Tape Width	Tape Height	PU
2	10.804.202.A00	44 mm	14,6 mm	325
3	10.804.203.A00	44 mm	14,6 mm	325
4	10.804.204.A00	44 mm	14,6 mm	325
5	10.804.205.A00	44 mm	14,6 mm	325
6	10.804.206.A00	44 mm	14,6 mm	325
7	10.804.207.A00	44 mm	14,6 mm	325

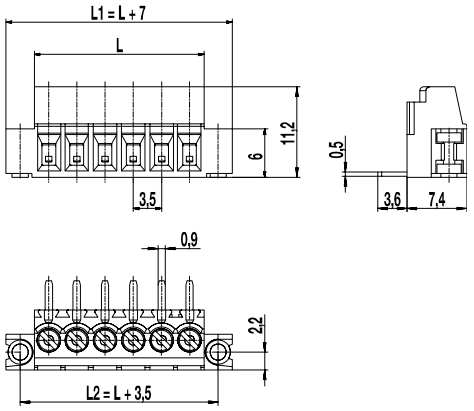
further number of poles on request

[1] To be fitted after reflow soldering process

PCB connector for SMD

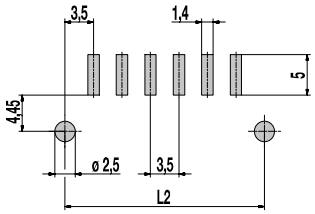
210-A-126-SMD

Screw connection, with solder flanges



L = No. of poles x pitch

PCB Layout



Solder paste thickness: 0,2 mm

The 2 to 12 pole connectors with a pitch of 3,5 mm have a screw connection with elevator clamping system and are equipped with M2 captive screws. Just as the 210-A-SMD, the 210-A-126-SMD represents a space saving and compact connector with a high connecting capacity. The generous clamping range is of 1,7 mm x 2,6 mm.
A distinguishing characteristic to the 210-A-SMD, however, is the clearly increased adhesion force on the PCB. Soldering cylinders on either side of the housing (floating anchors) are movable in vertical direction and thereby they obtain 100% coplanarity between solder pins and soldering cylinders.
They are transferred more to the front in comparison to the connector centre in order to keep the retaining strength, where the wires are connected. Thus, the force, acting on the solder pins, is reduced in a very important way.
Packed in magazines or equipped with Pick Discs in Tape-on-Reel, this genuine SMD terminal is suitable for the automatic assembly.

Part Numbers

No. of poles	210-A-126-SMD	Length	PU
2	20.804.232	14,00	888
3	20.804.233	17,50	696
4	20.804.234	21,00	576
6	20.804.236	28,00	432
10	20.804.240	42,00	234
12	20.804.242	49,00	198

further number of poles on request

General Information

Pitch	3,5 mm
No. of poles	2 - 12

Technical Data

Clamping Range	*solid / flexible / AWG*		
	0,14 - 1,5 mm² / 0,14 - 1,5 mm² / 30 - 16 AWG		
Rated Cross Section	1 mm²		
Wire Stripping Length	5,5 mm ± 0,5 mm		
Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	12,5 A		
Soldering process	Reflow solder		
Torque	0,2 Nm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Terminal body	Nickel plated brass
Pressure clamp	Copper alloy, tin plated
Screw	M2; copper alloy, tin plated
Solder pin	Copper alloy, tin plated
Solder cylinder	Tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	10	300	B	30 - 16	0,23
	10	300	B	30 - 16	0,22

Options / Accessories

- Self-adhesive marking strip BST-3,50 [1]
- Black colour on request

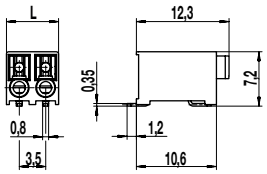
Part Numbers: Tape-on-Reel

No. of poles	210-A-126-SMD	Tape Width	Tape Height	PU
2	20.804.232.A00	32 mm	12,0 mm	375
3	20.804.233.A00	44 mm	14,6 mm	325
4	20.804.234.A00	44 mm	14,6 mm	325
5	20.804.235.A00	44 mm	14,6 mm	325
6	20.804.236.A00	44 mm	14,6 mm	325
8	20.804.238.A00	56 mm	14,6 mm	325

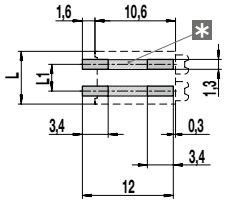
further number of poles on request

[1] To be fitted after reflow soldering process

PCB connector for SMD
830-A-111-SMD
Push-In connection



PCB Layout (Recommendation)



L = (No. of poles) x pitch
L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm

✱ = Both solder pads of each pole can be connected together.

The PCB terminal block 830-A-111-SMD with the pitch of 3,5 mm offers strong performance in the smallest space. The position of the entries in parallel to the printed circuit board enables the advantageous application within housings with external connection. Due to the very small space requirement and the white colour it is ideally suited to various applications in the lighting industry.

The front of the terminal is equipped with pushers to be handled with standard screwdrivers for the removal of the parallel connected conductors.

The easy to use spring system allows beside the use of 1 mm² solid wires also the connection of 0,75 mm² flexible by use of the pushers.

The advanced design of this high temperature resistant terminal allows in the area of the solder pins the free circulation of hot air in the convection oven during the reflow soldering process.

The standard packaging in Tape-on-Reel makes this terminal very suitable for its automatic pick & place in the production line.

Part Numbers: Bar magazines

No. of poles	830-A-111-SMD		Length	PU
2	10.813.002	(49 bar mag.)	6,90	3626
3	10.813.003	(49 bar mag.)	10,40	2401
2	10.813.002.B00	(4 bar mag.)	6,90	296
3	10.813.003.B00	(4 bar mag.)	10,40	196

General Information

Pitch	3,5 mm
No. of poles	2 + 3
Areas of application	Lighting technology, devices

Technical Data

Clamping Range	*solid / flexible / AWG*		
	0,2 - 1,0 mm² / 0,2 - 0,75 mm² / 24 - 18 AWG		
Rated Cross Section	1 mm² (starr / solid) / 0,75 mm²		
Wire Stripping Length	7,5 mm ± 0,5 mm		
Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	13,5 A apply to 1 mm² solid 9 A apply to 0,75 mm²		
Soldering process	Reflow solder		

Material

Moulding	PA HT, white, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Terminal body	Tin plated copper alloy
Spring	Stainless steel

Approvals

	Current	Voltage	Group	AWG	Nm
cULus	6	300	B	24 - 18	

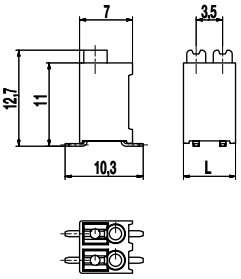
Options / Accessories

- Consecutive numbering
- Special marking according to drawing
- Black colour on request

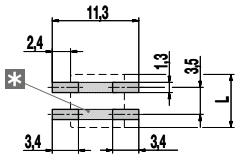
Part Numbers: Tape-on-Reel

No. of poles	830-A-111-SMD	Tape Width	Tape Height	PU
2	10.813.002.A00	24 mm	8,4 mm	550
3	10.813.003.A00	24 mm	8,4 mm	550

PCB connector for SMD
830-A-121-SMD
Push-In connection vertical to PCB



PCB Layout (Recommendation)



L = (No. of poles) x pitch
L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm

✱ = Both solder pads of each pole can be connected together.

The PCB terminal block 830-A-121-SMD with the pitch of 3,5 mm offers strong performance in the smallest space. It is available in 2- and 3-pole design.
The position of the entries in vertical to the printed circuit board enables the advantageous application within housings with external connection. Due to the very small space requirement and the white colour it is ideally suited to various applications in the lighting industry.

The top of the terminal is equipped with pushers to be handled with standard screwdrivers for the removal of the parallel connected conductors.

The easy to use spring system allows beside the use of 1 mm² solid wires also the connection of 0,75 mm² flexible by use of the pushers.

The advanced design of this high temperature resistant terminal allows in the area of the solder pins the free circulation of hot air in the convection oven during the reflow soldering process.

This product is suitable for its automatic pick & place in the production line.

Part Numbers

No. of poles	830-A-121-SMD		Length	PU
2	10.813.032.B00	(1 bar mag.)	6,90	75
3	10.813.033.B00	(1 bar mag.)	10,40	50

General Information

Pitch	3,5 mm
No. of poles	2 + 3
Areas of application	Lighting technology, devices

Technical Data

Clamping Range	*solid / flexible / AWG*		
	0,2 - 1,0 mm² / 0,2 - 0,75 mm² / 24 - 18 AWG		
Rated Cross Section	1 mm² (starr / solid) / 0,75 mm²		
Wire Stripping Length	7,5 mm ± 0,5 mm		
Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	13,5 A apply to 1 mm² solid 9 A apply to 0,75 mm²		
Soldering process	Reflow solder		

Material

Moulding	PA HT, white, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Terminal body	Tin plated copper alloy
Spring	Stainless steel

Approvals

	Current	Voltage	Group	AWG	Nm
cULus	6	300	B	24 - 18	

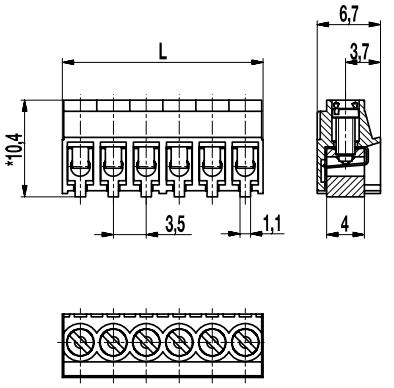
Options / Accessories

- Black colour on request
- Tape-on-Reel on request

Part Numbers: Tape-on-Reel

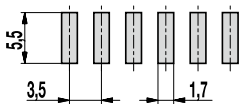
No. of poles	830-A-121-SMD	Tape Width	Tape Height	PU
2	10.813.032.A00	24 mm	14,4 mm	300
3	10.813.033.A00	24 mm	14,4 mm	300

PCB connector for SMD
930-D-SMD(-DS)
Screw connection, floating terminal bodies



* = Height without -DS: 10,2 mm
L = No. of poles x pitch + 0,3 mm

PCB Layout



Solder paste thickness: 0,15 - 0,2 mm

The PCB connector 930-D-SMD with a pitch of 3,5 mm for genuine surface mount technology is specifically designed for automated processing assembly and is available in 2 to 12 pole design.

In the Tape-on-Reel packaging, it is equipped with a glued pick disc that can be easily removed after the soldering process.
Its floating terminal bodies compensate irregularities (non planarity and bumps) on the printed circuit board.
The same feature eliminates CTE (coefficient of thermal expansion) mismatch with the PCB and thus promotes excellent in field reliability and the successful passing of thermal cycling testing.

Part Numbers

No. of poles	930-D-SMD	930-D-SMD-DS	Length	PU
2	10.870.602	20.870.602	7,30	250
3	10.870.603	20.870.603	10,80	250
4	10.870.604	20.870.604	14,30	250
5	10.870.605	20.870.605	17,80	200
6	10.870.606	20.870.606	21,30	200
7	10.870.607	20.870.607	24,80	100
8	10.870.608	20.870.608	28,30	100
9	10.870.609	20.870.609	31,80	100
10	10.870.610	20.870.610	35,30	100
11	10.870.611	20.870.611	38,80	100
12	10.870.612	20.870.612	42,30	100

General Information

Pitch	3,5 mm
No. of poles	2 - 12

Technical Data

Clamping Range	*solid / flexible / AWG*		
without wire protector	0,75 - 1,5 mm² / 0,75 - 1,5 mm² / 18 - 16 AWG		
with wire protector	0,25 - 1 mm² / 0,25 - 1 mm² / 24 - 18 AWG		
Rated Cross Section	1 mm²		
Wire Stripping Length	5 mm ± 0,5 mm		
Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	125 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	13,5 A		
Soldering process	Reflow solder		
Torque	0,2 Nm		
Other specifications	Recommended screwdriver: blade 0,4 x 2,0 mm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Terminal body	Tin plated brass
Screw	M2; tin plated brass
Wire protector	German silver

Approvals

	Current	Voltage	Group	AWG	Nm
	10	150	B	26 - 16	0,23
	10	150	B	26 - 16	0,2

Options / Accessories

- Special marking according to drawing
- Self-adhesive marking strip BST-3,50 [1]
- White housing colour on request

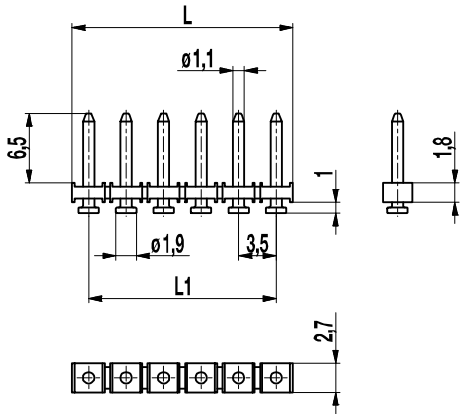
Part Numbers: Tape-on-Reel

No. of poles	930-D-SMD	930-D-SMD-DS	Tape Width	Tape Height	PU
2	10.870.602.A00	20.870.602.A00	24 mm	11,3 mm	500
3	10.870.603.A00	20.870.603.A00	24 mm	11,3 mm	500
4	10.870.604.A00	20.870.604.A00	24 mm	11,3 mm	500
5	10.870.605.A00	20.870.605.A00	32 mm	11,3 mm	500
6	10.870.606.A00	20.870.606.A00	44 mm	11,3 mm	500
12	10.870.612.A00	20.870.612.A00	56 mm	11,3 mm	500

further number of poles on request

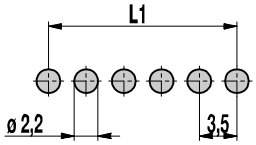
[1] To be fitted after reflow soldering process

Pin strip for SMD
931-SLR-SMD-1,1
Plug-in area ø 1,1 mm



L1 = (No. of poles - 1) x pitch

PCB Layout



Solder paste thickness: 0,15 - 0,2 mm

The pin strip 931-SLR-SMD-1,1 for the application in a reflow soldering process in genuine SMD technology and with a pitch of 3,5 mm is available in 2 to 16 pole design.
It comes with a constant pin diameter of 1,1 mm at the plug-in area.
Contrary to the pin strips 931-SLR-THR and 931-SLR-THR-1,1, for which holes in the PCB are necessary, the SMD types of WECO base on true surface assembly. Soldering expanses at the end of the pins guarantee optimal retention force on the printed circuit board.
Just like all THR versions of WECO, also the housings of the SMD series are made out of high temperature resistant plastic material and exhibit a very high CTI value.
For the automatic assembling all pin strips of this series are packed in Tape-on-Reel and equipped with high temperature resistant Pick Caps, which can easily be removed after the soldering process.

Part Numbers

No. of poles	931-SLR-SMD-1,1	Length	PU
2	12.893.732	6,50	1000
3	13.893.732	10,00	1000
4	14.893.732	13,50	500
5	15.893.732	17,00	500
6	16.893.732	20,50	500
8	18.893.732	27,50	250
10	20.893.732	34,50	200
12	22.893.732	41,50	200
16	26.893.732	55,50	200

further number of poles on request

General Information

Pitch	3,5 mm
No. of poles	2 - 16
Usable with	plug connector 930-FL(-DS)
Additonal Information	Also, please take into consideration the pin strips 931-SLS for wave soldering and series 931-SLR-THR for Through-Hole-Reflow.

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	6 A		
Soldering process	Reflow solder		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	ø 1,1 mm (plug-in area); tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	6	150	B		
	6	300	D		
	6	150	B		
	6	300	D		

Options / Accessories

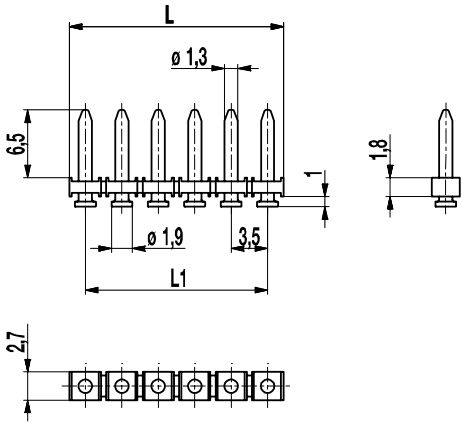
- Other plug pin lengths on request
- Other solder pin surfaces on request

Part Numbers: Tape-on-Reel

No. of poles	931-SLR-SMD-1,1	Tape Width	Tape Height	PU
3	13.893.732.A00	32 mm	14,6 mm	500
4	14.893.732.A00	32 mm	14,6 mm	500
5	15.893.732.A00	32 mm	14,6 mm	500
6	16.893.732.A00	56 mm	14,6 mm	500
7	17.893.732.A00	56 mm	14,6 mm	500
8	18.893.732.A00	56 mm	14,6 mm	500
9	19.893.732.A00	56 mm	14,6 mm	500
10	20.893.732.A00	56 mm	14,6 mm	500
11	21.893.732.A00	56 mm	14,6 mm	500
12	22.893.732.A00	72 mm	14,9 mm	500
13	23.893.732.A00	72 mm	14,9 mm	500
14	24.893.732.A00	72 mm	14,9 mm	500

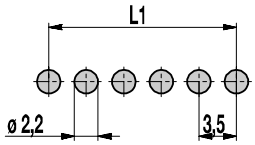
further number of poles on request

Pin strip for SMD
931-SLR-SMD-1,3
Plug-in area ø 1,3 mm



L1 = (No. of poles - 1) x pitch

PCB Layout



Solder paste thickness: 0,15 - 0,2 mm

The pin strip 931-SLR-SMD-1,3 for the application in a reflow soldering process in genuine SMD technology and with a pitch of 3,5 mm is available in 2 to 16 pole design.
It comes with a constant pin diameter of 1,3 mm at the plug-in area.
Contrary to the pin strips 931-SLR-THR and 931-SLR-THR-1,3, for which holes in the PCB are necessary, the SMD types of WECO base on true surface assembly. Soldering expanses at the end of the pins guarantee optimal retention force on the printed circuit board.
Just like all THR versions of WECO, also the housings of the SMD series are made out of high temperature resistant plastic material and exhibit a very high CTI value.
For the automatic assembling all pin strips of this series are packed in Tape-on-Reel and equipped with high temperature resistant Pick Caps, which can easily be removed after the soldering process.

Part Numbers

No. of poles	931-SLR-SMD-1,3	Length	PU
2	12.893.731	6,50	1000
3	13.893.731	10,00	1000
4	14.893.731	13,50	500
6	16.893.731	20,50	500
8	18.893.731	27,50	250
10	20.893.731	34,50	200
12	22.893.731	41,50	200
16	26.893.731	55,50	200

further number of poles on request

General Information

Pitch	3,5 mm
No. of poles	2 - 16
Usable with	plug connector 938-FLDS
Additonal Information	Also, please take into consideration the pin strips 931-SLS for wave soldering and series 931-SLR-THR for Through-Hole-Reflow.

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	6 A		
Soldering process	Reflow solder		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	ø 1,3 mm (plug-in area); tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	6	150	B		
	6	300	D		
	6	150	B		
	6	300	D		

Options / Accessories

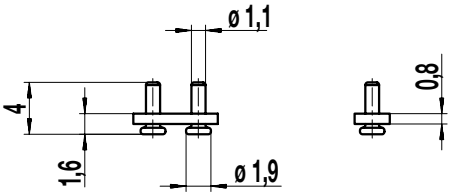
- Plug pin length 11,3 mm with mating area 8,5 mm (instead of 6.5 mm) available
- Other plug pin lengths on request
- Other solder pin surfaces on request

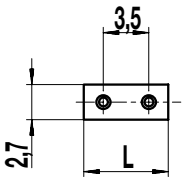
Part Numbers: Tape-on-Reel

No. of poles	931-SLR-SMD-1,3	Tape Width	Tape Height	PU
3	13.893.731.A00	32 mm	14,6 mm	500
4	14.893.731.A00	32 mm	14,6 mm	500
5	15.893.731.A00	32 mm	14,6 mm	500
6	16.893.731.A00	56 mm	14,6 mm	500
7	17.893.731.A00	56 mm	14,6 mm	500
8	18.893.731.A00	56 mm	14,6 mm	500
9	19.893.731.A00	56 mm	14,6 mm	500
10	20.893.731.A00	56 mm	14,6 mm	500
11	21.893.731.A00	56 mm	14,6 mm	500
12	22.893.731.A00	72 mm	14,9 mm	500
13	23.893.731.A00	72 mm	14,9 mm	500
14	24.893.731.A00	72 mm	14,9 mm	500

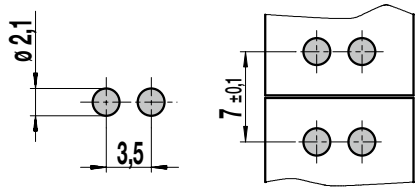
further number of poles on request

Pin strip for SMD
931-SLT-SMD-1,1-L4
Low profile, 4 mm height





Recommended PCB Layout



Solder paste thickness: 0,15 - 0,2 mm

The pin strip 931-SLR-SMD-1,1-L4 with only 4 mm height is the perfect solution to connect in combination with the PCB connector 930-LC-111 two adjacent LED boards with each other.
With this product, the height on the board is kept as small as possible at the same time.
The pin strip is suitable for surface mounting and is delivered in Tape-on-Reel with Pick Cap.

Part Numbers

No. of poles	931-SLT-SMD-1,1-L4	Length	PU
2	12.893.719	6,5	250
3	13.893.719	10,0	500

General Information

Pitch	3,5 mm
No. of poles	2 + 3
Usable with	930-LC-111, 930-LP-111
Areas of application	LED Panel bridging

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	6 A		
Soldering process	Reflow solder		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600 V
Insulating Group	I
Temperature Range	-40°C up to 120°C; Reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	ø 1,1 mm; tin plated brass

Approvals

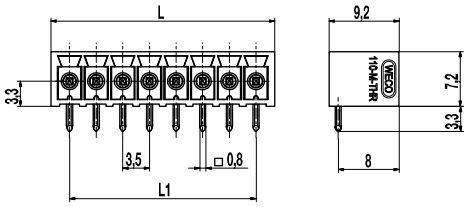
	Current	Voltage	Group	AWG	Nm
c UL us	6 [1]	250			

[1] Acc. to UL 1977 and C22.2 No. 182.3

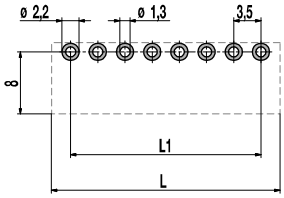
Part Numbers: Tape-on-Reel

No. of poles	931-SLT-SMD-1,1-L4	Tape Width	Tape Height	PU
2	12.893.719.A00	24 mm	6,6 mm	900
3	13.893.719.A00	24 mm	6,6 mm	900

Pin strip for THR
110-M-211-THR
Plug-in direction parallel to PCB



PCB Layout



L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm

The 110-M-211-THR is a pin strip, suitable for the reflow soldering process, in horizontal design with a pitch of 3,5 mm and available from 2 to 12 poles. It is compatible to all standard plugs of the series 110 as well as to the Insulation Displacement Connector 110-A-IDC.
The housing of the pin strips correspond to the requirements of the increased soldering temperatures in the lead free soldering process. Spacers, so-called stand-offs, ensure a better hot-air circulation during the reflow soldering process in the convection oven and allow an improved visual control of the solder joint.
All THR pin strips of this series are packed Tape-on-Reel for the assembling with pick & place machines.

Part Numbers

No. of poles	110-M-211-THR	Length	PU
2	10.841.302	8,40	200
3	10.841.303	11,90	200
4	10.841.304	15,40	100
5	10.841.305	18,90	100
6	10.841.306	22,40	100
7	10.841.307	25,90	50
8	10.841.308	29,40	50
9	10.841.309	32,90	50
10	10.841.310	36,40	50
11	10.841.311	39,90	50
12	10.841.312	43,40	50

General Information

Pitch	3,5 mm
No. of poles	2 - 12
Usable with	all plug connectors of series 110
Additonal Information	Version with connecting flanges see also 110-M-215-THR

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	8 A		
Soldering process	Wave solder & reflow solder		
Hole in PCB	ø 1,3 mm		
PCB thickness	Wave solder max. 1,6 mm; reflow solder 1,6 - 3,2 mm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	0,8 x 0,8 mm; tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	8	300	B, D		
	8	300	B		

Options / Accessories

- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-3,50 [1]
- Coding elements 120-K-HT-WS

Part Numbers: Tape-on-Reel

No. of poles	110-M-211-THR	Tape Width	Tape Height	PU
2	10.841.302.A00	32 mm	11,8 mm	500
3	10.841.303.A00	32 mm	11,8 mm	500
4	10.841.304.A00	32 mm	11,8 mm	500
5	10.841.305.A00	32 mm	11,8 mm	500

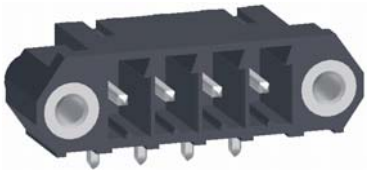
further number of poles on request

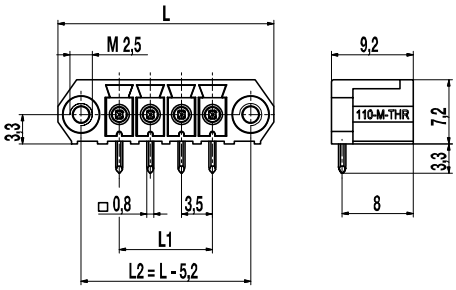
[1] To be fitted after reflow soldering process

Pin strip for THR

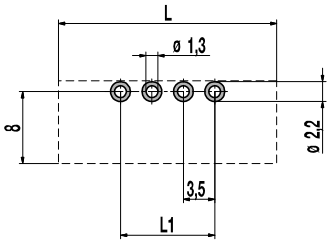
110-M-215-THR

Plug-in direction parallel to PCB, with connecting flanges





PCB Layout



L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm

The 110-M-215-THR is a pin strip, suitable for the reflow soldering process, in horizontal design with a pitch of 3,5 mm and available in 2- to 12-pole design.
It is compatible to all standard plugs of the series 110 as well as to the Insulation Displacement Connector 110-A-IDC.
This version has connecting flanges with thread inserts M2,5 (<0,3 Nm) on both sides of the connector which extend the range of applications additionally.
The housing of the pin strips correspond to the requirements of the increased soldering temperatures in the lead free soldering process. Spacers, so-called stand-offs, ensure a better hot-air circulation during the reflow soldering process in the convection oven and allow an improved visual control of the solder joint.
All THR pin strips of this series are packed in Tape-on-Reel for automatic pick & place and are equipped with high temperature resistant pick caps which can easily be removed after the soldering process.

Part Numbers

No. of poles	110-M-215-THR	Length	PU
2	10.841.352	17,30	100
3	10.841.353	20,80	100
4	10.841.354	24,30	100
5	10.841.355	27,80	50
6	10.841.356	31,30	50
8	10.841.358	38,30	50
10	10.841.360	45,30	50
11	10.841.361	48,80	50
12	10.841.362	52,30	50

General Information

Pitch	3,5 mm
No. of poles	2 - 12
Usable with	all plug connectors of series 110 with connecting flanges

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	8 A		
Soldering process	Wave solder & reflow solder		
Hole in PCB	ø 1,3 mm		
PCB thickness	Wave solder max. 1,6 mm; reflow solder 1,6 mm - 3,2 mm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	0,8 x 0,8 mm; tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	8	300	B, D		
	8	300	B		

Options / Accessories

- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-3,50 [1]
- Coding elements 120-K-HT-WS

Part Numbers: Tape-on-Reel

No. of poles	110-M-215-THR	Tape Width	Tape Height	PU
2	10.841.352.A00	32 mm	11,8 mm	500
3	10.841.353.A00	32 mm	11,8 mm	500

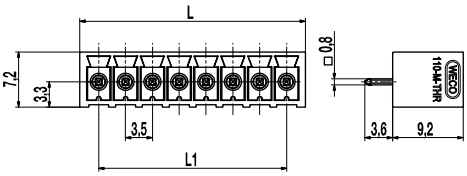
further number of poles on request

[1] To be fitted after reflow soldering process

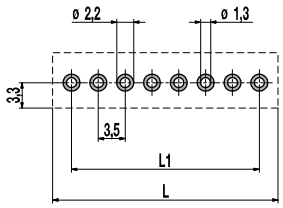
Pin strip for THR

110-M-221-THR

Plug-in direction vertical to PCB



PCB Layout



L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm

The 110-M-221-THR is a pin strip, suitable for the reflow soldering process, in vertical design with a pitch of 3,5 mm and available from 2 to 12 poles. It is compatible to all standard plugs of the series 110 as well as to the Insulation Displacement Connector 110-A-IDC.
The housing of the pin strips correspond to the requirements of the increased soldering temperatures in the lead free soldering process. Spacers, so-called stand-offs, ensure a better hot-air circulation during the reflow soldering process in the convection oven and allow an improved visual control of the solder joint.
All THR pin strips of this series are packed Tape-on-Reel for the assembling with pick & place machines. They are equipped with high temperature resistant Pick Caps (see picture), which can be comfortably removed after the soldering process.

Part Numbers

No. of poles	110-M-221-THR	Length	PU
2	20.841.302	8,40	200
3	20.841.303	11,90	200
4	20.841.304	15,40	100
5	20.841.305	18,90	100
6	20.841.306	22,40	100
7	20.841.307	25,90	50
8	20.841.308	29,40	50
9	20.841.309	32,90	50
10	20.841.310	36,40	50
11	20.841.311	39,90	50
12	20.841.312	43,40	50

General Information

Pitch	3,5 mm
No. of poles	2 - 12
Usable with	all plug connectors of series 110
Additonal Information	Version with connecting flanges see also 110-M-225-THR

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	8 A		
Soldering process	Wave solder & reflow solder		
Hole in PCB	ø 1,3 mm		
PCB thickness	Wave solder max. 1,6 mm; reflow solder 1,6 mm - 3,2 mm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	0,8 x 0,8 mm; tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	8	300	B, D		
	8	300	B		

Options / Accessories

- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-3,50 [1]
- Coding elements 120-K-HT-WS

Part Numbers: Tape-on-Reel

No. of poles	110-M-221-THR	Tape Width	Tape Height	PU
5	20.841.305.A00	56 mm	14,9 mm	300
6	20.841.306.A00	56 mm	14,9 mm	300
7	20.841.307.A00	56 mm	14,9 mm	300
8	20.841.308.A00	56 mm	14,9 mm	300
9	20.841.309.A00	56 mm	14,9 mm	300
10	20.841.310.A00	56 mm	14,9 mm	300

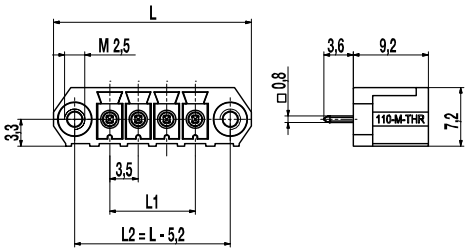
further number of poles on request

[1] To be fitted after reflow soldering process

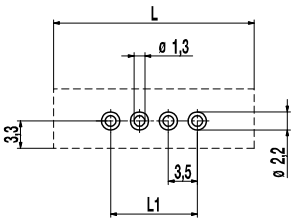
Pin strip for THR

110-M-225-THR

Plug-in direction vertical to PCB, with connecting flanges



PCB Layout



L1 = (No. of Poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm

The 110-M-225-THR is a pin strip, suitable for the reflow soldering process, in vertical design with a pitch of 3,5 mm and available in 2- to 12-pole design.
It is compatible to all standard plugs of the series 110 as well as to the Insulation Displacement Connector 110-A-IDC.
This version has connecting flanges with thread inserts M2,5 (<0,3 Nm) on both sides of the connector which extend the range of applications additionally.
The housing of the pin strips correspond to the requirements of the increased soldering temperatures in the lead free soldering process. Spacers, so-called stand-offs, ensure a better hot-air circulation during the reflow soldering process in the convection oven and allow an improved visual control of the solder joint.
All THR pin strips of this series are packed in Tape-on-Reel for automatic pick & place and are equipped with high temperature resistant pick caps which can easily be removed after the soldering process.

Part Numbers

No. of poles	110-M-225-THR	Length	PU
2	20.841.352	17,30	100
3	20.841.353	20,80	100
4	20.841.354	24,30	100
5	20.841.355	27,80	50
6	20.841.356	31,30	50
8	20.841.358	38,30	50
10	20.841.360	45,30	50
11	20.841.361	48,80	50
12	20.841.362	52,30	50

General Information

Pitch	3,5 mm
No. of poles	2 - 12
Usable with	all plug connectors of series 110 with connecting flanges

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	8 A		
Soldering process	Wave solder & reflow solder		
Hole in PCB	ø 1,3 mm		
PCB thickness	Wave solder max. 1,6 mm; reflow solder 1,6 mm - 3,2 mm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	0,8 x 0,8 mm; tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	8	300	B, D		
	8	300	B		

Options / Accessories

- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-3,50 [1]
- Coding elements 120-K-HT-WS

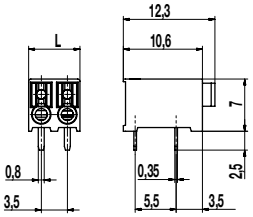
Part Numbers: Tape-on-Reel

No. of poles	110-M-225-THR	Tape Width	Tape Height	PU
3	20.841.353.A00	56 mm	14,9 mm	300
4	20.841.354.A00	56 mm	14,9 mm	300
5	20.841.355.A00	56 mm	14,9 mm	300
6	20.841.356.A00	56 mm	14,9 mm	300
7	20.841.357.A00	56 mm	14,9 mm	300
8	20.841.358.A00	56 mm	14,9 mm	300

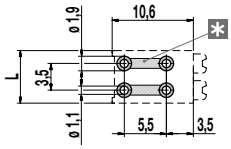
further number of poles on request

[1] To be fitted after reflow soldering process

PCB connector for SMD
830-A-111-THR
Push-In connection



PCB Layout (Recommendation)



L = (No. of poles) x pitch
L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm
solder pad, outside diameter: ø 1,9 mm

✱ = Both solder pads of each pole can be connected together.

The PCB terminal block 830-A-111-THR with the pitch of 3,5 mm offers strong performance in the smallest space. The position of the entries in parallel to the printed circuit board enables the advantageous application within housings with external connection. Due to the very small space requirement and the white colour it is ideally suited to various applications in the lighting industry.

The front of the terminal is equipped with pushers to be handled with standard screwdrivers for the removal of the parallel connected conductors.

The easy to use spring system allows beside the use of 1 mm² solid wires also the connection of 0,75 mm² flexible by use of the pushers.

The advanced design of this high temperature resistant terminal allows in the area of the solder pins the free circulation of hot air in the convection oven during the reflow soldering process.

Part Numbers

No. of poles	830-A-111-THR		Length	PU
2	10.813.052		6,90	250
3	10.813.053		10,40	250
2	10.813.052.B00	(2 bar mag.)	6,90	150
3	10.813.053.B00	(2 bar mag.)	10,40	100

General Information

Pitch	3,5 mm
No. of poles	2 + 3
Areas of application	Lighting technology, devices

Technical Data

Clamping Range	*solid / flexible / AWG*		
	0,2 - 1,0 mm² / 0,2 - 0,75 mm² / 24 - 18 AWG		
Rated Cross Section	1 mm² (starr / solid) / 0,75 mm²		
Wire Stripping Length	7,5 mm ± 0,5 mm		
Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	13,5 A apply to 1 mm² solid 9 A apply to 0,75 mm²		
Soldering process	Reflow solder		
Hole in PCB	ø 1,1 mm		

Material

Moulding	PA HT, white, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Terminal body	Tin plated copper alloy
Spring	Stainless steel

Approvals

	Current	Voltage	Group	AWG	Nm
cULus	6	300	B	24 - 18	

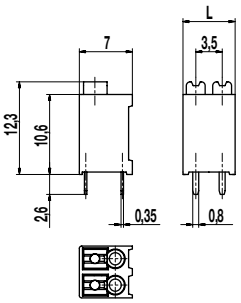
Options / Accessories

- Consecutive numbering
- Special marking according to drawing
- Black colour on request
- Tape-on-Reel on request

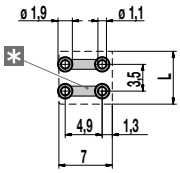
PCB connector for SMD

830-A-121-THR

Push-In connection vertical to PCB



PCB Layout (Recommendation)



L = (No. of poles) x pitch
L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm
solder pad, outside diameter: ø 1,9 mm

✱ = Both solder pads of each pole can be connected together.

The PCB terminal block 830-A-121-THR with the pitch of 3,5 mm offers strong performance in the smallest space. It is available in 2- and 3-pole design.
The position of the entries vertical to the printed circuit board enables the advantageous application within housings with external connection. Due to the very small space requirement and the white colour it is ideally suited to various applications in the lighting industry.

The front of the terminal is equipped with pushers to be handled with standard screwdrivers for the removal of the parallel connected conductors.

The easy to use spring system allows beside the use of 1 mm² solid wires also the connection of 0,75 mm² flexible by use of the pushers.

The advanced design of this high temperature resistant terminal allows in the area of the solder pins the free circulation of hot air in the convection oven during the reflow soldering process.

Part Numbers

No. of poles	830-A-121-THR		Length	PU
2	10.813.082		6,90	250
3	10.813.083		10,40	250
2	10.813.082.B00	(1 bar mag.)	6,90	75
3	10.813.083.B00	(1 bar mag.)	10,40	50

General Information

Pitch	3,5 mm
No. of poles	2 + 3
Areas of application	Lighting technology, devices

Technical Data

Clamping Range	*solid / flexible / AWG*		
	0,2 - 1,0 mm² / 0,2 - 0,75 mm² / 24 - 18 AWG		
Rated Cross Section	1 mm² (starr / solid) / 0,75 mm²		
Wire Stripping Length	7,5 mm ± 0,5 mm		
Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	13,5 A apply to 1 mm² solid 9 A apply to 0,75 mm²		
Soldering process	Wave solder & reflow solder		
Hole in PCB	ø 1,1 mm		

Material

Moulding	PA HT, white, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Terminal body	Tin plated copper alloy
Spring	Stainless steel

Approvals

	Current	Voltage	Group	AWG	Nm
cULus	6	300	B	24 - 18	

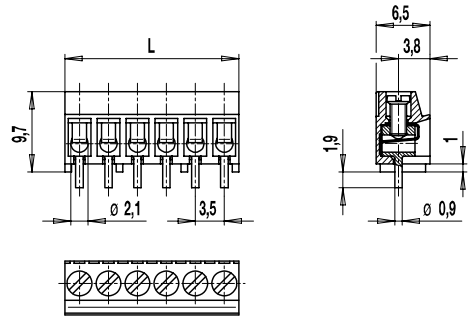
Options / Accessories

- Black colour on request
- Tape-on-Reel on request

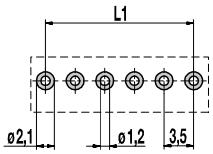
Part Numbers: Tape-on-Reel

No. of poles	830-A-121-THR	Tape Width	Tape Height	PU
2	10.813.082.A00	24 mm	17,2 mm	300
3	10.813.083.A00	24 mm	17,2 mm	300

PCB connector for THR
930-THR(-DS)
Screw connection



PCB Layout



L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm
Solder pad diameter: ø 2,1 mm

This product based on our established 930 series have been designed for the soldering process in Through-Hole-Reflow technology.
The soldering paste is applied to the plated through holes and the pins are placed in the circuit board and soldered by a reflow oven.
The terminal mouldings are made of heat-resistant material. The stand-offs on the base ensures there is enough room for the soldering paste and facilitates good heat circulation for optimum soldering and enables the soldering joint to be visually inspected.
The solder pin projects very slightly with a circuit board thickness of 1,6 mm and creates a solder point on both sides and thus guarantees a secure mounting. The position of the solder pins enables an equally minimal allocation area on the circuit board as with wave soldering.

Part Numbers

No. of poles	930-THR	930-THR-DS	Length	PU
2	10.879.002	20.879.002	7,40	250
3	10.879.003	20.879.003	10,90	250
4	10.879.004	20.879.004	14,40	250
5	10.879.005	20.879.005	17,90	200
6	10.879.006	20.879.006	21,40	200
7	10.879.007	20.879.007	24,90	100
8	10.879.008	20.879.008	28,40	100
9	10.879.009	20.879.009	31,90	100
10	10.879.010	20.879.010	35,40	100
11	10.879.011	20.879.011	38.90	100
12	10.879.012	20.879.012	42,40	100
15	10.879.015	20.879.015	52,90	100

General Information

Pitch	3,5 mm
No. of poles	2 - 12, 15

Technical Data

Clamping Range	*solid / flexible / AWG*		
without wire protector	0,75 - 1,5 mm² / 0,75 - 1,5 mm² / 18 - 16 AWG		
with wire protector	0,34 - 1,5 mm² / 0,34 - 1 mm² / 22 - 16 AWG		
Rated Cross Section	1 mm²		
Wire Stripping Length	5 mm ± 0,5 mm		
Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	13,5 A		
Soldering process	Wave solder & reflow solder		
Hole in PCB	ø 1,2 mm		
PCB thickness	Wave solder max. 1,6 mm; reflow solder 0,8-1,6 mm		
Torque	0,2 Nm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Terminal body	Tin plated brass
Screw	M2; zinc plated steel, blue passivated
Solder pin	ø 0,9 mm; tin plated brass
Wire protector	German silver

Approvals

	Current	Voltage	Group	AWG	Nm
	10	300	B	26 - 16	0,23
	10	300	B	26 - 16	0,2

Options / Accessories

- Special marking according to drawing
- Self-adhesive marking strip BST-3,50 [1]
- Other solder pin lengths on request
- Large conductor space on request

Part Numbers: Tape-on-Reel

No. of poles	930-THR	930-THR-DS	Tape Width	Tape Height	PU
3		20.879.003.A00	32 mm	13 mm	500
6		20.879.006.A00	56 mm	13 mm	500
12		20.879.012.A00	56 mm	13 mm	500

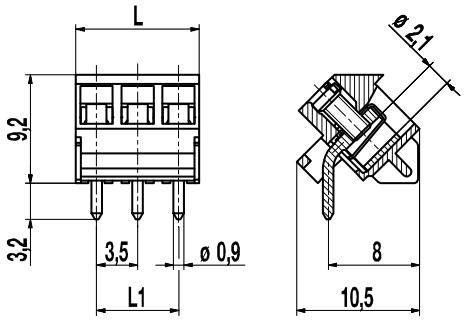
further number of poles on request

[1] To be fitted after reflow soldering process

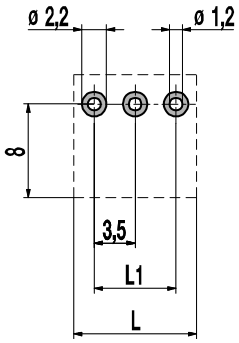
PCB connector for THR

934-THR-DS

Screw connection 45°-angle to PCB



PCB Layout



L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm
Solder pad diameter: ø 2,2 mm

934-THR-DS is a PCB connector for the reflow soldering process with a pitch of 3,5 mm. It is available in 2- to 12-pole design.
The wire entry has a connection angle of 45° to the PCB. This offers the advantage that terminal rows can be located space saving one directly behind the other. Additionally, the connectors can be arranged side by side without a change of the pitch.
The housing material consists of high temperature resistant plastic. Spacers, so-called "Stand-offs" on the base assure an improved hot-air circulation during the reflow soldering process in the convection oven.
The PCB connector 934-THR-DS is standardly equipped with captive screws and wire protectors.
This connector is packed Tape-on-Reel for the automatic assembling. It has a flat roof design on the housing at the middle poles in order to create a flat surface for the vacuum pipette.

Part Numbers

No. of poles	934-THR-DS	Length	PU
2	20.879.302	7,00	250
4	20.879.304	14,00	250
6	20.879.306	21,00	200
12	20.879.312	42,00	100

further number of poles on request

General Information

Pitch	3,5 mm
No. of poles	2 - 12
Areas of application	Devices with space critical applications or multi-row connections

Technical Data

Clamping Range	*solid / flexible / AWG*		
	0,25 - 1,5 mm² / 0,25 - 1 mm² / 24 - 16 AWG		
Rated Cross Section	1 mm²		
Wire Stripping Length	5 mm ± 0,5 mm		
Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	10 A		
Soldering process	Wave solder & reflow solder		
Hole in PCB	ø 1,2 mm		
PCB thickness	Wave solder max. 1,6 mm; reflow solder 1,6 mm - 3,2 mm		
Torque	0,2 Nm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Terminal body	Tin plated brass
Screw	M2; zinc plated steel, blue passivated
Solder pin	ø 0,9 mm; tin plated brass
Wire protector	German silver

Approvals

	Current	Voltage	Group	AWG	Nm
	10	300	B	26 - 16	0,23
	10	300	B	26 - 16	0,2

Options / Accessories

- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-3,50 [1]
- Other plug pin lengths on request

Part Numbers: Tape-on-Reel

No. of poles	934-THR-DS	Tape Width	Tape Height	PU
2	20.879.302.A00	32 mm	15,2 mm	300
5	20.879.305.A00	32 mm	15,2 mm	300

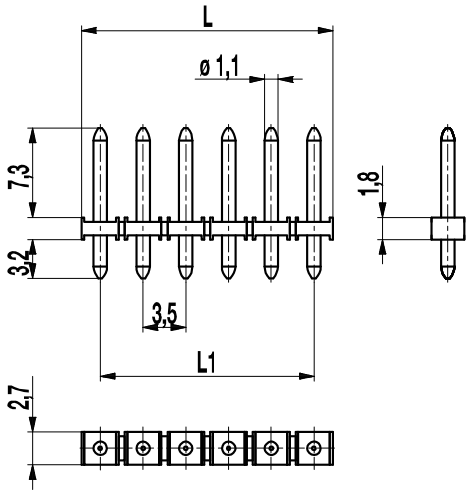
further number of poles on request

[1] To be fitted after reflow soldering process

Pin strip for THR

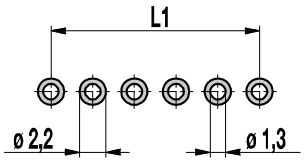
931-SLR-THR-1,1

Soldering/plug-in area ø 1,1 mm



L1 = (No. of poles - 1) x pitch

PCB Layout



Solder paste thickness: 0,15 - 0,2 mm
Solder pad diameter: ø 2,2 mm

The pin strip 931-SLR-THR-1,1 for the application in a reflow soldering process and with a pitch of 3,5 mm is available in 2 to 16 pole design.
It comes with a constant pin diameter of 1,1 mm in the solder and plug-in area.
The high temperature resistant plastic housing has a very high CTI value and is equipped with spacers, so-called "Stand-offs", which ensure a better hot-air circulation during the reflow soldering process in the convection oven. Beyond this, they assure an improved optical control of the solder joints.
For the automatic assembling process, all pin strip versions are packed Tape-on-Reel and are equipped with high temperature resistant Pick Caps, which can comfortably be removed after the soldering process.

Part Numbers

No. of poles	931-SLR-THR-1,1	Length	PU
2	32.893.727	6,50	1000
3	33.893.727	10,00	1000
4	34.893.727	13,50	500
5	35.893.727	17,00	500
6	36.893.727	20,50	500
8	38.893.727	27,50	250
10	40.893.727	34,50	200
12	42.893.727	41,50	200
16	46.893.727	55,50	200

further number of poles on request

General Information

Pitch	3,5 mm
No. of poles	2 - 16
Usable with	plug connector 930-FL(DS)
Additonal Information	Also, please take into consideration the pin strips 931-SLR-THR, 931-SLR-THR-1,3 and 931-SLR-SMD-1,3 in genuine surface mount technology.

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	6 A		
Soldering process	Wave solder & reflow solder		
Hole in PCB	ø 1,3 mm		
PCB thickness	Wave solder max. 1,6 mm; reflow solder 1,6 - 3,2 mm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	ø 1,1 mm; tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	6	300	B, D		
	6	300	B, D		

Options / Accessories

- Other plug pin lengths on request
- Other solder pin surfaces on request

Part Numbers: Tape-on-Reel

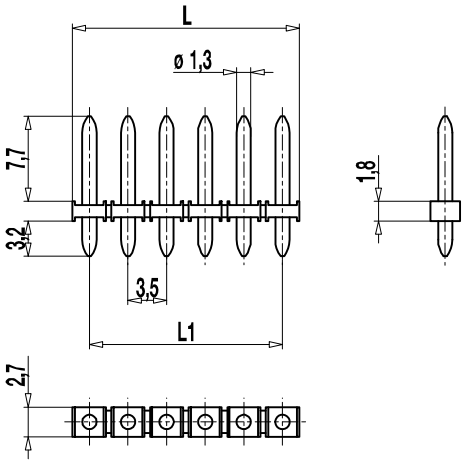
No. of poles	931-SLR-THR-1,1	Tape Width	Tape Height	PU
3	33.893.727.A00	32 mm	14,6 mm	500
4	34.893.727.A00	32 mm	14,6 mm	500
5	35.893.727.A00	32 mm	14,6 mm	500
6	36.893.727.A00	56 mm	14,6 mm	500
7	37.893.727.A00	56 mm	14,6 mm	500
8	38.893.727.A00	56 mm	14,6 mm	500
9	39.893.727.A00	56 mm	14,6 mm	500
10	40.893.727.A00	56 mm	14,6 mm	500
11	41.893.727.A00	56 mm	14,6 mm	500
12	42.893.727.A00	72 mm	14,9 mm	500
13	43.893.727.A00	72 mm	14,9 mm	500
14	44.893.727.A00	72 mm	14,9 mm	500

further number of poles on request

Pin strip for THR

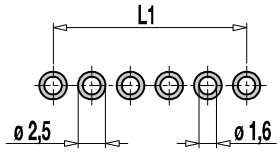
931-SLR-THR-1,3

Soldering/plug-in area ø 1,3 mm



L1 = (No. of poles - 1) x pitch

PCB Layout



Solder paste thickness: 0,15 - 0,2 mm
Solder pad diameter: ø 2,5 mm

The pin strip 931-SLR-THR-1,3 for the application in a reflow soldering process and with a pitch of 3,5 mm is available in 2 to 16 pole design.
It comes with a constant pin diameter of 1,3 mm in the solder and plug-in area.
The high temperature resistant plastic housing has a very high CTI value and is equipped with spacers, so-called "Stand-offs", which ensure a better hot-air circulation during the reflow soldering process in the convection oven. Beyond this, they assure an improved optical control of the solder joints.
For the automatic assembling process, all pin strip versions are packed Tape-on-Reel and are equipped with high temperature resistant Pick Caps, which can comfortably be removed after the soldering process.

Part Numbers

No. of poles	931-SLR-THR-1,3	Length	PU
2	12.893.726	6,50	1000
3	13.893.726	10,00	1000
4	14.893.726	13,50	500
5	15.893.726	17,00	500
6	16.893.726	20,50	500
8	18.893.726	27,50	250
10	20.893.726	34,50	200
12	22.893.726	41,50	200
16	26.893.726	55,50	200

further number of poles on request

General Information

Pitch	3,5 mm
No. of poles	2 - 16
Usable with	plug connector 938-FLDS
Additonal Information	Also, please take into consideration the pin strips 931-SLR-SMD-1,3 in genuine surface mount technology.

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	6 A		
Soldering process	Wave solder & reflow solder		
Hole in PCB	ø 1,6 mm		
PCB thickness	Wave solder max. 1,6 mm; reflow solder 1,6 - 3,2 mm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	ø 1,3 mm; tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	6	150	B		
	6	300	D		
	6	150	B		
	6	300	D		

Options / Accessories

- Other plug pin lengths on request
- Other solder pin surfaces on request

Part Numbers: Tape-on-Reel

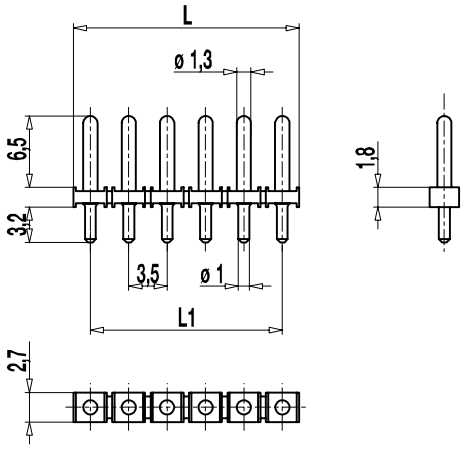
No. of poles	931-SLR-THR-1,3	Tape Width	Tape Height	PU
3	13.893.726.A00	32 mm	14,6 mm	500
4	14.893.726.A00	32 mm	14,6 mm	500
5	15.893.726.A00	32 mm	14,6 mm	500
6	16.893.726.A00	56 mm	14,6 mm	500
7	17.893.726.A00	56 mm	14,6 mm	500
8	18.893.726.A00	56 mm	14,6 mm	500
9	19.893.726.A00	56 mm	14,6 mm	500
10	20.893.726.A00	56 mm	14,6 mm	500
11	21.893.726.A00	56 mm	14,6 mm	500
12	22.893.726.A00	72 mm	14,9 mm	500
13	23.893.726.A00	72 mm	14,9 mm	500
14	24.893.726.A00	72 mm	14,9 mm	500

further number of poles on request

Pin strip for THR

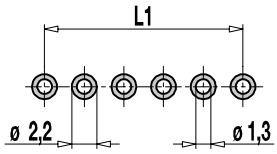
931-SLR-THR

Soldering area ø 1 mm; plug-in area ø 1,3 mm



L1 = (No. of poles - 1) x pitch

PCB Layout



Solder paste thickness: 0,15 - 0,2 mm
Solder pad diameter: ø 2,2 mm

931-SLR-THR is a pin strip with a pitch of 3,5 mm for the application in a reflow soldering process. The high temperature resistant plastic housing has a very high CTI value and is equipped with spacers, so-called stand-offs, which ensure a better hot-air circulation during the reflow soldering process in the convection oven. Beyond this, they assure an improved optical control of the solder joints.
The pin strips of the series 931-SLR-THR comes with a stepped pin, ø 1,3 mm in the plug-in area and ø 1 mm in the soldering area.
For the automatic assembling all pin strips of this series are packed in Tape-on-Reel and equipped with high temperature resistant Pick Caps, which can easily be removed after the soldering process.

General Information

Pitch	3,5 mm
No. of poles	2 - 16
Usable with	plug connector 938-FLDS
Additonal Information	Also, please take into consideration the pin strips 931-SLR-SMD-1,3 in genuine surface mount technology.

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	6 A		
Soldering process	Wave solder & reflow solder		
Hole in PCB	ø 1,3 mm		
PCB thickness	Wave solder max. 1,6 mm; reflow solder 1,6 - 3,2 mm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	ø 1,3 mm (plug-in area) / ø 1,0 mm (soldering area); tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	6	150	B		
	6	300	D		
	6	150	B		
	6	300	D		

Options / Accessories

- Other plug pin lengths on request
- Other solder pin surfaces on request

Part Numbers

No. of poles	931-SLR-THR	Length	PU
2	12.893.721	6,50	1000
3	13.893.721	10,00	1000
4	14.893.721	13,50	500
5	15.893.721	17,00	500
6	16.893.721	20,50	500
8	18.893.721	27,50	250
10	20.893.721	34,50	200
12	22.893.721	41,50	200
16	26.893.721	55,50	200

further number of poles on request

Part Numbers: Tape-on-Reel

No. of poles	931-SLR-THR	Tape Width	Tape Height	PU
3	13.893.721.A00	32 mm	14,6 mm	500
4	14.893.721.A00	32 mm	14,6 mm	500
5	15.893.721.A00	32 mm	14,6 mm	500
6	16.893.721.A00	56 mm	14,6 mm	500
7	17.893.721.A00	56 mm	14,6 mm	500
8	18.893.721.A00	56 mm	14,6 mm	500
9	19.893.721.A00	56 mm	14,6 mm	500
10	20.893.721.A00	56 mm	14,6 mm	500
11	21.893.721.A00	56 mm	14,6 mm	500
12	22.893.721.A00	72 mm	14,9 mm	500
13	23.893.721.A00	72 mm	14,9 mm	500
14	24.893.721.A00	72 mm	14,9 mm	500

further number of poles on request

Visual Guide: 5 mm pitch

Visual Guide for all SMD & THR products with a pitch of 5 mm

SMD

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120-M-221-SMD
Page 35

120-M-227-SMD
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140-A-SMD
Page 37

140-A-126-SMD
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950-A-SMD
Page 39

950-D-SMD-DS
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974-D-SMD-DS
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971-SLR-SMD-1,3
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971-SLT-SMD
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THR

120-M-211-THR
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120-M-221-THR
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950-THR
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970-THR
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971-SLR-THR
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971-SLR-THR-1,1
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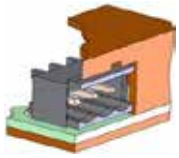
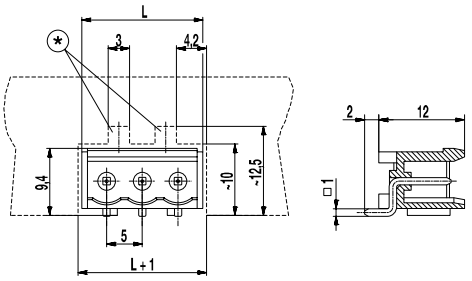
971-SLR-THR-1,3
Page 51

Pin strip for SMD

120-M-211-SMD

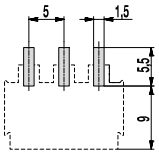
Plug-in direction parallel to PCB, with side walls





(*) Please plan for two gaps in the measures of 3 x 2.5 mm in the cut-out of the control panel for the snap-in device of the counterpart

PCB Layout



Solder paste thickness: 0,2 mm

L-shape exposed leads confer an extremely reliable retention force to PCB. This characteristics allows reliable soldering to PCB approaching zero defects for this characteristic and its effects. The top surface of the connector ensures automated Pick&Place-ability for both odd and even pole versions.
Material will handle reflow temperatures well without deforming or melting.
Product shall be mounted on PCB to expose connector entry in the cut-off window of the metal or plastic enclosure. This installation mode prevents vertical peel-off stress against the L-shape solder joints during plug-in installation test. Standoffs underneath the molding ensure that connector housing keeps its horizontal position relative to PCB plane.
Packed in magazines, this genuine SMD terminal is suitable for the automatic assembly.

Part Numbers

No. of poles	120-M-211-SMD	Length	PU
2	30.806.352	12,00	774
3	30.806.353	17,00	540
4	30.806.354	22,00	414
5	30.806.355	27,00	342
6	30.806.356	32,00	288
8	30.806.358	42,00	216

further number of poles on request

General Information

Pitch	5 mm
No. of poles	2 - 12
Usable with	all plug connectors of series 120

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	250 V	320 V	630 V
Rated Impulse Voltage	4 kV	4 kV	4 kV
Rated Insulation Voltage	250 V acc. to EN 60998-1		
Rated Current	12 A		
Soldering process	Reflow solder		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	1,0 x 1,0 mm; tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	15	300	B		
	10	300	D, E		
	15	300	B		
	10	300	D, E		

Options / Accessories

- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-5,00 [1]
- Tape-on-Reel on request

Part Numbers: Tape-on-Reel

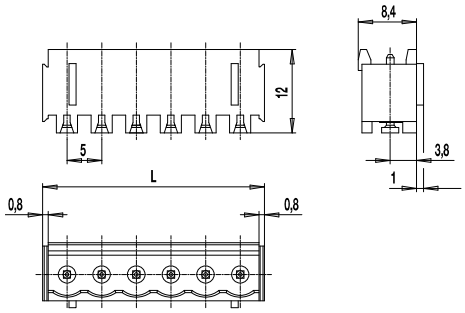
No. of poles	120-M-211-SMD	Tape Width	Tape Height	PU
2	30.806.352.A00	24	10,4	375
3	30.806.353.A00	44	10,4	375
4	30.806.354.A00	44	10,4	375
5	30.806.355.A00	44	10,4	375

[1] To be fitted after reflow soldering process

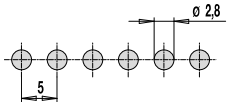
Pin strip for SMD

120-M-221-SMD

Plug-in direction vertical to PCB, with side walls



PCB Layout



Solder paste thickness: 0,15 - 0,2 mm
Solder pad diameter: ø 2,8 mm

The PCB terminals for surface mounting comprise several types for reflow-soldering processes.
Housings out of temperature resistant plastic material and solder pins in round shape with soldering foot form the pin strips of the series of 120-M-221-SMD.
The pins are movable in vertical direction and this ensures plane positioning of the soldering feet on the soldering pads. Thus, 100% coplanarity is guaranteed.
For the automatic assembling process, all pin strip versions are packed Tape-on-Reel and are equipped with high temperature resistant Pick Caps, which can comfortably be removed after the soldering process.

Part Numbers

No. of poles	120-M-221-SMD	Length	PU
2	40.806.352	12,00	200
3	40.806.353	17,00	200
4	40.806.354	22,00	100
5	40.806.355	27,00	100
6	40.806.356	32,00	100
8	40.806.358	42,00	50
10	40.806.360	52,00	50
12	40.806.362	62,00	50

further number of poles on request

General Information

Pitch	5 mm
No. of poles	2 - 12
Usable with	all plug connectors of series 120

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	250 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	12 A		
Soldering process	Reflow solder		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI 250
Insulating Group	IIIa
Temperature Range	-40°C up to 105°C; reflow solder temperature (Peak) max. 250°C (15-30 s)
Solder pin	ø 1,1 mm (plug-in area); tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	15	300	B		
	10	300	D		
	15	300	B		
	10	300	D, E		

Options / Accessories

- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-5,00 [1]

Part Numbers: Tape-on-Reel

No. of poles	120-M-221-SMD	Tape Width	Tape Height	PU
2	40.806.352.A00	32 mm	17,4 mm	225
3	40.806.353.A00	32 mm	17,4 mm	225
4	40.806.354.A00	56 mm	17,4 mm	225
5	40.806.355.A00	56 mm	17,4 mm	225
6	40.806.356.A00	56 mm	17,4 mm	225
7	40.806.357.A00	56 mm	17,4 mm	225

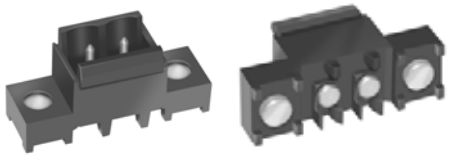
further number of poles on request

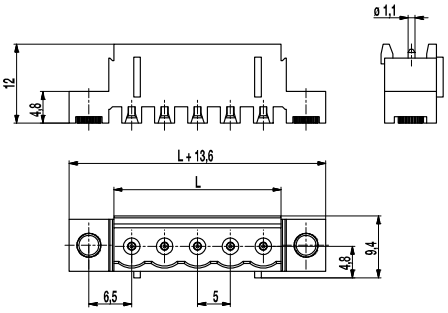
[1] To be fitted after reflow soldering process

Pin strip for SMD

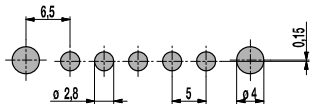
120-M-227-SMD

Plug-in direction vertical to PCB, with solder flanges





PCB Layout



Solder paste thickness: 0,15 - 0,2 mm

120-M-227-SMD is a pin strip with a pitch of 5 mm for surface mount technology and suitable for all plugs of the plug connector system of series of 120 and available in lengths from 2 to 22 poles.
The solder retention devices (SMT anchors) on either side of the terminal housing provide an exceptionally high retention force for the terminal block to the PCB.
The most significant benefit of this design is the protection it provides to the solder joints against stresses encountered in field-installations. The product eliminates completely CTE mismatch (Coefficient of thermal expansion) and provide total coplanarity by the position adapting pins.
For the automatic assembling process, all pin strip versions are packed Tape on Reel and are equipped with high temperature resistant pick caps, which can comfortably be removed after the soldering process.
Plug-In direction vertical to PCB and wire entrance parallel to PCB when plugged with 120-D-111, 120-D-121
Plug-In direction and wire entrance vertical to PCB when plugged with 120-A-111.

Part Numbers

No. of poles	120-M-227-SMD	Length	PU
2	27.498.104	10,00	100
5	50.494.001	25,00	100

further number of poles on request

General Information

Pitch	5 mm
No. of poles	2 - 22
Usable with	all plug connectors of series 120

Technical Data

Overvoltage Category	IIII	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	250 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	12 A		
Soldering process	Reflow solder		

Material

Moulding	PA HT, grey, V-0
Comparative Tracking Index	CTI 250
Insulating Group	IIIa
Temperature Range	-40°C up to 105°C; reflow solder temperature (Peak) max. 250°C (15-30 s)
Solder pin	ø 1,1 mm (plug-in area); tin plated brass

Approvals

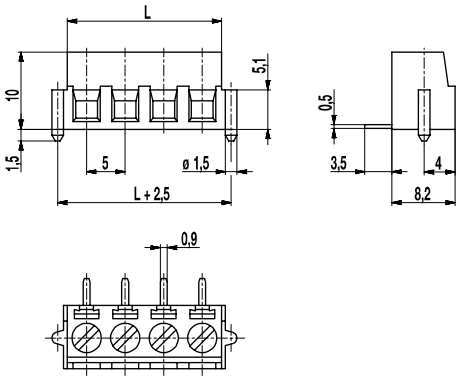
	Current	Voltage	Group	AWG	Nm
	15	300	B		
	10	300	D		
	15	300	B		
	10	300	D, E		

Options / Accessories

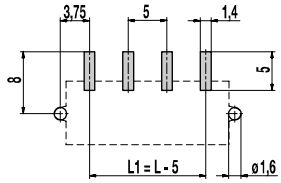
- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-5,00 [1]
- Special packaging on request: Tape-on-Reel - Tray - Bar magazine

[1] To be fitted after reflow soldering process

PCB connector for SMD
140-A-SMD
Screw connection, with anti-twist peg



PCB Layout



Solder paste thickness: 0,2 mm

The 2 to 8 pole terminal 140-A-SMD with a pitch of 5 mm has a screw connection with elevator clamping system and is equipped with M3 captive screws. The wire clamp and soldering tag are manufactured as a single unit and permanently engaged in the housing. The solder pins are exactly aligned parallel to the printed circuit board in order to create a coplanar connection after the reflow soldering process.
The moulding is made of heat resistant thermoplastic material and equipped with plastic pegs on both sides to prevent twisting.

This article is only available in bar magazines or in Tape-on-Reel. When delivered in Tape-on-Reel, this product is equipped with a Pick Discs that can be easily removed after the soldering process.

Part Numbers

No. of poles	140-A-SMD	Length	PU
2	10.801.602	10,00	1036
3	10.801.603	15,00	756
4	10.801.604	20,00	588
5	10.801.605	25,00	504
6	10.801.606	30,00	420
7	10.801.607	35,00	364
8	10.801.608	40,00	308

General Information

Pitch	5 mm
No. of poles	2 - 8

Technical Data

Clamping Range	*solid / flexible / AWG*		
	0,14 - 2,5 mm² / 0,14 - 1,5 mm² / 26 - 16 AWG		
Rated Cross Section	1,5 mm²		
Wire Stripping Length	6 mm ± 0,5 mm		
Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	200 V	320 V	500 V
Rated Impulse Voltage	4 kV	4 kV	4 kV
Rated Insulation Voltage	250 V acc. to EN 60998-1		
Rated Current	16 A		
Soldering process	Reflow solder		
Torque	0,5 Nm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max 260°C (15-30 s)
Terminal body	Nickle plated brass
Pressure clamp	Tin plated tin bronze
Screw	M3; zinc plated steel, blue passivated
Solder pin	0,5 x 0,9 mm; tin plated tin bronze

Approvals

	Current	Voltage	Group	AWG	Nm
	10 [1]	300	B, D	30 - 14	0,51
	15	300	B	30 - 14	0,51

Options / Accessories

- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-5,00 [2]
- Version without anti-twist peg or with other fastening flanges

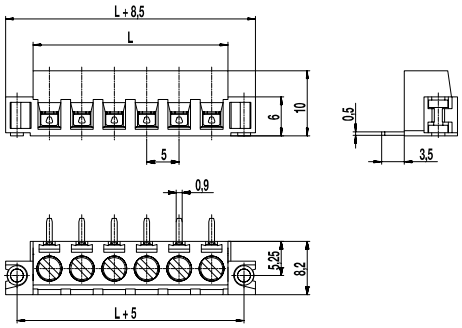
Part Numbers: Tape-on-Reel

No. of poles	140-A-SMD	Tape Width	Tape Height	PU
2	10.801.602.A00	32 mm	13 mm	375
3	10.801.603.A00	56 mm	13 mm	375
4	10.801.604.A00	56 mm	13 mm	375
5	10.801.605.A00	56 mm	13 mm	375
6	10.801.606.A00	56 mm	13 mm	375

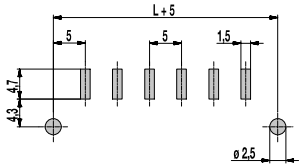
further number of poles on request

[1] 20 A max for factory-wiring applications only
[2] To be fitted after reflow soldering process

PCB connector for SMD
140-A-126-SMD
Screw connection, with solder flanges



PCB Layout



Solder paste thickness: 0,2 mm

The 2 to 8 pole terminal 140-A-126-SMD with a pitch of 5 mm has a screw connection with elevator clamping system and is equipped with M3 captive screws. The wire clamp and soldering tag are manufactured as a single unit and permanently engaged in the casing.
Soldering cylinders on either side of the housingare movable in vertical direction (floating anchors), and thereby they obtain 100% coplanarity between solder pins and soldering cylinders. They are transferred more to the front in comparison to the connector centre in order to keep the retaining strength, where the wires are connected. Thus, the force, acting on the solder pins, is reduced in a very important way.

This article is only available in bar magazines or in Tape-on-Reel. When delivered in Tape-on-Reel, this product is equipped with a Pick Discs that can be easily removed after the soldering process.

Part Numbers

No. of poles	140-A-126-SMD	Length	PU
2	20.801.632	10,00	784
3	20.801.633	15,00	616
4	20.801.634	20,00	504
5	20.801.635	25,00	420
6	20.801.636	30,00	364
7	20.801.637	35,00	336
8	20.801.638	40,00	280

General Information

Pitch	5 mm
No. of poles	2 - 8
Areas of application	Systems for measurement and control

Technical Data

Clamping Range	*solid / flexible / AWG*		
	0,14 - 2,5 mm² / 0,14 - 1,5 mm² / 26 - 16 AWG		
Rated Cross Section	1,5 mm²		
Wire Stripping Length	6 mm ± 0,5 mm		
Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	200 V	320 V	500 V
Rated Impulse Voltage	4 kV	4 kV	4 kV
Rated Insulation Voltage	250 V acc. to EN 60998-1		
Rated Current	16 A		
Soldering process	Reflow solder		
Torque	0,5 Nm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Terminal body	Nickel plated brass
Pressure clamp	Tin plated tin bronze
Screw	M3; zinc plated steel, blue passivated
Solder pin	0,9 x 0,5 mm; tin plated tin bronze
Solder cylinder	Tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	10 [1]	300	B, D	30 - 14	0,51
	15	300	B	30 - 14	0,51

Options / Accessories

- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-5,00 [2]

Part Numbers: Tape-on-Reel

No. of poles	140-A-126-SMD	Tape Width	Tape Height	PU
2	20.801.632.A00	32 mm	13 mm	375
3	20.801.633.A00	56 mm	13 mm	375
4	20.801.634.A00	56 mm	13 mm	375
5	20.801.635.A00	56 mm	13 mm	375
6	20.801.636.A00	56 mm	13 mm	375

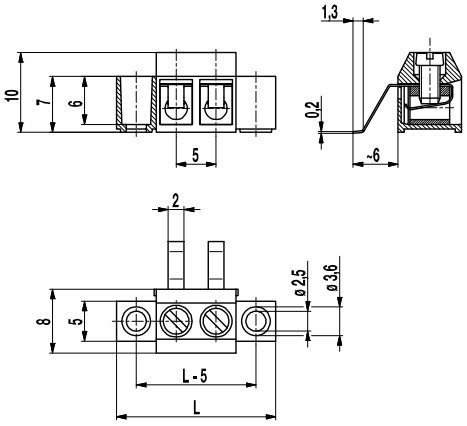
further number of poles on request

[1] 20 A max for factory-wiring applications only
[2] To be fitted after reflow soldering process

PCB connector for SMD

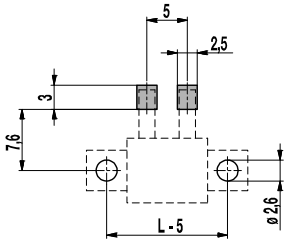
950-A-SMD

Screw connection, with solder tags



L = No. of poles x pitch + 10 mm

PCB Layout



Solder paste thickness: 0,2 mm

Screw connections with wire protection are used on versions 950-A-SMD with a pitch of 5 mm.
This wire protection is extended beyond the rear panel of the housing and bent downwards for connection to the soldering pads. When the terminal strip is fitted, the preloaded soldering tags push against the soldering pads. This assures current transfer with high contact stability.
The housings have mounting flanges at either side, for reliable mechanical fastening on the circuit board. This terminals are packed in tube magazines.

Part Numbers

No. of poles	950-A-SMD	Length	PU
2	20.871.266	20,00	624
3	20.871.267	25,00	504
4	20.871.268	30,00	408
5	20.871.269	35,00	360
6	20.871.270	40,00	312
7	20.871.271	45,00	264
8	20.871.272	50,00	240
9	20.871.273	55,00	216
10	20.871.274	60,00	192
11	20.871.275	65,00	192
12	20.871.276	70,00	168

General Information

Pitch	5 mm
No. of poles	2 - 12

Technical Data

Clamping Range	*solid / flexible / AWG*		
	0,34 - 2,5 mm² / 0,34 - 2,5 mm² / 22 - 14 AWG		
Rated Cross Section	1,5 mm²		
Wire Stripping Length	6 mm ± 0,5 mm		
Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	6 A		
Soldering process	Reflow solder		
Torque	0,4 Nm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Terminal body	Nickel plated brass
Screw	M2,6; zinc plated steel, blue passivated
Wire protector	Tin plated tin bronze

Approvals

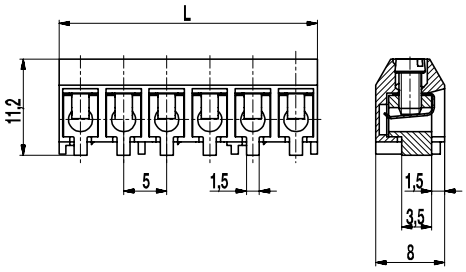
	Current	Voltage	Group	AWG	Nm
	15	300	B	26 - 14	0,4
	15	300	B	26 - 14	0,4

Options / Accessories

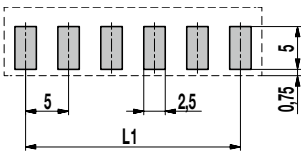
- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-5,00 [1]
- Tape-on-Reel on request

[1] To be fitted after reflow soldering process

PCB connector for SMD
950-D-SMD-DS
Screw connection



PCB Layout



L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm

The reflow solderable PCB connector 950-D-SMD-DS for true surface mounting with a pitch of 5 mm is available in 2 to 12 pole design.
The geometry of the terminal body creates enough space for the solder paste and it also enables a good heat circulation for flawless soldering and an optical solder joint inspection.
The housing is made of high temperature material. Its design ensures a good hot-air circulation during the reflow soldering process in a convection oven.
The connection side of this product should be positioned in the direction of passage.

Part Numbers

No. of poles	950-D-SMD-DS	Length	PU
2	20.879.502	10,00	250
3	20.879.503	15,00	250
4	20.879.504	20,00	100
5	20.879.505	25,00	100
6	20.879.506	30,00	100
7	20.879.507	35,00	100
8	20.879.508	40,00	100
9	20.879.509	45,00	100
10	20.879.510	50,00	100
11	20.879.511	55,00	100
12	20.879.512	60,00	100

General Information

Pitch	5 mm
No. of poles	2 - 12

Technical Data

Clamping Range	*solid / flexible / AWG*		
with wire protector	0,34 - 2,5 mm² / 0,34 - 2,5 mm² / 22 - 14 AWG		
Rated Cross Section	1,5 mm²		
Wire Stripping Length	6 mm ± 0,5 mm		
Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	17,5 A		
Soldering process	Reflow solder		
Torque	0,4 Nm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Terminal body	Tin plated brass
Screw	M2,6; zinc plated steel, blue passivated
Wire protector	Tin plated tin bronze

Approvals

	Current	Voltage	Group	AWG	Nm
	15	300	B	26 - 14	0,4
	15	300	B	26 - 14	0,4

Options / Accessories

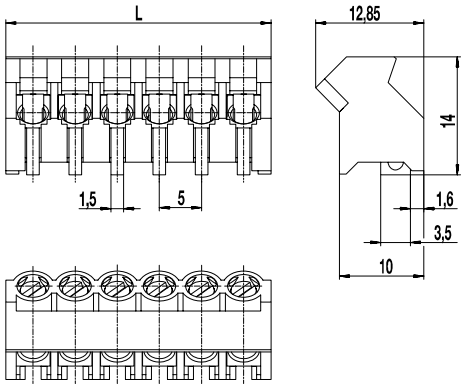
- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-5,00 [1]
- Special packaging on request: Tape-on-Reel - Tray - Bar magazine

Part Numbers: Tape-on-Reel

No. of poles	950-D-SMD-DS	Tape Width	Tape Height	PU
2	20.879.502.A00	32 mm	12,3 mm	500
3	20.879.503.A00	44 mm	12,0 mm	500
4	20.879.504.A00	44 mm	12,0 mm	500
5	20.879.505.A00	44 mm	12,0 mm	500
6	20.879.506.A00	56 mm	12,0 mm	500
7	20.879.507.A00	56 mm	12,0 mm	500
8	20.879.508.A00	56 mm	12,0 mm	500

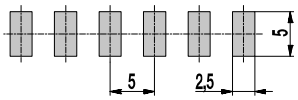
[1] To be fitted after reflow soldering process

PCB connector for SMD
974-D-SMD-DS
Screw connection 45°-angle to PCB



L = pole length x pitch + 1,5 mm

PCB Layout



Solder paste thickness: 0,2 - 0,25 mm

By creating the 974-D-SMD-DS, WECO offers a PCB terminal for the reflow soldering process with a pitch of 5 mm in true surface mount technology.
The wire entry has a connection angle of 45° to the PCB. This offers the advantage that terminal rows can be located space savingly one behind the other.
The housing material consists of high temperature resistant plastic and is specially designed in order to assure a good hot-air circulation during the reflow soldering process in the convection oven. The wire entry side of the terminal has to be placed in flowing direction.

The screws are turned in to the optimal length of engagement by the factory. It is not to be excluded that the position of the screws may change by transport. Therefore it can be necessary that the screw has to be turned back for using the maximum permissible wire cross-section.

Part Numbers

No. of poles	974-D-SMD-DS	Length	PU
2	20.874.402	11,5	250
3	20.874.403	16,5	250
4	20.874.404	21,5	200
5	20.874.405	26,5	100
6	20.874.406	31,5	100

further number of poles on request

General Information

Pitch	5 mm
No. of poles	2 - 6

Technical Data

Clamping Range	*solid / flexible / AWG*		
	0,75 - 4 mm² / 0,75 - 2,5 mm² / 18 - 12 AWG		
Rated Cross Section	2,5 mm²		
Wire Stripping Length	6 mm ± 0,5 mm		
Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	250 V	320 V	630 V
Rated Impulse Voltage	4 kV	4 kV	4 kV
Rated Insulation Voltage	250 V acc. to EN 60998-1		
Rated Current	24 A		
Torque	0,4 Nm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; Reflow solder temperature (Peak) max. 260°C (15-30 s)
Terminal body	Tin plated brass
Screw	M3; zink plated steel, clear passivated
Wire protector	Tin plated tin bronze

Approvals

	Current	Voltage	Group	AWG	Nm
	20	300	B	18 - 12	0,4
	10	300	D	18 - 12	0,4
	20	300	B	18 - 12	0,4
	10	300	D	18 - 12	0,4

Options / Accessories

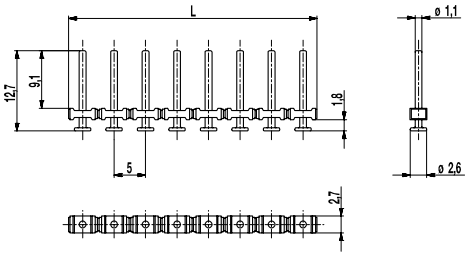
- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-5,00 [1]

Part Numbers: Tape-on-Reel

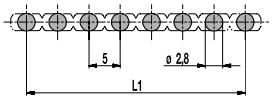
No. of poles	974-D-SMD-DS	Tape Width	Tape Height	PU
2	20.874.402.A00	56 mm	14,7 mm	250
3	20.874.403.A00	56 mm	14,7 mm	250
4	20.874.404.A00	56 mm	14,7 mm	250
5	20.874.405.A00	56 mm	14,7 mm	250
6	20.874.406.A00	56 mm	14,7 mm	250

[1] To be fitted after reflow soldering process

Pin strip for SMD
971-SLR-SMD-1,1
Plug-in area ø 1,1 mm



PCB Layout



L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm

971-SLR-SMD is a pin strip with a pitch of 5 mm for the application in a reflow soldering process.
In contrary to the well-known pin rows 971-SLR and 971-SLR-THR, for which holes in the PCB are necessary, the SMD types of WECO base on true surface assembly.
Soldering expanses at the end of the pins guarantee optimal retention force on the printed circuit board.
We recommend this pin strip with a diamter of 1,1 in the mating area for higher numbers of poles, in order to minimize the plug-in and withdrawal forces here.
Just like all THR versions of WECO also the housings of the SMD series are made out of high temperature resistant plastic material and exhibit a very high CTI value.
For the automatic assembling all pin strips of this series are packed in Tape-on-Reel and equipped with high temperature resistant Pick Caps, which can easily be removed after the soldering process.

Part Numbers

No. of poles	971-SLR-SMD-1,1	Length	PU
2	12.893.822	9,50	1000
3	13.893.822	14,50	500
4	14.893.822	19,50	500
5	15.893.822	24,50	250
6	16.893.822	29,50	250
10	20.893.822	49,50	100
12	22.893.822	59,50	100

further number of poles on request

General Information

Pitch	5 mm
No. of poles	2 - 12
Usable with	plug connectors of series 115-F-.../..-1,1-SW; 950-FL-DS, 950-TFL-DS, 950-NAF-DS, 950-GFL-DS, 950-NLFL-DS, 950-RFL-DS
Additonal Information	Also, please take into consideration the pin strips 971-SLR for wave soldering and 971-SLR-THR for Through-Hole-Reflow.

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	10 A		
Soldering process	Reflow solder		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	ø 1,1 mm (plug-in area); tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	10	300	B		
	10	300	B		

Options / Accessories

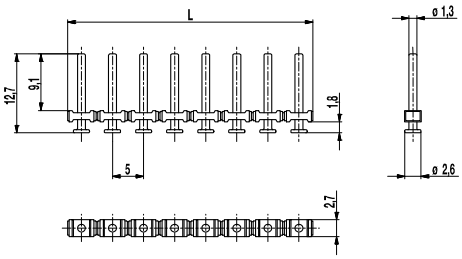
- Other plug pin lengths on request
- Other solder pin surfaces on request

Part Numbers: Tape-on-Reel

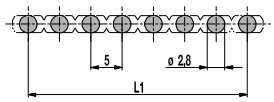
No. of poles	971-SLR-SMD-1,1	Tape Width	Tape Height	PU
2	12.893.822.A00	32 mm	15,9 mm	500
3	13.893.822.A00	32 mm	15,9 mm	500
4	14.893.822.A00	56 mm	15,9 mm	500
5	15.893.822.A00	56 mm	15,9 mm	500
6	16.893.822.A00	56 mm	15,9 mm	500
7	17.893.822.A00	56 mm	15,9 mm	500
8	18.893.822.A00	72 mm	14,9 mm	500
9	19.893.822.A00	72 mm	14,9 mm	500
10	20.893.822.A00	72 mm	14,9 mm	500
11	21.893.822.A00	88 mm	15,8 mm	500
12	22.893.822.A00	88 mm	15,8 mm	500

further number of poles on request

Pin strip for SMD
971-SLR-SMD-1,3
Plug-in area ø 1,3 mm



PCB Layout



L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm

971-SLR-SMD is a pin strip with a pitch of 5 mm for the application in a reflow soldering process. In contrary to the well-known pin rows 971-SLR and 971-SLR-THR, for which holes in the PCB are necessary, the SMD types of WECO base on true surface assembly. Soldering expanses at the end of the pins guarantee optimal retenion force on the printed circuit board.
The pin strip 971-SLR-SMD-1,3 with the pin diameter of 1,3 mm at the plug-in area, is rather suitable for the small numbers of poles of the plug connector (see general information). The obtained plug-in and pull-out forces are comfortable.
Just like all THR versions of WECO also the housings of the SMD series are made out of high temperature resistant plastic material and exhibit a very high CTI value.
For the automatic assembling all pin strips of this series are packed in Tape-on-Reel and equipped with high temperature resistant Pick Caps, which can easily be removed after the soldering process.

Part Numbers

No. of poles	971-SLR-SMD-1,3	Length	PU
2	12.893.821	9,50	1.000
3	13.893.821	14,50	500
4	14.893.821	19,50	500
5	15.893.821	24,50	250
6	16.893.821	29,50	250
10	20.893.821	49,50	100
12	22.893.821	59,50	100

further number of poles on request

General Information

Pitch	5 mm
No. of poles	2 - 12
Usable with	plug connectors of series 115-F, 950-FL-DS, 950-TFL-DS, 950-NAF-DS, 950-GFL-DS, 950-NLFL-DS, 950-RFL-DS
Additonal Information	Also, please take into consideration the pin strips 971-SLR for wave soldering and 971-SLR-THR for Through-Hole-Reflow.

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	10 A		
Soldering process	Reflow solder		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	ø 1,3 mm (plug-in area); tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	10 [1]	300	B		
	10 [1]	300	B		

Options / Accessories

- Other plug pin lengths on request
- Other solder pin surfaces on request

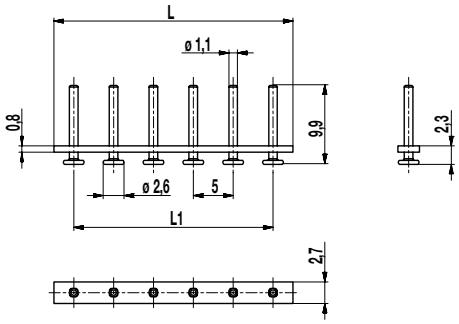
Part Numbers: Tape-on-Reel

No. of poles	971-SLR-SMD-1,3	Tape Width	Tape Height	PU
2	12.893.821.A00	32 mm	15,9 mm	500
3	13.893.821.A00	32 mm	15,9 mm	500
4	14.893.821.A00	56 mm	15,9 mm	500
5	15.893.821.A00	56 mm	15,9 mm	500
6	16.893.821.A00	56 mm	15,9 mm	500
7	17.893.821.A00	56 mm	15,9 mm	500
8	18.893.821.A00	72 mm	14,9 mm	500
9	19.893.821.A00	72 mm	14,9 mm	500
10	20.893.821.A00	72 mm	14,9 mm	500

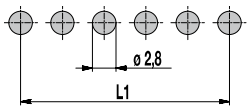
further number of poles on request

[1] By using 115-F current of 12 A possible

Pin strip for SMD
971-SLT-SMD
Low profile



PCB Layout



L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm

971-SLT-SMD is a pin strip with a pitch of 5 mm for the application in a reflow soldering process with low profile for space critical applications.
Contrary to the well-known pin strips of 971-SLR and 971-SLR-THR, for which holes in the PCB are necessary, the SMD types of WECO base on true surface assembly.
Soldering expanses at the end of the pins guarantee optimal retention force on the printed circuit board.
We recommend this pin strip with pin diameter of 1,1 mm in the mating area for higher numbers of poles, in order to minimize the plug-in and withdrawal forces here.
Just like all THR versions of WECO, also the housings of the SMD series are made out of high temperature resistant plastic material.
For the automatic assembling all pin strips of this series are packed in Tape-on-Reel and equipped with high temperature resistant Pick Caps, which can easily be removed after the soldering process.

General Information

Pitch	5 mm
No. of poles	2 - 12
Usable with	plug connectors of series 115-F-.../..-1,1-SW; 950-FL-DS, 950-TFL-DS, 950-NAF-DS, 950-GFL-DS, 950-NLFL-DS, 950-RFL-DS
Additonal Information	Also, please take into consideration the pin strips 971-SLR for wave soldering and 971-SLR-THR for Through-Hole-Reflow.

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	250 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	10 A		
Soldering process	Reflow solder		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI 250
Insulating Group	IIIa
Temperature Range	-40°C up to 105°C; reflow solder temperature (Peak) max. 250°C (15-30 s)
Solder pin	ø 1,1 mm (plug-in area); tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	10	300	B		

Options / Accessories

- Other plug pin lengths on request
- Other solder pin surfaces on request

Part Numbers

No. of poles	971-SLT-SMD	Length	PU
2	12.893.656	10,00	1000
3	13.893.656	15,00	500
4	14.893.656	20,00	500
5	15.893.656	25,00	250
6	16.893.656	30,00	250
10	20.893.656	50,00	100

further number of poles on request

Part Numbers: Tape-on-Reel

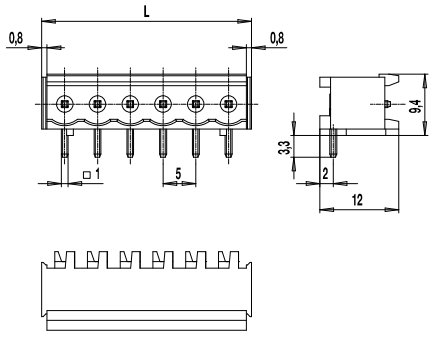
No. of poles	971-SLT-SMD	Tape Width	Tape Height	PU
2	12.893.656.A00	32 mm	14,6 mm	500
4	14.893.656.A00	44 mm	15,0 mm	500
6	16.893.656.A00	44 mm	15,0 mm	500
10	20.893.656.A00	72 mm	14,9 mm	500

further number of poles on request

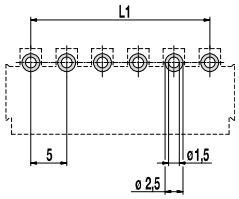
Pin strip for THR

120-M-211-THR

Plug-in direction parallel to PCB, with side walls



PCB Layout



L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm
Solder pad diameter: ø 2,5 mm

The products based on our established 120 series (conecta) have been designed for the soldering process in Through-Hole-Reflow technology.
The soldering paste is applied to the plated through holes and the pins are placed in the circuit board and soldered by a reflow oven.
The terminal mouldings are made of heat-resistant material. The stand-offs on the base ensures there is enough room for the soldering paste and facilitates good heat circulation for optimum soldering and enables the soldering joint to be visually inspected.
The solder pin projects very slightly with a circuit board thickness of 1,6 mm, creates a solder point on both sides, and thus guarantees a secure mounting. The position of the solder pins enables an equally minimal allocation area on the circuit board as with wave soldering.

Part Numbers

No. of poles	120-M-211-THR	Length	PU
2	10.806.352	12,00	200
3	10.806.353	17,00	200
4	10.806.354	22,00	100
5	10.806.355	27,00	100
6	10.806.356	32,00	100
8	10.806.358	42,00	50
10	10.806.360	52,00	50
12	10.806.362	62,00	50

further number of poles on request

General Information

Pitch	5 mm
No. of poles	2 - 12
Usable with	all plug connectors of series 120
Additonal Information	The 120-M-THR pin strips are, like the conventional products, available with straight or angled soldering pins for vertical or parallel plugging of the mating parts, whereby all plugs of the conecta series 120-A, -D, and -F can be used.

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	250 V	320 V	630 V
Rated Impulse Voltage	4 kV	4 kV	4 kV
Rated Insulation Voltage	250 V acc. to EN 60998-1		
Rated Current	12 A		
Soldering process	Wave solder & reflow solder		
Hole in PCB	ø 1,5 mm		
PCB thickness	Wave solder max. 1,6 mm; reflow solder 1,6 - 3,2 mm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	1,0 x 1,0 mm; tin plated brass

Approvals

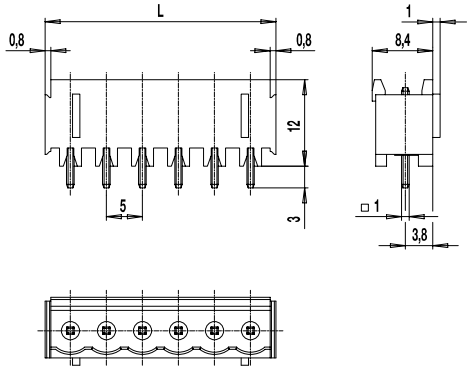
	Current	Voltage	Group	AWG	Nm
	15	300	B		
	10	300	D		
	15	300	B		
	10	300	D, E		

Options / Accessories

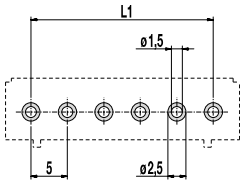
- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-5,00 [1]
- Special packaging on request: Tape-on-Reel - Tray - Bar magazine

[1] To be fitted after reflow soldering process

Pin strip for THR
120-M-221-THR
Plug-in direction vertical to PCB, with side walls



PCB Layout



L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm
Solder pad diameter: ø 2,5 mm

The products based on our established 120-M series (conecta) have been designed for the soldering process in Through-Hole-Reflow technology.
The soldering paste is applied to the plated through holes and the pins are placed in the circuit board and soldered by a reflow oven.
The terminal mouldings are made of heat-resistant material. The stand-offs on the base ensures there is enough room for the soldering paste and facilitates good heat circulation for optimum soldering and enables the soldering joint to be visually inspected.
The solder pin projects very slightly with a circuit board thickness of 1,6 mm, creates a solder point on both sides, and thus guarantees a secure mounting. The position of the solder pins enables an equally minimal allocation area on the circuit board as with wave soldering.
The 120-M-THR pin strips are, like the conventional products, available with straight or angled soldering pins for vertical or parallel plugging of the mating parts, whereby all plugs of the conecta series 120-A, -D, and -F can be used.

Part Numbers

No. of poles	120-M-221-THR	Length	PU
2	20.806.352	12,00	200
3	20.806.353	17,00	200
4	20.806.354	22,00	100
6	20.806.356	32,00	100
8	20.806.358	42,00	50
10	20.806.360	52,00	50
12	20.806.362	62,00	50

further number of poles on request

General Information

Pitch	5 mm
No. of poles	2 - 12
Usable with	all plug connectors of series 120
Additonal Information	For the automatic assembling process, all pin strip versions are packed Tape-on-Reel and are equipped with high temperature resistant Pick Caps, which can comfortably be removed after the soldering process.

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	250 V	320 V	630 V
Rated Impulse Voltage	4 kV	4 kV	4 kV
Rated Insulation Voltage	250 V acc. to EN 60998-1		
Rated Current	12 A		
Soldering process	Wave solder & reflow solder		
Hole in PCB	ø 1,5 mm		
PCB thickness	Wave solder max. 1,6 mm; reflow solder 1,6 - 3,2 mm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	1,0 x 1,0 mm; tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	15	300	B		
	10	300	D		
	15	300	B		
	10	300	D, E		

Options / Accessories

- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-5,00 [1]

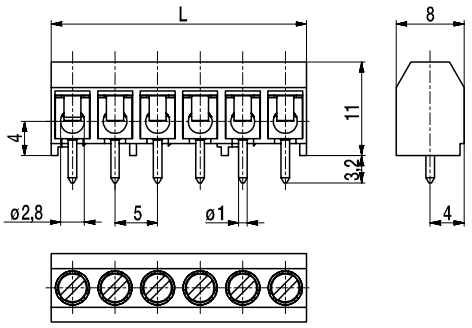
Part Numbers: Tape-on-Reel

No. of poles	120-M-221-THR	Tape Width	Tape Height	PU
2	20.806.352.A00	32 mm	17,4 mm	225
3	20.806.353.A00	32 mm	17,4 mm	225
4	20.806.354.A00	56 mm	17,4 mm	225
5	20.806.355.A00	56 mm	17,4 mm	225
6	20.806.356.A00	56 mm	17,4 mm	225
7	20.806.357.A00	56 mm	17,4 mm	225

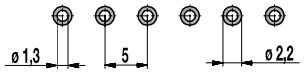
further number of poles on request

[1] To be fitted after reflow soldering process

PCB connector for THR
950-THR(-DS)
Screw connection



PCB Layout



Solder paste thickness: 0,15 - 0,2 mm
Solder pad diameter: ø 2,2 mm

The PCB connector 950-THR with a pitch of 5 mm, designed for the soldering process in Through-Hole-Reflow technology, is available in 2- to 12-pole design.
The terminal housing is made of heat-resistant material. The stand-offs on the base ensures there is enough room for the soldering paste and facilitates good heat circulation for optimum soldering and enables the soldering joint to be visually inspected.
The solder pin projects very slightly with a circuit board thickness of 1,6 mm and creates a solder point on both sides and thus guarantees a secure mounting. The position of the solder pins enables an equally minimal allocation area on the circuit board as with wave soldering.
This connector is also available with enlarged clamping size (958-THR).

Part Numbers

No. of poles	950-THR	950-THR-DS	Length	PU
2	10.879.102	20.879.102	10,00	250
3	10.879.103	20.879.103	15,00	250
4	10.879.104	20.879.104	20,00	100
5	10.879.105	20.879.105	25,00	100
6	10.879.106	20.879.106	30,00	100
7	10.879.107	20.879.107	35,00	100
8	10.879.108	20.879.108	40,00	100
9	10.879.109	20.879.109	45,00	100
10	10.879.110	20.879.110	50,00	100
11	10.879.111	20.879.111	55,00	100
12	10.879.112	20.879.112	60,00	100

General Information

Pitch	5 mm
No. of poles	2 - 12

Technical Data

Clamping Range	*solid / flexible / AWG*		
without wire protector	0,75 - 4 mm² / 0,75 - 2,5 mm² / 18 - 12 AWG		
with wire protector	0,34 - 2,5 mm² / 0,34 - 2,5 mm² / 22 - 14 AWG		
Rated Cross Section	1,5 mm²		
Wire Stripping Length	6 mm ± 0,5 mm		
Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	160 V	160 V	320 V
Rated Impulse Voltage	2,5 kV	2,5 kV	2,5 kV
Rated Insulation Voltage	130 V acc. to EN 60998-1		
Rated Current	17,5 A		
Soldering process	Wave solder & reflow solder		
Hole in PCB	ø 1,3 mm		
PCB thickness	Wave solder max. 1,6 mm; reflow solder 1,6 - 3,2 mm		
Torque	0,4 Nm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Terminal body	Tin plated brass
Screw	M2,6; zinc plated steel, blue passivated
Solder pin	ø 1 mm; tin plated brass
Wire protector	Tin plated tin bronze

Approvals

	Current	Voltage	Group	AWG	Nm
	15	300	B	26 - 14	0,4
	15	300	B	26 - 14	0,4

Options / Accessories

- Consecutive numbering
- Special marking according to drawing
- Self-adhesive marking strip BST-5,00 [1]
- Other solder pin lengths on request

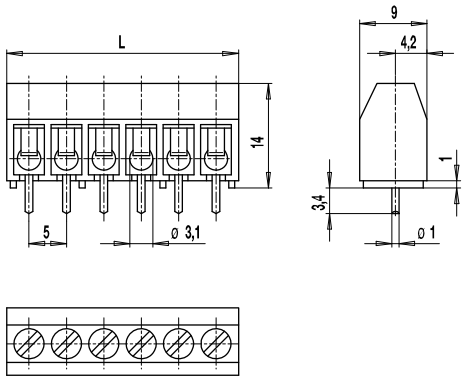
Part Numbers: Tape-on-Reel

No. of poles	950-THR	950-THR-DS	Tape Width	Tape Height	PU
2		20.879.102.A00	32 mm	15,7 mm	300
6		20.879.106.A00	56 mm	15,7 mm	300

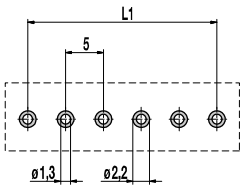
further number of poles on request

[1] To be fitted after reflow soldering process

PCB connector for THR
970-THR(-DS)
Screw connection



PCB Layout



L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm
Solder pad diameter: ø 2,2 mm

The PCB connector 970-THR with a pitch of 5 mm is available in 2- to 12-pole design.
Is has been designed for the soldering process in Through-Hole-Reflow technology.
The soldering paste is applied to the plated through holes and the pins are placed in the circuit board and soldered by a reflow oven.
The terminal mouldings are made of heat-resistant material. The stand-offs on the base ensures there is enough room for the soldering paste and facilitates good heat circulation for optimum soldering and enables the soldering joint to be visually inspected.
The solder pin projects very slightly with a circuit board thickness of 1,6 mm and creates a solder point on both sides and thus guarantees a secure mounting. The position of the solder pins enables an equally minimal allocation area on the circuit board as with wave soldering.
This connector is also available with enlarged clamping size.

Part Numbers

No. of poles	970-THR	970-THR-DS	Length	PU
2	10.879.202	20.879.202	11,00	250
3	10.879.203	20.879.203	16,00	250
4	10.879.204	20.879.204	21,00	200
5	10.879.205	20.879.205	26,00	100
6	10.879.206	20.879.206	31,00	100
8	10.879.208	20.879.208	41,00	100
10	10.879.210	20.879.210	51,00	100
12	10.879.212	20.879.212	61,00	100

further number of poles on request

General Information

Pitch	5 mm
No. of poles	2 - 12

Technical Data

Clamping Range	*solid / flexible / AWG*		
without wire protector	1 - 6 mm² / 1 - 2,5 mm² / 16 - 12 AWG		
with wire protector	0,75 - 4 mm² / 0,75 - 2,5 mm² / 18 - 12 AWG		
Rated Cross Section	2,5 mm²		
Wire Stripping Length	6,5 mm ± 0,5 mm		
Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	250 V	320 V	630 V
Rated Impulse Voltage	4 kV	4 kV	4 kV
Rated Insulation Voltage	250 V acc. to EN 60998-1		
Rated Current	24 A		
Soldering process	Wave solder & reflow solder		
Hole in PCB	ø 1,3 mm		
PCB thickness	Wave solder max. 1,6 mm; reflow solder 1,6 - 3,2 mm		
Torque	0,5 Nm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Terminal body	Tin plated brass
Screw	M3; zinc plated steel, blue passivated
Solder pin	ø 1 mm; tin plated copper
Wire protector	Tin plated tin bronze

Approvals

	Current	Voltage	Group	AWG	Nm
	20	300	B	22-12 [1]	0,51
	10	300	D	22-12 [1]	0,51
	20	300	B	26 - 12	0,51
	10	300	D, E	26 - 12	0,51

Options / Accessories

- Consecutive numbering / Special marking according to drawing
- Self-adhesive marking strip BST-5,00 [2]
- Other solder pin lengths on request

Part Numbers: Tape-on-Reel

No. of poles	970-THR	970-THR-DS	Tape Width	Tape Height	PU
2		20.879.202.A00	32 mm	18,8 mm	225
4		20.879.204.A00	32 mm	18,8 mm	225

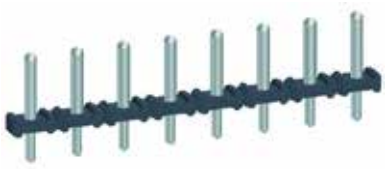
further number of poles on request

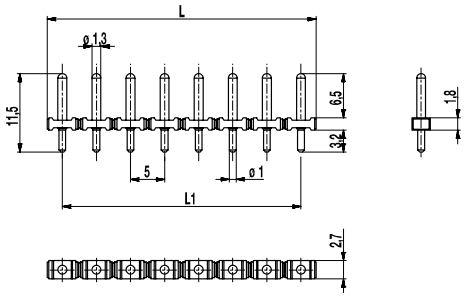
[1] No. 26 AWG min for factory-wiring only
[2] To be fitted after reflow soldering process

Pin strip for THR

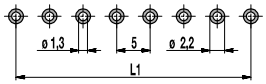
971-SLR-THR

Soldering area ø 1 mm; plug-in area ø 1,3 mm





PCB Layout



L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm
Solder pad diameter: ø 2,2 mm

971-SLR-THR is a pin strip with a pitch of 5 mm for the application in a reflow soldering process. The high temperature resistant plastic housing has a very high CTI value and is equipped with spacers, so-called "Stand-offs", which ensure a better hot-air circulation during the reflow soldering process in the convection oven. Beyond this, they assure an improved optical control of the solder joints.
The pin strips of the series 971-SLR-THR comes with a stepped pin, ø of 1,3 mm in the plug-in area and ø of 1,0 mm in the soldering area, and is usable with all WECO plug connectors (see general information). Furthermore we recommend this pin strip for small numbers of poles and for the series of 115-F for all numbers of poles. The obtained plug-in and pullout forces are comfortable. For the automatic assembling all pin strips of this series are packed in Tape-on-Reel and equipped with high temperature resistant Pick Caps, which can easily be removed after the soldering process.

Part Numbers

No. of poles	971-SLR-THR	Length	PU
2	12.893.801	9,50	1000
3	13.893.801	14,50	500
4	14.893.801	19,50	500
5	15.893.801	24,50	250
6	16.893.801	29,50	250
8	18.893.801	39,50	250
10	20.893.801	49,50	100
12	22.893.801	59,50	100

further number of poles on request

General Information

Pitch	5 mm
No. of poles	2 - 12
Usable with	plug connectors of series 115-F, 950-FL-DS, 950-TFL-DS, 950-NAF-DS, 950-GFL-DS, 950-NLFL-DS, 950-RFL-DS, 970-FBW-FU(-DS)
Additonal Information	Also, please take into consideration the pin strips 971-SLR for wave soldering and 971-SLR-SMD in genuine surface mount technology.

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	250 V	320 V	630 V
Rated Impulse Voltage	4 kV	4 kV	4 kV
Rated Insulation Voltage	250 V acc. to EN 60998-1		
Rated Current	10 A		
Soldering process	Wave solder & reflow solder		
Hole in PCB	ø 1,3 mm		
PCB thickness	Wave solder max. 1,6 mm; reflow solder 1,6 - 3,2 mm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	ø 1,3 mm (plug-in area) / ø 1,0 mm (soldering area); tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	10 [1]	300	B		
	10 [1]	300	B		

Options / Accessories

- Other plug pin lengths on request
- Other solder pin surfaces on request

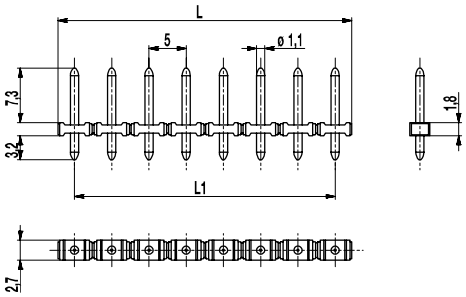
Part Numbers: Tape-on-Reel

No. of poles	971-SLR-THR	Tape Width	Tape Height	PU
2	12.893.801.A00	32 mm	15,9 mm	500
3	13.893.801.A00	32 mm	15,9 mm	500
4	14.893.801.A00	56 mm	15,9 mm	500
6	16.893.801.A00	56 mm	15,9 mm	500
7	17.893.801.A00	56 mm	15,9 mm	500
8	18.893.801.A00	72 mm	14,9 mm	500
10	20.893.801.A00	72 mm	14,9 mm	500

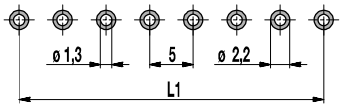
further number of poles on request

[1] By using 115-F current of 12 A possible

Pin strip for THR
971-SLR-THR-1,1
Soldering/plug-in area ø 1,1 mm



PCB Layout



L1 = (number of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm
Solder pad diameter: ø 2,2 mm

971-SLR-THR-1.1 is a pin strip with a pitch of 5,0 mm for the application in a reflow soldering process. The high temperature resistant plastic housing has a very high CTI value and is equipped with spacers, so-called "Stand-offs", which ensure a better hot-air circulation during the reflow soldering process in the convection oven. Beyond this, they assure an improved optical control of the solder joints.
The pin strip 971-SLR-THR-1,1 comes with a constant pin ø of 1,1 mm in the mating and solder area.
We recommend this pin strip for higher numbers of poles, in order to minimize the plug-in and withdrawal forces here.
For the automatic assembling all pin strips of this series are packed in Tape-on-Reel and equipped with high temperature resistant Pick Caps, which can easily be removed after the soldering process.

Part Numbers

No. of poles	971-SLR-THR-1,1	Length	PU
2	12.893.802	9,50	1000
3	13.893.802	14,50	500
4	14.893.802	19,50	500
6	16.893.802	29,50	250
8	18.893.802	39,50	250
12	22.893.802	59,50	100

further number of poles on request

General Information

Pitch	5 mm
No. of poles	2 - 12
Usable with	plug connectors 115-F-.../..-1,1-SW; 950-FL-DS, 950-TFL-DS, 950-NAF-DS, 950-GFL-DS, 950-NLFL-DS, 950-RFL-DS
Additonal Information	Also please consider the pin strips 971-SLR for wave soldering and 971-SLR-SMD in genuine surface mount technology.

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	250 V	320 V	630 V
Rated Impulse Voltage	4 kV	4 kV	4 kV
Rated Insulation Voltage	250 V acc. to EN 60998-1		
Rated Current	10 A		
Soldering process	Wave solder & reflow solder		
Hole in PCB	ø 1,3 mm		
PCB thickness	Wave solder max. 1,6 mm; reflow solder 1,6 - 3,2 mm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	ø 1,1 mm; tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	10	300	B		
	10	300	B		

Options / Accessories

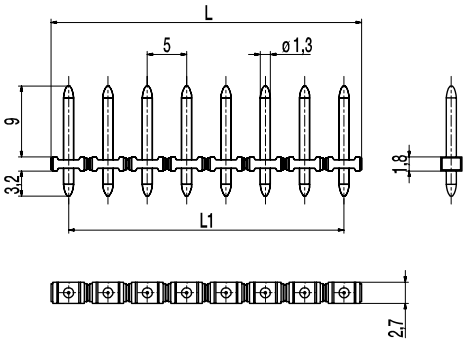
- Other plug pin lengths on request
- Other solder pin surfaces on request

Part Numbers: Tape-on-Reel

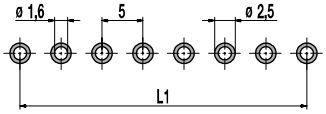
No. of poles	971-SLR-THR-1,1	Tape Width	Tape Height	PU
8	18.893.802.A00	72 mm	14,9 mm	500

further number of poles on request

Pin strip for THR
971-SLR-THR-1,3
Soldering/plug-in area ø 1,3 mm



PCB Layout



L1 = (No. of poles - 1) x pitch
Solder paste thickness: 0,15 - 0,2 mm
Solder pad diameter: ø 2,5 mm

971-SLR-THR-1,3 is a pin strip with a pitch of 5 mm for the application in a reflow soldering process. The high temperature resistant plastic housing has a very high CTI value and is equipped with spacers, so-called "Stand-offs", which ensure a better hot-air circulation during the reflow soldering process in the convection oven. Beyond this, they assure an improved optical control of the solder joints.
The pin strip 971-SLR-THR-1,3 comes with a constant pin ø of 1,3 mm and is usable with all WECO plug connectors (see general information). Furthermore we recommend this pin strip for small numbers of poles and for the series of 115-F for all numbers of poles. The obtained plug-in and pull-out forces are comfortable. For the automatic assembling all pin strips of this series are packed in Tape-on-Reel and equipped with high temperature resistant Pick Caps, which can easily be removed after the soldering process.

Part Numbers

No. of poles	971-SLR-THR-1,3	Length	PU
2	12.893.805	9,50	1000
3	13.893.805	14,50	500
4	14.893.805	19,50	500
5	15.893.805	24,50	250
6	16.893.805	29,50	250
8	18.893.805	39,50	250
10	20.893.805	49,50	100
11	21.893.805	54,50	100
12	22.893.805	59,50	100

General Information

Pitch	5 mm
No. of poles	2 - 12
Usable with	plug connectors of series 115-F, 950-FL-DS, 950-TFL-DS, 950-NAF-DS, 950-GFL-DS, 950-NLFL-DS, 950-RFL-DS
Additonal Information	Also please consider the pin strips 971-SLR for wave soldering and 971-SLR-SMD in genuine surface mount technology.

Technical Data

Overvoltage Category	III	III	II
Pollution Severity Level	3	2	2
Rated Voltage	250 V	320 V	630 V
Rated Impulse Voltage	4 kV	4 kV	4 kV
Rated Insulation Voltage	250 V acc. to EN 60998-1		
Rated Current	10 A		
Soldering process	Wave solder & reflow solder		
Hole in PCB	ø 1,6 mm		
PCB thickness	Wave solder max. 1,6 mm; reflow solder 1,6 - 3,2 mm		

Material

Moulding	PA HT, black, V-0
Comparative Tracking Index	CTI ≥ 600
Insulating Group	I
Temperature Range	-40°C up to 120°C; reflow solder temperature (Peak) max. 260°C (15-30 s)
Solder pin	ø 1,3 mm; tin plated brass

Approvals

	Current	Voltage	Group	AWG	Nm
	10 [1]	300	B		
	10 [1]	300	B		

Options / Accessories

- Other plug pin lengths on request
- Other solder pin surfaces on request

Part Numbers: Tape-on-Reel

No. of poles	971-SLR-THR-1,3	Tape Width	Tape Height	PU
2	12.893.805.A00	32 mm	15,9 mm	500
3	13.893.805.A00	32 mm	15,9 mm	500
4	14.893.805.A00	56 mm	15,9 mm	500
5	15.893.805.A00	56 mm	15,9 mm	500
6	16.893.805.A00	56 mm	15,9 mm	500
7	17.893.805.A00	56 mm	15,9 mm	500
10	20.893.805.A00	72 mm	15,9 mm	500
12	22.893.805.A00	88 mm	15,9 mm	500

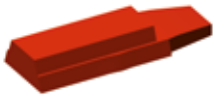
further number of poles on request

[1] By using 115-F current of 12 A possible

Coding systems

Coding element 120-K

Coding elements 120-K can be used for the conecta series 110, 120, 121, and 122.
All pin strips and plug connectors of those series (except for series 110, please refer to coding examples) feature one trapezoidal coding groove per pole, in which the coding elements can be inserted.
This simple solution guarantees error-free plugging.
In their standard design, coding elements are of bright red colour making them clearly visible in plugged condition.
Alternatively, they are also available in light grey and white. Red and light grey versions are delivered in strips of 12 coding keys. White coding elements are delivered loosely in a bag.



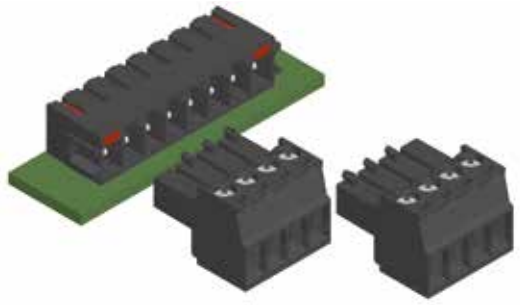
Part number	*Type*	*Colour*	*PU*
20.496.025	120-K/12 KODIEREL.	red	120
17.496.025	120-K/12 KODIEREL. LG	light grey	120
30.496.026	120-K/01-HT-WS-KOD.EL. (Lose)	white	100

Usable with:

Plug connectors: 120-A-.., 120-D-.., 120-F-..
121-A-.., 121-C-.., 121-D-.., 121-F-..
122-A-.., 122-D-.., 122-F-..
Pin strips: 110-M-.., 110-P-.., 110-S-.., 110-V-..
120-M-..
121-M-..
122-M-..

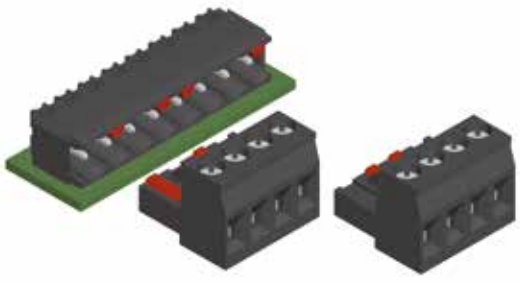
Coding examples

As standard, terminal strips of series 110 come with coding elements, which can be cut off, if necessary. The pin strips feature slots to accommodate coding elements 120-K.



110-M-211/08 with 2 coding elements and 2 x 110-A-111/04 with cut off coding elements.

Plug connectors and terminal strips of series 120, 121 and 122 feature grooves to attach coding elements 120-K. Upon request, fixed-coded plug connectors are available.
For such plug connectors and pin strips, the coding element geometry is formed by the injection moulding.



120-M-211/08 and 2 x 120-A-111/04; each provided with coding elements

Marking

WECO offers marking of individual connections for nearly all terminals and products.

Marking strips

Self-adhesive marking strips consist of polyester with black print on silver background. They are scratch-proof and surface-sealed with Mylar.

The numbering begins with 1. The last digit represents the indicated number of poles.
The marking strips withstand PC board cleaning processes using water and soap, Freon, fluorinated or chlorinated cleaning agents. However, they are not reflow-capable and should therefore only be mounted after the reflow soldering process.
Marking strips are delivered in ten strips per sheet.

Part number	Type	Marking	Pitch	Length (L)	Width (a)	PU
24.499.013	BST-3,50/24	1 2 3 ... 24	3,50 mm	84 mm	3 mm	100
24.499.009	BST-5,00/12	1 2 3 ... 12	5,00 mm	60 mm	3,5 mm	100
24.499.010	BST-5,00/32	1 2 3 ... 32	5,00 mm	160 mm	3,5 mm	100
24.499.006	BST-5,08/12	1 2 3 ... 12	5,08 mm	61 mm	3,5 mm	100
24.499.007	BST-5,08/32	1 2 3 ... 32	5,08 mm	162 mm	3,5 mm	100
24.499.012	BST-7,50/19	1 2 3 ... 19	7,50 mm	141 mm	3,5 mm	100
24.499.011	BST-10,00/16	1 2 3 ... 16	10,00 mm	155 mm	3,5 mm	100
24.499.008	BST-10,16/16	1 2 3 ... 16	10,16 mm	157 mm	3,5 mm	100

InkJet printing

As an alternative to self-adhesive marking strips, we also offer markings according to your specific requirements. Our products are marked by means of inkjet printers. Micro-sized ink droplets are shot accurately to the point and guided by an electric field thus creating the high-precision print – very much like a printed pattern generated by a common matrix printer. This process is fast, easy-to-use and reprogrammable. However, this printing process comprises of the contour precision of the print.
In addition to numbers and letters, special characters can also be printed. The inkjet print features tried and tested scratch- and wipe-resistance.

Standard marking for PCB connectors comes in either black or white - depending on the housing colour. The marking is printed on given surfaces.

Markings for our connectors featured in catalogue 7 are printed in black. Markings may be printed in two locations: either on or between the screw guides (for series 302 only on the screw guides).

Alternatively, WECO offers for special colours pad printed markings. Due to the elaborate handling it makes this printing method, however, significantly more expensive.

InkJet printing (graphic illustration)

Packaging

As standard, we deliver our products packaged in eco-friendly folding boxes made of cardboard or corrugated board.

In order to ensure efficient automated assembly and subsequent soldering of our components, WECO offers various component packaging systems, such as

Tape-on-Reel

These carrier tapes on reels are suitable for most SMD and THR components. They feature blisters and are sealed with a cover film.

WECO offer reels in different widths of 24 mm, 32 mm, 44 mm, 56 mm, 72 mm or 88 mm.

Trays

WECO also offers trays as another option for automated component assembly. The flat trays feature component pockets, they are stackable and ensure sufficiently large component supply.

Bar magazines

Our 550 mm bar magazines have various geometries which are tailored to the individual component size and shape. Both magazine ends are closed with a plug that is easy to remove.

Delivered in cardboard folding boxes, bar magazines are easy to unpack.

When assembling components from tape-on-reels or trays, the placement head vacuum-picks the component from the tape or the tray, verifies the position by means of a camera system, calculates angle and position offset to the nominal position and places the component onto the PC board. After all components have been placed, a conveyor system transports the assembled PC board downstream.

All three component packaging types use anti-static materials to avoid problems with electrostatic discharges (ESD).

Other options

Moulding colours

WECO offers a multitude of various moulding colours.
In addition to our standard colours charcoal grey, black, vermilion and natural other moulding colours are also possible.

Please contact us for further information, we look forward to assisting you.

Standard colours

- Charcoal grey (similar to RAL U706)
- Black (similar to RAL 9011)
- Vermilion (similar to RAL 2002)
- Natural

Special colours

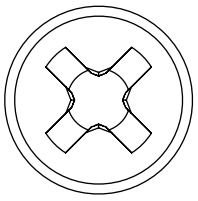
- Red orange (similar to RAL 2001)
- Heather violet (similar to RAL 4003)
- Zinc yellow (similar to RAL 1018)
- Brilliant blue (similar to RAL 5007)
- Yellow green (similar to RAL 6018)
- Light grey (similar to RAL 7035)
- White (similar to RAL 9010)

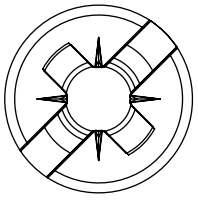
Screws

We use standard slotted-head screws for our products.

Upon inquiry and specific customer request, we also offer screws with Phillips/ Pozidriv or +/- screw heads.

Other materials:
Our products are predominantly equipped with steel screws. Upon request, screws made of alternative materials, such as brass, are also available.





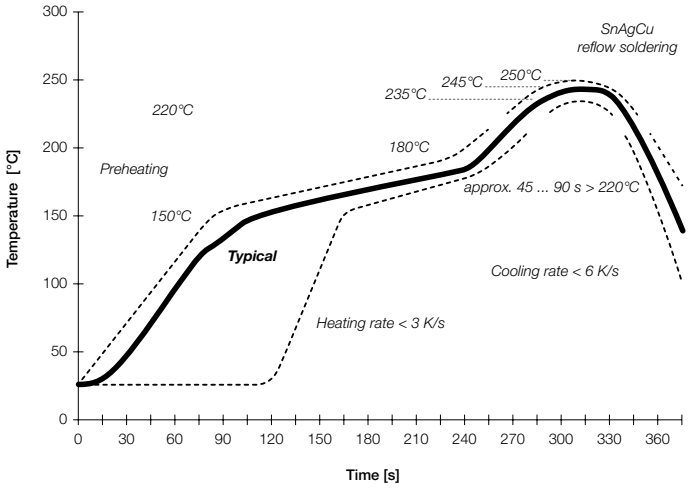
Soldering processes

As a principle, soldering electrically and mechanically connects electronic components to printed circuits forming a subassembly.

The solder contributes essentially to the operational reliability of an assembly. Among the various soldering methods, such as reflow soldering and wave soldering, Surface-Mount-Technology (SMT) using reflow soldering is the most common and cost-efficient process.

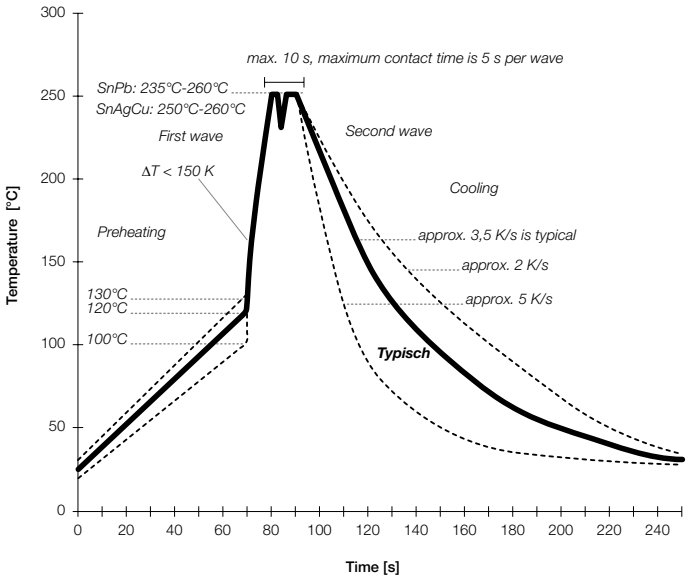
Reflow soldering

During the reflow soldering process, printed circuit boards assembled with SMD and THR components, are passed at a constant speed through various heating zones of a furnace (preheating, reflow soldering and furnace cooling).
In contrast to wave soldering, components and their plastic packages are exposed to the same temperatures as the metallic contacts to be soldered.
Electrical components, printed circuit boards and solder joints are heated either by infrared, convection or a vapor phase processes. In order to avoid oxidation of the solder pads on the printed circuit, this process can also be conducted under inert atmosphere.



Wave soldering

Wave soldering processes are suitable for soldering conventional components.
A conveyor system moves the PCB through the soldering system at a constant speed. Upstream in the wave soldering system, the PCB and its components pass through the fluxer. Downstream in the preheating zone, the solvents contained in the fluxer are vaporized thus activating the flux.
Liquid solder is continuously pumped flowing over edges, through holes or into gaps, forming a wave of solder. This solder wave conveys and wets the underside of the printed circuit. Capillary forces raise the solder through the space between hole and component lead (solder pin) forming the characteristic solder meniscus.



The shown tables represents two solder temperature profiles compliant with EN 61760-1. Due to the various customer-specific parameters (e.g. soldering system, solder paste, component arrangement and orientation) the profiles are only recommendations and should be used accordingly.

Technical Information

Rating of clearance and creepage distances according to DIN EN 60664-1 (VDE 0110-1)

The rating of clearance and creepage distances depends on the expected electrical surge, the characteristic values of the electronic protection measures as well as the contamination at the place of installation.
Clearance distances are dimensioned in accordance with the rated impulse voltage (see table F.1), which results out of the overvoltage category and phase-to-earth voltage.
The minimum clearance in air is stated at altitudes of less than 2000 m above sea level and ascertained in accordance with the impulse voltage and the contamination level, see table F.2.
Creepage distances are measured by the operating voltage, the characteristic of the insulants (CTI value), the expected contamination level as well as the preventive measures against contamination.
Basis of the creepage distance is the rated voltage derived from the operating and / or system voltage.
The minimum creepage distance (depending on the respective degree of contamination) are assigned to the rated voltage, see table F.4.

F.4 DIN EN 60664-1 (VDE 0110-1), table F.4 (extract) Creepage distance for the avoidance of the failure by tracking

Voltage r.m.s. [1]	Minimum creepage distances								
	Printed wiring material								
	Pollution degree								
	1	2	1	2			3		
	All material groups	All material groups except IIIb	All material groups	Material group I	Material group II	Material group III	Material group I	Material group II	Material group III [2]
V	mm	mm	mm	mm	mm	mm	mm	mm	mm
25	0,025	0,040	0,125	0,500	0,500	0,500	1,250	1,250	1,250
32	0,025	0,040	0,14	0,53	0,53	0,53	1,30	1,30	1,30
40	0,025	0,040	0,16	0,56	0,80	1,10	1,40	1,60	1,80
50	0,025	0,040	0,18	0,60	0,85	1,20	1,50	1,70	1,90
63	0,040	0,063	0,20	0,63	0,90	1,25	1,60	1,80	2,00
80	0,063	0,100	0,22	0,67	0,95	1,30	1,70	1,90	2,10
100	0,100	0,160	0,25	0,71	1,00	1,40	1,80	2,00	2,20
125	0,160	0,250	0,28	0,75	1,05	1,50	1,90	2,10	2,40
160	0,250	0,400	0,32	0,80	1,10	1,60	2,00	2,20	2,50
200	0,400	0,630	0,42	1,00	1,40	2,00	2,50	2,80	3,20
250	0,560	1,000	0,56	1,25	1,80	2,50	3,20	3,60	4,00
320	0,75	1,60	0,75	1,60	2,20	3,20	4,00	4,50	5,00
400	1,0	2,0	1,0	2,0	2,8	4,0	5,0	5,6	6,3
500	1,3	2,5	1,3	2,5	3,6	5,0	6,3	7,1	8,0
630	1,8	3,2	1,8	3,2	4,5	6,3	8,0	9,0	10,0
800	2,4	4,0	2,4	4,0	5,6	8,0	10,0	11,0	12,5
1000	3,2	5,0	3,2	5,0	7,1	10,0	12,5	14,0	16,0

[1] This voltage is
- for functional insulation, the working voltage,
- for basic and supplementary insulation of the circuit energized directly from the supply mains (see 4.3.2.2.1), the voltage rationalized through Table F.3a or Table F.3b, based on the rated voltage of the equipment, or the rated insulation voltage,
- for basic and supplementary insulation of systems, equipment and internal circuits not energized directly from the mains (see 4.3.2.2.2), the highest r.m.s. voltage which can occur in the system, equipment or internal circuit when supplied at rated voltage and under the most onerous combination of conditions of operation within equipment rating.

[2] Material group IIIb is no not recommended for application in pollution degree 3 above 630 V.

Overvoltage categories

Overvoltage category IV

Electrical equipments for the use at the connection point of the installation e.g. electricity meter and primary over-current protection devices.

Overvoltage category III

Electrical equipment in firm installations and for such cases in which special demands are made against the reliability and the availability of the electrical equipment, e.g. switches in firm installations and devices for industrial use with continuing connection to the firm installation.

Overvoltage category II

Energy using electrical equipment, which is energised by a firm installation e.g. household appliances, portable tools and other domestic appliances as well as similar devices.

Overvoltage category I

Electrical equipment for the connection to electric circuits, in which measures are taken for the delimitation of the transient overvoltages to a suitable low value, e.g. devices with electronic circuits and appropriate protection level.

F.1 DIN EN 60664-1 (VDE 0110-1), table F.1 (extract) Rated impulse voltages for electrical equipments, which are energised directly by a low-voltage system

Nominal voltage of the supply system [1] based on IEC 60038 [3]		Rated impulse voltage [2]			
		Overvoltage catagory [4]			
Three phase	Single phase	I	II	III	IV
V	V	V	V	V	V
	120-240	800	1 500	2 500	4 000
230/400 277/480		1 500	2 500	4 000	6 000
400/690		2 500	4 000	6 000	8 000
1 000		4 000	6 000	8 000	12 000

[1] See Annex B for application to existing different low-voltage mains and their nominal voltages.
[2] Equipment with these rated impulse voltages can be used in installations in accordance with IEC 60364-4-44.
[3] The / mark indicates a four-wire three-phase distribution system. The lower value is the voltage line-to-neutral, while the higher value is the voltage line-to-line. Where only one value is indicated, it refers to three-wire, three-phase systems and specifies the value line-to-line.
[4] See 4.3.3.2.2 for an explanation of the overvoltage catagories.

Technical Information

Degree of contamination

The micro environment determines the influence of the contamination on the isolation.
However the macro environment must be considered with the view of the micro environment.
Resources to achieve a reduction of the contamination on the regarded isolation can be planned by the effective employment of casings (housings), encapsulations or hermetic sealings.
The influence of the contamination is considered with the calculation of air and creepage distances by degrees of pollution.

Four degrees of contamination levels are defined for the micro environment:

Contamination level 1
No contamination or only dry, non-conductive contamination occurs. The contamination has no influence;

Contamination level 2
Only non-conductive contamination occurs. However, occasional temporary conductivity must be expected as a result of moisture condensation;

Contamination level 3
Conductive contamination occurs; dry, non-conductive contamination which becomes conductive as a result of moisture condensation may also occur;

Contamination level 4
Impurities in the form of conductive dust, rain or humidity result in permanent conductivity.

F.2 DIN EN 60664-1 (VDE 0110-1), table F.2 (extract)
Clearance for transient overvoltages

Required impulse withstand voltage [1) 5)]	Mimimum clearence in air up to 2 000 m above sea level		
	Case A Inhomogeneous field (see 3.15)		
	Pollution degree		
	1	2	3
kV	mm	mm	mm
1,2	0,25	0,25	0,8 [4)]
1,5 [2)]	0,5	0,5	
2,0	1,0	1,0	1,0
2,5 [2)]	1,5	1,5	1,5
3,0	2,0	2,0	2,0
4,0 [2)]	3,0	3,0	3,0
5,0	4,0	4,0	4,0
6,0 [2)]	5,5	5,5	5,5
8,0 [2)]	8,0	8,0	8,0

1) This voltage is
- for functional insulation, the maximum impulse voltage expected to occur accross the clearence (see 5.1.5),
- for basic insulation directly exposed to or significantly influenced by transient overvoltages from the low-voltage mains (see 4.3.3.3, 4.3.3.4.1 and 5.1.6), the rated impulse voltage of the equipment,
- for other basic insulation (see 4.3.3.4.2), the highest impulse voltage that can occur in the circuit.

2) Prefered values as specified in 4.2.3.

4) The minimum clearences given for pollution degrees 2 and 3 are based on the reduced withstand characteristics of the associated creepage distance under humidity conditions (see IEC 60664-5).

5) For parts or circuits within equipment subject to impulse voltages according to 4.3.3.4.2, interpolation of values is allowed. However, standardization is achieved by using the preferred series of impulse voltage values in 4.2.3.

Insulant

DIN EN 60664-1 (VDE 0110-1) divides the insulants according to their CTI values in four groups. These are:

Insulant I: $600 \leq CTI$
Insulant II: $400 \leq CTI < 600$
Insulant IIIa: $175 \leq CTI < 400$
Insulant IIIb: $100 \leq CTI < 175$

The check numbers of the tracking must be determined according to IEC 60112 at an examination body using test solution A. The check number of the tracking is used as a proof of the creepage characteristics of insulants.

Technical Information

Rated cross section

The current carrying capacity depends not only on the terminal design, but also on the application of the terminals. The appropriate specifications for the devices, e.g. DIN EN 60335-1 (VDE 0700-1), should be taken into account.
According to DIN EN 60999-1 / VDE 0609 part 1, the current cross section and respectively the rated connection ability of a connection referres to the wire cross section indicated by the manufacturer, to which determined thermal, mechanical and electrical requirements apply to.
The relationship between rated connection abilities and diameters of the wires is represented in table 1.
If nothing else is specified in the product standard, each connection point must be able to take up not only its rated cross section (rated connection ability) but also the next two lower cross sections.
Connecting points must be able to take up unprepared wires.
Regarded as unprepared wires are all cables stripped at their ends, whose form is adjusted before insertion or whose wires are twisted for the purpose of the solidification.
In the USA and Canada an identification is used by leader sizes (AWG) instead of the cross section indicated in mm².

T1 DIN EN 60999-1, table 1 (extract)
Relation between rated connection abilities and wires

Rated cross section	Theoretical diameter of the largest conductor						
	metric			AWG			
	solid		flexible	solid			flexible
	single wire	multi-stranded wire			b) single wire	b) Class B multi-stranded wire	c) Class I, K, M multi-stranded wire
mm²	mm	mm	mm	No.	mm	mm	mm
0,2	0,51	0,53	0,61	24	0,54	0,61	0,64
0,34	0,63	0,66	0,8	22	0,68	0,71	0,80
0,5	0,9	1,1	1,1	20	0,85	0,97	1,02
0,75	1,0	1,2	1,3	18	1,07	1,23	1,28
1,0	1,2	1,4	1,5	–	–	–	–
1,5	1,5	1,7	1,8	16	1,35	1,55	1,60
2,5	1,9	2,2	2,3 a)	14	1,71	1,95	2,08
4,0	2,4	2,7	2,9 a)	12	2,15	2,45	2,70
6,0	2,9	3,3	3,9 a)	10	2,72	3,09	3,36
10,0	3,7	4,2	5,1	8	3,34	3,89	4,32
16,0	4,6	5,3	6,3	6	4,32	4,91	5,73
25,0	–	6,6	7,8	4	5,45	6,18	7,26
35	–	7,9	9,2	2	6,87	7,78	9,02

NOTE The diameter of the largest solid and flexible wire is based on Table 1 according to IEC 60228A and IEC 60344 and for AWG conductors on ASTM B 172-71 [4], ICEA-Publication S-19-81 [5], ICEA-Publication S-66-524 [6] and ICEA-Publication S-66-516 [7].

a) Information only for flexible wires in class 5 of IEC 60228A.
b) Nominal + 5 %.
c) Largest diameter for each of the three classes I, K, M + 5 %.

Current carrying-capacity

Technical data state a maximum rated current at which no thermal damage or malfunctions occur, if a certain ambient temperature and rated cross-section is provided. The rated current is a current which the terminal or connector can carry simultaneously at all contacts without exceeding the maximum permissible temperature limit.

Appropriate test currents are applied to the rated cross sections (see table T2). Depending on the connection type, the maximum permissible heating of the clamping unit is limited to 45 K (acc. to DIN 60998-1, Temperature Rise Test for PCB Connectors) and to 30 K (acc. to DIN 60512-5-1, Temperature Rise Test for Plug Connectors)
Based on the results of the temperature rise test acc. to DIN EN 60512-5-2 and the rated cross-section, a current carrying curve (base curve) is generated under consideration of the upper temperature limit for the insulating material and depending on the ambient temperature.

This base curve is used to determine the current carrying capacity of PCB connectors. For plug connectors, the base curve is corrected by factor 0.8 (derating curve). The permissible current carrying capacity not only depends on the terminal design but also the final application of the terminal. The corresponding equipment specifications, e.g. DIN EN 60335-1 (VDE 0700-1) must be observed.

T2 DIN EN 60998-1, table 2 (extract)
Relation between rated connection abilities and testing current

Rated Cross-section	Load capacity
mm²	A
0,2	4
0,34	5
0,5	6
0,75	9
1	13,5
1,5	17,5
2,5	24
4	32
6	41
10	57
16	76
25	101
35	125

What is SMD?

„SMD“ is the abbreviation for Surface Mounted Devices and reunite all surface-assembled components on one circuit board. Often certain manufacturers of electronic and electrical components also use the term “SMD” for THR (Through Hole Reflow) components, but unlike thru hole devices that require drilling holes through which the pins go through the board and are soldered underneath, SMD components are positioned on the PCB surface and soldered afterwards. No more need for holes in the printed circuit board.

History of the SMD

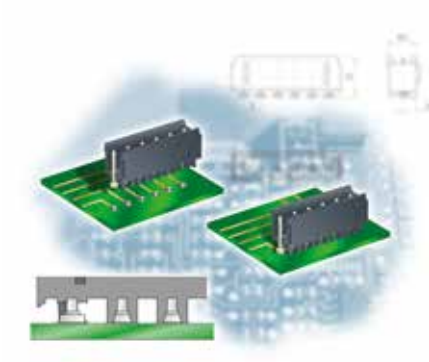
The beginnings of surface mount technology go back to the 1960s, but only became widely used in the 1980s. Mid 1980s, the production of conventional leaded devices soldered directly on the circuit path became a standard.

Surface mounted devices (SMD) made it possible to increase the number of components and therefore contributed to many more connections per component. Furthermore, SMD components can be placed on both sides of a printed circuit board. Components are usually secured temporarily with adhesive on the lower side of the PCB, and as soon as the adhesive is hardened, the printed circuit board can be turned upwards to populate the other side. This is followed by the soldering process.

WECO SMD terminals and plug connectors

To fully take advantage of a pure SMD production, the customer needs a wide product range of SMD components. This should include terminals and plug connectors. SMD terminal blocks and plug connectors are undoubtedly a good deal more difficult to achieve than components which are not exposed to a mechanical load, as for example resistors and condensers.

The most important criterion is good and durable soldering at the printed circuit board level. A terminal block or a plug connector has a substantially larger volume than conventional „chip components“ and offers a much larger attack region in order to lever the component off the PCB surface. Therefore soldering connections only at the pins would not be sufficient, and additional reinforcement would be required. Often the problem is resolved by providing additional support with lugs or with separate screw fixation. From our point of view, this is not an ideal solution because using pure SMD technology drillings in a printed circuit board should be avoided. WECO’s range of SMD terminal blocks and plug connectors (pin-strips) are equipped with lateral soldering cylinders, which are placed off-center in order to create a counter anchoring to the pins. Thus, the pins do not have to carry the entire departure load. In addition, these soldering cylinders create a larger soldering surface and achieve a reliable adhesive force on the printed circuit board.



A further challenge in SMD technology for terminal blocks and plug connectors starting at sizes of 3.5 mm pitch and larger, is to ensure an accurate soldering connection of the pins over the entire length of the component. Deviations of the components, within given tolerances, linear extensions under thermal load during the soldering process and unevenness of the PCB surface, all contribute to factors of mismatch.

To correct this problem, WECO developed the patented principle of movable soldering elements. WECO’s line of SMD terminals and plug connector are equipped with soldering pins and anchor elements, called “floating anchors”. This ensures a freedom of movement in both lateral and vertical directions, which in turn ensures excellent co-planarity performance.

What is THR?

Through hole technology became popular in the 1950s with the resurgence of the second generation computer and continued its popularity until surface mount technology was developed. Surface mount technology then gained popularity over the through hole technology and became a standard thereafter.

In the beginning, every printed circuit board was assembled using Through Hole Technology. All components were inserted through holes drilled in the circuit boards and soldered either by hand or on the wave.

Over the years, the process was automated and the reflow soldering method with automated assembling (Pick & Place) became widely accepted especially with the enforcement of lead free soldering (RoHS).

Nowadays many electronic components are already surface mounted. A much higher density of components and many more connections per component are possible on a printed circuit board without holes.

Some components, such as terminal blocks, plug connectors, switches or electrolytic capacitors, still had to be soldered on the wave or by hand on the printed circuit board, because they were not suitable for the high mechanical and thermal load.
Due to a mixture of through hole and surface mount components, the soldering process could not be automated completely and therefore incurred greater production costs. To rectify the problem, the components, which were not suitable for this kind of processing, had to be made compatible for the reflow soldering method.

This gave rise to the SMarTconn family of products through which WECO was able to identify and subsequently invent technical solutions to successfully resolve these problems:

1. The through hole reflow technology (THR) was steadily developed and addressed the through-hole reflow applications.

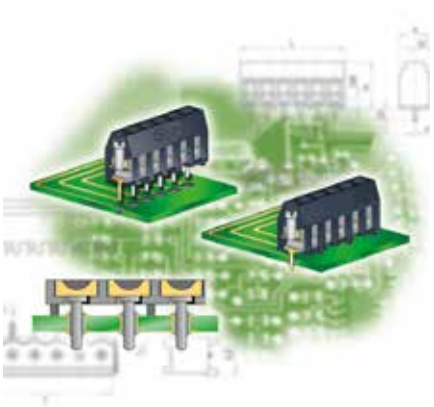
2. The patented product program in genuine SMD technology was invented. Terminal blocks and plug connectors from a size of 3.5 mm pitch and larger could now be surface-mounted.

The Through Hole Reflow Process ...

The through hole reflow process enables the automated assembling and the reflow soldering technique normally used on surface mount components to be applied to THR components as well.

... or the “Pin-in-Paste”-Method

The basis for the integration of THR components in the reflow soldering process is the pin in paste procedure. Precondition for the use of THR components is a printed circuit board with drillings and a correctly cut out and positioned template. Soldering paste is laid via a screen printing system in order to receive an appropriate borehole filling. The arising amount of pushed through



solder paste is intended. The components are then placed on the PCB. The pins of the components dip into the holes and push the solder paste through the holes to the other side of the PCB. The action of pushing the solder paste through the holes forms a characteristic match head around each pin. This is followed by the reflow soldering process. The solder joints created are mechanically and electrically comparable to the classical wave soldering process.

Conclusion

With THR devices, the integration of electrical components into the reflow soldering process enables the production of a single soldering process. This approach is beneficial in substantially reducing production cost and results in process optimisation. In addition, the THR device high-temperature-resistant thermoplastic body is configured for RoHS-compliant production, resulting in the possibility of variant reductions.

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Catalogue overview

Electronic

#1: Pitch 3,5 mm
#2: Pitch 5 mm
#3: Pitch 5,08 mm
#4: Pitch 7,5 mm
#5: Pitch >10 mm
#6: SMD & THR

Electrical

#7: Europe type connectors
#8: Tab connectors & Screw connectors
#9: Unisolated terminals & ceramic components

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