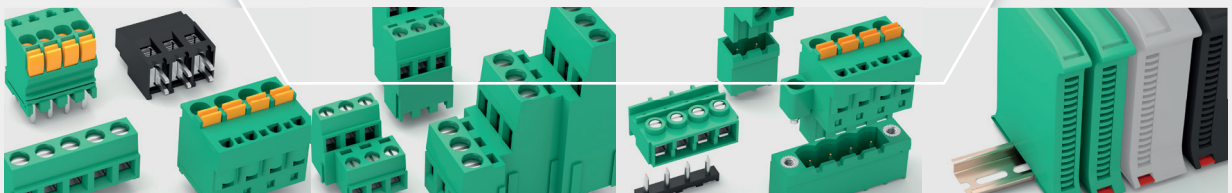
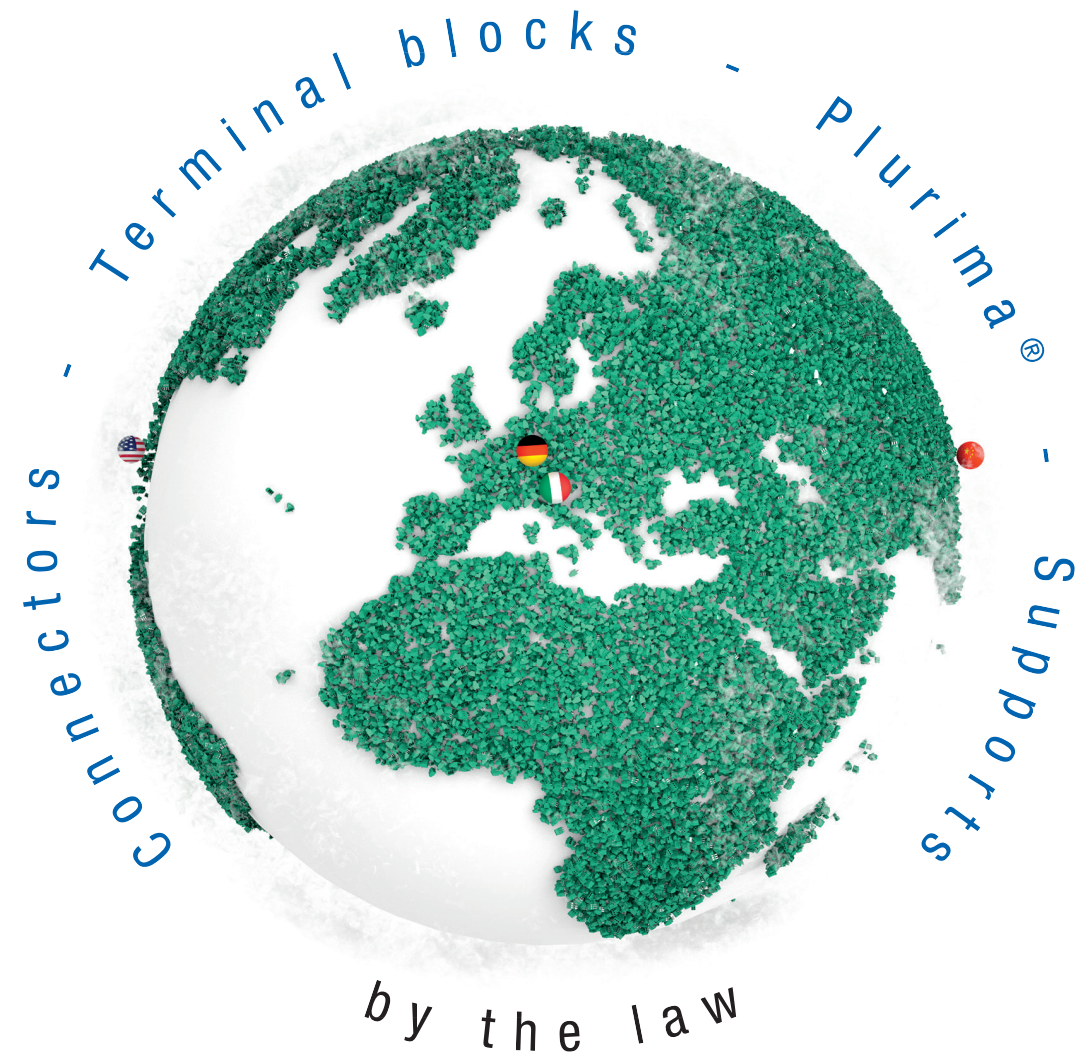




## Company Profile



Forward-thinking since 1984



Index

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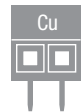
## Company profile

**SAURO** was founded in Padua, **Italy in 1984**. We design and manufacture both our high quality PCB **terminal blocks and connectors** and the machines and automated systems which manufacture them.

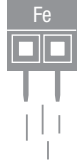
System **AU**tomation and **RO**botics



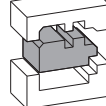
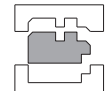
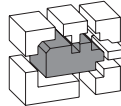
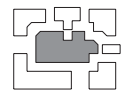
**SAURO**<sup>®</sup>  
ELECTRONIC CONNECTORS  
by the law



SAURO



COMPETITORS



**SAURO Technology** = Electromechanical Technology + Paramedical Technology

**SAURO's** product: "not a sale but an acquisition"

## Around the world

NORTH and SOUTH AMERICA  
**SAURO Inc.**  
Austin (USA)  
Services and warehouse



NORTH EUROPE  
**Sauro GmbH**  
Krefeld (Germany)  
Services



FAR EAST, INDIA and OCEANIA  
**SAURO Electronic Connectors (Shanghai) Co. Ltd.**  
Shanghai (China)  
Services and warehouse



**SAURO** 24/7 **ANSWERS TO YOU**

Each one of your enquiries will be shared among all our Divisions. Every single request will always be answered.



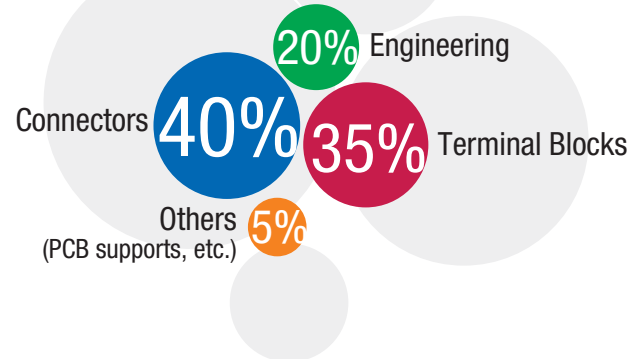
EUROPE and AFRICA  
**SAURO s.r.l. Padua (Italy) Headquarters**  
Three plants hosting offices, production, services and warehouse  
**The production is based in the Headquarters only**

# Numbers and distribution 2017

**Manpower:**  
>200



**2017 Global Turnover:**  
>30 Mio € (15% of yearly turnover is invested in R&D)



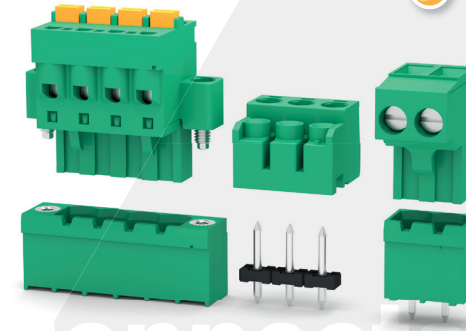
**Factory:** 30.000 m<sup>2</sup> completely occupied by automated machines



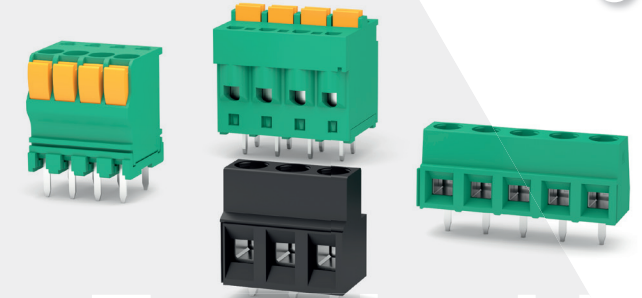
new

# Product range

**Connectors**  
male and female



**Terminal blocks**



**Plurima®**  
Multi-level terminal blocks



**PCB supports**



Standard for wave soldering

**STH®** (SMD Through Hole) for reflow soldering  
(THR: Through Hole Reflow, PiP: Pin in Paste)

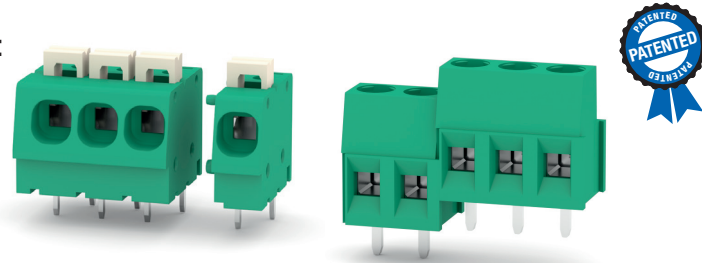


## Product versatility

### Modular housing

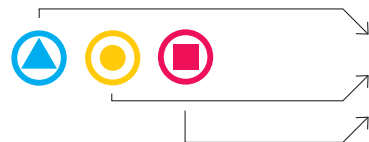
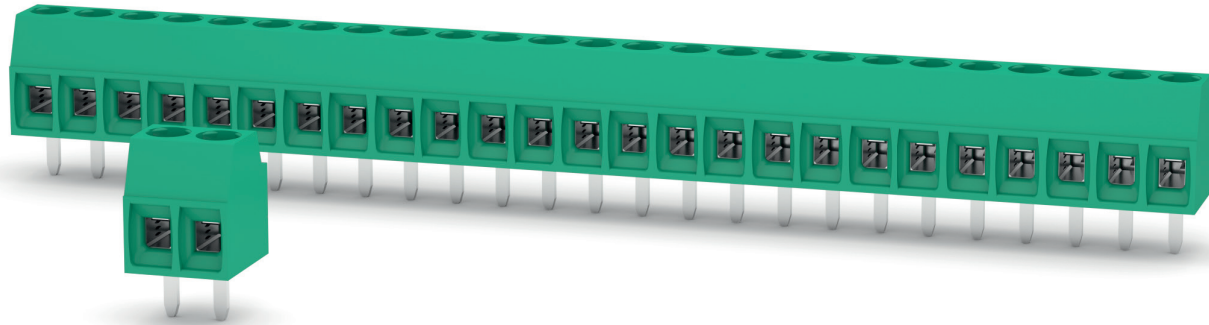
Allowing solutions for the following delivery targets:

- "ADVANCE"
- "AT ONCE" for samples
- "JUST IN TIME" on product request



### Monolithic blocks from 2 to 25 poles

# Modular & Monolithic



### Dimensional classes

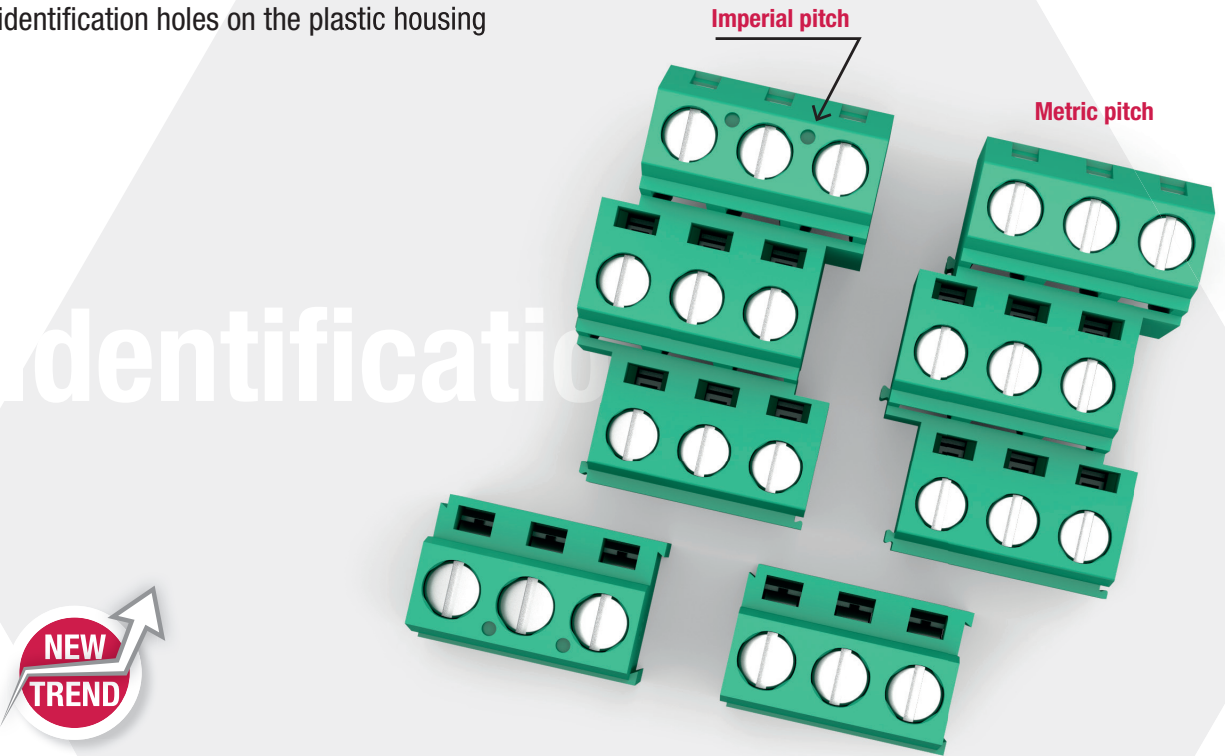
- LOW** Approved wire section up to 1,5 mm<sup>2</sup> (14 AWG) - 750 V - 17,5 A
- MEDIUM** Approved wire section up to 2,5 mm<sup>2</sup> (12 AWG) - 750 V - 24 A
- HIGH** Approved wire section up to 35 mm<sup>2</sup> (1 AWG) - 1000 V - 135 A

## Pitches

! "as made"

### Identification of imperial and metric pitches:

Imperial pitch products feature small identification holes on the plastic housing



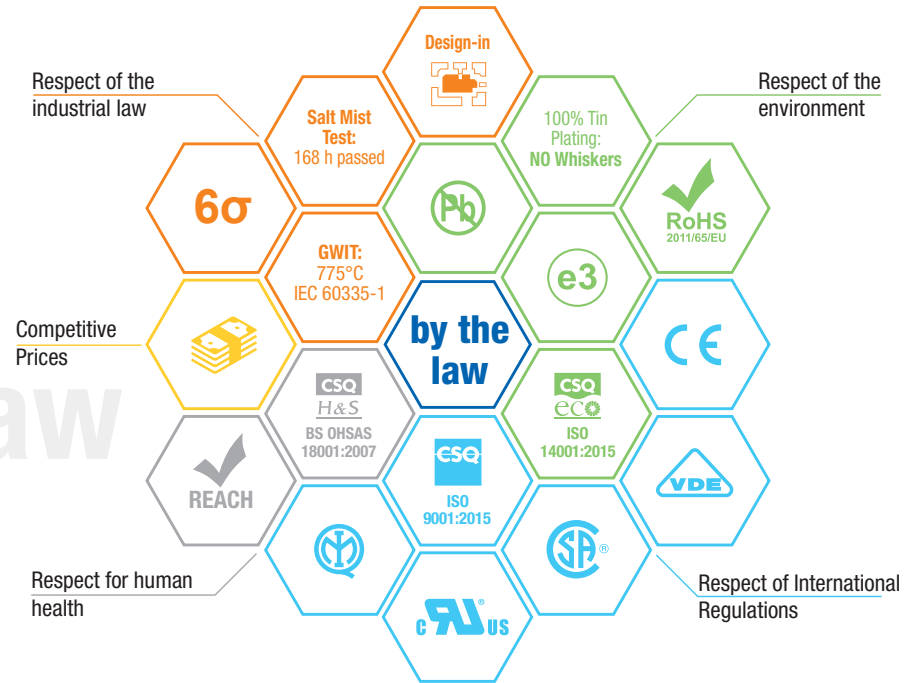
### Metric pitches

2,5 mm - 3,5 mm - 5 mm - 7 mm - 7,5 mm - 10 mm - 15 mm

### Imperial pitches

0,1 in (2,54 mm) - 0,15 in (3,81 mm) - 0,2 in (5,08 mm) - 0,25 in (6,35 mm)  
0,3 in (7,62 mm) - 0,375 in (9,52 mm) - 0,4 in (10,16 mm) - 0,5 in (12,7 mm)

# By the law



## SAURO has set its strategy to ensure:

- High quality products at competitive prices
- Hold of international seals, with its specific files
- Total compliance with current regulations
- Respect for human health and of the environment
- Full compatibility with the most advanced competitors
- Company orientation towards the client's needs, and therefore, sensitivity towards the market (Paramedical Technology)

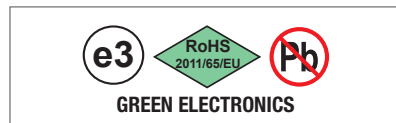


Continuous improvement in business (Kaizen), quality and safety processes, holding and operating according to our Integrated Quality System:

- Company Quality System UNI EN ISO 9001:2015
- Environment Quality System UNI EN ISO 14001:2015
- Health and Safety Quality System BS OHSAS 18001: 2007

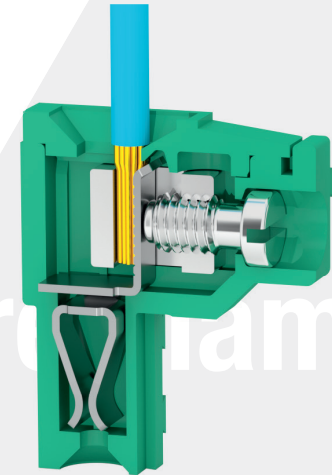


Insulating housing material without detrimental to health halogens + 100% lead free tin = GREEN ELECTRONICS

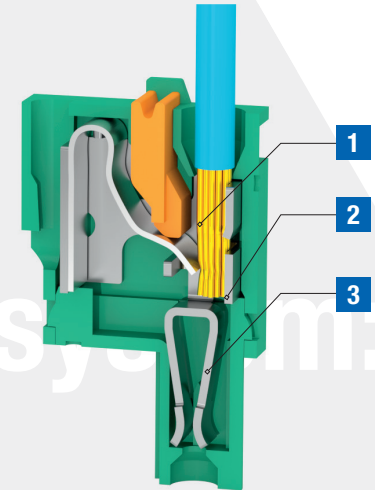


# SAURO Technology = Electromechanical Technology + Paramedical Technology

## Wire clamping system:



**Clamp technology:**  
exclusively with rising clamp



**Spring technology:**  
with  $F_r > 250\text{ N}$  wire retention force

## Sauro special bi-component spring technology

- 1** Tensile Force: special tightening spring in austenitic stainless steel
- 2** Electrical conduction: copper alloy contact spring
- 3** HORIZONTAL CONTACT SPRING  
In female connectors the contact spring attachments are synchronised with the unmating natural movement, therefore the gap is never strained and even after 1000 mating-unmating cycles, the spring maintains the same original contact strength; the pin-spring contact is therefore always ensured.

100% engineered and manufactured in ITALY



SAURO Technology = Electromechanical Technology + Paramedical Technology

**Metallic parts:**

- made of special **COPPER ALLOYS** only:
  - **no risk of electrolytic corrosion** ( $\Delta V = E^0_{Cu} - E^0_{Fe}$ )
  - properties remain unchanged in time, no shelf life reduction and no rust
  - no interferences in reception/transmission circuits using radio frequencies
  - special SAURO screw: it breaks before the clamp in case of excessive tightening torque (**mechanical fuse effect**)



Metallic parts

SAURO	COMPETITORS
$E^0 = +0.337 \text{ V}$ <b>Cu</b> $\Delta V = 0 \text{ V}$ <b>Cu</b> $E^0 = +0.337 \text{ V}$	$E^0 = -0.44 \text{ V}$ <b>Fe</b> $\Delta V = 0.777 \text{ V}$ e <sup>-</sup> <b>Cu</b> $E^0 = +0.337 \text{ V}$
	<p><b>RUST</b></p>

SAURO Technology = Electromechanical Technology + Paramedical Technology

**Metallic parts:**

- a nickel layer under a pure tin lead-free layer (Sn 100) to **avoid Tin Whiskers Phenomenon**



Insulating housing material

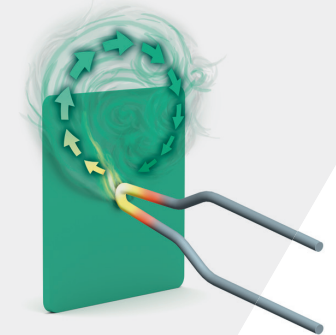
**Insulating housing material:**



Standard products



**STH®** products

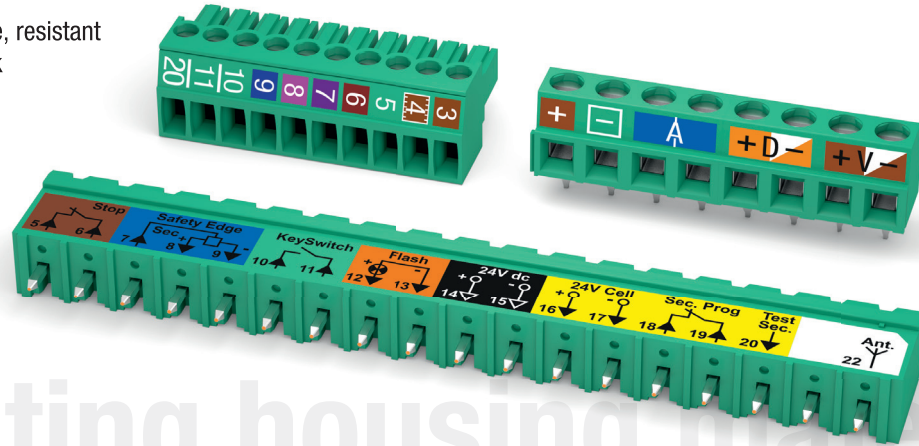


- **phosphorus, dioxins, halogens and antimony trioxide** free, all detrimental substances
- resistant to chlorinated solvents
- **VO class self-extinguishing** according to **UL94**

- **GWIT (Glow Wire Ignition Temperature) 775 °C** certified according to **EN 60335-1** standard, therefore suitable for domestic appliances

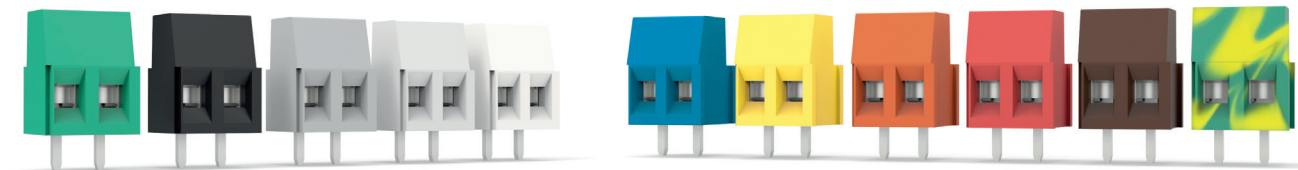
**Insulating housing material:**

- **pad printable** with indelible, resistant to scratch bi-component ink



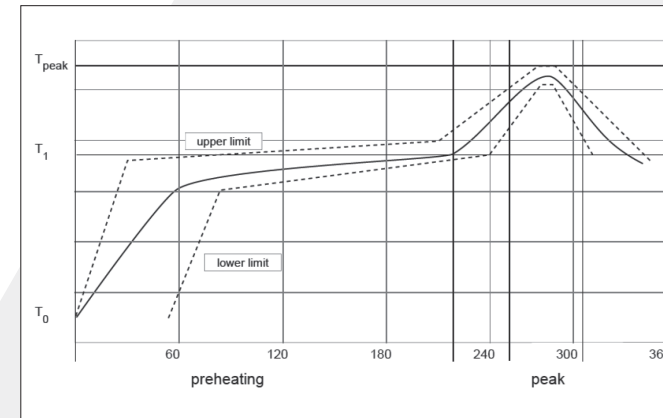
# Insulating housing material

- colour inspection through wavelengths ( $\lambda=520$  nm for SAURO's green) to guarantee the correct shade, **mechanical features and electrical insulation stability**



**NEW STH® (SMD Through Hole) insulating housing material**

- strengthened with glass fibers
- stable above 275 °C, can be used in all lead-free reflow process
- with a thermal expansion ratio similar to the PCB's to avoid mechanical strain among the terminals and the PCB itself



		Reflow soldering	Lead-free tin soldering
preheating	T0		25 °C (77 °F)
	T1		from 150 °C (302 °F) to 190 °C (374 °F)
	time gradient		from 150 s to 180 s 1,5 C/s (34 °F/s)
peak	Tpeak		from 260 °C (500 °F) to 275 °C (527 °F) from 10 s to 30 s



STH®: no strain between the pins and the PCB

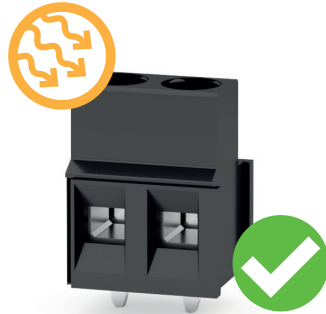


Example of strain between the pins and the PCB



## New **STH**<sup>®</sup> insulating housing material

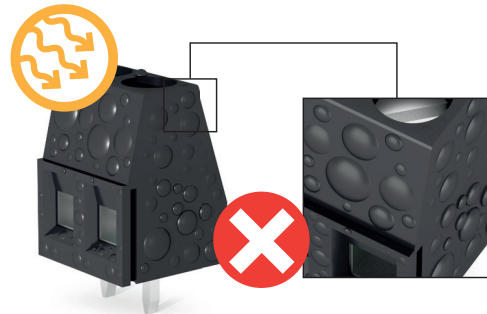
We have perfected a new insulating material rated as **MSL1** (Moisture Sensitivity Level 1) for our **STH**<sup>®</sup> (**SMD Through Hole**) product range, according to IPC/JEDEC J-STD-020E



**STH**<sup>®</sup>  
Technology



**MSL1**  
Not moisture sensitive



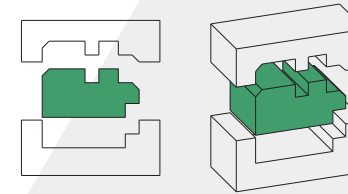
**Blistering effect does not occur in Sauro products**



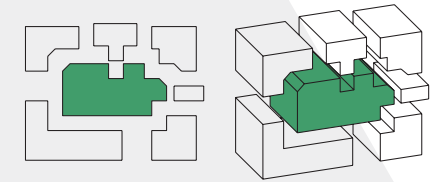
**DOES NOT**  
require dry packaging

## Total drive towards customer's specifications

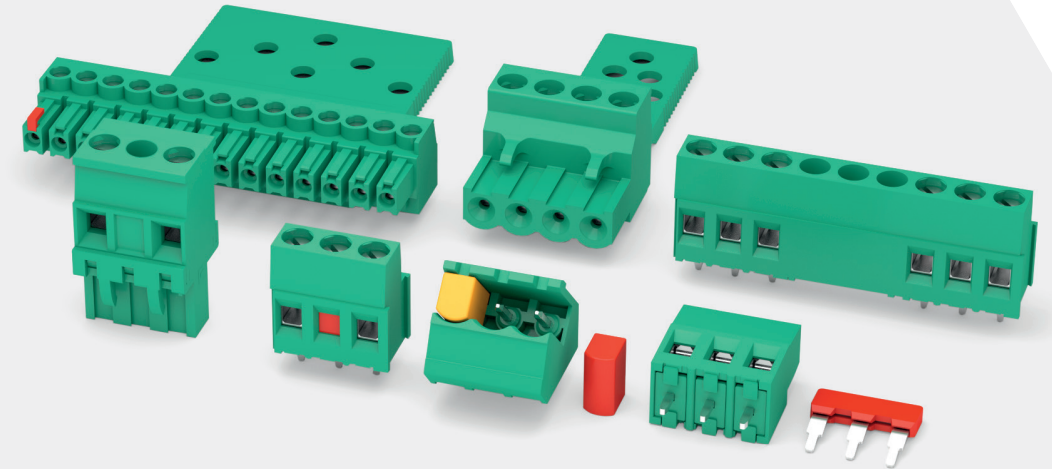
### Electromechanical Technology



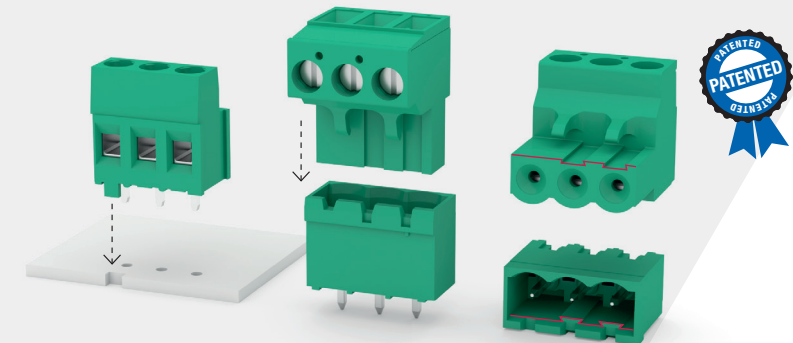
### Paramedical Technology



### Design-in



**Integrated polarization**  
Zero assembly error, no matter who carries out the process

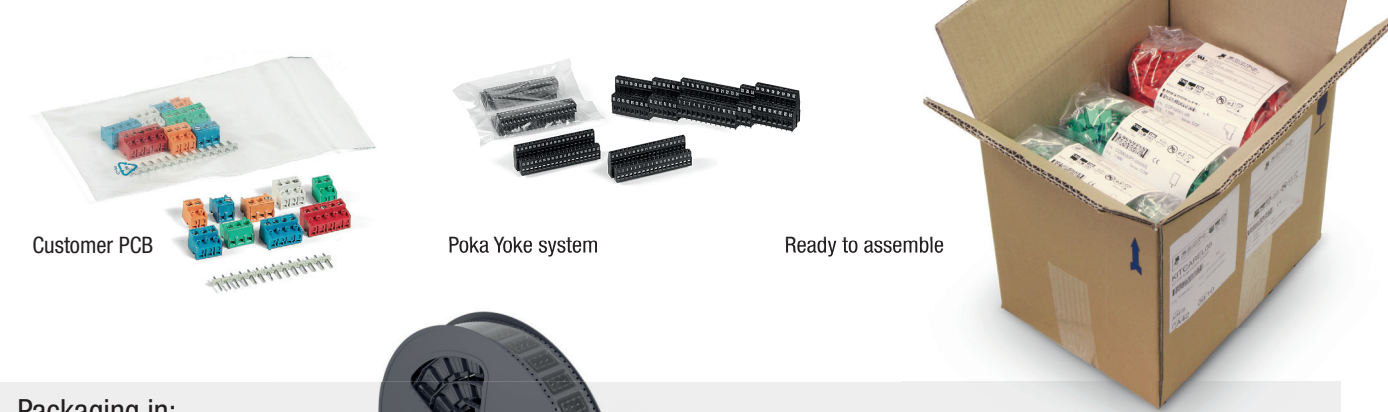


# Total drive towards customer's specifications

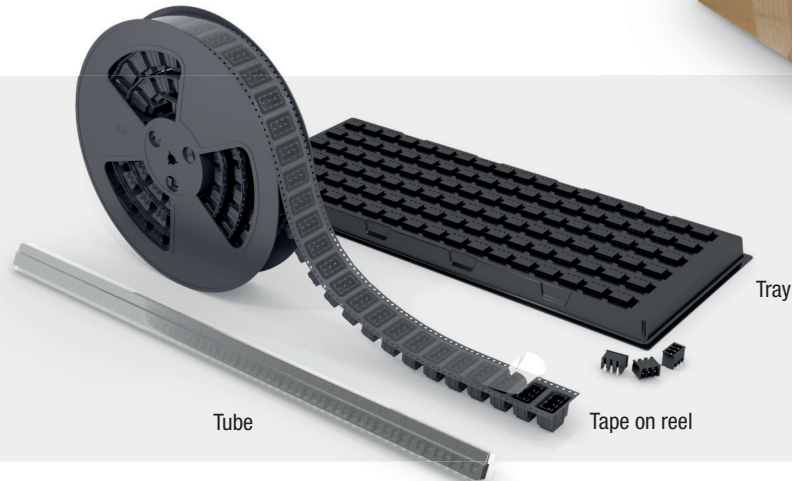
Packaging in **box**



Packaging in **kits**



Packaging in:

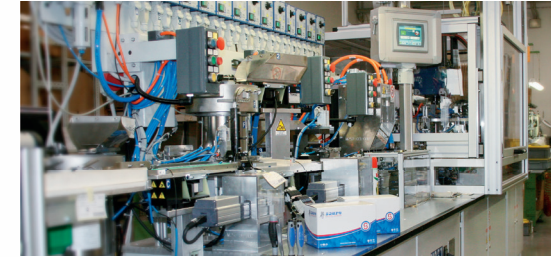


# SAURO strategy

# INDUSTRIE 4.0

SAURO uses completely automated, internally designed and built assembly lines:

***“No component must be touched on the assembly line”***



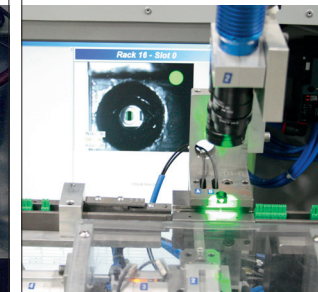
System **AU**tomation and **RO**botics

SAURO performs 100% (pole by pole):

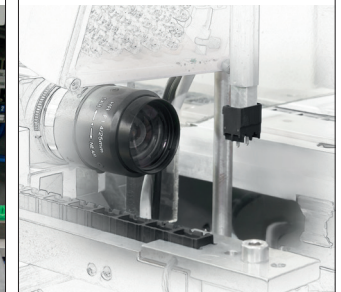
**functional testing**  
mechanical and electrical  
automated inspections



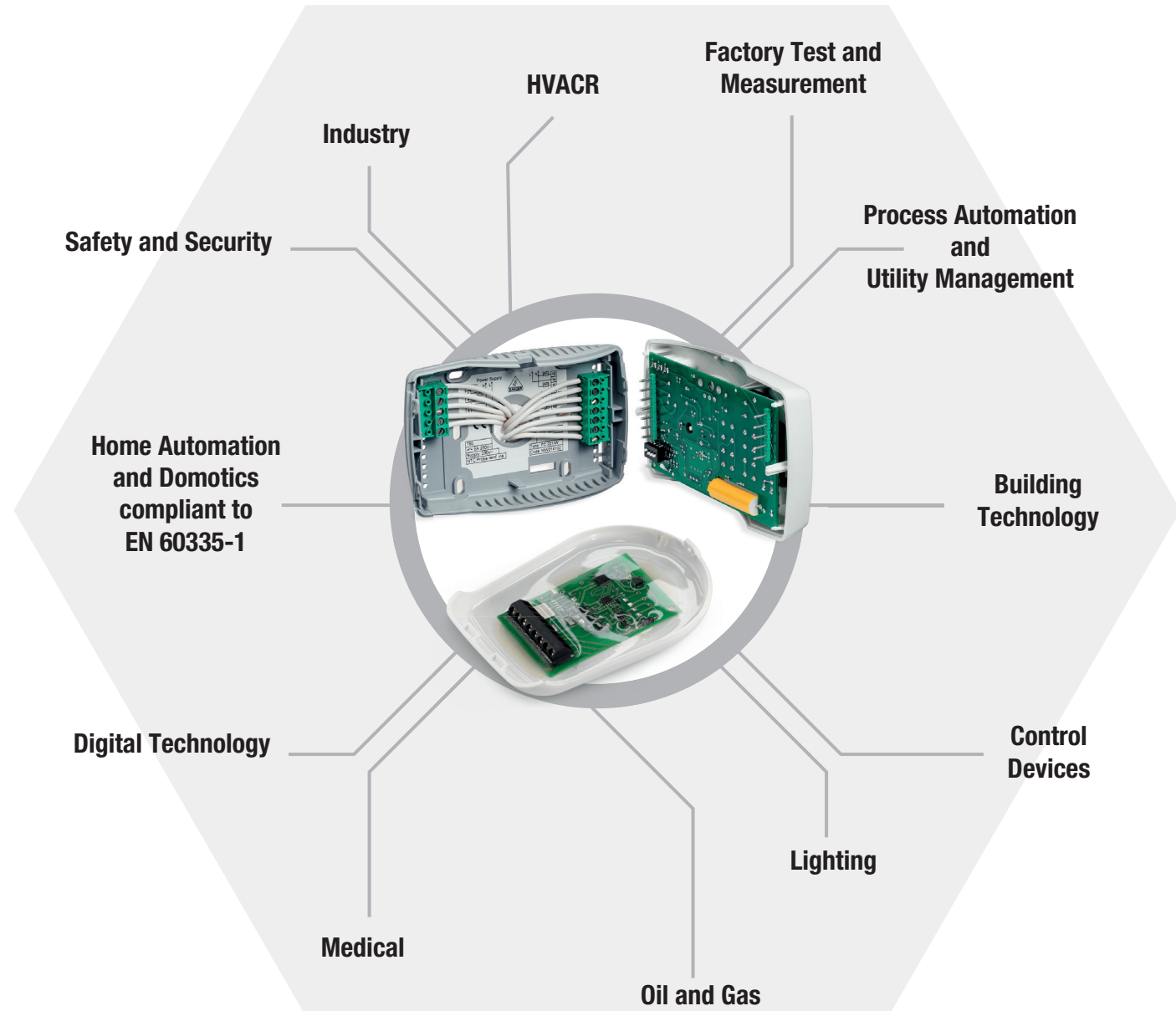
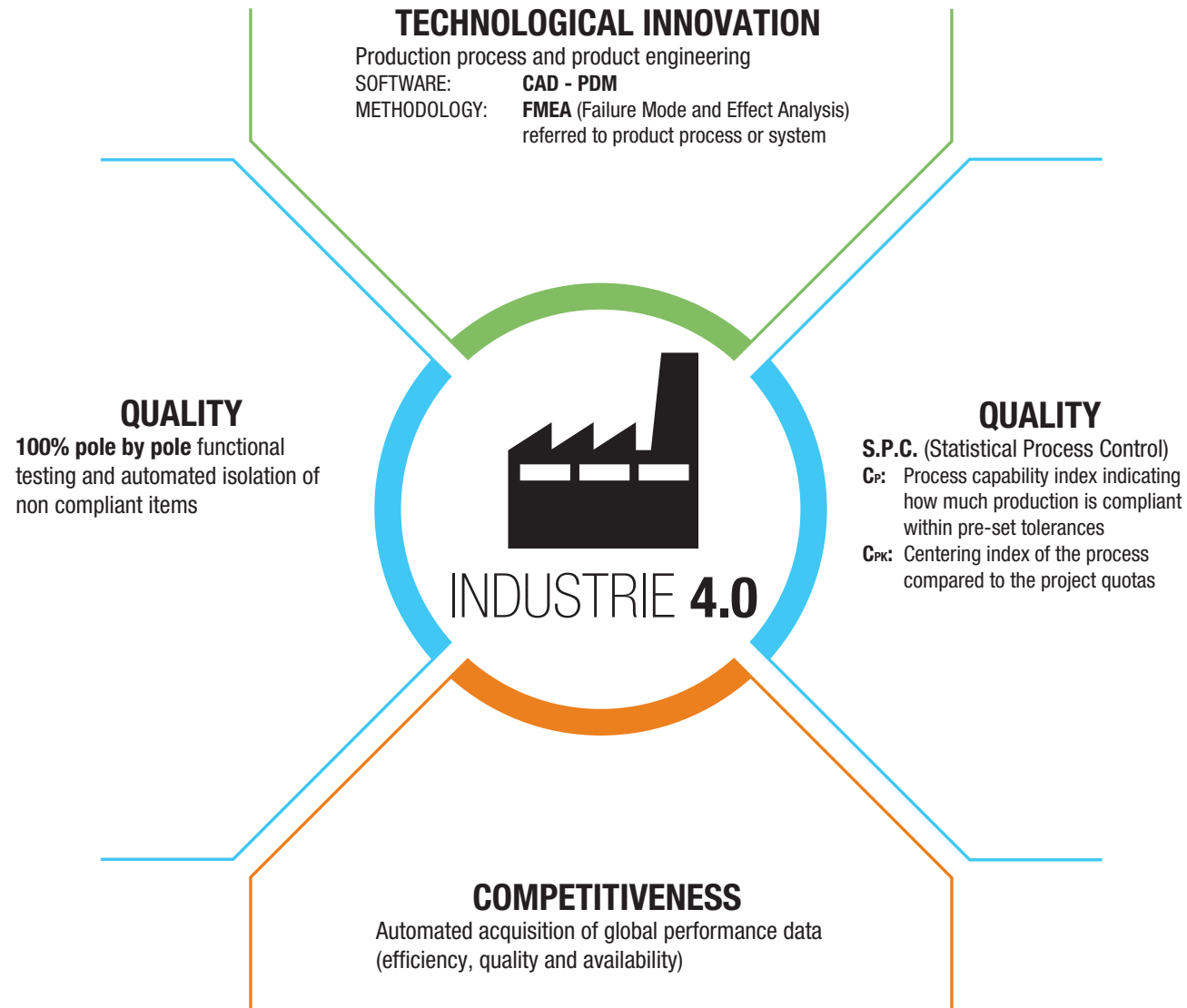
**visual automated inspections**  
on assembly lines



**visual automated inspections**  
on packaging lines



**zerofunctionaldefect!**



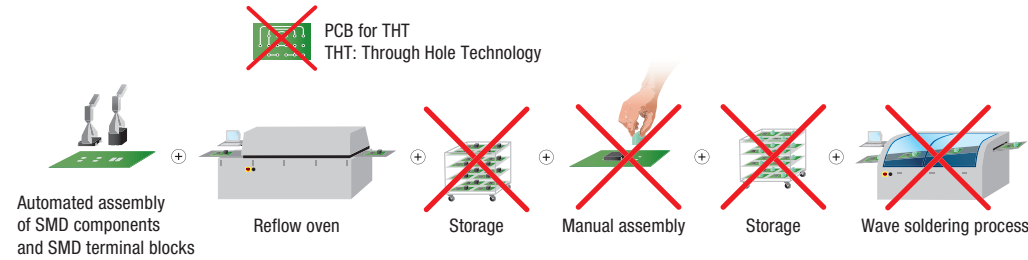
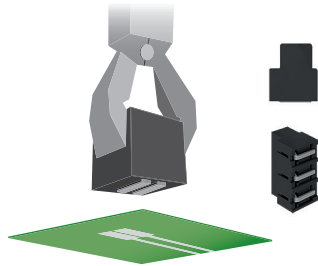


# SAURO Technological Evolution leads to **75%** REDUCTION

**75%**  
REDUCTION  
Future

## SMD Full Lean Technology

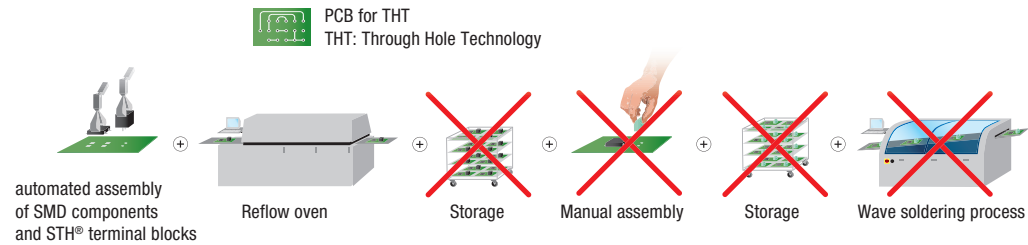
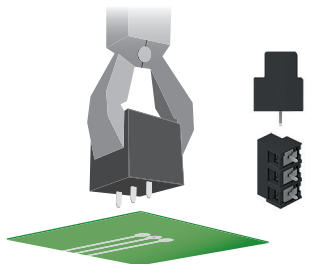
for LARGE SCALE productions  
Factory's work space and time reduced by **75%**  
Max reflow soldering temperature **275°C / 518°F**



**70%**  
REDUCTION  
Since 2000

## STH® Full Lean Technology

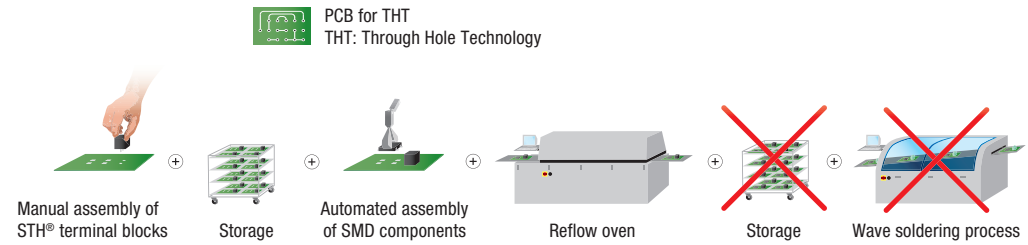
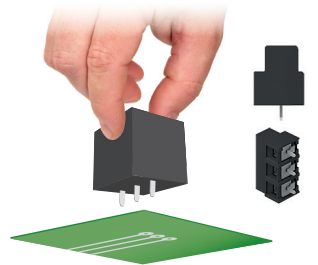
for LARGE SCALE productions  
Factory's work space and time reduced by **70%**  
Max reflow soldering temperature **275°C / 518°F**



**50%**  
REDUCTION  
Since the '90s

## STH® Lean Technology

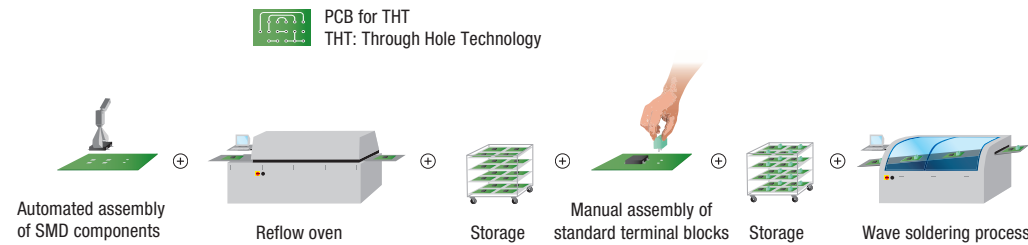
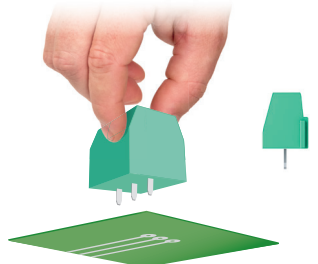
for SMALL/MEDIUM SCALE productions  
Factory's work space and time reduced by **50%**  
Max reflow soldering temperature **275°C / 518°F**



**0%**  
REDUCTION  
Since the '70s

## Traditional Technology

Conventional factory's work space and time  
Max wave soldering temperature **260°C / 500°F**

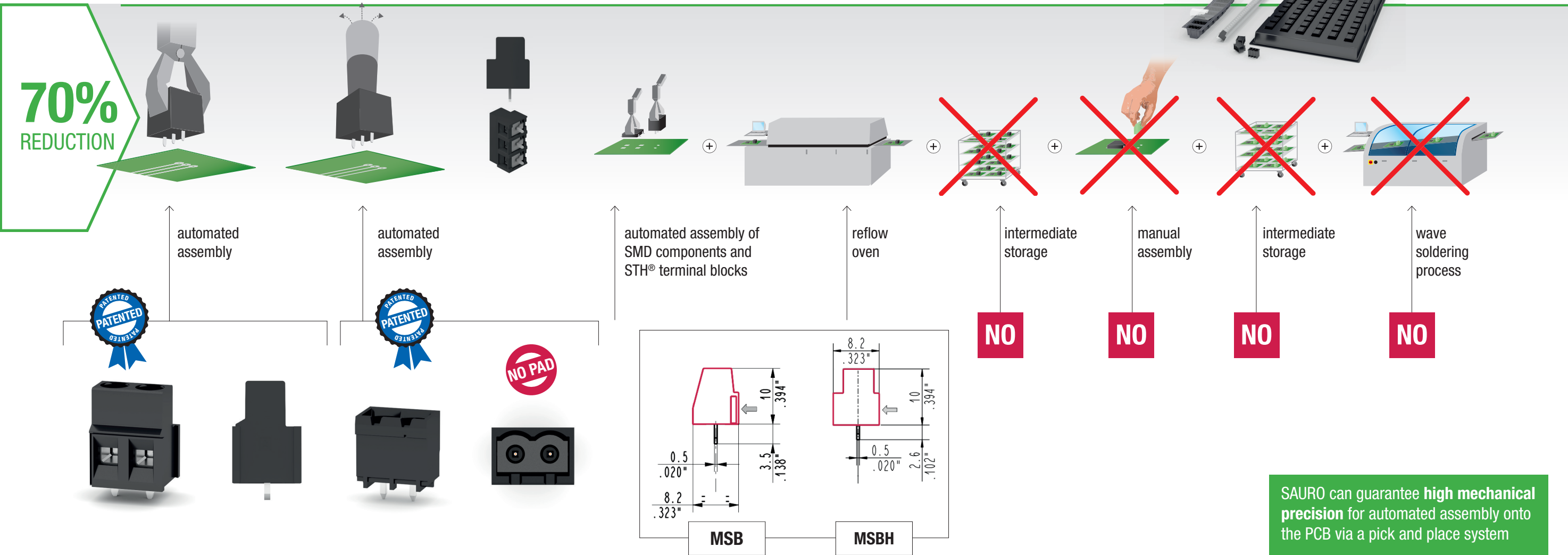
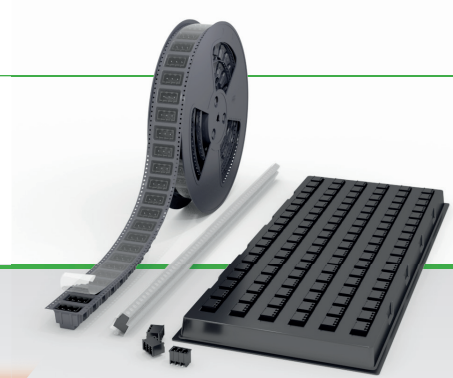




# STH<sup>®</sup> Full Lean Technology

STH<sup>®</sup> (SMD Through Hole) Terminal Blocks - THR - Through Hole Reflow - PIP - Pin in Paste

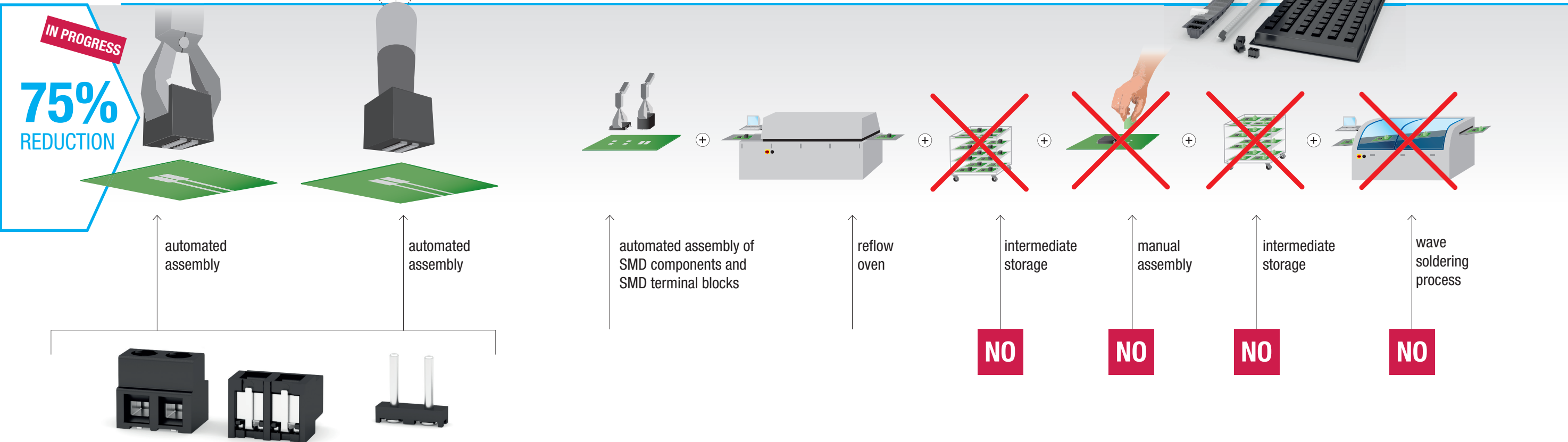
STH<sup>®</sup> Full Lean Technology for LARGE SCALE productions.  
Factory's work space and time are reduced by 70%:



SAURO can guarantee **high mechanical precision** for automated assembly onto the PCB via a pick and place system

# SMD Full Lean Technology

SMD Full Lean Technology for LARGE SCALE productions.  
 Factory's work space and time are reduced by 75%:



For SMD terminal blocks the main challenge is enduring torque during wiring: On MSBD test results showed a torque  $0.85 \div 1.1$  Nm, almost double the recommended tightening torque.

SAURO can guarantee **high mechanical precision** for automated assembly onto the PCB via a pick and place system

## Normo-orthogonal option

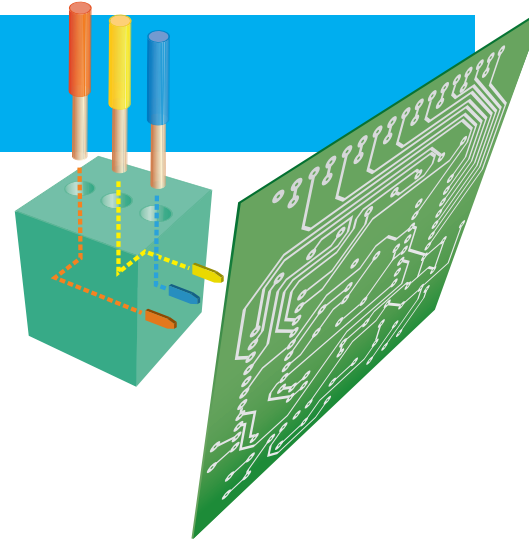
### Ideal for vertical PCBs

Sauro normo-orthogonal terminal blocks and connectors, thanks to the special pin shape, are suitable to be soldered onto vertical PCBs or installed on panels via a DIN guide, allowing a prompt, easy frontal mating.

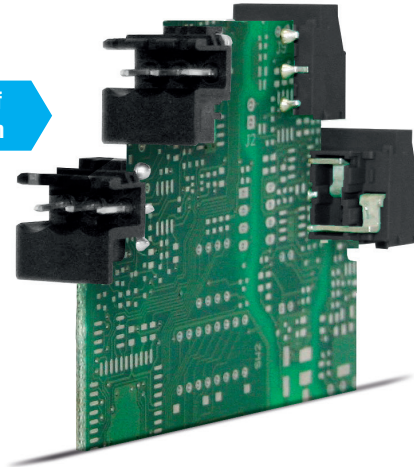
### Versatility

The versatility of the normo-orthogonal solution guarantees its suitability for the most diverse applications in the electronic industry.

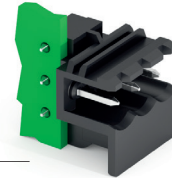
The shape of the pins makes the product solderable onto both horizontal and vertical pcbs, according to the client's needs, guaranteeing at the same time an easy and prompt wiring.



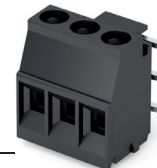
Example of Application



CIMH



MSMH



These products are available as **STH® (SMD Through Hole)** with integrated polarization system devised by Sauro and packaged in box, tape on reel, tube or tray.

## Spring tightening option

### Fast Fit Mount

Both the single and the multi-polar connection are fast and immediate with solid wires or with ferrules, and are also possible with stranded wires.

### Tightening independent from the operator

The tightening force is solely determined by the spring itself and does not depend on the operator.

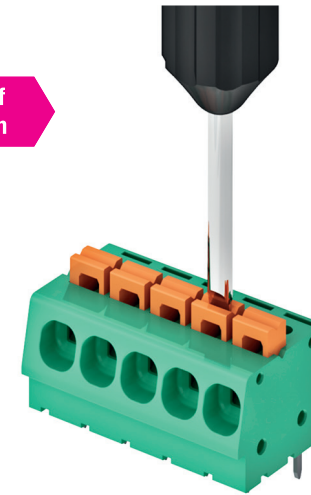
### Vibration Proof

The spring connection is suitable for environments with particular vibration frequencies: tightening is nevertheless always guaranteed.

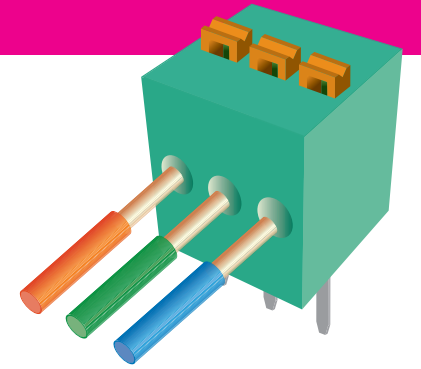
### Tool and Finger Protection

Tool and finger protection is guaranteed, as there is no metallic part in tension accessible to both accidental and/or screwdriver contact.

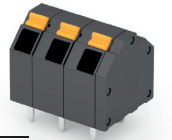
Example of Application



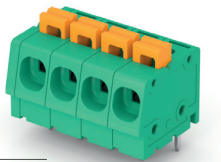
These products are available as **STH® (SMD Through Hole)** with integrated polarization system devised by Sauro and packaged in box, tape on reel, tube or tray.



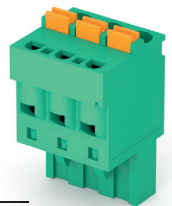
MCCH



MCM



CCF



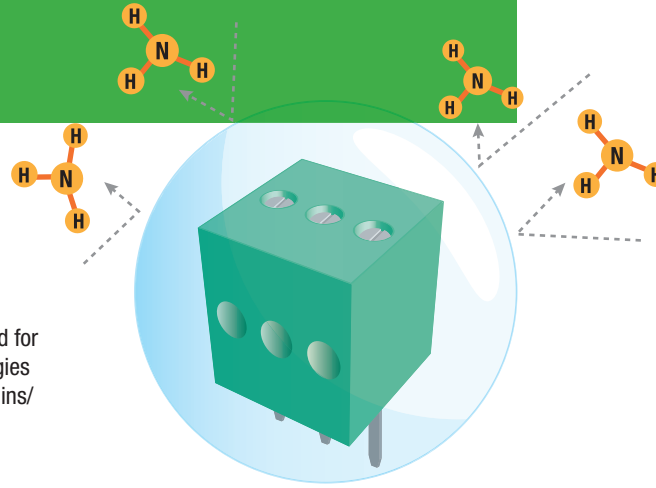
## New technologies

# C

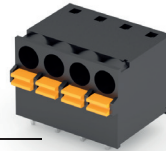
### Ammonia (NH<sub>3</sub>) resistant products

#### Designed for Bio-Technology Applications and harsh environments

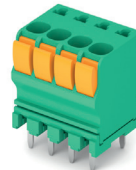
This range of Sauro terminal blocks is suitable to be soldered onto PCBs which are intended for use in environments where ammonia is present, such as control systems for bio-technologies or farming, thanks to stainless steel springs and wrapped clamps or specific copper alloy pins/terminals.



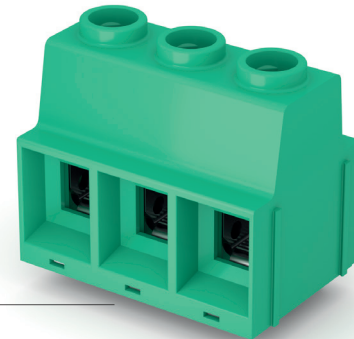
MCQH



MMT



MPP



Example of Application



These products are available as **STH**<sup>®</sup> (SMD Through Hole) with integrated polarization system devised by Sauro and packaged in box, tape on reel, tube or tray.

## New technologies

# D

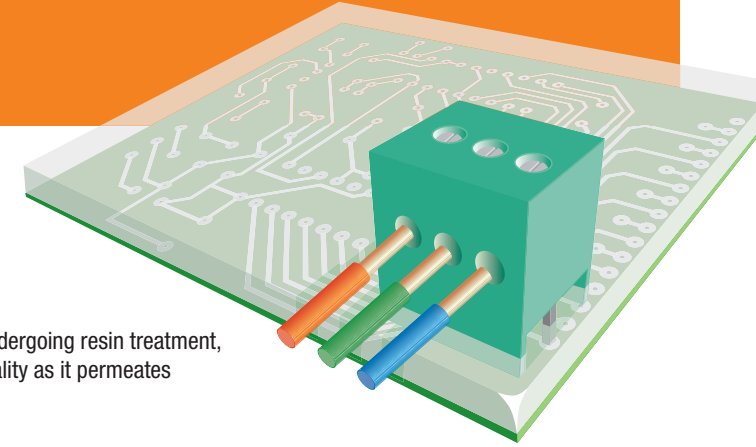
### Resined PCBs option

#### Upturned Terminal Blocks and Connectors

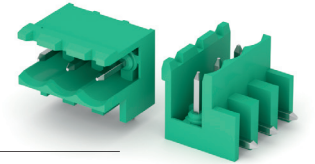
Sauro upturned terminal blocks and connectors are suitable for PCBs undergoing resin treatment, because the resin itself does not compromise the component's functionality as it permeates under it.

#### Protected tightening clamp and spring for resin permeation

Terminal blocks and connectors closed from underneath (even through base panels) may be suitable for PCBs undergoing resin treatment, because metallic parts are completely protected within the insulating housing so as to avoid the resin blocking them. In fact, should the resin manage to reach the clamp, the latter would not be able to move (ascend and descend) and tighten the wires correctly.



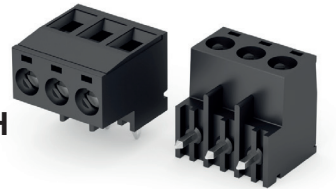
CIM



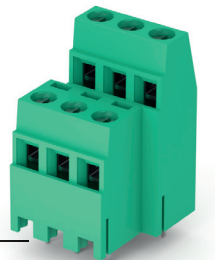
Example of Application



MSSH



Plurima<sup>®</sup>



These products are available as **STH**<sup>®</sup> (SMD Through Hole) with integrated polarization system devised by Sauro and packaged in box, tape on reel, tube or tray.



## New technologies

### Double wiring option

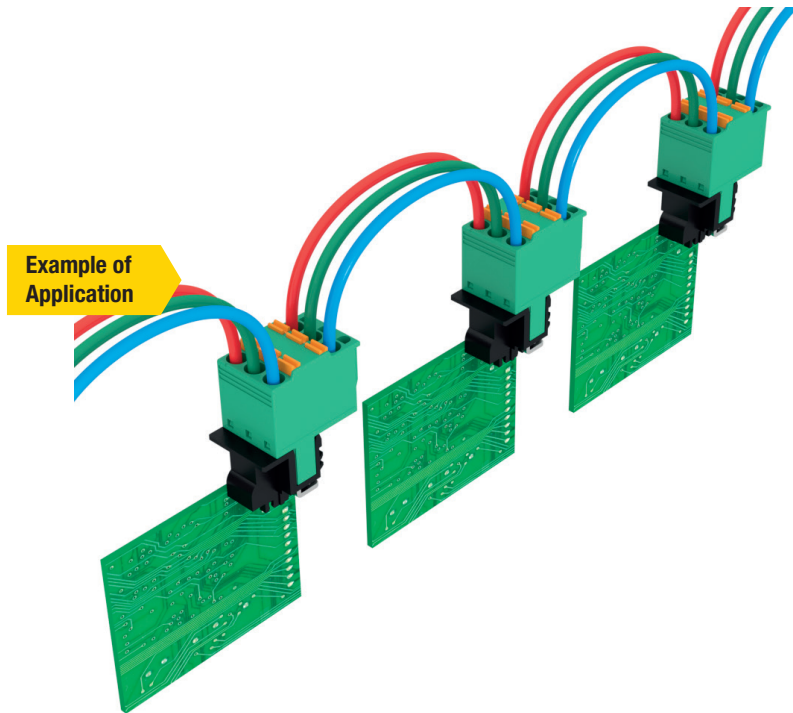
#### Security for spring wiring:

#### 2 wires per pole perfectly independently connected

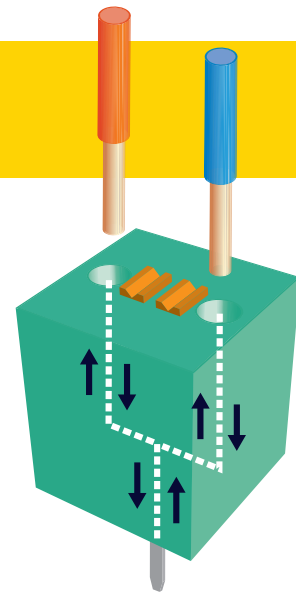
Sauro range of spring connectors and terminal blocks with double wire entry allows simultaneous wiring of two cables into the same pole, each one perfectly firm and independent from the other.

#### Ideal for BUS Systems

The possibility to insert two wires in the same pole makes sure these types of terminal blocks and connectors can be used to produce BUS transmission or current supply systems.



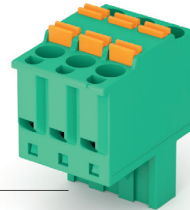
These products are available as **STH® (SMD Through Hole)** with integrated polarization system devised by Sauro and packaged in box, tape on reel, tube or tray.



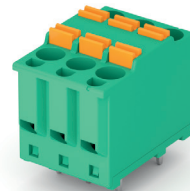
CHF



CCF



MCQ



## New technologies

### Home Automation option according to EN 60335

#### Dual pins for ground circuits

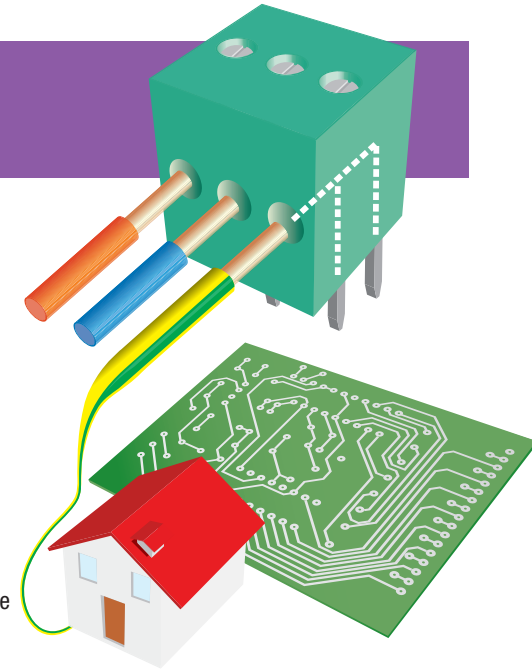
Sauro double pin terminal blocks and connectors allow the use of printed circuit tracks devised for grounding systems in devices subject to EN 60335-1 European regulation, for home environments and such. In fact, with the double pin, it is possible to connect two independent tracks to the grounding system, with separate soldering points.

#### GWIT passed at 775°C

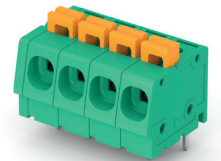
All Sauro terminal blocks and connectors are made of phosphorus and dioxin free plastics, and contain no detrimental to health halogens. They also do not contain antimony trioxide, and can be used for home automation systems as they are GWIT 775°C certified, according to EN 60335-1.



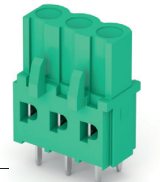
These products are available as **STH® (SMD Through Hole)** with integrated polarization system devised by Sauro and packaged in box, tape on reel, tube or tray.



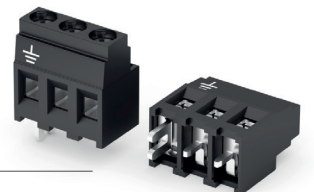
MCM












CGF





MSMH



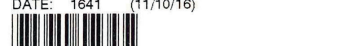



# Sealing Label

 <b>SAURO</b> ELECTRONIC CONNECTORS V.le delle Industrie 17 - 35010 Villafranca PD - IT - www.sauro.net		   
 E16743 300V 15A 30/12AWG	 40027448 Reg.-Nr. 112754 16A 250V 2.5kV II/2 T100 2.5mm <sup>2</sup>	
 EM672 12A 300V 4kV III/2 T110 2.5mm <sup>2</sup>	 LR 102896 300V 15A 30/12AWG	

MADE IN ITALY 



MPN: CIF03B05-AG007  
  
 BATCH: OPR16053759001  
  
 DATE: 1641 (11/10/16)  
  
 Q.TY: 400  


Series:  
CIF



# SAURO Roundabout



**SAURO**  
 Patrizia Favero Santino  
 Bergamin Vito  
 Pagetta Bruno  
 Ragazzo Odone  
 Scarso Florio  
 3 August 1984

**Dott. Favero Ing. Santino**

**GPS coordinates**  
 Latitude: 45.450530  
 Longitude: 11.769322

① Strategic presence in the industrialized world  
 ② Exclusive use of **Cu** alloys  
 ③ Electromechanical + Paramedic Technology  
 ④ **System AU**tomation and **RO**botics  
 ⑤ **by the law:** our Company Policy  
 ⑥ Production process according to **Industrie 4.0**  
 ⑦ Origins and Tradition

AUSTIN-USA-8986 km  
 DÜSSELDORF-D-756 km  
 SHANGHAI-PRC-8944 km

**SAURO**  
 ELECTRONIC CONNECTORS  
 by the law  
 INDUSTRIE 4.0



## Contacts

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**Europe and Africa**  
**SAURO s.r.l.**

Italy (+39) 049 9070440  
info@sauro.net

**North Europe**  
**SAURO GmbH**

German (+49) 2151 7896043  
saurogmbh@sauro.net

**North & South America**  
**SAURO Inc.**

Texas (+1) 512 2558420  
sauroinc@sauro.net

**India and Oceania**

**SAURO Electronic Connectors (Shanghai) Co. Ltd.**

Shanghai (+86) 021 58682734  
saurocn@sauro.net