gesis® DC-SOLAR

wieland

gesis® DC-SOLAR
Connector System
for Solar Power Installations

Solar Power is Pluggable

Active worldwide

With its staff of almost 2,000 employees, the Wieland Group is at home on all continents. Subsidiaries in Great Britain, France, Spain, Italy, Poland, Canada, the USA and very recently also in China speak for themselves. With a great number of representatives, Wieland Holding is active in almost all strategically important countries. Just a medium-size global player with a clear commitment to the German location where most of the products are still manufactured.

▲ **Photo of the Bamberg headquarters**

◀ **Sales and Marketing Center in Bamberg**

The Wieland Group

Competence and know-how

One company group, a thousand opportunities

The philosophy of the Wieland Group with its headquarters in Bamberg can be summarized that simply. The independent subsidiaries, Wieland Electric and STOCKO Contact, are active beneath Wieland Holding.

Together they cover an extraordinarily wide product portfolio in the field of electrical engineering and electronics. It comprises control cabinet engineering, industrial multipole connectors as well as overvoltage technology and building system technology.

Wieland Electric is active in most areas of automation technology and delivers as the industry's driver for innovation. ***safety*** first – Wieland Electric is ideally positioned with its modular system solutions such as ***Series 4000***, ***samos***®, ***samos***® PRO and the new ***SMA*** safety sensors. ***podis***®, the solution-oriented system for remote power distribution, and ***ricos*** TP, the latest development in the field of automation systems for heavy duty industrial requirements, are only two examples.

In the building installation system sector, Wieland Electric, with its ***gesis***® system, is the world market leader in pluggable electrical installation. With good reason do planners and architects of the tallest and most interesting construction projects worldwide, such as the Petronas Towers in Kuala Lumpur, rely on ***gesis***® components from Wieland. Wieland is the pioneer on a path toward the intelligent home by consistently developing its ***gesis***® product range, especially with regards to the demands of electronic networking.

Wieland Electric was founded in 1910 in Bamberg. With 1350 staff members it is the largest subsidiary within the company group of Wieland Holding. With its numerous innovations, Wieland Electric has become a major supplier of electrical connection technology. Export share is currently at 58%.

STOCKO Contact is located in North Rhine-Westphalia's Wuppertal and has been a member of the Wieland Group since 2001. The company can look back at a history of more than 100 years. STOCKO Contact is one of the biggest European manufacturers of connector systems and crimp contacts.

Almost 100 years young and full of innovative energy...

this is the foundation of our company philosophy.

From this statement Wieland Electric will not just maintain, but expand its social responsibility into the future. Eco-friendly high-tech products, manufactured according to state-of-the-art production standards, an audited environmental management system and extensive investments in our facilities with cutting-edge environmental technologies are a matter of fact. A company policy that also commits us to the long term responsibility for the future of our families and children, as well as for the city of Bamberg, in addition to innovative system solutions for our customers.

In our opinion, worldwide action and regional responsibility are united.

STOCKO headquarters in Wuppertal

Pluggable solar solutions from Wieland
At home on both sides

Extremely easy to handle and highly flexible

With Wieland, the enormous benefits of a pluggable electrical installation are no longer restricted to the DC side of photovoltaic systems. Whether for main power supply connections (AC) or connectors for the drives of tracking systems, durable electrical connectors are the backbone of a profitable installation.

The AC solar system

With its 3 and 5 pole connector system RST25i3/i5, Wieland offers the optimal solution for AC side interconnect possibilities. Pre-assembled components and IP68 protection enable a fast and safe installation, even under the most adverse conditions. The RST25i3/i5 AC system includes connectors for on-site field wiring; device connectors for inverter housings (leading manufacturers already deliver their product with RST connectors installed); cable assemblies for connection from the inverter to the combiner box; and combiner boxes that are delivered pre-assembled.

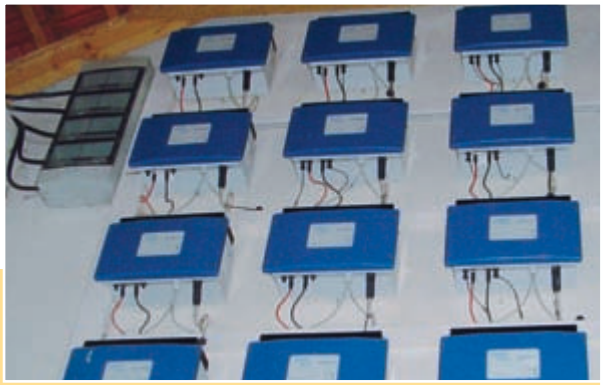
Inverters are often installed in groups, with the same distance between them. The resulting cable lengths repeat from system to system. The AC side can now be installed similarly to the traditional DC module to module interconnection method.

This concept effectively reduces the logistics and installation times to a minimum. This advantage pays off not only for initial installation, but for any subsequent service or add-on work as well. For servicing, individual inverters can be disconnected from the main supply by simply unplugging them. Continous protection against accidental contact, as well as quick installation and return to operation ensure a profitable system.

The DC solar system

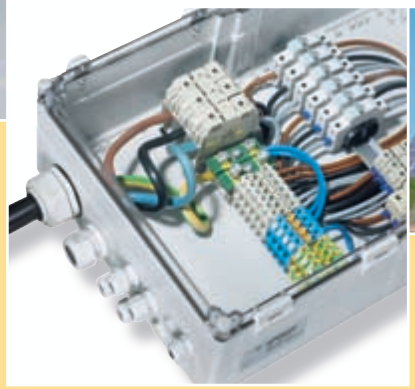
The DC solar system is developed and manufactured in close cooperation between Wieland Electric GmbH and PRYSMIAN Cables and Systems GmbH. PST40i1 is based on the need to combine a highly reliable contact system with the easiest termination technology. The silver-plated machined contacts have been proven in the most demanding applications, such as machine tool construction, crane technology, and shipbuilding; they are also ideally suited for wiring in the field. This ease of use is particularly important whether the installations are found on rooftops, in building integrated systems, or installations in open space. The field wired version is capable of multiple mating cycles. Just a few individual parts for multiple wire gauge variations and cables simplify logistics at the assembly site.

Both the molded cable version, as well as the field-wired version carry their rated current throughout the entire temperature range; there is no need to derate according to temperature.



Versions:

RST25i3	for AC 25 single-phase supply 25 A / 5 kW with SZS
RST20i4	on motors for tracking systems of 20 A / 240 V
RST20i5	for supply of 1 x AC 25 A / 5 kW (phase-monitored) or three-phase supply of 3 x 20 A / 12 kW
PST40i1	on motors for tracking systems of 20 A / 240 V



The IP67 protection rating, the robust design, as well as the mate compatibility guarantee flexibility for installations. PST40i1 accepts cross sections of 1.5 mm² up to 10.0 mm², 16 – 8 AWG. This increased wire gauge enables pluggable connections to inverters over extended cable runs. The high current-carrying capacity of 40 A is proof of the contacts' superior conductivity, and at the same time satisfies the trend towards increased input on powerful new string inverters.

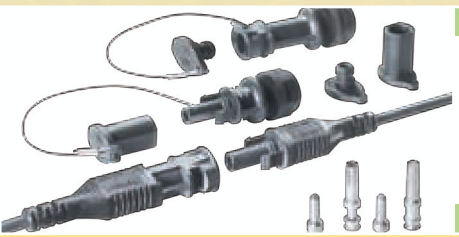
Other areas of applications

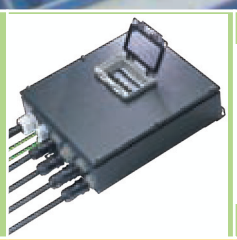
- Chargers with a high IP protection degree
- Island systems with AC or DC bus in buildings and façades
- Motor connections for tracking systems
- Inverting on-board voltage (car; truck; railroad; RVs; boat)
- Power generation (fuel cells; wind and water power plants; biogas and biomass systems; cogeneration power plants; and geothermal energy systems)

Benefits

- Quick assembly
- Easy handling
- UV resistant
- High conductivity
- IP67

Skills that complement one another:
PST40i1 satisfies the most demanding requirements using TECSUN (PV), the cable from PRYSMIAN Cables and Systems GmbH, www.special-cables-neustadt-coburg.de. Not only winning the TÜV certificate or tests at leading institutions provide proof of this, but primarily the daily practical use, taking place worldwide.



Pluggable solar solutions from Wieland
Exemplary professional competence

For almost 100 years, Wieland has made its mark in the history of industrial electrical engineering. But we are always looking to the future. New technology, new requirements, better solutions. Photovoltaics, with its great innovative force, is dynamic and expansive, and a perfect fit for our expertise. The high quantities demanded by the solar industry require proven manufacturing processes, just as the installations demand customer oriented concepts.

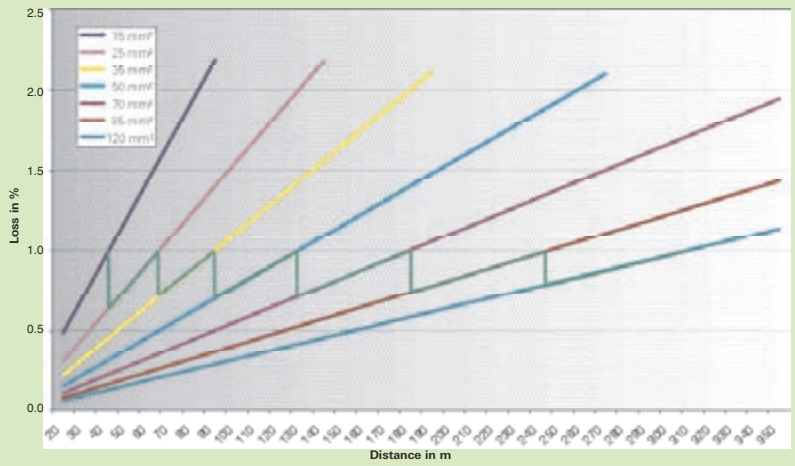
Example: power supply connection in open spaces, on rooftops, and in building integrated systems

Implementing large solar power plants in fields or on rooftops using string inverters requires a system with various combiner and distribution units. AC distribution units combine and conduct the power from the inverter to the load or network. Depending on the power and the cable distance, various cross sections up to 240 mm² are required. Wieland Electric's project team supports planning, even megawatt systems, with design and assembly of combiner boxes.

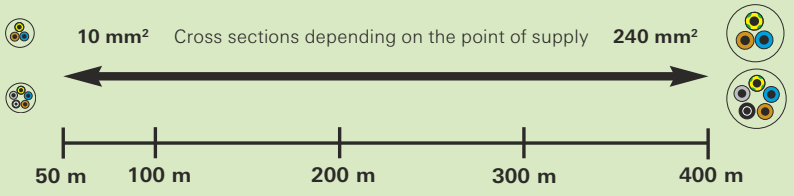
By reviewing the installation site plan and considering the inverters' AC power, we create the optimal AC distribution box for any project. Sample construction, CAD documentation and delivery logistics are included. Further options such as lightning and surge suppression modules, custom housing design, and components including the installation of monitoring systems satisfy the majority of requirements.

Example:
industrial product for the PV marketplace
Wieland Electric occupies a unique niche in serving the PV marketplace. By combining the experience of development and manufacturing of components and sub-assemblies for both the industrial and building installation markets, we are well-positioned to satisfy the requirements of the emerging PV market. Our assembly and testing facilities and processes are not simply certified, but also proven in delivering value-added services and products. UL and IEC testing, Ex-Approvals, shipbuilding norms and standards all belong to the everyday activities of manufacturing over 20,000 individual catalog parts.

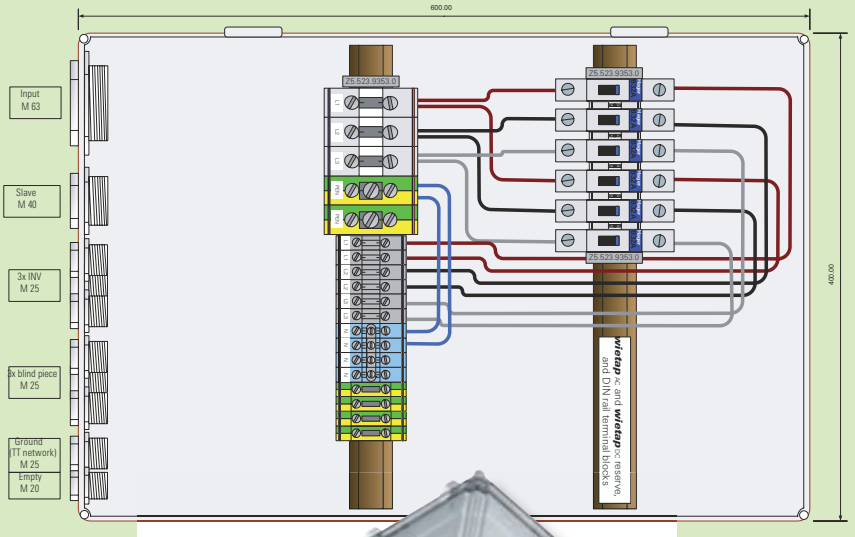
Power loss CU – Cable 6 x 6 kW 400 V

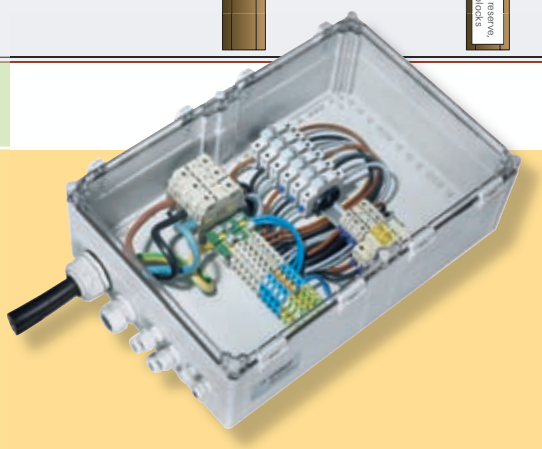


Cross sections and cable lengths depending on the point of supply

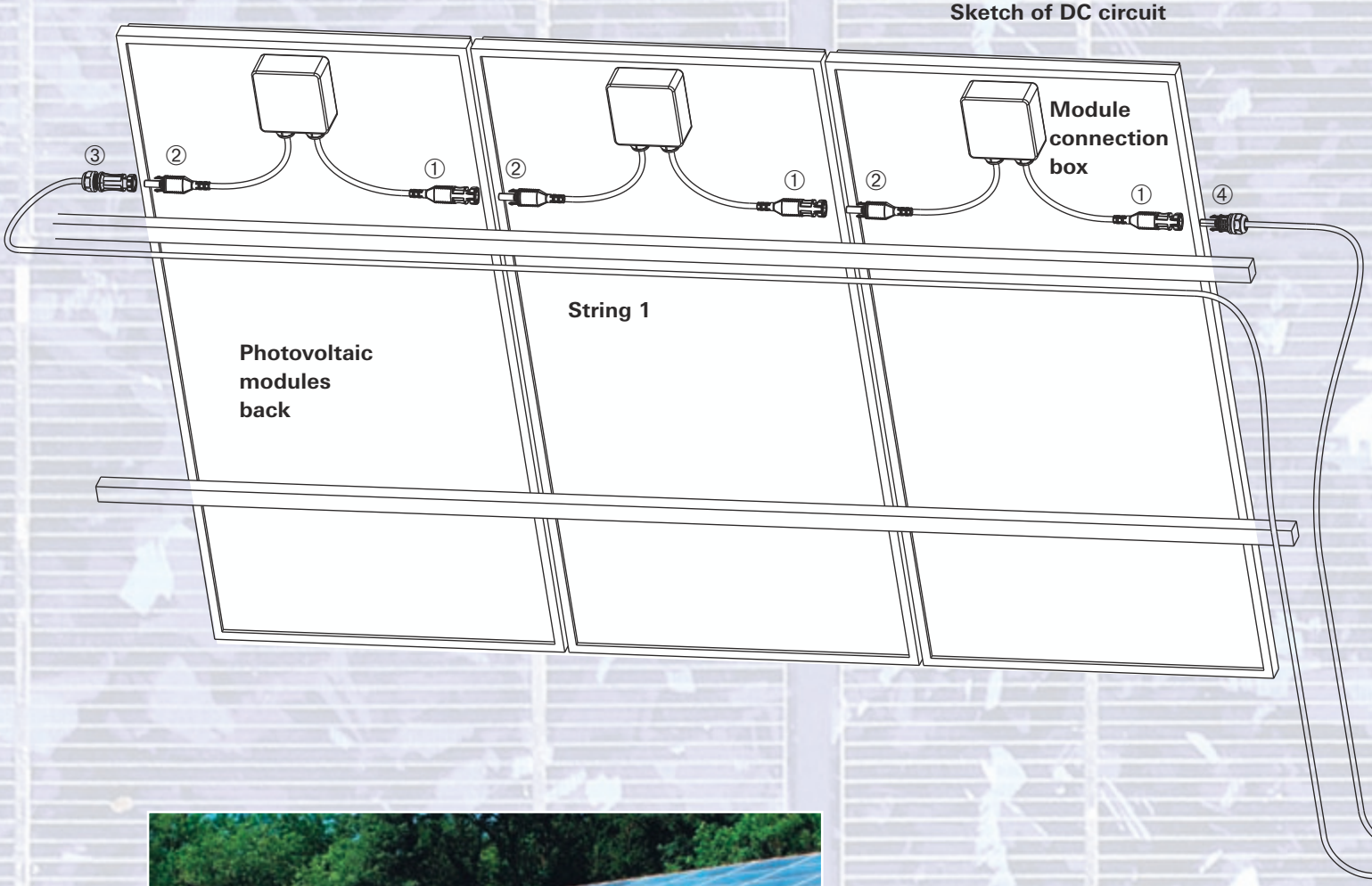


Wiring *gesis* RAN distribution boxes





Sketch of DC circuit

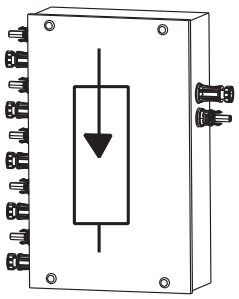


gesis® DC-SOLAR

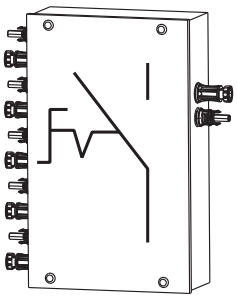
Exemplary project planning

① Pre-assembled cable, male	96.31x.xx0x.1
② Pre-assembled cable, female	96.31x.xx0x.1
③ Field-assembled male connector	96.112.1053.1
④ Field-assembled female connector	96.111.1053.1
⑤ Extension cable, female – male	96.310.xx00.1
⑥ Male bulkhead connector	96.112.xx53.1
⑦ Female bulkhead connector	96.111.xx53.1

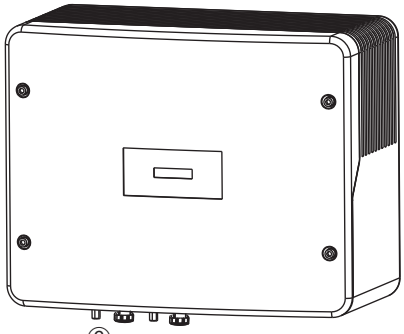
Surge protector



DC switch



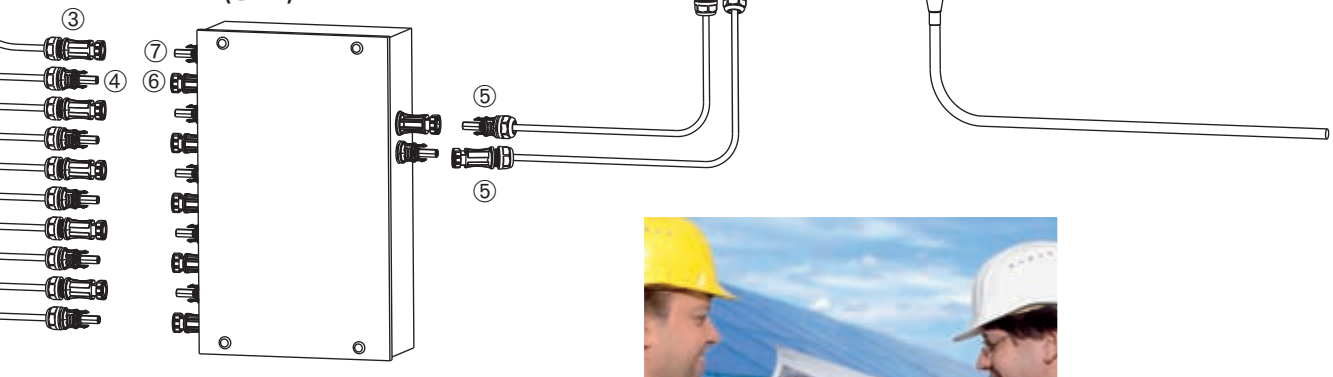
Inverter



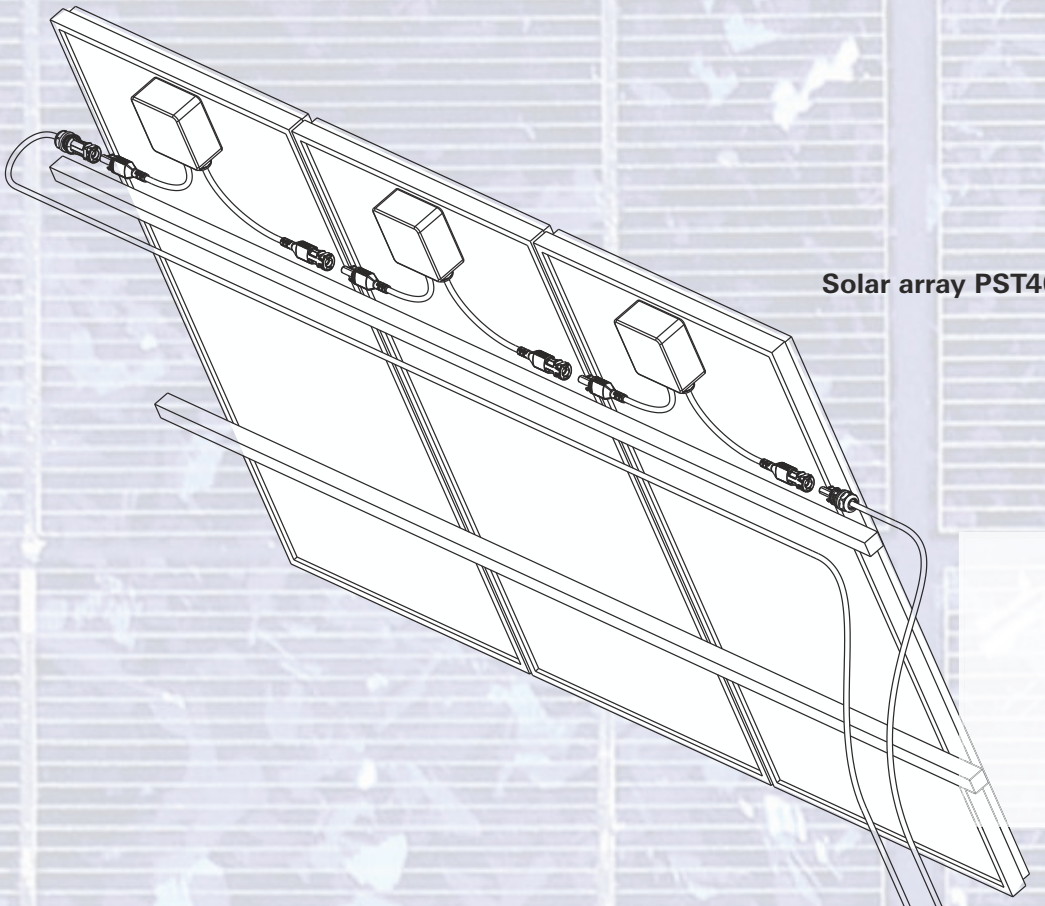
Disconnect and combiner boxes (GAK)

PST40i1 DC-Solar

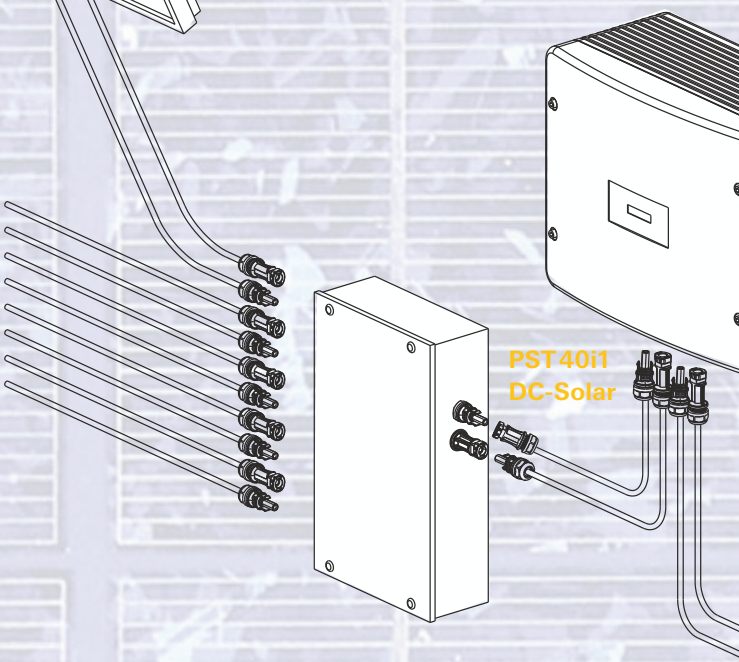
RST25i AC-Solar



DC



Solar array PST40i1



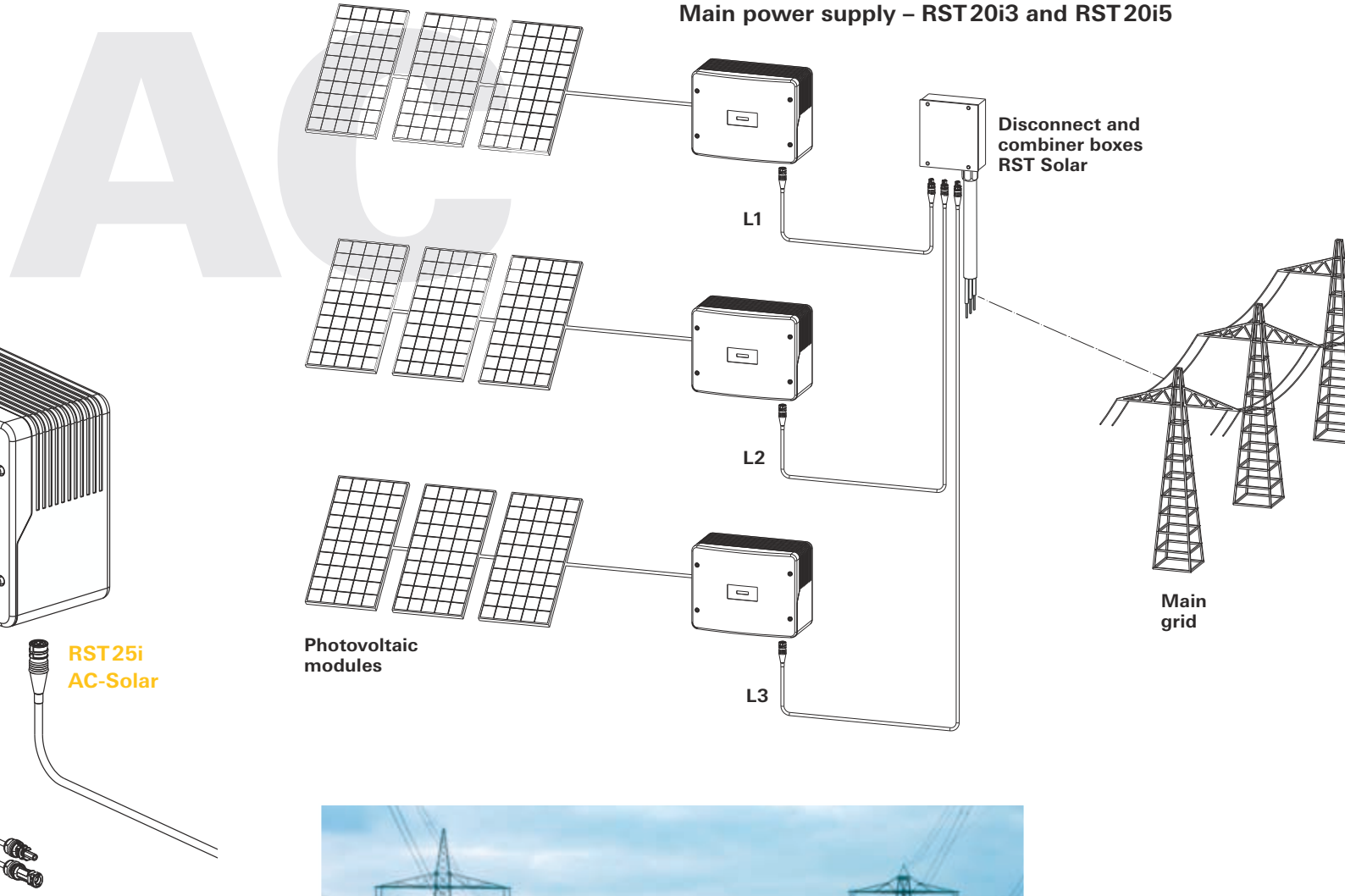
gesis® DC-SOLAR / *gesis*® AC-SOLAR
Exemplary installation system

Balance of system

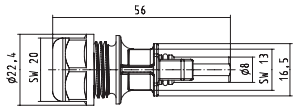
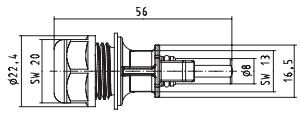
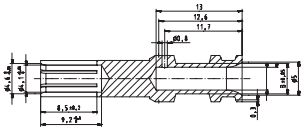
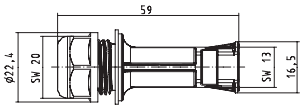
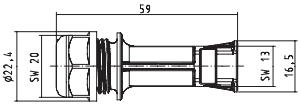
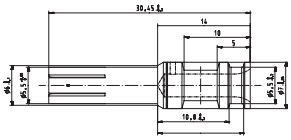
Two areas, one partner – from the PV module to the main power supply connection. Wieland Electric provides the complete connection system for photovoltaic installations.

Durable and powerful plug & play components deliver maximum power to the network. Profitable from the beginning with an efficient installation, and maintained via the high quality of all components.

Main power supply – RST 20i3 and RST 20i5



Components 1.5 – 10 mm²

			Connectors*		Bulkhead connectors*		Contacts	
			For field assembly **Crimp technology** for cables with a diameter of **4 – 8 mm.** Housing and cable gland are delivered pre-assembled		**Crimp technology** for cables with a diameter of **4 – 8 mm.**		**Crimp technology** for cables with a cross section of **1.5 – 10 mm².** Standard pack is delivered in a plastic bag. Delivery in complete standard packs. Insulation strip length: 17 + 1 mm	
Marking		Cross section/Color	Part No.	Std. Pack	Part No.	Std. Pack	Part No.	Std. Pack
Female connector								
					Knockout diameter			
								
		4 – 5 mm black[1] 5 – 8 mm black[2] **Female contact**	96.111.0153.1 96.111.0053.1	100 100	96.111.1053.1	100		
	unmarked	1.5 mm²					02.125.8002.8	100
	2 grooves	2.5 mm²					02.125.8102.8	100
	unmarked	4.0 mm²					02.125.8202.8	100
	1 groove	6.0 mm²					02.125.8302.8	100
	unmarked	10.0 mm²					02.125.8402.8	100
			Contacts ordered separately		Contacts ordered separately			
Marking		Cross section/Color	Part No.	Std. Pack	Part No.	Std. Pack	Part No.	Std. Pack
Male connector								
					Knockout diameter			
								
		4 – 5 mm black[1] 5 – 8 mm black[2] **Male contact**	96.112.0153.1 96.112.0053.1	100 100	96.112.1053.1	100		
	unmarked	1.5 mm²					05.545.2002.8	100
	2 grooves	2.5 mm²					05.545.2102.8	100
	unmarked	4.0 mm²					05.545.2202.8	100
	1 groove	6.0 mm²					05.545.2302.8	100
	unmarked	10.0 mm²					05.545.2402.8	100
			Contacts ordered separately		Contacts ordered separately		**Use Wieland crimp tools only!**	

[1] TECSUN cable 1.5 – 2.5 mm²
[2] TECSUN cable 4 – 10 mm²

* Assemble using customary flat wrench SW 13 for housings and SW 20 for cable gland

* Assemble using customary flat wrench SW 13 for housings and SW 20 for cable gland

Cover plug

for protection of unplugged male or female connectors

Part No. Std. Pack

05.566.6380.0 50

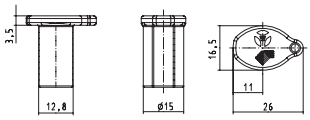
Cover plug

captive
for protection of unplugged male or female connectors

Part No. Std. Pack

Z5.566.6380.0 50

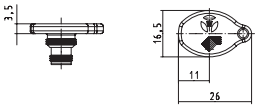
for protection of unplugged female connectors



Part No. Std. Pack

05.566.6480.0 50

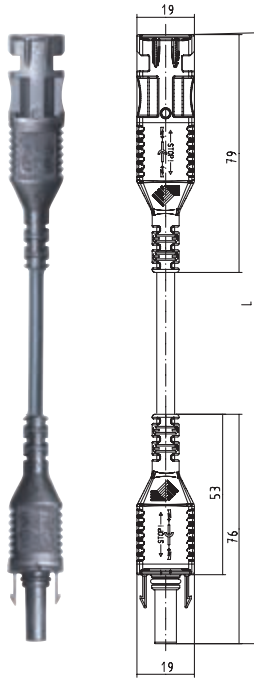
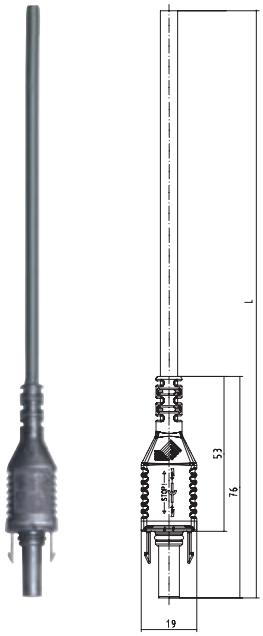
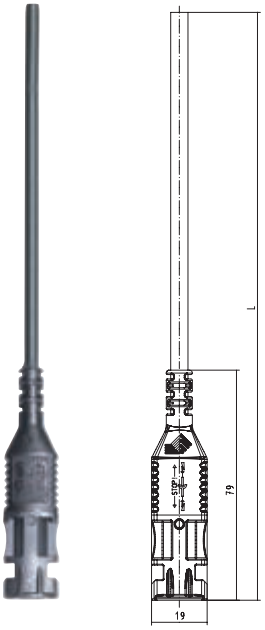
for protection of unplugged male connectors



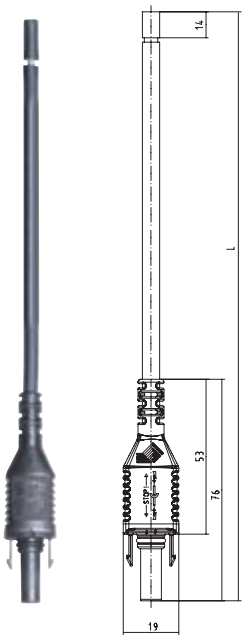
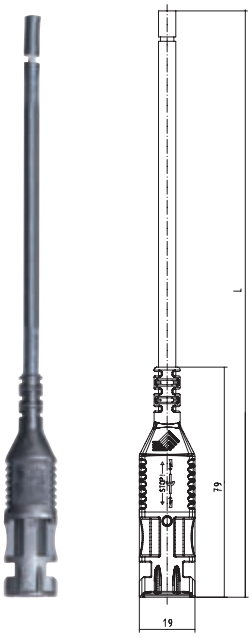
Part No. Std. Pack

Z5.566.6480.0 50

Cable assemblies 1.5 x 10.0 mm²

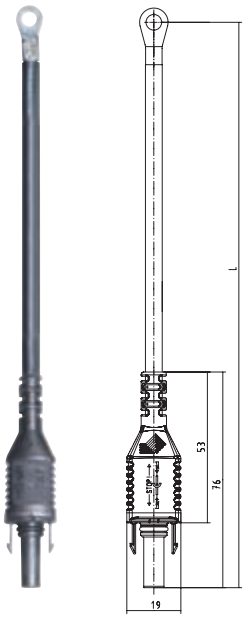
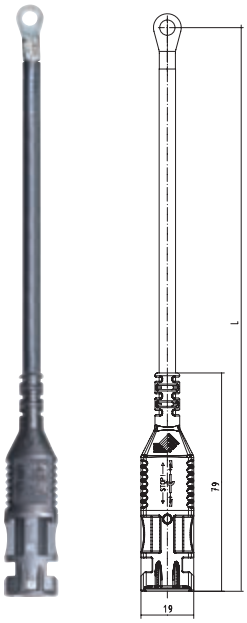
Cable[1]: TECSUN PV1-F		Extension cable **Female – Male** with latching device	Connection cable **Female – Free end** straight cut	Connection cable **Male – Free end** straight cut
Cable assemblies 1.5 mm² available 2nd quarter 2008 10 mm² available 3rd quarter 2008 LL = lengths (e.g.: 10 = 1 m; 15 = 1.5 m)				
Color	mm²	Part No. Std. Pack	Part No. Std. Pack	Part No. Std. Pack
black	1.5 mm² 2.5 mm² 4.0 mm² 6.0 mm² 10.0 mm²	96.310.LL00.1 96.311.LL00.1 96.312.LL00.1 96.313.LL00.1 96.314.LL00.1	96.310.LL07.1 96.311.LL07.1 96.312.LL07.1 96.313.LL07.1 96.314.LL07.1	96.310.LL08.1 96.311.LL08.1 96.312.LL08.1 96.313.LL08.1 96.314.LL08.1
	Lengths over 9.9 m available on request	Std. Pack available on request	Std. Pack available on request	Std. Pack available on request

[1] Other cables available on request

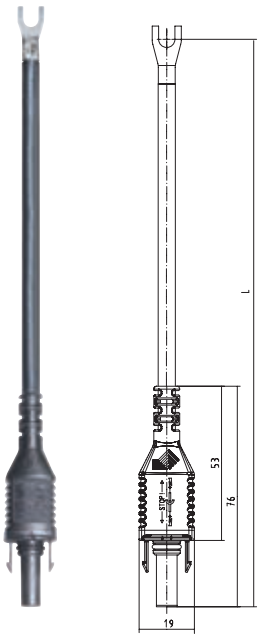
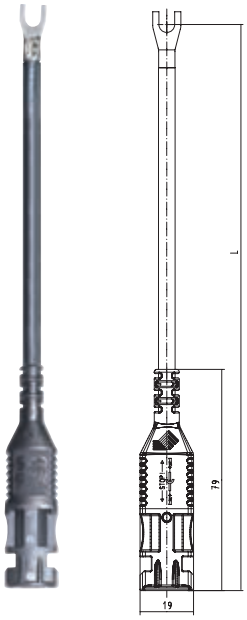
		Connection cable	Connection cable	
Cable[1]: TECSUN PV1-F		**Female – Free end** insulation partly stripped Insulation strip length: 14 mm	**Male – Free end** insulation partly stripped Insulation strip length: 14 mm	
Cable assemblies 1.5 mm² available 2nd quarter 2008 10 mm² available 3rd quarter 2008 LL = lengths (e.g.: 10 = 1 m; 15 = 1.5 m)				
Color	mm²	Part No. Std. Pack	Part No. Std. Pack	
black Cable: black	1.5 mm² 2.5 mm² 4.0 mm² 6.0 mm² 10.0 mm²	96.310.LL03.1 96.311.LL03.1 96.312.LL03.1 96.313.LL03.1 96.314.LL03.1	96.310.LL04.1 96.311.LL04.1 96.312.LL04.1 96.313.LL04.1 96.314.LL04.1	
	Lengths over 9.9 m available on request	Std. Pack available on request	Std. Pack available on request	

[1] Other cables available on request

Cable assemblies 1.5 x 10.0 mm²

Cable[1]: TECSUN PV1-F		Connection cable **Female – Ring lug** similar DIN 46234	Connection cable **Male – Ring lug** similar DIN 46234	
Cable assemblies 1.5 mm² available 2nd quarter 2008 10 mm² available 3rd quarter 2008 LL = lengths (e.g.: 10 = 1 m; 15 = 1.5 m)				
Color	mm²	Part No. Std. Pack	Part No. Std. Pack	
black	1.5 mm² 2.5 mm² 4.0 mm² 6.0 mm² 10.0 mm²	96.310.LL01.1 96.311.LL01.1 96.312.LL01.1 96.313.LL01.1 96.314.LL01.1	96.310.LL05.1 96.311.LL05.1 96.312.LL05.1 96.313.LL05.1 96.314.LL05.1	
	Lengths over 9.9 m availableon request	Std. Pack available on request	Std. Pack available on request	
		The hole dimensions or diameters of the cable lugs are suitable for M5 or No. 10 screws.	The hole dimensions or diameters of the cable lugs are suitable for M5 or No. 10 screws.	

[1] Other cables available on request

		Connection cable	Connection cable	
Cable[1]: TECSUN PV1-F		**Female – Spade lug**	**Male – Spade lug**	
Cable assemblies 1.5 mm² available 2nd quarter 2008 10 mm² available 3rd quarter 2008 LL = lengths (e.g.: 10 = 1 m; 15 = 1.5 m)				
Color	mm²	Part No. Std. Pack	Part No. Std. Pack	
black Cable: black	1.5 mm² 2.5 mm² 4.0 mm² 6.0 mm² 10.0 mm²	96.310.LL02.1 96.311.LL02.1 96.312.LL02.1 96.313.LL02.1 96.314.LL02.1	96.310.LL06.1 96.311.LL06.1 96.312.LL06.1 96.313.LL06.1 96.314.LL06.1	
	Lengths over 9.9 m availableon request	Std. Pack available on request	Std. Pack available on request	
		The hole dimensions or diameters of the cable lugs are suitable for M5 or No. 10 screws.	The hole dimensions or diameters of the cable lugs are suitable for M5 or No. 10 screws.	

[1] Other cables available on request

Sample kits

	Tool kit	Sample kit	System kit
	Contents: – Crimp tool (basic tool) – Crimp contact positioner – Crimp dies B for 1.5 mm^2 and 2.5 mm^2 contacts – Crimp dies D for 4 mm^2, 6 mm^2 and 10 mm^2 contacts – Connector unlocking tool – Stripping tool	**Trial set** **Contents:** – Connectors – Bulkhead connectors – Contacts – Cables – Cover plugs	**Contents:** – Male connectors – Cable glands with O-rings – Cover plugs – Female contacts – Male contacts – Table of contents DIN A4
	Part No. Std. Pack	Part No. Std. Pack	Part No. Std. Pack
			
	99.615.0000.0	99.424.0000.0	99.426.0000.0
	Use Wieland crimp tools only!		

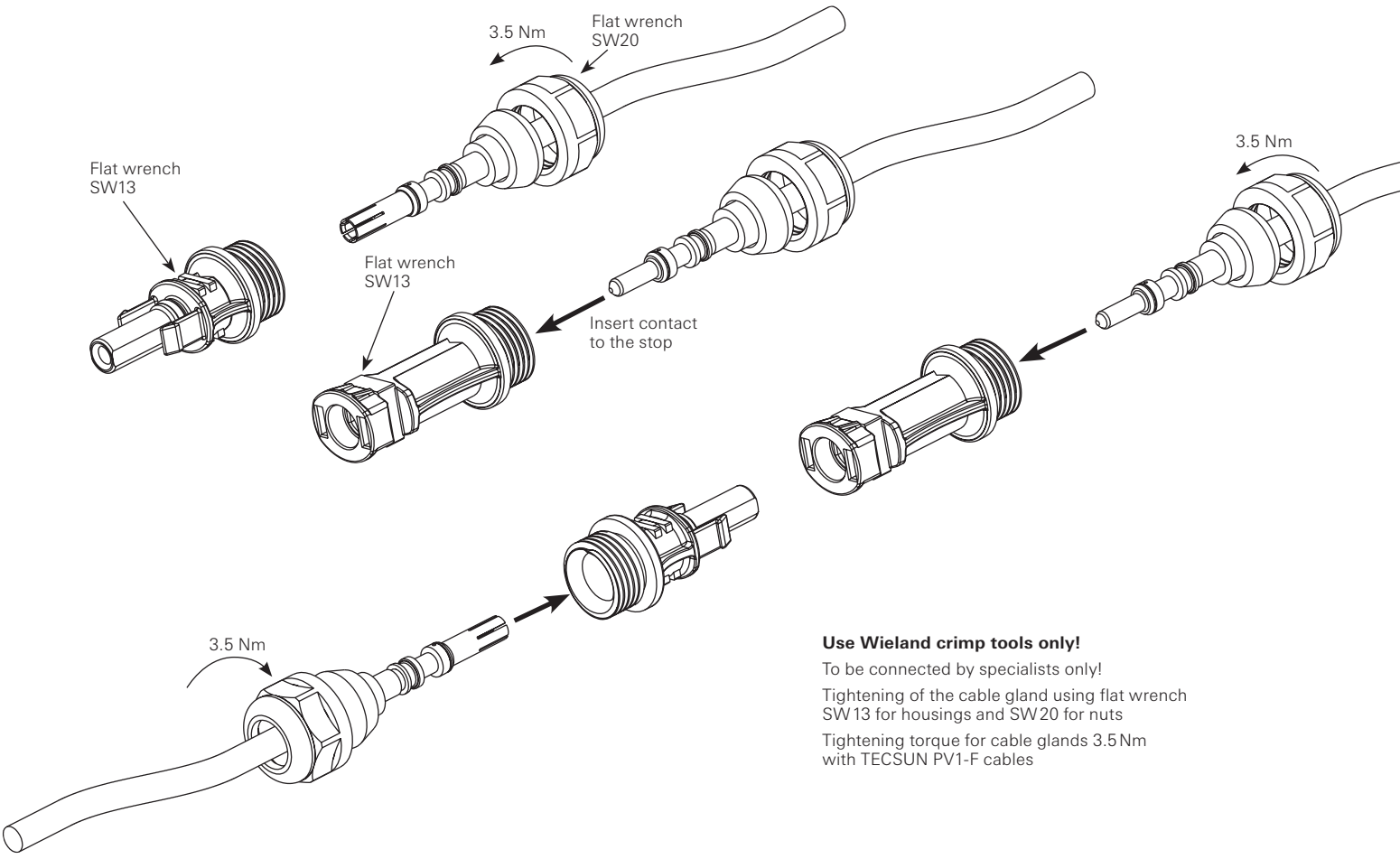
Contacts

Female and male contacts from the system kit

– For cables with a cross section of **1.5 – 10 mm².**
– Standard pack delivered in a plastic bag.
Delivery in complete standard packs.

Female contacts	Std. Pack	Cross section	Marking
02.125.8002.8	100	1.5 mm²	unmarked
02.125.8102.8	100	2.5 mm²	2 grooves
02.125.8202.8	100	4.0 mm²	unmarked
02.125.8302.8	100	6.0 mm²	1 groove
02.125.8402.8	100	10.0 mm²	unmarked

Male contacts	Std. Pack	Cross section	Marking
05.545.2002.8	100	1.5 mm²	unmarked
05.545.2102.8	100	2.5 mm²	2 grooves
05.545.2202.8	100	4.0 mm²	unmarked
05.545.2302.8	100	6.0 mm²	1 groove
05.545.2402.8	100	10.0 mm²	unmarked



Use Wieland crimp tools only!

To be connected by specialists only!

Tightening of the cable gland using flat wrench SW 13 for housings and SW 20 for nuts

Tightening torque for cable glands 3.5 Nm with TECSUN PV1-F cables

IP protection:

Documentation:

Example: IP 67

1st figure 2nd figure

IP protection

against foreign bodies and accidental contact

	Protection against accidental contact	Protection against foreign bodies
0	No protection	No protection
1	Large parts of the body (e.g. the back of the hand)	Large foreign bodies (diameter > 50 mm)
2	Finger	Medium size foreign bodies (diameter > 12 mm)
3	Tools and wires (diameter > 2.5 mm)	Small foreign bodies (diameter > 2.5 mm)
4	Tools and wires (diameter > 1mm)	Grain-like particles (diameter > 1mm)
5	Complete protection against accidental contact	Dust deposition
6	Complete protection against accidental contact	Dust ingress ✓
7		
8		

IP degree of protection: water

0	No protection
1	Protection from vertically dripping water
2	Protection from dripping water when tilted up (15°)
3	Protection from spraying water up to 60° towards the vertical
4	Protection from splashing water coming from all sides
5	Protection from jet spray water
6	Protection from powerful jets of water
7	Protection from temporary immersion in water ✓
8	Protection from lasting immersion

gesis IP+:

Wieland offers an innovative installation system with a complete concept for economic installation for outdoor and industrial applications

Degree of protection achieved:

IP 65	Jet water
IP 66	Powerful jets of water
IP 67	Temporary submersion

In many applications, electrical devices and systems must work safely for many years under difficult environmental conditions. For a reliable function the ingress of water or foreign particles (such as dust, oil, soot) into production systems, parking garages or outdoor areas must be avoided.
Even unplanned immersion, such as in rising ground water, is possible without a problem with the PST system.
The system is not designed for permanent operation under water.

DC Pluggable SOLAR Connector System

PST 40i1

Technical data for PV connectors PST 40i1

Rated voltage:	1000 V
Pollution degree:	III
Overvoltage catgory:	3
Application ID:	A
Protection class:	II
Rated current:	17.5 A – 1.5 mm^2
	24.0 A – 2.5 mm^2
	32.0 A – 4.0 mm^2
	40.0 A – 6.0 mm^2
	40.0 A – 10.0 mm^2
Wire range:	min. 1.5 mm^2 ; max. 10.0 mm^2
Degree of protection:	IP 65 – IP 67 (mated pair or with cover plug)
	(IP 68 on request)
Connection technology:	Crimp
Insulation strip length:	17 + 1 mm
Ambient temperature:	-40° C – +85° C
Tightening torque:	3.5 Nm for cable glands to ensure strain relief and tighness
Approval:	TÜV certificate according to VDE 0126-3
	(connectors for photovoltaic systems)
	UL coming soon

Notice: **PST connectors must not be disconnected under load!**

Features:

- solid (machined) brass contacts, silver-plated
- field assembly version is capable of multiple rewirings
- **no disconnect under load**
- small number of components comprise entire system and facilitate assembly
- same contacts for field assembly, factory assembly and installation
- can be used throughout the entire temperature range **(no restrictions due to derating curve)**
- high IP protection (IP 67)
- robust design
- mate with products from competitors
- wire cross section: 1.5 mm^2 – 2.5 mm^2 – 4.0 mm^2 – 6.0 mm^2 – **10.0 mm^2**
- high current-carrying capacity up to **40 A**

The tightening torque must be adapted to the cable! Typical tightening torques range between 3 – 4 Nm. The solar cables from various manufacturers differ with regard to material, hardness and diameter. Therefore pre-assembly must check the tightness of the cable glands and increase the tighening torque for safety purposes, if required. TECSUN cables from Prysmian guarantee tightness and strain relief at a tightening torque of 3.5 Nm.
In general, the installer is responsible for proper cable and connector assembly.

Technical data for photovoltaic cable TECSUN (PV)

(www.special-cables-neustadt-coburg.de)

Suitable for:

- use in PV power supply systems
- use outdoors and indoors with flexible and fixed layout
- installation inside wireways, walls, or surface mount, electrical installation ducts and devices
- suitable for protection class 2; short-circuit and ground-fault proof.
- following the regulations in IEC 61215 and 61646, IEC 64/123/CD, DIN VDE 0100 sect. 520

Features:

- Manufacturer: Prysmian Kabel und Systeme GmbH, www.prysmian.com
- Brand name: TECSUN
- Design ID: PV1-F
- Standards, approvals: DIN VDE 0282 sect. 13, HD22.13, VDE-Reg.Nr. 7985, TÜV certificate no. R60010750-000 (new requirements (2008) according to TÜV and VDE are fulfilled). UL 4703

Special features:

- VDE and TÜV tested, EC Declaration of Conformity no. 03 CE 004, UL 4703
- Expected life cycle: 30 years when used as specified and with consideration of temperature, humidity, influence from ozone, UV and mechanical movement. Long term behavior tests in line with IEC 6026 using Arrhenius.
- System voltage up to 2kVDC possible. Test voltage 10 kV DC
- Operating temperature: - 40 to+120°C
- Very good fire resistance behavior in fire propagation and smoke emission as well as in corrosion and very low toxicity from smoke gas
- Halogen-free, meshed materials for insulation and sheath
- Ecological safety regarding recycling, waste disposal and energy saving manufacturing
- UV and ozone resistant

DC Pluggable SOLAR Connector System

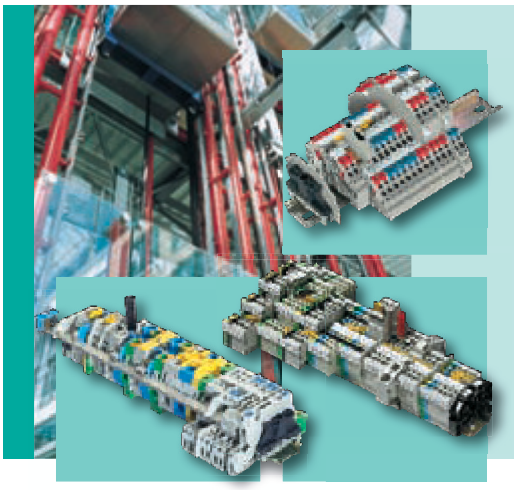
PST 40i1

Rated voltage:	AC 0.6 / 1.0 kV
max. PV system voltage:	DC up to 2.0 kV
Operating voltage max.:	AC 0.7/1.2 kV DC 0.9/1.8kV
Test voltage:	AC / DC 6.0 / 10kV (15min)
Current-carrying capacity:	according to DINVDE0298 sect.4
Tests:	according to DINVDE0282 sect. 2, HD 22.2 – Cable resistance, voltage test AC and DC, dielectric strength, surface resistance, spark test, insulation resistance at 20°C and 90°C in water and at 120°C in open air EN50305 section 6 – Direct voltage resistance (10 days, 85°C, in sea water, 1.5kV DC)
Other:	For thermal, mechanical and chemical parameters see Prysmian datasheet

Installation criteria:

Type:	TECSUN PV1-F
Conductor:	electrolyte copper, tin-plated, class 5 according to IEC 60228 (DIN VDE 0295)
Insulation:	HEPR 120°C i.A. on IEC 60502-1 (mixture type E16/ E18)
Wire marking:	ecru - light
Cable sheath:	EVA 120° C in line with DIN VDE 0282 sect. 1, HD 22.1 (mixture type EM4 / EM8) insulation and sheath are inseparable (two-layer insulation)
Cable sheath colors:	black, red, blue
Marking:	Prysmian TECSUN PV1-F (cross section) 0.6/1 kV (VDE-ReG./TÜV)

An outline of Wieland's products



fasis, selos, taris®

DIN rail terminal blocks

fasis, selos, taris – three product series, three connection technologies – one unique performance range. Regardless of which technology you prefer – screw, spring clamp or IDC. No matter where you use them – in control cabinets, in systems or in buildings. With the extensive product range of one of the pioneers of DIN rail terminal blocks you always play the right card!

samos®, *samos*® PRO

safety technology

safety first! The wide portfolio of safety switching devices covers all important safety functions while also satisfying complex customer needs. From the safety sensors of the ***SMA*** series to the safety relay family of the ***4000 series***, and the modular ***samos*** safety modules to the ***samos*** PRO safety controllers, you will always receive the right product to protect man and machine.

ricos

fieldbus components

Our remote I/O modules from the ***ricos*** series always provide many advantages No wonder, given the attractive range of available bus systems such as PROFIBUS DP, Interbus, DeviceNet, CANopen or Ethernet. Afterall, fieldbus technology from Wieland Electric is always up to date: our "outdoor-proof" modules ***ricos*** TP easily cope with even the most extreme applications in utility and other large vehicles, as well as railroad or construction vehicles.

interface, dipos

relays, power supply, electronic housings

Wherever electricity flows and signals are processed, interface products from Wieland Electric prove their extraordinary strength. The wide range of relays, the components for power supply and overvoltage protection as well as the passive interfaces and analog modules make your application a winner, too. Send a message with our interface technology!

podis®

remote automation

Set your facility free! Where rigid installations formerly prevented flexible configurations, ***podis*** now frees control cabinets from power components for power distribution and from drive control and monitoring. The modularly designed podis system enables you to establish completely new applications in remote automation. Easily, quickly and flexibly – set yourself free!

revos

industrial multipole connectors

revos can handle even the toughest applications in the roughest environments. Whether flexible and universal connections or voltage tests with wires connected – … with ***revos*** it is no problem at all.

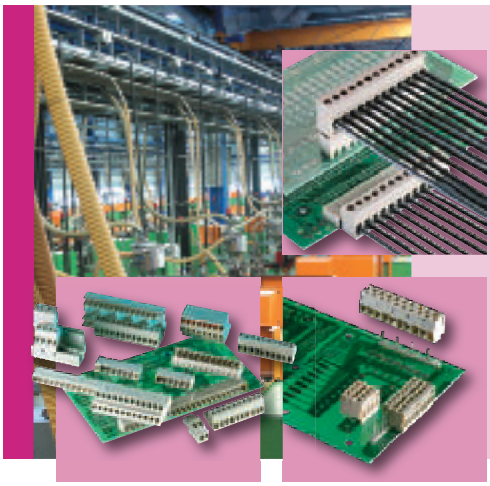
Clear assignments when wiring, service-friendliness in the case of maintenance and individual marking options help you to maintain an overview at any time.

An outline of Wieland's products

appliance

appliance terminals / terminal strips

Appliance terminals from Wieland Electric are the classics of electrical connection technology. They are always on the job, when the going gets tough and when a reliable connection is required for lighting fixtures and in white goods.



wiecon

PC board terminals, PC board connectors

wiecon PC board terminals are a fixed component in innumerable innovative applications. Whether with screw or spring clamp connection, pluggable or in solder version – ***wiecon*** can be found wherever control systems are required. Unique marking, effortless wire connection and intelligent test functions guarantee service-friendly usability and reliable connections.

gesis® CON

connectors

gesis – one name, one idea, an unparalleled success story! The pluggable electrical installation has been the unchallenged market leader for 25 years. No wonder since time savings of 70 % and cost reductions of 30 % always speak for themselves.

gesis CON can be used from the basement to the roof and provides solutions for any kind of electrical installation due to its unique variety of components. Luminaires, sunblinds or outlets – all with ***gesis***!

gesis® ELECTRONIC

intelligent connectors

Higher, faster, farther … intelligent networking is required to make technology keep pace with architectural achievements.

gesis ELECTRONIC offers options to make even the boldest building intelligent. Wether with wireless technology of the ***gesis*** RC series, the KNX components or the LON switching devices: it is ***gesis*** ELECTRONIC that makes your facility management smart!

gesis® RST

connectors

What is the result when a unique installation philosophy gets ready for use in rough environments? 1000 new application options: whether in plants and systems, for outdoor lighting, on construction sites, in solar systems or in nonresidential buildings ...

gesis RST provides IP65…IP68 protection, feels at home everywhere and definitely guarantees, even under the roughest conditions, the plug & play benefits of ***gesis***: consistent pluggability, invaluable advantage in time during installation, and complex system possibilities.

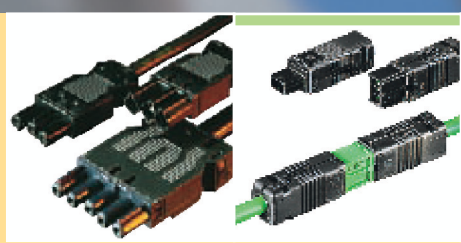
gesis® AC/DC SOLAR

connectors

Let the sun shine in the installation! … what has caused enthusiasm in dark cable ducts and suspended ceilings for more than 25 years, now gleams in bright sunlight.

With ***gesis*** AC/DC SOLAR the successful ***gesis*** idea has now found its way into solar technology, too. Pluggability now makes even the most extensive solar installations a child's play. Sun, plug in, ready, go – installing can be that easy!

1 Moonlight luminaires
2 Castel Pergine, Valsugana
3 Petronas Towers, Kuala Lumpur
4 Heliotrop, Hiltpoltstein
5 Commerzbank, Frankfurt



gesis® Building Installation Technology
Plug & play

Against the background of ever fiercer competitive conditions, industrial buildings must be built to guarantee improved flexibility in their use, along with increased work productivity. Satisfying these requirements will result in a higher return on investment.

Mature components

Building Installation Technology (BIT) from Wieland meets this challenge with ***gesis***, the complete solution system: offering over 5000 components, BIT provides complete solutions for buildings and meets all the requirements for flexible, efficient and future oriented building installation and automation.

The core principle of ***gesis*** is as simple as it is efficient: plug & play. All components ranging from the distribution unit to the consumer device are pluggable – resulting in a cost-saving, safe and error-free system. ***gesis*** connectors + electronics for building automation with LON, EIB or RF as well as installation systems for photovoltaic applications. It is critical that ***gesis*** has been designed as an open system that smoothly integrates the most current electronic standards without a problem and therefore represents the state-of-the-art in technology.

Efficient project management

With BIT, however, Wieland is far more than a reliable supplier of pluggable connections. Its solutions can be found, for example, in buildings such as the Petronas Towers in Kuala Lumpur or in many open-air systems in Europe. Wieland is also a competent system partner supporting architectural design and engineering requirements.

The result: a technical infrastructure, which, within the realm of efficient facility management, also satisfies demanding profit requirements.

Design and configuration support, components, logistics: BIT combines it all into a single cohesive unit.

The plugable installation system from Wieland
Additional information

BIT Hotline numbers

Sales:
For questions for the sales team regarding availability, delivery date and prices
Phone: +49 951 9324-990

Technical Customer Support:
For technical questions on product characteristics and applications of our products as well as their functionality and accessories:
Phone: +49 951 9324-996
Fax: +49 951 9326-996
e-mail: BIT.TS@wieland-electric.com

Industry Manager Solar Technology:
Wolfgang Wegmann
Phone: +49 941 87531
e-mail: wolfgang.wegmann@wieland-electric.com

Business Developement Manager Photovoltaik:
Dr. Bernard Frank
e-mail: bernard.frank@wieland-electric.com

Additional information about the topic of Solar

- AC-Solar
  Part No. 0162.5 USA

- Customer information AC distribution unit – Mains connection for remote inverter concepts
  Part No. 0168.5 USA

- ***gesis*** IP+
  Pluggable Electrical Installation IP65 to IP68
  Part No. 0161.5 USA

General information and news
www.wieland-electric.com

Download Center
www.gesis.com

AC DC Pluggable SOLAR Connector System

▲ **Our BIT hotline team**

contacts are green.

Our subsidiaries

... and the addresses of our representations worldwide are available at:
www.wieland-electric.com

USA
Wieland Electric Inc.
49 International Road
Burgaw, N.C. 28425
Phone +1-910-259 5050
Fax +1-910-259 3691

CANADA
Wieland Electric Inc.
2889 Brighton Road
Oakville, Ontario L6H 6C9
Phone +1-905-829 8414
Fax +1-905-829 8413

GREAT BRITAIN
Wieland Electric Ltd.
Riverside Business Centre,
Walnut Tree Close
GB-Guildford /
Surrey GU1 4UG
Phone + 44 (1483) 531 213
Fax + 44 (1483) 505 029

FRANCE
Wieland Electric SARL.
103, Chemin de Ronde
F-78290 Croissy-sur-Seine
Phone +33-1-30 15 07 07
Fax +33-1-30 15 07 14

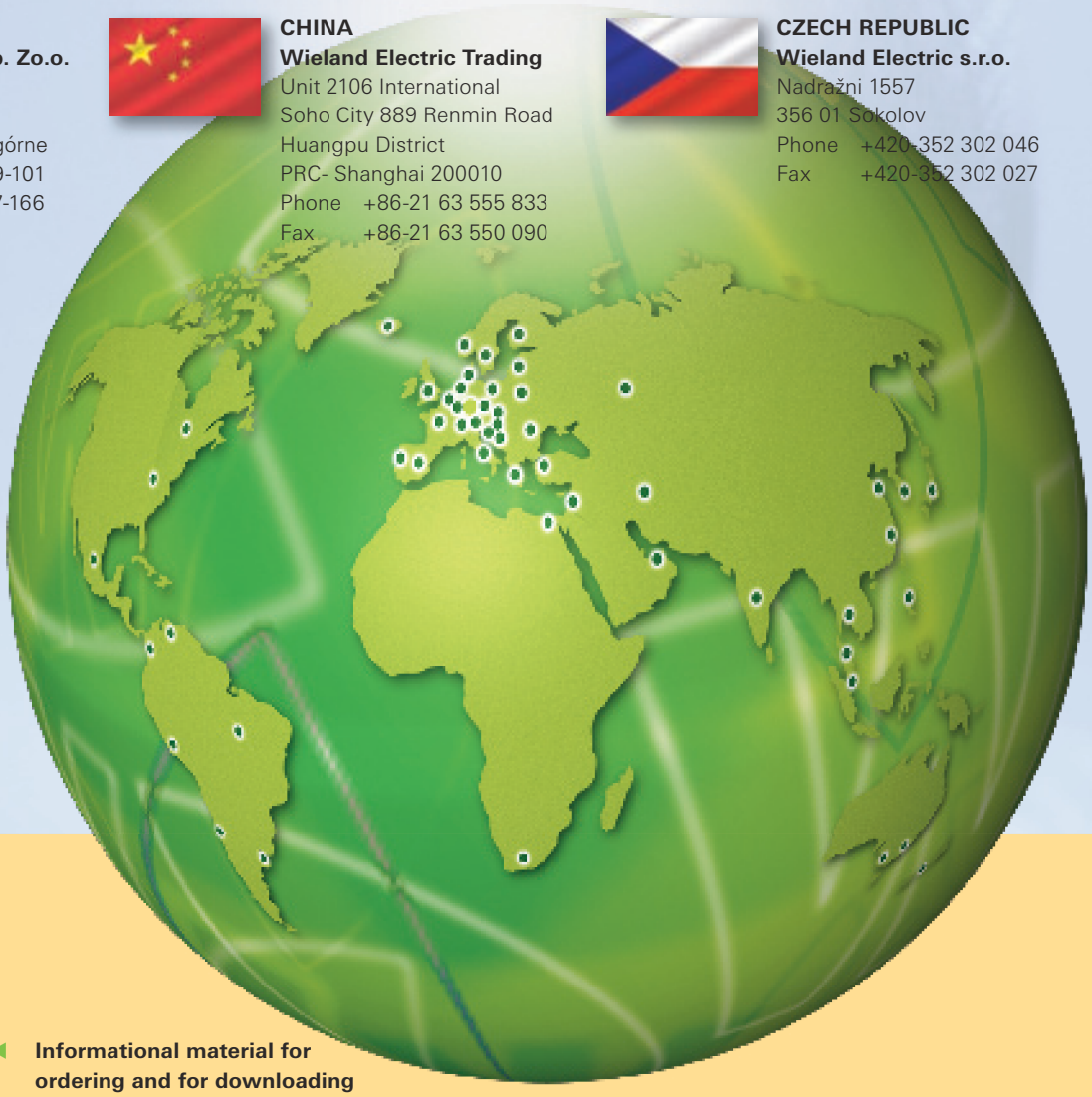
SPAIN
Wieland Electric S.L.
C/ Maria Auxiliadora 2 bajos
E-08017 Barcelona
Phone +34-93-252 3820
Fax +34-93-252 3825

ITALY
Wieland Electric S.r.l.
Via Edison, 209
I-20019 Settimo Milanese
Phone +39-02-48 91 63 57
Fax +39-02-48 92 06 85

POLAND
Wieland Electric Sp. Zo.o.
Poznań Swadzim
ul. Św. Antoniego 8
62-080 Tarnowo Podgórne
Phone +48 61 84 09-101
Fax +48 61 84 07-166

CHINA
Wieland Electric Trading
Unit 2106 International
Soho City 889 Renmin Road
Huangpu District
PRC- Shanghai 200010
Phone +86-21 63 555 833
Fax +86-21 63 550 090

CZECH REPUBLIC
Wieland Electric s.r.o.
Nadražní 1557
356 01 Sokolov
Phone +420-352 302 046
Fax +420-352 302 027



Informational material for ordering and for downloading from our websites

wieland

Headquarters:
Wieland Electric GmbH
Brennerstraße 10 – 14
D-96052 Bamberg

Sales and Marketing Center:
Wieland Electric GmbH
Benzstraße 9
D-96052 Bamberg

Phone +49 951 9324-0
Fax +49 951 9324-198
www.wieland-electric.com
www.gesis.com
www.gesis-network.com
info@wieland-electric.com

Industrial technology

Solutions for the control cabinet

- DIN rail terminal blocks
  - Screw, spring clamp or IDC connection technology
  - Wire cross sections up to 240 mm²
  - Numerous special functions
  - Software solutions interfacing to CAE systems
- Safety
  - Safety sensors
  - Safety relays
  - Modular safety systems with fieldbus link
- PLC and fieldbus components
  - Standard applications in IP 20
  - Increased environmental conditions with railroad and ship approvals
- Interface
  - Coupling relays, semiconductor switches
  - Measuring and monitoring relays
  - Timer and switching relays
  - Analog modules
  - Passive interfaces
  - Power supply units
  - Overvoltage protection

Solutions for field applications

- Remote automation technology
  - Power distribution
  - Fieldbus interfaces and motor starters
- Connectors for industrial applications
  - Square and round connectors
  - Aluminum or plastic housings
  - Degree of protection up to IP 68
  - Current-carrying capacity up to 100 A
  - Connectors for hazardous areas
  - Modular, application specific technology

PC board terminals and connectors

- Screw or spring clamp connection technology
- Spacings: 3.5 mm to 10.16 mm
- Reflow or wave soldering process

Building and installation technology

- Building installation systems
  - Main power supply connectors IP 20/IP 65 ... IP 68
  - Bus connectors
  - Combined connectors
  - Low-voltage connectors
  - Power distribution system with flat cables
  - Distribution systems
  - Bus systems in KNX, LON and radio technology
  - DIN rail terminal blocks for electrical installations
  - Overvoltage protection

contacts are green.

0162.4 E 02/09

Product Range