SUNCLIX

Connection technology for photovoltaics



Connection technology for photovoltaics



Building-integrated photovoltai

Are you looking for innovative and reliable connection technology for your PV modules, inverters or the complete PV system?

We have the right connection solution for you – from connection technology for PV modules through DC plug-in connectors for field cabling to device connection for signals, data, and power.

The tailored, high-quality components contribute to the long-term and increased availability of your system.



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Consistent connection technology – from the PV module to the supply



Push-lock PCB terminal block with spring connection



Push-lock terminal block with spring connection and welded bracket



2.5 to 6 mm² DC plugin connectors for field assembly



Y-distributor



PV cables





cs (BIPV)

Rooftop systems

Free-standing systems





6 to 16 mm² plug-in connectors for field assembly



DC panel feed-throughs



Data and signal plug-in connectors



PCB connections



AC plug-in connectors

DC plug-in connectors with fast connection for field cabling

When installing PV systems, there is now a more efficient way of wiring cables of various lengths from the module through to the inverter – with the SUNCLIX connection system from Phoenix Contact.

The one-piece DC plug-in connectors can be connected quickly and easily by means of spring-cage technology. The unique spring technology ensures a permanently reliable and stable contact to the conductors.

To minimize power loss, use the new plug-in connectors for conductors up to 16 mm².





Miniature DC plug-in connectors for field assembly

- Particularly compact design only 11 mm diameter
- Suitable for conductor cross sections of 2.5 mm²
- Fast connection, thanks to pierce technology
- Currents up to 15 A
- Voltages up to 1000 V
- IP67 protection
- VDE-certified in accordance with DIN EN 50521

Y-distributor

- For parallel connection of modules and strings
- Voltage up to 1100 V
- Customer-specific pre-assembly possible
- Choice of 4 and 6 mm² conductor cross section for the trunk line
- In accordance with DIN EN 50521



DC plug-in connectors with fast connection for field assembly

- Only two versions for conductor cross sections of 2.5 16 mm²
- Patented spring connection
- Voltage up to 1100 V or 1500 V
- IP68 protection (24 h/2 m)
- DIN EN 50521 and UL 6703-compliant
- The plug-in connector can be re-used multiple times

Release

100

2.5-6 mm

6-16 mm



Can only be released using a screwdriver

Assembly



① Insert the stripped PV conductor



2 Press down on the spring and snap in



3 Tighten the screw connection and you're done!

Connection technology for inverters and generator connection boxes

For the safe transmission of signals, data, and power, Phoenix Contact offers plugin connectors and housing feed-throughs designed to meet the highest demands. All components are made from high-quality, rugged materials. They have undergone intensive laboratory testing and ensure a permanently reliable and stable connection of your devices.

DC plug-in connectors

The SUNCLIX DC plug-in system opens up new savings potential for the installation of PV systems and the integration of DC interfaces in inverters and generator connection boxes. Thanks to the tool-free spring connection, the connection time of DC plug-in connectors for conductors up to 16 mm² is significantly reduced.

Signal and data plug-in connectors

State-of-the-art inverters feature an increasing number of functions – such as remote monitoring. These functions require both data and signal interfaces that correspond to the latest standards of fieldbus and Ethernet-based systems. Whether fiber optic or copper-based plug-in connectors – the PLUSCON data and PLUSCON circular product ranges always offer the right solution.

PCB connection

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With a wide range of versions, the COMBICON range offers the right solution for every application. PCB terminal blocks and plug-in connectors with 2.54 to 15 mm pitch with screw, spring, crimp, and insulation displacement connection are available for currents up to 125 A.

AC plug-in connectors

The plug-in connectors from the Phoenix Contact program are particularly well-suited for supplying the power grid. The series offers multi-position round plug-in connectors and rectangular plug-in connectors with a connection cross section of up to 16 mm² and a current carrying capacity of up to 70 A.

Miniature plug-in system for building-integrated photovoltaics (BIPV)

For the trend to produce energy from building-integrated photovoltaics, Phoenix Contact is offering the SUNCLIX mini, a particularly compact DC connection system to provide a permanently reliable and stable connection from the module to the inverter.

Installation of the module junction box



1. Position the module junction box above the ribbon



2. Remove the adhesive strip and position the module junction box on the edges of the glass



3. Insert the ribbon in the spring case and snap in the spring. Close the connection area with the cover



4. Fill each of the module junction box in turn with sealant using the special opening.

Single-position module junction box

One module junction box is used per ribbon (right and left module junction box). Both module junction boxes are integrated into the facade module and sealed with sealant.

- Current: 15 A
- Voltage: 1000 V DC
- Qualified ribbon:
 - width: 5 mm / thickness: 0.05 to 0.2 mm
- Conductor cross section: 2.5 mm²
- Spring connection

Miniature DC plug-in connectors for assembly

The compact design of the plugin connectors enables concealed installation behind the PV modules or direct installation within the facade profile.

- Current: 15 A
- Voltage: 1000 V
- Conductor cross section: 2.5 mm²
- Compact design: Ø only 11 mm
- Pierce connection
- IP67 protection

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• VDE approval in accordance with DIN EN 50521

Compact DC string diode

Return currents can occur in PV modules as a result of shading in different strings. The stable housing and flat design of the DC string diode protect the modules from return currents. The optimized design ensures effective heat dissipation and, as a result, the long service life of the components.

- Current: 5 A
- Voltage: 1000 V
- Reverse voltage: 2200 V
- Conductor cross section: 2.5 mm²
- IP67 protection
- VDE approval in accordance with DIN EN 50548 (VDE 126-3)

PHOENIX CONTACT

Device connection technology for signals, data, and power

You'll always find the right connection for your devices – from the PCB connection through IP6X-protected housing feedthroughs to circular plug-in connectors with fast connection for field assembly.

Plastic housing for your electronics completes the product range.

SIGNAL

- PCB terminal blocks and PCB plug-in connectors with 2.00 to 7.62 mm pitch for wave soldering, reflow soldering, and press-in mounting
- M5 to M27 flush-type plug-in connectors with solder connection or punched-on individual litz wires with IP65/IP67 protection
- M8 and M12 plug-in connectors that can be assembled with IDC, spring-cage, pierce or screw connection with IP65/IP67 protection



Housing systems

- Component housings and panel mounting bases for industrial electronics
- Component housings for building installation
- Innovative bus connections between housing



Housing systems with connection technology

The Phoenix Contact product range for device connection technology consists of well over 50,000 products. The right connection is therefore available for virtually all industrial applications – whether for signal, data or power transmission.

Data

- PCB terminal blocks and PCB plug-in connectors for network technology and bus communication
- Plug-in connectors and panel feed-throughs for RJ45, USB, D-SUB, and M12 interfaces with IP65/IP67 protection

POWER

- PCB terminal blocks and PCB plug-in connectors for up to 125 A of power
- Modular plug-in connectors in various sizes with screw and crimp connection for power of up to 70 A with IP67 protection



Technical data and ordering information

The following product lists contain selected components together with their key technical properties. More detailed information as well as numerous other possible solutions can be found in our complete catalog.

Simply visit us at: phoenixcontact.net

Connection technology for PCBs

PCB connection for PV applications





Description	P termin	ush-lock PCB al block with s connection	Push-lock terminal with spring connecti welded bracke	block on and t	
	Pin length Version Order No.		Version	Order No.	
	2.1 closed 1		1704836	Welded bracket right	1705624
	2.9 closed		1704837	Welded bracket left 170	
	2.1	open	1705081		
	2.9	open	1705085		
Cross section		max. 6 mm ²		max. 6 mm ²	
No. of positions		1		1	
Nominal current	1	1aximum 41 A		Maximum 41 A	

DC connection technology for PV modules and field cabling

SUNCLIX DC plug-in connectors for field assembly	I S		S S		A ST		
Туре	Pin (-)	Socket (+)	Pin (-)	Socket (+)	Pin (-)	Socket (+)	
Order No.	1774687	1774674	1789834	1789821	1790797	1790784	
Cross section	2.5 - 6	mm ²	2.5 - 6 mm ²		6 – 1	6 – 16 mm ²	
Rated voltage	110) V	1500 V		1500 V		
Nominal current	Maximu	m 40 A	Maximum 40 A		Maximum 65 A		
Degree of protection	IP65/68 (2	24 h/2 m)	IP66/68 (24 h/2 m)		IP66/68 (24 h/2 m)		
Product information	Temperature range: -40 °C to +85 °C, protection class II, certified according to UL 6703 and DIN EN 50521		Temperature range: -40 °C to +85 °C, protection class II, certified according to DIN EN 50521		Temperature range: -40 °C to +85 °C, protection class II, certified according to DIN EN 50521		

Miniature plug-in system for building-integrated photovoltaics (BIPV)

SUNCLIX mini	ØØ		*\$\$ \$ a		1	Z
Description	Miniature DC plug-in connectors for assembly		Single-position module junction box		Compact DC string diode	
Туре	Pin (-)	Socket (+)	Left	Right	with SUNCLIX mini plug-in connectors	w/o plug-in connector, free cable ends
Order No.	1795336	1795323	1705132	1705131	1463065	1811239
Cross section	2.5 1	nm²	2.5 mm ²		2.5 mm ²	
Rated voltage	15	A	15 A		5 A	
Nominal current	100	0 V	1000 V		1000 V	
Product information	Protection class II, Ø 11 mm, degree of protection IP67, temperature range: -40 °C to +85 °C, certified in accordance with DIN EN 50521		The width of the module junction box can be adapted by the customer (width from 18.3 mm to 34.3 mm). Ribbon: < 5 mm width, 0.05 - 0.2 mm thickness, temperature range: -40 °C to +85 °C		Protection class II, 100 : temperature range certified in accordanc	x 38 x 11 mm (LxWxH), : -40 °C to +85 °C, e with DIN EN 50548

DC connection technology for devices

SUNCLIX DC device plug-in connectors With 130 mm litz wire; other lengths available on request	0	5	6	5	6	5
Туре	Pin	Socket	Pin	Socket	Pin	Socket
Order No.	1805148	1805135	1805164	1805151	1805180	1805177
Cross section	2.5 r	nm²	4 mm ²		6 mm ²	
Rated voltage	150	0 V	1500 V		1500 V	
Nominal current	Maximur	n 27.5 A	Maximum 40 A		Maximum 40 A	
Degree of protection	IP65/66/68	(24 h/2 m)	IP65/66/68 (24 h/2 m)		IP65/66/68 (24 h/2 m)	
Properties	Temperature range: -40°C to +85°C, certified in accordance with DIN EN 50521 required accessory 1775880		Temperature range certified in accordance required acces	e: -40°C to +85°C, e with DIN EN 50521 sory 1775880	Temperature range certified in accordanc required acces	e: -40°C to +85°C, e with DIN EN 50521 ssory 1775880
					Other	versions available on request
SUNCLIX DC device plug-in			((

connectors For user assembly Description Contacts for crimp connection Contacts for crimp connection Plastic housing Туре Pin Socket Pin Socket Pin Socket Order No. 1704925 1704926 1704927 1704930 1704928 1704931 **Cross section** $2.5 - 4 \text{ mm}^2$ 6 mm² Rated voltage 1500 V Nominal current Maximum 40 A Maximum 40 A -Degree of protection IP68 (24 h/2 m) Properties Temperature range: -40°C to +85°C, certified in accordance with DIN EN 50521 Temperature range: -40 °C to +85 °C, certified in accordance with DIN EN 50521 Temperature range: -40 °C to +85 °C, certified in accordance with DIN EN 50521 required accessory 1775880

SUNCLIX accessories

			2		62			1		7
Description		Solar	cable			Y-distributor		DC	test plug	
Product information	Tin-plated s and flexible 1,800 V Do excellent TÜ\	single litz wires installation; d C, insulating ar resistance to / and VDE-cer	ngle litz wires, suitable for permanent installation; double insulation, voltage , insulating and sheath material offers esistance to weather, UV, and wear; and VDE-certified PV1-F cable		Connection set with branch line for fast parallel interconnection of photovoltaic modules. Length of single cables 120 mm each		t parallel Jules. Ich	Test plug with tool-free with high insert Cable lee	e release for tes ion/withdrawal o ngth 1,500 mm	t applications cycles.
	Cross section	100 m ring	500 m drum	1000 m drum	Cross section	Version	Order No.	Туре	Pin (-)	Socket (+)
	2.5 mm ²	1459509	1459540	1459566	4 mm ²	Pin to 2x socket (-/++)	1795019	Order No.	1780464	1780451
	4 mm ²	1459511	1787700	1459579	4 mm ²	Socket to 2x pin (+/-)	1795022	Cross section	10 r	nm²
	6 mm ²	1459524	1787713	1459582	6 mm ²	Pin to 2x socket (-/++)	1787726	Rated voltage	110	0 V
	10 mm ²	1459537	1459553	1459595	6 mm²	Socket to 2x pin (+/-)	1787739	Nominal current	Maximu	m 40 A
Degree of protection			-			IP66/IP68 (24 h/2 m)			IP20	
Ambient temperature (operating)		-	40°C to +90°0	2		-40°C to +85°C		-20°C	to +55°C	

	0)-)		0.6 x 3.5 x 100 mm	A
Description	Fastening nut	Protective cap	Filler plug	SZF 1 screwdriver	Wirefox stripping tool
Order No.	1775880	1785430	1775631	1204517	1212511

AC/DC PCB connection

COMBICON power PCB terminal blocks and plug-in connectors for power electronics up to 125 A	H A HA CHARLES AND A HARLES AND	eeeee		
Description	Push-in PCB terminal block up to 6 mm ²	Push-in PCB terminal block up to 10 mm ²	Push-lock PCB terminal block with lever-type actuation up to 16 mm ²	Push-lock- / push-in feed-through terminal block up to 16/6 mm²
5-pos. Order No.	1719341	1735817	1770490	1821083
Cross section	6 mm²	16 mm ²	16 mm ²	16 / 6 mm ²
Pitch	7.5 mm	10 mm	10 mm	-
Number of positions	2 – 12	2 – 9	2 – 8	3 – 5
Nominal voltage IEC / UL	1000 V / 600 V	1000 V / 600 V	1000 V / 600 V	1000 V / 600 V
Nominal current IEC / UL	41 A / 35 A	76 A / 66 A	76 A / 51 A	41 A / -
Remark	1-pos. on request	1-pos. on request	1-pos. on request	UL / CUL on request
COMBICON control				
PCB plug-in connector for data and	Allena	1441		

power transmission in mease and control technology	urement			AND DE REAL OF THE OWNER	Constant of the second of
Description		TWIN bus connector with push-in spring connection up to 1.5 mm ²	Flat plug-in connector with push-in spring connection up to 1.5 mm ²	Flat plug-in connector with push-in spring connection up to 2.5 mm ²	Inverted plug-in connector with screw connection up to 2.5 mm ²
5-pos.	Order No.	1713868	1952050	1732771	1858905
Cross section		1.5 mm ²	1.5 mm ²	2.5 mm ²	2.5 mm ²
Pitch		5 mm	3.5 mm	5 mm/5.08 mm	7.62 mm
Number of positions		2 – 20	2 – 20	2 – 18	2 – 12
Nominal voltage IEC / UL		320 V / 250 V	160 V / 150 V	320 V / 250 V	630 V / 250 V
Nominal current IEC / UL		10 A / 8 A	8 A / 8 A	12 A / 10 A	12 A / 12 A

COMBICON control / compact PCB terminal blocks and plug-in connectors for signal transmission in measurement and control technology		000000000		BER
Description	PCB terminal block with push-in spring connection with 35° angled connection direction up to 1.5 mm²	PCB terminal block with push-in spring connection up to 2.5 mm ²	PCB terminal block with push-in spring-double connection up to 2.5 mm ²	PCB terminal block with push-in spring connection for SMD application up to 0.5 mm ²
5-pos. Order No.	1751503	1792892	1725341	1771059
Cross section	1.5 mm ²	1.5 mm ²	2.5 mm ²	0.5 mm ²
Pitch	3.81 mm	5 mm	5 mm	2.5 mm
Number of positions	2 – 12	2 – 12	2 – 16	2 – 8
Nominal voltage IEC / UL	160 V / 300 V	400 V / 300 V	400 V / 300 V	160 V / 150 V
Nominal current IEC / UL	9 A / 10 A	12 A / 10 A	13.5 A / 13.5 A	6 A / 5 A

For more plug-in connectors, please visit www.phoenixcontact.com

IP6X connection technology for signals, data, and AC

PLUSCON circular

Circular plug-in connectors for sensor/actuator applications

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Description		M8 flush-type plug-in connectors with halogen-free litz wires, front mounting	M12 flush-type plug-in connectors with halogen-free litz wires, front mounting	M12 flush-type plug-in connectors for wave soldering processes, two- piece, rear mounting	M12 flush-type plug-in connectors for reflow processes, two-piece, rear mounting
Type Or	rder No.				
Pin	5-pos.	1440119	1520068	1436602	1551752
Socket	5-pos.	1440106	1520042	1436563	1542622
No. of positions		4 / 5	4 / 5	4 / 5	4 / 5
Rated voltage		30 V	60 V	60 V	60 V
Nominal current		2 A	4 A	4 A	4 A
Contact carrier material		PA 66	PA 66	PA 66	PPA
Contact / contact surface material		Cu alloy / Au	Cu alloy / Au	Cu alloy / Au	Cu alloy / Au
Type of connection		Individual litz wires	Individual litz wires	Solder pins	THR solder connection

PLUSCON data

Plug-in connectors with standard interfaces such as RJ45, USB, and M12 for data transmission









Description		RJ45 socket inserts and panel mounting frames, for Freenet system	RJ45 socket inserts and panel mounting frames, for PCB connection	USB socket inserts and panel mounting frames, for flat-ribbon cable connection	M12 flush-type plug-in connectors for wave soldering processes, one-piece
Socket insert	CAT5	1652936	1688586	1653854	
Socket insert	CAT6	1652949	1653090	1653867	
Panel mounting frame		1653744	1689446	1653744	
Flush-type plug-in connector	4-pos., socket				1551503
Flush-type plug-in connector	8-pos., socket				1553860
Rated voltage		50 V	150 V	30 V	250 V
Nominal current		1 A	1.5 A	1 A	4 A
No. of positions		8	8	4	4/8-pos.
Contact material		Cu alloy	Cu alloy	Cu alloy	Cu alloy
Type of connection		IDC	Solder connection	Flat-ribbon cable connection	Solder pins

PLUSCON device Modular plug-in connector syste for AC connection	m	REAL PROPERTY OF	Transain		
Description		Panel feed-through with PCB connection and panel mounting frame	Panel feed-through with conductor connection	Field connector sleeve housing	Field connector contact inserts
Type Or	der No.				
Type VC 2	4-pos.	1607509 + 1852985	1583877	1583880	1607467
Type VC 3	5-pos.	1607523 + 1852998	1583878	1424368	1607474
Crimp contacts	4 mm ²	-	1761467	-	-
Crimp contacts	10 mm ²	-	1761470	-	-
Crimp contacts	16 mm ²	-	1761483	-	-
Rated voltage		690 V	690 V	-	690 V
Nominal current		63 A	70 A	-	70 A
No. of positions		4 – 7	4 – 5	-	4 – 7
Contact / contact surface material		Cu alloy / Ag	Cu alloy / Ag	-	Cu alloy / Ag
Type of connection		Solder connection	Crimp connection	-	Screw connection

For more plug-in connectors, please visit www.phoenixcontact.com



Always up-to-date, always available to you. Here you'll find everything on our products, solutions and service:

phoenixcontact.net

Product range

- Cables and connectors
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- Electronic reversing contactors and motor control
- Electronics housing
- Ethernet networks
- Fieldbus components and systems
- Functional safety

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