PLUSCON device

Modular rectangular connectors

# Modular rectangular connectors for signals, data, and power

The PLUSCON device connector system offers a compact connection for use with devices and terminal boxes with a high degree of protection.

The basis of the program consists of modular contact inserts with screw and PCB connection, as well as fixed contact inserts with crimp connection for turned and punched contacts.

With IP68/IP69K protection, the connector system guarantees maximum reliability, even under extreme conditions.

Technical data
- Currents up to 70 A
- Voltages up to 630 V
- IP68/IP69K protection
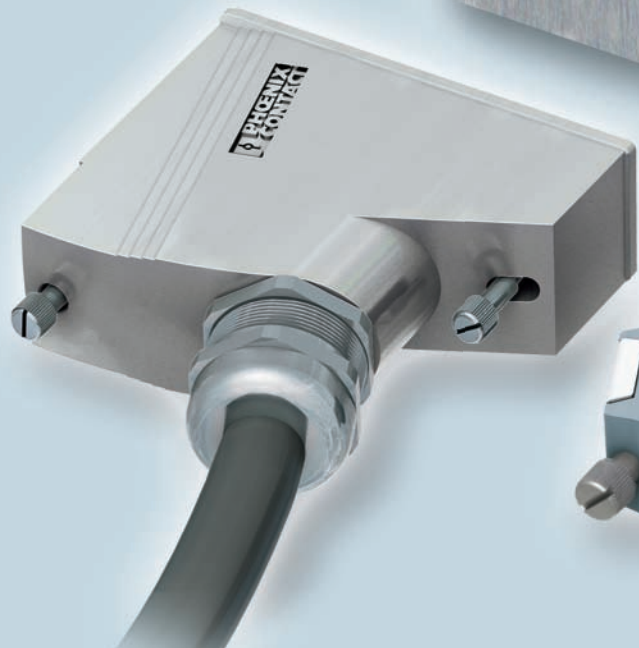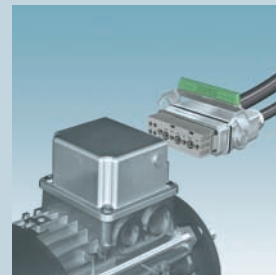
The right connection technology for every application
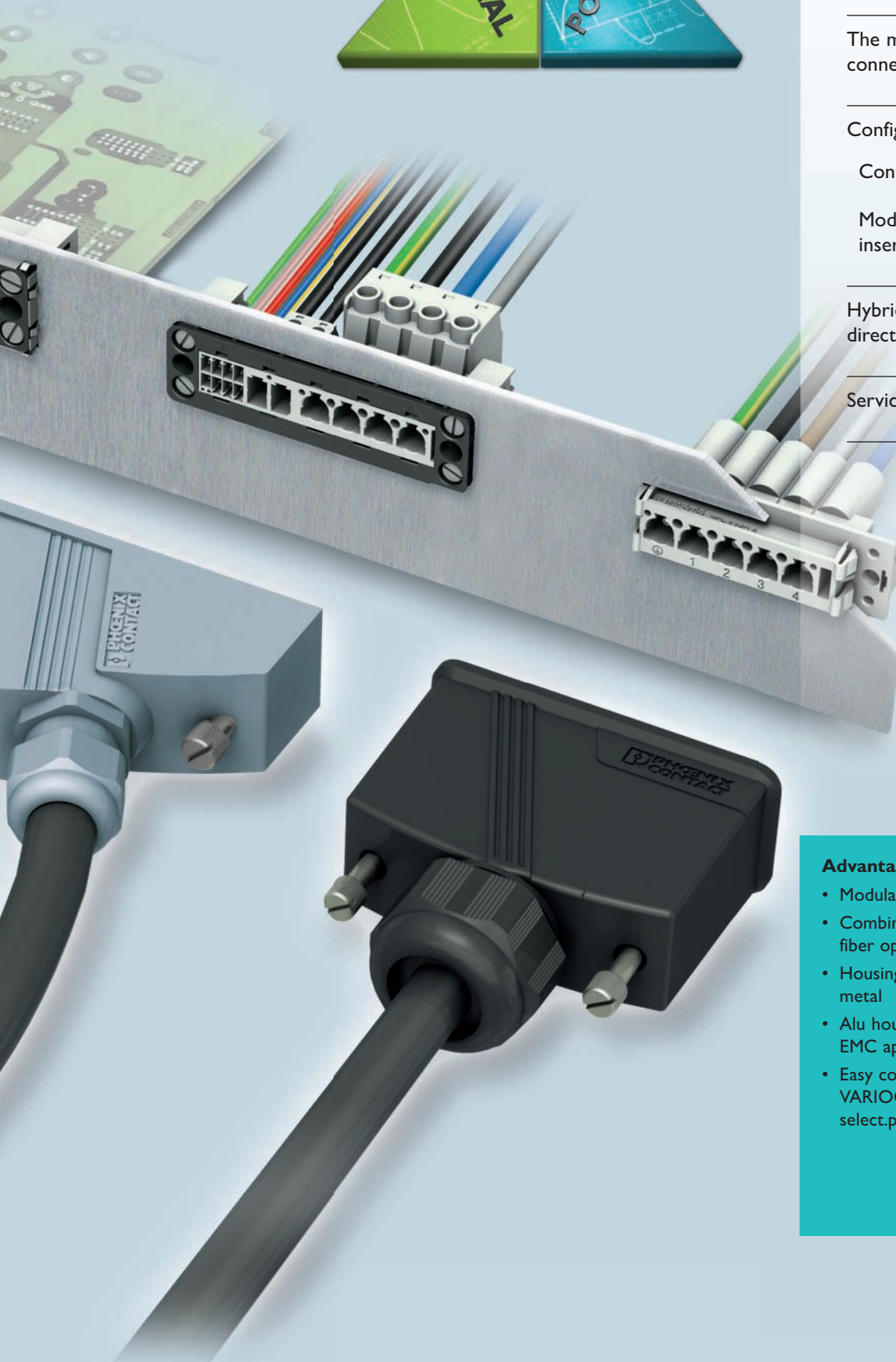
Variable frequency drive   **Inverter**   **Control cabinet**   **Motor connection**
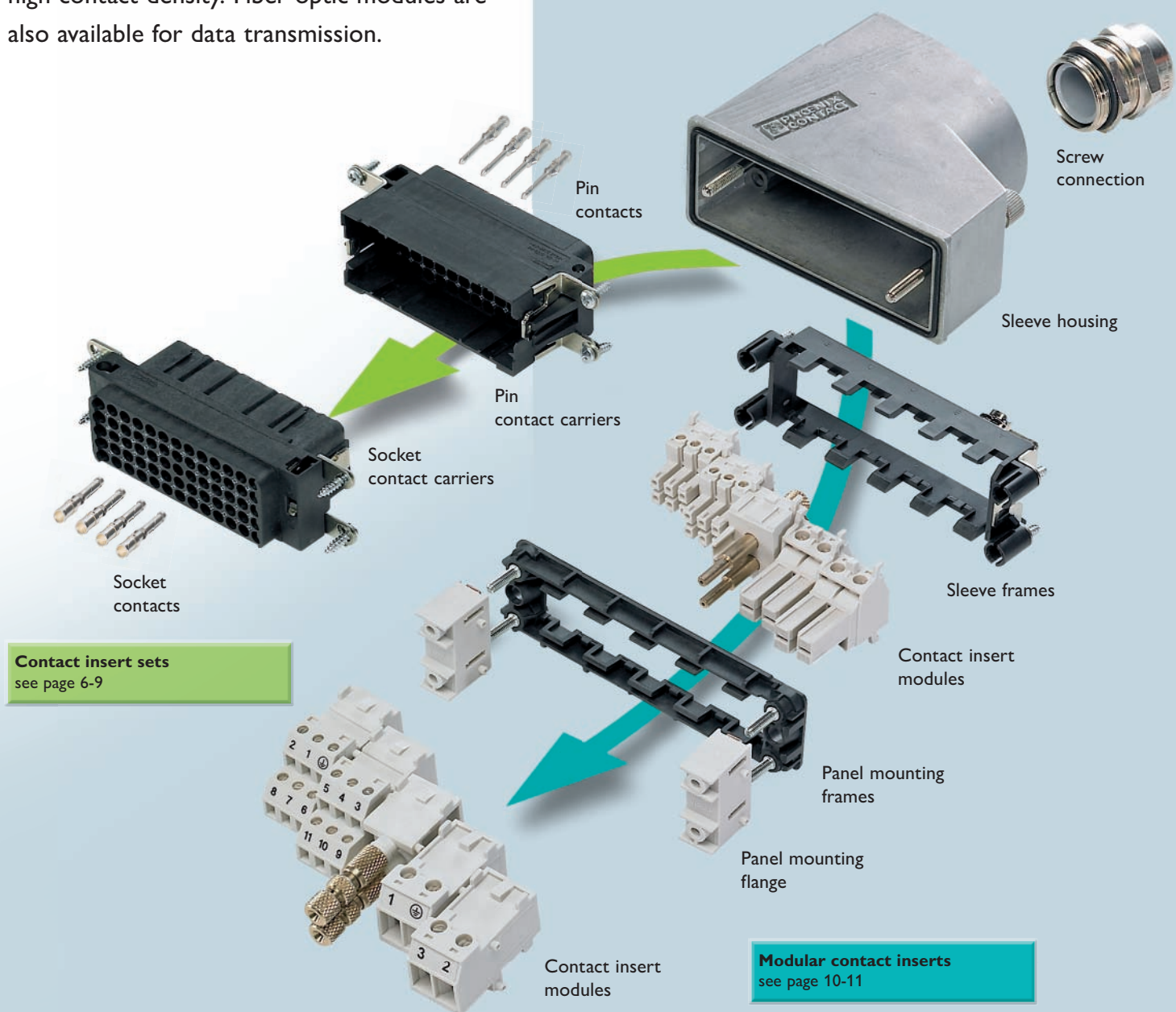
DATA

SIGNAL

POWER

Contents

Advantages at a glance

• Modular contact insert structure
• Combination of power, signal, and fiber optics in one connector
• Housing designs made of plastic and metal
• Alu housing suitable for EMC applications
• Easy configuration via VARIOCON selector: select.phoenixcontact.com

The modular connector system with a compact design

The PLUSCON device product range enables power and signal transmission to be combined in a single connector. The device side can be supplied with screw, crimp or direct PCB connection. Crimp contact inserts are available for applications with a high contact density. Fiber optic modules are also available for data transmission.

You can choose between contact insert sets and modular contact inserts.

Pin contacts

Screw connection

Sleeve housing

Pin contact carriers

Socket contact carriers

Sleeve frames

Socket contacts

Contact insert modules

Contact insert sets
see page 6-9

Panel mounting frames

Panel mounting flange

Contact insert modules

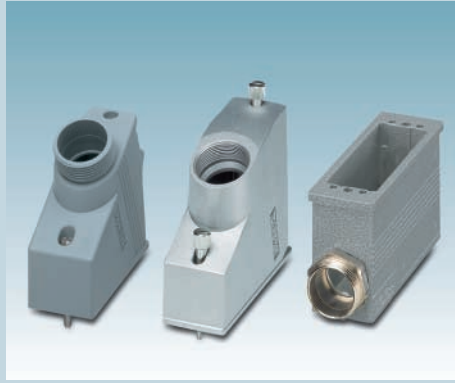**Modular contact inserts**
see page 10-11

Connectors

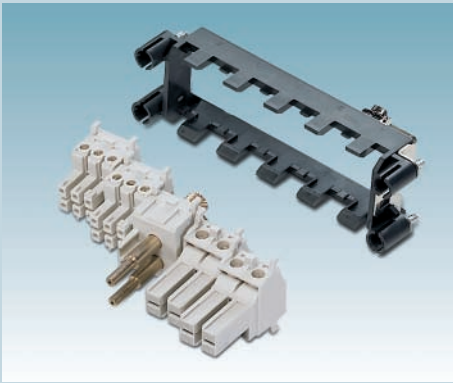**Four sizes**
Four sizes with a width
of 32.4 mm to 77.4 mm

Various materials
Sleeve housing made of plastic and die-cast
aluminum, panel mounting base and coupling
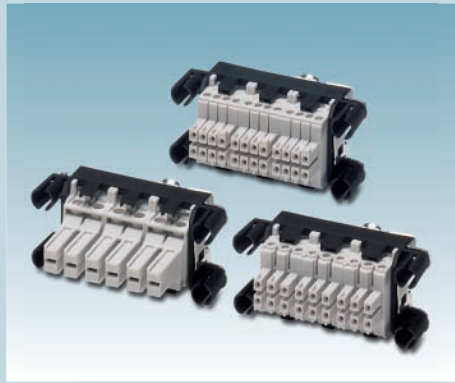housing made of die-cast zinc for a range of
applications

Different cable outlets
Sleeve housings with angled and straight
cable outlet make mounting easy

Modular structure
Easy combination of power, signal, and
fiber optics in one connector

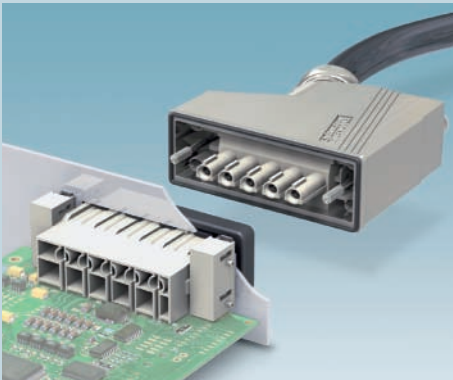**Pre-assembled contact insert sets**
Complete sets consisting of: frame,
fixing screws, pre-assembled modules,
and coding profiles

High-position contact carriers
Pin and socket contact carriers for turned
and rolled crimp contacts for applications
requiring a high contact density

Device connection

PCB connection
Contact inserts with PCB connection for
parallel or perpendicular arrangements of
the PCB to the device panel
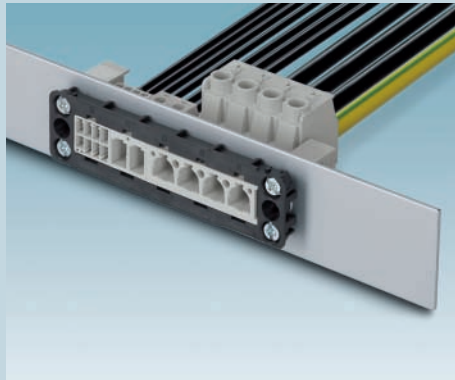
Screw and crimp connection
Contact inserts with screw and crimp
connection for connecting device-internal
litz wires

**Panel mounting base and coupling
housing**
For plug-in cabling directly on the device
panel or free-hanging connections

Configuration overview
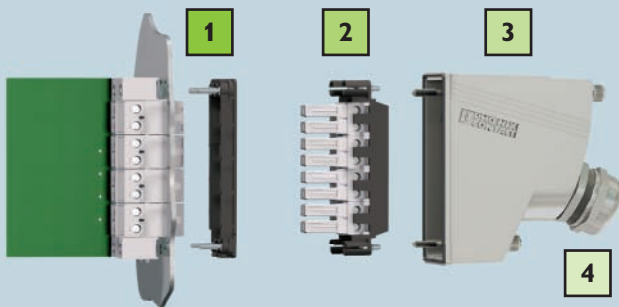# with contact insert sets

Configure your connectors individually in four steps.

1	Choose your contact insert set for the device connection
2	Choose your contact insert set for the connectors
3	Choose the sleeve housing (see page 8-9)
4	Choose the screw connection (see page 8-9)

	Device connection					Connectors
1	**Contact insert sets**					**2** **Contact insert sets**
	Screw connection	PCB connection	Crimp connection*			Screw connection
Size	**Number of pos./ conductor cross section**	**Pin**	**Pin**	**Contact carriers**	**Pin contacts**	**Socket**
					Single contacts	
VC1	16 x 1.5 mm²	1607394		–	4 mm² 1733385	1607239
	12 x 1.5 mm²	1607346		–	10 mm² 1733372	1607191
	4 x 4 mm²	1607298		–		1607143
					Taped products	
VC2	24 x 1.5 mm²	1607407		–	4 mm² 1761467	1607250
	18 x 1.5 mm²	1607359		–	10 mm² 1761470	1607202
	6 x 4 mm²	1607311		–	16 mm² 1761483	1607154
	4 x 16 mm²	1607745		1583877		1607467
					Crimping tools	
VC3	32 x 1.5 mm²	1607418		–	1743427	1607263
	24 x 1.5 mm²	1607370		–	1743430	1607215
	8 x 4 mm²	1607322		–		1607167
	5 x 16 mm²	1607748		1583878		1607474
VC4	40 x 1.5 mm²	1607431		–		1607274
	30 x 1.5 mm²	1607383		–		1607226
	10 x 4 mm²	1607335		–		1607178
	7 x 16 mm²	1607751		–		1607481

Contact insert sets with direct PCB connection can be created from the modular contact inserts (see page 10-11).

* Please order crimp contacts separately

Sets for device connection and connectors

Contact insert sets

| 1 | 2 |

Contact carriers for crimp contacts

Size	Number of positions/conductor cross section	Pin for turned/rolled contacts	Socket for turned contacts	Socket for rolled contacts
VC1	15 x 0.14 mm² ... 1.5 mm²	1855018	1855050	1884801
VC2	30 x 0.14 mm² ... 1.5 mm²	1855021	1855063	1884791
VC3	50 x 0.14 mm² ... 1.5 mm²	1855034	1855076	1884788
VC4	65 x 0.14 mm² ... 1.5 mm²	1855047	1855089	1884775

Crimp contacts*

Type of contact	Conductor cross section [mm²]/AWG	Pin contacts Turned contacts	Pin contacts Rolled contacts	Socket contacts Turned contacts	Socket contacts Rolled contacts
Single contact, silver-plated	0.14/26	1663336	–	1663394	–
	0.50/20	1663349	–	1663404	–
	0.75/18	1663352	1884092	1663417	1884128
	1.00/18	1663365	–	1663420	
	1.50/16	1663378	1884089	1663433	1884115
Single contact, gold-plated	0.14/26	1674901	–	1674969	–
	0.50/20	1672453	–	1674480	–
	0.75/18	1674914	–	1674440	–
	1.00/18	1674888	–	1674943	–
	1.50/16	1674875	–	1674930	–
Taped products, silver-plated	0.75/18	–	1884157	–	1884186
	1.50/16	–	1884144	–	1884173
Crimping tools		1687419	1884843	1687419	1884843

* Please order crimp contacts separately

Configuration overview
Sleeve housing and screw connections
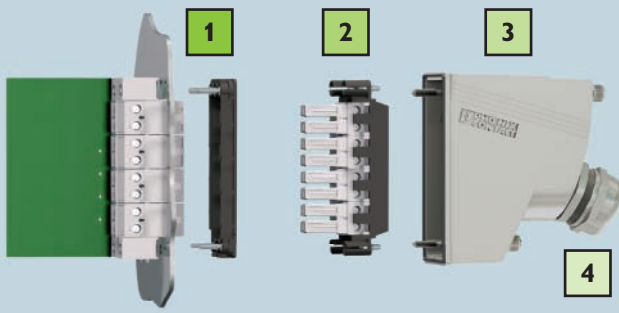
Configure your connectors individually in four steps.

1	Choose your contact insert set for the device connection (see page 6-7)
2	Choose your contact insert set for the connectors (see page 6-7)
3	Choose the sleeve housing
4	Choose the screw connection

3		**Sleeve housing**
		\multicolumn{3}{c}{**Aluminum**}	\multicolumn{4}{c}{**Plastic**}	
Size		**Metric**	**For 2 cable glands**	**Metric**	**Metric**	**PG**	**Integrated PG screw connection**	**Flat cable outlet**
VC1	Screw connection	M20	–	M25	M20	PG16	–	–
	Cylinder head screw	1583597	–	1583607	1852935	1852930	–	1607703
	Knurled screw	1583610	–	1583623	1855097	1855092	–	–
VC2	Screw connection	M20	–	M25	M25	PG21	PG29	–
	Cylinder head screw	1583636	–	1583649	1852948	1852943	1583880	1607680
	Knurled screw	1583652	–	1583665	1855107	1855102	–	–
VC3	Screw connection	M25	M25/M20	M32	M25	PG21	PG29	–
	Cylinder head screw	1583678	1583681	1583694	1852961	1852956	1424368	1607677
	Knurled screw	1583704	1583717	1583720	1855120	1855115	–	–
VC4	Screw connection	M25	M25/M20	M32	M25	PG21	–	–
	Cylinder head screw	1583733	1583746	1583759	1852974	1852969	–	1607693
	Knurled screw	1583762	1583775	1583788	1855133	1855128	–	–

4	Cable glands, metric					

Type of thread	Cable diameter [mm]	Plastic	Cable diameter [mm]	Metal	Cable diameter [mm]	EMC
M20	8 ... 13	1690626	9 ... 13	1690561	7 ... 12.5	1690503
		–	11 ... 16	1645998		–
		–	19 ... 27	1646010		–
M25	11 ... 17	1690639	11 ... 16	1690574	9 ... 16.5	1690516
		–	14 ... 21	1646007		–
M32	15 ... 21	1690642	14 ... 21	1690587	11 ... 21	1690529

4	PG cable glands for one cable		

Type of thread	Cable diameter [mm]	with plastic pressure screw	with brass pressure screw	EMC screw connection with iris spring
PG16	4 ... 6.5	1854459	1853942	–
	5 ... 8	1853735	1853955	–
	6.5 ... 9.5	1853748	1853968	1854132
	7 ... 10.5	1853751	1853971	1854161
	9 ... 13	1853764	1853984	1854174
	11.5 ... 15.5	1854844	1854857	–
PG21	7 ... 10.5	1853890	1853997	–
	9 ... 13	1853900	1854006	1854200
	9 ... 13	–	–	1854213
	11.5 ... 15.5	1853913	1854035	1854242
	14 ... 18	1853926	1854048	1854255
	17 ... 20.5	1853939	1854051	–

4	PG cable glands for several cables		

Type of thread	Cable diameter [mm]	with plastic pressure screw	with brass pressure screw	
PG16	1 x 3/1 x 8	1885376	1885457	–
	1 x 3/1 x 9	1885389	1885460	–
	1 x 6/1 x 8	1885392	1885473	–
	1 x 5/1 x 9	1885402	1885486	–
	1 x 3/2 x 8	1885415	1885499	–
	1 x 5/2 x 6	1885428	1885509	–
	2 x 6/1 x 7	1885431	1885512	–
	3 x 7	1885444	1885525	–
PG21	1 x 6/2 x 9	1885538	1885619	–
	1 x 8.5/1 x 12	1885279	1854970	–
	2 x 4.5/1 x 13	1885282	–	–
	2 x 6/2 x 8	1885554	1885635	–
	2 x 7.2/1 x 10.5	1885567	1885648	–
	3 x 7	1885570	1885651	–
	3 x 9	1885583	1885664	–
	4 x 6.5	1885596	1885677	–
	4 x 8	1885606	1885680	–

Configuration overview
with modular contact inserts

The modular contact inserts enable power and signal transmission to be combined in any way in one connector. The size is selected in accordance with the number of modules. The modules can simply be joined together and then inserted in the appropriate frame - and that's it!

Configure your connectors at:
select.phoenixcontact.com

Configuration examples

Size VC1, 2 module slots

Panel cutout: $19.5^{-0.2}$ mm x $32.4^{+0.3}$ mm

Size VC2, 3 module slots

Panel cutout: $19.5^{-0.2}$ mm x $47.4^{+0.3}$ mm

Size VC3, 4 module slots
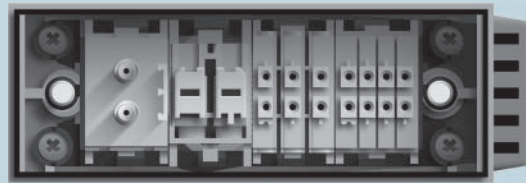
Panel cutout: $19.5^{-0.2}$ mm x $62.4^{+0.3}$ mm

Size VC4, 5 module slots
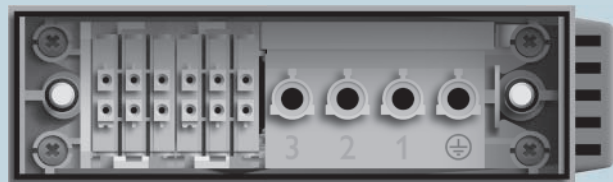
Panel cutout: $19.5^{-0.2}$ mm x $77.4^{+0.3}$ mm

Advantages at a glance
- Maximum flexibility, thanks to free combination of contact inserts
- High reliability, thanks to proven COMBICON connection technology
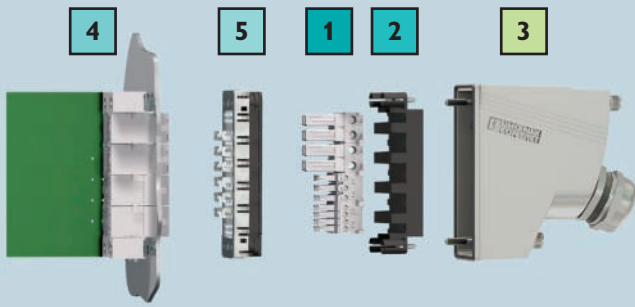
Configure your connectors individually in five steps.

1	Choose your contact inserts for the connectors
2	Choose the sleeve frame
3	Choose the sleeve housing and screw connection (see page 8-9)
4	Choose your contact inserts for the device connection
5	Choose the panel mounting frame

Connectors

1 Contact inserts

Type	Number of positions	Module slots		Order No.
FO	2	1		1855814
1.5 mm²	6	1		1853476 1583526*
1.5 mm²	8	1		1852820 1583536*
4 mm²	2	1		1852846 1583513*
16 mm²	4+1	3+1		1607488
16 mm²	4+2	3+2		1607495
16 mm²	5+1	4+1		1607502

Device connection

4 Contact inserts

	PCB connection				Screw connection
	180°	90°	90° with PE		
	–	–	–		1885240
	1884872	1853531	–		1854019 1583555*
	1884885	1852833	–		1854022 1583568*
	1884979	1852859	–		1853528 1583542*
	–	1607509	1607516		1607745
	–	1607523	1607530		1607748

* Contact insert with PE marking

Sleeve frames

2

	Size	Module slots	Order No.
	VC1	2	1607059
	VC2	3	1607062
	VC3	4	1607075
	VC4	5	1607088

Panel mounting frames

5

|	Size	Module slots	Order No. (standard)	Order No. (with EMC)
	VC1	2	1852972	1853214
	VC2	3	1852985	1853227
	VC3	4	1852998	1853230
	VC4	5	1853007	1853243

Hybrid connectors for direct motor connection

The HC-MOT hybrid connector combines signals and power in the same housing. The two cables are connected to the contact insert in no time at all using a push-in spring connection.

A safe connection between the connector and the motor is established quickly and easily, even under challenging installation conditions, via a vibration-resistant locking latch. This saves a considerable amount of time, particularly during servicing. Thanks to the plug-in star-delta bridge, presetting the drives is now a thing of the past.

Technical data
- Voltage (power) 800/400 V
- Voltage (signal) 250 V
- Current (power/signal) 16.5/2.5 A
- Degree of protection when plugged in: IP67
- Connection cross section (power/signal) 0.5 - 2.5/0.5 - 1.5 m²

HC-MOT
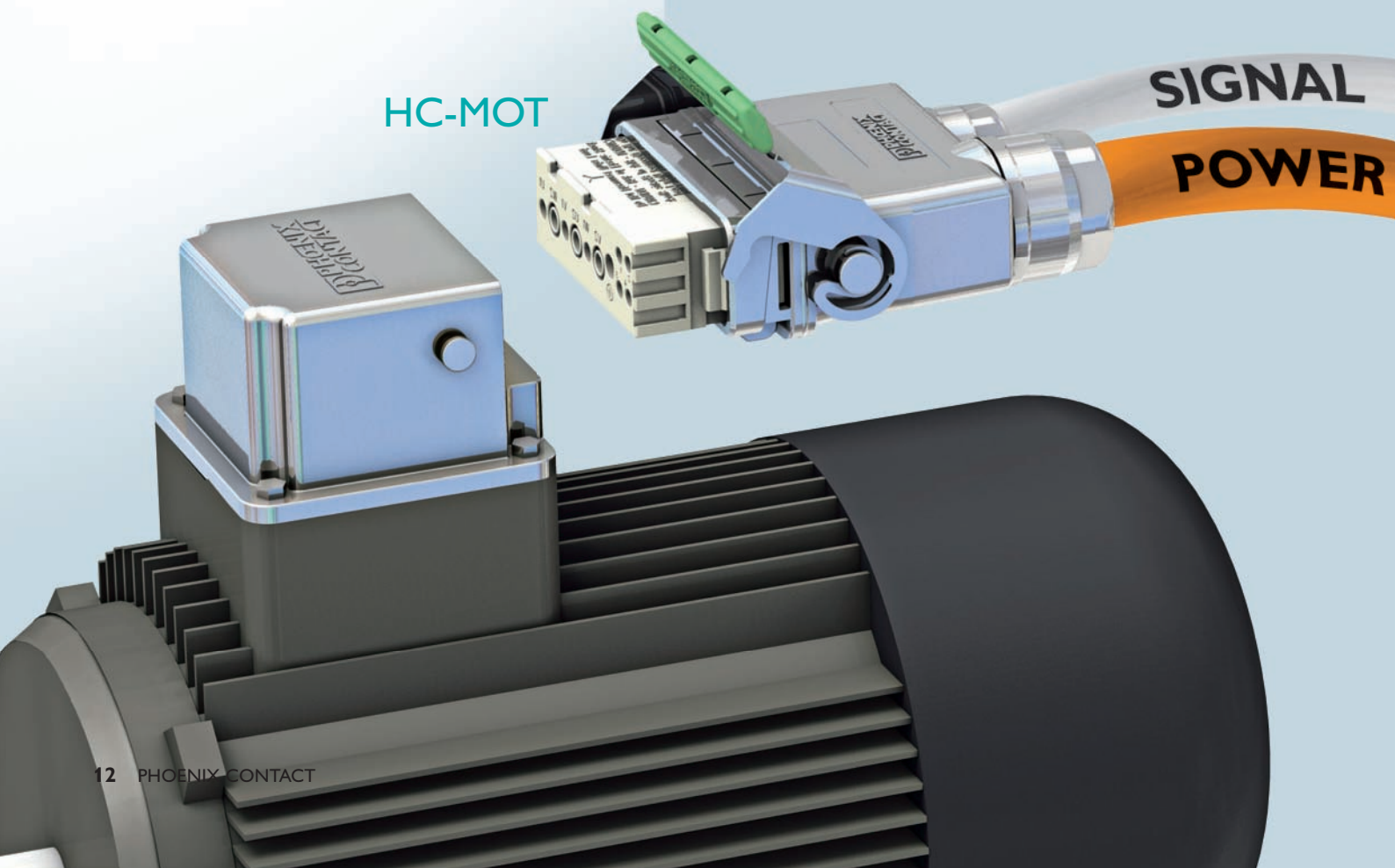
SIGNAL

POWER

Advantages at a glance

Integrated star-delta bridge for quick and easy rewiring
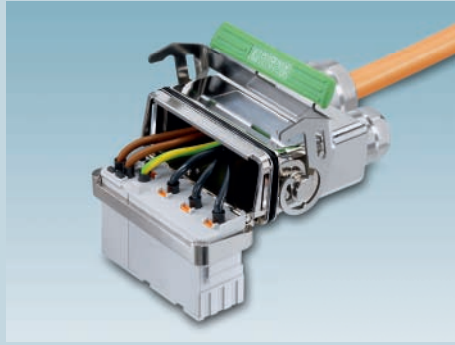
Simple and robust locking latch plus quick and reliable push-in spring connection

Signals and power combined in parallel in the same housing

HYBRID

VARIOCON

Ordering data

Motor panel mounting base				Sleeve connectors			
	Description	Order No.			Description	Order No.	
	Motor-mounted EMC housing	1409053			Sleeve housing with EMC protection	1409066	
	Coated protective cover	1409147			IP54 protective cover	1409134	
	Crimp contacts (pins) Ø 1.0 mm 0.14 mm² - 0.5 mm² 0.14 mm² - 1.0 mm²	 1409121 1409082			Star-delta bridge	1409150	
	Crimp contacts (pins) Ø 2.0 mm 0.35 mm² - 1.0 mm² 1.5 mm² - 2.5 mm²	 1409118 1409095			Coding profile	1600027	
	Crimping pliers for contacts Ø 1 mm/Ø 2 mm	1212620					

Combine the HC-MOT and VARIOCON hybrid connectors from the motor to the frequency inverter.

More than just the standard
Our service – added value for you

Our extensive housing and connector range features a variety of options for designing state-of-the-art devices. From color versions, to printing, right through to special packaging, we can provide you with almost anything – even brand new product developments.
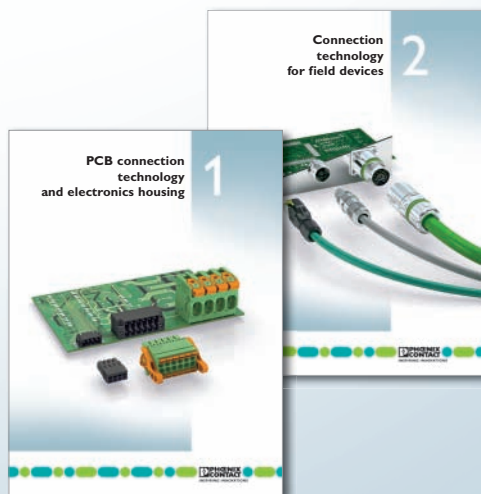
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With more than 50,000 products, we offer you a full range of device connection technology for signals, data, and power – from miniature connectors right through to high-current feed-through terminal blocks.

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Whether it's individual colors, modern special printing, a specific number of contacts or complete cable assembly – our service centers will be happy to support you in implementing your requirements.

Innovation expertise

Benefit from our extensive development and manufacturing expertise for your individual solution – right from the initial idea through to series production.
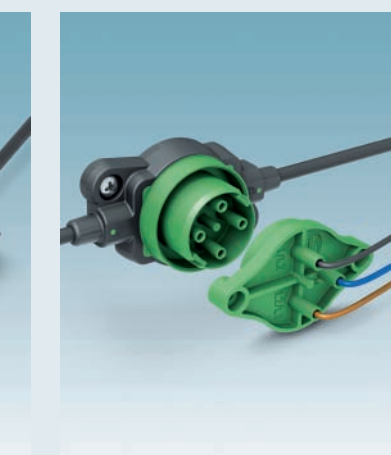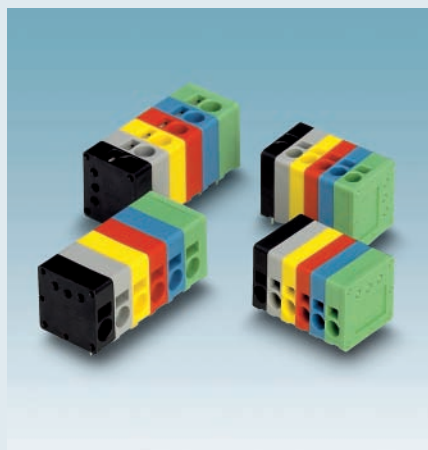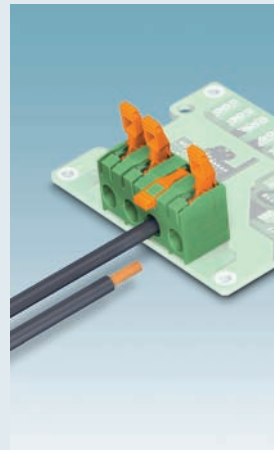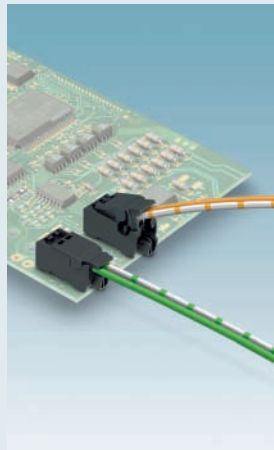
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Product range

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- Fieldbus components and systems
- Functional safety
- HMIs and industrial PCs

- I/O systems
- Industrial communication technology
- Industrial lighting
- Installation and mounting material
- Marking and labeling
- Measurement and control technology
- Modular terminal blocks
- Monitoring and signaling
- PCB terminal blocks and PCB connectors

- Plug connectors
- Protective devices
- Relays
- Sensor cables and connectors
- Software
- Surge protection devices
- System cabling for DCS and PLC
- Tools
- Wireless data communication

PHŒNIX CONTACT

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