Multi-Contact

MC

STÄUBLI

CombiTac
Main catalog

CombiTacline | Industrial Connectors

STÄUBLI ELECTRICAL CONNECTORS

Long-term solutions – Expert connections

Stäubli Electrical Connectors is a leading international manufacturer of high-quality electrical connector systems. We are part of the Stäubli Group which offers mechatronics solutions for electrical connectors, liquid and gas couplings, robots and textile machinery.

Stäubli develops, produces, sells and maintains products for markets with high productivity standards. As recognized specialists, our focus is always on solutions and customers. Many new developments got their start here and have begun to make their way around the world.

Businesses and customers count on our commitment and our active support when dealing with unusual problems. With us, you are entering into a long-term partnership built on reliability, dynamism, and exceptional quality in both products and services.

Applications and advantages

The CombiTac modular connector system combines power, signals, data, fiber-optics, pneumatic and fluid connections in a single frame or housing.

It is used in demanding applications that need versatile long life modular connector solutions: automatic production line equipment, machinery, robots, laboratory test equipment, railway battery connector systems and many more.

Thanks to the tried and tested MULTILAM Technology, CombiTac contacts can achieve up to 100’000 mating cycles and reach current levels up to 300 A.

As a solutions provider, we offer our customers extensive A-Z support in designing their own 100 % customized CombiTac, designed and adapted to meet exact specifications

- High rated current and short circuit carrying capacity
- High resistance to shock and vibrations
- Reconfigurable and expandable modular system
- 100 % customizable
- Supplied complete with cable assembly upon request

Further information concerning product portfolio, special features as well as exemplary videos can be found at www.combitac.com

Content

General information

Changes / provisos

All data, illustrations, and drawings in the catalog have been carefully checked. They are in accordance with our experience to date, but no responsibility can be accepted for errors.

We also reserve the right to make modifi cations for design and safety reasons. When designing equipment incorporating our components, it is therefore advisable not to rely solely on the data in the catalog but to consult us to make sure this information is up to date. We shall be pleased to advise you.

Copyright

The use of this catalog for any other purpose, in whatever form, without our prior written consent is not permitted.

RoHS ready

All CombiTac parts comply with Directive 2011/65/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Symbols

Accessories or special tools exist for this product

www.staubli.com/electrical

Before use, please read the enclosed RZ Sheet

www.staubli.com/electrical

The assembly instructions MA000 are available for this product

www.staubli.com/electrical

Surface Ag

Surface Au

Abbreviations

S	= Screw termination
PCB	= Flow soldered termination
C	= Crimp termination
L	= Soldering
AWG	= American Wire Gauge

Housing

TG	= Coupler hood
KG	= Coupler housing
AG	= Surface mount housing
SG	= Pedestal mount housing
-S	= Cable inlet, side
-G	= Cable inlet, straight
-PW	= Protective wall
-D	= With lid
-PS	= Park station
ZV	= Central locking
SD-...L/FSCH	= Plastic protective cover with lanyard for metal housing IP65

COMBITAC

The modular connector system

DIN coupler hoods
6 different sizes

Rails
Included in delivery
May be ordered separately

End pieces in 2 versions
- Housing assembly
- Panel mounting

Included in delivery
May be ordered separately

Delivery status of the CombiTac
- Contact carriers mounted on rails
- Assembled with end pieces
- Contacts separately
- Gas and fluid couplings will be mounted in the carriers
- PCB contacts will be mounted on request

Possible connections
- Electric
- Thermocouple pressure contacts
- Coaxial
- Optical fiber
- Compressed air
- Liquid
- Electric + PE
- Data transfer

Fully assembled CombiTac connector with connecting lines
On request

DIN surface and pedestal mount housing
6 different sizes

Mating cycles
CombiTac as panel mounted: up to 100,000
CombiTac in housing: up to 5,000
For the connector, the lowest mating cycle value of the individual components applies.

Please combine!

The simplest way to assemble a CombiTac can be found on our website:
www.staubli.com/electrical

CombiTac Configurator
Recommendation: It is simplest to use the configurator, together with this catalog and assembly instructions MA213... (also to be found on the website).

Our CombiTac configurator is now available for iPad in the App Store.

Download on the App Store

CombiTac Configurator

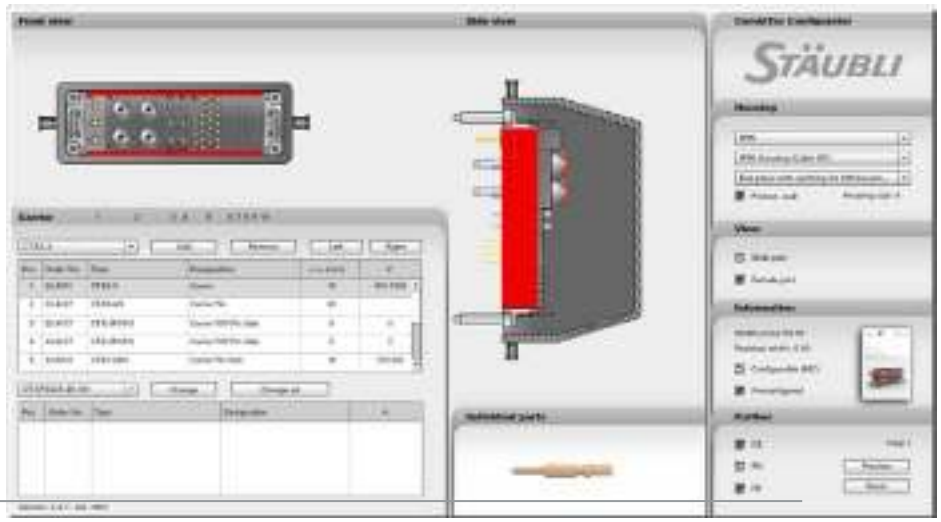
For orders and offers

Indication of the selected combination

Choice of contact carriers

Choice of contacts

Preview and parts list



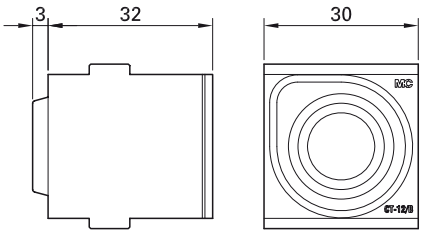
Ø 12 MM POWER UNIT UP TO 300 A

Contact carriers CT-E12-1/...

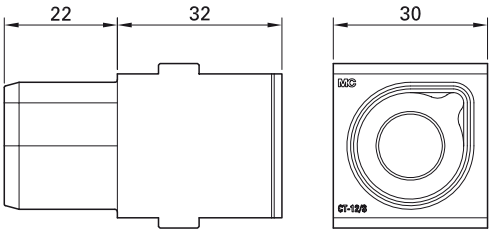
1-pole plastic contact carriers. Different designs for pins and sockets.

The contacts are locked by means of a retaining clip CT-RC12.

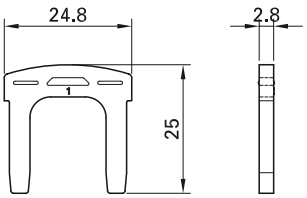
CT-E12-1/B



CT-E12-1/S



CT-RC12



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Assembly instructions MA213-01

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Order No.	Type	Description
33.4082	CT-E12-1/B	Socket carrier (identification “B”)
33.4081	CT-E12-1/S	Pin carrier (identification “S”)
33.4083	CT-RC12	Retaining clip (included with carriers)

Technical data		
Number of poles	1	
For contact diameter	12 mm	
Pollution degree/overvoltage category	2/CATII	3/CATIII
Rated voltage, crimp termination screw termination	1000 V AC/DC IEC, 600 V UL	800 V AC/DC IEC, 600 V UL 400 V AC/DC IEC, 600 V UL
Degree of protection (socket and plug front)	IP2X	
Clearances and creepage distance	IEC 60664-1	
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C	
Contact carrier material	PA	

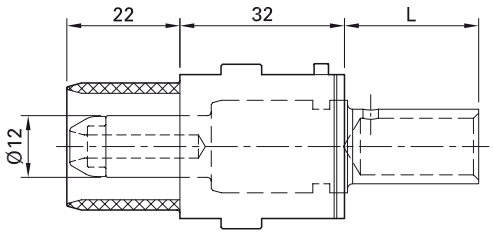
Ø 12 mm contacts with crimp termination

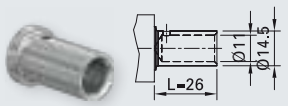
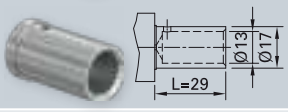
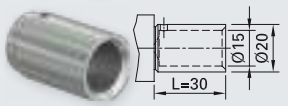
For contact carriers CT-E12-1/... Sockets fitted with MULTILAM.

Type of termination:
Crimp termination (C) for Cu conductors (class 5 and 6)

CT-BP12/...

CT-SP12/...



Order No.	Type	Socket	Pin	Surface	Conductor cross section		Rated current[1)]	Type of termination
					mm²	AWG	A	
33.0127 **33.0558**	CT-BP12/50 AG CT-SP12/50 IP2X AG	×	×		50	1/0	200	C 
33.0128 **33.0559**	CT-BP12/70 AG CT-SP12/70 IP2X AG	×	×		70	2/0	245	C 
33.0138 **33.0562**	CT-BP12/95 AG CT-SP12/95 IP2X AG	×	×		95	3/0	300	C 

Technical data	
Nominal-Ø socket/pin	12 mm
Max. sliding force per contact	28 N
Contact resistance	< 25 µΩ
Mating cycles	100,000

[1)] Rated values refer to heat-resistant copper wires in accordance with DIN VDE 0298-4.

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Assembly instructions MA213-01

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Ø 12 mm contacts with M10 inside thread

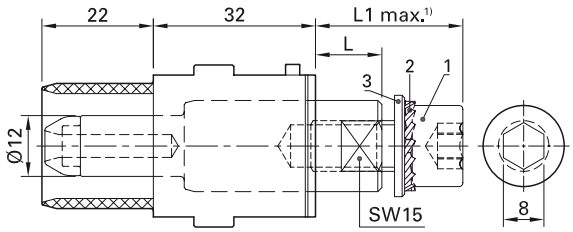
For contact carriers CT-E12-1/... Sockets fitted with MULTILAM

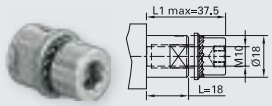
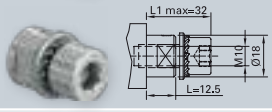
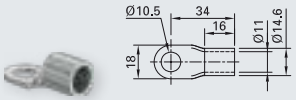
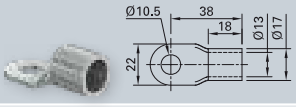
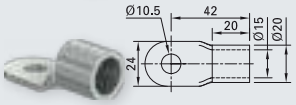
Type of termination:
Screw termination (S) using an M10 inside thread by means of a cable lug for Cu conductors (class 5 and 6)

Note:
Screw terminations can not be fitted in housings due to space limitations.

CT-B12/M10 AG

CT-S12/M10 IP2X AG



Order No.	Type	Socket	Pin	Surface	Conductor cross section		Rated current2)	Type of termination
					mm²	AWG	A	
33.0139	CT-B12/M10 AG	×			50 70 95	1/0 2/0 3/0	200 245 300	S 
33.0564	CT-S12/M10 IP2X AG		×		50 70 95	1/0 2/0 3/0	200 245 300	S 
33001501	K-SCH50-10[3]	Cable lug			50	1/0		
33.4114	CT-K-SCH70-10[3]	Cable lug			70	2/0		
33.4115	CT-K-SCH95-10[3]	Cable lug			95	3/0		

Individual parts (supplied with 33.0139 and 33.0564)

Pos.	Order No.	Type	Remarks	
1	**11004669**	ZYL-SHR-IN-6KT M10×20 ISO4762 BN610	Cheese head screw	M10x20
2	**08.0706**	F/M10 DIN6798A BN781	Serrated lock washer	F/M10
3	**08.0306**	U/M10 AG	Washer	M10

Technical data	
Nominal-Ø socket/pin	12 mm
Max. sliding force per contact	28 N
Contact resistance	25 µΩ
Mating cycles	100,000

1) Depending on cable lug size.
2) Rated values refer to heat-resistant copper wires in accordance with DIN VDE 0298-4.
3) Cable lugs Cu/Sn according to DIN 46234.

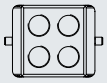
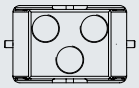
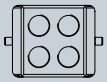
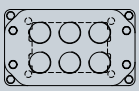
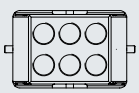
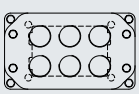
Selection of special DIN housings for CombiTac Ø 12 mm power unit

Step 1: Select the number of Ø 12 mm poles of your CombiTac connector (e.g. 2 × Ø 12 mm poles)

Step 2: Select the outer insulation diameter of your cable (e.g. 17 mm)

Step 3: Select the appropriate cable gland (e.g. order No. 33.4126 or 33.4122)

Step 4: Select a suitable DIN housing (e.g. size 3, order No. 33.1267)

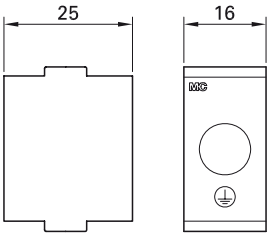
1	2	3				4			
		Cable gland				Suitable housing			
Number of poles	For Ø cable	Size	Order No.	Type	Wrench size max.	Size	Order No.	Type	Position of cable glands
	mm	M			mm				
1	14 – 17	32	**33.4123**	CT-K-VSH M32x14-17 MS	36	1	**33.1571**	CT-TG1-G	
	17 – 21		**33.4124**	CT-K-VSH M32x17-21 MS					
	21 – 25		**33.4125**	CT-K-VSH M32x21-25,5 MS					
2 (+/-) (L1/N)	9.5 – 12.5	25	**33.4120**	CT-K-VSH M25x9,5-12,5 MS	30	3	**33.1267**	CT-TG3-G/2×M25	
	10 – 17		**33.4126**	CT-K-VSH M25x10-17 MS	28				
	16 – 20.5		**33.4122**	CT-K-VSH M25x16-20,5 MS	30				
	17 – 21	32	**33.4124**	CT-K-VSH M32x17-21 MS	36	4	**33.1269**	CT-TG4-G/2×M32	
	21 – 25		**33.4125**	CT-K-VSH M32x21-25,5 MS					
3 (+/-/PE) (L1/N/PE)	10 – 17	25	**33.4126**	CT-K-VSH M25x10-17 MS	28	4	**33.1268**	CT-TG4-G/3xM25	
	9.5 – 12.5	25	**33.4120**	CT-K-VSH M25x9,5-12,5 MS	30	5	**33.1270**	CT-TG5-G/4xM25 [1]	
	10 – 17		**33.4126**	CT-K-VSH M25x10-17 MS	28				
	16 – 20.5		**33.4122**	CT-K-VSH M25x16-20,5 MS	30				
	17 – 21	32	**33.4124**	CT-K-VSH M32x17-21 MS	36	6	**33.1272**	CT-TG6-G/3xM32	
	21 – 25		**33.4125**	CT-K-VSH M32x21-25,5 MS					
4 (L1/L2/L3/PE) (L1/L2/L3/N)	9.5 – 12.5	25	**33.4120**	CT-K-VSH M25x9,5-12,5 MS	30	5	**33.1270**	CT-TG5-G/4xM25	
	10 – 17		**33.4126**	CT-K-VSH M25x10-17 MS	28				
	16 – 20.5		**33.4122**	CT-K-VSH M25x16-20,5 MS	30				
	17 – 21	32	**33.4124**	CT-K-VSH M32x17-21 MS	36	6+	**33.1386**	CT-TG6+[2]	
	21 – 25		**33.4125**	CT-K-VSH M32x21-25,5 MS					
5 (L1/L2/L3/ N/PE)	10 – 17	25	**33.4126**	CT-K-VSH M25x10-17 MS	28	6	**33.1271**	CT-TG6-G/6xM25[1]	
	17 – 21	32	**33.4124**	CT-K-VSH M32x17-21 MS	36	6+	**33.1386**	CT-TG6+[2]	
	21 – 25		**33.4125**	CT-K-VSH M32x21-25,5 MS					

[1] Close one gland opening with cap (not provided).
[2] Special housings available on request.

Contact carrier CT-E8/6-PE

1-pole contact carrier made of resilient plastic. **Marked with a protective earth (PE) symbol.**

CT-E8/6-PE



Order No.	Type
33.4008	CT-E8/6-PE

Technical data		
Number of poles	1	
For contact diameter	8 mm	
Pollution degree / overvoltage category	2/CATII	3/CATIII
Rated voltage, crimp termination screw termination	1000 V AC/DC IEC, 600 V UL 600 V AC/DC IEC, 600 V UL	400 V AC/DC IEC, 600 V UL 300 V AC/DC IEC, 600 V UL
Degree of protection (socket and plug front)	IP00	
Clearances and creepage distance	IEC 60664-1	
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C	
Contact carrier material	EPTR	

MA

Assembly instructions MA213-01

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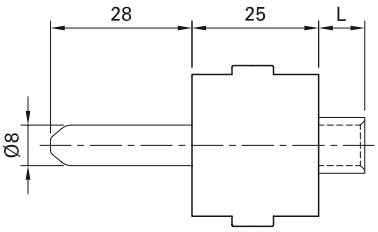
Ø 8 mm first mate contacts with crimp termination

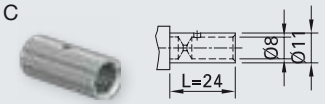
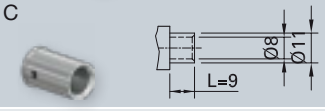
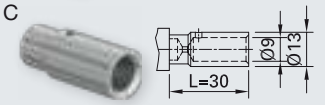
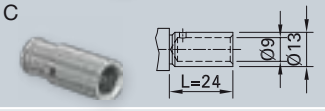
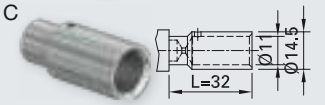
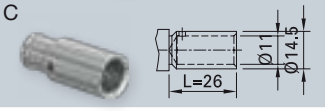
For contact carrier CT-E8/6-PE. Sockets fitted with MULTILAM. For protective earth (PE) purposes only.

Type of termination:
Crimp termination (C) for Cu conductors (class 5 and 6)

CT-BP8/...PE-L AG

CT-SP8/...PE-L AG



Order No.	Type	Socket	Pin	Surface	Conductor cross section		Short circuit current	Type of termination
					mm²	AWG	3s kA	
33.0205	CT-BP8/25/PE-L AG	×			25	4	1.3	C 
33.0705	CT-SP8/25/PE-L AG		×		25	4	1.3	C 
33.0206	CT-BP8/35/PE-L AG	×			35	2	1.6	C 
33.0706	CT-SP8/35/PE-L AG		×		35	2	1.6	C 
33.0207	CT-BP8/50/PE-L AG	×			50	1/0	1.6	C 
33.0707	CT-SP8/50/PE-L AG		×		50	1/0	1.6	C 

Technical data	
Nominal-Ø socket/pin	8 mm
Max. sliding force per contact	11.5 N
Mating cycles	100,000

MA

Assembly instructions MA213-01

www.staubli.com/electrical

Ø 8 mm first mate contacts with M8 outside thread

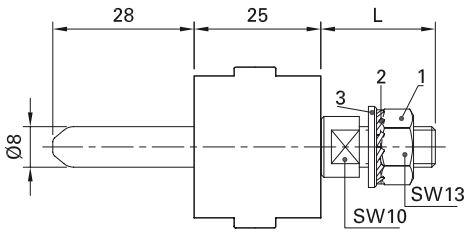
For contact carrier CT-E8/6-PE, first mate. Sockets fitted with MULTILAM. For protective earth (PE) purposes only.

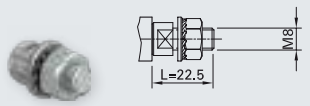
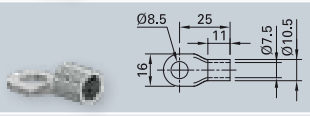
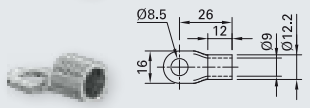
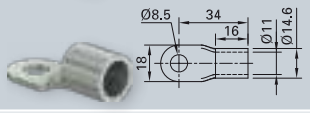
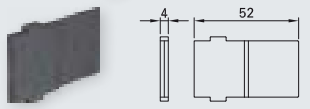
Type of termination:
Screw termination (S) with an M8 male thread by means of a cable lug for Cu conductors (class 5 and 6)

Note:
Screw terminations can not be fitted in housings due to space limitations.

CT-B8/M8A/PE-L AG

CT-S8/M8A/PE-L AG



Order No.	Type	Socket	Pin	Surface	Conductor cross section		Short circuit current	Type of termination
					mm²	AWG	3s kA	
33.0208 **33.0708**	CT-B8/M8A/PE-L AG CT-S8/M8A/PE-L AG	×	×		25 35 50	4 2 1/0	1.3 1.6 1.6	S 
33.4117	CT-K-SCH25-8[1]	Cable lug			25	4	1.3	
33.4116	CT-K-SCH35-8[1]	Cable lug			35	2	1.6	
31002862	K-SCH50-8[1]	Cable lug			50	1/0	1.6	
33.4085	CT-DIP4/2[2]	Spacer						

Individual parts (supplied with 33.0208 and 33.0708)

Pos.	Order No.	Type	Remarks	
1	**08.0105**	MU0,8D/M8 AG	6 kt. Hex. nut	M8
2	**08.0705**	F/M8 DIN6798A BN781	Serrated lock washer	F/M8
3	**08.0305**	U/M8 AG	Washer	M8

Technical data	
Nominal-Ø socket/pin	8 mm
Max. sliding force per contact	11.5 N
Mating cycles	100,000

[1] Cable lugs Cu/Sn according to DIN 46234 (class 5).

[2] Ground contacts with an M8 external thread must be separated from the Ø 12 mm contact by means of a CT-DIP4/2 spacer.

CombiTac: modular, compact, versatile

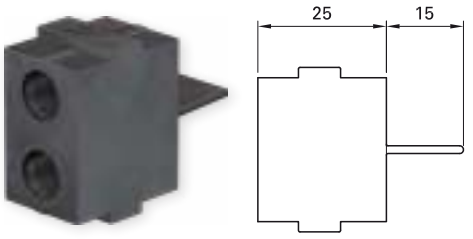
Ø 8 MM POWER UNIT UP TO 150 A

Contact carrier CT-E8-...

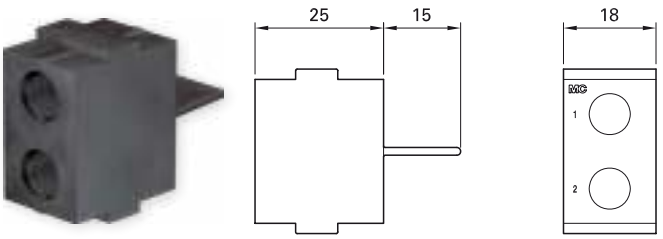
2-pole contact carriers made from resilient plastic.

To prevent flashover, there is a dividing wall between the two poles in the termination area.

CT-E8-2-IP2X



CT-E8-2



Order No.	Type	Description
33.4139	CT-E8-2-IP2X	Socket carrier (identification “B“)
33.4000	CT-E8-2	Pin carrier

Technical data		
Number of poles	2	
For contact diameter	8 mm	
Pollution degree / overvoltage category	2/CATII	3/CATIII
Rated voltage, crimp termination screw termination	1000 V AC/DC 600 V AC/DC	300 V AC/DC 300 V AC/DC
Degree of protection (socket front)	IP2X	
Clearances and creepage distance	IEC 60664-1	
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C	
Contact carrier material	EPTR	

Footnotes and technical data from pages 17:

Technical data	
Nominal-Ø socket/pin	8 mm
Max. sliding force per contact	11.5 N
Contact resistance	< 150 µΩ
Mating cycles	100,000
Vibrations	4.2 g/5 – 250 Hz (DIN EN 61373) 10 g/10 – 500 Hz (DIN EN 60068-2-6)
Resistance to shocks	30 g/18 ms (DIN EN 61373)

* Pin size same for all types of terminations.

[1] Rated current for fully occupied carriers. Derating diagrams for bundled cables see pages 104 – 108.

[2] Only 1 contact per contact carrier permitted.

[3] Cable lugs for smaller conductor cross sections (acc. to DIN 46234) are available commercially.

[4] Arrangement of blind plugs with one contact per carrier. For contacts with crimp termination only.

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Ø 8 mm contacts

For contact carrier CT-E8-2-IP2X and CT-E8-2. Sockets fitted with MULTILAM.

Type of termination:

- Crimp termination (C) for Cu conductors (class 5 and 6)
- Screw termination (S) for cable lugs and contacts with M6 inside or outside thread

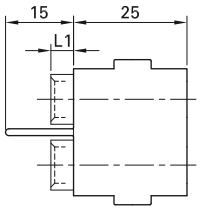
Note:

Screw terminations can not be fitted in housings due to space limitations.

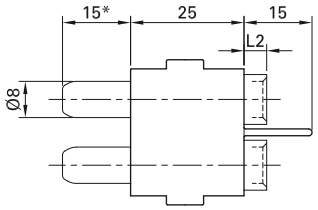
CT-BP8/...

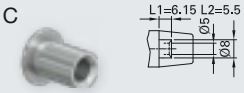
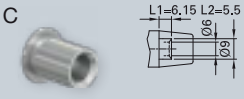
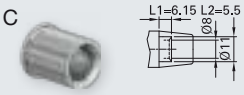
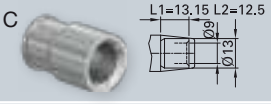
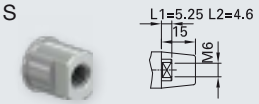
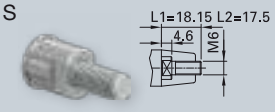
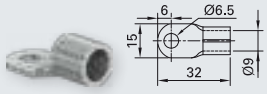
CT-SP8/...

CT-E8-2-IP2X



CT-E8-2



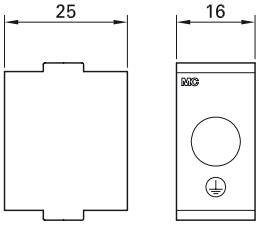
Order No.	Type	Socket	Pin	Surface	Conductor cross section		Rated current[1]	Type of termination
					mm²	AWG	A	
33.0100 **33.0500**	CT-BP8/10 AG CT-SP8/10 AG	× 	 ×		10	8	55	C 
33.0101 **33.0501**	CT-BP8/10 AU CT-SP8/10 AU	× 	 ×					
33.0102 **33.0502**	CT-BP8/16 AG CT-SP8/16 AG	× 	 ×		16	6	75	C 
33.0103 **33.0503**	CT-BP8/16 AU CT-SP8/16 AU	× 	 ×					
33.0104 **33.0504**	CT-BP8/25 AG CT-SP8/25 AG	× 	 ×		25	4	100	C 
33.0105 **33.0505**	CT-BP8/25 AU CT-SP8/25 AU	× 	 ×					
33.0106 **33.0506**	CT-BP8/35 AG CT-SP8/35 AG	× 	 ×		35	2	120[1] / 150[2]	C 
33.0110 **33.0510**	CT-B8/M6 AG CT-S8/M6 AG	× 	 ×		10 16	8 6	55 75	S 
33.0111 **33.0511**	CT-B8/M6 AU CT-S8/M6 AU	× 	 ×		25 35	4 2	100 120	
33.0120 **33.0520**	CT-B8/M6A AG CT-S8/M6A AG	× 	 ×		10 16	8 6	55 75	S 
33.0121 **33.0521**	CT-B8/M6A AU CT-S8/M6A AU	× 	 ×		25 35	4 2	100 120	
33.4039	CT-KSCH6-35[3]	Cable lug			35	2		
33.4050	CT-BS8	Blind plug[4]						

Ø 6 MM AND Ø 8 MM POWER UNIT UP TO 125 A, 150 A

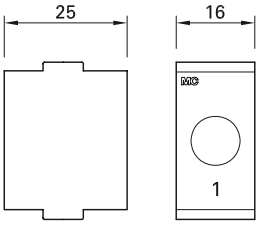
Contact carriers CT-E8/6-...

1-pole contact carrier made of resilient plastic. **Marked with either a protective earth (PE) symbol or a “1”.**

CT-E8/6-PE ⏚



CT-E8/6-1



Order No.	Type	Description
33.4008	CT-E8/6-PE	Contact carrier with ⏚
33.4013	CT-E8/6-1	Contact carrier with number “1”

Technical data		
Number of poles	1	
For contact diameter	8 mm/6 mm	
Pollution degree / overvoltage category	2/CATII	3/CATIII
Rated voltage, crimp termination screw termination	1000 V AC/DC 600 V AC/DC	400 V AC/DC 300 V AC/DC
Degree of protection (socket and plug front)	IP00	
Clearances and creepage distance	IEC 60664-1	
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C	
Contact carrier material	EPTR	

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First mate contacts Ø 6 mm and Ø 8 mm

For contact carriers CT-E8/6-PE, first mate. Sockets fitted with MULTILAM. For protective earth (PE) purposes only.

Type of termination:

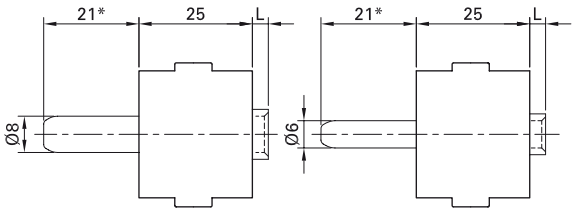
- Crimp termination (C) for Cu conductors (class 5 and 6)
- Screw termination (S) for cable lugs

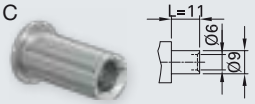
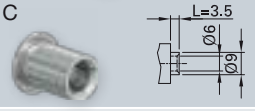
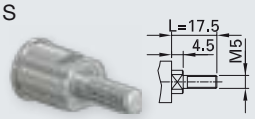
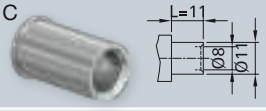
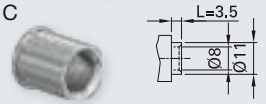
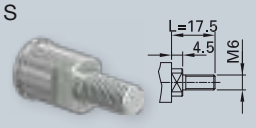
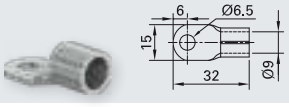
Note:

Screw terminations can not be fitted in housings due to space limitations.

CT-B...PE AG

CT-S...PE AG



Order No.	Type	Socket	Pin	Surface	Conductor cross section		Short circuit current	Type of termination
					mm²	AWG	3s A	
33.0113	CT-BP6/16/PE AG	×			16	6	860	C 
33.0513	CT-SP6/16/PE AG		×		16	6	860	C 
33.0123 **33.0523**	CT-B6/M5A/PE AG CT-S6/M5A/PE AG	×	×		6 10 16 25	10 8 6 4	320 540 860 1600	S 
33.0114	CT-BP8/25/PE AG	×			25	4	1300	C 
33.0514	CT-SP8/25/PE AG		×		25	4	1300	C 
33.0119 **33.0519**	CT-B8/M6A/PE AG CT-S8/M6A/PE AG	×	×		10 16 25 35	8 6 4 2	540 860 1300 1600	S 
33.4039	CT-KSCH6-35[1)]	Cable lug			35	2	fits with CT...8...	

Technical data	
Nominal-Ø socket/pin	6 mm/8 mm
Max. sliding force per contact	11.5 N
Contact resistance	< 250 µΩ/< 150 µΩ
Mating cycles	100,000
Vibrations	4.2 g/5 – 250 Hz (DIN EN 61373) 10 g/10 – 500 Hz (DIN EN 60068-2-6)
Resistance to shocks	30 g/18 ms (DIN EN 61373)

* Pin size same for all types of terminations.

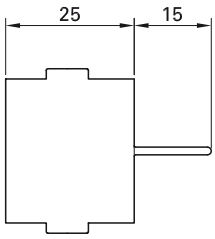
[1)] Cable lugs for smaller conductor cross sections (according to DIN 46234) are available commercially.

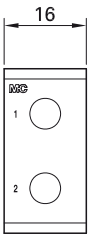
Ø 6 MM POWER UNIT UP TO 120 A

Contact carrier CT-E6-2

2-pole contact carrier made of resilient plastic. To prevent flashover, there is a dividing wall between the two poles in the termination area.

CT-E6-2





Order No.	Type
33.4006	CT-E6-2

Technical data		
Number of poles	2	
For contact diameter	6 mm	
Pollution degree / overvoltage category	2/CATII	3/CATIII
Rated voltage, crimp termination screw termination	1000 V AC/DC 600 V AC/DC	500 V AC/DC 300 V AC/DC
Degree of protection (socket front)	IP2X	
Clearances and creepage distance	IEC 60664-1	
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C	
Contact carrier material	EPTR	

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Ø 6 mm contacts

For contact carriers CT-E6-2. Sockets fitted with MULTILAM.

Type of termination:

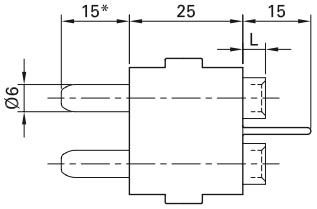
- Crimp termination (C) for Cu conductors (class 5 and 6)
- Screw termination (S) for cable lugs and contacts with an M5 inside or outside thread

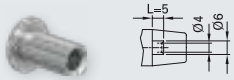
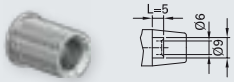
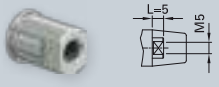
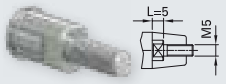
Note:

Screw terminations can not be fitted in housings due to space limitations.

CT-B6...

CT-S6...



Order No.	Type	Socket	Pin	Surface	Conductor cross section		Rated current[1]	Type of termination
					mm²	AWG	A	
33.0107 **33.0507**	CT-BP6/6 AG CT-SP6/6 AG	×	×		6	10	40	C 
33.0108 **33.0508**	CT-BP6/10 AG CT-SP6/10 AG	×	×		10	8	55	C 
33.0109 **33.0509**	CT-BP6/16 AG CT-SP6/16 AG	×	×		16	6	75	C 
33.0112 **33.0512**	CT-B6/M5 AG CT-S6/M5 AG	×	×		6 10 16 25	10 8 6 4	40 55 75 100	S[2] 
33.0122 **33.0522**	CT-B6/M5A AG CT-S6/M5A AG	×	×		6 10 16 25	10 8 6 4	40 55 75 100	S[2] 
18.5502	MVS5	Blind plug						

Technical data	
Nominal-Ø socket/pin	6 mm
Max. sliding force per contact	11.5 N
Contact resistance	< 250 µΩ
Mating cycles	100,000
Vibrations	4.2 g/5 – 250 Hz (DIN EN 61373) 10 g/10 – 500 Hz (DIN EN 60068-2-6)
Resistance to shocks	30 g/18 ms (DIN EN 61373)

* Pin size same for all types of terminations.

[1] Rated current for fully occupied carriers. Derating diagrams for bundled leads, see pages 104 – 108.

[2] Cable lugs according to DIN 46234 are available commercially.

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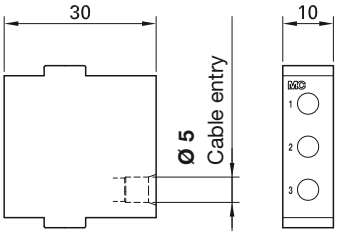
Ø 3 MM POWER UNIT UP TO 40 A

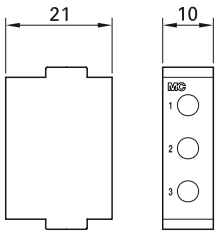
Contact carriers CT-E3-3, CT-E3-3/PCB

3-pole contact carriers made of resilient plastic. Different contact carriers for crimping (C) or flow-soldering (PCB) termination.

CT-E3-3



CT-E3-3/PCB



Order No.	Type	Description
33.4001	CT-E3-3	Contact carrier for crimping
33.4004	CT-E3-3/PCB	Contact carrier for flow-soldering

Technical data		
Number of poles	3	
For contact diameter	3 mm	
Pollution degree / overvoltage category	2/CATII	3/CATIII
Rated voltage	1000 V AC/DC	400 V AC/DC
Max. flow-soldering termperature	260 °C	
Max. flow-soldering time	3 s	
Degree of protection (socket front)	IP2X	
Clearances and creepage distance	IEC 60664-1	
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C	
Contact carrier material	EPTR	

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Ø 3 mm contacts

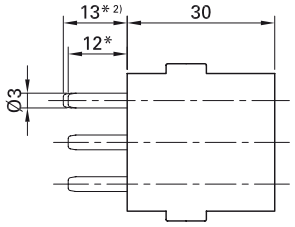
For contact carriers CT-E3-3... Sockets fitted with MULTILAM.

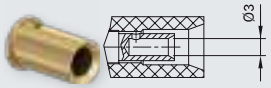
Type of termination:

- Crimp termination (C) for Cu conductors (class 5 and 6)
- Flow-soldering (PCB)

CT-BP3...

CT-SP3...



Order No.	Type	Socket	Pin	Surface	Conductor cross section		Rated current[1]	Type of termination
					mm²	AWG	A	
33.0131	CT-BP3/2,5-4 AU	×			2.5 4	14 12	22 35	C 
33.0533 **33.0531**	CT-SP3/2,5-4L AU[2] CT-SP3/2,5-4K AU		× ×		2.5 – 4	14/12	22 – 35	
33.0135	CT-B3/PCB AU	×			–		35	PCB[3] 
33.0537 **33.0535**	CT-S3/PCB-L AU[2] CT-S3/PCB-K AU		× ×		– –		35 35	
18.5501	MVS3	Blind plug						

Technical data	
Nominal-Ø socket/pin	3 mm
Max. sliding force per contact	4 N
Contact resistance	< 1.1 mΩ
Mating cycles	100,000
Vibrations	4.2 g/5 – 250 Hz (DIN EN 61373) 10 g/10 – 500 Hz (DIN EN 60068-2-6)
Resistance to shocks	30 g/18 ms (DIN EN 61373)

* Pin sizes same for all type of terminations.

[1] Rated current for fully occupied carriers. Derating diagrams for bundled leads, see pages 104 – 108.

[2] Longer type of pin mates first.

[3] For drilling plans, see assembly instructions MA213-01.

MA

Assembly instructions MA213-01

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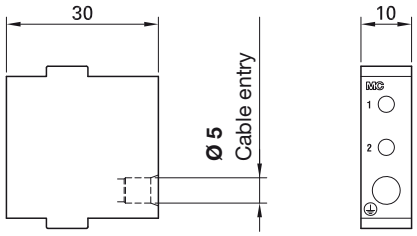
Contact carrier CT-E3-2+PE

3-pole contact carrier made of resilient plastic.
One pole functions as a protective earth (PE) contact and is **marked with a protective earth (PE) symbol**.

CT-E3-2+PE ⏚



Order No.	Type
33.4007	CT-E3-2+PE

Technical data		
Number of poles	2 + 1 PE	
For contact diameter	3 mm	
Pollution degree / overvoltage category	2/CATII	3/CATIII
Rated voltage	1000 V AC/DC	400 V AC/DC
Degree of protection (socket front)	IP2X[1)]	
Clearances and creepage distance	IEC 60664-1	
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C	
Contact carrier material	EPTR	

[1)] Except for PE contact.

MA

Assembly instructions MA213-01

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Ø 3 mm contacts

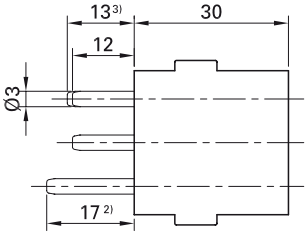
For contact carriers CT-E3-2+PE. Sockets fitted with MULTILAM. Protective earth (PE) contacts and standard contacts. PE contacts for protective earth (PE) purposes only.[1)]

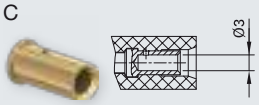
Type of termination:

- Crimp termination (C) for Cu conductors (class 5 and 6)

CT-BP3/2,5-4/PE AU

CT-SP3/2,5-4/PE AU



Order No.	Type	Socket	Pin	Surface	Conductor cross section		Rated current[2)]	Type of termination
					mm²	AWG	A	
33.0129	CT-BP3/2,5-4/PE AU[3)]	×			2.5 4	14 12	–[1)] –[1)]	C 
33.0529	CT-SP3/2,5-4/PE AU[3)]		×		2.5 4	14 12	–[1)] –[1)]	
33.0131	CT-BP3/2,5-4 AU	×			2.5 4	14 12	22 35	
33.0533 **33.0531**	CT-SP3/2,5-4L AU[4)] CT-SP3/2,5-4K AU		× ×		2.5 4	14 12	22 35	
18.5501	MVS3	Blind plug						

Technical data	
Nominal-Ø socket/pin	3 mm
Max. sliding force per contact	4 N
Contact resistance	< 1.1 mΩ
Mating cycles	100,000
Vibrations	4.2 g/5 – 250 Hz (DIN EN 61373) 10 g/10 – 500 Hz (DIN EN 60068-2-6)
Resistance to shocks	30 g/18 ms (DIN EN 61373)

[1)] Short circuit current 3s
2.5 mm²: 135 A
4 mm²: 216 A

[2)] Rated current for fully occupied carriers. Derating diagrams for bundled leads, see pages 104 – 108.

[3)] Protective earth (PE) contact.

[4)] Longer type of pin mates first.

MA

Assembly instructions MA213-01

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Ø 3 MM HIGH VOLTAGE UNIT UP TO 5 KV

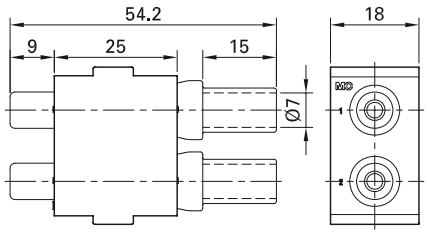
Contact carriers CT-E3-.../HV...

1- and 2-pole contact carriers made of resilient plastic. With PTFE insert.

Note:
The maximum outside diameter of the conductor insulation is 6.6 mm.

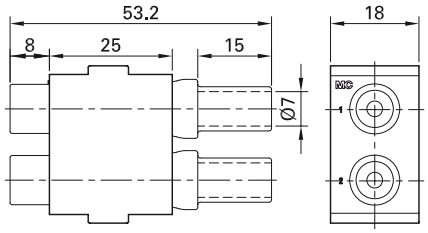
CT-E3-1/HV-B

CT-E3-2/HV-B



CT-E3-1/HV-S

CT-E3-2/HV-S



Order No.	Type	Description
33.4136	CT-E3-2/HV-B	2-pole socket carrier
33.4137	CT-E3-1/HV-B	1-pole socket carrier
33.4536	CT-E3-2/HV-S	2-pole pin carrier
33.4537	CT-E3-1/HV-S	1-pole pin carrier

Technical data	
Number of poles	1 or 2
For contact diameter	3 mm
Pollution degree	2
Rated voltage phase-to-earth	2.9 kV
Rated voltage phase-to-phase	5 kV
Degree of protection (in mated condition)	IP2X
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C
Contact carrier material Insulation material	EPTR PTFE

MA

Assembly instructions MA213-05

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Ø 3 mm/HV

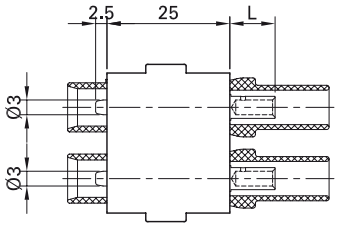
For contact carrier CT-E.../HV-... Sockets fitted with MULTILAM.

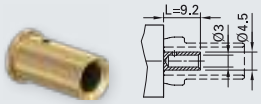
Type of termination:
Crimp termination (C) for Cu high voltage conductors 2.5 mm², followed by insulation with shrink tubing CT-HV-SRTU

Note:
- All data regarding ratings apply to the mated condition
- Connector without breaking capacity (COC)
- The connector must not be connected or disconnected when live or under load

CT-BP3/2,5-HV AU

CT-SP3/2,5-HV AU



Order No.	Type	Socket	Pin	Surface	Conductor cross section		Rated current[1)]		Type of termination
					mm²	AWG	2 poles	1 pole	
33.0163 **33.0563**	CT-BP3/2,5-HV AU CT-SP3/2,5-HV AU	×	×		2.5	14	20 A	32 A	

Accessories

33.5666	CT-HV-SRTU	Shrink tubing 45 mm (included)	

Recommended cable

Order No.	Type	Conductor cross section		Rated current[1)]		Colors
		mm²	AWG	2 poles	1 pole	
61.7634-*	SILI-HV 2,5	2.5	14	20 A	32 A	21 22

Technical data	
Nominal-Ø socket/pin	3 mm
Max. sliding force per contact	4 N
Contact resistance	< 1.1 mΩ
Mating cycles	100,000
Vibrations	4.2 g/5 – 250 Hz (DIN EN 61373) 10 g/10 – 500 Hz (DIN EN 60068-2-6)
Resistance to shocks	30 g/18 ms (DIN EN 61373)

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Assembly instructions MA213-05

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* Add the desired color code.

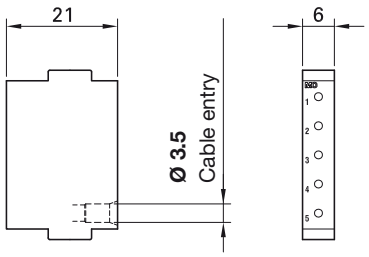
[1)] Rated current for fully occupied carriers. Derating diagrams for bundled wires on request.

Ø 1.5 MM SIGNAL UNIT UP TO 19 A

Contact carrier CT-E1,5-5

5-pole contact carrier made of resilient plastic.

CT-E1,5-5



Order No.	Type
33.4005	CT-E1,5-5

Technical data		
Number of poles	5	
For contact diameter	1.5 mm	
Pollution degree / overvoltage category	2/CATII	3/CATIII
Rated voltage	600 V AC/DC	250 V AC/DC
Max. flow-soldering temperature	260 °C	
Max. flow-soldering time	3 s	
Degree of protection (socket front)	IP2X	
Clearances and creepage distance	IEC 60664-1	
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C	
Contact carrier material	EPTR	

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Assembly instructions MA213-01

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Ø 1.5 mm contacts

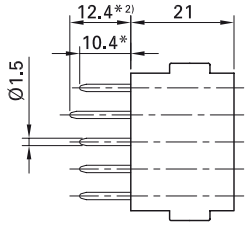
For contact carriers CT-E1,5-5. Sockets fitted with MULTILAM.

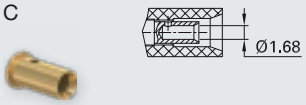
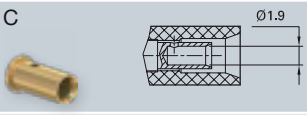
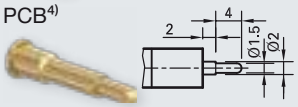
Type of termination:

- Crimp termination (C) for Cu conductors (class 5) (CT-...P1,5/1,5... also for class 6)
- Flow-soldering (PCB)

CT-BP1,5...

CT-SP1,5...



Order No.	Type	Socket	Pin	Surface	Conductor cross section		Rated current[1]	Type of termination
					mm²	AWG	A	
33.0153	CT-BP1,5LAV/0,5-1,5 AU	×			0.5 0.75 1.0 1.5	20 18 18 16	5 8 10 10	C 
33.0551 **33.0550**	CT-SP1,5/0,5-1,5L AU[2] CT-SP1,5/0,5-1,5K AU		× ×		0.5 0.75 1.0 1.5	20 18 18 16	5 8 10 10	
33.0156	CT-BP1,5LAV/1,5 AU[3]	×			1.5	16	10	C 
33.0555	CT-SP1,5/1,5K AU[3]		×		1.5	16	10	
33.0157	CT-B1,5LAV/PCB AU	×			1.5	16	10	PCB[4] 
33.0553 **33.0552**	CT-S1,5/PCB-L AU[2] CT-S1,5/PCB-K AU		× ×				10	
18.5504	MVS1	Blind plug						

Technical data	
Nominal-Ø socket/pin	1.5 mm
Max. sliding force per contact	1.5 N
Contact resistance	< 1.1 mΩ
Mating cycles	100,000
Vibrations	4.2 g/5 – 250 Hz (DIN EN 61373) 10 g/10 – 500 Hz (DIN EN 60068-2-6)
Resistance to shocks	30 g/18 ms (DIN EN 61373)

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Assembly instructions MA213-01

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* Pin size same for all types of terminations.

[1] Rated current for fully occupied carriers. Derating diagrams for bundled leads, see pages 104 – 108.

[2] Longer type of pin mates first.

[3] For Cu conductors (class 6).

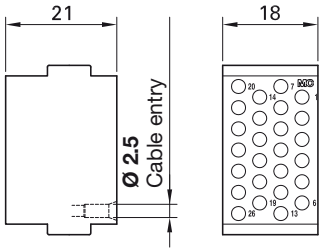
[4] For drilling plans, see assembly instructions MA213-01.

Ø 1 MM SIGNAL UNIT UP TO 12 A

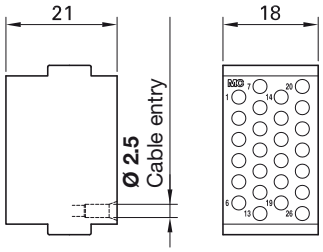
Contact carriers CT-E1-26/...

26-pole contact carrier made of resilient plastic. Different designs for pins and sockets.
For suitable contacts, see page 33.

CT-E1-26/B



CT-E1-26/S



Order No.	Type	Description
33.4002	CT-E1-26/B	Socket carrier (identification “B”)
33.4003	CT-E1-26/S	Pin carrier (identification “S”)

Technical data		
Number of poles	26	
For contact diameter	1 mm	
Pollution degree / overvoltage category	2/CATII	3/CATIII
Rated voltage	300 V AC/DC	150 V AC/DC
Max. flow-soldering temperature	260 °C	
Max. flow-soldering time	3 s	
Degree of protection (socket front)	IP2X	
Clearances and creepage distance	IEC 60664-1	
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C	
Contact carrier material	EPTR	

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Assembly instructions MA213-01

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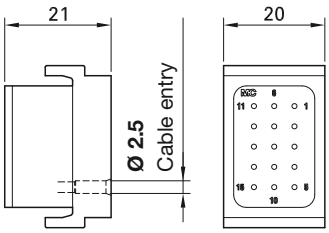
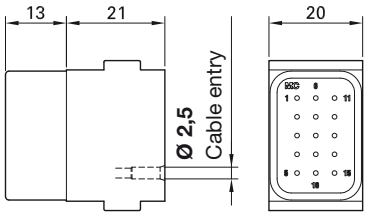
Contact carriers CT-E1-15/...

15-pole contact carrier made of resilient plastic. Different designs for pins and sockets.
For suitable contacts, see page 33.

CT-E1-15/B



CT-E1-15/S



Order No.	Type	Description
33.4022	CT-E1-15/B	Socket carrier (identification “B“)
33.4023	CT-E1-15/S	Pin carrier (identification “S“)

Technical data		
Number of poles	15	
For contact diameter	1 mm	
Pollution degree / overvoltage category	2/CATII	3/CATIII
Rated voltage	300 V AC/DC	150 V AC/DC
Max. flow-soldering temperature	260 °C	
Max. flow-soldering time	3 s	
Degree of protection (socket front)	IP2X	
Clearances and creepage distance	IEC 60664-1	
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C	
Contact carrier material	PA & EPTR	

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Assembly instructions MA213-01

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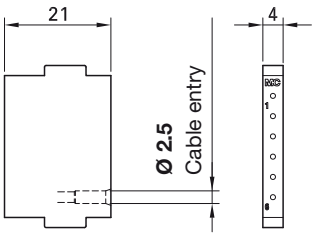
Contact carrier CT-E1-6

6-pole contact carrier made of resilient plastic. For suitable contacts, see page 33.

CT-E1-6



Order No.	Type
33.4014	CT-E1-6

Technical data		
Number of poles	6	
For contact diameter	1 mm	
Pollution degree / overvoltage category	2/CATII	3/CATIII
Rated voltage	300 V AC/DC	150 V AC/DC
Max. flow-soldering temperature	260 °C	
Max. flow-soldering time	3 s	
Degree of protection (socket front)	IP2X	
Clearances and creepage distance	IEC 60664-1	
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C	
Contact carrier material	EPTR	

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Assembly instructions MA213-01

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Ø 1 mm contacts

For contact carriers CT-E1-26/..., CT-E1-15/..., and CT-E1-6. Sockets fitted with MULTILAM.

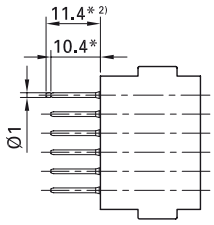
Type of termination:

- Crimp termination (C) for Cu conductors (class 5 and 6)
- Flow-soldering (PCB)

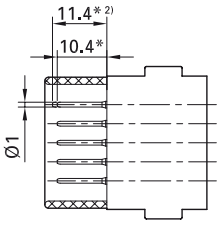
CT-BP1...

CT-SP1...

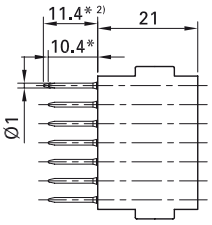
CT-E1-26/...

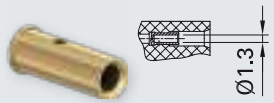
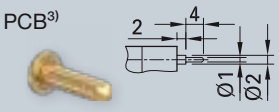


CT-E1-15/...



CT-E1-6



Order No.	Type	Socket	Pin	Surface	Conductor cross section		Rated current[1]	Type of termination
					mm²	AWG	A	
33.0141 **33.0143**	CT-BP1/0,25-0,75 AU CT-BP1ET/0,25-0,75 AU[3]	× ×			0.25 0.5 0.75	24 20 18	2 3 5	C 
33.0543 **33.0541**	CT-SP1/0,25-0,75L AU[2] CT-SP1/0,25-0,75K AU		× ×		0.25 0.5 0.75	24 20 18	2 3 5	
33.0145 **33.0146**	CT-B1/PCB AU CT-B1ET/PCB AU	× ×					5 5	PCB[3] 
33.0547 **33.0545**	CT-S1/PCB-L AU[2] CT-S1/PCB-K AU		× ×				5 5	
33.4051	CT-BS1	Blind plug						

Technical data		
	CT-BP... & CT-B...	**CT-BP1ET... & CT-B1ET...**
Nominal-Ø socket/pin	1 mm	1 mm
Max. sliding force per contact	2 N	0.5 N
Contact resistance	< 1.6 mΩ	< 3 mΩ
Mating cycles	5000	100,000
Vibrations	4.2 g/5 – 250 Hz (DIN EN 61373) 10 g/10 – 500 Hz (DIN EN 60068-2-6)	
Resistance to shocks	30 g/18 ms (DIN EN 61373)	

MA

Assembly instructions MA213-01

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* Pin size same for all types of terminations.

[1] Rated current for fully occupied carriers. Derating diagrams for bundled leads, see pages 105 – 108.

[2] Longer type of pin mates first.

[3] For drilling plans, see assembly instructions MA213-01.

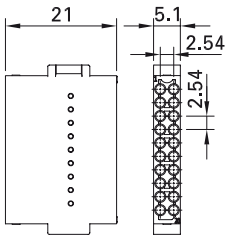
Ø 0.6 MM SIGNAL UNIT UP TO 6 A

Contact carriers CT-E0,6-20/...

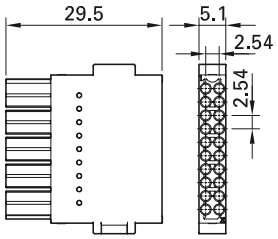
20-pole contact carrier made of plastic. Different designs for pins and sockets. The inner wall of the pin carrier protects the contacts from mechanical damage. The contact carrier is mechanically coded to prevent incorrect mating.

Note:
In combination with the contact carrier CT-E0,6-20/..., compensator CT-DIP1,3-3,4 might be needed to fill gaps in the CombiTac.

CT-E0,6-20/B



CT-E0,6-20/S



Order No.	Type	Description
33.4073	CT-E0,6-20/B	Socket carrier (identification “B“)
33.4072	CT-E0,6-20/S	Pin carrier (identification “S“)

Technical data		
Number of poles	20	
For contact diameter	0.6 mm	
Pollution degree / overvoltage category	2/CATII	3/CATIII
Voltage line / neutral	150 V AC/DC	50 V AC/DC
Degree of protection (socket front)	IP2X	
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C	
Contact carrier material	LCP	

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Assembly instructions MA213-01

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Ø 0.6 mm contacts

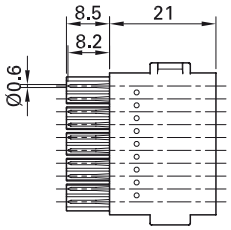
For contact carriers CT-E0,6-20/...

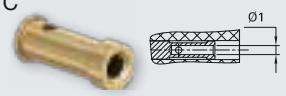
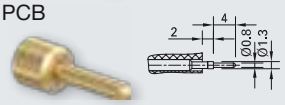
Type of termination:

- Crimp termination (C) for Cu conductors
- Soldering (L) for Cu conductors
- Flow-soldering (PCB) for printed circuit boards

CT-B...

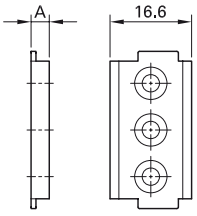
CT-S...



Order No.	Type	Socket	Pin	Surface	Conductor cross section		Rated current[1]	Type of termination
					mm²	AWG	A	
33.0126 **33.0526**	CT-BP0,6ET/0,14-0,25 AU CT-SP0,6/0,14-0,25 AU	× 	 ×		0.14 0.25	26 24	1.4 2	C 
33.0125 **33.0525**	CT-B0,6ET/LO AU CT-S0,6/LO AU	× 	 ×		0.14 0.25	26 24	1.4 2	L 
33.0124 **33.0524**	CT-B0,6ET/PCB AU CT-S0,6/PCB AU	× 	 ×		0.14 0.25	26 24	1.4 2	PCB 

Technical data	
Nominal-Ø pin / socket	0.6 mm
Max. sliding force per contact	0.5 N
Contact resistance	< 6 mΩ
Mating cycles	300,000

Accessories



Order No.	Type	Designation	Size A
33.4096	CT-DIP1,3-3,4	Compensator	1.3 mm – 3.4 mm

MA

Assembly instructions MA213-01

www.staubli.com/electrical

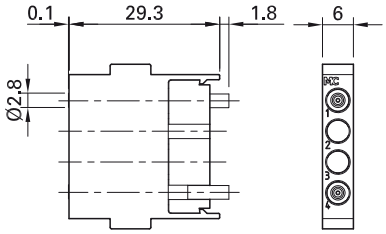
[1] Rated current for fully occupied carriers. Derating diagrams for bundled leads, see pages 104 – 108.

LAST MATE FIRST BREAK MODULE

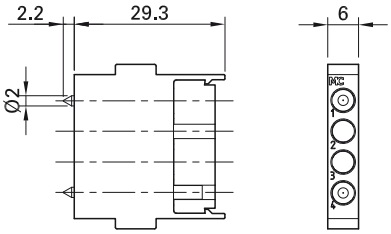
Module CT-LMFB/...

Last Mate First Break (LMFB) contacts are intended for monitoring purposes, and show whether a CombiTac is fully connected or not. Each CombiTac LMFB module consists of two LMFB contacts placed at the edge positions of a carrier.
Suitable for panel mount applications and housing sizes 2 to 5.

CT-LMFB/B



CT-LMFB/S



Order No.	Type	Description
33.2257	CT-LMFB/B	Socket module
33.2657	CT-LMFB/S	Pin module

Technical data	
Contact carrier material	PA
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C

Rails ≤ 90 mm[1)]

MA

Assembly instructions MA213-07

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Last Mate First Break contacts CT-LMFB-...

To be used with contact carrier CT-E-4GOF for monitoring the connection status of electrical contacts Ø 1.5 mm – Ø 12 mm.

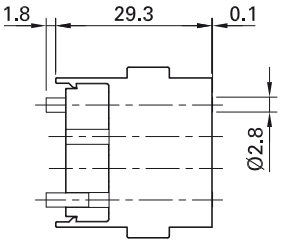
Type of termination:

- Crimp termination (C) for Cu conductors (class 5)
- Pressure contacts fitted with MULTILAM

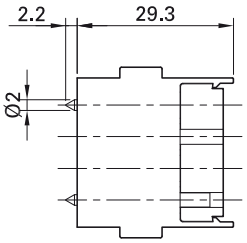
CT-LMFB-B2/0,5-1,5 AU

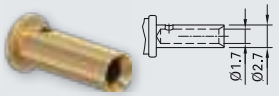
CT-LMFB-S2/0,5-1,5 AU

Socket side



Pin side



Order No.	Type	Socket	Pin	Surface	Conductor cross section		Type of termination
					mm²	AWG	
33.0134 **33.0534**	CT-LMFB-B2/0,5-1,5 AU CT-LMFB-S2/0,5-1,5 AU	×	×		0.5 0.75 1.0 1.5	20 18 18 16	C 
33.4080	CT-BSGOF[2)]	Blind plug					

Technical data	
Rated voltage/system voltage	29.5 V DC
Max. signal current	100 mA
Max. sliding force	14 N
Mating cycles	100,000[3)]
Vibrations	3.1 g/5 – 250 Hz (IEC 61373)
Resistance to shocks	30 g/18 ms (IEC 61373)

[1)] Please consult Stäubli sales team regarding LMFB modules for Rails > 90 mm

[2)] We recomment filling the two empty slots of the contact carrier with blind plugs.

[3)] LMFB contacts are not suitable for inductive (e.g. relays) or capacitive loads. In such cases, arcing at the LMFB contacts during connecting/disconnecting may reduce the expected mating cycles of LMFB contacts.

MA

Assembly instructions MA213-07

www.staubli.com/electrical

COAXIAL UNIT 6 GHZ

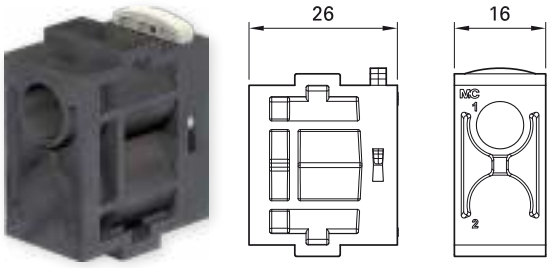
Contact carrier

The Coaxial unit 6 GHz is used for data as well as digital audio and video transmission. Two types of termination are possible, crimp and SMA.
There are two crimp versions available, one for RG58 and one for RG316/U, RG174 and RG188 cables, and a SMA termination version for various cable types up to 6 GHz levels.

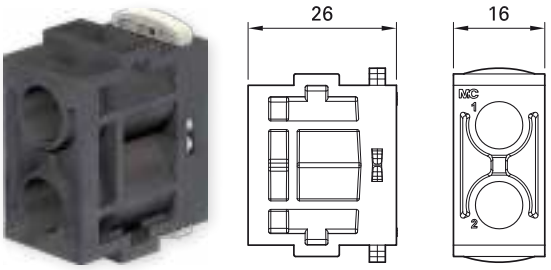
Features:

- Suitable for various 50 Ω RG cable types up to 6 GHz (depending on RG cable type)
- Crimp for RG58 cables up to 2.4 GHz
- Crimp for RG316/U, RG174. RG188 cables up to 2.4 GHz
- SMA for RG58, RG316/U, RG174, RG188 and other cables up to 6 GHz
- 100,000 mating cycles
- UL 1977 and Railway standard compliant
- Resistance to shock and vibrations
- Applications: data transmission, digital audio and video, HF measurement, radio communication.

CT-E-COAX-1



CT-E-COAX-2



CT-RC-COAX

Order No.	Type	Designation
33.4180	CT-E-COAX-1	One pole coax carrier
33.4181	CT-E-COAX-2	Two pole coax carrier

Individual part (supplied with 33.4180 and 33.4181)

33.4182	CT-RC-COAX	Retaining clip (included with carriers)

Technical data	
Number of poles CT-E-COAX-1 CT-E-COAX-2	1 2
For connectors	Coaxial crimp and SMA
Pollution degree	2
Limiting temperature (IEC 61984)	–40 °C...+90 °C
Contact carrier material	PA
Fire and smoke compliance	EN 45545-2 (HL3 R22 – R23)

MA

Assembly instructions MA213-11

www.staubli.com/electrical

Coaxial connectors

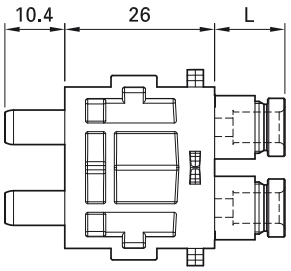
For contact carriers CT-E-COAX-1 and CT-E-COAX-2.

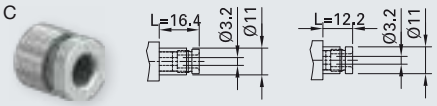
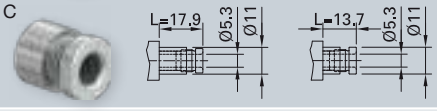
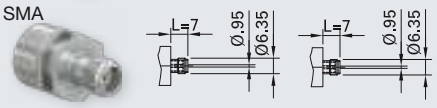
Type of termination:

- Crimp termination (C)
- SMA Termination (SMA)

CT-B-COAX-RG316/U

CT-S-COAX-RG316/U



Order No.	Type	Socket	Pin	Suitable for cable types	Type of termination
33.0230 **33.0630**	CT-B-COAX-RG316/U CT-S-COAX-RG316/U	×	×	RG316/U, RG174, RG188	C 
33.0231 **33.0631**	CT-B-COAX-RG58 CT-S-COAX-RG58	×	×	RG58	C 
33.0250 **33.0750**	CT-B-COAX-SMA CT-S-COAX-SMA	×	×	RG58, RG316/U, RG174, RG188, other 50 Ω RG cable types up to 6 GHz	SMA 

Technical data	
Max. sliding force per contact	9 N
Max. frequency	Crimp: 2.4 GHz SMA: 6 GHz
Voltage standing wave ratio (VSWR)	Crimp: 1.4 at 2.4 GHz SMA: 1.3 at 6 GHz
Rated voltage	UL 250 V, IEC 300 V
Rated current	250 mA
Impedance	50 Ω
Mating cycles	100,000
Vibrations and shock	IEC 61373 category 1B
Degree of protection (socket front)	IP2X

MA

Assembly instructions MA213-11

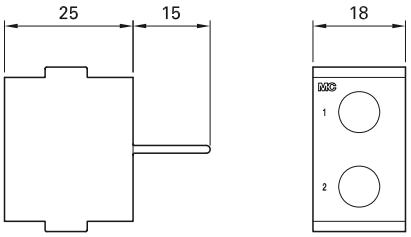
www.staubli.com/electrical

COAXIAL UNIT 1.5 GHZ

Contact carrier CT-E8-2

2-pole contact carrier made of resilient plastic.

CT-E8-2



Order No.	Type
33.4000	CT-E8-2

Technical data	
Number of poles	2
For connectors	Coaxial
Pollution degree	2
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C
Contact carrier material	EPTR

MA

Assembly instructions MA213-02

www.staubli.com/electrical

Coaxial connectors

For contact carrier CT-E8-2. Consist of parts of BNC plug connectors. For coaxial cables type RG58[1)] and RG59[1)].

Type of termination:
Crimp termination (C) of the inner conductor and the shield

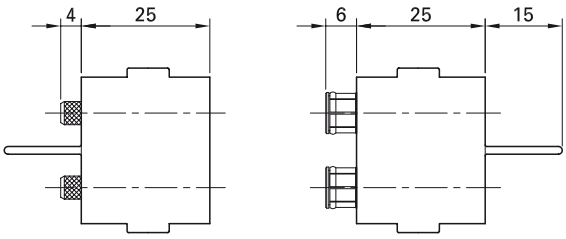
Notes:
For the termination of the shield, a brass crimping sleeve is included. The coaxial plug connectors are designed in accord-ance with CECC 22 120.

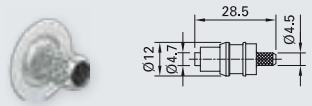
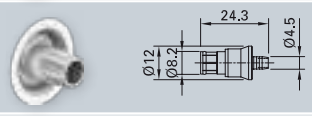
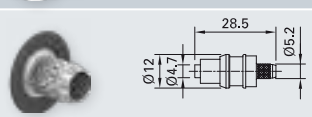
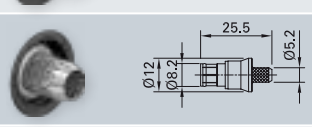
CT-B/COAX58

CT-S/COAX58

CT-B/COAX59

CT-S/COAX59



Order No.	Type	Socket	Pin	Inner-Ø crimp sleeve shield	Type of termination
33.0160	CT-B/COAX58	×		5.5 mm	C 
33.0560	CT-S/COAX58		×	5.5 mm	C 
33.0161	CT-B/COAX59[2)]	×		6.5 mm	C 
33.0561	CT-S/COAX59[2)]		×	6.5 mm	C 
33.4050	CT-BS8	Blind plug			

Technical data	
Max. sliding force per contact	20 N
Surface inner conductor	CuZn, Au
Surface shield	CuZn, Ni
Voltage standing wave ratio	CT...58: VSWR ≤ 1.25 at f < 1.5 GHz CT...59: VSWR ≤ 1.5 at f < 500 MHz
Rated voltage shield/earth	1000 V, CAT II
Rated voltage inner conductor/shield	1000 V, CAT II
Impedance	CT...58: 50 Ω CT...59: 75 Ω
Voltage level according to	IEC 61010
Mating cycles according to DIN EN 61169-8 - 2007-11	5,000 2,500

[1)] For the coaxial connectors CT-.../COAX58 and CT-.../COAX59, only the coaxial lead RG58 or RG59 is suitable.
[2)] CT59: if a solid conductor is used, this must be soldered.

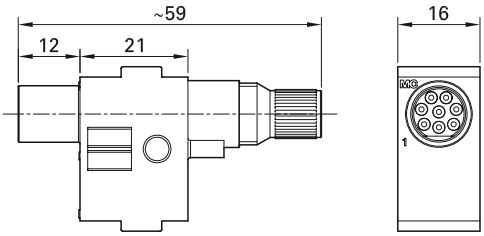
DATA TRANSFER UNIT

Contact carrier for data transfer in BUS-Systems CT-NET-...

Contact carrier made of plastic. One or two 8-pole pin or socket carriers with continuous shielding.

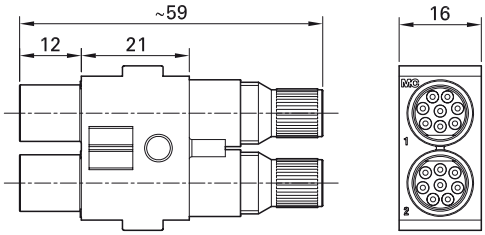
CT-NET-1/B

CT-NET-1/S



CT-NET-2/B

CT-NET-2/S



Order No.	Type	Number of contact elements
33.2240	CT-NET-2/B	Depending on contact arrangement on page 43; must be ordered separately
33.2540	CT-NET-2/S	
33.2241	CT-NET-1/B	
33.2641	CT-NET-1/S	

Technical data	
Data transmission	CAT5 Ethernet IEEE 802.3, Profibus, Profinet, Interbus, CAN-BUS
Mating cycles	5000
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C
Contact carrier material insulation	PA PEEK

MA

Assembly instructions MA213-04

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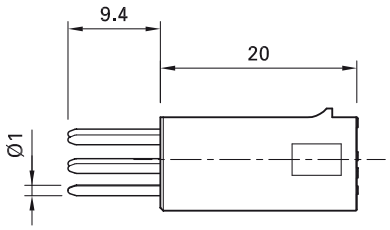
Contacts for data transmission in BUS system CT-NET-...

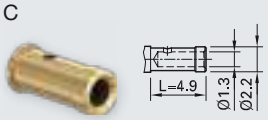
For contact carrier CT-NET-... Sockets fitted with MULTILAM.

Type of termination:
Crimp termination (C) to a Cu conductor (class 5 and 6)

CT-NET-B...

CT-NET-S...

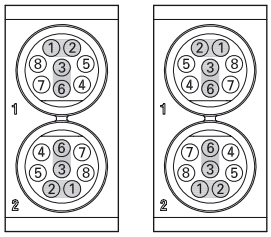


Order No.	Type	Socket	Pin	Surface	Conductor cross section		Rated current	Type of termination
					mm^2	AWG	A	
33.0148	CT-NET-BP1ET/0,25-0,75 AU	×			0.25 0.5 0.75	24 20 18	2 3 5	C 
33.0548	CT-NET-SP1/0,25-0,75 AU		×		0.25 0.5 0.75	24 20 18	2 3 5	
33.9589	CT-NET-BS[1)]	Blind plug						

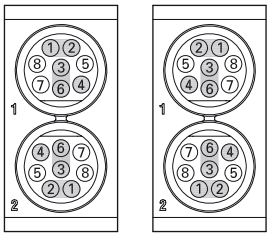
Technical data	
Nominal-Ø socket/pin	Ø 1 mm
Max. sliding force per contact	1 N
Contact resistance	1.6 mΩ

Contact arrangement of the contact carrier
Left: socket side; right: pin side
(Viewed from the termination side)

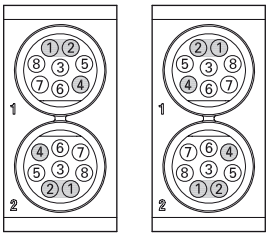
Ethernet / Profinet



Interbus



Profibus



[1)] Unused contact chambers should be closed with blind plugs.

MA

Assembly instructions MA213-04

www.staubli.com/electrical

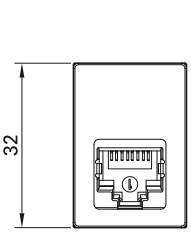
10Gbit module CT-10GBIT-...

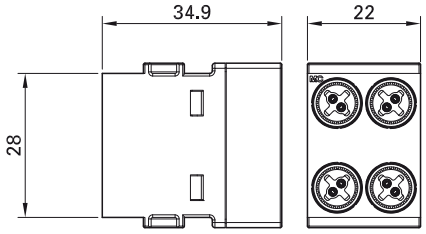
The 10Gbit module is used for Ethernet communication up to 10Gbit (CAT6A).
Two versions are available, one for RJ45 and one for M12 (x-coded) connection.
The 10Gbit module is delivered completely assembled.

- Suitable for RJ45 and M12 connection
- 100,000 mating cycles
- UL 1977 and Railway standard compliant
- Resistance to shock (M12) and vibrations (M12, RJ45)
- Applications: high speed data communication, machine-to-machine communication (M2M), real time facility data sharing, railway

CT-10GBIT-RJ45/B

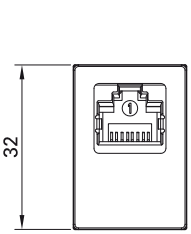
Rear view

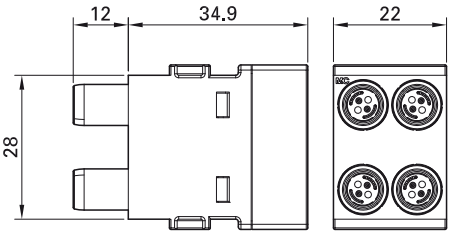




CT-10GBIT-RJ45/S

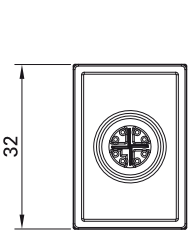
Rear view

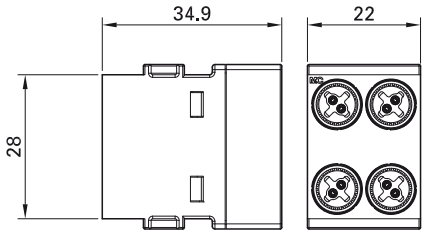




CT-10GBIT-M12/B

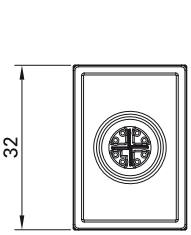
Rear view

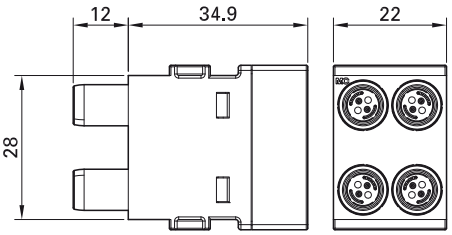




CT-10GBIT-M12/S

Rear view





Order No.	Type
33.0130	CT-10GBIT-RJ45/B
33.0530	CT-10GBIT-RJ45/S
33.0240	CT-10GBIT-M12/B
33.0640	CT-10GBIT-M12/S

Technical data	
Data transmission	CAT6A Ethernet IEEE 802.3an
Mating cycles	100,000
Rated current	0.75 A
Rated voltage[1)]	48 V
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C
Contact carrier material	PA
Fire and smoke compliance	EN 45545-2 (HL3 R22 – R23)
Insulation resistance	≥ 500 MΩ
Vibrations, RJ45 M12	5 g/10 – 500 Hz (IEC 60512-6-4) 0.58 g/5 - 150 Hz (IEC 61373 category 1B)
Resistance to shocks, M12	3.06 g/30 ms (IEC 61373 category 1B)

[1)] Less than 30 V_{rms} for UL 1977

MA

Assembly instructions MA213-08

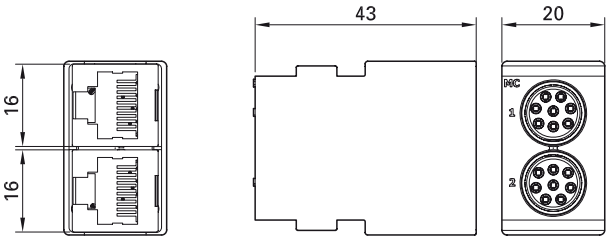
www.staubli.com/electrical

10Mbit module CT-RJ45/...

The 10Mbit module is used for Ethernet communication up to 10Mbit (CAT5). Suitable network cables with a RJ45 connectors can be directly connected to the 10Mbit module. The 10Mbit module is delivered completely assembled.

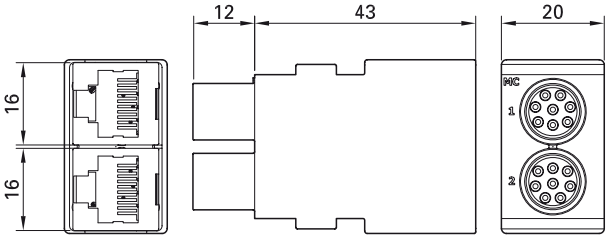
CT-RJ45/B

View from rear view



CT-RJ45/S

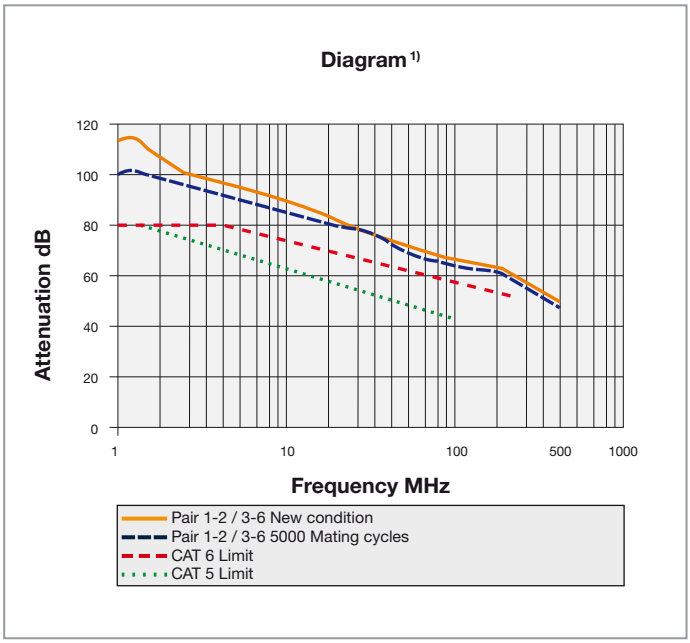
View from rear view



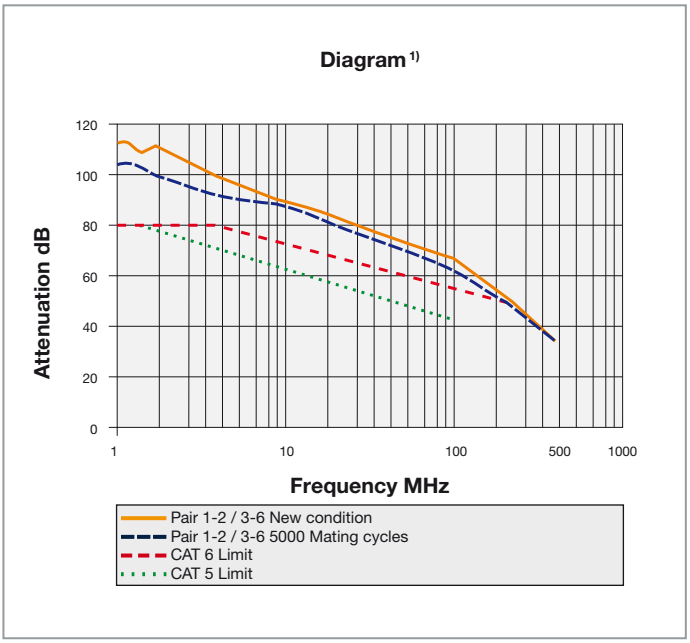
Order No.	Type
33.2169	CT-RJ45/B
33.2170	CT-RJ45/S

Technical data	
Data transmission	CAT5 Ethernet IEEE 802.3
Mating cycles	5,000
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C
Contact carrier material Insulation	PA PEEK

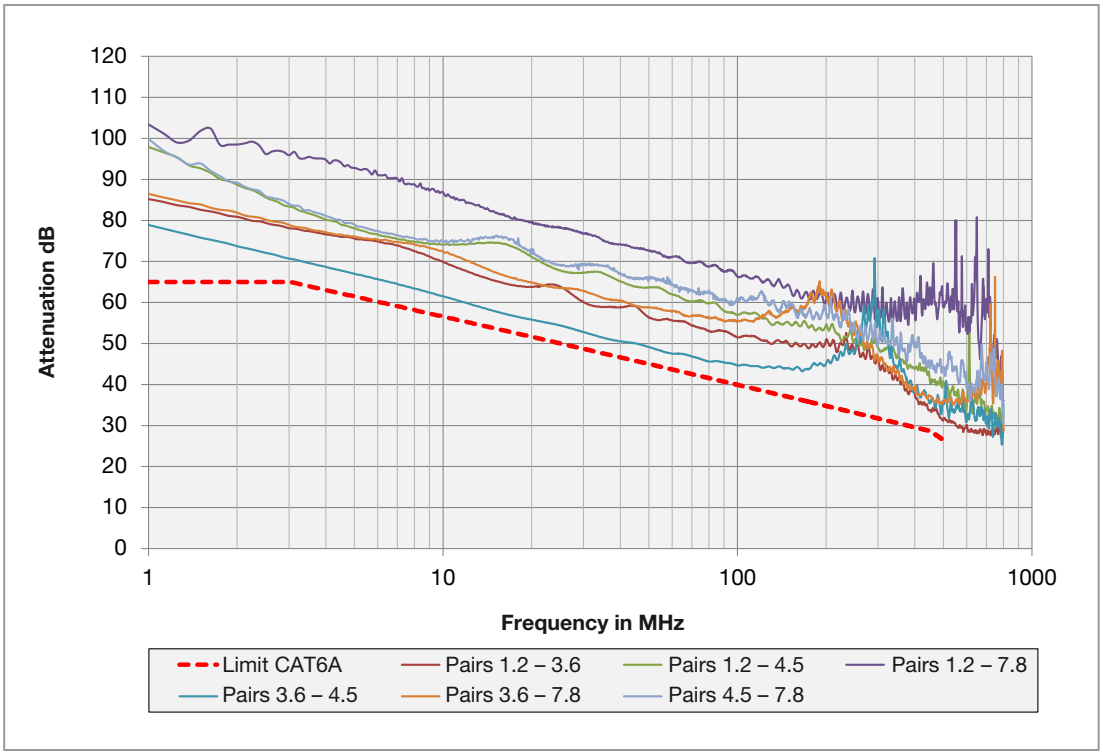
Attenuation characteristics for CT-NET...



Attenuation characteristics for CT-RJ45...



Attenuation characteristics for CT-10GBIT-...



1) Further technical specifications:
www.staubli.com/electrical > Downloads > Technical Info > Industry > Data connectors.

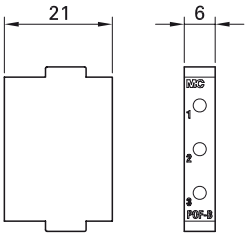
OPTICAL FIBER UNIT POF

Contact carriers CT-E-3POF/...

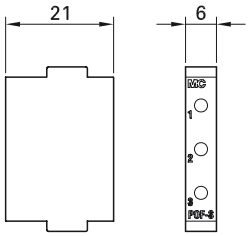
3-pole contact carrier made of plastic. Different designs for pins and sockets.

Because of the spring-loaded contacts, the contact carriers must be installed either in a housing or with a locking system defined by the customer.

CT-E-3POF/B



CT-E-3POF/S



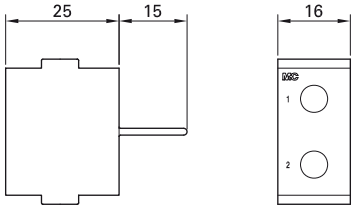
Order No.	Type	Description
33.4016	CT-E-3POF/B	Socket carrier (identification “B“)
33.4017	CT-E-3POF/S	Pin carrier (identification “S“)

Technical data	
Number of poles	3
For connector type	POF Ø 1 mm
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C
Contact carrier material	PA

Contact carriers CT-E6-2

2-pole contact carrier in plastic for plastic optical fiber with lens, type CT-POF/SL.

CT-E6-2



Order No.	Type
33.4006	CT-E6-2

Technical data	
Number of poles	2
For connector type	POF Ø 1 mm
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C
Contact carrier material	EPTR

MA

Assembly instructions MA213-03

www.staubli.com/electrical

Plastic optical fiber contacts CT-.../POF

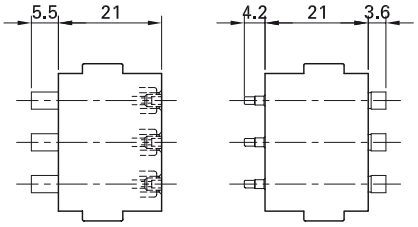
For the connection of plastic optical fiber cables of the type POF Multimode. Standard version or lens version.

Advantages of lens version CT-POF/SL:

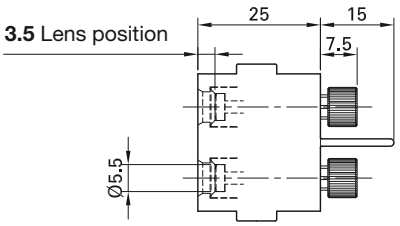
- Higher tolerance against dirt
- Easy to clean
- Same type for both mating sides

CT-B/POF

CT-S/POF



CT-POF/SL



Order No.	Type	Socket	Pin	For contact carrier
33.0170	CT-B/POF	×		CT-E-3POF/B
33.0570	CT-S/POF		×	CT-E-3POF/S
33.0370	CT-POF/SL	×	×	CT-E6-2

Technical data	
Ø of core/cladding	980/1000 µm
Ø of first protective covering	2200 µm
Insertion loss CT-B/POF, CT-S/POF	< 3 dB at 650 nm, depending on assembly type
Bandwidth length product MHz	1 km at 650 nm
Numeric aperture	0.47
Insertion loss CT-POF/SL	< 3 dB at 650 nm
Mating cycles	500

MA

Assembly instructions MA213-03

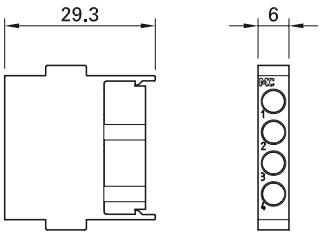
www.staubli.com/electrical

OPTICAL FIBER UNIT GOF

Contact carrier CT-E-4GOF

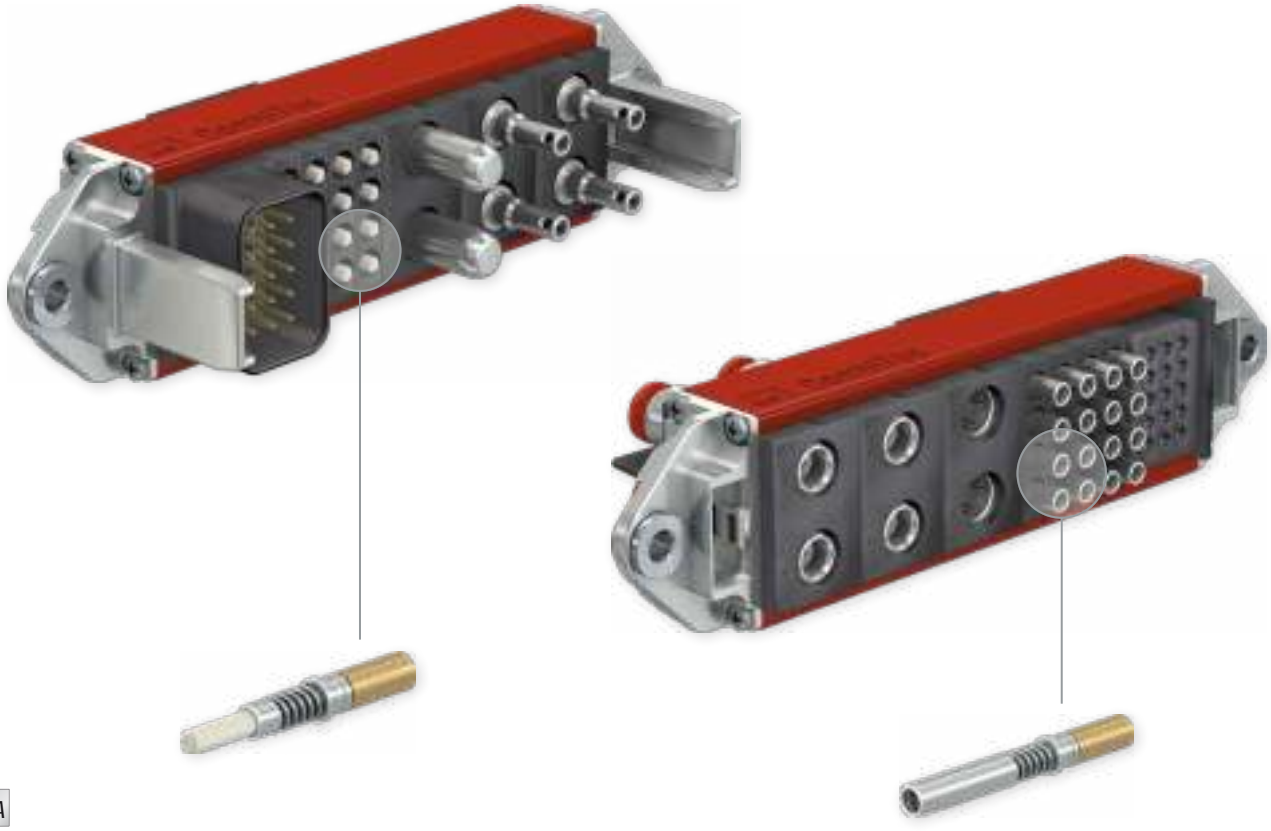
4-pole contact carrier made of plastic.

CT-E-4GOF



Order No.	Type
33.4065	CT-E-4GOF

Technical data	
Contact carrier material	PA



MA

Assembly instructions MA213-06, MA092

www.staubli.com/electrical

Glass optical fiber contacts CT-.../GOF

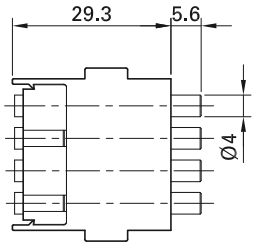
For the connection of glass optical fiber cables of the type GOF Mono- and Multimode, to fit contact carrier CT-E-4GOF.

In preassembled cables, one end is equipped with either ST or SC plug connectors according to choice. The cable length is 1 m. Fiber type: Multimode, gradient fiber (GI) 50/125 µm.

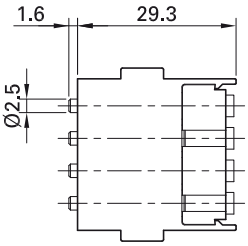
CT-B/GOF

CT-S/GOF

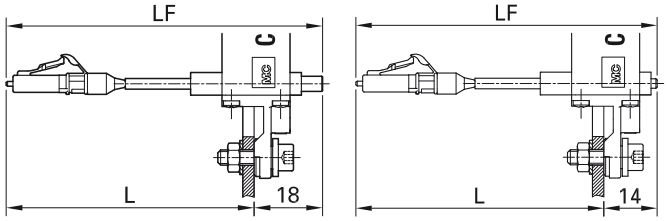
Socket side



Pin side



CT-B/GOF-100-ST



Order No.	Type	Socket	Pin	Designation	on tail end preassembled with
33.0171	CT-B/GOF	×		Contact	
33.0571	CT-S/GOF		×	Contact	
33.0171-100	CT-B/GOF-100-ST[1)]	×		1 m Preassembled multimode cable	ST
33.0571-100	CT-S/GOF-100-ST[1)]		×	1 m Preassembled multimode cable	ST
33.0172-100	CT-B/GOF-100-SC[1)]	×		1 m Preassembled multimode cable	SC
33.0572-100	CT-S/GOF-100-SC[1)]		×	1 m Preassembled multimode cable	SC

Technical data	
Insertion loss	<0.5 dB at 1310 nm, depending on assembly type
Mating cycles	≥ 500 (cleaning interval every 100 mating cycles)[2)]
Spring deflection	3 mm
Contact pressure	10 N per contact with 3 mm spring deflection
Allowable operating temperature	–30 °C ... +90 °C

Fiber types	
Graded-index fiber (GI)	50/125 µm
Graded-index fiber (GI)	62.5/125 µm
Single mode fiber (SM)	9/125 µm
Coating diameter	250/900 µm
Ø of cable	max. 3 mm

LF= total length.

L = length from CombiTac mounting position.

[1)] Other cable lengths and connectors on request. Specify L or LF length.

[2)] Cleaning the contact surface at regular intervals increases the number of mating cycles.

MA

Assembly instructions MA213-06, MA092

www.staubli.com/electrical

Thermocouple pressure contacts

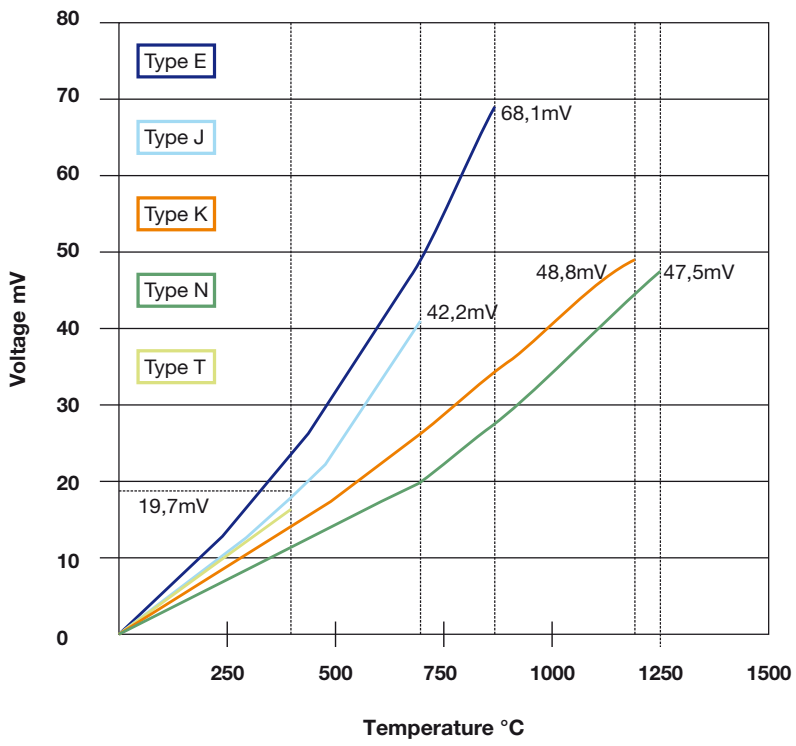
Thermocouple allows for the precise measurement of temperatures. Between two wires of different materials a voltage is generated that varies according to the rise in temperature.

The electrical measurement of temperature requires that the entire measurement chain (temperature sensor, cable connection points) consists of the same combination of materials. Using a uniform material prevents thermal inbalances in the case of the connection of two parts with the same initial temperature.

With Stäubli thermocouple contacts, you can extend the measurement chains or lay them out as plug contact connections.

There are several types of thermocouples made from different materials adapted to the measured temperature range.

Stäubli thermocouple pressure contacts are available for 5 different types of sensor: E, J, K, N, and T. For that reason, Stäubli has developed different types of spring loaded contacts for thermocouples from the 7 most commonly used materials: chromel, constantan, iron, alumel, nicrosil, nisil, and copper.



Stäubli thermocouple types

Typ E	Chromel + Constantan
Type J	Iron + Constantan
Type K	Chromel + Alumel
Type N	Nicrosil + Nisil
Type T	Copper + Constantan

Description according to: EN60584

To ensure clear identification, our spring-loaded thermocouple contacts are provided with different grooves and markings:

Cu
Copper (without groove)

Fe
Iron (without groove)

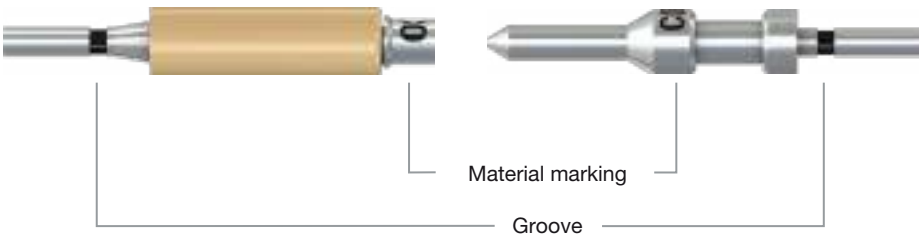
NiAl
Alumel® (1 groove)

NiCr
Chromel® (2 grooves)

NiSi
Nisil (3 grooves)

NiCrSi
Nicrosil (4 grooves)

CuNi
Constantan® (1 wide groove)

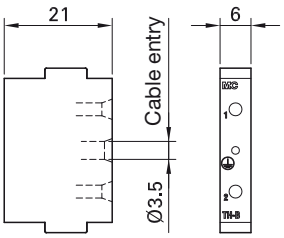


Contact carrier CT-E-2TH+PE/...

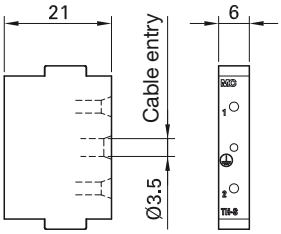
3-pole contact carrier made of plastic. For two thermocouple pressure contacts and one PE contact.

Different designs for pins and sockets. Because of the springloaded contacts, the contact carriers must be installed either in a housing or with a locking system defined by the customer.

CT-E-2TH+PE/B



CT-E-2TH+PE/S



Order No.	Type	Description
33.4011	CT-E-2TH+PE/B	Socket carrier (identification “B“)
33.4012	CT-E-2TH+PE/S	Pin carrier (identification “S“)

Technical data	
Number of poles	1 thermocouple (2 contacts)/1 PE
Contact carrier material	EPTR

MA

Assembly instructions MA213-01

www.staubli.com/electrical

Thermocouple pressure contacts

For the connection of measurement chains for thermocouple, for contact carriers CT-E-2TH+PE/...

Type of termination:
Crimp termination

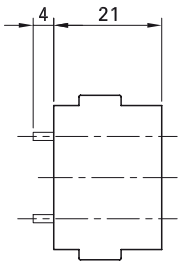
Note:
Soldering is not permitted, meaning that only uniform materials are used. **This ensures a homogeneous measurement chain.**

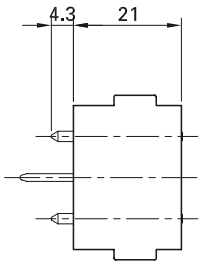
DBP2-...

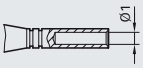
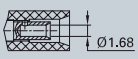
DSP2-...

CT-BP1,5LAV/0,5-1,5 AU

CT-SP1,5/0,5-1,5K AU





Order No.	Type	Socket	Pin	Material	Material marking	Groove marking	PE contact	Crimp termination
19.6724 **19.6723**	DBP2-NISI/0,14-0,5 DSP2-NISI/0,14-0,5	×	×	Nisil	NIS				
19.6722 **19.6721**	DBP2-NICRSI/0,14-0,5 DSP2-NICRSI/0,14-0,5	×	×	Nicrosil	NIC			
19.6726 **19.6725**	DBP2-CU/0,14-0,5 DSP2-CU/0,14-0,5	×	×	Copper	CU				
19.6720 **19.6719**	DBP2-FE/0,14-0,5 DSP2-FE/0,14-0,5	×	×	Iron	FE				
19.6718 **19.6717**	DBP2-CO/0,14-0,5 DSP2-CO/0,14-0,5	×	×	Constantan	CO			
18.8062 **18.9062**	DBP2-AL/0,14-0,5 DSP2-AL/0,14-0,5	×	×	Alumel	AL			
18.8063 **18.9063**	DBP2-CR/0,14-0,5 DSP2-CR/0,14-0,5	×	×	Chromel	CR			
33.0153 **33.0550**	CT-BP1,5LAV/0,5-1,5 AU CT-SP1,5/0,5-1,5K AU	×	×	CuZn, Au			× ×	
18.5500	MVS1,5/2	Blind plug						

Technical data	
For conductor cross section	0.14 mm² – 0.5 mm² [1]
Contact pressure (spring insertion 1 mm)	6 – 9 N
Mating cycles	100,000[2]

MA

Assembly instructions MA213-01

www.staubli.com/electrical

[1] Contacts for conductor cross section 0.5 mm² – 1 mm² on request.

[2] Maintenance interval: every 10,000 or 50,000 cycles depending on thermocouple type, see MA213.

Compressed air and vacuum modules

RCT 03:
- Nominal width: 3 mm
- With shut-off on one side or without shut-off valve

RCT 06:
- Nominal width: 6 mm
- With shut-off on one side or without shut-off valve

UCT:
- Nominal widths: 4 mm, 6 mm, and 8 mm
- Without shut-off valve

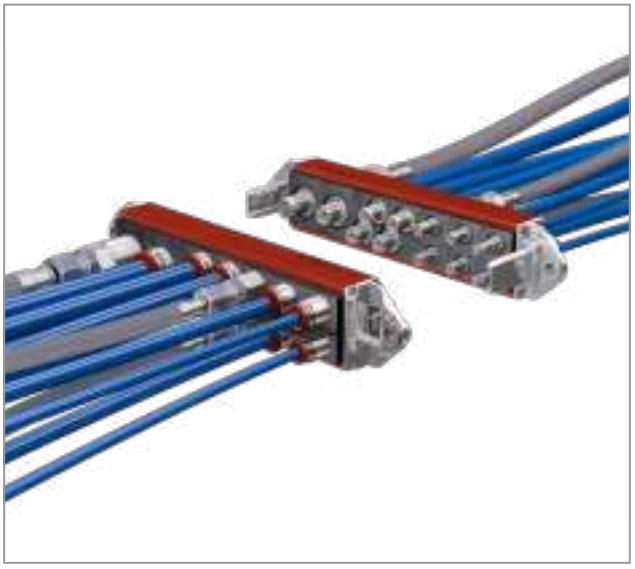
RCT

UCT

Coolant modules
- Nominal widths: 3 mm and 5 mm
- Leakproof rapid couplings
- With shut-off on both sides

SCT

The compressed air and coolant couplers are supplied ready mounted in the carrier.



8 different sizes of carriers

Colored press rings for simple assignment

Brass, nickel plated

- Metric termination without shut-off
- Metric termination with shut-off
- Inch termination without shut-off
- Inch termination with shut-off

14 plug types

17 socket types

15 bar max. operating pressure

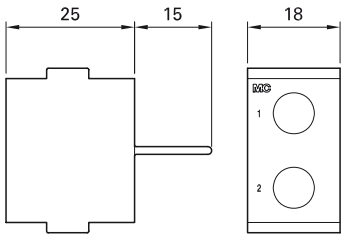
Recommended calibrated plastic tubes:
TUBANE Stäubli (PU)
RILFLEX Stäubli (PA)
See catalog “Tuyaux flexibles (flexible hoses)” from Stäubli

COMPRESSED AIR – VACUUM UNIT

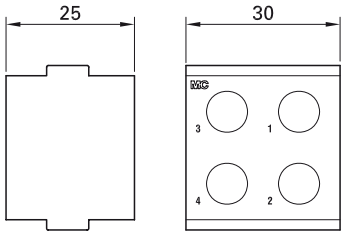
Carriers for compressed air and coolant couplings CT-E8...

2- and 4-pole carriers made of resilient plastic.

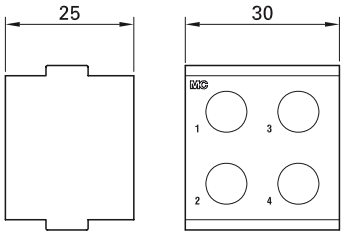
CT-E8-2



CT-E8-4/B



CT-E8-4/S



Order No.	Type	Number of poles	For sockets	For plugs
33.4000	CT-E8-2	2	×	×
33.4024	CT-E8-4/B	4	×	
33.4027	CT-E8-4/S	4		×

Technical data	
Contact carrier material	EPTR

Technical data from page 59:

Technical data		
	RCT03	**UCT04**
Nominal bore (mm)	03	04
Max. working pressure (bar)	15	
Min. working pressure (mbar)	14	
Operating temperatures	–15 °C ... +90 °C	
Sealing materials	NBR	
Mating cycles	100,000[2)]	

Compressed air couplings CT-...-RCT03/... and CT-...-UCT04/...

For carriers CT-E8...

Type of termination:
Clamping and PLV screw connection for calibrated plastic tubes (PA or PU)

CT-B...-RCT03/...

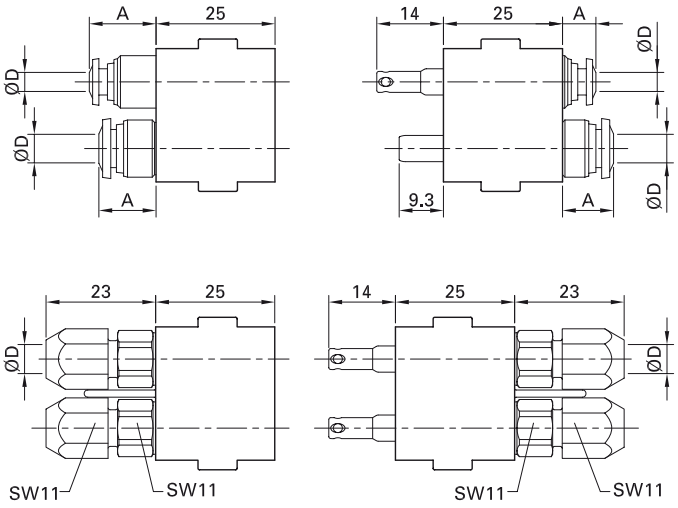
CT-S...-RCT03/...

CT-B-UCT04/...

CT-S-UCT04/...

CT-BV-RCT03/PLV4/6

CT-S-RCT03/PLV4/6



							Shut-off		
Order No.	**Type**	**Socket**	**Plug**	**Outer-Ø D of the tube**		**A**	**Without**	**With**	**Press ring color**
				mm	"	mm	←	⊣○	
33.0180	CT-B-RCT03/4	×		4	(5/32)	14	×		
33.0181	CT-BV-RCT03/4	×		4	(5/32)	14		×	
33.0580	CT-S-RCT03/4		×	4	(5/32)	7	×		
33.0182	CT-B-RCT03/6[1)]	×		6		17	×		
33.0183	CT-BV-RCT03/6[1)]	×		6		17		×	
33.0582	CT-S-RCT03/6[1)]		×	6		11.5	×		
33.0184	CT-B-RCT03/¼"	×			¼	17	×		
33.0185	CT-BV-RCT03/¼"	×			¼	17		×	
33.0584	CT-S-RCT03/¼"		×		¼	11.5	×		
33.0175	CT-B-RCT03/PLV4/6	×		6			×		
33.0179	CT-BV-RCT03/PLV4/6	×		6				×	
33.0578	CT-S-RCT03/PLV4/6		×	6			×		
33.0275	CT-B-RCT03/PLV 2/4	×		4			×		
33.0279	CT-BV-RCT03/PLV 2/4	×		4				×	
33.0675	CT-S-RCT03/PLV 2/4		×	4			×		
33.0186	CT-B-UCT04/6[1)]	×		6		12	×		
33.0586	CT-S-UCT04/6[1)]		×	6		10.7	×		
33.0188	CT-B-UCT04/¼"	×			¼	12	×		
33.0588	CT-S-UCT04/¼"		×		¼	10.7	×		

[1)] For flow, head loss diagrams, and sliding forces, see page 109.
[2)] Lubrication interval every 20,000 mating cycles, see MA213.

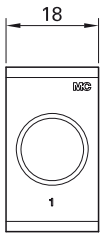
Carriers for compressed air couplings CT-E-UCT06-...

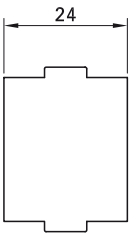
1-, 2-, or 4-pole carrier made of resilient plastic.

Note:
The contact carrier can be used on both the socket and the pin side. The difference shows in the position of the MC logo.

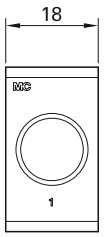
CT-E-UCT06-1

Socket side



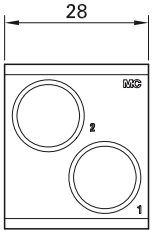


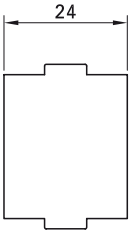
Pin side



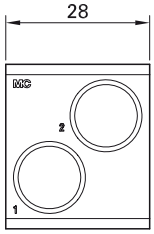
CT-E-UCT06-2

Socket side



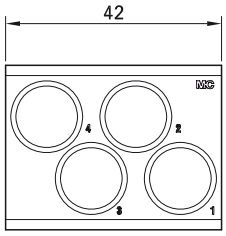


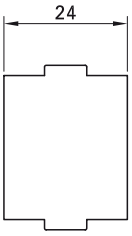
Pin side



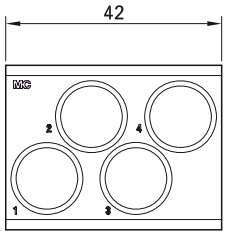
CT-E-UCT06-4

Socket side





Pin side



Order No.	Type	Number of poles	For sockets	For plugs
33.4028	CT-E-UCT06-1	1	×	×
33.4029	CT-E-UCT06-2	2	×	×
33.4030	CT-E-UCT06-4	4	×	×

Technical data	
Contact carrier material	EPTR

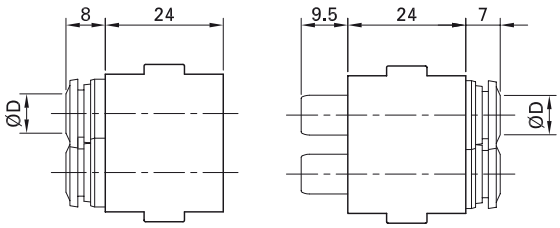
Compressed air couplings CT-...-UCT06/8

For carriers CT-E-UCT06-...

Type of termination:
Clamping termination for calibrated plastic tubes (PA or PU)

CT-B-UCT06/8

CT-S-UCT06/8



						Shut-off		
Order No.	**Type**	**Socket**	**Plug**	**Outer-Ø D of the tube**		**Without**	**With**	**Press ring color**
				mm	"			
33.0190	CT-B-UCT06/8[1)]	×		8	(5/16)	×		
33.0590	CT-S-UCT06/8[1)]		×	8	(5/16)	×		

Technical data	
Nominal bore (mm)	06
Max. working pressure (bar)	15
Min. working pressure (mbar)	14
Operating temperatures	–15 °C ... +90 °C
Sealing materials	NBR
Mating cycles	100,000[2)]

[1)] For flow, head loss diagrams, and sliding forces, see page 110.
[2)] Lubrication interval every 20,000 mating cycles, see MA213.

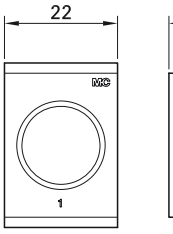
Carriers for compressed air couplings CT-E-UCT08-...

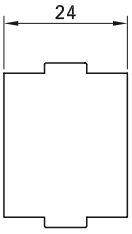
1- or 2-pole contact carrier made of resilient plastic.

Note:
The contact carrier can be used on both the socket and the pin side. The difference can be seen in the position of the MC logo.

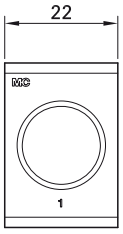
CT-E-UCT08-1

Socket side



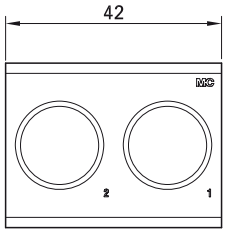


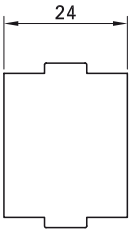
Pin side



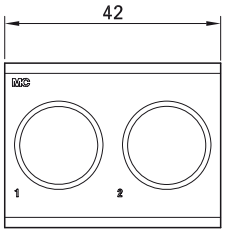
CT-E-UCT08-2

Socket side





Pin side



Order No.	Type	Number of poles	For sockets	For plugs
33.4032	CT-E-UCT08-1	1	×	×
33.4031	CT-E-UCT08-2	2	×	×

Technical data	
Contact carrier material	EPTR

Technical data from page 63:

Technical data		
	RCT06	**UCT08**
Nominal bore (mm)	06	08
Max. working pressure (bar)	15	
Min. working pressure (mbar)	14	
Operating temperatures	–15 °C ... +90 °C	
Sealing materials	NBR	
Mating cycles	100,000[1)]	

[1)] Lubrication interval every 20,000 mating cycles, see MA213.

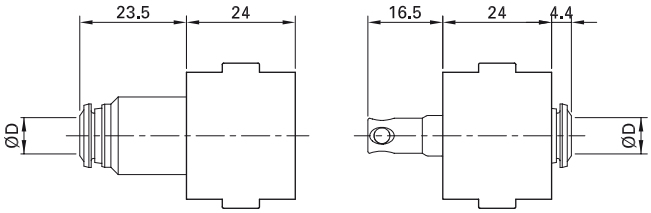
Compressed air couplings CT-...-UCT08... and CT-...-RCT06/...

For carriers CT-E-UCT08-...

Type of termination:
Clamping and PLV screw termination for calibrated plastic tubes (PA or PU)

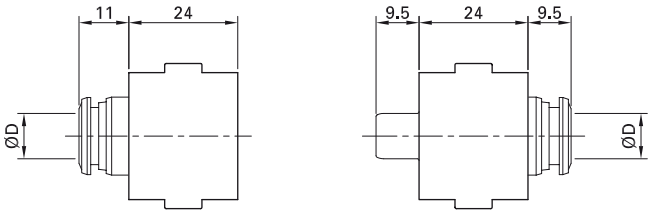
CT-BV-RCT06/8

CT-S-RCT06/8



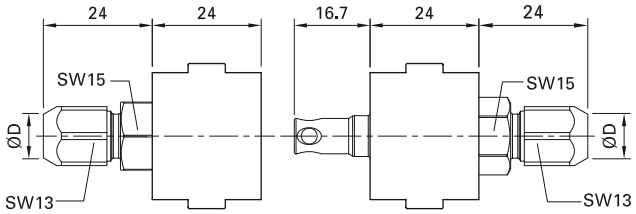
CT-B-UCT08/10

CT-S-UCT08/10



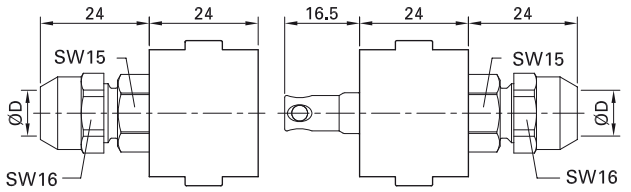
CT-BV-RCT06/PLV6/8

CT-S-RCT06/PLV6/8



CT-BV-RCT06/PLV8/10

CT-S-RCT06/PLV8/10



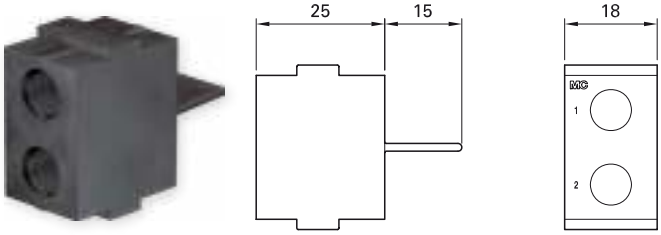
							Shut-off		
Order No.	**Type**	**Socket**	**Plug**	**Outer-Ø D of the tube**		**A**	**without**	**with**	**Press ring color**
				mm	"	mm			
33.0201 **33.0601**	CT-BV-RCT06/8 CT-S-RCT06/8	× 	 ×	8 8	(5/16) (5/16)	 	 ×	× 	
33.0176 **33.0576**	CT-BV-RCT06/PLV6/8 CT-S-RCT06/PLV6/8	× 	 ×	8 8	 	 	 ×	× 	
33.0177 **33.0577**	CT-BV-RCT06/PLV8/10 CT-S-RCT06/PLV8/10	× 	 ×	10 10	 	 	 ×	× 	
33.0194 **33.0594**	CT-B-UCT08/10[1)] CT-S-UCT08/10[1)]	× 	 ×	10 10	 	 	× ×	 	
33.0196 **33.0596**	CT-B-UCT08/3/8" CT-S-UCT08/3/8"	× 	 ×	 	3/8 3/8	 	× ×	 	

[1)] For flow, head loss diagrams, and sliding forces, see page 110.

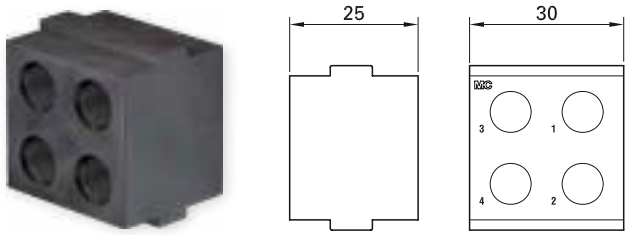
Carriers for coolants couplings CT-E8...

2- and 4-pole carrier made of resilient plastic.

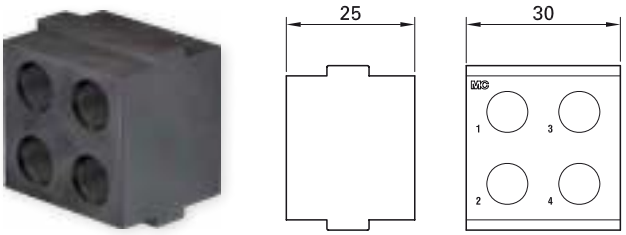
CT-E8-2



CT-E8-4/B



CT-E8-4/S



Order No.	Type	Number of poles	For sockets	For plugs
33.4000	CT-E8-2	2	×	×
33.4024	CT-E8-4/B	4	×	
33.4027	CT-E8-4/S	4		×

Technical data	
Contact carrier material	EPTR

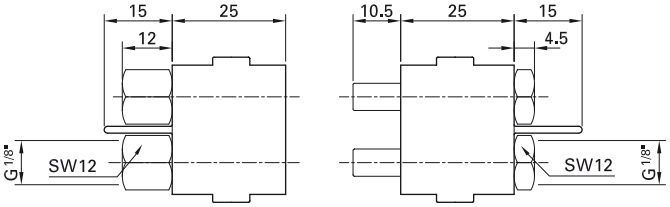
Coolants couplings CT-...-SCT03

For carriers CT-E8..., leakproof, shut-off on both sides

Type of termination:
Internal thread

CT-B-SCT03

CT-S-SCT03



					Shut-off
Order No.	Type	Socket	Plug	Outer-Ø D of the tube	Leakproof
				"	
33.0198	CT-B-SCT03[1)]	×		G1⁄8	×
33.0598	CT-S-SCT03[1)]		×	G1⁄8	×

Technical data	
Nominal bore (mm)	03
Max. working pressure (bar)	15
Min. working pressure (mbar)	14
Insertion force	43 N / 0 bar
Operating temperatures	–15 °C ... +90 °C
Sealing materials	NBR
Mating cycles	100,000[2)]

[1)] For flow, head loss diagrams, and sliding forces, see page 111.
[2)] Lubrication interval every 20,000 mating cycles, see MA213.

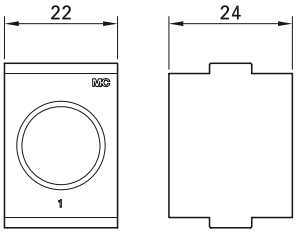
Carriers for coolants couplings CT-E-UCT08-...

1- and 2-pole carriers made of resilient plastic.

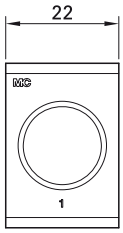
Note:
The contact carrier can be used on both the socket and the pin side. The difference can be seen in the position of the MC logo.

CT-E-UCT08-1

Socket side

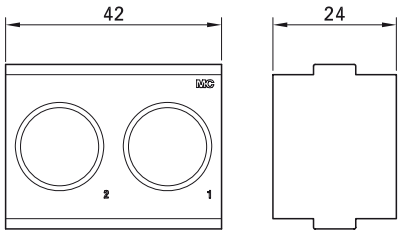


Pin side

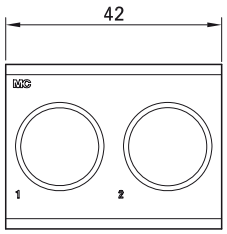


CT-E-UCT08-2

Socket side



Pin side



Order No.	Type	Number of poles	For sockets	For plugs
33.4032	CT-E-UCT08-1	1	×	×
33.4031	CT-E-UCT08-2	2	×	×

Technical data	
Contact carrier material	EPTR

Coolants couplings CT-...-SCT05

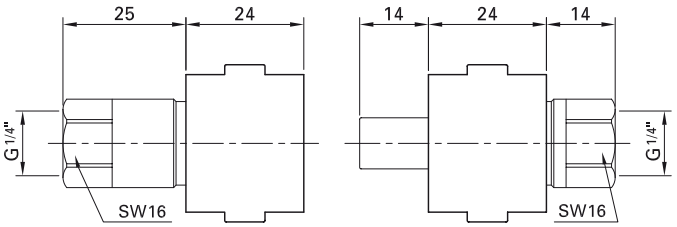
For carrier CT-E-UCT08-..., leakproof, shut-off on both sides

Type of termination:
Internal thread

Note:
Not suited for use in DIN housings. Due to the long stroke of the SCT05 coupling, two movements (push and lock) are required to connect the DIN housing.

CT-B-SCT05

CT-S-SCT05



							Shut-off
Order No.	**Type**	**Socket**	**Plug**	**Outer-Ø D of the tube**		**A**	**With**
				mm	"	mm	
33.0199	CT-B-SCT05[1)]	×		8	(1/4)		×
33.0599	CT-S-SCT05[1)]		×	8	(1/4)		×

Technical data	
Nominal bore (mm)	05
Max. working pressure (bar)	15
Min. working pressure (mbar)	14
Insertion force	60 N / 0 bar
Operating temperatures	–15 °C ... +90 °C
Sealing materials	NBR
Mating cycles	100,000[2)]

Note
Observe page 114 :
Electrical plug connectors for control and power in the immediate proximity of connections for liquids and gas.

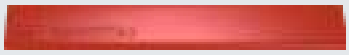
[1)] For flow, head loss diagrams, and sliding forces, see page 111.
[2)] Lubrication interval every 20,000 mating cycles, see MA213..

SINGLE PARTS FOR COMBITAC FRAMES

Single parts for CombiTac frames

Note:
Supporting rails are available in lengths from 18 mm up to 180 mm in steps of 2 mm (18, 20, 22, 24, etc.).

Exception: For housing size 2, a length of 43 mm is required. The length must be stated in mm together with the order No.
Mating cycles of end pieces: > 100,000
The end pieces are designed solely for the guiding of the connectors and the associated forces.
In a permanent installation application, the customer must provide a stable guide system, e.g. with mechanical pins.

			Number per frame		
Order No.	**Type**	**Designation**	**Socket**	**Pin**	
33.5606-...	CT-BS	Supporting rail in plastic (PA) (length in mm)	2	2	
33.5601-...	CT-BS	Supporting rail in aluminum, on request (length in mm)	2	2	
33.4056 **33.5618**	CT-BEG-B CT-BTG-B	Standard end piece for DIN housing, sockets Option without earth connection	2		
33.4057 **33.5619**	CT-BEG-S CT-BTG-S	Standard end piece for DIN housing, pins Option without earth connection		2	
33.4054 **33.4058**	CT-BE-B CT-BESZ-B	Standard end piece for panel mounting, sockets Option with earth connection	2		
33.4055 **33.4059**	CT-BE-S CT-BESZ-S	Standard end piece for panel mounting, pins Option with earth connection		2	
33.5615	LI-BL-SHR	Filister head screw (for securing the end pieces)	8	8	
33.5623	LI-KM-SHR	Combi screw (for securing in the DIN housing)	4	4	

CALCULATION OF INSTALLATION DIMENSIONS

Calculation of installation dimensions

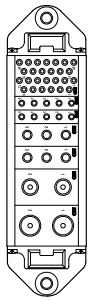
To determine the dimension L, the width of all contact carriers in the relevant configuration must be taken into account.

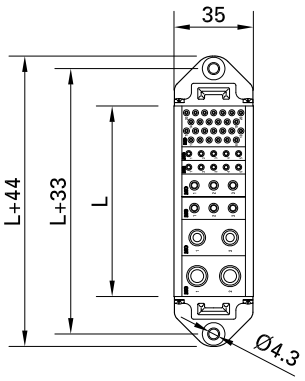
Note:

- If necessary, fill up with spacers (see page 78)
- General dimensional tolerances ± 0.1 mm
- L1 (recess dimensions) = L + 22 mm; L2 = L + 33 mm

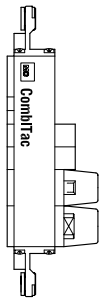
	Type	Number	Width	
Contact carriers	CT-E8-2		x 18 mm	=
	CT-E8/6-1		x 16 mm	=
	CT-E8/6-PE		x 16 mm	=
	CT-E6-2		x 16 mm	=
	CT-E3-3		x 10 mm	=
	CT-E3/PCB		x 10 mm	=
	CT-E3-2+PE		x 10 mm	=
	CT-E1,5-5		x 6 mm	=
	CT-E1-26/B, CT-E1-26/S		x 18 mm	=
	CT-E1-15/B, CT-E1-15/S		x 20 mm	=
	CT-E1-6		x 4 mm	=
	CT-E-3POF/B, CT-E-3POF/S		x 6 mm	=
	CT-E-2TH+PE/B, CT-E-2TH+PE/S		x 6 mm	=
	CT-E8-4/B, CT-E8-4/S		x 30 mm	=
	CT-E-UCT06-1		x 18 mm	=
	CT-E-UCT06-2		x 28 mm	=
	CT-E-UCT06-4		x 42 mm	=
	CT-E-UCT08-1		x 22 mm	=
	CT-E-UCT08-2		x 42 mm	=
	further moduls			
Spacers	CT-DIP1		x 1 mm	=
	CT-DIP2		x 2 mm	=
	CT-DIP3		x 3 mm	=
	CT-DIP4		x 4 mm	=
	further moduls			
Sum of the widths (min. 18 mm)			**L =**	

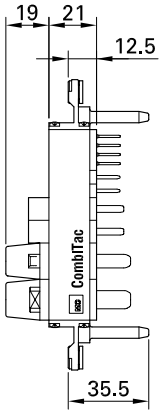
Socket side **Pin side**



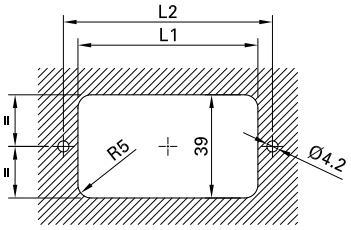


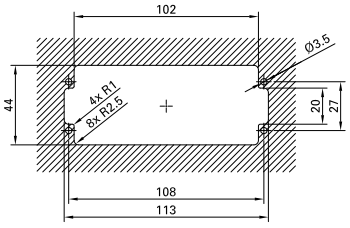
Socket side **Pin side**





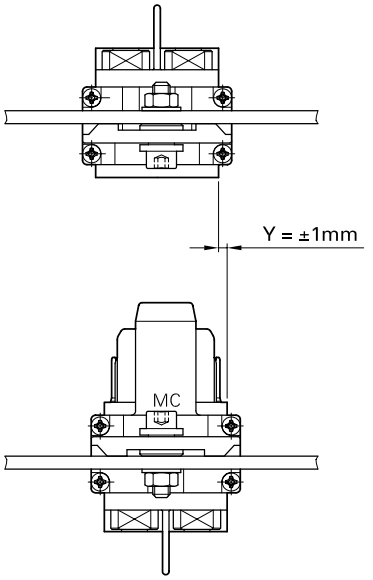
Drilling plan

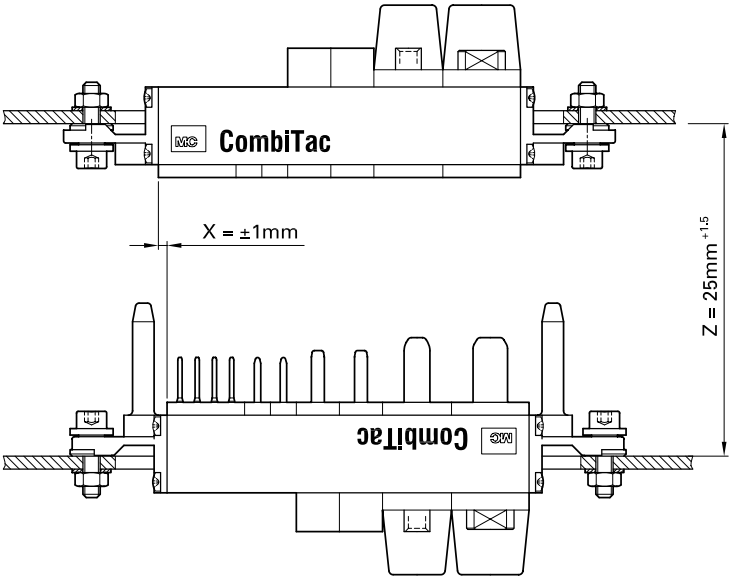




Panel mounted

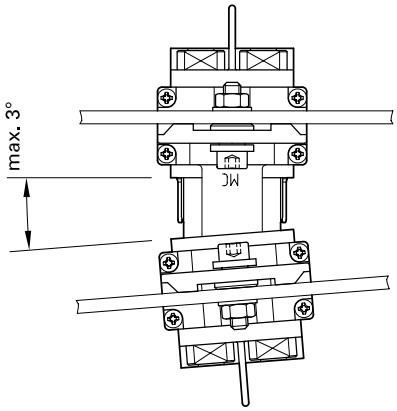
1. Max. permissible mounting offset

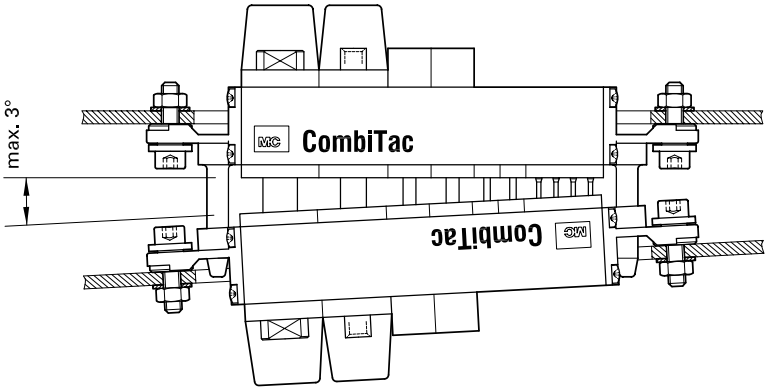




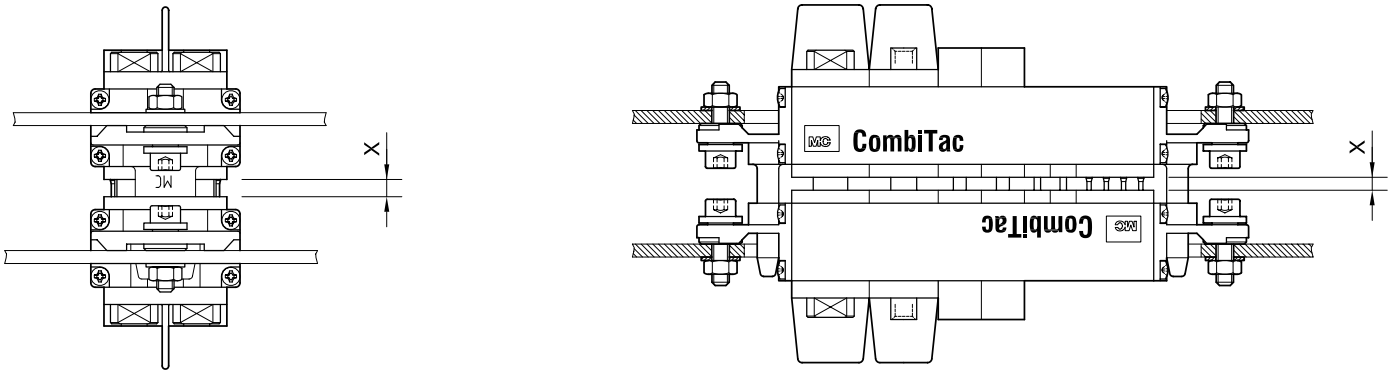
Distance Z in mated condition

2. Max. permissible mounting angular misalignment during mating





3. Max. permissible distance between the contact carriers when mated



Contacts	Sizes X
	max. mm
CT0.6	1.5
Further electricals	3
POF crimp version	1.5
POF/SL Lens contact	7.5
Coaxial	1.5
Thermocouple pressure contacts	1.5
CT-NET	2
SCT	2
UCT/RCT	2
CT-E8-2-IP2X	2
CT-LMFB	1

Plug connections with uncontrolled coupling force and undefined end position
Uncontrolled coupling forces may not be applied to the plug connectors, frames, and/or guide pins. In cases where these forces exist, the customer must utilize guide pins to protect the connection.

Failure to observe these recommendations can result in damage to the plug connection.

DIN housings for CombiTac

Connectors used in harsh environments must be protected by the use of a suitable housing.

Surface mount housing with protective cover

Coupler hood

Stäubli recommends the use of aluminum or plastic housings.

Aluminum DIN housing – robust IP65 housing designed for a variety of applications.

Plastic housing (thermoplast) – particularly suited for use in environments where housing will be exposed to corrosive elements.

6 different sizes

The **housing sizes 5 and 6** fit 2 CombiTac units.

6 different sizes

Housing sizes 5 and 6

2 different heights

The **surface mounting housing** is available with or without a protective cover. When closed, the lid protects all contacts from external influences (pollution, etc.).
The surface mount housing is also available with a protective lid. This option is available for all surface and pedestal mount housings or coupler hoods with plug end pieces.

With protective cover

Without protective cover

With protective cap

The **coupler hood with protective wall** provides IP2X finger protection during the plugging / unplugging operation in accordance with IEC 61984:2001 (DIN VDE 0627).
The protective wall can be used on only one side of the plug connection, preferably on the flying side (coupler hood).
Protective wall material PA.

With protective wall

The **pedestal mount housing** has two cable entry “A” [1] possibilities. The unused cable outlet is closed with the included blind plug.

Pedestal mount housing

The **coupler hood** is available with straight or lateral cable entry[1].

Coupler hood

To protect unmated CombiTac, Stäubli recommends the use of **park stations** (surface mount housings with end pieces).

Park stations

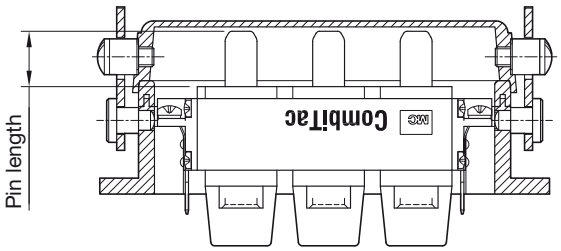
[1] Cable gland is not included.
Recommended producers:
AGRO www.agro.ch
LAPP KABEL www.lapp.de
PFLITSCH www.pflitsch.de
HUMMEL www.hummel-group.com

Restrictions concerning the DIN surface mount housing with protective cover

If the max. pin length (see table) is exceeded, or if a DIN surface mount housing is fitted in combination with end pieces for plugs, the protective cover cannot be closed.

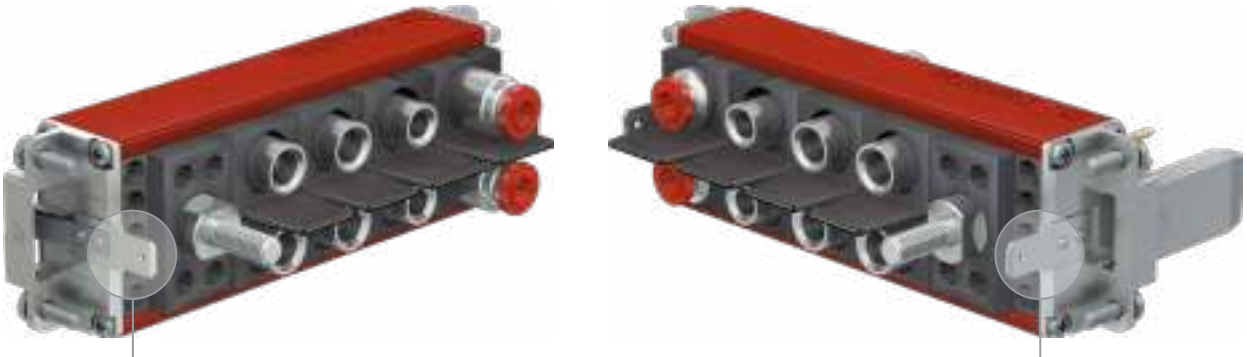
End pieces

Housing size	Pin length
	max. mm
1	14
2	17
3	17
4	17
5	12
6	16.5



Earthing over end pieces

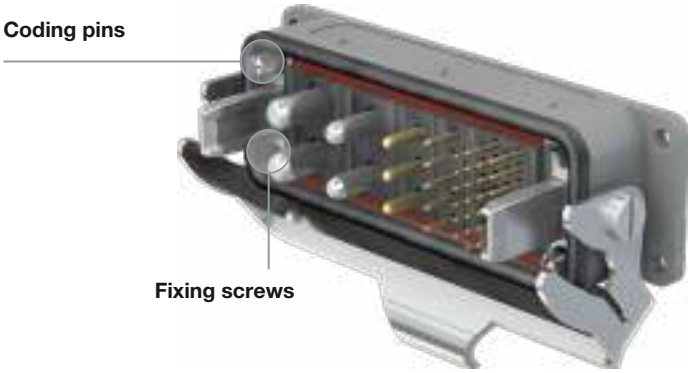
End pieces with contact spring and flat plug connection (6.3×0.8 mm) permits connection between the two housings and earth (ground).



End pieces with contact spring and flat plug connection

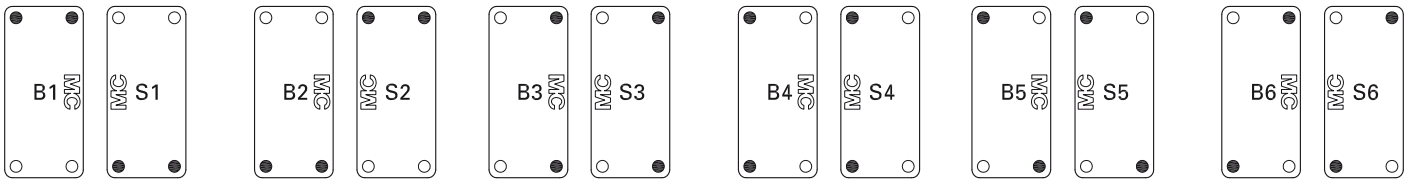
Coding

CombiTac in housings can be coded by fitting coding pins in place of the fixing screws. A total of 6 coding variants are possible.



Order No.	Type
33.1021	CT-CN

Coding variants



S = Pin side
B = Socket side
• = Coding pin CT-CN

Note:
If the contacts are arranged symmetrically, a pole reversal is possible with the following codings: S5/B5, S6/B6, S1/B2, S2/B1, S3/B4, S4/B3, S5/B6, S6/B5. Coding can nevertheless be achieved by means of spacers, see page 78.
If modules of type CT-12 or CT-0.6 are included, no coding is necessary (asymmetrical configuration).

Calculation of housing size

Note:
Minimum length L = 30 mm. The maximum length L of the relevant housing size must be reached. If necessary, fill up with spacers (see page 78).

	Type	Number	Width	
Contact carriers	CT-E8-2		x 18 mm	=
	CT-E8/6-1		x 16 mm	=
	CT-E8/6-PE		x 16 mm	=
	CT-E6-2		x 16 mm	=
	CT-E3-3		x 10 mm	=
	CT-E3/PCB		x 10 mm	=
	CT-E3-2+PE		x 10 mm	=
	CT-E1,5-5		x 6 mm	=
	CT-E1-26/B, CT-E1-26/S		x 18 mm	=
	CT-E1-15/B, CT-E1-15/S		x 20 mm	=
	CT-E1-6		x 4 mm	=
	CT-E-3POF/B, CT-E-3POF/S		x 6 mm	=
	CT-E-2TH+PE/B, CT-E-2TH+PE/S		x 6 mm	=
	CT-E8-4/B, CT-E8-4/S		x 30 mm	=
	CT-E-UCT06-1		x 18 mm	=
	CT-E-UCT06-2		x 28 mm	=
	CT-E-UCT06-4		x 42 mm	=
	CT-E-UCT08-1		x 22 mm	=
	CT-E-UCT08-2		x 42 mm	=
	further moduls			
	Sum of the widths (min. 30 mm)		**L**	=
	Housing size			
Spacers	CT-DIP1		x 1 mm	=
	CT-DIP2		x 2 mm	=
	CT-DIP3		x 3 mm	=
	CT-DIP4		x 4 mm	=
	further moduls			
	Maximum length housing size			=

Size L (mm)	Housing size
18 ≥ L ≤ 30	1
31 ≥ L ≤ 43	2
44 ≥ L ≤ 64	3
65 ≥ L ≤ 90	4
44 ≥ L ≤ 64 44 ≥ L ≤ 64	5
65 ≥ L ≤ 90 65 ≥ L ≤ 90	6
	Maximum length L

Example

Type	Number	Width	Total		
CT-E1-26/S...	3	x 18 mm	= 54		
CT-E3-3	3	x 10 mm	= 30		
		L	**= 84**	Housing size	4

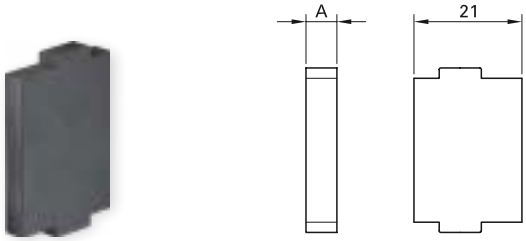
Fill with spacers until max. housing dimension for housing size is reached:

CT-DIP4	1	x 4 mm	= 4		
CT-DIP2	1	x 2 mm	= 2		
		Result	**= 90**		

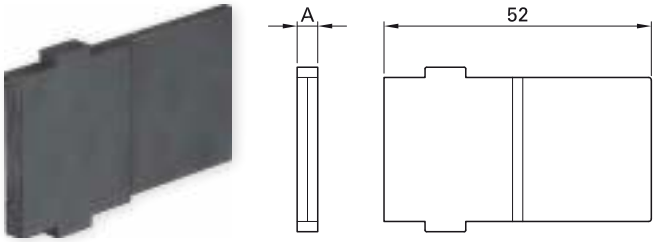
Spacers

To fill gaps in the CombiTac or for connection coding.

CT-DIP4



CT-DIP4/2



Order No.	Type	Size A
33.4097	CT-DIP0,5	0.5 mm
33.4043	CT-DIP1	1 mm
33.4040	CT-DIP2	2 mm
33.4041	CT-DIP3	3 mm
33.4042	CT-DIP4	4 mm
33.4085	CT-DIP4/2	4 mm

Technical data	
Contact carrier material	EPTR

Gaps filled with **spacers** in a CombiTac mounted in a DIN housing (pictures above). If the contacts are arranged symmetrically, the possibility of pole reversal exists. With the help of spacers, a **connection coding** can be realized (pictures below).

Spacers

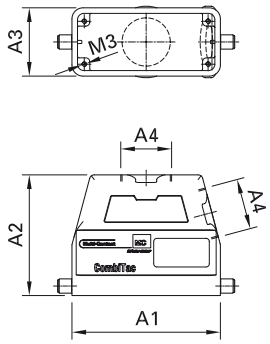
Connection coding

Aluminum DIN housings

Aluminum DIN housings with IP65 and IP68/
IP69K protection.

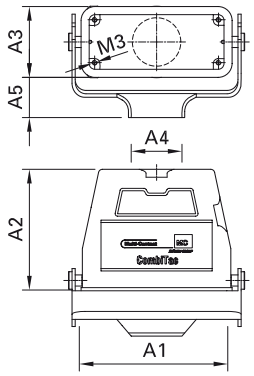
Technical data	
Housing material	Al die-cast (RAL 7037, gray)
Housing seal	NBR (–40 °C...+125 °C)
Locking element	Steel, zinc plated
Degree of protection mated / locked	IP65 IP68/IP69K (Page 85)

Coupler hood



Size	Order No.	Type	Cable entry		Sizes (mm)			
			lateral	straight	A1	A2	A3	A4
1	**33.1551** **33.1571**	CT-TG1-S CT-TG1-G	×	×	60	72	43	M32
2	**33.1052** **33.1072**	CT-TG2-S CT-TG2-G	×	×	73	70	43	M32
3	**33.1053** **33.1073**	CT-TG3-S CT-TG3-G	×	×	93.5	76	43	M32
4	**33.1054** **33.1074**	CT-TG4-S CT-TG4-G	×	×	120	78	43	M32
5	**33.1055** **33.1075**	CT-TG5-S CT-TG5-G	×	×	95	79	82.5	M40
6	**33.1056** **33.1076**	CT-TG6-S CT-TG6-G	×	×	131	96	89	M50

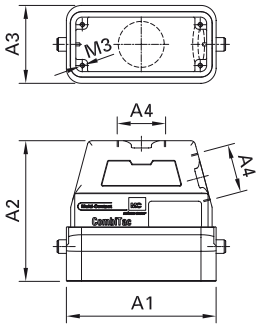
Coupler housing



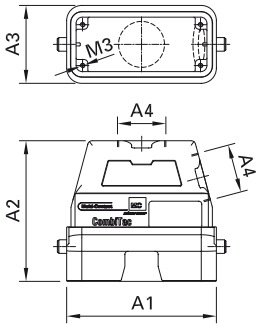
Size	Order No.	Type	Cable entry	Sizes (mm)				
			straight	A1	A2	A3	A4	A5
1	**33.1501**	CT-KG1	×	60	75	43	M32	20
2	**33.6002**	CT-KG2	×	73	74	43	M32	35
3	**33.6003**	CT-KG3	×	93.5	80	43	M32	35
4	**33.6004**	CT-KG4	×	120	82	43	M32	35
5	**33.6005**	CT-KG5	×	95	82.5	82.5	M40	33

Coupler hood with protection wall, IP2X

CT-TG.../PW



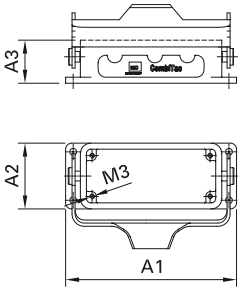
CT-TG.../PW-D



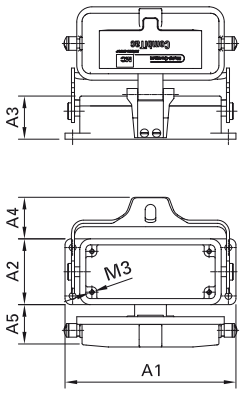
Size	Order No.	Type	Cable entry		suitable for	Sizes (mm)			
			lateral	straight		A1	A2	A3	A4
2	**33.2052**	CT-TG2-S/PW	×			78.5	87	51.5	M32
	33.2072	CT-TG2-G/PW		×					
	33.2092	CT-TG2-S/PW-D	×		CT-AG2-D (33.1092)				
	33.2122	CT-TG2-G/PW-D		×	CT-AG2-D (33.1092)				
3	**33.2053**	CT-TG3-S/PW	×			99	93	51.5	M32
	33.2073	CT-TG3-G/PW		×					
	33.2093	CT-TG3-S/PW-D	×		CT-AG3-D (33.1093)				
	33.2123	CT-TG3-G/PW-D		×	CT-AG3-D (33.1093)				
4	**33.2054**	CT-TG4-S/PW	×			125	96.5	51.5	M32
	33.2074	CT-TG4-G/PW		×					
	33.2094	CT-TG4-S/PW-D	×		CT-AG4-D (33.1094)				
	33.2124	CT-TG4-G/PW-D		×	CT-AG4-D (33.1094)				
5	**33.2055**	CT-TG5-S/PW	×			101	95.5	91	M40
	33.2075	CT-TG5-G/PW		×					
	33.2095	CT-TG5-S/PW-D	×		CT-AG5-D (33.1095)				
	33.2125	CT-TG5-G/PW-D		×	CT-AG5-D (33.1095)				
6	**33.2056**	CT-TG6-S/PW	×			136	121	98.5	M50
	33.2076	CT-TG6-G/PW		×					
	33.2096	CT-TG6-S/PW-D	×		CT-AG6-D (33.1096)				
	33.2126	CT-TG6-G/PW-D		×	CT-AG6-D (33.1096)				

Surface mount housing

CT-AG...

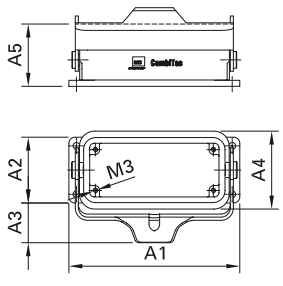


CT-AG...-D



Size	Order No.	Type	Protective cover		Sizes (mm)				
			without	with	A1	A2	A3	A4	A5
1	**33.1561** **33.1591**	CT-AG1 CT-AG1-D	×	×	82	43	29	20	– 26.5
2	**33.1062** **33.1092**	CT-AG2 CT-AG2-D	×	×	93	43.5	28.5	35	– 26
3	**33.1063** **33.1093**	CT-AG3 CT-AG3-D	×	×	113	43.5	28.5	35	– 26
4	**33.1064** **33.1094**	CT-AG4 CT-AG4-D	×	×	140	43.5	28.5	35	– 26
5	**33.1065** **33.1095**	CT-AG5 CT-AG5-D	×	×	124	90	36	27	– 22
6	**33.1066** **33.1096**	CT-AG6 CT-AG6-D	×	×	165	90	38.5	50	– 25

Surface mount housing with protection wall

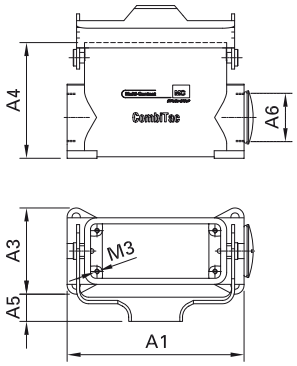


Note: IP2X

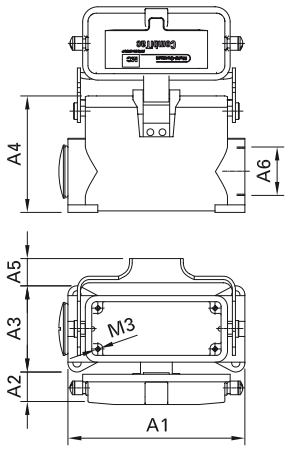
Size	Order No.	Type	Sizes (mm)				
			A1	A2	A3	A4	A5
2	**33.2062**	CT-AG2/PW	93	43.5	35	51.5	41
3	**33.2063**	CT-AG3/PW	113	43.5	35	51.5	41
4	**33.2064**	CT-AG4/PW	140	43.5	35	51.5	41
5	**33.2065**	CT-AG5/PW	124	84	33	91	48

Pedestal mount housing

CT-SG...-H



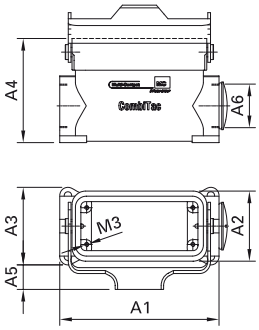
CT-SG...-H/D



Size	Order No.	Type	Protective cover		Sizes (mm)					
			without	with	A1	A2	A3	A4	A5	A6
1	**33.1541** **33.1581**	CT-SG1-H CT-SG1-H/D	×	×	82	– 20	54.5	74	13.5	M32
2	**33.1042** **33.1082**	CT-SG2-H CT-SG2-H/D	×	×	94	– 20	57	74	30	M32
3	**33.1043** **33.1083**	CT-SG3-H CT-SG3-H/D	×	×	117	– 22	57	77	29	M32
4	**33.1044** **33.1084**	CT-SG4-H CT-SG4-H/D	×	×	144	– 20	57	78.5	30	M32
5	**33.1045** **33.1085**	CT-SG5-H CT-SG5-H/D	×	×	126	– 22	84	78.5	33	M32
6	**33.1046** **33.1086**	CT-SG6-H CT-SG6-H/D	×	×	140	– 10	120	98.5	37	M40

Pedestal mount housing with protection wall

Note: IP2X



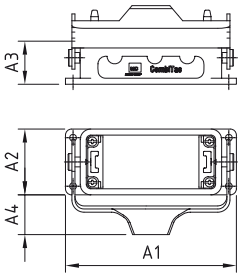
Size	Order No.	Type	Sizes (mm)					
			A1	A2	A3	A5	A6	A4
2	**33.2082**	CT-SG2-H/PW	94	51.5	57	30	M32	87
3	**33.2083**	CT-SG3-H/PW	117	51.5	57	29	M32	90
4	**33.2084**	CT-SG4-H/PW	144	51.5	57	30	M32	91
5	**33.2085**	CT-SG5-H/PW	126	91	84	33	M32	91

Park station

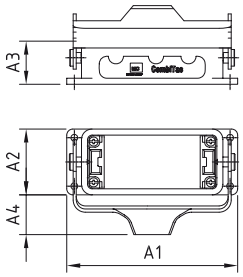
Park station with plug end pieces to fit coupler hood socket side (picture left).

Park station with socket end pieces to fit coupler hood pin side (picture right).

CT-AG...-PS/S



CT-AG...-PS/B



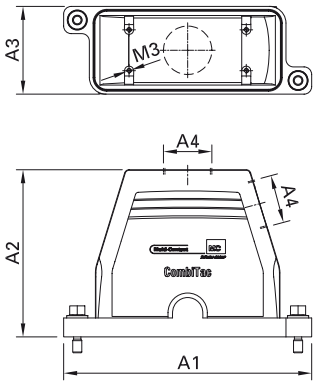
Size	Order No.	Type	End pieces		Sizes (mm)			
			Socket	Pin	A1	A2	A3	A4
1	**34.0340** **34.0341**	CT-AG1-PS/S CT-AG1-PS/B	×	×	82	43	29	21
2	**34.0342** **34.0343**	CT-AG2-PS/S CT-AG2-PS/B	×	×	93	43.5	28.5	35
3	**34.0344** **34.0345**	CT-AG3-PS/S CT-AG3-PS/B	×	×	113	43.5	28.5	35
4	**34.0346** **34.0347**	CT-AG4-PS/S CT-AG4-PS/B	×	×	140	43.5	28.5	35
5	**34.0348** **34.0349**	CT-AG5-PS/S CT-AG5-PS/B	×	×	124	84	36	33
6	**34.0350** **34.0351**	CT-AG6-PS/S CT-AG6-PS/B	×	×	165	90	38.5	50

Protective cap

For mounting on all surface and pedestal mountings or coupler hood with pin end pieces. Protective cap suitable for all pin lengths.
Protective cover material: PA.

Size	Order No.	Type	for metal housing
1	**33.1301**	CT-SD-AG1-L/FSCH	×
2	**33.1302**	CT-SD-AG2-L/FSCH	×
3	**33.1303**	CT-SD-AG3-L/FSCH	×
4	**33.1304**	CT-SD-AG4-L/FSCH	×
5	**33.1305**	CT-SD-AG5-L/FSCH	×
6	**33.1306**	CT-SD-AG6-L/FSCH	×

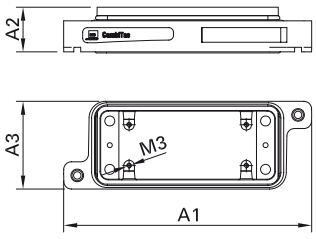
Coupler hood with IP68/69K degree of protection



The all-round contact of the two housing halves of the IP68/69K enclosures provides a 360° shielding against electromagnetic influence according to VG 95373-41.

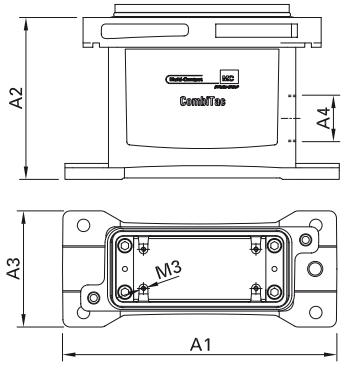
Size	Order No.	Type	Cable entry		Sizes (mm)			
			lateral	straight	A1	A2	A3	A4
1	**33.6871** **33.6881**	CT-TG1-S IP68 HE CT-TG1-G IP68 HE	×	×	132	100.5	58	M32
2	**33.6872** **33.6882**	CT-TG2-S IP68 HE CT-TG2-G IP68 HE	×	×	144	100.5	58	M32
3	**33.6873** **33.6883**	CT-TG3-S IP68 HE CT-TG3-G IP68 HE	×	×	164	110.5	58	M40
4	**33.6874** **33.6884**	CT-TG4-S IP68 HE CT-TG4-G IP68 HE	×	×	191	110.5	58	M40

Surface mount housing with IP68/69K degree of protection



Size	Order No.	Type	Sizes (mm)		
			A1	A2	A3
1	**33.6851**	CT-AG1 IP68 HE	132	29.5	58
2	**33.6852**	CT-AG2 IP68 HE	144	29.5	58
3	**33.6853**	CT-AG3 IP68 HE	164	29.5	58
4	**33.6854**	CT-AG4 IP68 HE	191	29.5	58

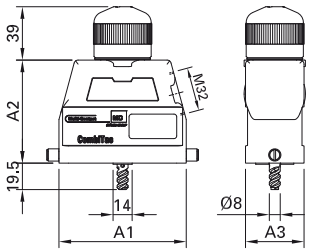
Pedestal mount housing with IP68 degree of protection



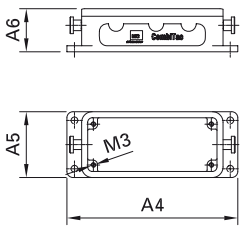
Size	Order No.	Type	Sizes (mm)			
			A1	A2	A3	A4
1	**33.6861**	CT-SG1 IP68 HE	156	100.5	80	2×M25
2	**33.6862**	CT-SG2 IP68 HE	169	100.5	80	2×M32
3	**33.6863**	CT-SG3 IP68 HE	189	111.5	80	2×M32
4	**33.6864**	CT-SG4 IP68 HE	216	111.5	80	2×M40

Central locking IP65 (on request)

CT-TG.../ZV



CT-AG.../ZV



Size	Order No.	Type	Designation	Sizes (mm)					
				A1	A2	A3	A4	A5	A6
	33.1418	CT-ZV/B	Locking head complete	–	–	–	–	–	–
2	**33.4018-2**	CT-E-ZV/B/TG2	Carrier with threaded spindle	–	–	–	–	–	–
3	**33.4018-3**	CT-E-ZV/B/TG3		–	–	–	–	–	–
4	**33.4018-4**	CT-E-ZV/B/TG4		–	–	–	–	–	–
	33.4021	CT-E-ZV/S	Thread carrier	–	–	–	–	–	–
2	**33.2032**	CT-TG2/ZV	Coupler hood for central locking	73	70	43	–	–	–
3	**33.2033**	CT-TG3/ZV		93.5	76	43	–	–	–
4	**33.2034**	CT-TG4/ZV		120	78	43	–	–	–
2	**33.1562**	CT-AG2/ZV	Surface mount housing for central locking	–	–	–	93	43.5	28.5
3	**33.1563**	CT-AG3/ZV		–	–	–	113	43.5	28.5
4	**33.1564**	CT-AG4/ZV		–	–	–	140	43.5	28.5

Plastic DIN housing

The plastic housing is primarily intended for industrial use or for applications where a high resistance to chemical environmental influences is required.

In addition, the plastic housing is mechanically robust.
As the housing is made of antistatic thermoplastic material, there is no need for additional grounding.

Technical data	
Housing material	Thermoplastic
Housing seal	Elastomer
Locking element	Thermoplastic
Degree of protection mated / locked	IP65

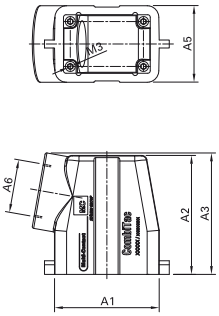
Plastic housing – Resistance to aggressive media		
	Resistant	Limited resistance
1-Pentanol		x
Alum	x	
Amide, aqueous	x	
Ammonia gas		x
Ammonia, 10% aqueous solution	x	
Ammonium acetate	x	
Ammonium carbonate	x	
Ammonium chloride	x	
Ammonium nitrate	x	
Ammonium phosphate	x	
Ammonium sulfate	x	
Aniline		x
Asphalt		x
Beer	x	
Borated water	x	
Borax		x
Boric acid, 10% aqueous solution	x	
Boric acid	x	
Butane gas		x
Butane, liquid		x
Calcium chloride, 10% aqueous solution	x	
Calcium chloride	x	
Calcium nitrate	x	
Calcium sulfate	x	
Chlorinated lime, diluted	x	
Copper sulfate, 10% aqueous solution	x	
Cresol acids		x
Cresol solution		x
Cutting oil		x
Cyclohexane		x
Diesel		x
Diisononyl phthalate	x	
Di-Octyl-Phtalat	x	
Diluted glucose	x	
Diluted glycerol	x	
Diluted glycol	x	
Diluted phenol		x
Ethanol, non-denaturized	x	
Ethylene glycol or propylene glycol	x	
Fatty acids	x	
Fruit juices	x	
Gasoline		x

Plastic housing – Resistance to aggressive media		
	Resistant	Limited resistance
Glycerol	x	
Grinding oil		x
Gypsum (see calcium sulfate)	x	
Heptane		x
Hexane		x
Hydrogen sulfide		x
Ink	x	
Isopropyl alcohol		x
Lactic acid	x	
Linseed oil	x	
Lubricating oil	x	
Mercury	x	
Methanol, diluted by 50%		x
Mineral oil	x	
Mineral spirits (Avio)		x
Mineral-based oil	x	
Mothballs		x
Motor oil		x
n-Butanol	x	
Naphthalene		x
Octane		x
Oil IRM 901, 20 °C	x	
Oil IRM 902, 20 °C		x
Oil IRM 903, 20 °C		x
Oil		x
Oleic acid	x	
Oxalic acid	x	
Paraffin oil	x	
Petroleum	x	
Phthalate	x	
Potassium carbonate	x	
Potassium chlorate	x	
Potassium chloride	x	
Potassium chromate		x
Potassium cyanide, aqueous solution	x	
Potassium iodide		x
Potassium nitrate		x
Potassium persulfate		x
Potassium sulfate		x
Seawater	x	
Silicone oil	x	
Soap solution		x

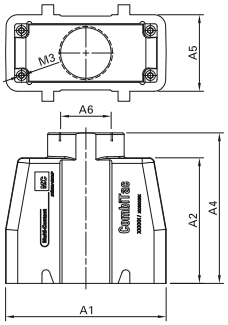
Plastic housing – Resistance to aggressive media		
	Resistant	Limited resistance
Sodium bicarbonate	x	
Sodium carbonate	x	
Sodium chlorate	x	
Sodium chloride (table salt)	x	
Sodium hydrogen sulfate, aqueous solution	x	
Sodium hydroxide 12.5% (alkaline solution)		x
Sodium nitrate	x	
Sodium nitrite		x
Sodium perborate	x	
Sodium phosphate	x	
Sodium silicate	x	
Sodium sulfate	x	
Sodium sulfide	x	
Sodium thiosulfate (fixing salt/developing film)	x	
Solution for developing photographs	x	
Stearic acid	x	
Succinic acid	x	
Sulfur dioxide		x
Sulfur	x	
Table salt, aqueous solution	x	
Tallow	x	
Tartaric acid	x	
Tar		x
Transformer oil	x	
Tricresyl phosphate	x	
Turpentine substitute		x
Urea, diluted	x	
Urine	x	
Vegetable oil	x	
Water	x	
White spirits (isopropanol and ethanol)		x

Coupler hood

CT-TG1-S TP



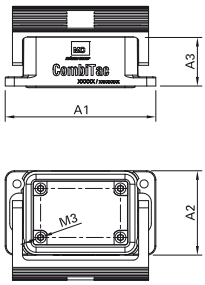
CT-TG...-G TP



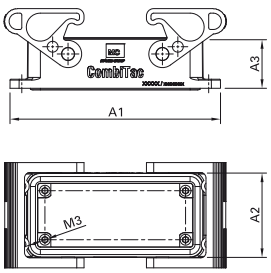
Size	Order No.	Type	Cable entry		Sizes (mm)					
			lateral	straight	A1	A2	A3	A4	A5	A6
1[1)]	**33.6011** **33.6021**	CT-TG1-S TP CT-TG1-G TP	×	×	63	71.5	73	86.5	46	M32
2	**33.6012** **33.6022**	CT-TG2-S TP CT-TG2-G TP	×	×	76	71.5	73	86.5	46	M32
3	**33.6013** **33.6023**	CT-TG3-S TP CT-TG3-G TP	×	×	96.5	75.5	79	90.5	46	M32
4	**33.6014** **33.6024**	CT-TG4-S TP CT-TG4-G TP	×	×	123	75.5	79	90.5	46	M32

Surface mount housing

CT-AG1 TP



CT-AG...TP

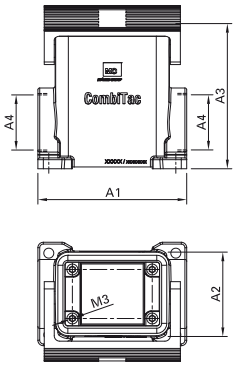


Size	Order No.	Type	Sizes (mm)		
			A1	A2	A3
1[1)]	**33.6041**	CT-AG1 TP	83	46	27
2	**33.6042**	CT-AG2 TP	96	46	27
3	**33.6043**	CT-AG3 TP	116	46	27
4	**33.6044**	CT-AG4 TP	143	46	27

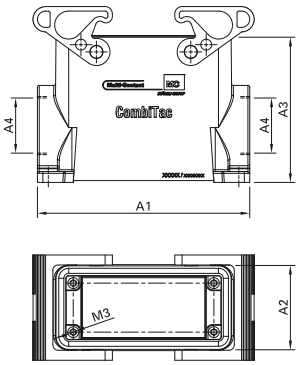
[1)] Size 1: housings only have a single locking device.

Pedestal mount housing

CT-SG1 TP



CT-SG...TP



Size	Order No.	Type	Sizes (mm)			
			A1	A2	A3	A4
1[1)]	**33.6601**	CT-SG1 TP	82	45	73	M32
2	**33.6602**	CT-SG2 TP	94	45	80	M32
3	**33.6603**	CT-SG3 TP	117	45	80	M32
4	**33.6604**	CT-SG4 TP	144	45	80	M32

Protective cap

CT-SD-TG1 TP

CT-SD-TG... TP

Size	Order No.	Type
1[1)]	**33.6031**	CT-SD-TG1 TP
2	**33.6032**	CT-SD-TG2 TP
3	**33.6033**	CT-SD-TG3 TP
4	**33.6034**	CT-SD-TG4 TP

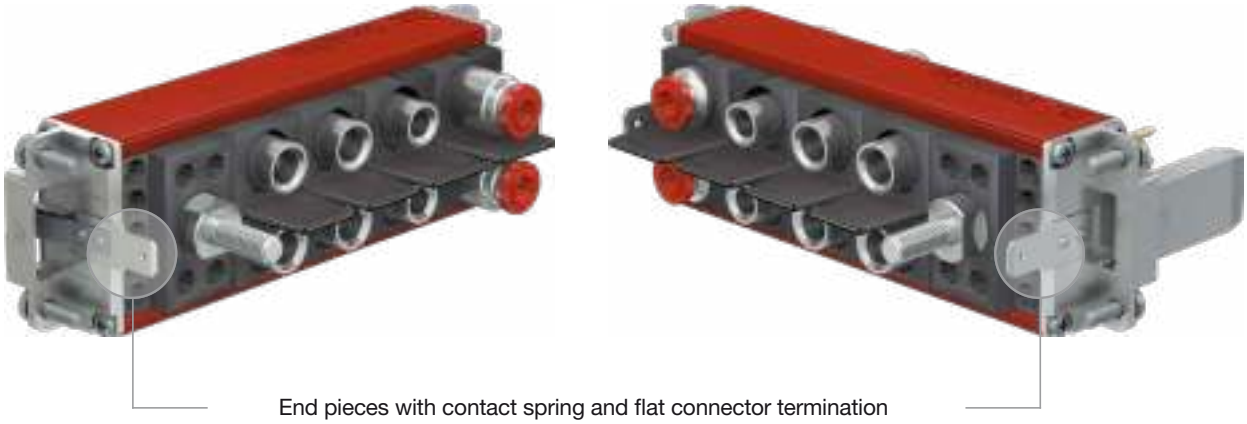
[1)] Size 1: housings only have a single locking device.

Protective grounding of conductive housings

Appropriate ground protection is available for conductive DIN housings to protect the users against electrical shock, according to IEC 61140[1)].

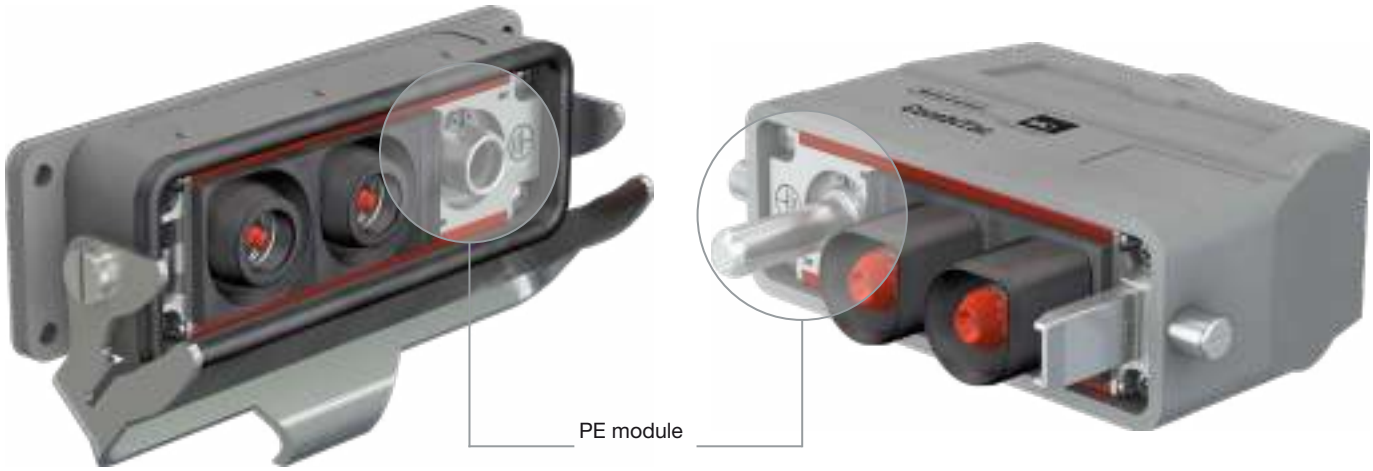
CombiTac conductive DIN housings can be grounded internally through its end pieces or the CombiTac PE module.

Protective grounding through end pieces
For live conductors 0.14 mm² – 6 mm²
(AWG 26 – 10)



End pieces with contact spring and flat connector termination

Protective grounding through PE module
For live conductors 10 mm² – 95 mm²
(AWG 8 – 3/0)



PE module

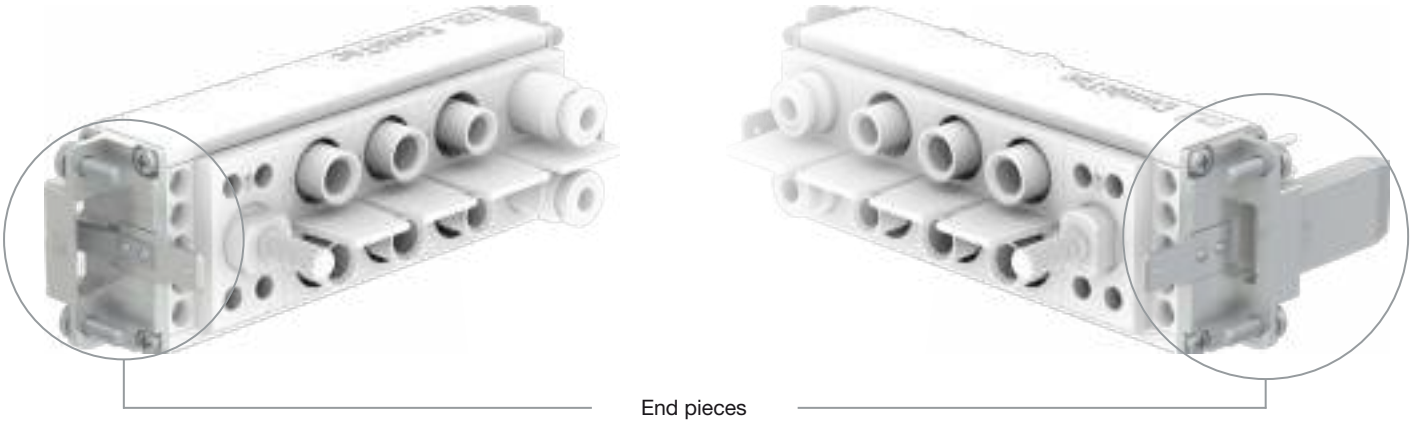
[1)] For voltages > 60 V DC or > 30 V AC, metal (conductive) housings must be connected to protective earth (PE).

Protective grounding internally through end pieces

Conductive DIN housings that include live conductors with cross section areas 0.14 mm^2 – 6 mm^2 (AWG 26 – 10) can be protective grounded through the CombiTac end pieces.

Type of termination:

- Flat connector termination 6.3 x 0.8 mm



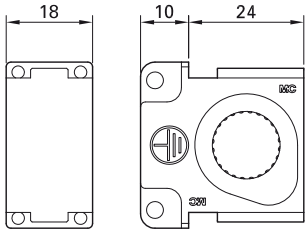
			Number per frame		
Order No.	**Type**	**Designation**	**Socket**	**Pin**	
33.4056	CT-BEG-B	Standard end piece for DIN housing, socket	2		
33.4057	CT-BEG-S	Standard end piece for DIN housing, pin		2	

PE module

The CombiTac PE module is used for internal protective grounding of CombiTac conductive DIN housings size 2 – 6.
The PE module carrier replaces one of the end pieces and is directly connected to the housing.

- The size of the PE module contacts is determined by the cross section area of the largest live conductor used in the CombiTac configuration (see selection table page 96).
- Aluminum rails are required to ensure correct grounding of conductive housings.
- Fitted with MULTILAM

CT-GND10 AG



Order No.	Type	Description
33.4165	CT-GND10 AG	PE module carrier

Technical data	
Number of poles	1
For contact diameter	10 mm
Contact carrier material	Brass
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C

Required tools
For the required tools please refer to MA213-09.

MA

Assembly instructions MA213-09
www.staubli.com/electrical

PE module contacts

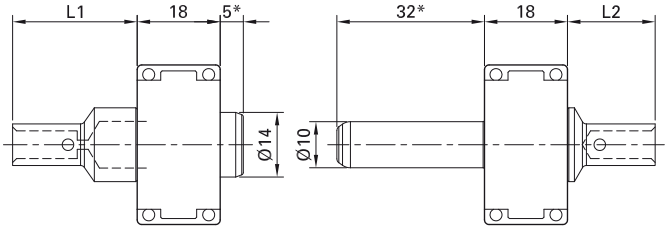
For protective grounding purposes only, used in combination with CT-GND10 carrier. Fitted with MULTILAM.

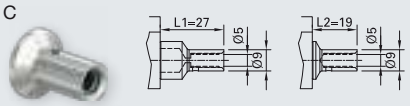
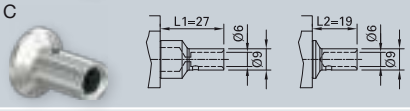
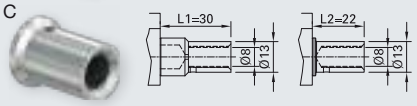
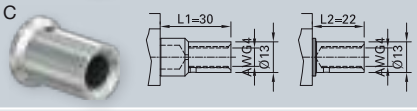
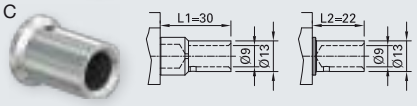
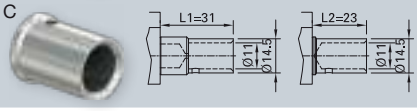
Type of termination:
- Crimp termination (C)
- Contacts secured in carrier by means of retaining ring

CT-BP10/.../PE-GND AG

CT-SP10/.../PE-GND AG

Socket side **Pin side**



Order No.	Type	Socket	Pin	Surface	Conductor cross section		Type of termination
					mm²	AWG	
33.0215 **33.0715**	CT-BP10/10/PE-GND AG CT-SP10/10/PE-GND AG	×	×		10	8	C 
33.0214 **33.0714**	CT-BP10/16/PE-GND AG CT-SP10/16/PE-GND AG	×	×		16	6	C 
33.0216 **33.0716**	CT-BP10/25/PE-GND AG CT-SP10/25/PE-GND AG	×	×		25		C 
33.0217 **33.0717**	CT-BP10/AWG4/PE-GND AG CT-SP10/AWG4/PE-GND AG	×	×			4	C 
33.0213 **33.0713**	CT-BP10/35/PE-GND AG CT-SP10/35/PE-GND AG	×	×		35	2	C 
33.0212 **33.0712**	CT-BP10/50/PE-GND AG CT-SP10/50/PE-GND AG	×	×		50	1/0	C 

Technical data	
Nominal-Ø socket/pin	10 mm
Max. sliding force per contact	15 N
Contact resistance	<60 µΩ
Mating cycles	10,000
Vibrations	4.2 g / 5 – 250 Hz (DIN EN 61373) 10 g / 10 – 500 Hz (DIN EN 60068-2-6)
Resistance to shocks	30 g / 18 ms (DIN EN 61373)

* Sizes are the same for all types of terminations.

MA

Assembly instructions MA213-09

www.staubli.com/electrical

PE module contacts selection table

According to IEC 61984, the size of a PE conductor cross section depends on the size of the live conductor cross section. In a CombiTac configuration, the size of the largest live conductor determines the size of the PE conductor.

For example, if Ø 12 mm CombiTac contacts are used with 95 mm² live conductor cross sections, then a 50 mm² PE conductor is required (i.e. requires CT-SP10/50/... and CT-BP10/50/...).

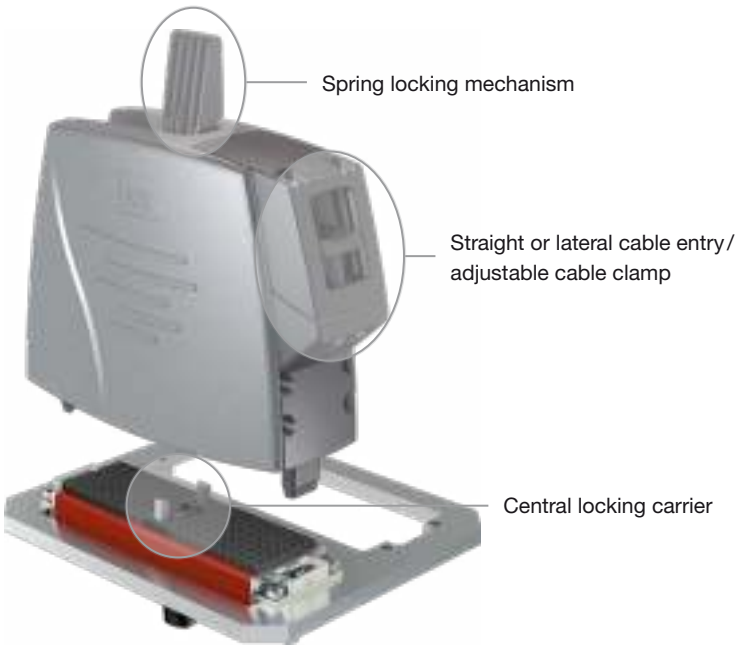
The table below indicates the suitable PE contacts and housing size.

		mm² AWG	**mm²** AWG	**mm²** AWG	**mm²** AWG	**mm²** AWG	**mm²** AWG	**mm²** AWG	**mm²** AWG
Largest live conductor cross section		**10** 8	**16** 6	**25** 4	**35** 2	**50** –	**–** 1/0	**70** 2/0	**95** 3/0
Required PE conductor cross section according to IEC 61984		**10** 8	**16** 6	**16** 6	**16** 6	**25** –	**–** 4	**35** 2	**50** 1/0
Suitable PE module pins/socket	CT-SP10/10/PE-GND AG	×							
	CT-BP10/10/PE-GND AG	×							
	CT-SP10/16/PE-GND AG		×	×	×				
	CT-BP10/16/PE-GND AG		×	×	×				
	CT-SP10/25/PE-GND AG					×			
	CT-BP10/25/PE-GND AG					×			
	CT-SP10/AWG4/PE-GND AG						×		
	CT-BP10/AWG4/PE-GND AG						×		
	CT-SP10/35/PE-GND AG							×	
	CT-BP10/35/PE-GND AG							×	
	CT-SP10/50/PE-GND AG								×
	CT-BP10/50/PE-GND AG								×
Suitable housing size	**2**	×	×	×	×				
	3	×	×	×	×	×	×	×	×
	4	×	×	×	×	×	×	×	×
	5	×	×	×	×	×	×	×	×
	6	×	×	×	×	×	×	×	×

Light housing for testing applications

The CombiTac IP20 plastic light housing with central locking is used in applications that require high density electrical signal connections.
The combination of up to 320 contacts, an ergonomic design with a central locking mechanism, and a removable cover while in mated condition, makes the CombiTac light housing ideal for testing applications.

Features:
- Up to 320 Ø 0.6 mm contacts
- Further combinations for signal and power with contacts up to Ø 6 mm
- 10,000 mating cycles
- 1/4 turn spring locking mechanism
- Straight or lateral cable entry
- Adjustable cable clamp
- 36 coding possibilities
- Quick and easy cover removal for access to contacts in mated condition

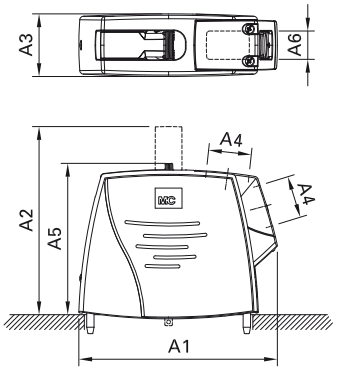


Socket side directly mounted on panel

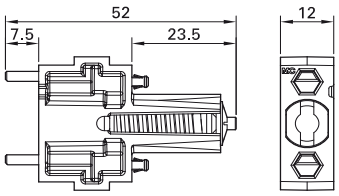
Cover removal in mated condition: quick direct access to contacts for service & maintenance purposes

Housing with central locking

CT-LH4



CT-ELHB



Order No.	Type	Designation	Sizes (mm)					
			A1	A2	A3	A4	A5	A6
33.2030	CT-LH4	Housing with central locking (pin side)[1)]	133	126	42	min. 5 – max. 24.8	101.5	19
33.2023	CT-ELHB	Central locking carrier (socket side)[1)]	–	–	–	–	–	–

Technical data	
Degree of protection (in mated condition)	IP20
Mating cycles	10,000
Housing material	PA
Limiting temperature (IEC 61984), upper lower	+90 °C –40 °C
Rail length	94 mm

Contacts

Surface	Conductor cross section		Nom.-Ø contact	Rated current	
	mm^2	AWG	mm	A	
For signal contacts					
	0.14 – 0.25	26 – 24	0.6	1.4 – 2	
	0.25 – 0.75	24 – 18	1	2 – 5	
	0.5 – 1.5	20 – 16	1.5	5 – 10	
For power contacts					
	2.5 – 4	14 – 12	3	22 – 35	
	6 – 16	10 – 6	6	40 – 75	

[1)] By selecting light housing in the CombiTac configurator, both the housing with central locking (CT-LH4) and socket side central locking carrier (CT-ELHB) are automatically added to the configuration.

CRIMPING PLIERS

Crimping the electric contacts

a 

b 

c 

d 

e 

f 

g 

h 

j k l m n o

p 

q r s t 

Pos.	Order No.	Type	Conductor cross section	Description	MA
a	**33.3800**	CT-M-CZ		Crimping pliers	MA079 MA213-11
b	**18.3801**	MES-CZ	0.14 – 4 mm²	Locator adjustable (except for Ø 0.6 mm contacts)	
c	**18.3809**	MES-CZ-CT 0,6	0.14 – 0.25 mm²	Locator	
d	**18.3804**	MES-CZ-CT1	0.25 – 0.75 mm²	Locator	MA079
e	**18.3805**	MES-CZ-CT1,5	0.5 – 1.5 mm²	Locator	
f	**18.3806**	MES-CZ-CT3	2.5 – 4 mm²	Locator	
g	**18.3808**	MES-CZ-CT0,6-COAX-RG		Locator for Coaxial unit 6 GHz	MA079 MA213-11
h	**18.3700**	M-PZ13		Crimping pliers	
j	**18.3701**	MES-PZ-TB5/6	6 mm²	Insert	
k	**18.3702**	MES-PZ-TB 8/10	10 mm²	Insert	
l	**18.3703**	MES-PZ-TB 9/16	16 mm²	Insert	MA224
m	**18.3704**	MES-PZ-TB11/25	25 mm²	Insert	
n	**18.3707**	MPS-PZ13		Test insert	
o	**18.3708**	MALU-PZ13		Round test rod	
p	**18.3710**	M-PZ-T2600		Crimping pliers with case	
q	**18.3712**	TB9-13	16 mm² + 35 mm²	Insert	
r	**18.3713**	TB11-14,5	25 mm² + 50 mm²	Insert	MA213-01
s	**18.3711**	TB8-17	10 mm² + 70 mm²	Insert	
t	**18.3714**	TB7-20	95 mm²	Insert	

Crimping the 1.5 GHz coaxial contacts

a

b

Pos.	Order No.	Type	Description	MA
a	**33.3011**	CT-AIWZ/COAX	Insulation stripper for Coaxial unit 1.5 GHz	MA213-02
b	**33.3010**	CT-CZ/COAX	Crimping pliers for shield and inner conductor for Coaxial unit 1.5 GHz	MA213-02

Crimping the plastic optical fiber contacts

a

b

c

Pos.	Order No.	Type	Description	MA
a	**33.3021**	CT-AIWZ/POF	Insulation stripper	MA213-03
b	**33.3023**	CT-PS/POF	Polishing disc	MA213-03
c	**33.3020**	CT-CZ/POF	Crimping pliers	MA065, MA213-03

ASSEMBLY TOOLS

Insertion tools socket/pin

Insertion tool	Order No.	Type	For nominal-Ø socket/pin	For contact
	**33.3003**	CT-E-WZ0,6	0.6 mm	
	**33.3001**	CT-E-WZ1-9,5	1 mm	Thermocouple contacts
	**18.3003**	ME-WZ1,5/2	1.5 mm	
	18.3010	ME-WZ3	3 mm	
	18.3013	ME-WZ5	6 mm	CT-POF/SL Coaxial contacts
	18.3016	ME-WZ6	8 mm	
	**18.3015**	MSA-WZ5[1)]	6 mm	
	18.3018	MSA-WZ6[1)]	8 mm	
	**18.3014**	MBA-WZ5[2)]	6/8 mm	

Extraction tools socket/pin

Extraction tool (socket)	Order No.	Type	For nominal-Ø pin/socket	For contact
	**33.3002**	CT-A-WZ0,6	0.6 mm	
	**18.3001**	MBA-WZ1/1,2	1 mm	
	18.3004	MBA-WZ1,5	1.5 mm	Thermocouple contacts
	18.3011	MBA-WZ3	3 mm	
	18.3017	MBA-WZ6	6/8 mm	
	**18.3015**	MSA-WZ5		Coaxial contacts
	**33.3022**	CT-AWZ/POF[3)]		POF contacts
	**33.3048**	CT-NET-AWZ		CT-NET contacts

Extraction tool (pin)	Order No.	Type	For nominal-Ø pin/socket	For contact
	**33.3002**	CT-A-WZ0,6	0.6 mm	
	**18.3002**	MSA-WZ1/1,2	1 mm	
	18.3005	MSA-WZ1,5	1.5 mm	Thermocouple contacts
	18.3012	MSA-WZ3	3 mm	
	18.3018	MSA-WZ6	6 mm	CT-POF/SL
	18.3022	MSA-WZ8	8 mm	Coaxial contacts

[1)] For contacts with screw connection with external thread.
[2)] For contacts with screw connection with internal thread.
[3)] Extraction tool for pin and socket.

Torque wrench[1)]

Description	Used for	Key size		Tightening torque	
		Ø 8 mm	Ø 6 mm	Ø 8 mm (M6)	Ø 6 mm (M5)
Torque wrench for hex. socket head screw	Fitting cable lug on Ø 8 and 6 mm contacts	5 mm	4 mm	3 Nm[2)] 8.5 Nm[3)]	2 Nm[2)] 5 Nm[3)]
Insert for cross recessed screws	Cross recessed screws for supporting rail			0.5 Nm	

Description	Used for	Key size		Tightening torque	
		Ø 8 mm	Ø 6 mm	Ø 8 mm (M6)	Ø 6 mm (M5)
Torque wrench	Fitting cable lug	10 mm	8 mm	3 Nm[2)] 8.5 Nm[3)]	2 Nm[2)] 5 Nm[3)]
Open-end spanner[1)]	Fitting cable lug	8 mm	7 mm		

Special tool

Description	Used for
Special tool CT-K-WZ 33.3040	For easy insertion of the contacts into the contact carrier. Adjustable fi xing of the CombiTac units for frame sizes from 18 – 120 mm. It can be fi xed on the table with a bar clamp or screws. With anti-slide surface on the underside.
Insert CT-K-WZ-AFL 33.3042	Inserting sockets into the CT-E8-2-IP2X (33.4139) contact carrier with the CT-K-WZ special tool.

[1)] Parts available commercially.
[2)] For internal and external thread.
[3)] Only for steel screws.

Derating diagrams

Derating with the use of cables

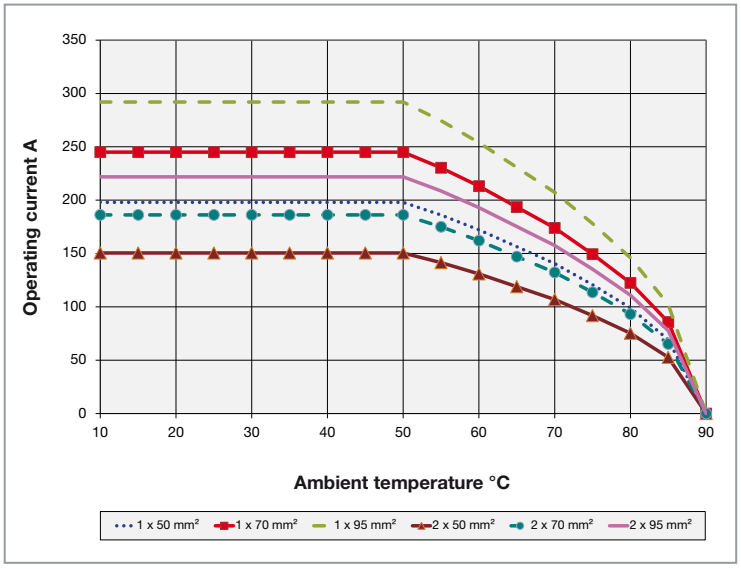
The derating diagrams for cables are based on the German standards DIN VDE 0298-4 and DIN VDE 0891-1. The diagrams show examples of the rated current in correlation with changes in the ambient temperature. If a CombiTac is used to equip machines, standard IEC 60204-1 is applicable instead of VDE 0298-4.

Derating with the use of CombiTac in machines

In this case, the standard IEC 60204-1 “Safety of Machines” is applicable. This specifies the permitted current load of PVC-insulated copper wire and cables under continuous current when used in machines, at an ambient temperature of 40 °C. For bundled wires and cables under these conditions, additional reduc-tion factors apply.

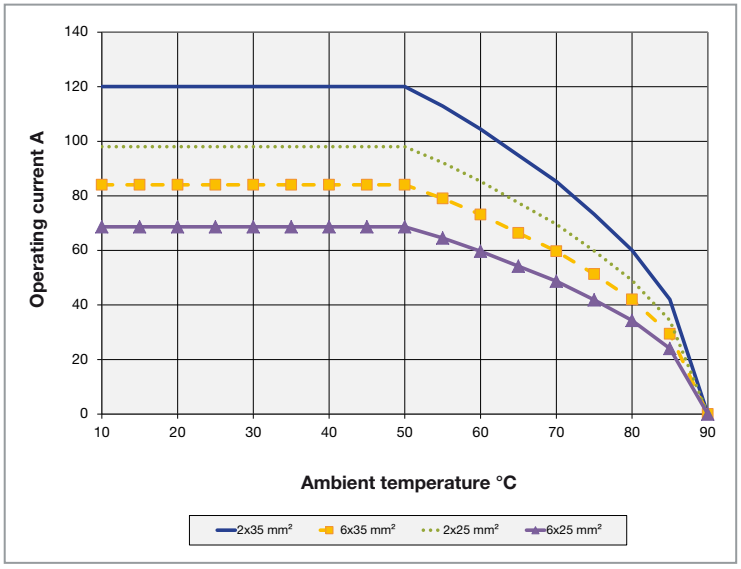
Example 1:

1 and 2 current-carrying conductors (bundled) according to DIN VDE 0298-4 for 50 mm², 70 mm², and 95 mm² Cu wire, PVC insulated for higher temperatures (max. permit-ted conductor temperature of 90 °C).



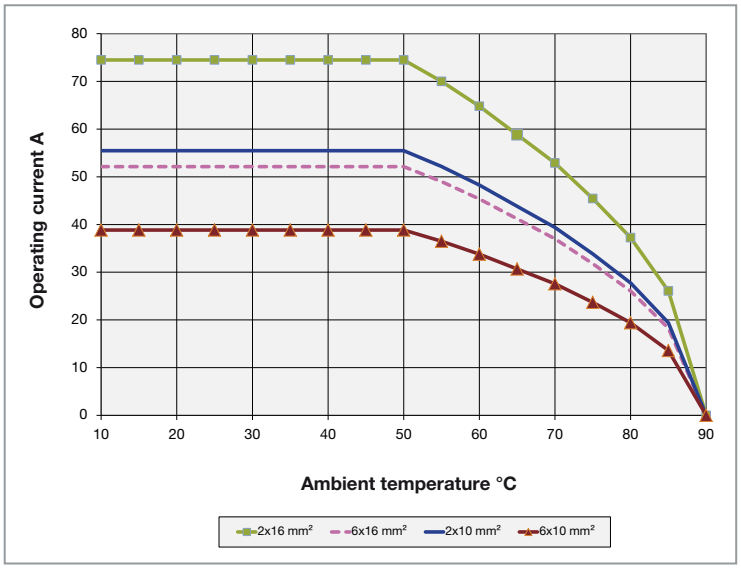
Example 2:

2 and 6 current-carrying conductors (bundled) according to DIN VDE 0298-4 for 25 mm², and 35 mm² Cu wire, PVC insulated for higher temperatures (max. permitted conductor temperature of 90 °C).



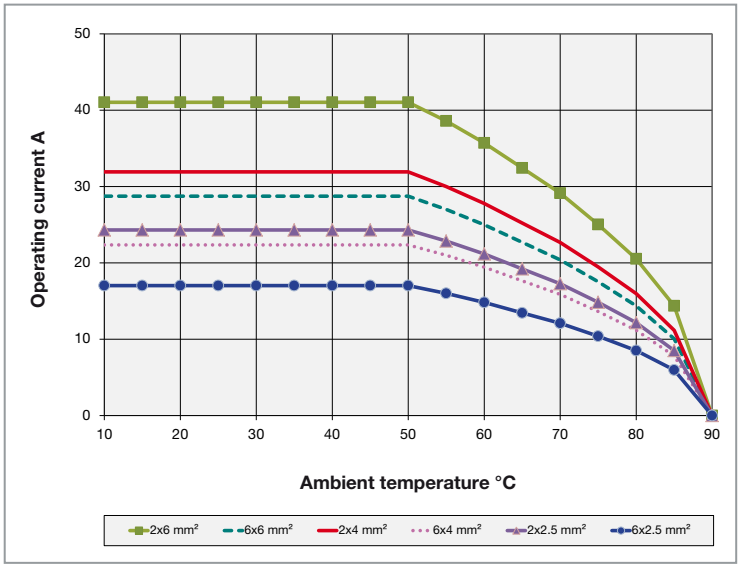
Example 3:

2 and 6 current-carrying conductors (bundled) according to DIN VDE 0298-4 for 10 mm², and 16 mm² Cu wire, PVC insulated for higher temperatures (max. permitted conductor temperature of 90 °C).



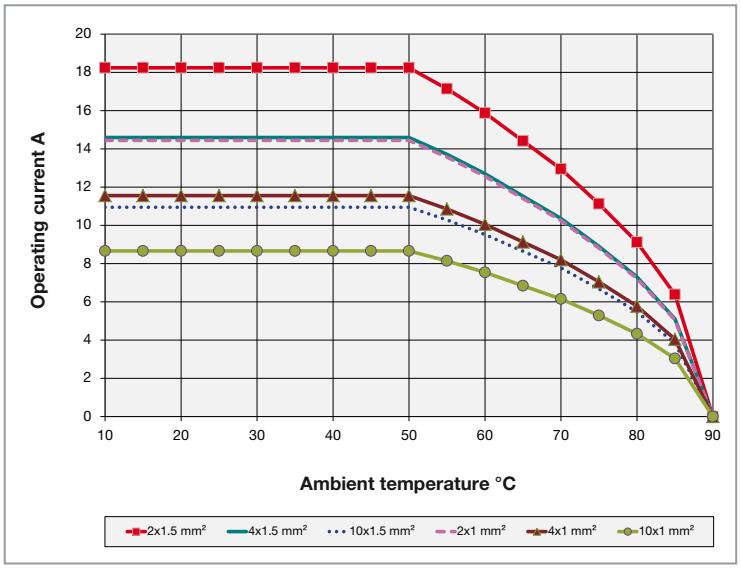
Example 4:

2 and 6 current-carrying conductors (bundled) according to DIN VDE 0298-4 for 2.5 mm², 4 mm², and 6 mm² Cu wire, PVC insulated for higher temperatures (max. permitted conductor temperature of 90 °C).



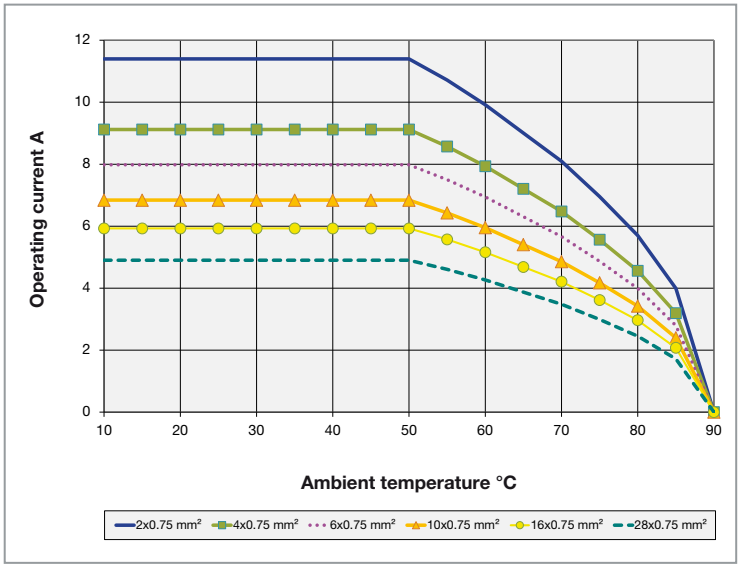
Example 5:

2, 4, and 10 current-carrying conductors (bundled) according to DIN VDE 0298-4 for 1 mm² and 1.5 mm² Cu wire, PVC insulated for higher temperatures (max. permitted conductor temperature of 90 °C).



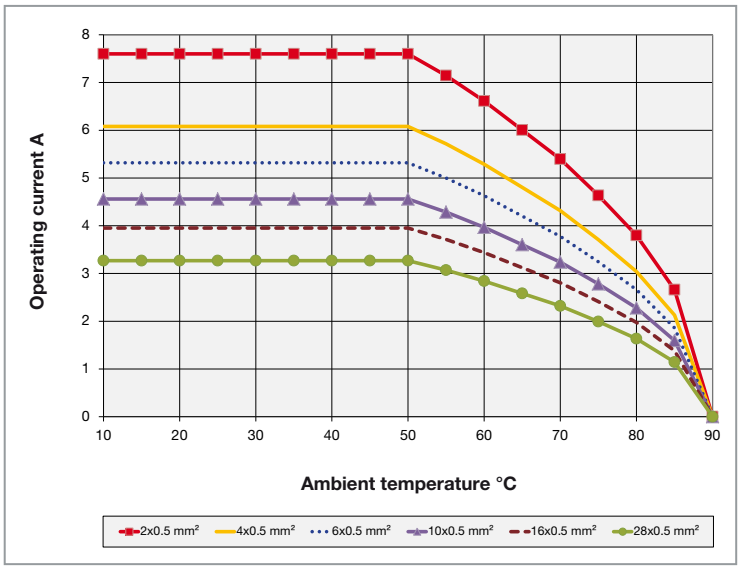
Example 6:

2, 4, 6, 10, 16, and 28 current-carrying conductors (bundled) according to DIN VDE 0298-4 for 0.75 mm² Cu wire, PVC insulated for higher temperatures (max. permitted conductor temperature of 90 °C).



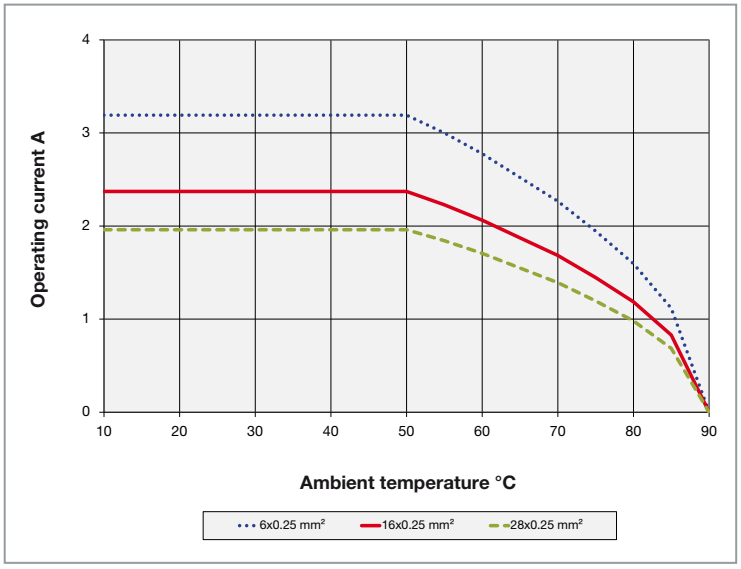
Example 7:

2, 4, 6, 10, 16, and 28 current-carrying conductors (bundled) according to DIN VDE 0891-1 for 0.5 mm² Cu wire, PVC insulated for higher temperatures (max. permitted conductor temperature of 90 °C).



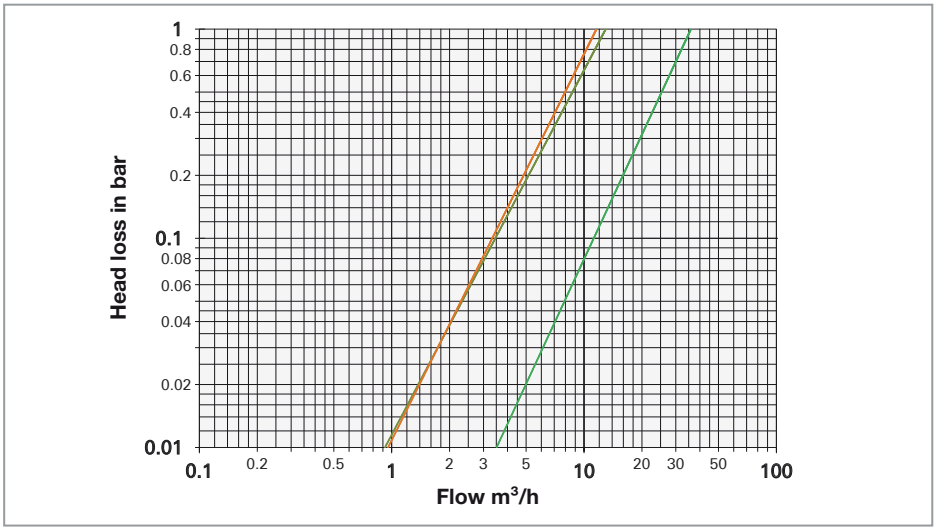
Example 8:

6, 16, and 28 current-carrying conductors (bundled) according to DIN VDE 0891-1 for 0.25 mm² Cu wire, PVC insulated for higher temperatures (max. permitted conductor temperature of 90 °C).



Flow, head loss diagrams, and sliding forces

Test conditions CT-...-UCT04/6, CT-...-RCT03/6

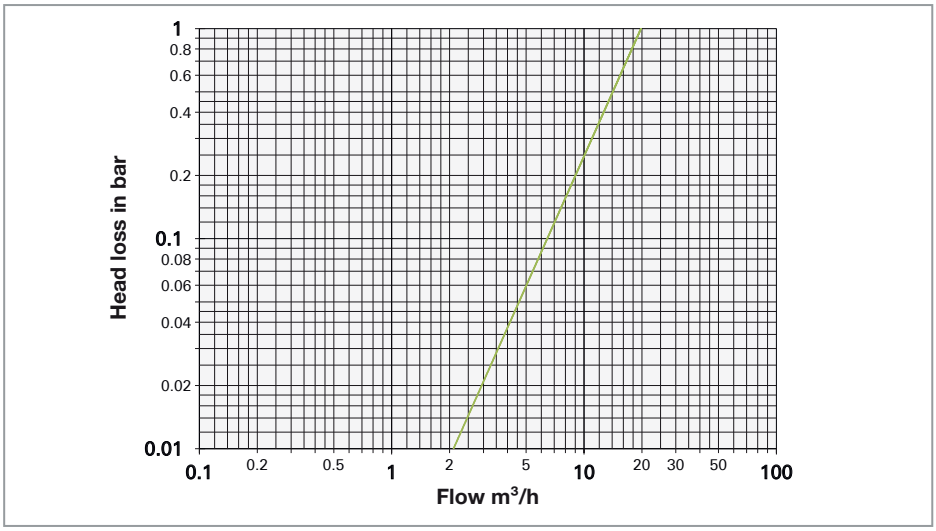


Compressed air:

Under standard conditions 0 °C, 1013 mbar

Socket	Flow direction	Plug	Max. sliding force		Input pressure	Tube-Ø
			0 bar	15 bar	bar	mm
CT-B-UCT04/6[1)]	→	CT-S-UCT04/6	9 N	46 N	6	6
CT-BV-RCT03/6[1)]	→ ←	CT-S-RCT03/6	12 N	35 N	6	6

Test conditions CT-...-RCT03/6



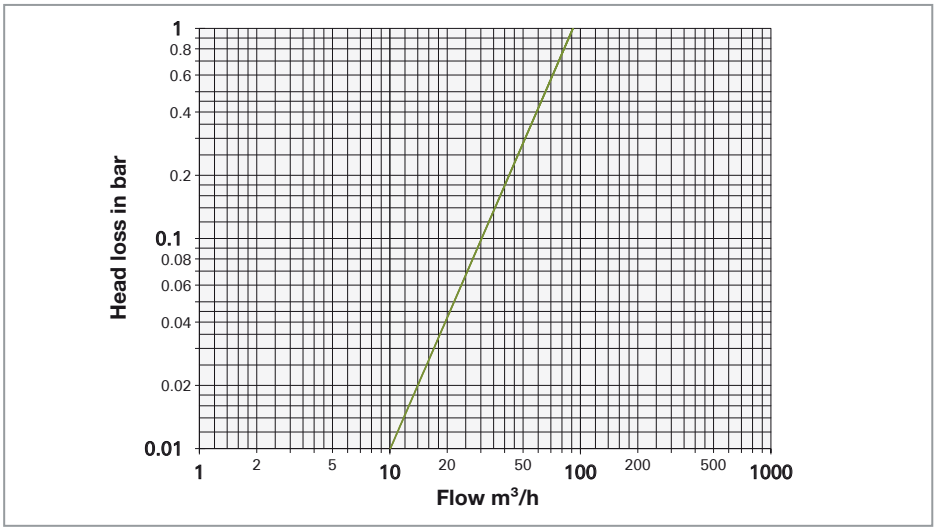
Compressed air:

Under standard conditions 0 °C, 1013 mbar

Socket	Flow direction	Plug	Max. sliding force		Input pressure	Tube-Ø
			0 bar	15 bar	bar	mm
CT-B-RCT03/6	→	CT-S-RCT03/6	10 N	33 N	6	6

[1)] Without shut-off valve

Test conditions CT-...-UCT06/8

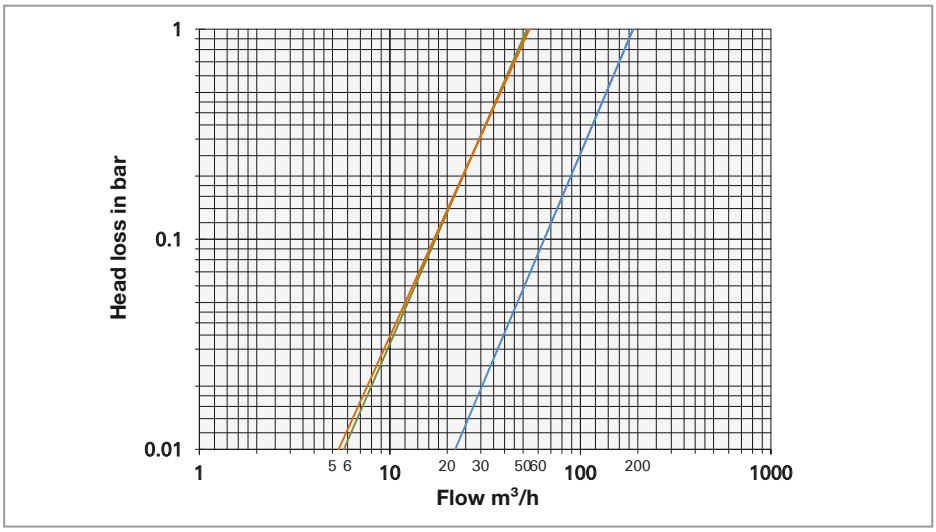


Compressed air:

Under standard conditions 0 °C, 1013 mbar

Socket	Flow direction	Plug	Max. sliding force		Input pressure	Tube-Ø
			0 bar	15 bar	bar	mm
CT-B-UCT06/8	→	CT-S-UCT06/8	16.5 N	94 N	6	6

Test conditions CT-...-UCT08/10, CT-...-RCT06/8



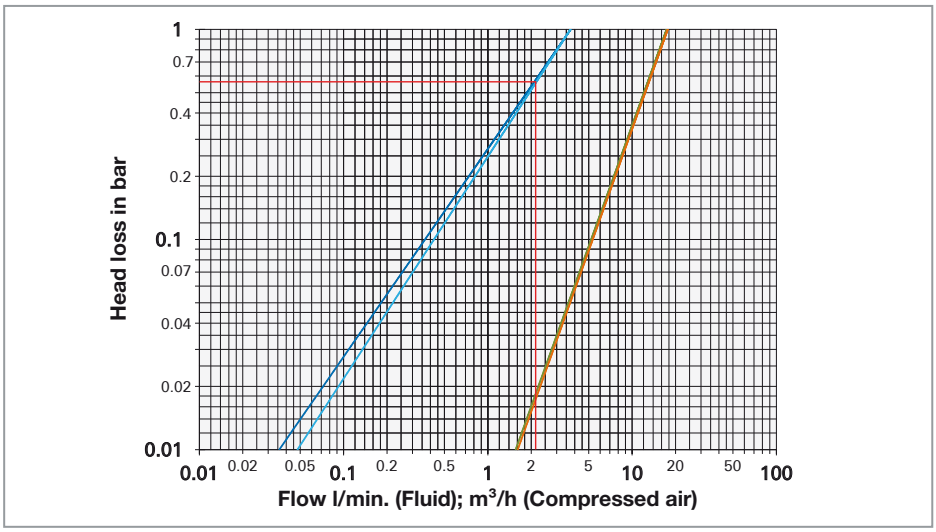
Compressed air:

Under standard conditions 0 °C, 1013 mbar

Socket	Flow direction	Plug	Max. sliding force		Input pressure	Tube-Ø
			0 bar	15 bar	bar	mm
CT-B-UCT08/10[1)]	→	CT-S-UCT08/10	16 N	134 N	6	10
CT-BV-RCT06/8	→ ←	CT-S-RCT06/8	19 N	106 N	6	8

[1)] Without shut-off valve

Test conditions CT-...-SCT03



Fluid:

Hydraulic oil INVAROL FJ13 (H515) with 40 °C (volumetric mass 833 kg/m³).

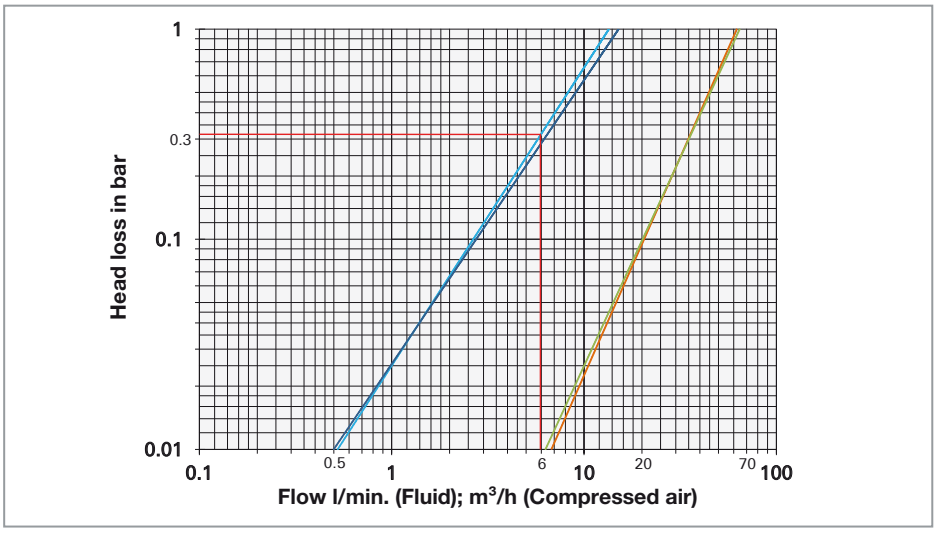
Compressed air:

Under standard conditions 0 °C, 1013 mbar

Hydraulic
Pneumatic
Flow rate 5 m/s

Socket	Flow direction	Plug	Viscosity	Input pressure	Tube-Ø
			cSt	bar	mm
CT-B-SCT03[1)2)]	→ ←	CT-S-SCT03[1)]	13.4	–	6
CT-B-SCT03[1)2)]	→ ←	CT-S-SCT03[1)]	–	6	6

Test conditions SCT05



Fluid:

Hydraulic oil INVAROL FJ13 (H515) with 40 °C (volumetric mass 833 kg/m³).

Compressed air:

Under standard conditions 0 °C, 1013 mbar

Hydraulic
Pneumatic
Flow rate 5 m/s

Socket	Flow direction	Plug	Viscosity	Input pressure	Tube-Ø
			cSt	bar	mm
CT-B-SCT05[1)2)]	→ ←	CT-S-SCT05[1)]	13.4	–	8
CT-B-SCT05[1)2)]	→ ←	CT-S-SCT05[1)]	–	6	8

[1)] Recommendation: do not engage under pressure
[2)] Leackproof with shut-off valve

Technical information

Sliding forces
The total sliding force of a connector is the sum of all the single contact sliding forces. The stated values are guideline values, and may be reduced by 20 – 30 % after a number of mating cycles.

Locking cycles DIN housing
Max. 500 locking cycles without lubrication. For up to 5000 locking cycles, a lubrication must be executed. See note about lubrication, assembly instructions MA213.

Rated current
The rated current is the current, preferably at an ambient tem-perature of 40 °C, that the plug connector or plug device can carry continuously (without interruption) and that flows simultaneously through all its contacts that are connected to the largest possible conductor without the maximum permitted temperature being exceeded. The stated current values were determined in accordance with UL1977 (4-hour temperature test, contacts connected in series).

Bundled wires
If the CombiTac is used together with bundled wires, a reduction factor must be applied to the wires. The derating diagrams on pages 104 – 108 show various examples for bundled copper wires with different cross sections that are suitable for use with CombiTac. The specified wires are PVC insulated with increased heat resistance (max. permissible conductor temperature 90 °C) in accordance with DIN VDE 0298, part 4, and DIN VDE 0891-1. A specific derating factor applies to a given number of bundled wires or types of wire.

Rated voltage IEC 60664-1
Value of voltage assigned by the manufacturer, to a component, device, or equipment and to which operation and performance characteristics are referred. Equipment may have more than one rated voltage value or may have a rated voltage range.
The rated voltages listed below correlate normatively with the following impulse withstand voltages. This is subject to the over voltage category to be met.

Overvoltage categories
The concept of overvoltage categories is used for equipment energized directly from the low-voltage mains.
CATII: Equipment of the overvoltage category II is energy consuming equipment to be supplied from the fixed installation. Examples of such equipment are appliances, portable tools, and other household and similar loads.

IEC 60664-1			IEC 61984	
Rated voltage	Impulse withstand voltage		r.m.s withstand voltage 1 min, 50/60 Hz	
	Overvoltage category II	Overvoltage category III	Overvoltage category II	Overvoltage category III
< 51 V	500 V	800 V	370 V	500 V
51 V – 100 V	800 V	1500 V	500 V	840 V
101 V – 150 V	1500 V	2500 V	840 V	1390 V
151 V – 300 V	2500 V	4000 V	1390 V	2210 V
301 V – 600 V	4000 V	6000 V	2210 V	3310 V
601 V – 1000 V	6000 V	8000 V	3310 V	4260 V

Pollution degree 2 IEC 60664-1
Normally only nonconductive pollution occurs. Occasionally, however, temporary conductivity caused by condensation is to be expected.
CATIII: Equipment of overvoltage category III is equipment in fixed installations and for cases where the reliability and the availability of the equipment is subject to special requirements. Examples of such equipment are switches in the fixed installation and equipment for industrial use with a permanent connection to the fixed installation.

Pollution degree 3 IEC 60664-1
Presence of conductive pollution or of dry nonconductive pollution that becomes conductive due to condensation that is to be expected.
CATIV: Equipment of overvoltage category IV is for use at the origin of the installation. Examples of such equipment are electricity meters and primary overcurrent protection equipment.

Silicone free
The contact carriers of the CombiTac connectors are silicone free and therefore not detrimental to paint adhesion.

Contact resistance
The contact resistance is determined by means of the voltage drop, measured between the lead terminations of the pin and socket. The stated values are mean values derived from the rated current after 100 mating cycles.

Mating cycles
Mating cycles tests for CombiTac parts are performed under typical laboratory environmental conditions.

Limiting temperature
The limiting temperatures specified in this catalog apply to CombiTac connectors while in mated condition.

Safety notes

Protection against electric shock

A connector shall be so designed that, after mounting, its live parts are not accessible by the IEC test finger in accordance with clause 5 of IEC 60529 using a test force of 20 N. Some CombiTac modules are not contact-protected on the cable connection side. These products are designed to be built into a housing that guarantees the relevant IP protection for cable connections (at least IP2X). Protection against electric shock must be provided by the end product and ensured by the users themselves. This requirement does not apply to a connector operated with a safety extra-low voltage (SELV) of a maximum AC 50 V eff. or DC 120 V. The customer must take appropriate measures when fitting the connectors to ensure that the cable connection is protected against tension and twisting and is re sponsible for correct implementation of the contact-protection measures. Connection and disconnection only when not live.

Enclosure

An enclosed connector is a connector for which the protection against electric shock is ensured by the housing of the connec-tor itself. An unenclosed connector is a connector for which the protection against electric shock is provided by the enclosure of the equipment in which the connector is mounted.

In relation to the direction of power flow, connectors should be incorporated in the circuit wiring in such a way that pins that can be touched are not live in the unmated state (IEC 61984).

Protection wall

In order to meet the requirement for protection against accessibility of live parts up to AC 600 V during engagement or with-drawal, CombiTac is provided with a specially designed protection wall. Measures shall be taken to ensure that insertion and withdrawal is done under no load (0 A) (see page 116 “Safety situation for CombiTac connectors”).

Electrical contacts in close proximity to connectors for liquids and gases

Defect electrical contacts or connectors that leak gas or liquids can be a safety hazard to personnel and the environment, as well as affecting the proper function of the system. It is the responsibility of the end user to ensure that both safety and proper function in the end use is guaranteed. The result of a risk analysis requires that the end user of CombiTac connectors must ensure the following:

- All relevant national and international standards and regulations must be complied with in the end use.
- Field-tested techniques must be applied and, if necessary, a risk assessment must be carried out in order to identify and reduce the risks.
- The use of flammable or explosive liquids or gases is prohibited.
- Exclusively CT-…SCT couplings with both male- and female-sided locking systems are permitted to be used for liquids.
- Automatic disconnection of power supply in the event of indirect contact, overload, or short circuit is required according to IEC 60364-4-41.
- If the voltage is higher than AC 33 V or DC 70 V, all simultaneously accessible conductive parts that do not carry current during normal operation must be connected to the protective conductor (protective equipotential bonding according to IEC 60364-4-41).
- If the voltage is higher than AC 33 V or DC 70 V, all electric circuits have to be protected by a residual-current-operated protective device (RCD) with a rated residual operating current not exceeding 30 mA according to IEC 60364-4-41.
- Connecting or disconnecting under load or live is not allowed (connector without breaking capacity according to IEC 61984).
- On permanently fixed installations, electrical contacts have to be placed above liquid couplings.
- In CombiTac housing applications, the housing has to be connected to the protective conductor according to IEC 60364-4-41.
- The maximum rated voltage phase to neutral conductor is AC/DC 600 V.
- The fluid couplings must be replaced if a leak is detected.

2011/65/EC
All components in this catalog comply with the RoHS (2011/65/EC).

Underwriters Laboratries Standard UL 1977 states: A connector operated above 30 V (42 V peak) up to 600 V AC or DC intended for usage external to the end equipment shall have live parts protected against exposure to contact by persons when assembled, installed, and mated as intended, as determined by the use of the articulate probe with web stop (UL test finger).
Mating devices operated above 30 V (42 V peak) up to 600 V AC or DC intended for usage external to the end equipment shall not have exposed live contacts during engagement or withdrawal, as determined by the use of the articulate probe with web stop (UL test finger).

Engineering considerations according to UL File E229145
File E229145, Vol. 1, Sec. 4
ENGINEERING CONSIDERATIONS:
Use For use only in complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.
Conditions of Acceptability In order to be judged acceptable as a component of electrical equipment, the following conditions should be met. These devices have not been tested for interrupting the flow of current by connecting or disconnecting the mating connector. These devices should be used only where they will not interrupt the flow of current.
These devices have been subjected to the temperature test within the provided housings with the rated currents and maximum temperature rise values tabulated below. The conductors terminated by the device and other associated components are to be reviewed in the end use to determine whether the temperature rise from the connector exceeds their maximum operating temperature ratings.

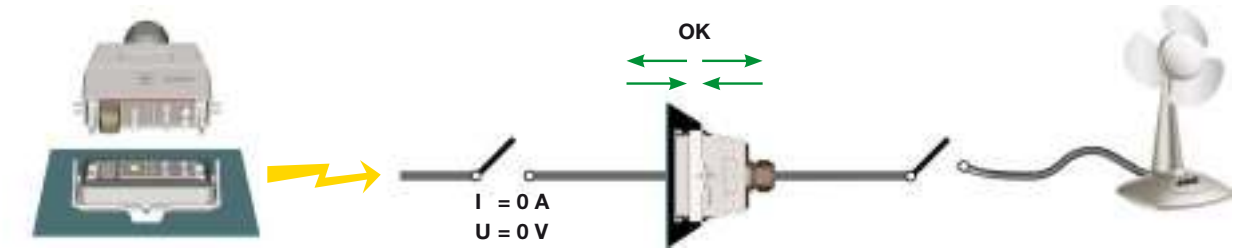
Contact	Gauge	Current	Max. Temperature Rise
Ø mm	AWG	(A)	(°C)
12 (Crimp)	3/0	300	58
12 (Crimp)	2/0	245	60
12 (Crimp)	1/0	200	62
12 (Screw)	3/0	300	65
12 (Screw)	2/0	245	57
12 (Screw)	1/0	200	54
8	2	150	45
8	2	120	24
8	2	100	30
8	4	75	27
8	6	55	100
6	4	100	38

Contact	Gauge	Current	Max. Temperature Rise
Ø mm	AWG	(A)	(°C)
6	4	75	31
6	6	55	30
6	8	40	29
3	12	24.5	64
3	14	22	65
3	10	35	24
1.5	16	10	65
1.5	18	5	16
1.5	20	3	12
1	18	5	61
1	20	3	37

These devices may be used at potentials not exceeding 600 V based on dielectric voltage-withstand testing conducted between adjacent poles and between live parts and dead metal at 2,200 V ac. These devices meet the minimum 1/8 inch (3.2 mm) spacings required by UL 1977 for devices not exceeding 600 V.
The operating temperature of these devices should not exceed the temperature ratings of the insulating materials. These materials may be used interchangeably at a maximum temperature of 90 °C. Mold stress relief testing was conducted at a temperature of 100 °C.
The acceptability of the quick-connect tab as a grounding terminal shall be determined in the end use.
The printed-wiring-board terminals have not been evaluated for mechanical secureness. The construction of the connector is to be reviewed when it is assembled to the particular printed wiring board used in the end use application.
The strain relief device on the housing of the connectors has not been evaluated. This construction shall be determined in the end use.

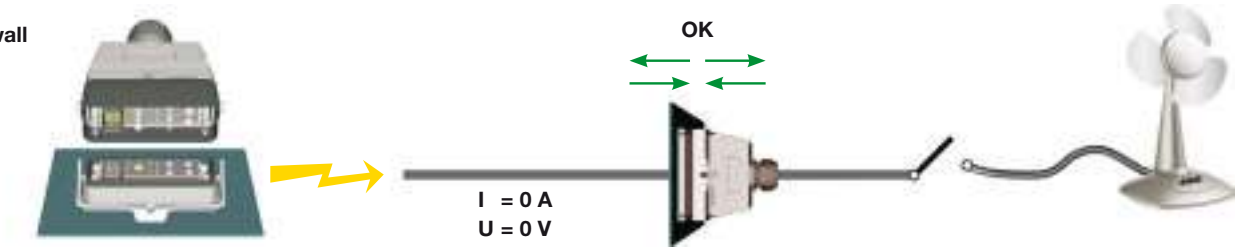
Safety situation for CombiTac connectors

Engaged or disengaged when CombiTac is isolated from supply



Engaged or disengaged when live and under no load

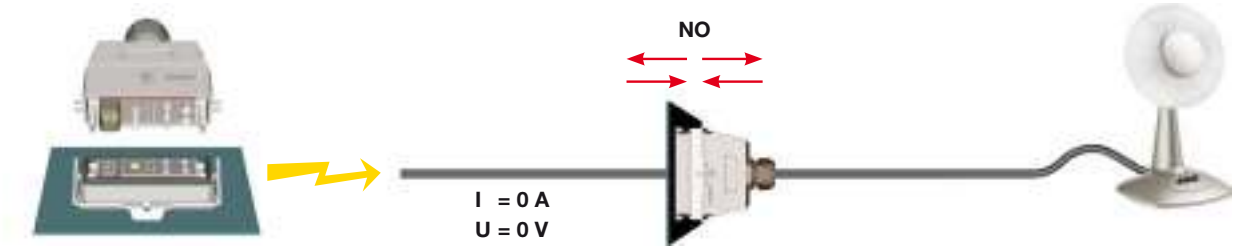
With protection wall



⚠ **Attention**
When disengaged, the female part is touch protected, i.e. has IP2X protection according to IEC 60529 (test finger). See also page 115 of the CombiTacline catalog, section “Underwriters Laboratories standard UL 1977”.

Engaged or disengaged when live and under load

With or withtout protection wall



Panel-mounted version

The protection against electric shock is provided by the enclosure of the equipment in which it is installed. This is provided by the CombiTac end user.

Applications

CombiTac in an automated radio testing station for the automotive industry.

The connector solution consists of signal, coaxial and fiber optic contacts.

Connector solution with CombiTac for plate mounting, to create a connection between the various milling head units and the drive.

CombiTac in a modular test bench for the testing and simulation of electric components.

CombiTac for connections to mobile trolleys in operation rooms for medical technology.

CombiTac in Multi Coupling Systems (MCS)

The MCS principle allows you to centralize your different connections (power, signal, pneumatics, hydraulics, etc.) and get instant energy thanks to a much easier and reliable coupling procedure.

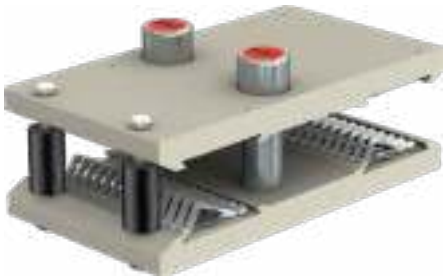
Such automatic or manually operated quick disconnect systems allow standard components to be mounted onto carrier plates and several energies to be connected or disconnected simultaneously.

MCS plates are commonly used in high-performance applications that demand reliability and repeatability, such as connec-tions for test benches, injection moulding tools, transfer tables, and converters, etc.

MCS plates: the optimal combination of high-performance solutions

UNLIMITED POSSIBILITIES FOR CONTACT SOLUTIONS

MULTILAM Technology



MULTILAM are specially formed and resilient contact elements. All Stäubli Electrical Connectors products benefit from the unique and outstanding performance of the MULTILAM Technology.

Thanks to their constant spring pressure, MULTILAM louvers ensure continuous contact with the contact surface, resulting in a constantly low contact resistance.

MULTILAM Technology allows to find solutions for connectors within the severest constraints and in certain products for up to 1 million mating cycles.

This makes the MULTILAM Technology the best choice for applications with demanding requirements:

- Reliable and longlife operation due to constantly high performance
- Safe operation under highest environmental demands on temperature, vibration and shock
- Suitable for data and signal contacts as well as high-current connectors
- Automated solutions with a high number of mating cycles

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