

Overview 0

Cabinets 1

Wall mounted cases 2

Accessories for cabinets and wall mounted cases 3

Climate control 4

Desk-top cases 5

Subracks/
19" chassis 6

Front panels,
plug-in units 7

Systems 8

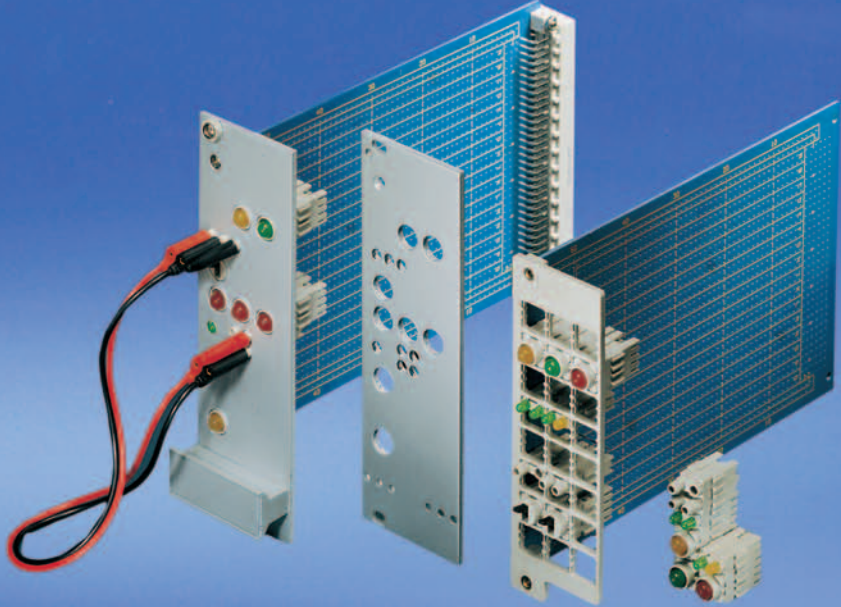
Power supply
units 9

Backplanes 10

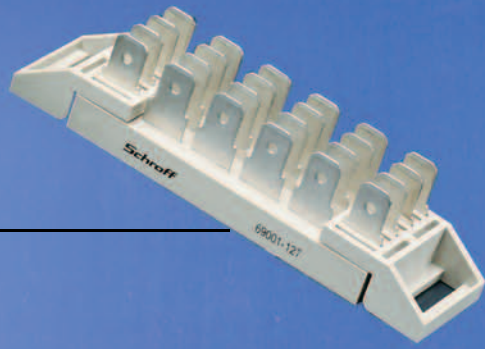
Connectors, front
panel component
system 11

Appendix 12

Connector, front element system



Front element systems



Busbars

05092001 00892005 36105009



Connector, front element system

Overview 11.0

Connectors 11.2

Front element systems 11.10

Busbars

4-pin Faston connector for 6.3 x 0.8 mm 11.24

Strip conductor ... 11.24

Printed board busbars 11.25

Solder strip conductor 11.25

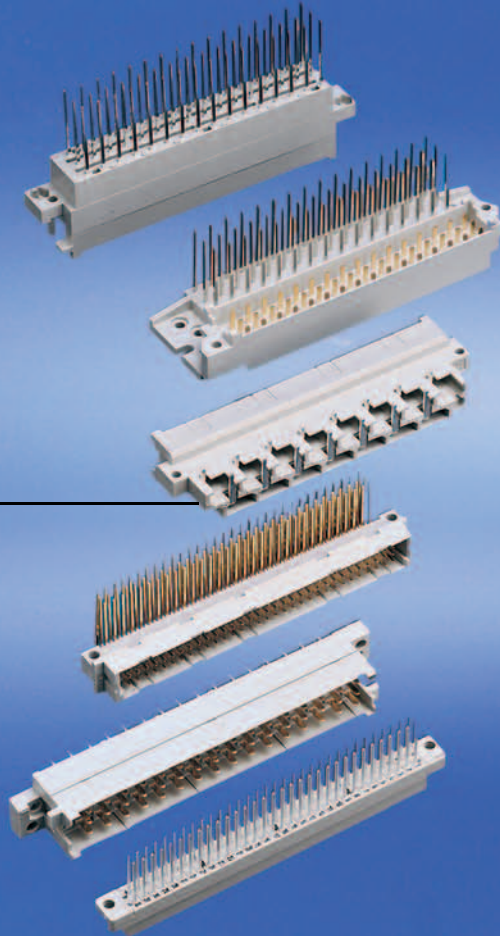
Electrical system

19" module support 11.26

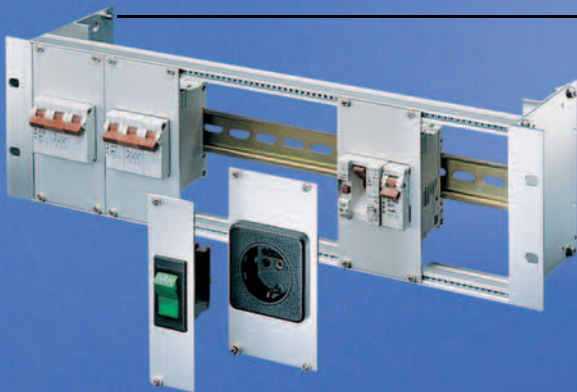
Adapter bracket with C-rail 11.27

Hood 11.27

Plug-in units



Electrical components



05596002 01494031 36105009



Overview 0

Cabinets 1

Wall mounted cases 2

Accessories for cabinets and wall mounted cases 3

Climate control 4

Desk-top cases 5

Subracks/
19" chassis 6

Front panels,
plug-in units 7

Systems 8

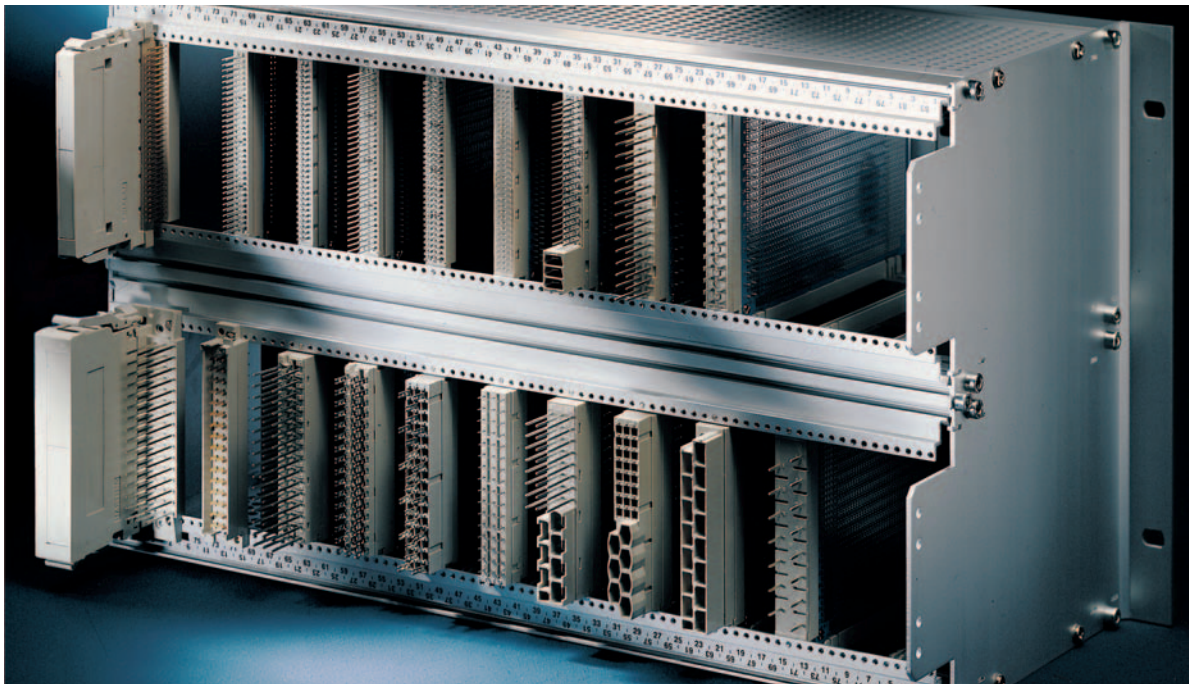
Power supply
units 9

Backplanes 10

Connectors, front
panel component
system 11

Appendix 12

Connectors



05592002

Standards

- Connector in accordance with:
IEC 60603-2 / DIN 41612

Modifications

Extended delivery program

- Connector IEC 60603-2
with requirement class 1, 3 and
defence equipment standard
Minimum quantity: 300 pieces
- Connector with selective contacts
Minimum quantity: 500 pieces
- Complementary type to standard type in accordance
with IEC 60603-2
(„half“ type)
Minimum quantity: 300 pieces
- Not catalogued connectors, in accordance with
IEC 60603-2
Minimum quantity: 300 pieces

Note

Price and delivery time on request



Further important information can be found on the internet
under www.schroff.biz



General technical data

Selection criteria for connectors

The technical information are the basis for the selection of connectors in accordance with EN 60603 (DIN 41612):

- Reference voltage
- Minimum creepage distance
- Pollution level
- Derating diagrams
- Requirement classes

Together with the overview tables on the following pages connectors can be chosen systematically.

Contamination level 1

None or dry, non-conductive contamination. Contamination has no effect.

Contamination level 2

Non-conductive contamination only. Occasional transient conductivity due to condensation may occur. Contamination levels 3 and 4 are not taken into account as they do not apply to the connectors listed in this catalogue.

The minimum creepage distances listed in the table refer to the CTI values of the insulation group III a/b.

Overview connector types..... 11.4

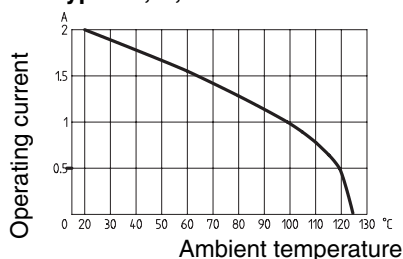
Blank connector housing/locking lever 11.6
 Keying/coding . . . 11.7
 Keying/coding pegs for codable spring contact strips. 11.7
 Keying/coding pegs 11.8
 Connectors, 3-pin . 11.9

Reference voltage, minimum creepage distance and contamination level

Reference voltage V	12.5	25	32	50	63	80	100	125	160	200	250	320	400	500	630	800	1000
U_{ACeff} or U																	
Minimum creepage distance in mm																	
- Contamination level 1	0.09	0.125	0.14	0.18	0.2	0.22	0.25	0.28	0.32	0.42	0.56	0.75	1.0	0.3	1.8	2.4	3.2
- Contamination level 2	0.42	0.50	0.53	1.2	1.25	1.30	1.40	1.50	1.60	2.00	2.50	3.20	4.0	5.0	6.3	8.0	10

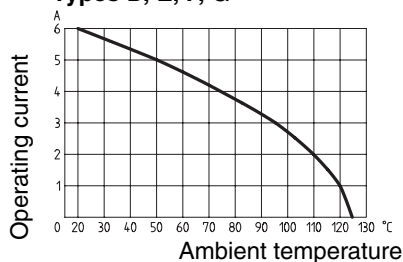
Derating diagrams

Types B, C, R

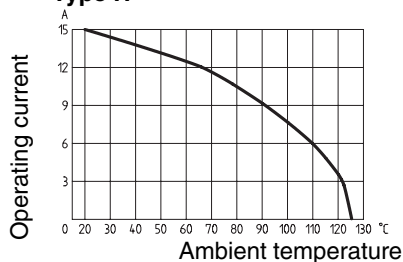


The current load-carrying capacity of connectors is restricted by the thermal loading capacity of the material, the contact elements - including connection- and the insulation elements. Measurement and control procedures in accordance with DIN 41640, part 3, there is none or dry, non-conductive contamination. The contamination has no effect. The derating curve applies therefore also for currents that are allowed to flow simultaneously and permanent (not intermittent) through each contact element of the connector without exceeding the maximum acceptable temperature.

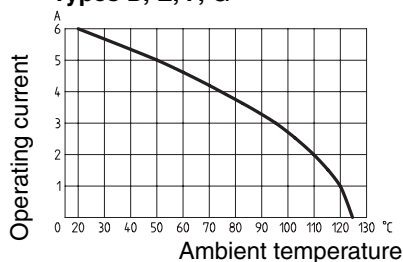
Types D, E, F, G



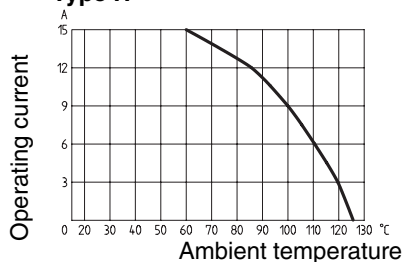
Type H



Types D, E, F, G



Type H



sva42501 sva42502 sva42503 sva42504 sva42505

Connectors

Overview connector types, connector EN 60603 (DIN 41612)

Type	Number of contacts	Row assignment	B	C	Ribbon cable C	R	D
Male connector							
Solder pins	32	a					
	32	ab					
	64	ab	69001-801				
	32	ac		69001-826			69001-831
	64	ac		69001-821			
	96	abc		69001-816			
Wire-wrap pins	64	ac					
	96	abc					
Spring contact strip							
Wire-wrap pins	64	ab					
	32	ac		69001-691			69001-697
	64	ac		69001-685	69005-596		
	96	abc		69001-679			
Solder pins 2.5 mm	64	ab	69001-664				
	32	ac					
	64	ac		69001-693			
	96	abc		69001-696			
Solder pins 4.0 mm	64	ab					
	64	ac		69001-678			
	96	abc		69001-677			
Solder pins	64	ac				69001-976	
	96	abc				69001-728	
Solder eyes	32	ac					69001-698
Screw connections	32	ac					
Crimping technology							
0.14 – 0.5 mm ²	50 pieces						21100-293
0.75 – 1.5 mm ²	50 pieces						21100-294
Connection pitch			2.54 mm	2.54 mm	2.54 mm	2.54 mm	5.08 mm
Current max. at T _a = 20 °C, see derating diagrams			2 A	2 A	1 A	2 A	6 A
Test voltage V _{eff}							
Contact – contact			1 kV	1 kV	1 kV	1 kV	1.55 kV
Contact – ground/earth			1.55 kV	1.55 kV		1.55 kV	1.55 kV
Contact resistance			≤ 20 mΩ	≤ 20 mΩ	–	≤ 20 mΩ	≤ 20 mΩ
Keying/coding							
– at connector			–	–	–	–	–
– separate			yes	yes	yes	yes	yes
Contact surface			hard gold-plated	hard gold-plated	hard gold-plated	hard gold-plated	hard gold-plated
Air gaps							
Contact – contact			> 1.2 mm	> 1.2 mm		> 1.2 mm	> 1.6 mm
Creepage distances							
Contact – contact			> 1.2 mm	> 1.2 mm		> 1.2 mm	> 3 mm
Dimensions wire wrap/male connector pins			0.6 × 0.6	0.6 × 0.6		0.6 × 0.6	
Insertion and withdrawal forces			32-pin ≤ 30 N 64-pin ≤ 60 N 96-pin ≤ 90 N		64-pin ≤ 60 N 96-pin ≤ 90 N		32-pin ≤ 40 N 48-pin ≤ 75 N

Note

- Connectors are compliant with requirement class 2
- Please order assembly kit separately, see page 7.94



For further information www.schroff.biz/oneclick
oneClick code = Order no.



Connectors

Overview connector types, connector EN 60603 (DIN 41612)

Type	Number of contacts	Row assignment	E	F	G	H	Combined form(M) F and H	
Male connector								
Solder pins	48	ace	69001-879					
	32	zd		69001-853				
	32	ab		69001-851				
	48	zbd		69001-846				
	64	zbd			69001-856			
	24 + 7	zbd						69001-905
angled	15	zd				69001-865		
shortened	15	zd				69001-860		
Faston connector 6.3 mm						69001-866		
Spring contact strip								
Wire-wrap pins	48	ace	69001-877					
	32	zb		69001-717				
	48	zbd		69001-711				
	64	zbd			69001-723			
Solder pins	48	zbd		69001-884				
∅ 4 mm	15	zd				69001-981		
∅ 10 mm	15	zd				69001-980		
Solder eyes	32	zd		69001-722				
	32	zb		69001-718				
	48	zbd		69001-712				
Screw connections	32	zd						
	32	zb						
	48	zbd						
Faston connector	15	zd				69001-733		
Wire-wrap pin/ Faston connector	24 + 7	zbd						69001-755
Solder eyes/ Faston connectors								69001-944
Connection pitch			5.08 mm	5.08 mm	5.08 mm	10.16 mm	5.08 mm	10.16 mm
Current max. at T _a = 20 °C see derating diagrams			6 A	6 A	6 A	15 A	6 A	15 A
Test voltage V _{eff}								
Contact – contact			1.55 kV	1.55 kV	1.55 kV	3.1 kV	1.5 kV	3.1 kV
Contact – ground/earth			1.55 kV	2.50 kV	2.50 kV	3.1 kV	2.5 kV	3.1 kV
Contact resistance			≤ 20 mΩ	≤ 20 mΩ	≤ 20 mΩ	≤ 8 mΩ	≤ 20 mΩ	≤ 8 mΩ
Keying/coding								
– at connector			–	–	–	yes	–	–
– separate			yes	yes	yes	yes	yes	yes
Contact surface			hard gold-plated	hard gold-plated	hard gold-plated	hard silver-plated	hard gold-plated	hard silver-plated
Air gaps								
Contact – contact			> 1.6 mm	> 1.6 mm	> 1.6 mm	> 4.5 mm	> 1.6 mm	> 4.5 mm
Creepage distances								
Contact – contact			> 3 mm	> 3 mm	> 3 mm	> 8 mm	> 3 mm	> 8 mm
Dimensions wire wrap/male connector pins				1.0 × 1.0		6.3 × 0.8	1.0 × 1.0	6.3 × 0.8
Insertion and withdrawal forces			32-pin ≤ 40 N 48-pin ≤ 75 N	32-pin ≤ 50 N 48-pin ≤ 75 N	64-pin ≤ 100 N	15-pin ≤ 90 N	24 + 7-pin ≤ 85 N	

Note

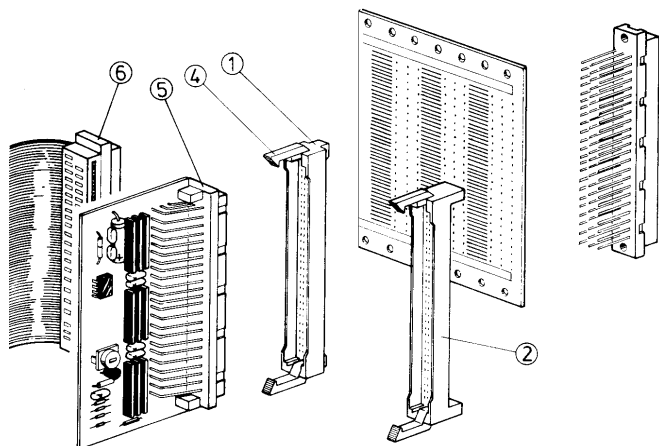
- Connectors are compliant with requirements class 2
- Please order assembly kit separately, see page 7.94



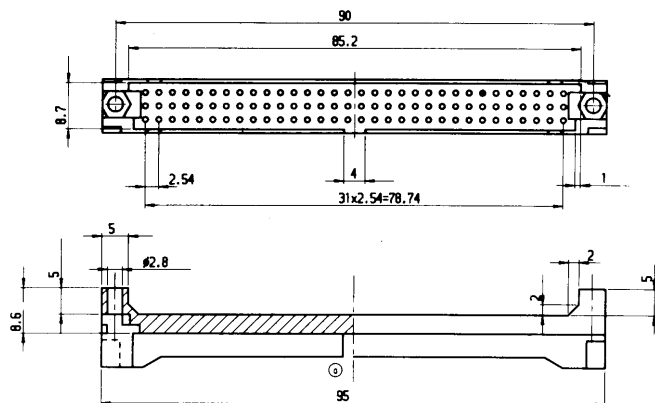
For further information www.schroff.biz/oneclick
oneClick code = Order no.



Blank connector housing/locking lever



A4_2449



A3_401

■ For types C and R

■ The blank connector housing is pushed onto the wire-wrap posts (e.g. on the rear side of backplanes), thus forming a male connector.

Locking levers can be used, for example, to lock terminator boards or I/O connectors.

Order Information

Item	Description	Qty / PU	Order no.
1	Blank case without nuts, for post 0.6 × 0.6 × 13 mm, backplane thickness 3.2 mm	1	69001-814
1	Blank case with nuts M 2.5, for posts 0.6 × 0.6 × 13 mm, backplane thickness 3.2 mm	1	29001-016
2	Blank case without nuts, for posts 0.6 × 0.6 × 17 mm, backplane thickness 3.2 mm	1	69001-210
2	Blank case with nuts M 2.5, for posts 0.6 × 0.6 × 17 mm, backplane thickness 3.2 mm	1	29001-015
2	Blank case without nuts, for posts 0.6 × 0.6 × 13 mm, backplane thickness 1.6 mm	1	69001-311
2	Blank case with nuts M 2.5, for posts 0.6 × 0.6 × 13 mm, backplane thickness 1.6 mm	1	29001-019
4	Locking lever for type R (item 5), grey	4	69001-995
4	Locking lever for type C (item 6), black	4	69001-106



For further information www.schroff.biz/oneclick
oneClick code = Order no.

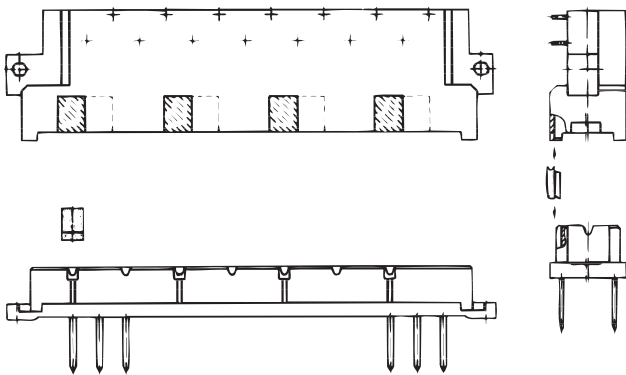
Accessories – Connectors

Keying/coding

- Keying/coding prevents incorrect insertion of plug-in units
- Keying/coding for type H
 - directly at the connector via a keying/coding peg in spring contact strip
- Keying/coding for all types in accordance with EN 60603 (DIN 41612)
 - due to additional assembly of keying/coding pegs

Keying/coding peg	For spring contact strip
	69001-733
21101-252	69001-980
	69001-981

Keying/coding pegs for codable spring contact strips



A4-2481

- For spring contact strip type H
- Without loss of space
- Max. 70 keying/coding possibilities
- The keying/coding pegs are plugged onto the spring contact strip. The corresponding (opposing) keying/coding fields of the male connectors are cut out

Order Information

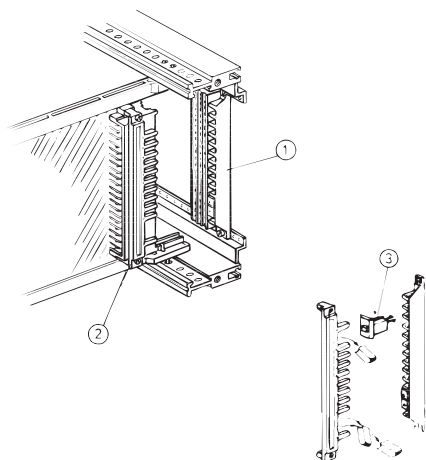
Description	Qty / PU	Order no.
BTP, keying/coding peg P, UL 94 V-0	40	21101-252



For further information www.schroff.biz/oneclick
oneClick code = Order no.

Accessories – Connectors

Keying/coding pegs



A4-2424

- For all types in accordance with EN 60603 (DIN 41612)
- Use with plug-in units to prevent confusion
- Space for connectors with keying/coding pegs:
 - 4 HP for types B, C, D, F, H
 - 5 HP for types E, G
- 66 keying/coding possibilities if 2 keying/coding pins are used
- 924 keying/coding possibilities if 6 keying/coding pins are used

Order Information

Item	Description	Qty / PU	Order no.
1, 2, 3	Contact strip PBTP, UL 94 V-0, 10 pieces, female strip, PBTP, UL 94 V-0, 10 pieces, keying/coding pins, PBTP, UL 94 V-0, 20 pieces	1	20800-042
1, 2, 3	Spacer elements for types E, G	20	20800-036
3	Keying/coding pins	100	20800-078
Assembly kit Screw M2.5 × 18, PU 100 pieces			21100-404

Note

- For connectors type E and G, additional spacer elements are required



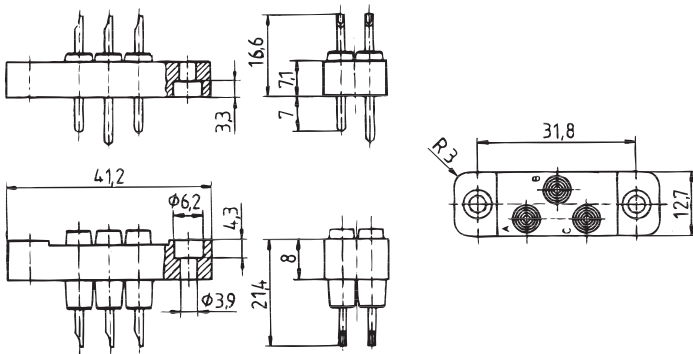
For further information www.schroff.biz/oneclick
oneClick code = Order no.

Accessories – Connectors

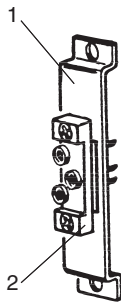
Connectors, 3-pin



05592043



A4-5316



A4-5317

1: Mounting plate 2: Female connector strip

- Used for mains/line voltage supplies
- Male connector with advanced earth protection contact (B)

Order Information

Description	Qty / PU	Order no.
Male connector	1	69001-651
Female connector strip	1	69001-652

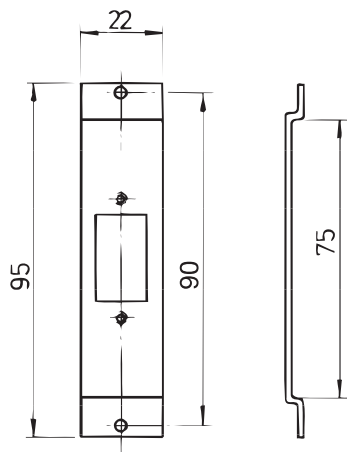
Technical data

Nominal current per contact	10 A
Air gap	≥ 4.4 mm
Creepage distance	≥ 7.6 mm
Test voltage	3 kV (eff)
Contact resistance	approx. 10 mΩ
Connection	Solder eye connection up to 1 mm
Ambient temperature	23 °C–130 °C
Contact pins, sockets	Galvanically silver-plated
Housing material	Keripol red (type 802 in accordance with DIN 16911)
Flammability	UL 94-HB



For further information www.schroff.biz/oneclick
oneClick code = Order no.

Mounting plate for connector, 3-pin



A4-2486a

- Assembly of female connector strip on Z-rail (for EN 60603, DIN 41612 with threaded holes) in the subrack

Order Information

Description	Qty / PU	Order no.
Mounting plate for connector, 3-pin	1	30812-002



For further information www.schroff.biz/oneclick
oneClick code = Order no.

- Overview 0
- Cabinets 1
- Wall mounted cases 2
- Accessories for cabinets and wall mounted cases 3
- Climate control 4
- Desk-top cases 5
- Subracks/ 19" chassis 6
- Front panels, plug-in units 7
- Systems 8
- Power supply units 9
- Backplanes 10
- Connectors, front panel component system 11
- Appendix 12

FPCS front element systems

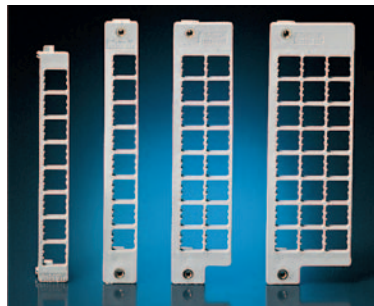


05092001



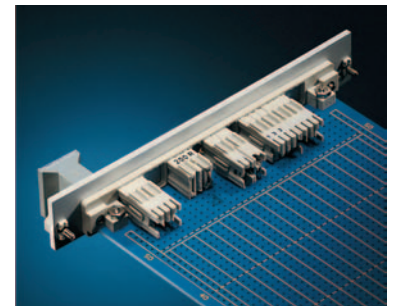
05092004

Components pre-assembled in plastic grid, side-by-side grid horizontal (3 rows) and vertical (8 or 16 rows)



05092006

Printed board bracket fixes the front elements and provides the mechanical connection between printed board, front elements and front panel



05092002

Front element system

Standards

- IEC 60603-3 (DIN 41494 part 5)

Modifications

- LED in special colours

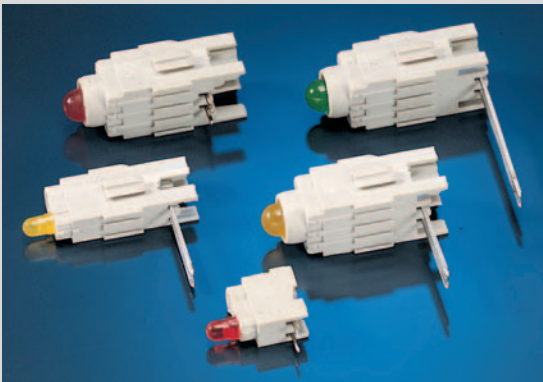


FPCS front element systems

Overview 11.10

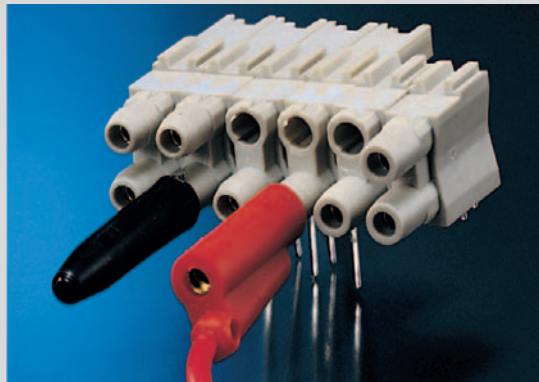
Operating and display elements for front panels

- Pre-assembled front element components
- Integrated printed board brackets
- Assembled front elements can be soldered in one step
- Retrofitting of front panel assembly



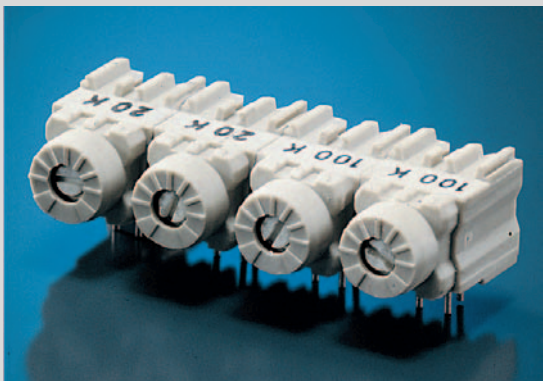
LEDs

05092009



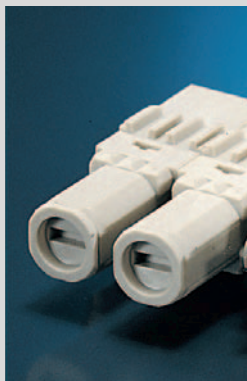
Female connectors

05092005



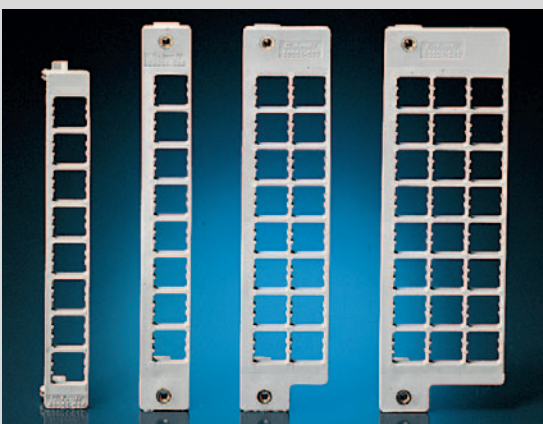
Potentiometers

05092007



Fuse holders

05092006



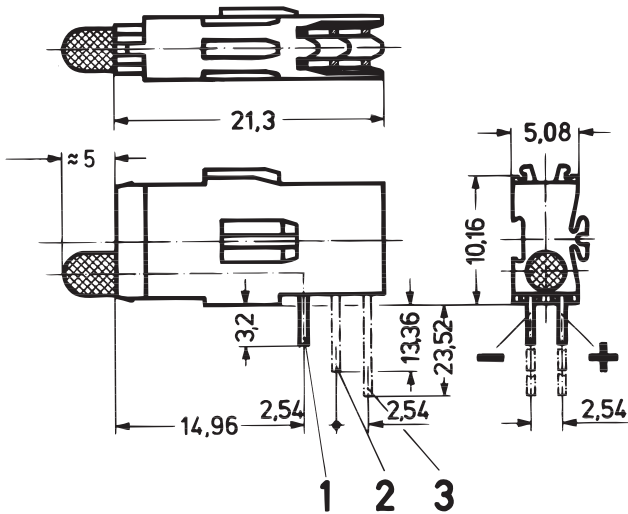
Printed board brackets

05092008

Single LED	11.12
Double LED	11.14
Technical data LEDs	11.15
Test sockets	11.16
Make-break sockets	11.17
Fuse holder	11.18
Technical data for make-break sockets, fuse holder	11.18
Potentiometer . .	11.19
Printed board brackets	11.20
Drilling template	11.21
Design aids	11.22

FPCS front element systems

Single LED, long type, \varnothing 3.2 mm



1, 2, 3 = mounting plane

A3-195

- Long type for mounting plane 1, 2 and 3

Order Information

Description	Colour	1	2	3
		Order no.	Order no.	Order no.
Low current LED	red	69004-240	69004-258	69004-259
Low current LED	yellow	69004-242	69004-262	69004-263
Low current LED	green	69004-241	69004-260	69004-261
Standard LED	red	69004-059	69004-060	69004-061
Standard LED	yellow	69004-065	69004-066	69004-067
Standard LED	green	69004-062	69004-063	69004-064

Delivery may be in Standard Pack Quantity: Please order 10 pieces or a multiple. Pricing is per individual item.

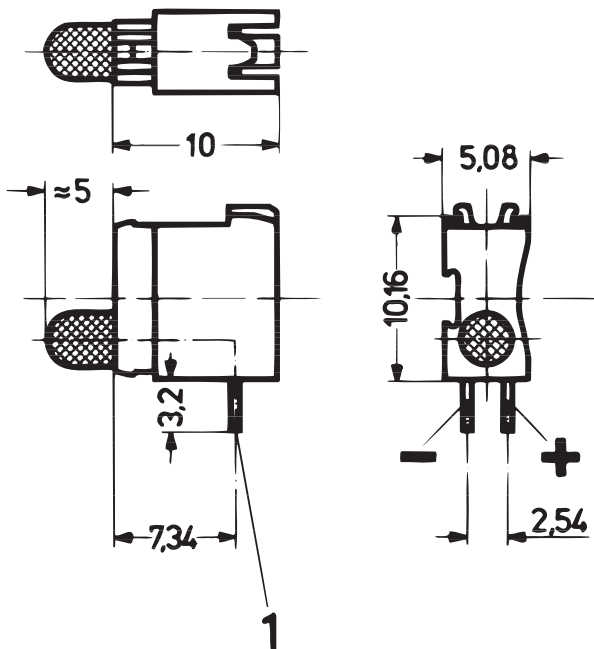
Note

- Dimensions of the connecting pin:
0.5 × 0.5 mm (mounting plane 1)
0.63 × 0.63 mm (mounting planes 2 and 3)
- Required front panel hole \varnothing 4 mm
- Technical data, see page 11.15



For further information www.schroff.biz/oneclick
oneClick code = Order no.

Single LED, short type, \varnothing 3.2 mm



1 = mounting plane

A3-214

- Short type for mounting plane 1

Order Information

Colour	Low current LED	Standard LED
	Order no.	Order no.
red	69004-264	69004-121
yellow	69004-266	69004-123
green	69004-265	69004-122

Delivery may be in Standard Pack Quantity: Please order 10 pieces or a multiple. Pricing is per individual item.

Note

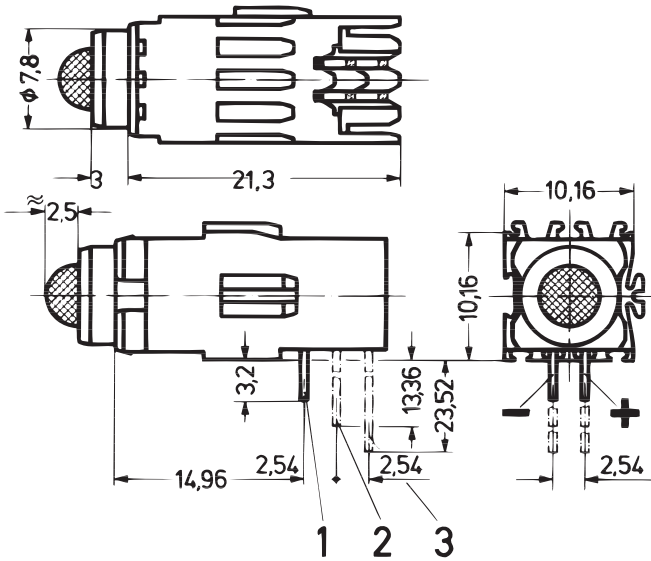
- Dimensions of the connecting pin: 0.5 × 0.5 mm
- Required front panel hole \varnothing 4 mm
- Technical data, see page 11.15



For further information www.schroff.biz/oneclick
oneClick code = Order no.

FPCS front element systems

Single LED, long type, \varnothing 5 mm



1, 2, 3 = mounting plane

A1-194

- Long type for mounting plane 1, 2 and 3

Order Information

Description	Colour	1	2	3
		Order no.	Order no.	Order no.
Low current LED	red	69004-250	69004-251	69004-252
Low current LED	yellow	69004-249	69004-256	69004-257
Low current LED	green	69004-253	69004-254	69004-255
Standard LED	red	69004-050	69004-051	69004-052
Standard LED	yellow	69004-056	69004-057	69004-058
Standard LED	green	69004-053	69004-054	69004-055

Delivery may be in Standard Pack Quantity: Please order 10 pieces or a multiple. Pricing is per individual item.

Note

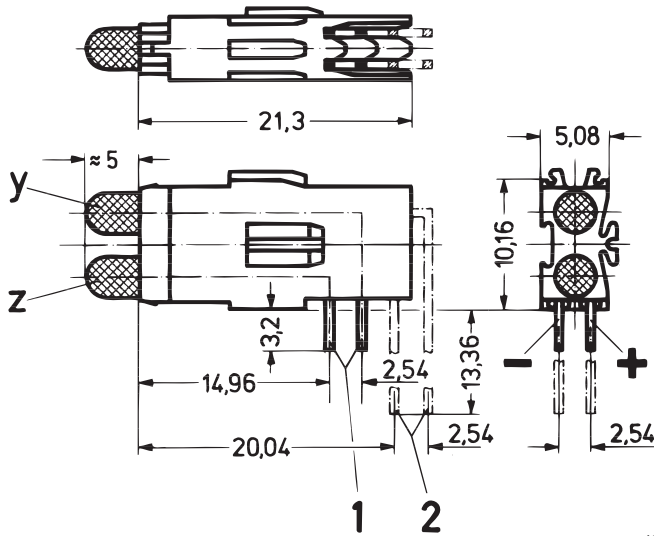
- Dimensions of the connecting pin:
0.5 × 0.5 mm (mounting plane 1)
0.63 × 0.63 mm (mounting planes 2 and 3)
- Required front panel hole \varnothing 8 mm
- Technical data, see page 11.15



For further information www.schroff.biz/oneclick
oneClick code = Order no.

FPCS front element systems

Double LED, long type, \varnothing 3.2 mm



1, 2 = mounting plane

A3-196

- Long type for mounting plane 1 and 2

Order Information

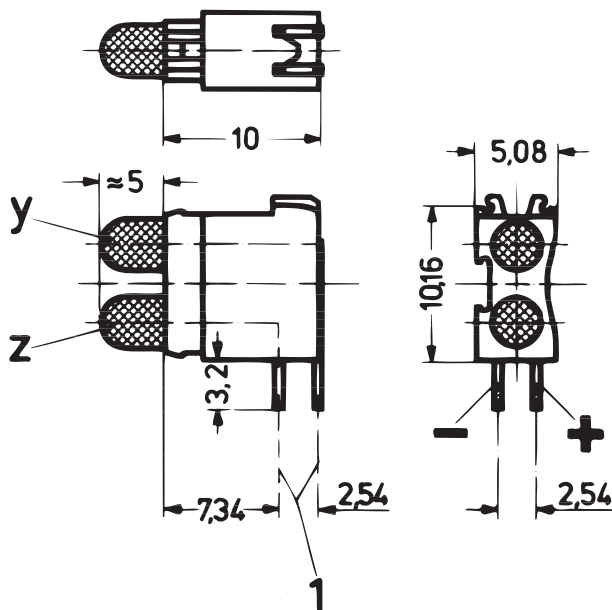
Description	Colour	Order no.	
		1	2
Low current LED	red/red (Y/Z)	69004-274	69004-275
Low current LED	green/green (Y/Z)	69004-276	69004-277
Low current LED	yellow/yellow (Y/Z)	69004-278	69004-279
Low current LED	red/green (Y/Z)	69004-280	69004-281
Low current LED	red/yellow (Y/Z)	69004-282	-
Low current LED	yellow/green (Y/Z)	69004-284	-
Standard LED	red/red (Y/Z)	69004-068	69004-069
Standard LED	green/green (Y/Z)	69004-071	69004-072
Standard LED	yellow/yellow (Y/Z)	69004-074	69004-075
Standard LED	red/green (Y/Z)	69004-077	69004-078
Standard LED	red/yellow (Y/Z)	69004-080	-
Standard LED	yellow/green (Y/Z)	69004-083	-

Delivery may be in Standard Pack Quantity: Please order 10 pieces or a multiple. Pricing is per individual item.

Note

- Dimensions of the connection pin: 0.63 × 0.63 mm
- Required front panel hole \varnothing 4 mm
- Technical data, see page 11.15

Double LED, short type, \varnothing 3.2 mm



1 = mounting plane

A3-217

- Short type for mounting plane 1

Order Information

Colour	Low current LED	Standard LED
	Order no.	Order no.
red/red (Y/Z)	69004-286	69004-124
yellow/yellow (Y/Z)	69004-288	69004-126
green/green (Y/Z)	69004-287	69004-125
red/green (Y/Z)	69004-289	69004-127
red/yellow (Y/Z)	69004-290	69004-128
yellow/green (Y/Z)	69004-291	69004-129

Delivery may be in Standard Pack Quantity: Please order 10 pieces or a multiple. Pricing is per individual item.

Note

- Dimensions of the connecting pin: 0.5 × 0.5 mm
- Required front panel hole \varnothing 4 mm
- Technical data, see page 11.15



For further information www.schroff.biz/oneclick
oneClick code = Order no.

FPCS front element systems

Technical data LEDs

A = standard LEDs
B = low current LEDs

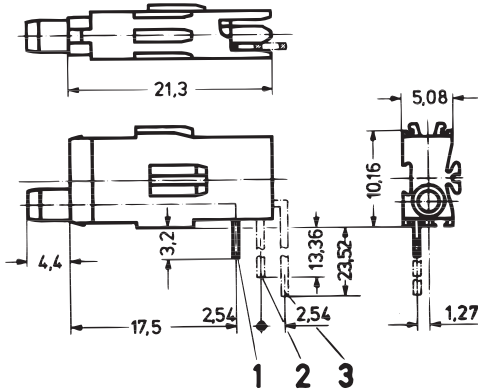
Absolute maximum data $T_a = 25\text{ °C}$	A		B		A		B		A		B		A		B	
	red Ø 3.2 mm		red Ø 5 mm		yellow Ø 3.2 mm		yellow Ø 5 mm		green Ø 3.2 mm		green Ø 5 mm		green Ø 3.2 mm		green Ø 5 mm	
Reverse voltage V	5	3	5	3	5	3	5	3	5	3	5	3	5	3	5	3
On-state current mA	25	30	25	30	25	30	25	30	25	30	25	30	25	30	25	30
Power consumption mW	100	75	100	75	100	75	100	75	100	75	100	75	100	75	100	75
Forward current mA ($t < 10\text{ }\mu\text{s}$)	100	75	100	75	100	75	100	75	100	75	100	75	100	75	100	75
Forward voltage V – type (10 mA / 2 mA)	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.1	2.2	2.1	2.2	2.1	2.2	2.1	2.2
– max. (10 mA / 2 mA)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Luminous intensity mcd – at 2 mA	–	1.5	–	3.1	–	1.4	–	3.2	–	2	–	3.3	–	3.3	–	3.3
– at 10 mA ¹⁾	1.8	13.4	2.2	25.1	2.7	13.4	3.4	28.6	3.2	24.6	3.9	25.7	3.9	25.7	3.9	25.7
– at 20 mA ¹⁾	3.6	26.8	4.4	48.2	5.4	28.7	6.8	60.8	6.4	54.9	7.8	54.6	7.8	54.6	7.8	54.6
Wavelength nm (10 mA / 2 mA)	635	650	635	650	585	585	585	585	565	563	565	563	565	563	565	563
Thermal resistance °C/W	400	470	350	390	400	470	350	390	400	470	350	390	400	470	350	390
Angle of beam	$\pm 50\text{ °}$															
Storage temperature	– 55 ... + 100 °C															
Operating temperature	– 55 ... + 100 °C (low current LED) / – 40 ... + 85 °C (standard LED)															
Solder temperature	260 °C / max. 5 sec (processing advices for wave soldering: protection of plastic body against solder wave)															
Insulating body	PBT (Crastin)															
Flammability of the insulating body	UL 94 V-0															

¹⁾ The low current LEDs can be used from 2 up to 20 mA without reduction in life, which means that a significantly higher luminosity can be achieved.

FPCS front element systems

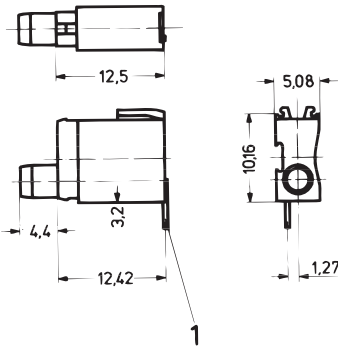
Test socket \varnothing 2 mm

Long type



1, 2, 3 = mounting plane

Short type



A3-199b

- Long type for mounting plane 1, 2 and 3
- Short type for mounting plane 1

Order Information

Application	1	2	3
	Order no.	Order no.	Order no.
Long type	69004-086	69004-087	69004-088
Short type	69004-130	-	-

Delivery may be in Standard Pack Quantity: Please order 10 pieces or a multiple. Pricing is per individual item.

Note

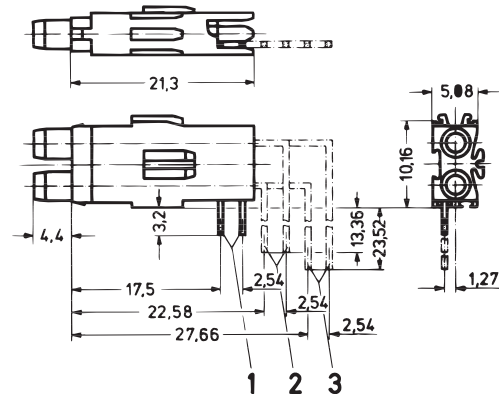
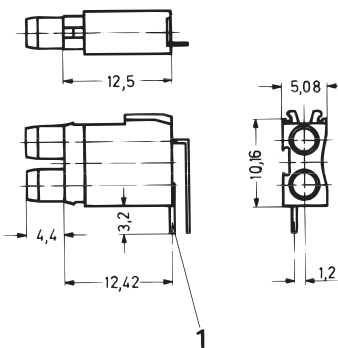
- Dimensions of the connecting pin: 0.3 × 0.6 mm
- Required front panel hole \varnothing 4 mm
- Technical data, see page 11.18



For further information www.schroff.biz/oneclick
oneClick code = Order no.

KA943

Double test socket \varnothing 2 mm



1, 2, 3 = mounting plane

KA943

- Long type for mounting plane 1, 2 and 3
- Short type for mounting plane 1

Order Information

Application	1	2	3
	Order no.	Order no.	Order no.
Long type	69004-089	69004-090	69004-091
Short type	69004-131	-	-

Delivery may be in Standard Pack Quantity: Please order 10 pieces or a multiple. Pricing is per individual item.

Note

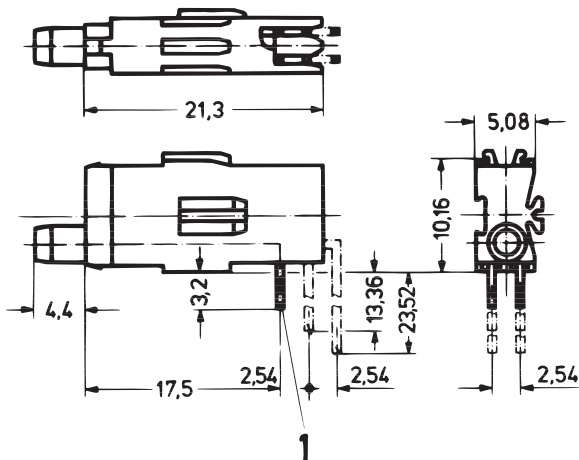
- Dimensions of the connecting pin: 0.3 × 0.6 mm
- Required front panel hole \varnothing 4 mm
- Technical data, see page 11.18



For further information www.schroff.biz/oneclick
oneClick code = Order no.

FPCS front element systems

Make-break socket \varnothing 2 mm



1, 2, 3 = mounting plane

A3-199a

- Long type for mounting plane 1
- Gold-plated contacts
- Can also be used as test socket

Order Information

Mounting plane	Application	Order no.
1	Long type	69004-092

Delivery may be in Standard Pack Quantity: Please order 10 pieces or a multiple. Pricing is per individual item.

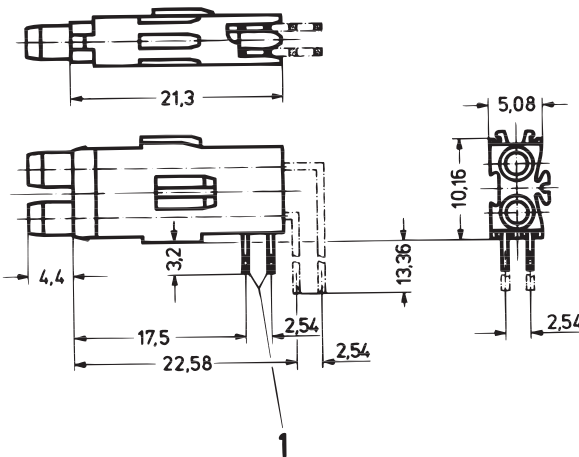
Note

- Dimensions of the connecting pin: 0.3 × 0.6 mm
- Required front panel hole \varnothing 4 mm
- Technical data, see page 11.18



For further information www.schroff.biz/oneclick
oneClick code = Order no.

Double make-break socket \varnothing 2 mm



1, 2 = mounting plane

A3-200

- Long type for mounting plane 1
- Gold-plated contacts
- Can also be used as test socket

Order Information

Mounting plane	Application	Order no.
1	Long type	69004-095

Delivery may be in Standard Pack Quantity: Please order 10 pieces or a multiple. Pricing is per individual item.

Note

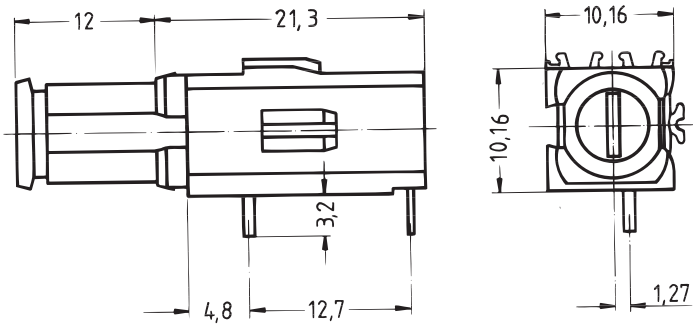
- Dimensions of the connecting pin: 0.3 × 0.6 mm
- Required front panel hole \varnothing 4 mm
- Technical data, see page 11.18



For further information www.schroff.biz/oneclick
oneClick code = Order no.

FPCS front element systems

Fuse holder



A3-200a

- Long type for mounting plane 1
- For fuses 5 x 20 mm in accordance with DIN 41 571, 250 V_{AC} 6.3 A
- Silver-plated contacts

Order Information

Mounting plane	Description	Order no.
1	Long type	69004-098

Delivery may be in Standard Pack Quantity: Please order 10 pieces or a multiple. Pricing is per individual item.

Note

- Dimensions of the connecting pin: 0.7 × 0.6 mm
- Required front panel hole Ø 9 mm



For further information www.schroff.biz/oneclick
oneClick code = Order no.

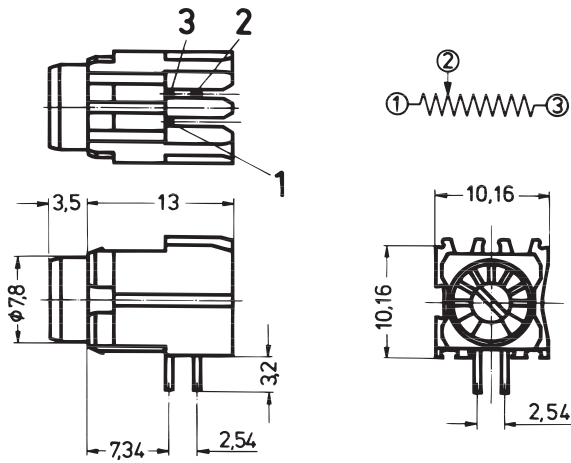
Technical data for test make-break sockets, fuse holder

	Test, make-break socket	Double test, double make-break socket	Fuse holder
Operating voltage	≤ 60 V _{DC/AC}	≤ 30 V _{AC}	≤ 250 V _{AC}
Operating current	≤ 1 A	≤ 1 A	≤ 6.3 A
Test voltage	1 kV/50 Hz	1 kV/50 Hz	–
Temperature range	– 25 ... + 70 °C	– 25 ... + 70 °C	– 25 ... + 70 °C
Solder temperature	260 °C / max. 5 sec (processing advices for wave soldering: protection of plastic body against solder wave)		
Contact material	Copper alloy	Copper alloy	Copper alloy
Contact surface	Selectively gold-plated	Selectively gold-plated	Silver-plated
Insulating body	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Climatic use category	HSF ¹⁾ in accordance with DIN 400040	HSF ¹⁾ in accordance with DIN 400040	HSF ¹⁾ in accordance with DIN 400040
Flammability	UL 94 V-0	UL 94 V-0	UL 94 V-0

¹⁾ H = – 25 °C; S = + 70 °C; F = 75 % air humidity, no condensation

FPCS front element systems

Cermet potentiometer



A3-275

- Short type for mounting plane 1

Order Information

Resistance kΩ	Order no.
1	69004-169
5	69004-165
20	69004-161
100	69004-155

Delivery may be in Standard Pack Quantity: Please order 10 pieces or a multiple. Pricing is per individual item.

Technical data

Operating voltage	≤ 200 V _{DC/AC}
Operating current	≤ 100 mA
Loading capability	0.5 Watt at T _a = 70 °C
Test voltage	500 V/50 Hz
Resistance tolerance	± 10 %
Electrical angle of rotation α	230° ± 5°
Insulation resistance change	100 Mh
Contact resistance change	3 h or 3 %, use highest value
Torque at rotation start	0.021 Nm
Storage temperature	- 55 ... + 125 °C
Operating temperature	- 25 ... + 70 °C
Service life (full rotation)	200 cycles
Service life at 0.5 Watt load	1000 hours at T _{amb} = 70 °C
Solder temperature	260 °C / max. 5 sec (processing advices for wave soldering: protection of plastic body against solder wave)
Insulating body	PBT (Crastin)
Flammability	UL 94 V-0
Resistance to cleaning of gasket	85 °C max. 1 min.
Temperature coefficient	± 100 ppm/K

Note

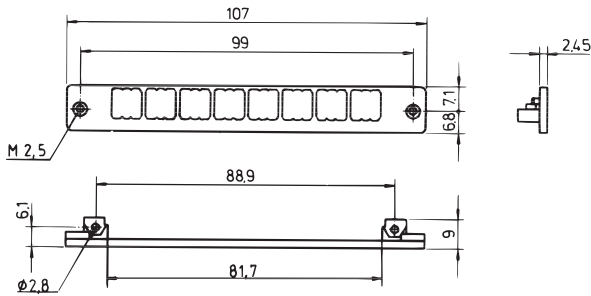
- Dimensions of the connecting pin: 0.45 × 0.45 mm
- Required front panel hole Ø 8 mm
- With left-hand rotation, pins 1 and 2 are low-resistance
- With right-hand rotation, pins 2 and 3 are low-resistance



For further information www.schroff.biz/oneclick
oneClick code = Order no.

FPCS front element systems

Printed board bracket for mounting planes



Printed board bracket for mounting plane 1

KA942a

- With 2 threaded bushes M 2.5
- Material PBT
- Flammability UL 94 V-0

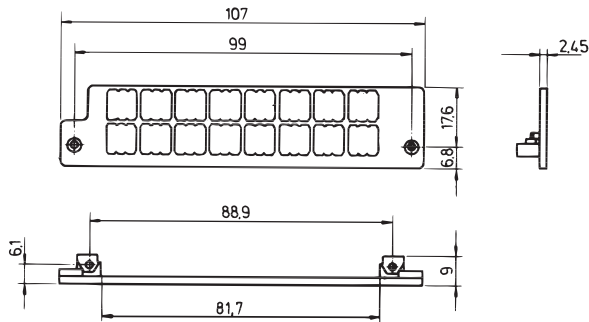
Order Information

Description	Order no.
Printed board bracket for mounting plane 1	69004-043
Printed board bracket for mounting plane 1 and 2	69004-044
Printed board bracket for mounting plane 1, 2 and 3	69004-045

Delivery may be in Standard Pack Quantity: Please order 10 pieces or a multiple. Pricing is per individual item.

Note

- Printed board brackets no. 69004-043, 69004-044 and 69004-045 cannot be used in conjunction with the aluminium profile handle for front panels

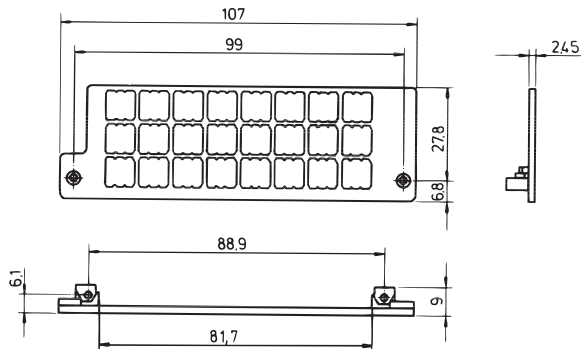


Printed board bracket for mounting plane 1 and 2

KA942b



For further information www.schroff.biz/oneclick
oneClick code = Order no.

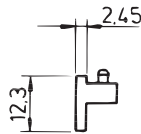
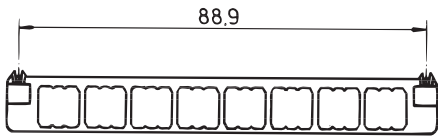
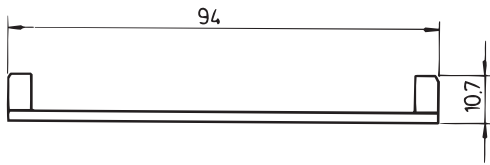


Printed board bracket for mounting plane 1, 2 and 3

KA942c

FPCS front element systems

Printed board bracket for plug-in units and box-type plug-in units



Printed board bracket for mounting plane 1

KA942d

- With 2 positioning pins for assembly on printed boards
- Printed board thickness max. 1.6 mm
- Drilled hole for fixing the printed board bracket max. 2.8 mm

Order Information

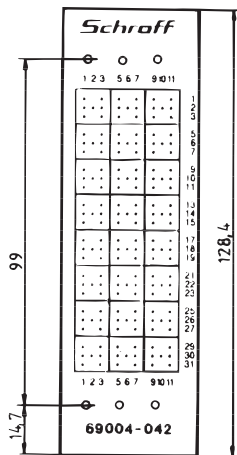
Description	Order no.
Printed board bracket for plug-in units and box-type plug-in units	69004-046

Delivery may be in Standard Pack Quantity: Please order 10 pieces or a multiple. Pricing is per individual item.



For further information www.schroff.biz/oneclick
oneClick code = Order no.

Drilling template



A4_276

- Design aid for processing of front panels

Order Information

Description	Material	Qty / PU	Order no.
Drilling template	EPGC 02 (fibreglass reinforced epoxyd)	1	69004-042

Delivery may be in Standard Pack Quantity: Please order 10 pieces or a multiple. Pricing is per individual item.

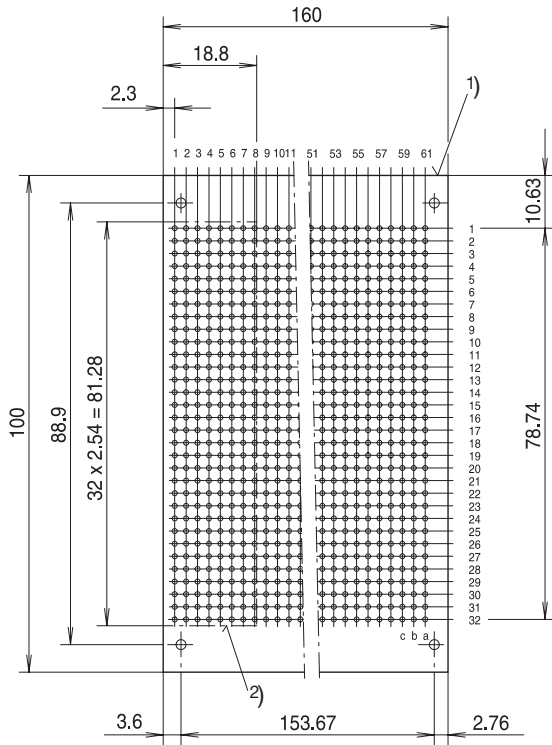


For further information www.schroff.biz/oneclick
oneClick code = Order no.

FPCS front element systems

Design aids

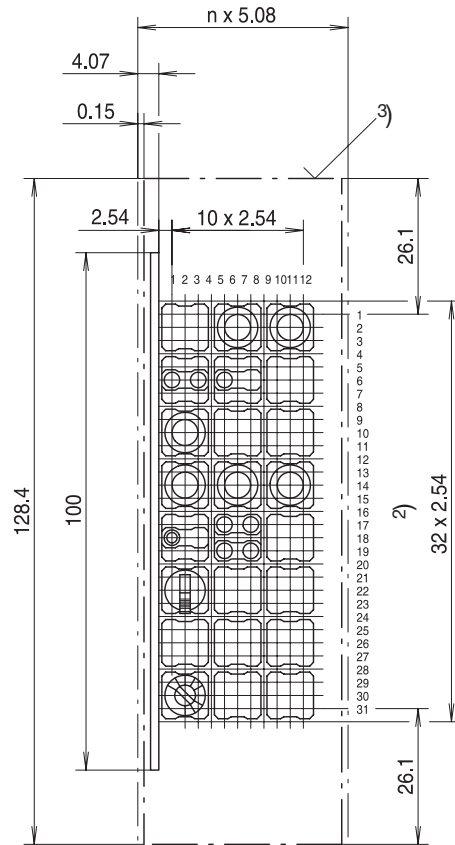
Component side printed board



- 1) Printed board
- 2) Component mounting limit

FEA45510

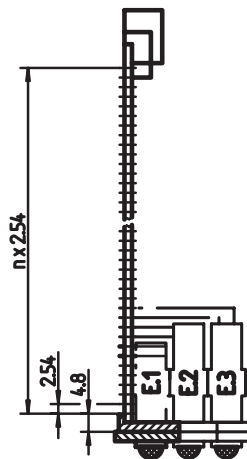
Front side of front panel



- 3) Front panel

FEA45511

Mounting example



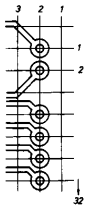
- E1 = first level
- E2 = second level
- E3 = third level

ELA40278

FPCS front element systems

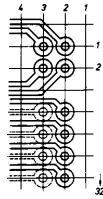
Design aids

Specifying tracks
View solder side
Short type
LED \varnothing 3.2 mm



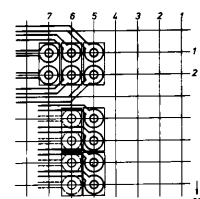
A4_277a

Double LED \varnothing 3.2 mm



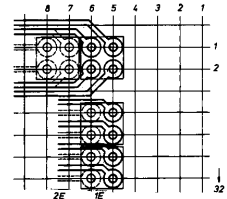
A4_277b

View solder side
Short type
LED \varnothing 3.2 mm



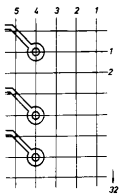
A3_205a

Double LED
 \varnothing 3.2 mm



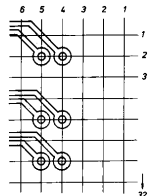
A3_205b

Test socket
 \varnothing 2 mm



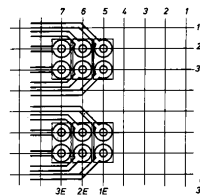
A3_215a

Double test socket
 \varnothing 2 mm



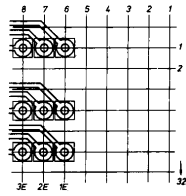
A3_215b

LED
 \varnothing 5 mm



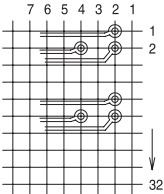
A4_272

Test socket
 \varnothing 2 mm



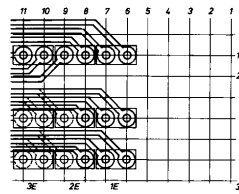
A3_205c

Potentiometer



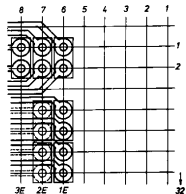
FEA45990

Double test socket
 \varnothing 2 mm



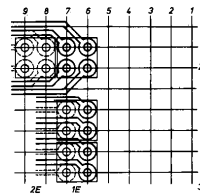
A4_273

Make-break socket
 \varnothing 2 mm



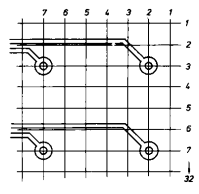
A3_114a

Double make-break socket
 \varnothing 2 mm



A2_114b

Fuse holder



A2_114d

Dimensions of the connecting pin	Recommended drilled hole diameter	Solder eye diameter
0.5 × 0.5 mm	1.0 mm ± 0.05	2.1 mm ± 0.1
0.63 × 0.63 mm	1.1 mm ± 0.05	2.2 mm ± 0.2
0.3 × 0.6 mm	0.9 mm ± 0.05	2.0 mm ± 0.2
0.7 × 0.6 mm	1.1 mm ± 0.05	2.1 mm ± 0.2
0.4 × 0.6 mm	0.9 mm ± 0.05	2.0 mm ± 0.2
0.45 × 0.45 mm	0.7 mm ± 0.05	1.8 mm ± 0.2

Specifying track width min. 0.6 mm
Grid 2.54 mm

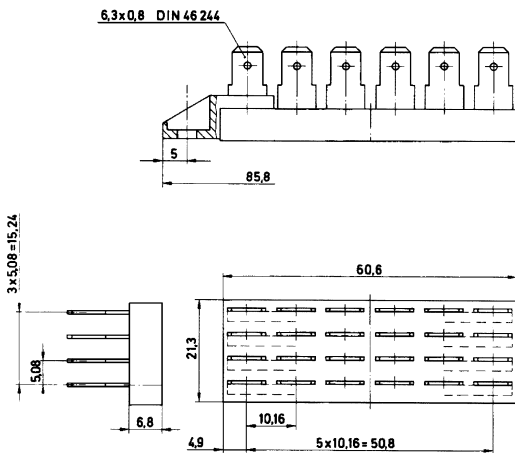
Horizontal busbars

4-pin for Faston connector 6.3 x 0.8 mm



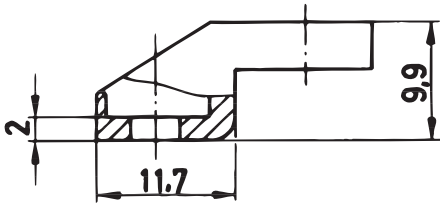
00892005

Busbar



A43118

Support bracket



A43115

- 24 connections
- For mains/line voltage power supply on the 19" subrack

Delivery comprises

Item	Qty	Description
1	1	Busbar
2	2	Support bracket

Order Information

Description	Order no.
4-pin for Faston connector 6.3 x 0.8 mm	69001-127

Technical data

Operating voltage	250 V _{AC}
Test voltage	Rail – Rail 1.6 kV _{eff}
Test voltage	Rail – Earth 2.5 kV _{eff}
Operating current at 20 °C Per pole	Σ I ≤ 35 A
(= 6 connections)	
Temperature range	– 65 °C ... + 125 °C
Material	Faston connectors CuZn, finish zinc-plated
Material	Busbars Cu
Material	Insulating body PBTP, UL 94 V-0
Connection type	Faston connector 6.3 x 0.8 mm
Connecting pitch	5.08 x 10.16 mm



For further information www.schroff.biz/oneclick
oneClick code = Order no.

Strip conductor

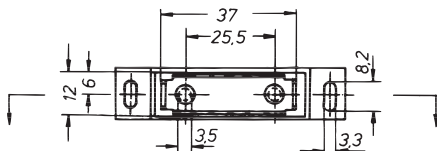
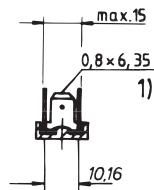
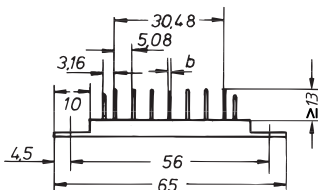
- For power distribution on 19" subracks
- Base plate insulated

Order Information

Description	Qty / PU	Order no.
Strip conductor	1	60800-200

Technical data

Test voltage (insulation material)	1000 V _{DC}
Temperature range	– 40 °C ... + 100 °C
Flammability	UL 94 V-1
Power supply	Faston connector 6.3 x 0.8 mm, DIN 46244
Conductor material 0.6 x 0.6 mm	Bronze
Conductor material 1.0 x 1.0 mm	Brass
Finish	Tin-plated
Insulation	Polycarbonate (PC)
Wire-wrap pins	1.0 x 1.0 mm



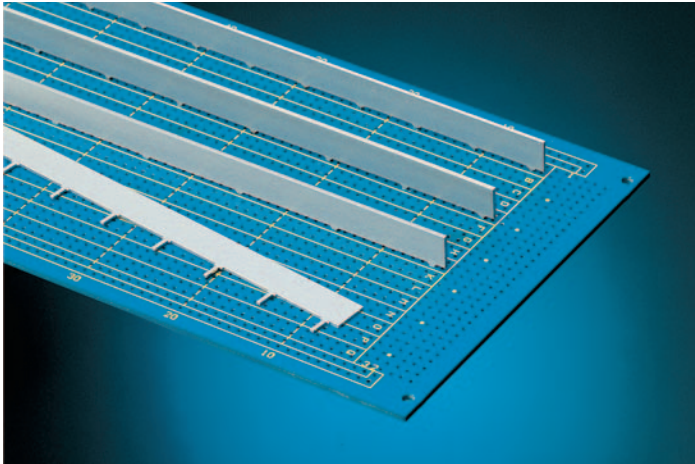
A3/237

1) with drilled hole Ø1.6 mm

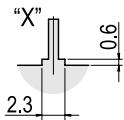
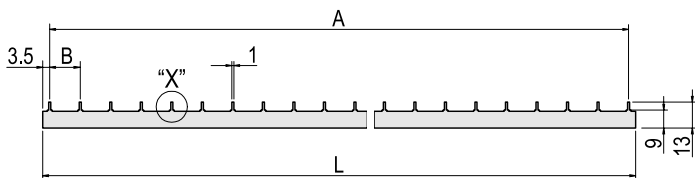


Horizontal busbars

Printed board busbars



00892008



A41743

- Power distribution on printed circuits and backplanes
- Fault elimination
- Increases the stiffness of printed boards

Order Information

Width B HP	Length L mm	Dimension A mm	Order no.
3	220.3	14 × 15.24 = 213.36	30925-001
3	342.3	22 × 15.24 = 335.28	30925-002
4	210.2	10 × 20.32 = 203.2	30925-003
4	332.1	16 × 20.32 = 325.12	30925-004
5	210.2	8 × 25.4 = 203.2	30925-005
5	337.2	13 × 25.4 = 330.2	30925-006

Delivery may be in Standard Pack Quantity: Please order 10 pieces or a multiple. Pricing is per individual item.

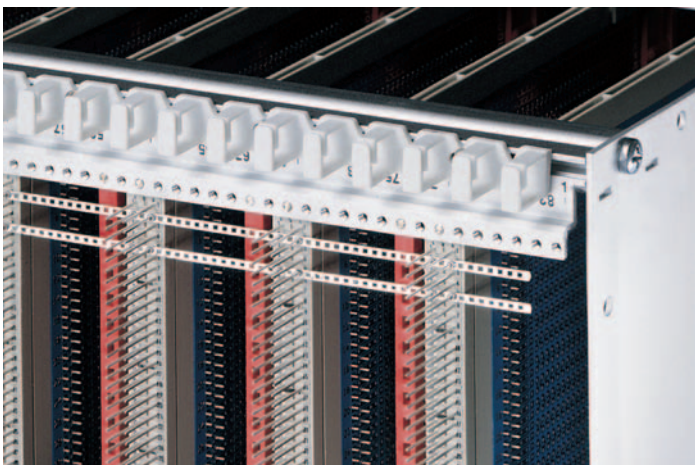
Technical data

Conductor material	E-Cu, tin-plated
Pin dimensions	0.8 × 1.0 mm
Max. operating current	30 A
DC resistance	2.5 mΩ/m

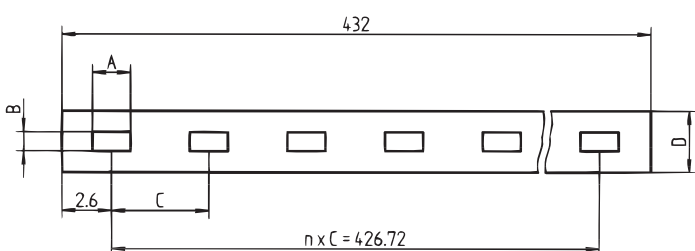


For further information www.schroff.biz/oneclick
oneClick code = Order no.

Solder strip conductor



00892016



AZA42390

- Rational linking of connections in the same grid and with the same potential
- Also suitable for connectors in accordance with EN 60603 (DIN 41612) with wire-wrap pins

Order Information

Connection type	A mm	B mm	C mm	D mm	n	Qty / PU	Order no.
Wire-wrap pins 0.6 × 0.6 mm	1.14	0.9	2.54	2.3	168	1	60800-064
Wire-wrap pins 1.0 × 1.0 mm	1.65	1.4	5.08	3.2	84	1	60800-080

Technical data

Conductor material	E-Cu F30, tin-plated
Max. operating current	≤ 4 A
Wire-wrap pins 0.6 × 0.6 mm	
Max. operating current	≤ 4 A
Wire-wrap pins 1.0 × 1.0 mm	

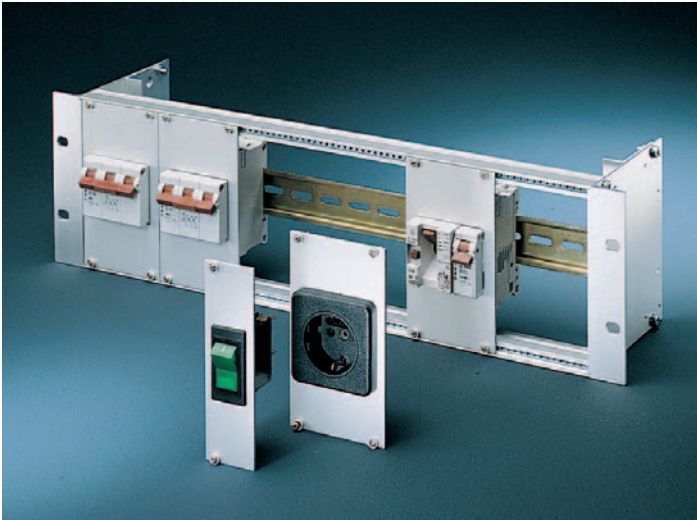


For further information www.schroff.biz/oneclick
oneClick code = Order no.



Electrical system

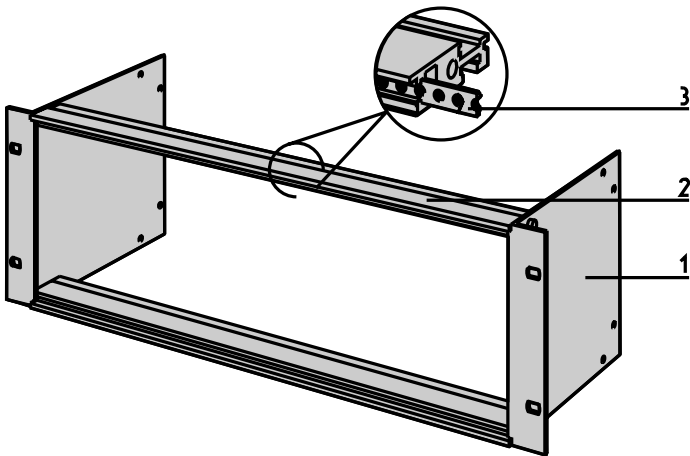
19" module support



01494031

- For assembly of power distribution modules
- For assembly in accordance with class of protection 1

19" module support 3 U/84 HP



BLA43467

For the assembly of:

- Power distribution modules
- Power distribution modules with C-rail in accordance with DIN 43880

Delivery comprises (kit)

Item	Qty	Description
1	2	Side panel, Al extrusion 1.8 mm, chromated
2	2	Front horizontal rail, with lip, Al extrusion, anodised
3	2	Threaded insert M 2.5, St profile, zinc-plated
4	1	GND/earthing kit, 1.5 mm CU wire, PVC sleeve, green/yellow, 320 mm long
5	1	Assembly kit

Order Information

Description	Order no.
19" module support europac 3 U/84 HP, Side panel depth 115.5 mm	20119-193

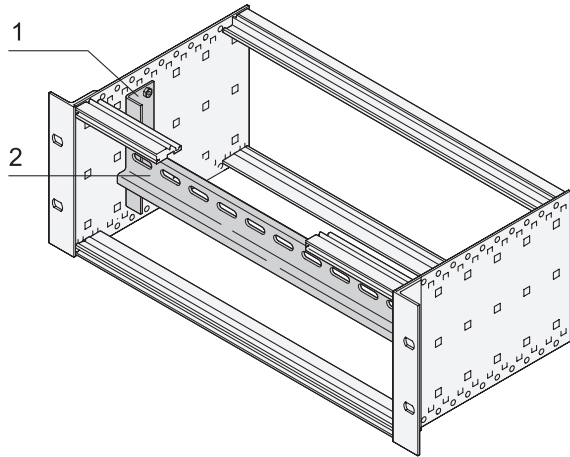
- Power distribution modules that have to be assembled onto C-rails require an additional adaptor bracket with slide rail, see page 11.27



For further information www.schroff.biz/oneclick
oneClick code = Order no.

Electrical system

Adapter bracket with C-rail



- For assembly on 19" module support
- For assembly of modules in accordance with DIN 43880, e.g. fuse / circuit breaker

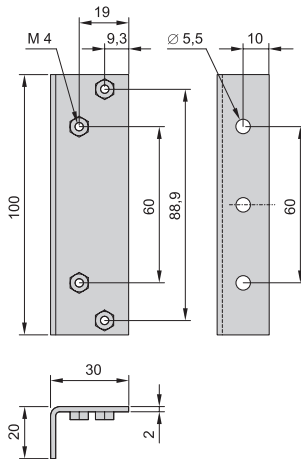
Delivery comprises (kit)

Item	Qty	Description
1	1	Adaptor bracket kit, Al, 2 mm, anodised
2	1	C-rail, St profile, colourless chromated
3	1	Assembly kit

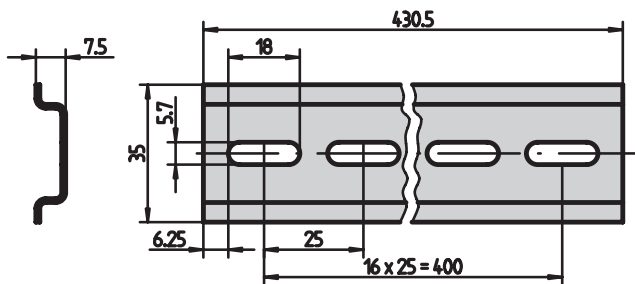
Order Information

Application in	Order no.
europac	20119-375
europacPRO	24560-171


06105080



06105079



BLA43460

 For further information www.schroff.biz/oneclick
oneClick code = Order no.

Hood

- For assembly on 19" module support


Delivery comprises (kit)

Item	Qty	Description
1	1	Hood, Al 1 mm, with brush strip
3	1	Set of assembly parts

Order Information

Description	Order no.
Hood for 19" module support	20119-374

BLA43492

 For further information www.schroff.biz/oneclick
oneClick code = Order no.

