



# **Schroff**

# FRONT PANEL COMPONENT SYSTEMS



#### Content

# Front panel component system

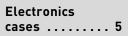
Wall	mounted	

cases ..... 2

Cabinets ..... 1

**Accessories for** cabinets and wall mounted cases . 3

Climate control . 4



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





Components are pre-mounted in plastic bodies that can be arranged in rows; horizontal grid (3 planes) and vertical grid (8 or 16 planes)



A mounting frame with integrated PCB bracket fixes the front elements and forms the mechanical link between PCB, front elements and front panel



Front element system in use

# Standards

■ IEC 60297-3-101 IEC 60603 (DIN 41494 part 8)



Overview ..... 11.12

# Front panel component system

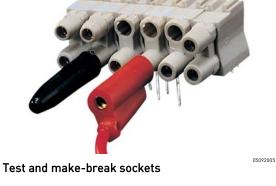
# Operating and display elements for front panels

- Pre-assembled front element components
- Mounting frames with integrated PCB brackets
- Assembled front elements can be soldered in one step
- Subsequent front panel mounting









**Potentiometers** 

Fuse holders

05092006



Mounting frames with integrated PCB brackets

SCHROFF.PENTAIR.CO.UK 11.13

Front panel component Single LEDs . . . . . 11.14 Double LEDs ..... 11.16 Technical data Test sockets . . . . 11.18 Make-break socket . . . . . . . . . . . 11.19 Technical data for test and makebreak sockets and fuse holders . . . . 11.20 Potentiometers . . 11.21 Mounting frames. 11.22

Drilling template . 11.23 Design aids . . . . . 11.24



# 21,3 5,08 9,01 14,96 2,54 2,54

1, 2, 3 = mounting planes

# Single LED, long type, Ø 3.2 mm

■ Long type for mounting planes 1, 2 and 3

#### **Order Information**

Description	Colour	1	2	3
		Part no.	Part no.	Part 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 is exclusively in Standard Pack Quantity (SPQ): Please order at least 10 pieces or a multiple. Pricing is per individual item.

#### Note

A3-195

- Dimensions of connecting pins: 0.5 × 0.5 mm (mounting plane 1) 0.63 × 0.63 mm (mounting planes 2 and 3)
- Required front panel drill hole: Ø 4 mm
- Technical data see page 11.17

# Single LED, short type, Ø 3.2 mm

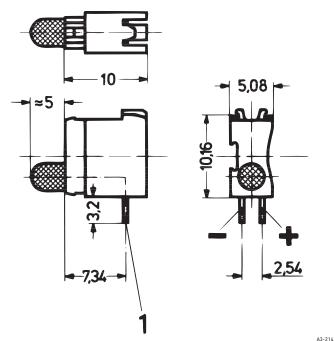
■ Short type for mounting plane 1

# **Order Information**

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

Delivery is exclusively in Standard Pack Quantity (SPQ): Please order at least 10 pieces or a multiple. Pricing is per individual item.

- Dimensions of connecting pins: 0.5 × 0.5 mm
- Required front panel drill hole: Ø 4 mm
- Technical data see page 11.17



1 = mounting plane



#### 21.3 21.3 21.3 21.3 21.3 21.3 21.3 21.3 21.3 21.3 22.5

1, 2, 3 = mounting plane

# Single LED, long type, Ø 5 mm

■ Long type for mounting plane 1, 2 and 3

#### Order Information

Description	Colour	1	2	3
		Part no.	Part no.	Part 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 is exclusively in Standard Pack Quantity (SPQ): Please order at least 10 pieces or a multiple. Pricing is per individual item.

- Dimensions of connecting pins: 0.5 × 0.5 mm (mounting plane 1) 0.63 × 0.63 mm (mounting planes 2 and 3)
- Required front panel drill hole: Ø 8 mm
- Technical data see page 11.17



# 21,3 5,08 5,08 21,3 21,3 5,08 2,54 2,54 2,54

1, 2 = mounting plane

# Double LED, long type, Ø 3.2 mm

■ Long type for mounting plane 1 and 2

#### Order Information

Description	Colour	1	2
		Part no.	Part no.
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 is exclusively in Standard Pack Quantity (SPQ): Please order at least 10 pieces or a multiple. Pricing is per individual item.

#### Note

- Dimensions of connecting pins: 0.63 × 0.63 mm
- Required front panel drill hole: Ø 4 mm
- Technical data see page 11.17

# Double LED, short type, Ø 3.2 mm

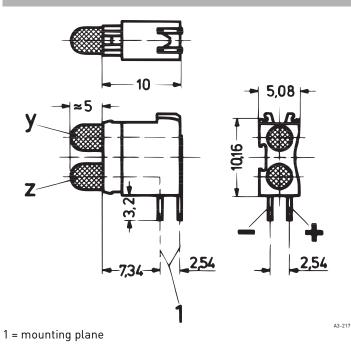
■ Short type for mounting plane 1

# **Order Information**

Colour	Low current LED	Standard LED
	Part no.	Part 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 is exclusively in Standard Pack Quantity (SPQ): Please order at least 10 pieces or a multiple. Pricing is per individual item.

- Dimensions of connecting pins: 0.5 × 0.5 mm
- Required front panel drill hole: Ø 4 mm
- Technical data see page 11.17



# **Dimensions LEDs**

A = standard LED B = low current LED

Absolute maximum data	Α	В	Α	В	Α	В	Α	В	Α	В	Α	В
T <sub>a</sub> = 25 °C	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
Reverse voltage V	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
Power dissipation mW	100	75	100	75	100	75	100	75	100	75	100	75
Forward current mA (t < 10 µs)	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
– max. (10 mA/2 mA)	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
– at 10 mA <sup>1)</sup>	1.8	13.4	2.2	25.1	2.7	13.4	3.4	28.6	3.2	24.6	3.9	25.7
– at 20 mA <sup>1)</sup>	3.6	26.8	4.4	48.2	5.4	28.7	6.8	8.06	6.4	54.9	7.8	54.6
Wavelength nm (10 mA/2 mA)	635	650	635	650	585	585	585	585	565	563	565	563
Thermal resistance °C/W	400	470	350	390	400	470	350	390	400	470	350	390
Angle of reflected beam						<u>±</u>	50°					
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 advice for wave soldering: protect plastic body against solder wave)										
Insulating body		PBT (Crastin)										
Flammability of insulation body						UL 9	94 V-0					

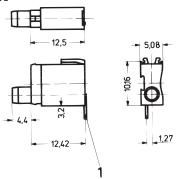
<sup>1)</sup> The low current LEDs can be used from 2 to 20 mA (without reduction of lifespan), which means that a significantly higher luminosity can be achieved.



# 

# 1, 2, 3 = mounting plane

Short type



1 = mounting plane

# Test socket, Ø 2 mm

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

#### **Order Information**

For application in	1	2	3
	Part no.	Part no.	Part no.
Long type	69004-086	69004-087	69004-088
Short type	69004-130	_	_

Delivery is exclusively in Standard Pack Quantity (SPQ): Please order at least 10 pieces or a multiple. Pricing is per individual item.

#### Note

A3-199b

- Dimensions of connecting pins: 0.3 × 0.6 mm
- Required front panel drill hole: Ø 4 mm
- Technical data see page 11.20

# Double test socket, Ø 2 mm

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

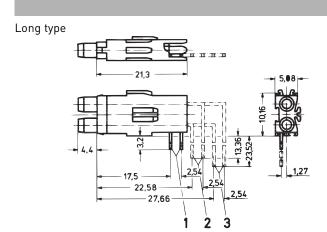
#### Order Information

For application in	1	2	3
	Part no.	Part no.	Part no.
Long type	69004-089	69004-090	69004-091
Short type	69004-131	-	-

Delivery is exclusively in Standard Pack Quantity (SPQ): Please order at least 10 pieces or a multiple. Pricing is per individual item.

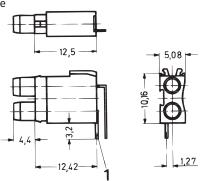
# ... Note

- Dimensions of connecting pins: 0.3 × 0.6 mm
- Required front panel drill hole: Ø 4 mm
- Technical data see page 11.20



1, 2, 3 = mounting plane

Short type



1 = mounting plane

11.18

# 21,3

1 = mounting plane

# Double make-break socket, Ø 2 mm

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

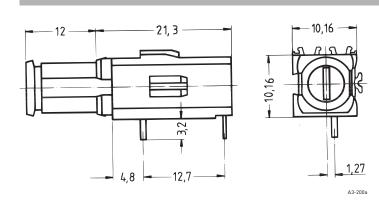
# **Order Information**

For application in Part no.
Long type 69004-095

Delivery is exclusively in Standard Pack Quantity (SPQ): Please order at least 10 pieces or a multiple. Pricing is per individual item.

- Dimensions of connecting pins: 0.3 × 0.6 mm
- Required front panel drill hole: Ø 4 mm
- Technical data see page 11.20





# Fuse holder

- Long type for mounting plane 1
- $\blacksquare$  For glass fuse inserts 5 x 20 mm to DIN 41 571, 250  $V_{AC}$ , 6.3 A
- Contacts silver-plated

#### Order Information

Description	Part no.
Long type	69004-098

Delivery is exclusively in Standard Pack Quantity (SPQ): Please order at least 10 pieces or a multiple. Pricing is per individual item.

#### Note

- Dimensions of connecting pins: 0.7 × 0.6 mm
- Required front panel drill hole: Ø 9 mm

# Technical data for test sockets, fuse holders

	Test socket/make-break socket	Double test socket/	Fuse holder
		double make-break socket	
Operating voltage	< 60 V <sub>DC/AC</sub>	< 30 V <sub>AC</sub>	< 250 V <sub>AC</sub>
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 advice	e for wave soldering: protect plastic b	oody 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	HSF <sup>1)</sup> to DIN 40 040	HSF <sup>1)</sup> to DIN 40 040	HSF <sup>1)</sup> to DIN 40 040
category			
Flammability	UL 94 V-0	UL 94 V-0	UL 94 V-0

 $<sup>^{1]}</sup>$  H = -25 °C; S = +70 °C; F = 75 % air humidity, no condensation

# 3 2 ① - WWW-3 13 - 10,16 - 1

Pins 1 and 2 low-ohmic when left-hinged; pins 2 and 3 low-ohmic when right-hinged

# Cermet potentiometers

■ Short type for mounting plane 1

# **Order Information**

Resistance $k\Omega$	Part no.
1	69004-169
5	69004-165
20	69004-161
100	69004-155

Delivery is exclusively in Standard Pack Quantity (SPQ): Please order at least 10 pieces or a multiple. Pricing is per individual item.

#### Technical data

A3-275

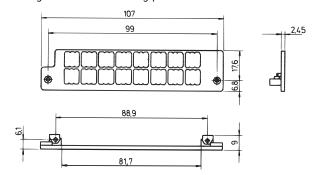
Operating voltage	< 200 V <sub>DC/AC</sub>
Operating current	≤ 100 mA
Load capacity	0.5 Watt at T <sub>a</sub> = 70 °C
Test voltage	500 V/50 Hz
Resistance tolerance	± 10 %
Electrical rotation angle	230° ± 5°
Insulation resistance change	100 ΜΩ
Contact resistance change	$3\Omega$ or $3\%$ , use largest value
Torque at initial turning	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 h at T <sub>a</sub> = 70 °C
Solder temperature	260 °C/max. 5 sec (processing advice for wave soldering: protect plastic body against solder wave)
Insulating body	PBT (Crastin)
Flammability	UL 94 V-0
Resistance of gasket to cleaning	85 °C max. 1 min.
Temperature coefficient	± 100 ppm/K

- Dimensions of connecting pins: 0.45 × 0.45 mm
- Required front panel drill hole: Ø 8 mm
- When left-hinged: pins 1 and 2 low-ohmic
- When right-hinged: pins 2 and 3 low-ohmic

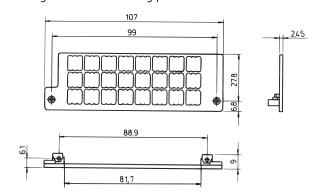


# 107 99

Mounting frame for mounting plane 1



Mounting frame for mounting planes 1 and 2  $\,$ 



Mounting frame for mounting planes 1, 2 and 3

# Mounting frames with PCB bracket for mounting planes

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

#### Order Information

Description	Part no.
Mounting frame for mounting plane 1	69004-043
Mounting frame for mounting planes 1 and 2	69004-044
Mounting frame for mounting planes 1, 2 and 3	69004-045

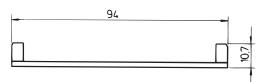
Delivery is exclusively in Standard Pack Quantity (SPQ): Please order at least 10 pieces or a multiple. Pricing is per individual item.

#### Note

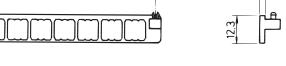
KA942c

■ Mounting frames nos. 69004-043, 69004-044 and 69004-045 cannot be used in conjunction with the aluminium profile handle for front panels









# Mounting frame with PCB bracket for frame type plug-in

- With 2 grub screws for fixing on PCBs
- Board thickness max. 1.6 mm
- Drilled hole for fixing board max. 2.8 mm

# **Order Information**

Description	Part no.
Support frame with board support for frame type plug-in units	69004-046

Delivery is exclusively in Standard Pack Quantity (SPQ): Please order at least 10 pieces or a multiple. Pricing is per individual item.

Mounting frame for mounting plane 1

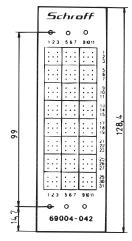
# Drilling template

■ Design aid for processing of front panels

# **Order Information**

Description	Material	Part no.
Drilling template	EPGC 02 (fibreglass reinforced Epoxy)	69004-042

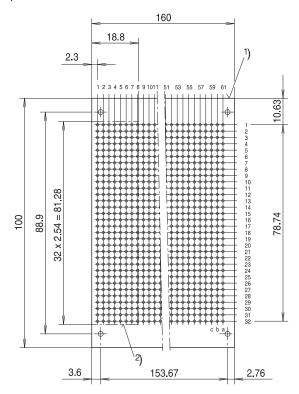
Delivery is exclusively in Standard Pack Quantity (SPQ): Please order at least 10 pieces or a multiple. Pricing is per individual item.





# Design aids

# Conmponent side of PCB

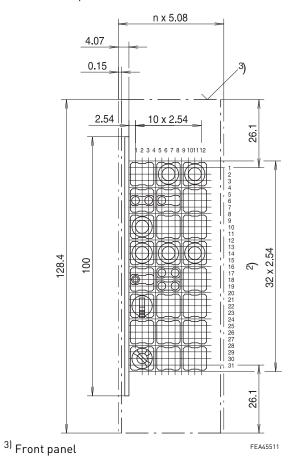


FEA45510

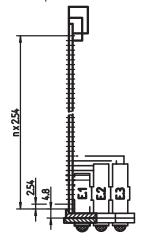
1) PCB

<sup>2)</sup> Component mounting limit

Front of front panel



Placement example



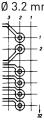
E1 = first mounting plane

E2 = second mounting plane

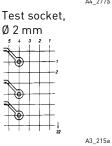
E3 = third mounting plane

# Design aids

PCB tracks View solder side Short type LED, Ø 3.2 mm



A4\_277a

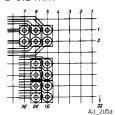


Double LED, Ø 3.2 mm

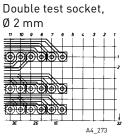
Double test socket, Ø 2 mm

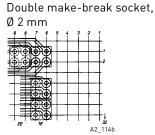
FEA45990

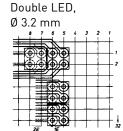
View solder side Long type LED, Ø 3.2 mm



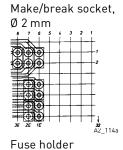
LED, Ø 5 mm

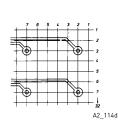






A3\_205b
Test socket,
Ø 2 mm





Dimensions of connecting pins	Recommended hole Ø	Solder eyes Ø
$0.5 \times 0.5 \text{ mm}$	$1.0 \text{ mm} \pm 0.05$	$2.1 \text{ mm} \pm 0.1$
$0.63 \times 0.63 \text{ mm}$	$1.1  \mathrm{mm} \pm 0.05$	$2.2 \text{ mm} \pm 0.2$
$0.3 \times 0.6 \text{ mm}$	$0.9 \text{ mm} \pm 0.05$	$2.0 \text{ mm} \pm 0.2$
$0.7 \times 0.6 \text{ mm}$	$1.1 \text{ mm} \pm 0.05$	$2.1 \text{ mm} \pm 0.2$
0.4 × 0.6 mm	$0.9 \text{ mm} \pm 0.05$	$2.0 \text{ mm} \pm 0.2$
$0.45 \times 0.45  \text{mm}$	$0.7  \mathrm{mm} \pm 0.05$	$1.8 \text{ mm} \pm 0.2$

PCB tracks width min. 0.6 mm Grid 2.54 mm



# Appendix – Order notes

# **Packaging units**

A packaging unit (PU) - e.g. carton, bag - contains the stated quantity. If you order the quantity 1, you will automatically receive the quantity defined as PU.

Example: EMC textile gasket

See page 5.22

Part number 21101-853

Quantity (per part number): 10 pieces

Order quantity: . . . . . Delivery quantity: 1 . . . . . . . . . . . . . . . . 10 pieces

2 . . . . . . . . . . . . 20 pieces 3 . . . . . . . . . . . . . . . . 30 pieces

#### **Price list**

Our price list is available by e-mail from your customer consultant. Please find all contact details at www.schroff.biz/contact.

# Standard pack quantity (SPQ)

Please take into consideration that deliveries may be carried out in the stated SPQs (SPQ, e.g. 5 pieces, 10 pieces, 50 pieces, etc.). Differing order quantities (e.g. 2 pieces) may be changed to the next possible delivery quantity = Standard Pack Quantity (in this case 10 pieces).

Example: Front horizontal rail

See page 5.31

Part number 34560-228

Quantity (per part number): 1 piece Standard pack quantity (SPQ): 10 pieces

Order quantity: . . . . . . . Delivery quantity:

 $\leq$  10..... 10 pieces  $> 10 \le 20 \dots 20$  pieces > 20 ≤ 30 . . . . . . . . . 30 pieces

# **Delivery times**

Part numbers in bold face type are ready for despatch within 2 working days; part numbers in normal type are ready for despatch within 10 working days.

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Cabinets	OverviewVaristar Cabinet platform		LHX 20/40 Air/water heat exchangers LHX 3 Air/water heat exchangers		
	Varistar Electronics		Novastar		
	Varistar EMC		Eurorack		1
	Varistar Seismic	1.84	Outdoor	. 1.316	
	Varistar MIL		Etsirack		_
	Varistar Data/network systems		19" lab racks		
	Varistar Containment	1.202	PROLINE	. 1.362	
Wall mounted case	Overview				
	LAN wall-mounted distributors				7
	LAN Watt-mounted distributors	2.40			
Cabinet and	Overview	3.0	Monitors, keyboards, monitoring	. 3.44	
wall-mounted	Mechanics		Socket strips		
	Telescopic slides		Power control socket strips		
case accessories	Electrical	3.29			
Climate control	Overview		Accessories	. 4.58	
	Cooling concepts/service				
	19" fan trays				4
	Air filtered fans	4.20			
Desktop enclosures	Overview	5.0	Comptec	5 100	
Desktop elictosules	RatiopacPRO		Accessories		
	PropacPRO	5.44	Interscale		<b>5</b>
	CompacPRO	5.76	Minipac	5.230	
Subracks/	Overview	6 N	EuropacPRO industrial applications.	4 84	
· ·	EuropacPRO		EuropacPRO Rugged		
19" chassis	EuropacPRO		MultipacPR0		b
	for railroad applications	6.70	Inpac	. 6.128	
Front panels,	Overview	7.0	PCB accessories	. 7.102	
Plug-in-units,	Front panels				7
	Plug-in units	7.16			
Frame type plug-in-units	Frame type plug-in units	7.64			_
Systems	Overview	8.0	AdvancedMC modules	. 8.56	
	AdvancedTCA		CompactPCI, Serial, PlusIO, PSB		0
	AdvancedMC carriers		VME, VME64x, VXS, VPX		0
	MicroTCA	8.36	Accessories	. 8.106	
Power supply systems	Overview		19" accessories		
	19" AC/DC switched-mode PSUs		PSUs for MicroTCA		0
	19" AC/DC linear regulators		PSUs for VMEbus		7
	19" AC/DC convertors	9.13	PSUs for CompactPCI, VME64x	. 7.24	
Backplanes	Overview		VME64x, VMEbus		
	CompactPCI, Serial, PlusIO		Power		<b>1</b> 0
	PXIVXS		Universal Test adaptors		IU
	V/\2	. 10.14	rest adaptors	10.20	
Connectors,	Overview				
Front panel component	Connectors				11
systems	Front panel component system	. 11.12			
Appendix	Standards abbreviations	. 12.0			
•	Notes on ordering				12
	Order number index				
	Product index	. 12.62			

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