



SWITCH POSITION INDICATORS ANALOG AND LED

TECHNICAL INFORMATION



PI / PIR



PI...X-TR



PI 29X



PI 36X



PI...X-LED-ER



PI...X-LED-TR



PI...X-LED-KR



SUS-99-L



SUS-09-Q



SUS-02-Q



SUS-01

Schaltstellungsanzeiger

Schaltstellungsanzeiger analog		
für 24 - 230V DC mit Kreuzsymbol	PI	Seite 212
für 24 - 230V AC mit Kreuzsymbol	PIR	Seite 212
Schaltstellungsanzeiger analog		
für 24-60 und 90-240V AC+DC mit Kreuzsymbol	PI...X	Seite 214
für 24-60 und 90-240V AC+DC mit Trennsymbol	PI...X-TR	Seite 214
Schaltstellungsanzeiger mit LED		
für 24+60 oder 48-125 oder 110+220/230 V AC+DC mit Kreuzsymbol	PI...X-LED-KR	Seite 216
für 24+60 oder 48-125 oder 110+220/230 V AC+DC mit Trennsymbol	PI...X-LED-TR	Seite 216
für 24+60 oder 48-125 oder 110+220/230 V AC+DC mit Erdungssymbol	PI...X-LED-ER	Seite 216
Schaltstellungsanzeiger mit LED - Baureihe SUS		
für 12-230V AC und 12-220V DC, Front Ø 25 mm und 25x25 mm	SUS-01	Seite 219
für 12-230V AC und 12-220V DC, Front Ø 20 mm und 20x20 mm	SUS-02	Seite 220
für 12-230V AC und 12-220V DC, Front Ø 25 mm und 25x25 mm	SUS-03	Seite 221
für 12-230V AC und 12-220V DC, Front Ø 32 mm und 32x32 mm	SUS-09	Seite 221
für 12-230V AC und 12-220V DC, Front Ø 39 mm und 39x39 mm	SUS-95	Seite 222
für 12-230V AC und 12-220V DC, Front Ø 32 mm und 32x32 mm	SUS-99	Seite 223

Measuring
transducers

1

Mains and limit
monitoring

2

Energy meters

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Panel meters
digital

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Switch position
indicators

5.2

Meas. instruments for
top hat rail mounting

6

Universal measu-
ring instruments

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Current
transformers

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Shunts

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Test
apparatus

10

Switch position indicators



Types:
PI 24, PI 25, PI 29, PI 36 (24-230 V DC)
PIR 24, PIR 25, PIR 29, PIR 36 (24-230 V AC)



Application

Switch position indicators are used to signal the switching state in electrical installations. They may be used both in schematic diagrams of switchgear and control gear and in measuring stations and control rooms or also in mosaic systems. The switch position indicators dispose of screw terminal for cable cross sections of up to 1.5 mm².

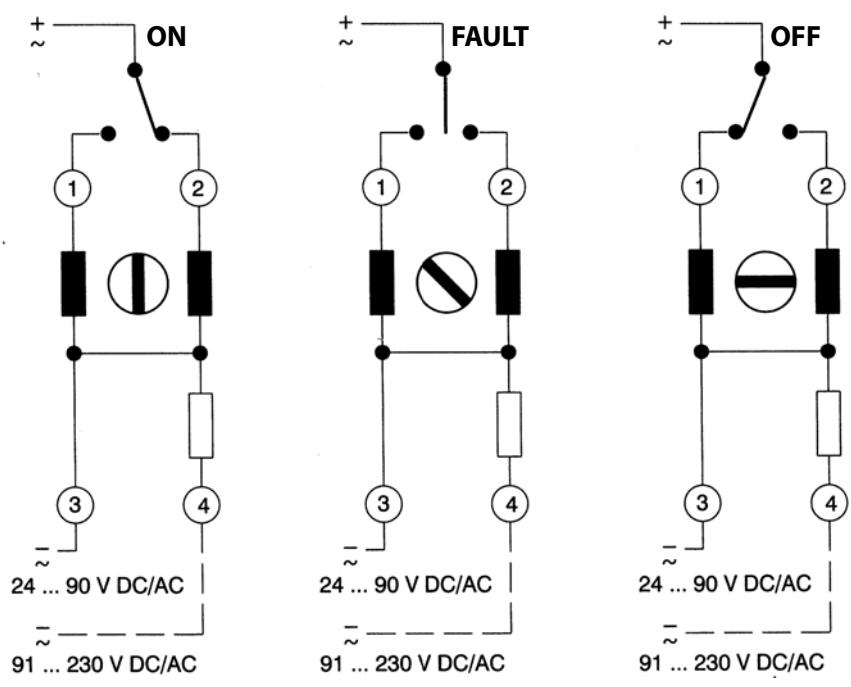


Function

The switch position indicators are equipped with a rotating magnet system. This guarantees a precise symbol position. With a rather low energy consumption, the heat development in the indicator is negligible. The coil of the system generates a magnetic field. The moving magnet is axially linked to the symbol. Pole shoes determine its position. An external reset is not required.



Connection



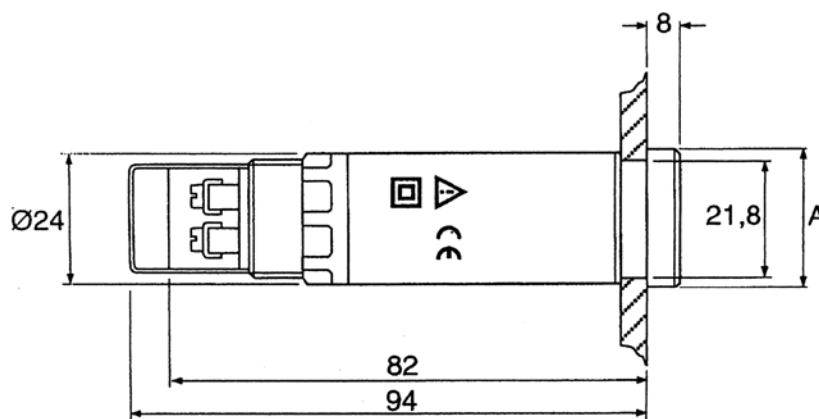


Technical data

Type	Round plastic housing with round or square front panel for cut-out installation in switchboards (PI / PIR 25/29/36) or mosaic panels (PI / PIR 24).
Housing material	Polycarbonat (self extinguishing acc. to UL 94 V-0)
Mounting position	Independent of position
Fastening	Union nut
Connection	Screw terminals up to 1,5 mm ² with accidental-contact protection
IP code	IP 54
Types PI...	Direct voltage 24-230 V
Types PIR...	Alternating voltage 24-230 V
Power input	0,4 W at 110 V, 1,4 W at 230 V
Test voltage	3,7 kV
Frequency range	(for alternating voltage) 40 Hz to 10 kHz
Max. voltage fluctuation	± 20 %
Temperature range	-25 °C to +20 °C to +30 °C to +50 °C

Dimensions

Types	PI 24 / PIR 24	PI 25 / PIR 25	PI 29 / PIR 29	PI 36 / PIR 36
Front frame	□ 24	□ 25	Ø 29	□ 36
Housing	Ø 21,8	Ø 21,8	Ø 21,8	Ø 21,8
Instal. depth	94	94	94	94
Cut-out	Ø 22	Ø 22	Ø 22	Ø 22
Weight (kg)	0,1	0,1	0,12	0,12



Types and variants

PI 24 / PI 25 / PI 29
PI 36
PIR 24 / PIR 25 / PIR 29
PIR 36

Switch position indicators



Type:
PI ..X



Application

Switch position indicators are used to signal the switching state in electrical installations. They may be used both in schematic diagrams of switchgear and control gear and in measuring stations and control rooms or also in mosaic systems. The switch position indicators dispose of screw terminal for cable cross sections of up to 1.5 mm².



Function

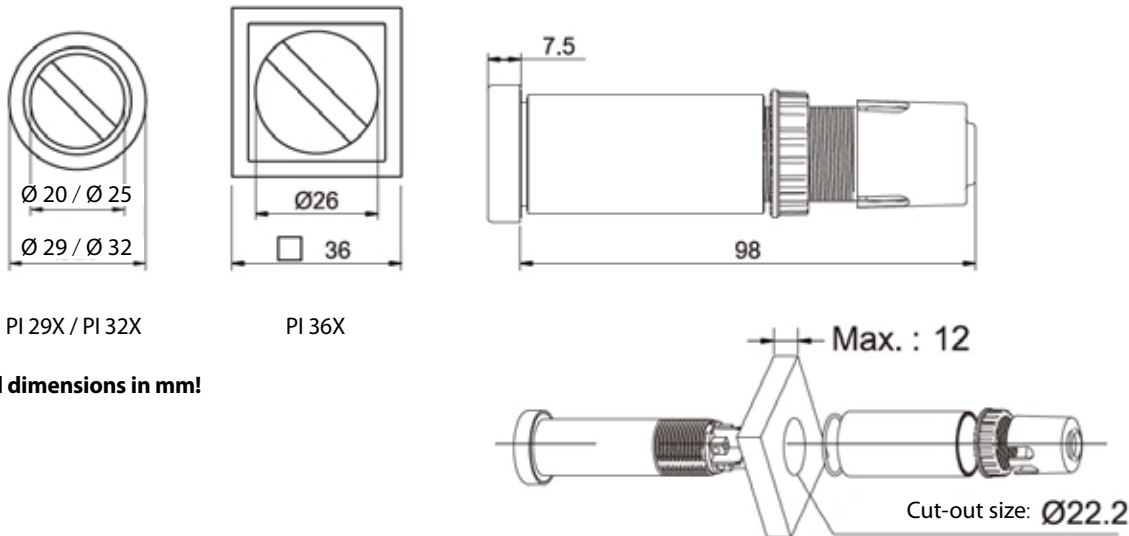
The switch position indicators are equipped with a rotating magnet system. This guarantees a precise symbol position. With a rather low energy consumption, the heat development in the indicator is negligible. The coil of the system generates a magnetic field. The moving magnet is axially linked to the symbol. Pole shoes determine its position. An external reset is not required.

Types and variants / technical data

Types cross symbol	PI 29X	PI 32X	PI 36X
Bezel shape	Ø 29	Ø 32	□ 36
Bezel dimensions	Diameter 29 mm	Diameter 32 mm	36 x 36 mm
Types break contact symbol	PI 29X-TR	PI 32X-TR	PI 36X-TR
Bezel shape	Ø 29	Ø 32	□ 36
Bezel dimensions	Diameter 29 mm	Diameter 32 mm	36 x 36 mm
	X	X	X
Technical data			
Operating voltage	24 - 60 V AC/DC and 90 - 240 V AC/DC		
Angle indication error	+/- 2°		
Overload capacity	1.2 times rated value continuous overload 2 time rated value short time overload for 5 sec		
Power consumption	< 1 VA	< 1,6 VA	< 1,6 VA
Security level	300 V CAT III		
Pollution grade	2		
Temperatur range	-25 °C to +55 °C		
Ambient conditions	5 to 95% RH, no condensation		



Dimensions



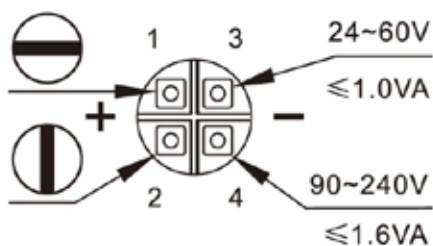
PI 29X / PI 32X

PI 36X

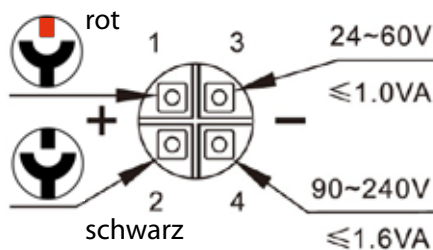
All dimensions in mm!



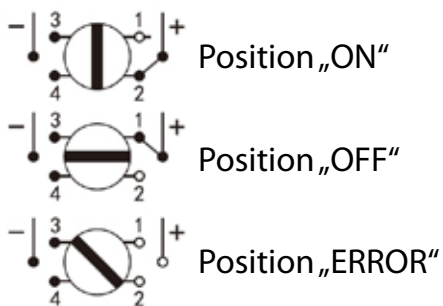
Wiring diagram cross symbol



Wiring diagram break contact symbol



Switch status cross symbol



1 Measuring transducers

2 Mains and limit monitoring

3 Energy meters

Panel meters digital

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5.2 Switch position indicators

6 Meas. instruments for top hat rail mounting

7 Universal measuring instruments

8 Current transformers

9 Shunts

10 Test apparatus



Switch position indicators LED version

Type:
PI ..X-LED ..



Application

Switch position indicators in LED version are used to report the switching status in electrical systems. You can both in symbolic circuit diagrams of switchgear as well as in measuring and control rooms as well as in mosaic technology. The switch position indicators have screw connection terminals for cable cross-sections of up to max. 1.5 mm².



Function

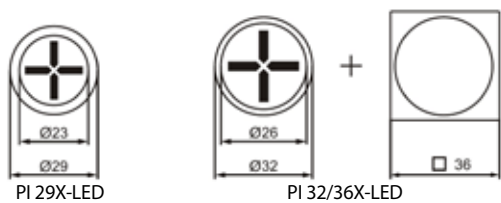
The switch position indicators in LED version are available in the versions cross symbol, break contact symbol and earth symbol with 3 different front dimensions. The LED colors are green (ON) and red (OFF) in all variants. Without applying the operating voltage, no color lights up.

Types and variants, technical data

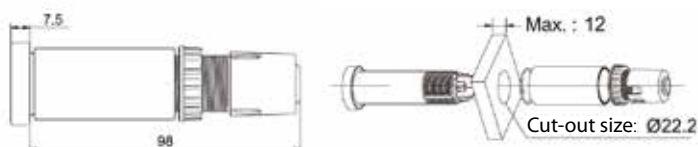
Type	PI 29X-LED		PI 32/36X-LED	
Bezel shape	Ø 29		Ø 32 / □ 36 mm	
Bezel dimensions	Diameter 29 mm		Diameter 32 mm 36 x 36 mm (with separately bezel)	
Operating voltage	24 + 60V or 48 + 125V or 110 + 220/230V AC/DC (please specify with order)		24 + 60V or 48 + 125V or 110 + 220/230V AC/DC (please specify with order)	
Angle indication error	250 V			
Overload capacity	1.2 times rated value continuous overload 2 time rated value short time overload for 5 sec			
Power consumption	< 0,5 VA		< 1,2 VA	
Security level	300 V CAT III			
Pollution grade	2			
Temperature range	-25 °C to +55 °C			
Ambient conditions	5 to 95% RH, no condensation			
Symbol variants	Type		Type	
Cross symbol	PI 29X-LED-KR	X	PI 32/36X-LED-KR	X
Break contact symbol	PI 29X-LED-TR	X	PI 32/36X-LED-TR	X
Earth symbol	PI 29X-LED-ER	X	PI 32/36X-LED-ER	X



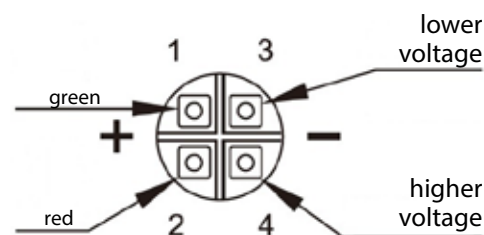
Dimensions



All dimensions in mm!



Wiring diagram



Switch position indicators LED version



Type:
SUS-..



Application

Switch position indicators in LED version are used to report the switching status in electrical systems. You can both in symbolic circuit diagrams of switchgear as well as in measuring and control rooms.



Function

The switch position indicators of the SUS series are equipped with different colored LEDs. The LEDs are controlled via different terminals.

The switch position indicators are available in round and square designs from 25 to 39 mm. They are installed using a union nut.

Technical data

Dimensions	see "types and variants"
Nominal voltage	12 - 230V AC or 12 - 220V DC (see "types and variants")
Rated current	max. 20 mA per input
Temperature range	-25 to +55 °C
max. cabinet thickness	12 mm
Degree of protection	front IP65, connections IP20
Standards	EN 61 010-1, EN 60598-1, EN 60598-2-2



Types and variants

Individual descriptions of the different types from page 219!

Type	Front bezel	Mouting cut-out	nut	Voltage AC	Voltage DC	LED color	connection
SUS-01	Ø 25 mm	Ø 22 mm	M 22 x 1,5	12-230 V	12-220 V	R/G *	screw connect. 2,5 mm ²
SUS-01-Q	25x25 mm	Ø 22 mm	M 22 x 1,5	12-230 V	12-220 V	R/G *	screw connect. 2,5 mm ²
SUS-01-T	Ø 25 mm	Ø 22 mm	M 22 x 1,5	12-230 V	12-220 V	R/G *	Faston term. 2,86x0,8 mm
SUS-01-T-Q	25x25 mm	Ø 22 mm	M 22 x 1,5	12-230 V	12-220 V	R/G *	Faston term. 2,86x0,8 mm
SUS-02	Ø 20 mm	Ø 16 mm	M 16 x 1	12-230 V	12-220 V	R/G *	screw connect. 2,5 mm ²
SUS-02-Q	20x20 mm	Ø 16 mm	M 16 x 1	12-230 V	12-220 V	R/G *	screw connect. 2,5 mm ²
SUS-02-T	Ø 20 mm	Ø 16 mm	M 16 x 1	12-230 V	12-220 V	R/G *	Faston term. 2,86x0,8 mm
SUS-02-T-Q	20x20 mm	Ø 16 mm	M 16 x 1	12-230 V	12-220 V	R/G *	Faston term. 2,86x0,8 mm
SUS-03-T	Ø 25 mm	Ø 22 mm	M 22 x 1,5	12-230 V	12-220 V	R/G *	Faston term. 2,86x0,8 mm
SUS-03-T-Q	25x25 mm	Ø 22 mm	M 22 x 1,5	12-230 V	12-220 V	R/G *	Faston term. 2,86x0,8 mm
SUS-09	Ø 32 mm	Ø 22 mm	M 22 x 1	12-230 V	12-220 V	R/G *	screw connect. 2,5 mm ²
SUS-09-Q	32x32 mm	Ø 22 mm	M 22 x 1	12-230 V	12-220 V	R/G *	screw connect. 2,5 mm ²
SUS-95	Ø 39 mm	Ø 22 mm	M 22 x 1	12-230 V	12-220 V	R/G *	screw connect. 2,5 mm ²
SUS-95-Q	39x39 mm	Ø 22 mm	M 22 x 1	12-230 V	12-220 V	R/G *	screw connect. 2,5 mm ²
SUS-95-L	Ø 39 mm	Ø 22 mm	M 22 x 1	24/48/60 V	24/48/60 V	R/G	screw connect. 2,5 mm ²
SUS-95-L-Q	39x39 mm	Ø 22 mm	M 22 x 1	24/48/60 V	24/48/60 V	R/G	screw connect. 2,5 mm ²
SUS-99	Ø 32 mm	Ø 22 mm	M 22 x 1	12-230 V	12-220 V	R/G *	screw connect. 2,5 mm ²
SUS-99-Q	32x32 mm	Ø 22 mm	M 22 x 1	12-230 V	12-220 V	R/G *	screw connect. 2,5 mm ²
SUS-99-L	Ø 32 mm	Ø 22 mm	M 22 x 1	24/48/60 V	24/48/60 V	R/G	screw connect. 2,5 mm ²
SUS-99-L-Q	32x32 mm	Ø 22 mm	M 22 x 1	24/48/60 V	24/48/60 V	R/G	screw connect. 2,5 mm ²

LED color *: R/G = red / green; with * other colors are possible - see individual description



SUS-01 / SUS-01-Q

Installation depth: 58 mm
 Front dimension: Ø 25 mm / 25x25 mm square

Picture	Dimensions	LED colors	AC voltages	DC voltage												
		<table border="1"> <tr><td></td><td>R</td></tr> <tr><td></td><td>G</td></tr> <tr><td></td><td>B</td></tr> <tr><td></td><td>Y</td></tr> <tr><td></td><td>W</td></tr> <tr><td></td><td>O</td></tr> </table>		R		G		B		Y		W		O	12 V 24 V 48 V 60 V 110 V 125 V 230 V	12 V 24 V 48 V 60 V 110 V 125 V 220 V
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	R															
	G															
	B															
	Y															
	W															
	O															

Distance between the mounting holes at least 30 mm!!!

Example for ordering:

SUS-01-Q-R/G-110V-DC SUS-01 = Type / Size
 -Q = Front (square)
 -R/G = Color red/green
 -110V = Voltage
 -DC = Direct voltage

SUS-01-T / SUS-01-T-Q

Installation depth: 48 mm
 Front dimension: Ø 25 mm / 25x25 mm square

Picture	Dimensions	LED colors	AC voltages	DC voltage												
		<table border="1"> <tr><td></td><td>R</td></tr> <tr><td></td><td>G</td></tr> <tr><td></td><td>B</td></tr> <tr><td></td><td>Y</td></tr> <tr><td></td><td>W</td></tr> <tr><td></td><td>O</td></tr> </table>		R		G		B		Y		W		O	12 V 24 V 48 V 60 V 110 V 125 V 230 V	12 V 24 V 48 V 60 V 110 V 125 V 220 V
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	R															
	G															
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	Y															
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	O															

Distance between the mounting holes at least 30 mm!!!

Example for ordering::

SUS-01-T-Q-R/G-110V-DC SUS-01 = Type / Size
 -T = Short mounting depth with faston terminals
 -Q = Front (square)
 -R/G = Color red/green
 -110V = Voltage
 -DC = Direct voltage

1 Measuring transducers

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3 Energy meters

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5.2 Switch position indicators

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7 Universal measuring instruments

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Test apparatus



SUS-02 / SUS-02-Q

Installation depth: 56 mm
 Front dimension: Ø 20 mm / 20x20 mm quadratisch

Picture	Dimensions	LED colors	AC voltages	DC voltage
			12 V 24 V 48 V 60 V 110 V 125 V 230 V	12 V 24 V 48 V 60 V 110 V 125 V 220 V
			12 V 24 V 48 V 60 V 110 V 125 V 230 V	12 V 24 V 48 V 60 V 110 V 125 V 220 V

Distance between the mounting holes at least 25 mm!!!

Example for ordering:
SUS-02-Q-R/G-110V-DC SUS-02 = Type / Size
 -Q = Front (square)
 -R/G = Color red/green
 -110V = Voltage
 -DC = Direct voltage

SUS-02-T / SUS-02-T-Q

Installation depth: 58 mm
 Front dimension: Ø 20 mm / 20x20 mm square

Picture	Dimensions	LED colors	AC voltages	DC voltage
			12 V 24 V 48 V 60 V 110 V 125 V 230 V	12 V 24 V 48 V 60 V 110 V 125 V 220 V
			12 V 24 V 48 V 60 V 110 V 125 V 230 V	12 V 24 V 48 V 60 V 110 V 125 V 220 V

Distance between the mounting holes at least 25 mm!!!

Example for ordering:
SUS-02-T-Q-R/G/O-110V-DC SUS-02 = Type / Size
 -T = special size with faston terminals, 3-color combination possible
 -Q = Front (square)
 -R/G/O = Color red/green/orange
 -110V = Voltage
 -DC = Direct voltage



SUS-03-T / SUS-03-T-Q

Installation depth: 48 mm
 Front dimension: Ø 25 mm / 25x25 mm quadratisch

Picture	Dimensions	LED colors	AC voltages	DC voltage												
		<table border="1"> <tr><td></td><td>R</td></tr> <tr><td></td><td>G</td></tr> <tr><td></td><td>B</td></tr> <tr><td></td><td>Y</td></tr> <tr><td></td><td>W</td></tr> <tr><td></td><td>O</td></tr> </table>		R		G		B		Y		W		O	12 V 24 V 48 V 60 V 110 V 125 V 230 V	12 V 24 V 48 V 60 V 110 V 125 V 220 V
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	R															
	G															
	B															
	Y															
	W															
	O															

Distance between the mounting holes at least 30 mm!!!

Example for ordering::

SUS-03-T-Q-R/G/O-110V-DC SUS-03 = Type / Size
 -T = Short mounting depth with faston terminals, 3-color combination possible
 -Q = Front quadratisch
 -R/G/O = Color red/green/orange
 -110V = Voltage
 -DC = Direct voltage

SUS-09 / SUS-09-Q

Installation depth: 42 mm
 Front dimension: Ø 32 mm / 32x32 mm square

Picture	Dimensions	LED colors	AC voltages	DC voltage												
		<table border="1"> <tr><td></td><td>R</td></tr> <tr><td></td><td>G</td></tr> <tr><td></td><td>B</td></tr> <tr><td></td><td>Y</td></tr> <tr><td></td><td>W</td></tr> <tr><td></td><td>O</td></tr> </table>		R		G		B		Y		W		O	12 V 24 V 48 V 60 V 110 V 125 V 230 V	12 V 24 V 48 V 60 V 110 V 125 V 220 V
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	R															
	G															
	B															
	Y															
	W															
	O															

Distance between the mounting holes at least 33 mm!!!

Example for ordering::

SUS-09-Q-R/G-110V-DC SUS-09 = Type / Size
 -Q = Front (square)
 -R/G = Color red/green
 -110V = Voltage
 -DC = Direct voltage

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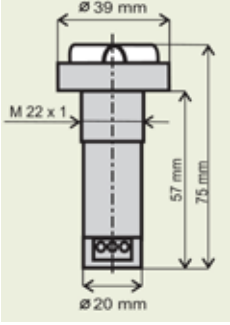



10 Test apparatus



SUS-95 / SUS-95-Q

Installation depth: 57 mm

Front dimension: \varnothing 39 mm / 39x39 mm square

Picture	Dimensions	LED colors	AC voltages	DC voltage
			12 V 24 V 48 V 60 V 110 V 125 V 230 V	12 V 24 V 48 V 60 V 110 V 125 V 220 V
			12 V 24 V 48 V 60 V 110 V 125 V 230 V	12 V 24 V 48 V 60 V 110 V 125 V 220 V

Distance between the mounting holes at least 40 mm!!!

Example for ordering::

SUS-95-Q-R/G-110V-DC

SUS-95 = Type / Size

-Q = Front (square)

-R/G = Color red/green


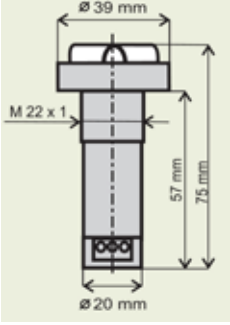
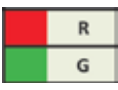


-110V = Voltage

-DC = Direct voltage

SUS-95-L / SUS-95-L-Q

Installation depth: 57 mm

Front dimension: \varnothing 39 mm / 39x39 mm square

Picture	Dimensions	LED colors	AC voltages	DC voltage
			24 V 48 V 60 V	24 V 48 V 60 V
			24 V 48 V 60 V	24 V 48 V 60 V

Distance between the mounting holes at least 40 mm!!!

Example for ordering::

SUS-95-L-Q-R/G-60V-DC

SUS-95 = Type / Size

-L = Special size

-Q = Front (square)

-R/G = Color red/green

-60V = Voltage

-DC = Direct voltage



SUS-99 / SUS-99-Q

Installation depth: 58 mm
 Front dimension: Ø 32 mm / 32x32 mm square

Picture	Dimensions	LED colors	AC voltages	DC voltage												
		<table border="1"> <tr><td></td><td>R</td></tr> <tr><td></td><td>G</td></tr> <tr><td></td><td>B</td></tr> <tr><td></td><td>Y</td></tr> <tr><td></td><td>W</td></tr> <tr><td></td><td>O</td></tr> </table>		R		G		B		Y		W		O	12 V 24 V 48 V 60 V 110 V 125 V 230 V	12 V 24 V 48 V 60 V 110 V 125 V 220 V
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	R															
	G															
	B															
	Y															
	W															
	O															

Distance between the mounting holes at least 33 mm!!!

Example for ordering::

SUS-99-Q-R/G-110V-DC SUS-99 = Type / Size
 -Q = Front (square)
 -R/G = Color red/green
 -110V = Voltage
 -DC = Direct voltage

SUS-99-L / SUS-99-L-Q

Installation depth: 58 mm
 Front dimension: Ø 32 mm / 32x32 mm square

Picture	Dimensions	LED colors	AC voltages	DC voltage				
		<table border="1"> <tr><td></td><td>R</td></tr> <tr><td></td><td>G</td></tr> </table>		R		G	24 V 48 V 60 V	24 V 48 V 60 V
		R						
	G							
	<table border="1"> <tr><td></td><td>R</td></tr> <tr><td></td><td>G</td></tr> </table>		R		G	24 V 48 V 60 V	24 V 48 V 60 V	
	R							
	G							

Distance between the mounting holes at least 40 mm!!!

Example for ordering::

SUS-99-L-Q-R/G-60V-DC SUS-99 = Type / Size
 -L = Special size
 -Q = Front (square)
 -R/G = Color red/green
 -60V = Voltage
 -DC = Direct voltage

1 Measuring transducers

2 Mains and limit monitoring

3 Energy meters

Panel meters digital

4

5.2 Switch position indicators

6 Meas. instruments for top hat rail mounting

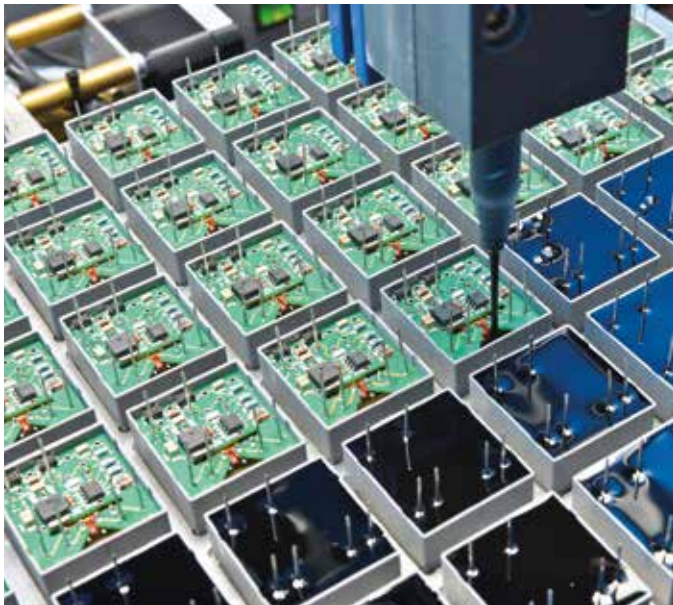
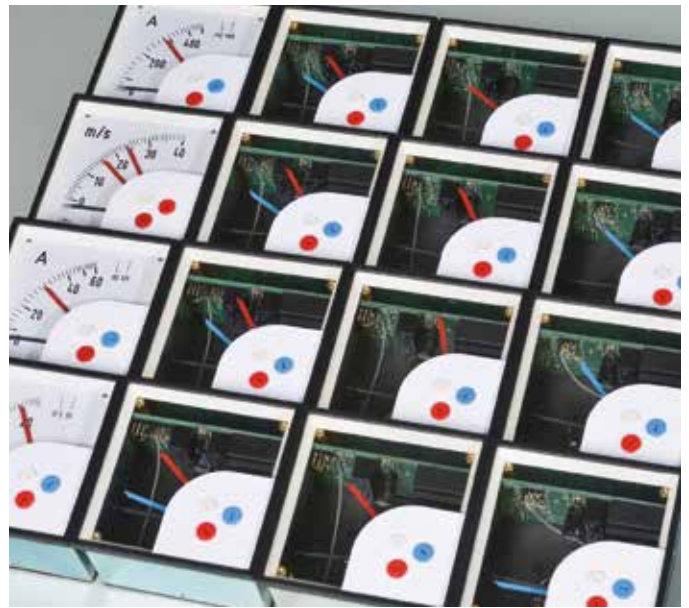
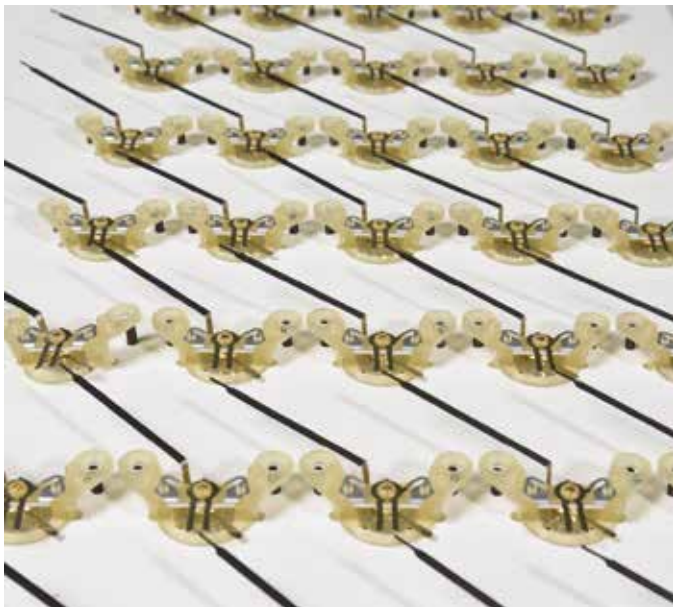
7 Universal measuring instruments

8 Current transformers

9 Shunts

10 Test apparatus

Precision and service are the measure of all things





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