



Product Guide

900.U.001.08

Meter Accessories

ASK
WSK



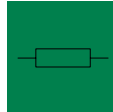
Window Type CT's and
Wound Primary Type CT's

KBU



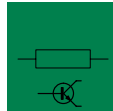
Split Core Current
Transformers

mV



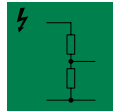
Shunts

WES



Electronical Shunts

kV



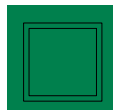
Voltage Dividers

V
AU



Rotary Cam Switches

AR
BA



Cover Frames
Blind Covers

Q



Terminal Safety Protection

SUS
CSL



LED Switch Position Indicators,
LED Lights

PI
PIR



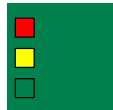
Electromechanical
Switch Position Indicators

RH
HH
CY



Insulating Spacers

SM



Signaling Indicators

NT



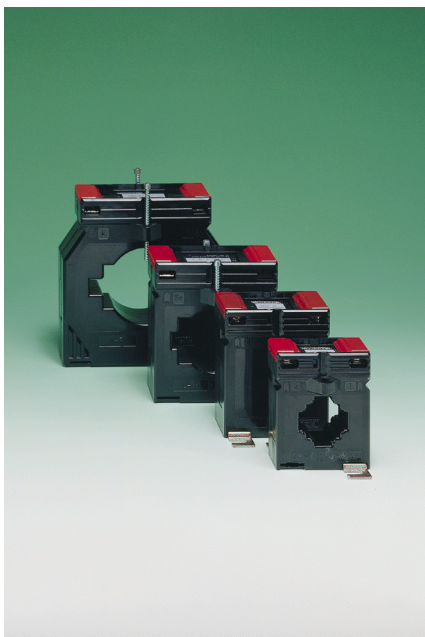
DIN Rail Power Supply



Short Form Data

Window Type and Wound Primary Type Current Transformers

ASK 421.4
ASK 31.3
ASK 41.4
ASK 51.4
ASK 561.4
ASK 81.4
ASK 101.4
WSK 30
WSK 40



Application

Window type CT's (**ASK**) are mounted on busbars and are suitable for primary currents from 40 A to 2500 A.

Wound primary CT's (**WSK**) have a primary winding for lower primary currents from 1 A to 30 A.

General Technical Data

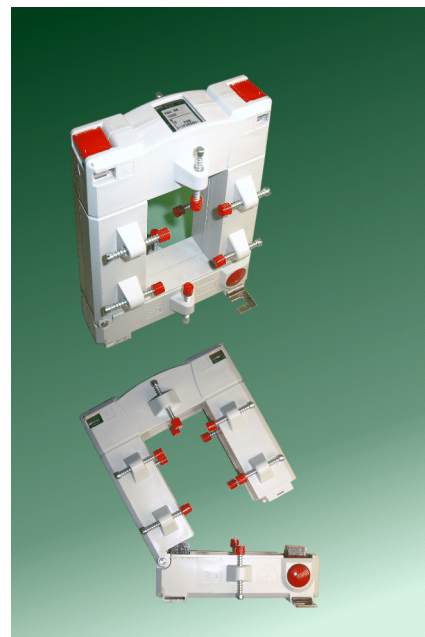
standards	DIN 42 600-2, DIN EN 60 715, DIN EN 60044-1, VDE 0414-44-1, VBG 4	
material of case	polycarbonate, flame retardant, self-extinguishing	
mounting or optionally on ASK	push-in fixing feet, busbar clamps or clamping attachment to 35 mm DIN rail	
terminals	secondary terminals nickel-plated, with plus/minus combination screws M5x10, integrated terminal cover	
Window Type CT's	Primary Current Ratings	Width of CT
ASK 421.4	40 – 500 A	71 mm
ASK 31.3	50 – 750 A	61 mm
ASK 41.4	50 – 1,000 A	71 mm
ASK 51.4	100 – 1,250 A	86 mm
ASK 561.4	200 – 1,250 A	86 mm
ASK 81.4	400 – 2,000 A	120 mm
ASK 101.4	500 – 2,500 A	130 mm
Wound Primary CT's	Primary Current Ratings	Width of CT
WSK 30	1 – 20 A	61 mm
WSK 40	1 – 30 A	71 mm
rated primary current	1; 2.5; 5; 10; 15; 20; 25; 30; 40; 50; 60; 75; 80; 100 A and any decimal multiple up to 2500 A as well as 1200; 1250; 1600 and 1800 A	
rated secondary current	1 A or 5 A	
rated output	1; 1.25; 1.5; 2.5; 3.75; 5; 7.5; 10; 15; 30; 45 VA	
frequency range	50 ... 60 Hz, 16 ² / ₃ Hz or 400 Hz on request	
accuracy	classes 0.5 or 1	
Special CT's	summation, saturation, protective or tube type CT's, special CT's suitable for H.R.C. fuse carriers or secondary switchable C.T's; calibratable or calibrated C.T's, with accuracy classes 0.2; 0.5 and 0.5s on request	

additional data refer to Data Sheet No. 500.D.001.##

Short Form Data

Split Core Current Transformers

KBU 23
KBU 58
KBU 812
KBU 816



Application

The **KBU** split core current transformers can be attached subsequently to live wires.

The integrated **KBU** locking system allows simple mounting of the CT via snap-in. By pressing a button the CT can be removed easily.

General Technical Data

standards	DIN 42 600-2, DIN EN 60044-1, VDE 0414-44-1, VBG 4
material of case	polycarbonate, flame retardant, self-extinguishing according to UL 94 V-0
attachment	snap-in mounting and clamp screws
terminals	nickel-plated brass secondary terminals, each with two plus/minus combination screws
Primary Ratings	rated primary current I_N
KBU 23	100; 150; 200; 250; 300; 400 A
KBU 58	250; 300; 400; 500; 600; 750; 800; 1000 A
KBU 812	250; 300; 400; 500; 600; 750; 800; 1000; 1200; 1250; 1500 A
KBU 816	1000; 1200; 1500; 1600; 2000; 2500; 3000; 4000; 5000 A
rated continuous current	$I_D = 1,0 \cdot I_N$
rated peak current	$I_{th} = 60 \cdot I_N$ (max. 1 s)
rated excess factor	FS 5: up to 1500 A primary rated current FS 10: 1600 A and higher prim. rated current
Secondary Ratings	rated secondary current I_{Ns}
	1 A or 5 A
rated output	1; 1.25; 1.5; 2.5; 3.75; 5; 7.5; 10; 15; 30 VA
rated frequency	50 Hz
accuracy	classes 0.5 or 1

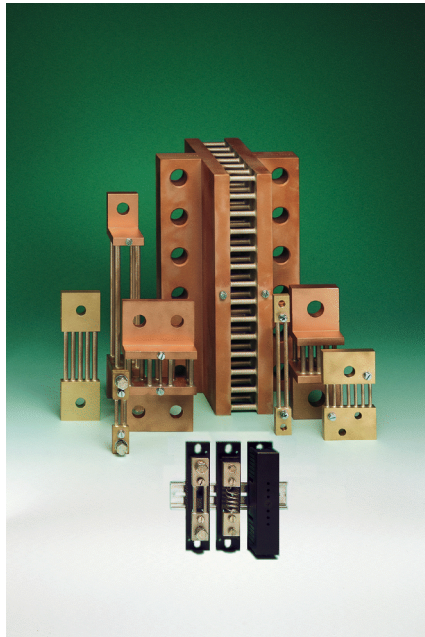
additional data refer to Data Sheet No. 566.D.001.##



Short Form Data

Shunts Class 0.5

60 mV
100 mV
150 mV
300 mV



General Technical Data

The shunts herein referred to are manufactured with an accuracy class 0.5 according to DIN 43 703 in current ratings from 1 A up to 15,000 A having a voltage drop of 60 mV or 150 mV. On special order with a voltage drop and/or a rated current other than standard.

Format Version A

with insulating base up to 25 A / 60, 100, 150 or 300 mV
optionally up to 150 A / 60 mV
for screw mounting (max. M8) or
clamping to 35 mm DIN rail
without insulating base 30 ... 150 A

without insulating base

Format Version B L-profile end blocks

Format Version C T-profile end blocks

material

resistance bars manganin
end blocks

format version A high conductivity brass

format version B high conductivity brass/solid copper

format version C solid copper

connections

threaded bolts

dimensions

complying with DIN 43 703

Rated Current

1; 1.2; 1.5; 2; 2.5; 3; 4; 5; 6; 8 A
and any decimal multiple of these numbers

Rated Voltage Drop

60 mV; 100 mV; 150 mV or 300 mV

accuracy

class 0.5

Options

rated voltage drop other than standard on request

rated current other than standard on request
up to max. 20,000 A

accuracy

class 0.2

insulating base

suitable for shunts 30 ... 150 A / 60 mV
others on request

purpose built shunts

on request

Accessories

cover for shunts with insulating base

additional data

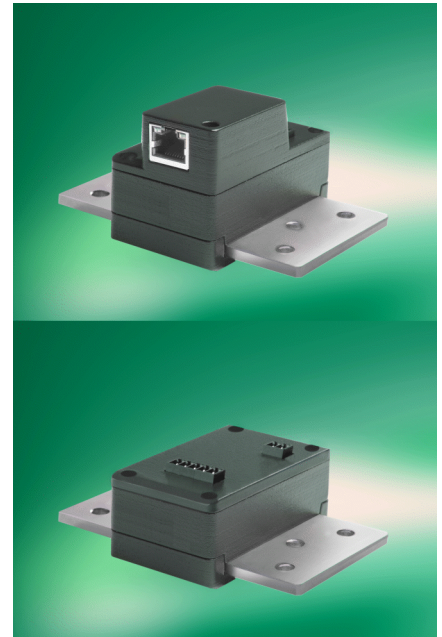
refer to Data Sheet No. 800.D.001.##



Short Form Data

Electrical Shunts

WES-A-RM01
WES-A-RM03
WES-B-RM01
WES-B-RM03
WES-C-RM01
WES-C-RM03



General Technical Data

The **WES** series electrical shunts are designed for a continuous current of 300 A (**WES-...-RM03**) or 1,000 A (**WES-...-RM01-...**).

The 1,000 A type is available in two different case versions with different connection drillings (**WES-...-RM01 -A** or **-B**).

The measured values can be read out via a standard RS232 (**WES-A**), RS485 (**WES-B**) or Ethernet (**WES-C**) connection.

Measuring ranges **WES-...-RM01-...** **WES-...-RM03**

current I_{eff} AC/DC $\pm 1,000$ A (continuous) ± 300 A

voltage U_{eff} AC/DC ± 250 V (phase-zero)
500 V AC (phase-phase)

measuring frequency AC 40 ... 70 Hz

connection (isolated) **WES-A** **WES-B** **WES-C**
RS232 RS485 Ethernet

Measuring functions

– current: DC, rms AC and AC+DC (trms), oscilloscope function

– voltage: DC, rms AC and AC+DC (trms), oscilloscope function

– active power, reactive power, apparent power

– frequency

– active energy (Watt-seconds counter)

– Ampere-seconds counter DC and AC+DC (trms)

– time counter for active energy

– time counter for Ampere-seconds DC and AC+DC (trms)

– temperature in °C

Connections

current conductor rail
voltage screw terminal barrier strip
interface screw terminal barrier strip/RJ-45

fixing screw fixing on conductor rail

weight max. 0.33 kg (depends on type)

Auxiliary supply 21 ... 26 V DC, 50 mA

Accuracy **WES-...-RM01-...** **WES-...-RM03**
($R_{\text{shunt}} 12 \mu\Omega$) ($R_{\text{shunt}} 30 \mu\Omega$)

DC current 0.3% ± 90 mA 0.1% ± 30 mA

AC current 1% ± 30 mA 0.3% ± 10 mA

DC voltage 0.1% ± 30 mV

AC voltage 0.3% ± 10 mV

additional data

refer to Data Sheet No. 672.D.001.##



Short Form Data

Voltage Dividers

1,000 V ... 10,000 V



General Technical Data

External multipliers (voltage dividers) are used in connection with moving-coil instruments in the measurement of DC voltages in electrical installations connected to the ground.

construction	thermoplastic case containing cast resin insulated film resistors of accuracy class 0.5 to DIN.
panel fixing	by two screws M4
terminals	screws M3
weight approx.	0.2 kg
DC voltage	1,000 V 1,500 V 2,000 V 2,500 V 3,000 V 4,000 V 5,000 V 6,000 V 10,000 V
sensitivity	2 k Ω /V
for meter movement	25 V, 250 μ A
accuracy	class 0.5

additional data refer to Data Sheet No. 806.D.001.##
 suitable moving - coil instruments **PSQ 48, PQ 72/96/144 RS**
 (M-Series, 90° - Dial)
 refer to Data Sheet No. 010.D.101.##



Short Form Data

Rotary Cam Switches for AC Voltage and AC Current

V 0
V 3
V 13
V 30
V 32
AU 11
AU 21
AU 31
AU 41



General Technical Data

The rotary cam switches comply with VDE 0660 and VBG 4.

Voltmeter Changeover Switches

Model V 0	for phase voltages to neutral in 3-phase 4-wire systems, switching positions: 0 - L1N - L2N - L3N
Model V 3	for delta voltages in 3-phase 3-wire systems, switching positions: 0 - L1L2 - L2L3 - L3L1
Model V 13	for delta voltages and 1 phase voltage to neutral in 3-phase 4-wire systems, switching positions: L3L1 - L2L3 - L1L2 - 0 - L1N
Model V 30	for delta voltages and phase voltages to neutral in 3-phase 4-wire systems, switching positions: L3L1 - L2L3 - L1L2 - 0 - L1N - L2N - L3N
Model V 32	for delta voltages in two 3-phase 3-wire systems, switching positions: L3L1 - L2L3 - L1L2 - 0 - L1L2 - L2L3 - L3L1

Ammeter Changeover Switches

Model AU 11	single-pole with off-position, 1 current transformer circuit, switching positions: 0 - 1
Model AU 21	single-pole with off-position, 2 current transformer circuits, switching positions: 1 - 0 - 2
Model AU 31	single-pole with off-position, 3 current transformer circuits, switching positions: 0 - 1 - 2 - 3
Model AU 41	single-pole without off-position, 4 current transformer circuits, switching positions: 1 - 2 - 3 - 4

construction	suitable for switchboard mounting
panel thickness	1 ... 5 mm
terminals	M3.5x6 screws and wire clamps
cross-section of connection	4 mm ²
operating voltage	AC 690 V
continuous current	25 A
load switching capacity	25 A
frequency	up to 3 kHz
product classification	C3 acc. to VDE 0660

additional data refer to Data Sheet No. 812.D.001.##



Short Form Data

Cover Frames Glass-Inserted Blind Covers for DIN Cutouts

AR 48
AR 72
AR 96
AR 144
AR 72x36
AR 96x24
AR 96x48
AR 144x72
BA 48
BA 72
BA 96
BA 96x24



Application

The glass-inserted cover frames AR 48/72/96/144/72x36/96x24/96x48/144x72 and the blind covers BA 48/72/96/96x24 for clamp-fixing are used to cover standard DIN-cutouts in switchgear panels.

Mechanical Data

Cover Frames, glass-inserted

construction	case suitable for mounting in switchboards or mosaic grid panels, stackable
material of case	polycarbonate, white
window	glass, non-glaring glass, or frosted glass
colour of bezel	black
panel fixing	clamp-mounting or screw clamps
panel thickness	1 ... 15 mm
mounting	stackable next to each other

Blind Covers

material	self-extinguishing thermoplastics PPE + PS
colour	black
panel fixing	clamp fixing
panel thickness	1 ... 4 mm
mounting	stackable next to each other

additional data

refer to Data Sheet No. 919.D.011.##



Short Form Data

Terminal Safety Protection

Q 48
Q 72
Q 96
Q 144



Application

Protective sleeves or full-sized rear covers provide protection against accidental contact of meter terminals. They meet the requirements of VBG 4 / DIN 57 106 and are safe against backhanded and fingertip contact.

Mechanical Data

material	moulded thermoplastics
for use on K-Series	
full-sized rear cover	suitable for meter-sizes 48 x 48, 72 x 72, 96 x 96, 144 x 144
protective sleeves	suitable for meter terminals using hexagon studs with wire clamps E3 and M4 screws
for use on M-Series	
full-sized rear cover	suitable for the most applied meters of sizes 72 x 72, 96 x 96, 144 x 144
protective sleeves SW 6	suitable for voltmeters and ammeters up to 4 A rated current
protective sleeves SW 10	suitable for ammeters exceeding 4 A up to 30 A rated current
rubber nozzle	suitable for meters with screw terminals M5 or M6

additional data

refer to Data Sheet No. 919.D.101.##



Short Form Data

LED Switch Position Indicators and LED Lights

SUS-01
SUS-02
SUS-95
SUS-99
CSL-99



Application

Switch position indicators and lights are used to indicate the switching state in electrical installations.

The **SUS-01/02/95/99/99-GS** switch position indicators and the **CSL-99** lights are equipped with LEDs in various colors. They can be used for operation in mimic circuit diagrams of switch gears as well as in measuring and control panels.

Type	Round	Square	LED Test	Bar LEDs	Front size
SUS-01	*	Q	T	-	25 mm
SUS-02	*	Q	T	-	20 mm
SUS-95	*	Q	-	L	39 mm
SUS-99	*	Q	-	L	32 mm
SUS-99-GS	*	-	-	-	30 mm
CSL-99	*	-	-	-	28 mm

General Technical Data

LED colors	red, green, blue, white, yellow, orange				
luminous power	depending on LED's used				
life cycle	min. 100,000 hours of operation				
operating voltage	12 V AC, DC up to 230V AC, DC				
rated current	max. 20 mA				
terminals	SUS/CSL ... max. 1,5 mm ²	SUS ... T connector blades 2,8x0,8x7,0			
enclosure code	SUS/CSL ...	SUS ... T			
case	IP 65	IP 65			
terminals	IP 20	IP 00			
operating temperature	-25 ... +60° C				
panel cutout	SUS-01/95/99, CSL-99 ø 22 mm		SUS-02 ø 16 mm		
cutout distance min.	SUS-01 30 mm	SUS-02 25 mm	SUS-95 40 mm	SUS-99 33 mm	CSL-99 31 mm
panel thickness max.	SUS ... 12 mm		CSL-99 10 mm		

additional data

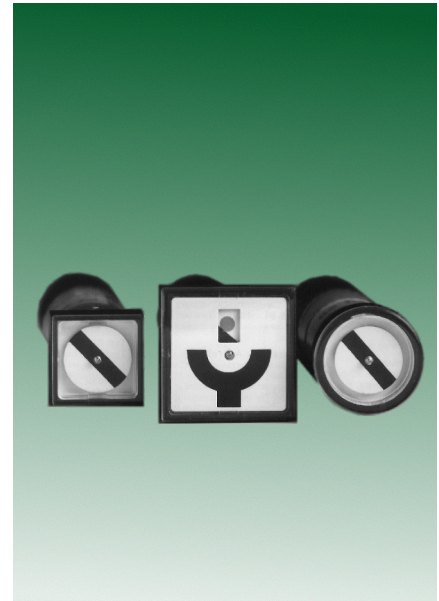
refer to Data Sheet No. 652.D.101.##



Short Form Data

Electromechanical Switch Position Indicators for DC or AC

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



Application

The **PI/PIR 24/25/29/36** switch position indicators are equipped with a rotary magnet system. They can be used for operation in mimic circuit diagrams of switch gears as well control panels, switchboards and mosaic technology.

PI/PIR ... -1		PI/PIR ... -2	
PI/PIR ... -3		PI/PIR ... -4	
PI/PIR ... -6-SPAW with amber/white display field		PI/PIR ... -7-SPRG with red/green display field	

General Technical Data

case format	round thermoplastic case with round or square front - bezel, suitable for mounting in switchboards (PI/PIR 25/29/36) or mosaic grid panels (PI/PIR 24)			
material of case	polycarbonate UL 94 VO			
position of use	any position permissible			
terminals	screw terminals up to 1.5 mm ² with safety touch protection			
enclosure code	IP 54			
dimensions (in mm)	PI 24	PI 25	PI 29	PI 36
front-bezel	PIR 24 □ 24	PIR 25 □ 25	PIR 29 Ø 29	PIR 36 □ 36
case	Ø 21.8 mm			
mounting depth	94 mm			
panel cutout	ø22 ^{+0.5} mm			
panel thickness	max. 12 mm			
operation voltage	DC voltage (PI type) or AC voltage (PIR type) in the range of 24 V to 230 V			
frequency range with AC voltage	40 Hz ... 10 kHz			
permissible voltage variation	±20%			

additional data

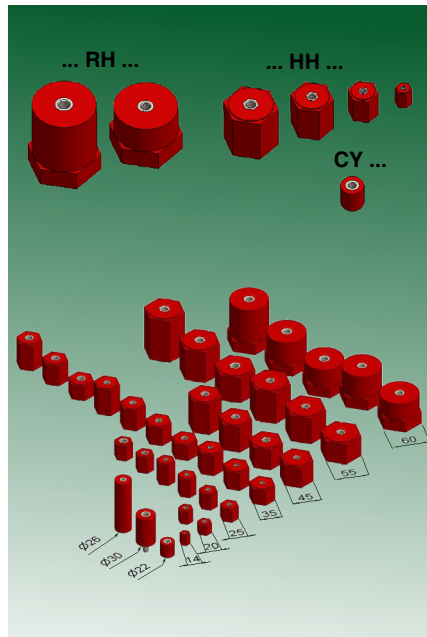
refer to Data Sheet No. 644.D.101.##



Short Form Data

Insulating Spacers

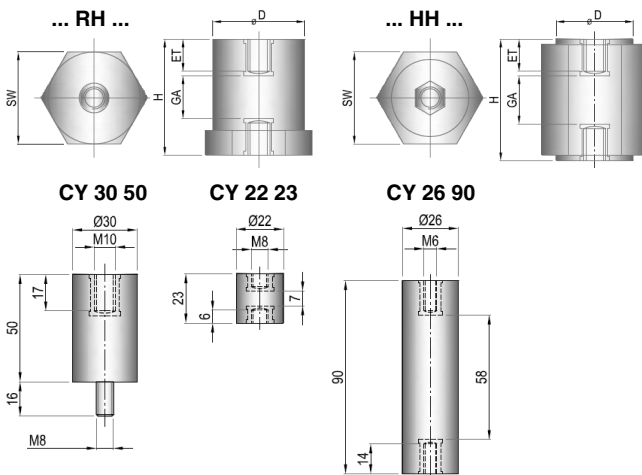
RH
HH
CY



General Technical Data

material	body	polyester, fibre-glass inforced, red, self-extinguishing, halogen-free
	insert nut	galvanized steel
fire resistance		according to UL 94 (class V-0)
rated voltage		up to 1000 V AC (when used in excess voltage categories I to IV according to IEC 60038)
breakdown voltage		min. 10 kV/mm
creep voltage strength		CTI 600 (according to EN 60112:2003-03)
peak voltage strength		>12 kV (according to IEC 61180-1:1994-09)
operating temperature range		-40 ... +160 °C

Dimensions



Types/dimensions in mm	H	SW	ET	D	GA
... RH ...	50-80	60	15-25	60	10-26
... HH ...	20-80	14-55	5-20	12-52	2-16
CY ...	23-90	-	6-14	22-30	7-58

additional data

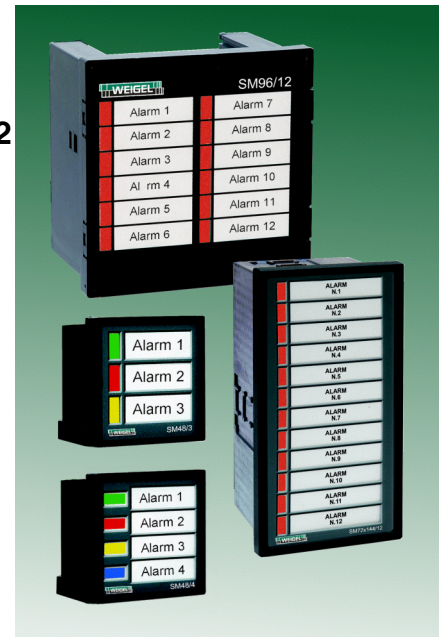
refer to Data Sheet



Short Form Data

Signaling Indicators

SM 48/3
SM 48/4
SM 96/12
SM 72x144/12



Application

The SM 48/96/72x144 signaling indicators are grouping 3, 4, or 12 light signals in a compact enclosure.

Labels can be printed on normal paper, in order to place them under the polycarbonate front panel, which will be fixed by a frame.

	Number of light signals	Label size
SM 48/3	3 multi - LEDs	30 mm x 10 mm
SM 48/4	4 multi - LEDs	24 mm x 10 mm
SM 96/12A, B	12 multi - LEDs	45 mm x 9 mm
SM 96/12C	12 multi - LEDs	70 mm x 61 mm (single label)
SM 72x144/12	12 multi - LEDs	45 mm x 9 mm

LED colours red, yellow, green, blue, or white

General Technical Data

case details	case suitable to be mounted in control / switchgear panels		
material of case	Noryl, self-extinguishing		
colour of case	black		
panel fixing	clamping screws (SM 48, SM 96) plastic clips (SM 72x144)		
panel thickness	≤ 6 mm		
connections	plug-in screw terminal block		
dimensions (in mm)	SM 48/3	SM 96/12	SM 72x144/12
bezel	□ 48	□ 96	72x144
case	□ 45	□ 92	67x137
depth	56	65	65
panel cutout	□ 45+0.6	□ 92+0.8	68+0.7x138+1
weight approx.	50 g	50 g	200 g
rated voltage	24 V (20 ... 30 V AC/DC), 48 V (48 ... 60 V AC/DC), 110 V AC (100 ... 130 V AC), 110 V DC (100 ... 130 V DC), 230 V AC (220 ... 240 V AC)		
frequency range	0 ... 1000 Hz		
power consumption	max. 0.5 W		
each input	max. 4 W during test		
enclosure code	IP52		

additional data

refer to Data Sheet No. 627.D.101.##



Short Form Data

DIN Rail Power Supplies

NT 22.5



Application

The NT 22.5 power supply can be used for multiple applications and can be supplied with various output voltages (5 V, 12 V, 15 V, 24 V). It is overload- and overtemperature- proof and has a function indication.

A green LED lights up if the output voltage is available.

The power supplies comply with safety requirements and are tested for interference immunity.

General Technical Data

case details	projecting case clamping to DIN mounting rail (to DIN EN 60 715)
material of case	ABS/PC black self-extinguishing to UL rating 94 V-0
terminals	screw-terminals
wire cross-section	input 2.5 mm ² max. flex wire output 2.5 mm ² max. flex wire or 1.5 mm ² max. solid wire
enclosure code	IP 40 case IP 20 terminals to EN 60529
dielectric test isolation	4 kV 50 Hz input to output 100 MΩ / 500 V DC
rated isolation voltage	600 V
class of protection	II to DIN EN 60601-1/ UL 60601-1
dimensions WxHxD	22.5 mm x 84 mm x 113 mm
weight	approx. 0.12 kg (10 W) approx. 0.10 kg (5 W)
indication	green LED lights if power is available

additional data refer to Data Sheet No. 067.##

Electrical Data

Input

input voltage	85 ... 264 V AC or 120 ... 370 V DC
frequency	47 ... 440 Hz

Output

output power/type	5 W or 10 W
voltage	available fixed voltages
	5 V DC 12 V DC 15 V DC 24 V DC
residual ripple	80 mV 150 mV 150 mV 240 mV
voltage accuracy	2.0% 1.0% 1.0% 1.0%

overload protection

switch-off at >105% of rated power and automatic switch-on after temperature drop

overvoltage protection

switch-off if output voltage is > 135% of U_N

overtemperature protection

switch-off at T_j > 140 °C and automatic switch-on after temperature drop

Environmental

climatic suitability	to VDE/VDI 3540 sheet 2
operating temperature range	-20 ... +70 °C
storage temperature range	-40 ... +85 °C
Vibration	10 ... 500 Hz, 2G 10 min./ 1 cycle, period 60 min. to all 3 axis
EMC emission	to EN 55011 (CISPR11), EN 55022 (CISPR22), class B
EMC immunity	to EN 61000-4-2,3,4,5,6,8,11; EN 50204, EN 55024, EN 60601-1-2 and EN 61204-3, crit. A

– specifications subject to change without notice; date of issue 06/11 –

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