BENDER
The Power in Electrical Safety©

IT system wall-mounted distribution boards Series...-IPS-W and -IPS-RW

for supplying power to medical locations

in accordance with IEC 60364-7-710

IPS-W-RW_D00244_00_D_XXEN/03.2015

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S-IPS-W

Device features

- Complete standardized IT system featuring
  - Insulation, load, temperature and connection monitoring
  - Main isolator switch
  - 6 subcircuits with 2-pole circuit-breakers/ IT system (max. 12)
  - Power supply unit for alarm indicator and operator panels
- Time saving as the wall-mounted distribution boards are supplied prewired and factory tested
- Versions for 1…3 IT systems in one enclosure
- Designed in accordance with the requirements of applicable standards
- in and out going wires are terminated by screwless type/cage clamp spring terminals or as per customers specification
- Exchange of information via bus technology
- Short delivery times
- Surface wall-mounted and flush/recessed wall mounted for dry/cavity wall mounting

Application

The IT system distribution boards in the IPS series supply electrical power to group 2 medical locations. In such locations, according to the requirements of

- IEC 60364-7-710
  for circuits supplying medical electrical Equipment and systems intended for life support, surgical applications and other electrical equipment located in the “patient environment”

the use of the IT system with insulation monitoring and load current monitoring (IEC 60364-7-710) is mandatory. This requirement applies for example for anaesthetic rooms, operating theatres, operating preparation rooms, operating plaster rooms, operating recovery rooms, heart catheterization, intensive care rooms, angiographic examination rooms, premature baby rooms.

The distribution cabinet of the IPS-W series feature all necessary components and are supplied prewired to terminals, thereby drastically reducing the time needing to be spent on installation and commissioning. The completely factory tested cabinets do comply with our high quality and safety requirements and ISO9001 standard.

Built-in components in accordance with IEC 60364-7-710

The IPS-W series distribution boards feature the following components:

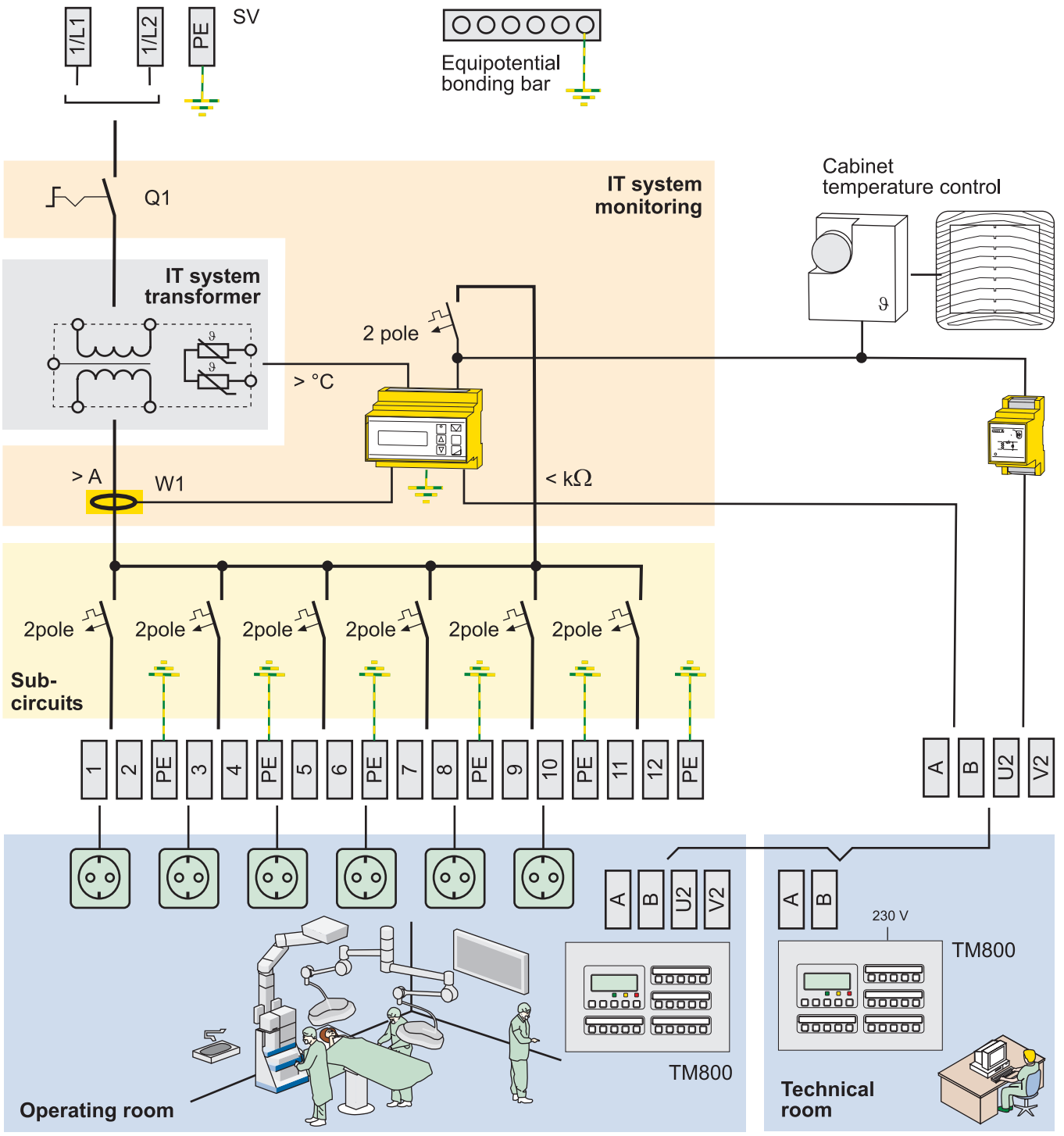
- 107TD47 insulation, load and temperature monitoring device
- Main isolator switch
- typically 6 x 2-pole circuit breakers/IT system
- 1 Load current transformer
- 1 Equipotential bonding terminals
- Power supply for 2 MK2430 or 1 MK800 alarm indicator and operator panel(s)

Insulation, load and temperature monitoring

The 107TD47 insulation monitoring device continuously monitors the insulation resistance, load current and the temperature of the IT system transformer. If one or a number of response values have been reached (insulation resistance, load current, temperature), the alarm relay will switch and a corresponding message will appear. The connecting cables to the system and PE, as well as to the measuring current transformer and temperature sensor, are permanently monitored. In the event of wire breakage or short circuit, of the current transformer an alarm will come on. The patented AMP measuring technique is used in order to exclude the possibility of insulation monitoring being impaired by DC components.

Messages displayed in plain text

The unique status, warning and fault messages are displayed in plain text.
The MK2430/MK800 alarm indicator and test combination or TM alarm indicator and operator panel must to be installed in a suitable location in the medical location and permanently monitored by medical staff. A twisted pair shielded bus cable is used to connect the IPS distribution cabinet to the alarm indicator panels.



Overview wiring diagram

Technical data

Distribution board data

Cabinet range	ABB/Striebel & John
Cabinet type	AT + U series, surface/flush/recessed mounted with door and inspection window
Degree of protection	IP43/31*
Protection class	isolated
Doors and walls	sheet steel 1.5…2 mm
Door	right-hinged
Door lock	lock with key
Paint finish	RAL 9016 (white)

Installation data

Type of installation	wall/dry/cavity wall mounting
Dimensions/weight/power consumption	see table

Type of wiring

Terminal area	at the top
Cable entry	via the gland plates
Cable duct	none
Protective/neutral conductor	PE terminals, isolating terminals ≤ 10 mm²
Conductor colours	acc. to IEC 60446
Conductors	halogen-free

Connection type

Connection method	typically: screwless-type connection/ cage clamp spring terminals/or as specified

Labeling

Devices	adhesive labels, IEC 61346-2
Distribution board	adhesive labels, black type on a white
Network type labelling	acc. to IEC

System data

Type of distribution system	IT system
Nominal voltage	AC 230 V/50…60 Hz

Insulation monitoring

Adjustable response value R_{an1}	50 … 500 kΩ
Hysteresis	≤ 25 %
Response time t_{an} at R_F = 0.5 x R_{an} and C_e = 1 µF	≤ 3 s
Max. permissible system leakage capacitance	≤ 5 µF
Measuring voltage U_m	12 V
Measuring current I_m (at R_F = 0 Ω)	≤ 50 µA
Internal DC resistance R_i	≥ 240 kΩ
Impedance Z_i at 50 Hz	≥ 200 kΩ
Permissible external DC voltage U_{fg}	≤ DC 375 V

Overload monitoring

Adjustable response value	5 … 50 A
Hysteresis	4 %
Temperature influence	≤ 0.15 %/°C

Overtemperature monitoring

Response value	4 kΩ
Release value	1.6 kΩ
PTC resistors acc. to DIN 44081	max. 6 in series

Interfaces

Interface/protocol	RS-485/BMS
Connection terminals	A/B
Max. cable length	≤ 1200 m
Cable (shielded, shield connected to PE at one end)	recommended: J-Y(St)Y 2x0.8
Terminating resistor	120 Ω (0.25 W)

Switching elements (alarm contacts 107TD47)

Switching elements	1 changeover contact
Operating principle, adjustable	N/C or N/O operation
Electrical endurance, number of cycles	12000
Rated contact voltage	AC 250 V/DC 300 V
Making capacity	AC/DC 5 A
Breaking capacity	2 A, AC 230 V, cos phi 0.4 0.2 A, DC 220 V, L/R = 0.04 s

General data

Ambient temperature (operation, in door use)	- 10…+ 50 °C
Ambient temperature (storage)	- 40…+ 70 °C
Operating mode	continuous operation

Product standards

Insulation monitoring	IEC 61557-8
Load and temperature monitoring	IEC 60364-7-710
Distribution board	IEC 60439-1

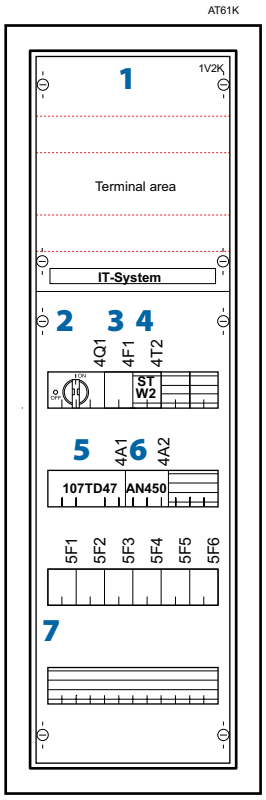
* with filter IP31

Overview/ordering information

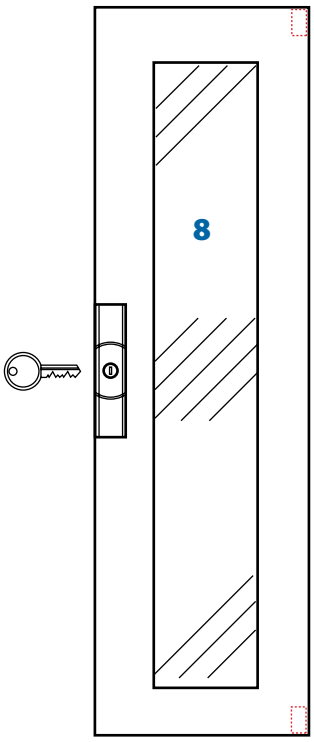
Subcircuits (typically)	Quantity IT systems	Dimensions WxHxD (mm)	Weight (kg)	Type
1 x 6…12	1	324 x 974 x 140	20	S-IPS-W
1 x 6…12	1	354 x 994 x 117	20	S-IPS-RW
1 x 12	1	605 x 695 x 117	25	S-IPS-RW (12)
2 x 6…12	2	574 x 974 x 140	30	D-IPS-W
2 x 6…12	2	605 x 995 x 117	30	D-IPS-RW
3 x 6…12	3	824 x 974 x 140	40	T-IPS-W
3 x 6…12	3	855 x 995 x 117	40	T-IPS-RW

"-W" = surface wall mounted
"-RW" = flush/recessed wall mounted for dry/cavity wall mounting
28 mm bezel frame height

S-IPS-W (surface mounted)



refer to dwg #9800230



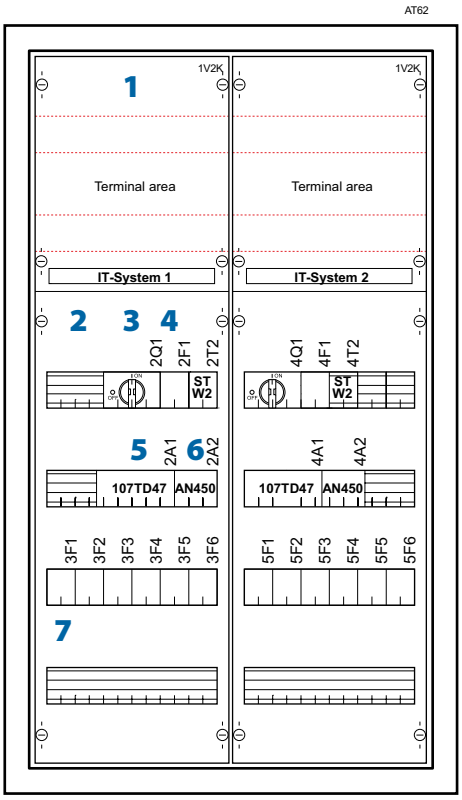
Frontview door, with window

Dimensions:

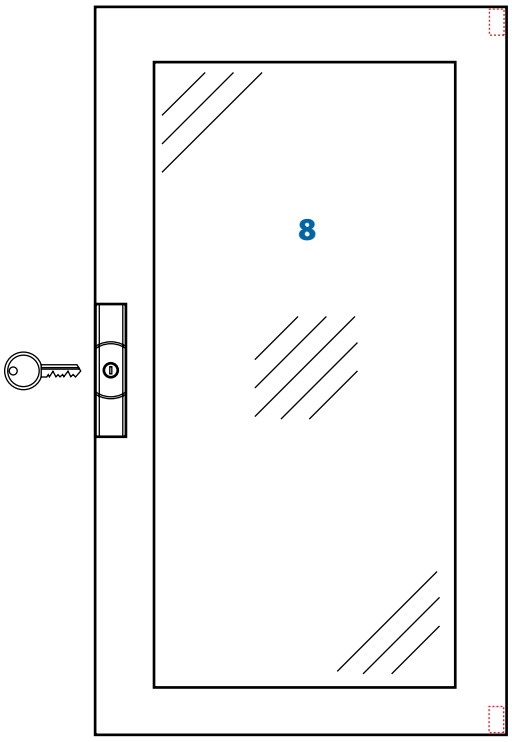
- W (dwg# 9800230)
  324 x 974 x 140 mm (W x H x D)
  surface mounted
- RW (dwg# 9800453)
  – bezel frame dimension
  355 x 995 x 117 mm (+ 28 mm bezel)
  – wall cut dimension
  310 x 984 x 120 mm

1 - Terminal area and equipotential bonding terminals
2 - Primary main isolator switch
3 - Circuit breaker for internal power supply
4 - Current transformer for load monitoring
5 - 107TD47 insulation, load and temperature monitoring device
6 - Power supply unit for alarm indicator and operator panels MK2430/MK800
7 - IT system Subcircuits: 2-pole circuit-breakers (max. 12 breakers/IT system)
8 - Front door

D-IPS-W (surface mounted)



refer to dwg #9800231



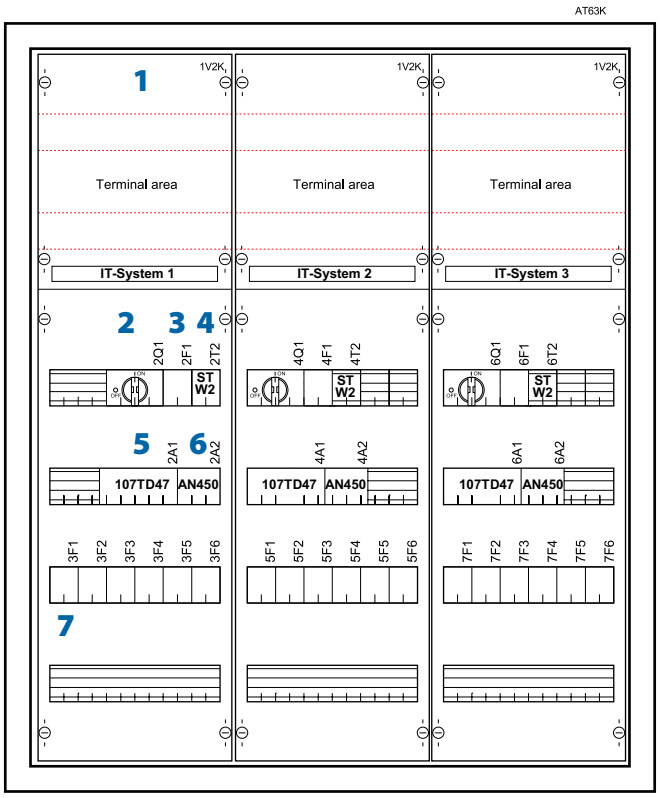
Frontview door, with window

Dimensions:

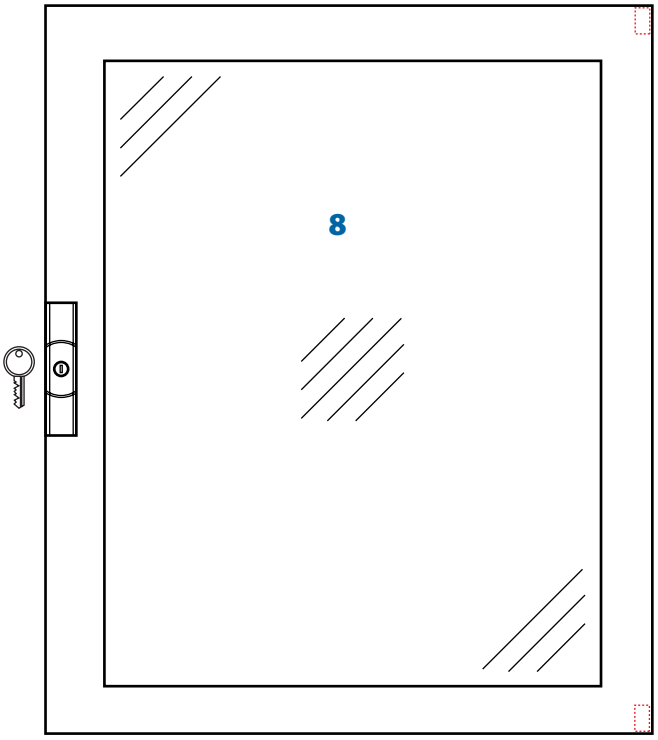
- W (dwg# 9800231)
  574 x 974 x 140 mm (W x H x D)
  surface mounted
- RW (dwg# 9800454)
  – bezel frame dimension
  605 x 995 x 117 mm (+ 28 mm bezel)
  – wall cut dimension
  560 x 984 x 120 mm

1 - Terminal area and equipotential bonding terminals
2 - Primary main isolator switch
3 - Circuit breaker for internal power supply
4 - Current transformer for load monitoring
5 - 107TD47 insulation, load and temperature monitoring device
6 - Power supply unit for alarm indicator and operator panels MK2430/MK800
7 - IT system Subcircuits: 2-pole circuit-breakers (max. 12 breakers/IT system)
8 - Front door

T-IPS-W (surface mounted)



refer to dwg #9800232



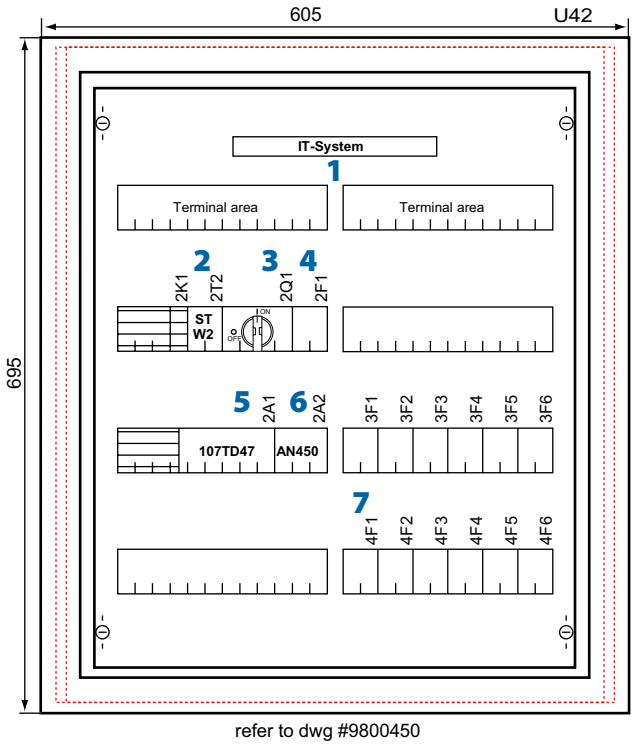
Frontview door, with window

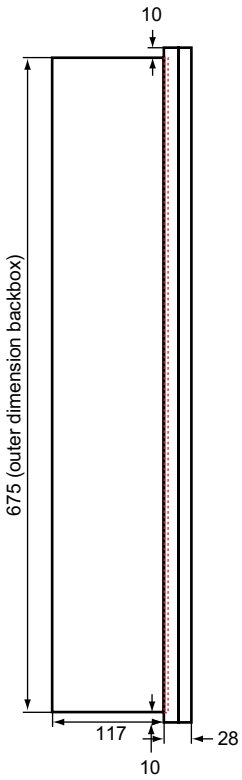
Dimensions:

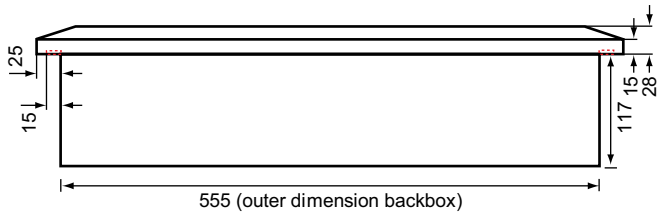
- W
  824 x 974 x 140 mm (W x H x D)
  surface mounted

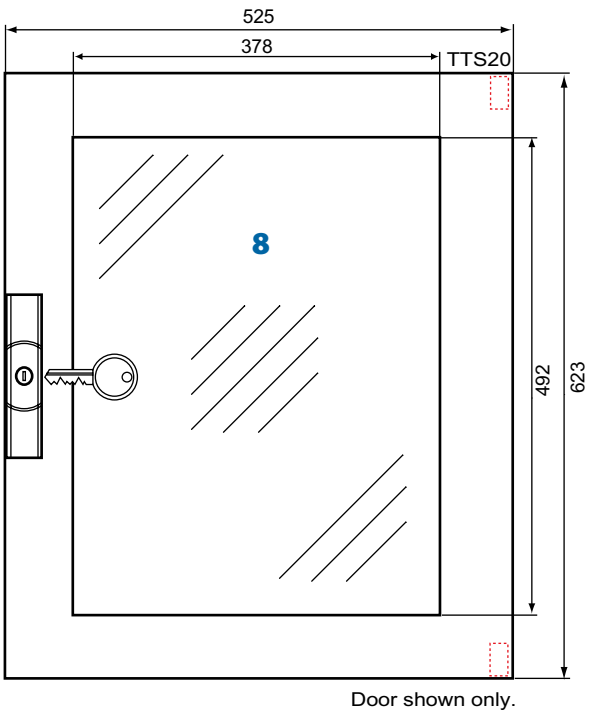
1 - Terminal area and equipotential bonding terminals
2 - Primary main isolator switch
3 - Circuit breaker for internal power supply
4 - Current transformer for load monitoring
5 - 107TD47 insulation, load and temperature monitoring device
6 - Power supply unit for alarm indicator and operator panels MK2430/MK800
7 - IT system Subcircuits: 2-pole circuit-breakers (max. 12 breakers/IT system)
8 - Front door

S-IPS-RW(12) (flush/recessed mounted)









Dimensions:

- RW (12)
  - flush/recessed mounted
    605 x 695 x 117 mm (+ 28 mm bezel)
  - wall cut out
    560 x 684 x 120 mm

1 - Terminal area and equipotential bonding terminals

2 - Primary main isolator switch

3 - Circuit breaker for internal power supply

4 - Current transformer for load monitoring

5 - 107TD47 insulation, load and temperature monitoring device

6 - Power supply unit for alarm indicator and operator panels MK2430/MK800

7 - IT system Subcircuits: 2-pole circuit-breakers (max. 12 breakers/IT system)

8 - Front door

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