

IT system floor-standing distribution cabinet Series ...-IPS-F

for supplying power to medical locations
in accordance with IEC 60364-7-710



S-IPS-F

Device features

- Complete standardized IT system featuring
 - 3.15...8 kVA Isolating transformer
 - Insulation, load, temperature and connection monitoring
 - Main isolator switch
 - 6 subcircuits with 2-pole circuit-breakers / IT system (max. 18)
 - Power supply unit for alarm indicator and operator panels
- Time saving as the floor-standing distribution cabinets are supplied prewired and factory tested
- Versions for 1...4 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

Application

The IT system distribution cabinet in the IPS-F 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 recommended. This requirement applies for example for anaesthetic rooms, operating theatres, operating preparation rooms, operating plaster rooms, operating recovery rooms, heart catheterization rooms, intensive care rooms, angiographic examination rooms, premature baby rooms.

The distribution cabinet of the IPS-F 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-F series distribution cabinet feature the following components:

- 3.15...8 kVA Isolating transformer (10 kVA optional)
- Insulation, load, and temperature monitoring device 107TD47
- Main isolator switch
- 6 x 2-pole circuit breakers / IT system (max. 18 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)

Ventilation filters and fans are mounted into the cabinet door.

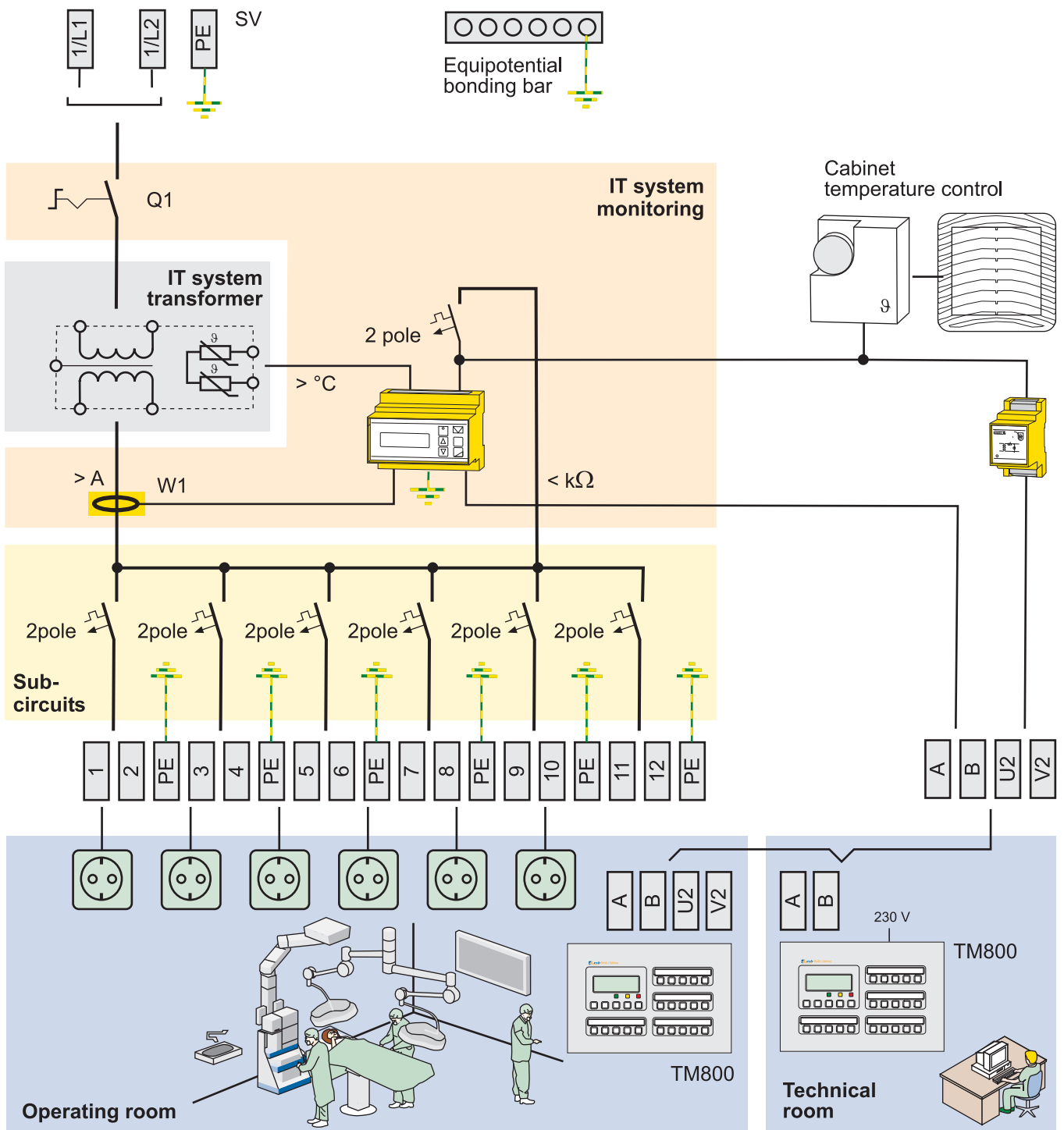
Insulation, load and temperature monitoring

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 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

2.7

Technical data floor-standing distribution cabinets Series...-IPS-F

Distribution cabinet data

Cabinet range	ABB / Striebel & John
Cabinet type	Tri Line R, floor-standing cabinet with door
Degree of protection	max. IP54*
Protection class	Class I (earthed)
Ventilation	fan and filter in the distribution cabinet door, on the top and bottom
Doors and side panels	sheet steel 1.5...2 mm
Door	right hinged
Door lock	lock with double bit insert
Paint finish	RAL 7035 (light grey)

Installation data

Type of installation	free-standing
Dimensions / weight / power consumption	see table

Type of wiring

Terminal area	at the top
Cable entry	via gland plates/optional closed cover
Cable duct	none
Protective / neutral conductor	PE terminals, isolating terminals $\leq 10 \text{ mm}^2$
Conductor colours	acc. to IEC 60446
Conductors	halogen-free

Connection type

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

Labeling

Devices	adhesive labels acc. to IEC 61346-2
Distribution cabinet	adhesive labels, black type on a white
System type labelling	according 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 k Ω
Hysteresis	$\leq 25 \%$
Response time t_{an} at $R_F = 0.5 \times R_{an}$ and $C_e = 1 \mu\text{F}$	$\leq 3 \text{ s}$
Max. permissible system leakage capacitance	$\leq 5 \mu\text{F}$
Measuring voltage U_m	12 V
Measuring current I_m (at $R_F = 0 \Omega$)	$\leq 50 \mu\text{A}$
Internal DC resistance R_i	$\geq 240 \text{ k}\Omega$
Impedance Z_i at 50 Hz	$\geq 200 \text{ k}\Omega$
Permissible external DC voltage U_{fg}	$\leq \text{DC } 375 \text{ V}$

Overload monitoring

Adjustable response value	5...50 A
Hysteresis	4 %
Temperature influence	$\leq 0.15 \%$ / °C

Overtemperature monitoring

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

Interfaces

Interface / protocol	RS-485 / BMS
Connection terminals	A/B
Max. cable length	$\leq 1200 \text{ m}$
Recommended cable (shielded twisted pair, shield connected to PE at one end)	J-Y(St)Y 2 x 0.8
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)	0 °C... + 30 °C
Ambient temperature (storage)	- 40 °C... + 70 °C
Operating mode	continuous operation

Product standards

Insulation monitoring	IEC 61557-8
Load and temperature monitoring	IEC 60364-7-710
Insulation fault location system	IEC 61557-99
Distribution cabinet	IEC 60439-1
Isolating transformer	IEC 60364-7-710 IEC 60558-1 IEC 61558-2-15

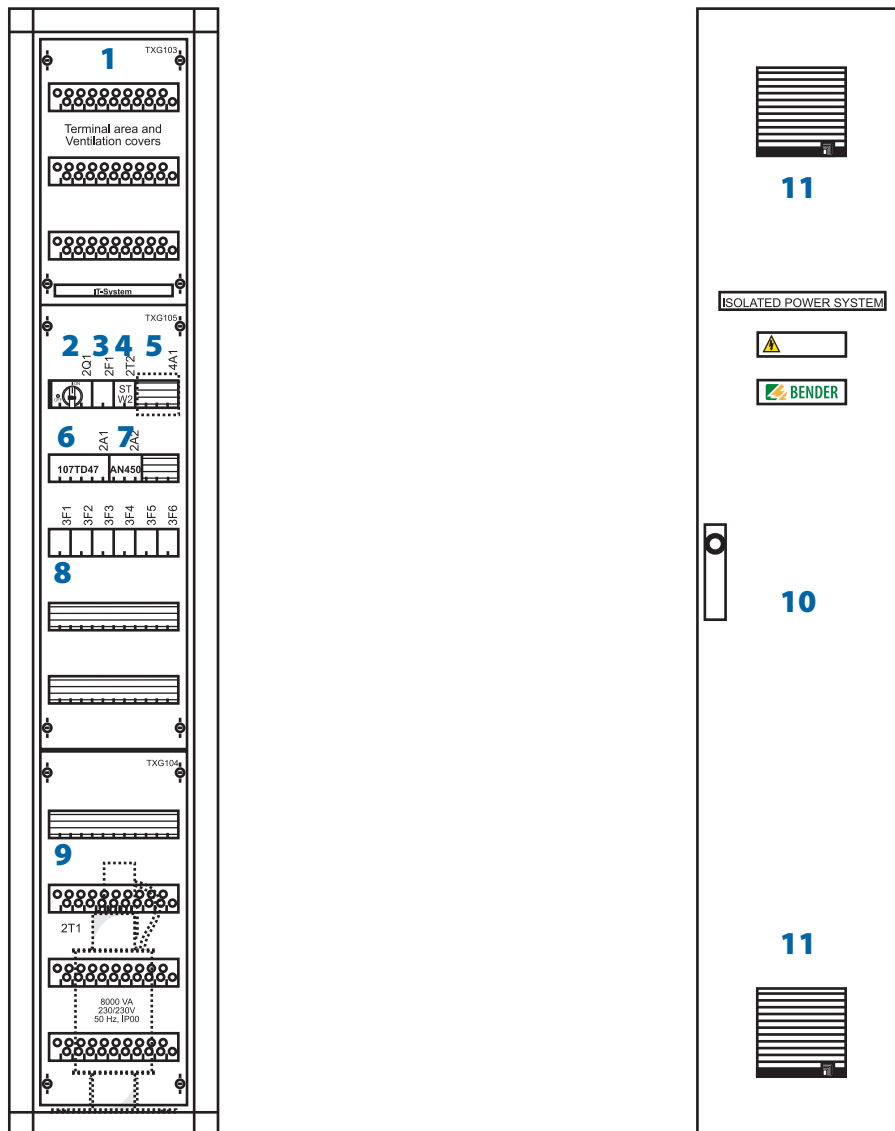
* with filter IP31

Overview / ordering information

Type	Isolating transformer	Subcircuits (typically)	Quantity IT systems	Dimensions WxHxD (mm)	Weight (kg) without base	Power-dissipation (W)
S-IPS-F	up to 8 kVA	1 x 6...18	1	374 x 1913 x 425*	155	315
D-IPS-F	up to 8 kVA	2 x 6...18	2	624 x 1913 x 425 *	250	630
T-IPS-F	up to 8 kVA	3 x 6...18	3	874 x 1913 x 425*	350	945
F-IPS-F	up to 8 kVA	4 x 6...18	4	1124 x 1913 x 425*	455	1260

* 10 kVA systems: Depth 625 mm

S-IPS-F

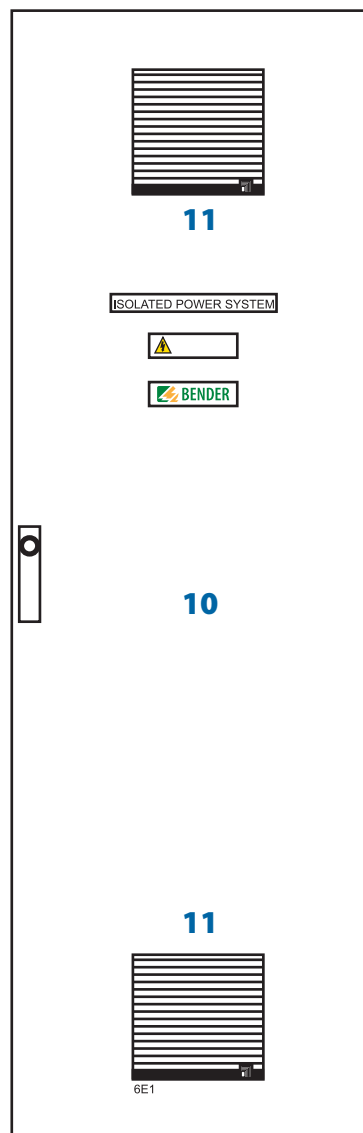
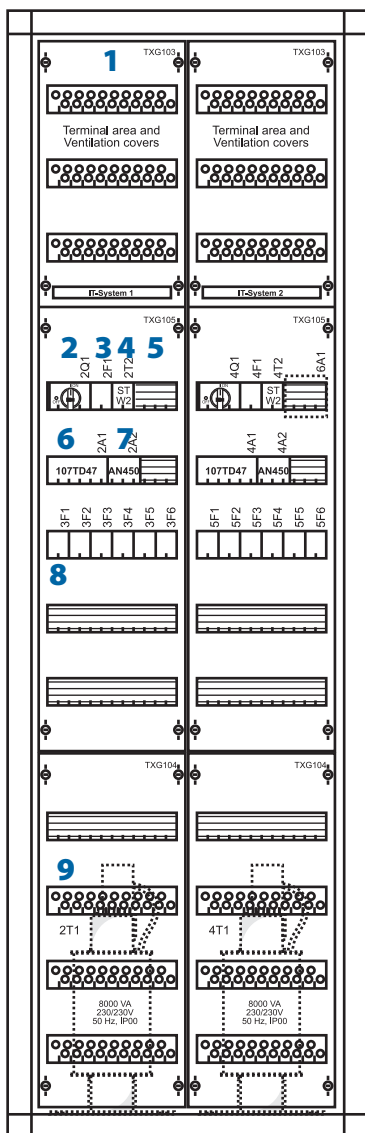


Dimensions:

up to 8 kVA 374 x 1913 x 425 (W x H x D)
 10 kVA 374 x 1913 x 625 (W x H x D)

- 1 - Terminal area and equipotential bonding terminals
- 2 - Primary main isolator switch
- 3 - Circuit breaker for internd power supply
- 4 - Current transformer for load Monitoring
- 5 - Temperature Sensor
- 6 - 107TD47 insulation, load and temperature monitoring
- 7 - Power supply unit for alarm indicator and operator panels MK2430 / MK800
- 8 - 2-pole circuit-breaker subcircuits IT system (max. 18 / IT system)
- 9 - IT system transformer typically 3.15...8 kVA
- 10 - Front door
- 11 - Filter and fan

D-IPS-F



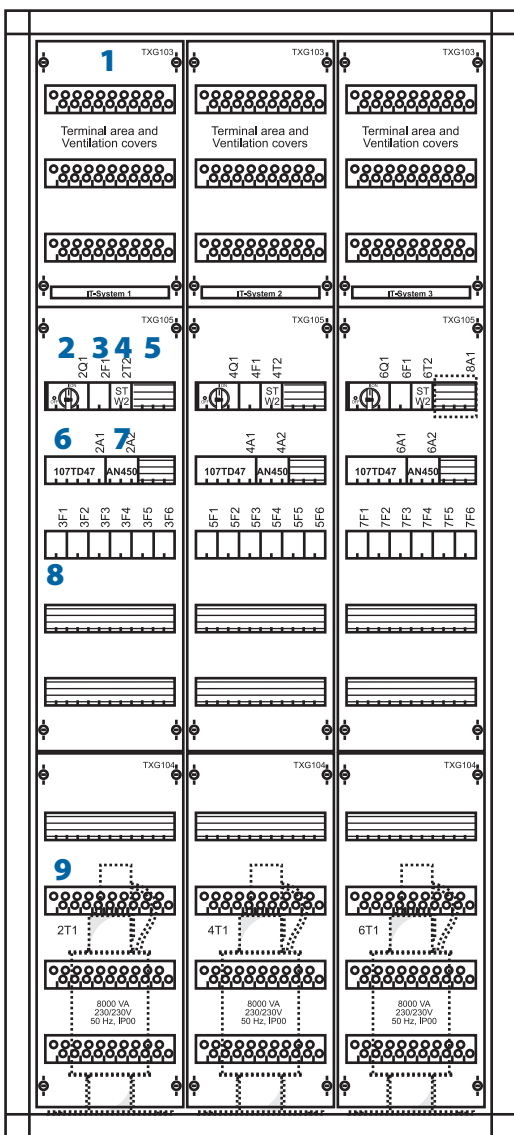
Dimensions:

up to 8 kVA 624 x 1913 x 425 (W x H x D)
 10 kVA 624 x 1913 x 625 (W x H x D)

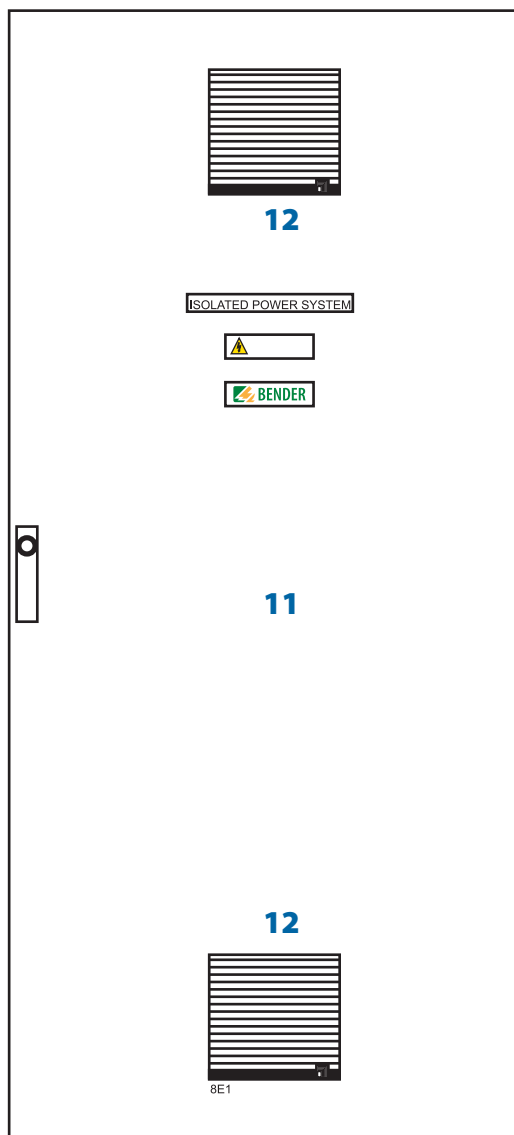
- 1 - Terminal area and equipotential bonding terminals
- 2 - Primary main isolator switch
- 3 - Circuit breaker for internd power supply
- 4 - Current transformer for load Monitoring
- 5 - Temperature Sensor
- 6 - 107TD47 insulation, load and temperature monitoring

- 7 - Power supply unit for alarm indicator and operator panels MK2430 / MK800
- 8 - 2-pole circuit-breaker subcircuits IT system (max. 18 / IT system)
- 9 - IT system transformer typically 3.15...8 kVA
- 10 - Front door
- 11 - Filter and fan

T-IPS-F



10



12

ISOLATED POWER SYSTEM

11

12

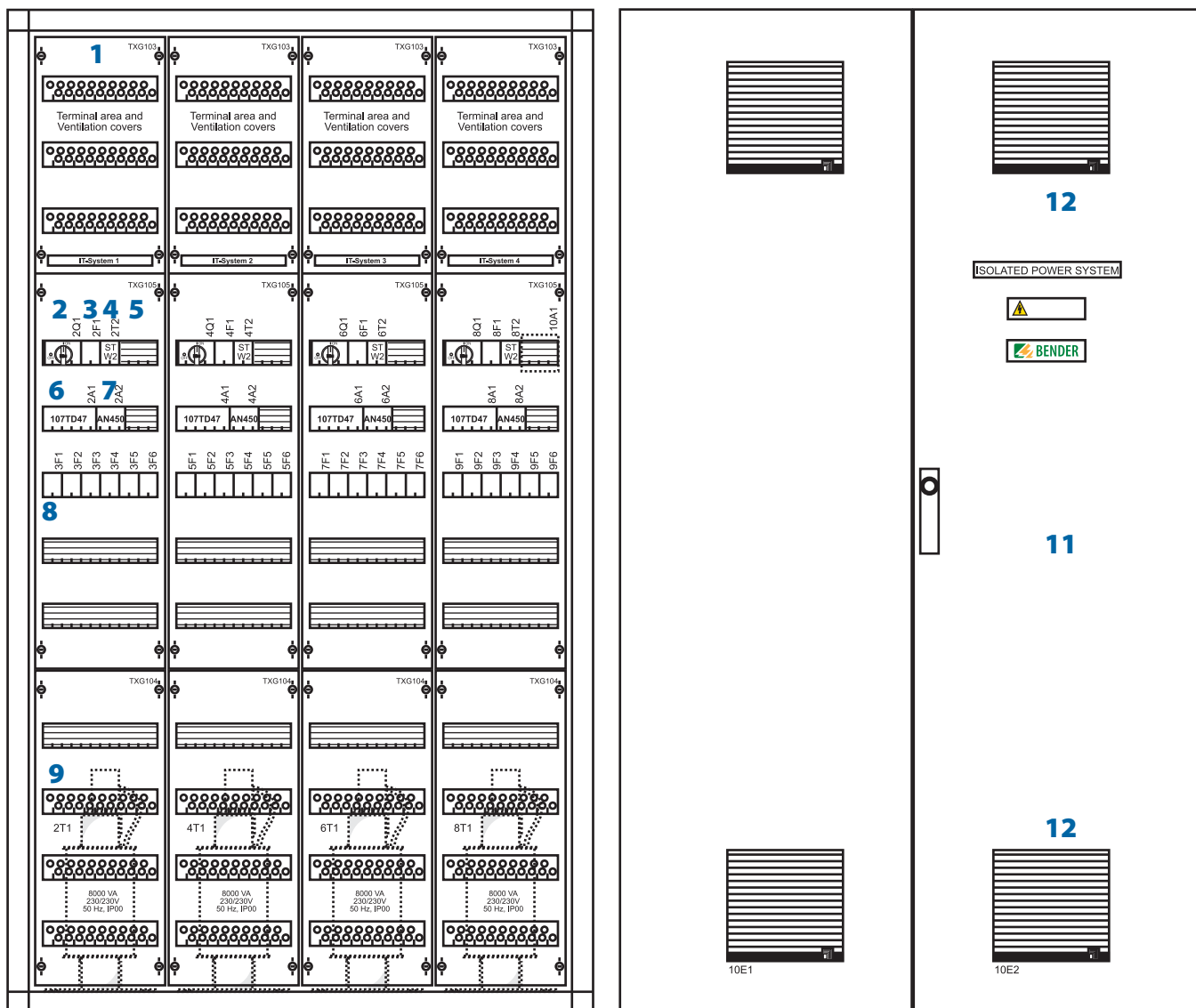
8E1

Dimensions:

up to 8 kVA 874 x 1913 x 425 (W x H x D)
 10 kVA 874 x 1913 x 625 (W x H x D)

- 1 - Terminal area and equipotential bonding terminals
- 2 - Primary main isolator switch
- 3 - Circuit breaker for internd power supply
- 4 - Current transformer for load Monitoring
- 5 - Temperature Sensor
- 6 - 107TD47 insulation, load and temperature monitoring
- 7 - Power supply unit for alarm indicator and operator panels MK2430 / MK800
- 8 - 2-pole circuit-breaker subcircuits IT system (max. 18 / IT system)
- 9 - IT system transformer typically 3.15...8 kVA
- 10 - Front door
- 11 - Filter and fan

F-IPS-F



10

Dimensions:

up to 8 kVA 1124 x 1913 x 425 (W x H x D)
 10 kVA 1124 x 1913 x 625 (W x H x D)

- 1 - Terminal area and equipotential bonding terminals
- 2 - Primary main isolator switch
- 3 - Circuit breaker for internd power supply
- 4 - Current transformer for load Monitoring
- 5 - Temperature Sensor
- 6 - 107TD47 insulation, load and temperature monitoring
- 7 - Power supply unit for alarm indicator and operator panels MK2430 / MK800
- 8 - 2-pole circuit-breaker subcircuits IT system (max. 18 / IT system)
- 9 - IT system transformer typically 3.15...8 kVA
- 10 - Front door
- 11 - Filter and fan