

IMED Secure[®]

IT-power supply
— for Medical Rooms —





Monitoring of IT-power supplies in medical used areas

“ELECTRICAL SYSTEMS FOR MEDICALLY USED AREAS HAVE TO BE PLANNED, MOUNTED AND OPERATED IN SUCH A WAY, THAT THE SAFETY OF THE PATIENTS IS NOT ENDANGERED BY ELECTRICAL INFLUENCES, NEITHER AT MEDICAL INTERVENTIONS, EXAMINATIONS AND TREATMENTS NOR AT THEIR STAY IN THESE AREAS.”

(VDE 0100-710, IEC 60364-7-710)

The standards include both clear requirements to the specific functions of a power supply for medical used rooms and requirements to the monitoring, operation and alarm functions of the system. The requirements are valid for hospitals as well as for doctor's offices, medical research areas and animal hospitals.

Following criteria has to be met:

- **Monitoring of the isolating transformer regarding load, insulation and temperature**
- **Visual and audible signaling devices to display different operating conditions**
- **Safe voltage supply via redundant network with automatic switch in the case of errors**
- **Upstream connected, battery-buffered power supply system to avoid voltage interruptions >0,5 sec in the event of a switch**
- **Selective monitoring of the output circuits regarding overload, short-circuit and insulation faults**

IMED Secure[®] system components

**MANDATORY COMPONENTS ACC. VDE-0100-710,
RESP. IEC 60364-7-710**

TrafoGuard TG-0109

SwitchoverUnit SU-0109

AlarmPanel APO-0109 or API-0111

Visual and audible display of operating conditions

RECOMMENDED ADDITIONAL COMPONENTS

IsoLocator IL-0109

Selective monitoring of the output circuits regarding insulation faults

GateWay GW-0109

Interface to transfer status notifications to the technical center

IMED Secure® system components

IMED Secure® cabinet

The IMED Secure® cabinet contains all described modules, completely wired together and pre-configured. Only the cables for the supply lines and supply circuits have to be connected to the terminals.

Features:

- Switchboard cabinet Cubic AS or Stiebel Eltron
- SwitchoverUnit SU-0109
- TrafoGuard TG-0109
- IsoLocator IL-0109
- GateWay GW-0109
- Isolating transformer IMED_n
- Load contactors for supply lines
- Circuit breakers and load switches for supply lines and output circuits
- Sensors and signaling devices
- AlarmPanel APO or API

Dimensions:

W x H x D 1008 x 2040 x 240 mm (standard)
wiring area on the side



New in the product range:

Slim-line version

W x H x D 579 x 1818 x 220 mm
wiring area on the top



IMED Secure® TrafoGuard TG-0109

This module provides following functions:

Monitoring of the IT transformer regarding temperature, load and insulation. Additionally an insulation fault, occurred in the output circuits, is not selectively detected.

Features:

OLED display

Graphic display of insulation, temperature and load current values

User-friendly menu navigation and programming of pre-alarm and alarm levels, time delays as well as individual alarm text messages

Language selection

Green LED signals normal condition

Yellow LED signals alarm condition

Audible alarm with acknowledgement function

Communication via N-CAN bus with other IMED Secure® components

Programming via web browser possible (only in connection with IMED Secure® GateWay GW-0109)

Communication with the technical center (only in connection with IMED Secure® GateWay GW-0109)

Designated for 35 mm DIN rail mounting



IMED Secure® SwitchoverUnit SU-0109

This module provides following functions:

Automatic switchover unit to ensure a redundant power supply. In total 3 supply lines can be configured. If the main line fails the unit automatically switches to an alternative supply line within less than 0,5 s. Before switching back to the main line the SwitchoverUnit verifies, if it is stable again.

Features:

OLED display

Graphic display of the available supply lines and their statuses

User-friendly menu navigation and programming of thresholds, switch delays as well as individual alarm text messages

Language selection

Green LED signals normal condition (IT-mains status)

Yellow LED signals alarm condition (supply failure)

Audible alarm with acknowledgement function

Communication via N-CAN bus with other IMED Secure® components

Programming via web browser possible (only in connection with IMED Secure® GateWay GW-0109)

Communication with the technical center (only in connection with IMED Secure® GateWay GW-0109)

Designated for 35 mm DIN rail mounting



THE IMED SECURE® COMPLETE SYSTEM WAS SUCCESSFULLY TESTED AND APPROVED FROM TÜV SÜD REGARDING THE COMPLIANCE WITH THE RELEVANT STANDARDS.

OUR PRODUCTION PLANT IS CONTROLLED FROM THE RELEVANT AUTHORITIES.

THEREWITH WE ENSURE THE CONSTANT HIGH QUALITY STANDARD YOU MAY EXPECT FROM A NORATEL PRODUCT.



IMED Secure® IsoLocator IL-0109

This module provides following functions:

Selective-simultaneous monitoring of up to 16 output circuits of an IT power supply.
 Detects leakage currents < 0.5 mA.

Features:

OLED display

Graphic display of insulation faults and naming of the faulty circuit

User-friendly menu navigation and programming of warning levels, thresholds, time delays as well as individual alarm text messages

Language selection

Green LED signalises normal condition

Yellow LED signalises insulation fault

Audible alarm with acknowledgement function

Communication via N-CAN bus with other IMED Secure® components

Up to 16 units can be cascaded (256 channels)

Programming via web browser possible
 (only in connection with IMED Secure® GateWay GW-0109)

Communication with the technical center
 (only in connection with IMED Secure® GateWay GW-0109)

Designated for 35 mm DIN rail mounting



IMED Secure® GateWay GW-0109

This module provides following functions:

Web-based programming unit and interface for the administration of IMED Secure® components.

Status notifications are transferred to the technical center with the aid of the modbus protocol.

Features:

RJ-45 Ethernet interface 1GB/s for the communication via the TCP/IP protocol

Simple user interface with integrated web server

Alarm messages will be sent to the technical center via Modbus interface

E-mail client to send error messages

Integrated data logger to record up to 1000 measuring values

Integrated alarm logger

Password protection with administrator function

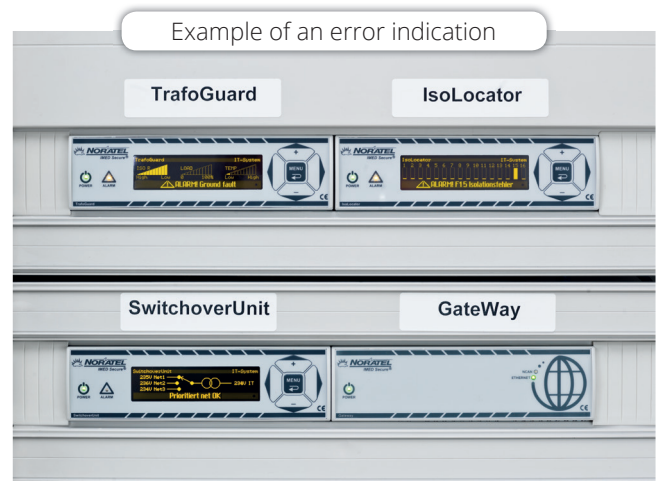
Green LED signalises power „On“, N-CAN-Bus communication and connection to Ethernet

Communication via N-CAN bus with other IMED Secure® components

Designated for 35 mm DIN rail mounting

The IMED Secure® monitoring unit

(example for assembly in a switch cabinet)





IMED Secure® AlarmPanel APO-0109/ API-0111

This module provides following functions:

Display of operating and error conditions of the IT-power supply in the medical used room with local audible and visual alarm.

Features:

OLED display

Graphic display of error messages of the components located in the IT-cabinet

Green LED signalises normal condition

Yellow LED signalises alarm

Audible alarm with acknowledgement function

Communication via N-CAN bus with other IMED Secure® components

2 Versions available:

APO-0109 on-wall version (W x H x D 160 x 90 x 50 mm)

API-0111 in-wall version (W x H x D 154 x 92 x 6 mm), double in-wall socket horizontal needs to be provided on site



IMED Secure® transformer

Toroidal transformer for the voltage supply of the IT-net

Features:

Low-loss Toroidal transformer

Design sizes:

IMED_h 3150 (3,15 kVA)

IMED_h 5000 (5 kVA)

IMED_h 8000 (8 kVA)

IMED_h 10000 (10 kVA)

Extremely low inrush current 1 x I_n

Built-in PT-100 sensor for temperature monitoring

Primary voltages 225-230-235 V AC for the optimum adaptation of the output voltage under load

Secondary voltage 230 V AC on the IT net

Extremely low height enables up to 10 kVA output power in the standard cabinet with 240 mm construction depth

According to IEC61558-2-15 ed.2, which deals with the safety aspects of isolating transformers for the supply of medical locations, the inrush current of the transformer shall not exceed 8 times the peak value of the rated input current (8xI_n).

The inrush current of a Noratel IMED_h transformer is 1xI_n.

The same standards heating test requires 150% of the load for 30 minutes – in order to fulfill this requirement Noratel IMED_h transformers have a rated inrush current at **1.5xI_n**.

Type	Power	I _n	No load loss	Load loss	Total loss
IMED _h 3150 RT	3150 VA	13,7 A	10 W	103 W	113 W
IMED _h 5000 RT	5000 VA	21,7 A	16 W	137 W	153 W
IMED _h 8000 RT	8000 VA	34,7 A	29 W	210 W	239 W
IMED _h 10000 RT	10000 VA	43,5 A	29 W	346 W	375 W

IMED_h transformers are based on Noratels patented low loss design which saves energy and are environmental friendly. Comparing an 8 kVA IMED_h transformer with other common transformers in the market gives a daily loss saving at 1800 W based on 8 hours load and 16 hours no-load cycle.

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