# instella

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**Instella** was established in 1999. Since the beginning we have been manufacturing electrical and tele-technical installations for medical facilities where the highest standards of performance are required.

Our many years' experience allowed us to develop our own monitoring system of medical IT networks. 14 years of experience on the market helped us work out the highest standards of our services. Thanks to this we are able to provide our customers with professionalism and timely delivery of even the most complex services.

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#### MEDICAL IT NETWORK CONTROL SYSTEM

#### Is equipped with:

- Individual location of a grounded circuit
- BMS communication module
- Automatic Reserve Switching System
- Isolation transformer
- Signalling box

#### IT CAN BE USED IN MEDICAL FACILITIES SUCH AS:

- Operating theatres with prep rooms
- Intensive Care Units
- Neonatal Intensive Care Units

#### MEDICAL IT CIRCUIT INDICATES ALARM CONDITIONS REQUIRED BY THE IEC 60360-7-710 NORM:

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- Lack of primary voltage
- Lack of reserved voltage
- The permitted temperature of transformer windings is exceeded
- The isolation transformer is overloaded
- Occurrence of a ground fault with the location of the grounded circuit
- The actual insulation resistance of electrical circuits
- Electrical circuit failure in the medical IT network
- Automatic Reserve Switching System failure
- PE circuit continuity failure
- Measuring relay failure
- Registration of the last 500 alarm events (date, hour and second)
- Monitoring the amount of electrical energy used by IT switchboards
- The system is retrofitted with 12 binary connectors which can be programmed in any configuration and the option to display any alarm conditions on the signalling box

### MMS IT

#### SIGNALLING BOX



#### Product description:

The signaling box allows for a continuous control of the operating parameters supervised by the measuring systems. When the maximum permitted values of the supervised operating parameters are exceeded, the box sets off a visual and acoustic signal. A message on the display indicates which of the operating parameters has been exceeded. The electronic system of the signaling box stores up to 500 last alarm events with the exact date and hour of their occurrence, which helps control the exact sequence of events in case when the value of more than one parameter is exceeded. The data will be stored in the signaling box even after a complete voltage drop out. The device informs the user about the necessity of periodic technical inspections.

#### Quick-access buttons to the operation and control functions:

Settings:	set the time, set the date
Tests:	insulation test
System data:	alarm events (the history of the last 500 alarm events), information, data, time, power

# GROUND FAULT LOCATION MODULE



#### Product description:

The product allows for a continuous location and control of a circuit in which a ground fault has occurred. Information about a ground fault is signalled by a red warning light indicating the number of the grounded circuit and transmitted to the MP measuring module and from there to the signalling box.

# **ISOLATION TRANSFORMER**

#### TRAFO



# It fulfills the requirements of the following norms:

- PN-EN 61558-2-15:2002
- PN-IEC 60354-7-710

#### Product description:

We use high-quality isolation transformers designed to supply medical equipment in hospital rooms falling within the group 2 where the patient's life or health may be at risk in case of even a very slight amount of electrical current passing through the patient's body. The transformers are double insulated and fitted with a screen connected to the insulated 'S' block. The screen is located between the primary and secondary winding. The transformers are equipped with sensors which allow for constant temperature control.

# MEASURING MODULE OF THE IT NETWORK CONDITION MP



#### Product description:

It is directly connected with the insulation monitoring relay (insulation resistance monitoring), voltage monitoring relays (monitoring of power supply parameters), measuring system of the transformer's operating parameters (temperature and transformer load control) as well as ground fault control module. Messages about the condition and damages of the network are transmitted to the signalling boxes. Up to 10 signalling boxes can be connected to one module.

#### Basic technical parameters:

- 1. Load current measurement (norm IEC 60364-7-710.413.1.5: protection signal when the current  $\geq \ln$ ).
- 2. Continuous measurement of transformer's windings' temperature (requirement IEC 60364-7-710.413.1.5: indication of the maximum permitted temperature being exceeded)
- 3. Communication with MR627 control and communication about alarm conditions

# INSULATION MONITORING RELAY

# MR 627



#### Product description:

The product is used to monitor the condition of insulation in ungrounded single-phase and three-phase circuits in AC, DC and AC/DC networks. The insulation monitoring relay MR627 is fitted with a 'test' button which allows to test the adequacy of operation and cooperates with the ground fault location system.

#### Basic technical parameters:

- 1. Monitoring of the insulation condition of IT networks of alternating current, direct current or electrically connected AC/DC circuits
- 2. Flash method of measurement
- 3. Monitoring of the connections in the measuring circuit and auto testing
- 4. Monitoring of the connection in the PE cable
- 5. Internal impedance  $Zi \ge 1M\Omega$  (requirement IEC 61557-8:  $Zi > 100k\Omega$ )
- Alarm threshold settings of insulation resistance 50kΩ...1MΩ; signalling R≤50kΩ (as required by IEC 61557-8)
- 7. Measuring voltage 24V DC (requirement IEC 61557-8: Up<25V DC)
- 8. Measuring current -I<0,2mA (requirement IEC 61557-8: Ip <1mA)

# **CO-OPERATION WITH MASTER SYSTEMS**



The programme can be used in any configuration; it allows for the selection of graphics and description of the monitored IT switchboards.



#### Product description:

The system is suited to co-operate with master systems (e.g. BMS). The MB modbus translator communication module ensures that information about the operating parameters of the circuit and the alarm events are transmitted to the master system.

The communication with the master system is realized independently of other circuits (other producers) linked to BMS. This means that subsequent circuits can work parallelly whilst being connected to one master system.

# The monitoring of the operating parameters of the IT circuit is possible thanks to additional software attached to the system. It allows for the monitoring of the following parameters:

- Lack of primary voltage
- Lack of reserved voltage
- The permitted temperature of the transformer windings is exceeded
- Overload of the isolation transformer
- Occurrence of a ground fault with the location of the grounded circuit
- The actual insulation resistance of electrical circuits
- Electrical circuit failure in the medical IT network
- Automatic Reserve Switching System failure
- PE circuit continuity failure
- Measuring relay failure

# VOLTAGE CONTROL CIRCUIT



#### Product description:

The electrically-operated Automatic Reserved Switching System is supplied by two independent power sources. In case of a drop out or deviation of the primary voltage beyond the threshold values, the system should switch to a back-up power supply within the time t1≤0,5s. Once primary voltage recovers, the system switches back to the basic power supply in a regulated time. Thanks to the application of switch-disconnectors in the main circuits, it can be operated manually at any time.

#### Basic technical parameters:

- 1. Voltage control on the line of primary power supply
- 2. Voltage control on the line of reserve power supply
- 3. Voltage control on the distribution board bars (with the Automatic Reserved Switching System)
- 4. Control of the continuity of main circuits of the contractor coils
- 5. Voltage setting range of 0.7Un < Un < 1.15Un
- 6. Adjustable return time to the primary line
- 7. Co-operation with the signalling box transmission of information about the alarm conditions

# SCHEMES

# IT SWITCHBOARD



# List of components:

1
SZR ATyS M6E Automatic control system 1 pc
MBN216E circuit breaker 8 pc
MBN206E circuit breaker 1 pc
L71M Fuse-switch 2 pc
LS501 Fuse-switch 1 pc
MR627 Insulation monitoring relay 1 pc
IT MP Measuring module of the IT network condition 1 pc
ML Ground fault location module 1 pc
MB Modbus communication module 1 pc
24V DC Power adapter 1 pc
Terminal blocks 1 set

# SCHEMES IT DISTRIBUTION BOARD - MAIN CIRCUITS



# **APPLICATIONS OF OUR PRODUCTS:**

1. Medical University of Warsaw

W1 electrical and tele-technical installations in magnetic resonance rooms

2. Maria Skłodowska-Curie Institute of Oncology in Warsaw

Electrical and tele-technical installations for the simulator's rooms

- American Heart of Poland Sp. z o.o. in Ustroń Adaptation of one floor of one of the wings of the Health Resort building in Ustroń, ul. Sanatoryjna 5, for the Department of Invasive Cardiology

   electrical and tele-technical installations
- Independent Public Central Clinical Hospital in Warsaw, ul. Banacha 1a

Modernization of the reception room - electrical and tele-technical installations

5. Independent Public Central Clinical Hospital in Warsaw

Modernization of the operating theatre - electrical and tele-technical installations

6. Medical University of Warsaw

Electrical and tele-technical installations in laboratory rooms of the Pharmaceutical Department

#### 7. Independent Public Central Clinical Hospital in Warsaw

Electrical and tele-technical installations in operating theatres and recovery rooms, supply of separated network devices and IT switchboards

#### 8. Independent Public Central Clinical Hospital in Warsaw

Electrical and tele-technical installations in internal medicine rooms no. 1,2,3 of the reception room

9. Independent Public Healthcare Centre in Pruszków

Electrical and tele-technical installations for the Gynecology and Obstetrics Department

# 10. Independent Public Healthcare Centre in Ostrołęka

Electrical and tele-technical installations in the operating theatre

11. Independent Public Central Clinical Hospital in Warsaw

Electrical and tele-technical installations for the Intensive Care Unit and recovery room

12. Independent Public Central Clinical Hospital in Warsaw

Electrical and tele-technical installations in the reception room, third stage

#### 4th Military Research Hospital and Polyclinic, Independent Public Healthcare Centre in Wrocław Electrical and tele-technical installations in the

Electrical and tele-technical installations in the operating theatre

#### 14. Maria Skłodowska-Curie Greater Poland Cancer Centre in Poznań

Electrical and tele-technical installations for the angiography room

#### 15. Independent Public Healthcare Centre in Płock

Electrical and tele-technical installations for the operating theatre in the City Hospital, supply of separated network devices and IT switchboards

#### 16. Military Medical Institute in Warsaw

Electrical and tele-technical installations for the Vascular Surgery Clinic, supply of separated network devices and IT switchboards  10th Military Research Hospital and Polyclinic, Independent Public Healthcare Centre in Bydgoszcz

Electrical and tele-technical installation in the operating theatres, supply of separated network devices and IT switchboards

#### 18. Independent Public Central Clinical Hospital

Electrical and tele-technical installations in the operating theatres and central sterile services department

 Investment Management of the Medical University in Łódź

Electrical and tele-technical installations in the operating theatre

#### 20. Provincial Hospital in Słupsk

Supply of separated network devices and IT switchboards

21. Pomeranian Centre of Traumatology in Gdańsk

Supply of separated network devices and IT switchboards

#### 22. Infant Jesus Clinical Hospital in Warsaw

Electrical and tele-technical installations for the Polsat Foundation, supply of separated network devices and IT switchboards

23. Orthopedic Department of the Specialist Centre for Mobility Treatment and Rehabilitation in Konstancin-Jeziorna Supply of separated network devices and IT switchboards

#### 24. Department of Neonatal Pathology in Children's Memorial Health Institute in Warsaw

Electrical and tele-technical installations, supply of separated network devices and IT switchboards

- 25. Department of Pneumonology and Cystic Fibrosis in the Institute of Tuberculosis and Lung Diseases in Rabka-Zdrój, ul. Prof. Jana Rudnika 3B Supply of separated network devices and IT switchboards
- 26. The construction of the operating theatre in the District Hospital in Limanowa, ul. Piłsudskiego 61 Supply of separated network devices and IT switchboards
- 27. Polyclinical Hospital in Kielce,
   ul. Grunwaldzka 45
   Supply of separated network devices and IT switchboards for the operating theatre
- 28. Provincial Polyclinical Hospital in Płock Supply of separated network devices and IT switchboards for the operating theatre
- 29. Extension and modernization of the District Hospital in Chełmża, ul. Szewska 23 Electrical and tele-technical installations
- 30. Reconstruction of the Department of Internal Medicine in the Specialty Hospital in Radom, ul. Tochtermana 1 Supply of seperated network devices and IT switchboards

### CONTACT US

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