

ISOLATED POWER SYSTEMS

Isolated Power Panels
Fault Location Systems
Isolating Transformers
Changeover Module
Operating Theatre Control Panels



**CATALOG
2019**

Our Brands



Aktif trade mark for Measuring, Protection, Automatic Meter Reading, Billing and Energy Management Software.

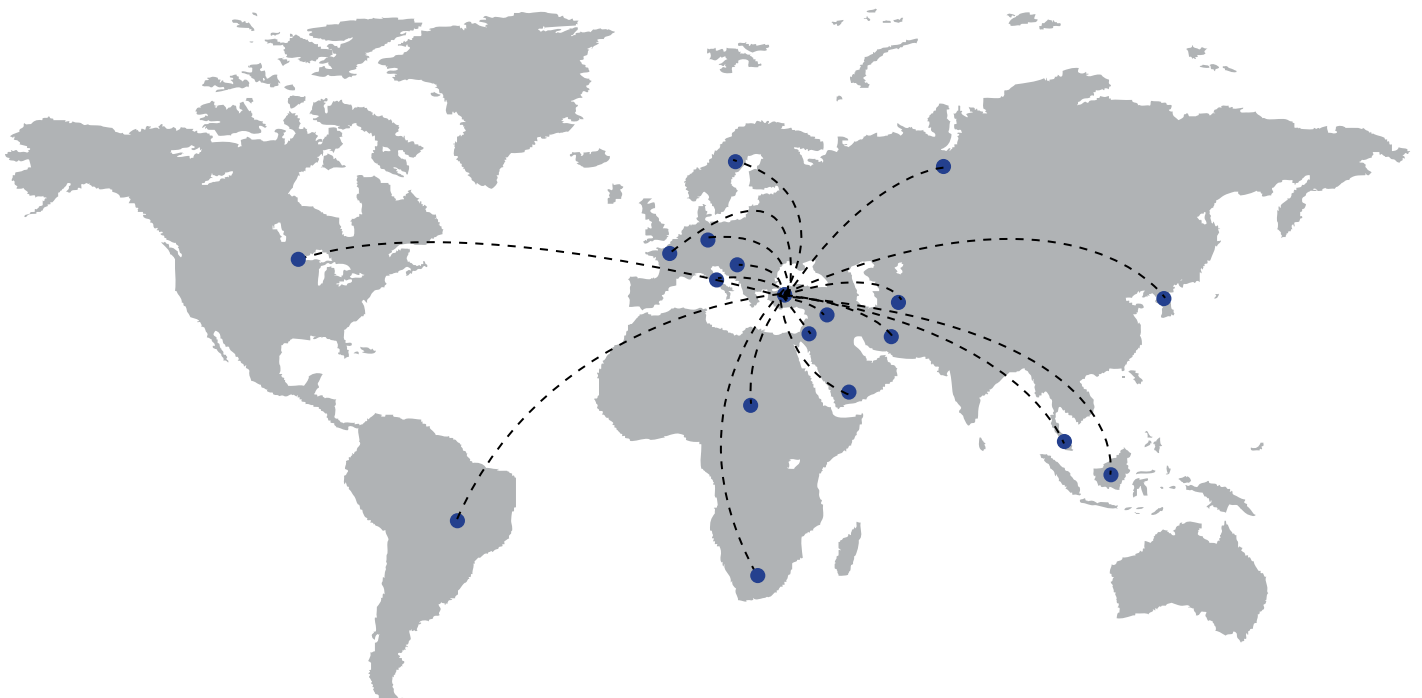


Aktif trade mark for Measuring, Protection, Control and Power Quality products with high quality, long life and environmentally sensitive.



Aktif trademark for Grounding Resistors, Load Banks, Filter Resistors, Motor Control & Braking resistors with high durability and state-of-art technology.

Where we are?



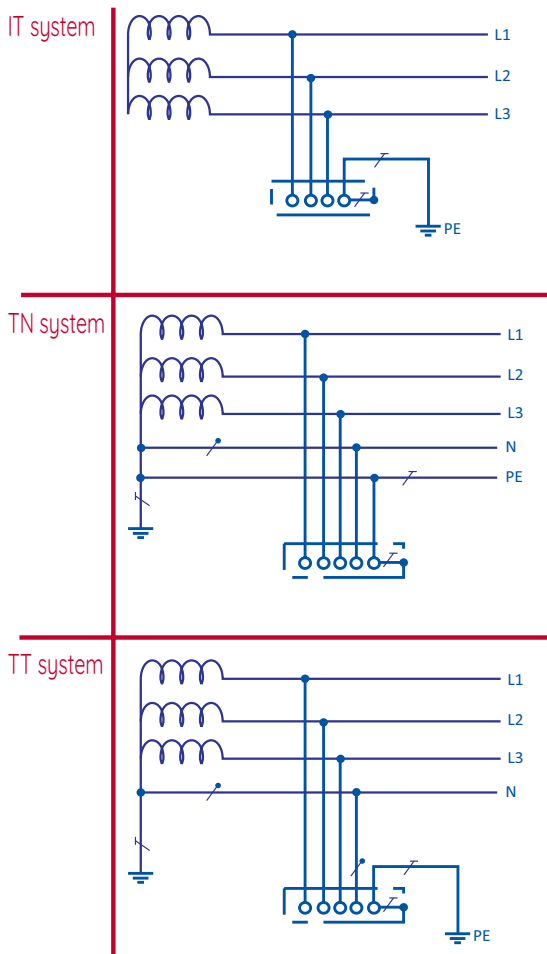
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Types of Earthing System

Types of Earthing System



Power in medical locations is evaluated in the framework of electrical safety. Basic conditions for electrical safety are independent from medical professional or private life locations. When it viewed deeper; it is seen that additional safety precautions in the places where they are used medically should be taken. Because, patient is out of conscious and reaction conditions; bound to medical equipments continuously and the most important thing is that equipments are the equipments keeping the patients alive and rescuing his live. Due to this reason; IT systems are used in group 2 rooms which are the medical locations, electrical energy is critical.

The designations for the various system result from the relationship of the power system to earth and relationship of exposed conductive parts of electrical installation to earth. The meaning of the letters is follow:

First letter:

Relationship of the power system to earth:

T = Direct connection of one point to earth,

I = Either all active parts isolated from earth or one point connected to earth via an impedance

Second letter:

Relationship of the exposed conductive parts of the electrical installation to earth:

T = Exposed conductive parts are directly earthed, independently of any earthing of a point of the power supply system,

N = Exposed conductive parts are directly connected to the earth electrode of the power supply system

The remaining letters:

Description to the arrangement of neutral conductor and the protective conductor:

C = Neutral conductor and protective functions combined in a single (PEN) conductor

S = Conductor separated from the neutral or the earthed conductor

In IT systems all active parts are insulated from earth or one point is connected to earth through sufficient high impedance. The exposed conductive parts of electrical installation are earthed either; individually or in groups or collectively connected to the earthing point of the system.



Isolated Power Systems

Isolated Power Systems



Operating Room



Premature Baby Room



Intensive Care Unit

Isolated power systems are used in group 2 rooms in medical locations, and they consist of auxiliary devices and test combinations such as isolated power panels and insulation transformer, isolation monitoring device, remote alarm panels.

When isolation fault occurs with isolated power systems, it is ensured not to cause the system to energy interruption by opening protection equipments, to continue medical electrical equipments to their functions, not to decrease fault currents to non-critical values and not to live problem during operating by preventing energy interruption.

Isolation level is monitored continuously in isolated power systems and converts the fault to alarm signal by detecting at adjustable level provided that it is not less than 50 k Ω . The alarm in question takes part on control panels in operating theatres and on a section where nurse or technical personnel can easily hear and then control and intervene it in other rooms by monitoring over two remote alarm panels. Alarm panels used for the purpose of remote monitoring take part in room of personnel in duty or in technical service room.

Transformer temperature and load current information out of isolation level is continuously monitored and it is ensured to detect immediately and to give alarm when it gets out of nominal values. Interruption does not occur in power supply. System continuity is ensured by preventing a second insulation fault that may occur in the system.

The following medical locations that carrying vital importance in hospitals and where medical devices are directly connected to patients are defined as group 2 room in accordance with IEC 60364-7-710 standard and isolated power system is used in these rooms.

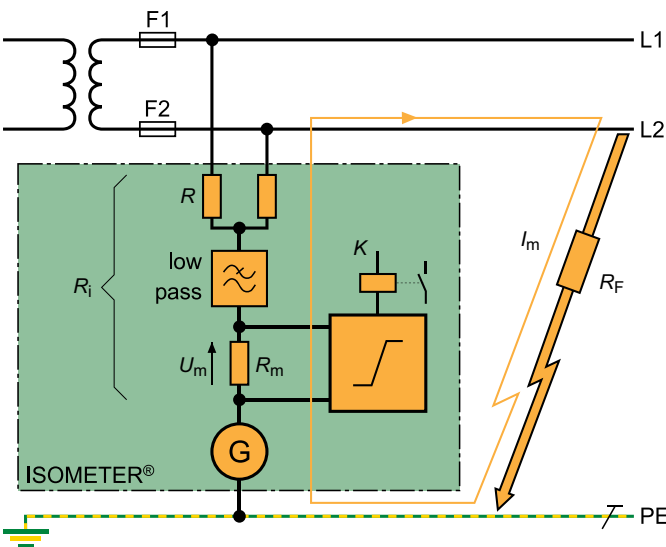
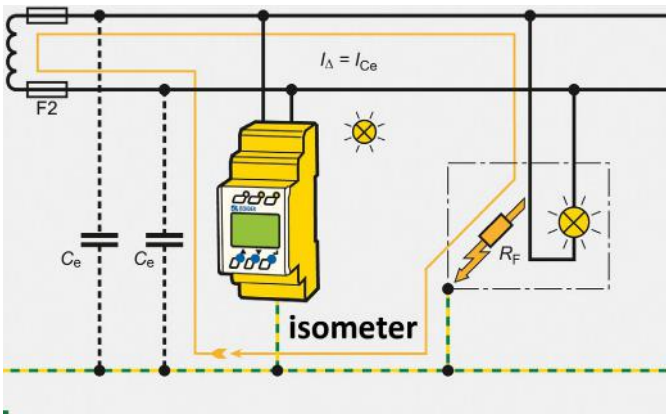
- Operating theatres
- Intensive care rooms
- Operating preparation rooms
- Operating recovery rooms
- Anesthetic rooms
- Heart catheterization rooms
- Angiographic examination rooms
- Premature baby rooms

Standards



Standards contain basic information necessary for planning and establishment of electrical facilities in hospitals and places used as medically. Many countries conform to national and international standards in isolated power systems. Some of them are as follows:

International	IEC 60364-7-710
Austria	ÖVE/ÖNORM E 8007
Belgium	T 013
Brazil	NBR 13543
China	GB16895/GB50333-2002
Finland	SFS 6000
France	NFC 15-211
Germany	DIN VDE 0100-710
Hungary	MSZ 2040
Ireland	ETCI 10.1
Italy	CEI 64-4
Netherlands	NEN 3134
Norway	64/747/FDIS
Russia	GOST P 50571
Slovakia	STN 33 2140
South-Africa	SABS 051
Spain	UNEE 2 0-615-80
Turkey	TS IEC 60364-7-710
UK	BS 7671 GN7/HTM2007



Advantages & Benefits

- Affecting of personnel and patient from electrical shock is prevented.
- Isolation fault does not cause power interruption.
- Fault current in electrical system is decreased to levels that are not critic.
- Continuity of power for medical locations is provided.
- Electrical fault monitoring is taken under guarantee.
- Fire risk caused by the faulty current is prevented.
- It is ensured to protect high cost medical equipments against electrical faults.
- Examination information obtained at a long of time vanishes as a result of electrical interruption.
- Additional faulty currents are gathered and they are prevented to reach critic values.
- Suspension for operating is prevented.

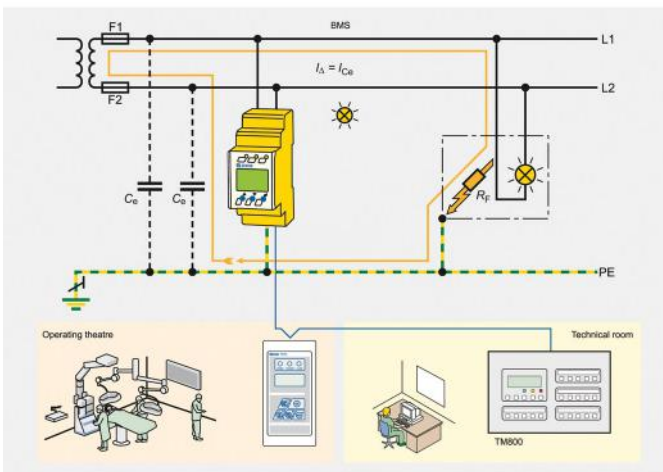
Isolated Power Panels



These panels are isolated power system having applications of IT systems in medical locations realizes supply of each group 2 room in compliance with IEC 60364-7-710 standard. Isolated power panel which are equipped with the most important equipment of the system such as isolation transformers and isolation monitoring device provides supply of electric equipments in group 2 rooms, wall plugs of devices supplying life support and of critical loads, operating control panel, operation lamp and similar lamps.

All the aforementioned loads are protected against short circuit current by using double-pole fuses in accordance with IT system. Although isolated power panels have their own cooling system, it removes warm-up problem thanks to effective air circulation.

Technical Specifications	
Brand name	AKTİF
Type	IGP 0710/1P-XX
Standards	IEC 60364-7-710: 2002-11
Rated power of outgoing	3.15 / 4 / 5 / 6.3 / 8 /10 kVA
Power supply unit	A single phase line
Rated voltage	230 Vac
Rated frequency	50 / 60 Hz
Rated insulation level	3 kV / 1 min
Input protection	gL fuse
Secondary output voltage	230 Vac
Output protection	2-pole fuses
Monitoring	isolation resistance with LCD display
Alarm output	isolation fault, excessive load, excessive temperature
Functional Test	advanced isolation fault
Leakage current to enclosure	< 0,5 mA
Response range	50 - 500 kΩ
Isolation fault detection time	< 1 s
Operating temperature	-5.....+50 °C
Storage temperature	-25.....+60 °C
Panel sizes	410x430x1750 mm
Distribution outlet	6-12-18 pieces as standard
Cooling system	With fan
Protection class	IP 31
Color	RAL 7035 / RAL 9003

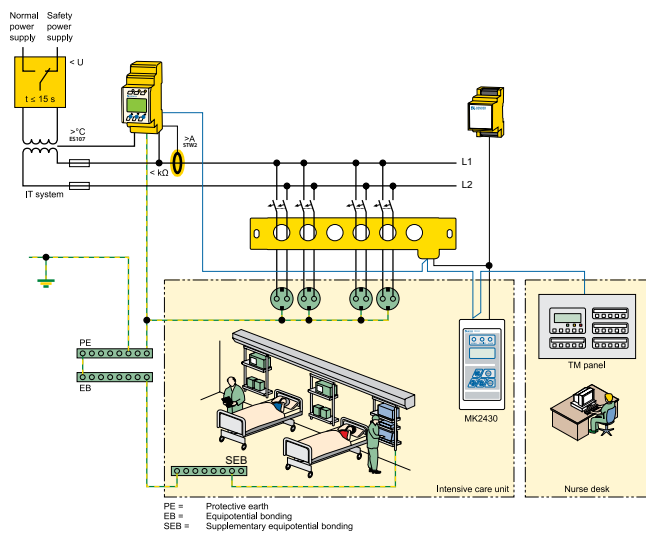


Fault Location Systems



Double line isolated power panels with isolation fault location unit are the most comprehensive isolated power panels formed from equipments providing determination of line based speed of any isolation failure in group 2 rooms. Test current generator, isolation failure evaluator and these panels equipped with toroidal current transformers determine from where the failure is sourced in a short time and provide realizing the intervention with minimum time loss via rapid communication and examination capacities of isolation transformers, isolation monitoring device, load current transformer and switchover module. The process is completed by determining the failure as a result of evaluation of current signal formed by test current generator and size current transformers provided that it forms a response signal after determining a failure by isolation monitoring device and by switchover it to remote monitoring devices.

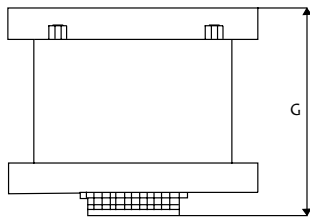
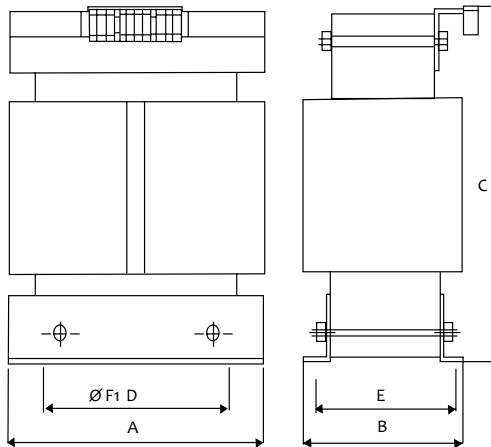
Technical Specifications	
Brand name	AKTİF
Type	IGTP 0710/1P-XX
Standards	TS HD 60364-7-710
Rated power of outgoing	3.15 / 4 / 5 / 6.3 / 8 / 10 kVA
Power supply unit	Double single phase lines
Rated voltage line 1 / line 2	230 Vac / 230 Vac
Rated frequency	50 / 60 Hz
Rated insulation level	3 kV / 1 min
Input protection	gL fuse
Secondary output voltage	230 Vac
Output protection	2 pole fuses
Monitoring	isolation resistance with LCD display
Alarm output	isolation fault location, excessive load and temperature, switchover failure
Functional Test	advanced isolation fault and switchover test
Leakage current to enclosure	< 0,5 mA
Response range	50 - 500 kΩ
Isolation fault detection time	< 1 s
Switchover time	50 ms
Operating temperature	5.....+50 °C
Storage temperature	25.....+60 °C
Panel sizes	410x430x1750 mm
Distribution outlet	6-12-18 pieces as standard
Cooling system	With fan
Protection class	IP 31
Color	RAL 7035 / RAL 9003



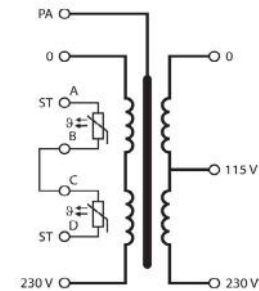
Isolating Transformers



IT 0710



Dimension Diagram IT 0710



Wiring Diagram IT 0710

Asset medical isolating transformers are designed compatible with IEC 60364-7-710 standards for power supply of single phase IT systems and produced in accordance with EN 61558-2-15 standards. Constant angles are isolated from transformer core thanks to a static display placed among primary and secondary coils. Asset medical isolating transformers having galvanic isolated coils provide possibility of monitoring of temperature thanks to PTC thermistors placed into coils. Asset medical isolating transformers designed at 6 different power value between 3,15...10 kVA have high excessive load capacities.

General Features	
Brand name	ASSET
Type	IT 0710
Power range	3.15 / 4 / 5 / 6.3 / 8 / 10 kVA
Frequency	50 / 60 Hz
Primary Voltage	230 Vac
Secondary Voltage	230 Vac
Inrush current (Ie)	< 12.I _n
Leake current	< 0,5 mA
No-load input current (I _o)	< 3%
No-load output current (U _o)	< 236 V
Short-circuit voltage (U _k)	< 3%
Max ambient temp	40 C
Protection class	IP 00
Isolation class	40 / B
Cooling	Air cooling
Standarts	TS HD 603647-710, TS EN 61558-2-15

Size and Weights									
TYPE	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)	G(mm)	H(KG)	Power
IT 0710-3,15	265	195	325	200	155	8,5x17	220	51	3,15 kVA
IT 0710-4	280	195	370	240	155	8,5x17	220	57	4 kVA
IT 0710-5	280	205	325	240	165	8,5x17	230	61	5 kVA
IT 0710-6,3	280	220	325	240	180	8,5x17	245	65	6,3 kVA
IT 0710-8	280	235	325	240	195	8,5x17	260	74	8 kVA
IT 0710-10	320	235	420	270	195	8,5x17	280	100	10 kVA

Changeover Module



Transfer relays are used for transferring power source between two independent sources in order to provide continuous energy flow for critical loads.

Generally, independent sources are uninterruptable power source (UPS) and mains power. In normal operation, critical loads are supplied from the mains power as the primary. When there is a problem with the primary source like low/high voltage or blackout, transfer relays detect the failure and automatically transfer the source to a secondary supply.

Automatic transfer relays are often used in supplying medical loads in hospitals especially the equipment that are used in operating theatres and intensive care rooms but could be used in any place where constant power is vital.

Electrical Specifications	
Brand name	ASSET
Auxiliary Voltage	220 VAC ± %25
Mechanical Specifications	
Height	90 mm
Width	152 mm
Depth	60 mm
Weight	420 gr
Mechanical Protection Class	IP 20
Environmental Conditions	
Relative Humidity	% 20-90 Condensing
Operating Altitude	2000m Maximum
Operating Temperature	0 °C / + 45 °C
Standarts	
EN 60947-6-1	
IEC 60364-7-710	

Advantages

- Switching between independent sources
- LCD Screen
- Selected source priority
- Automatically and manually transfer
- Fast diagnostic solution by microprocessor control
- Easy maintenance and installation facility
- High efficiency
- RS 485 Serial Communication port



Operating Theatre Control
Panels

Operating Theatre Control Panels

Asset OCP Series Operating Control Panels are contemporary and reliable devices, designed for maintaining the most comfortable environment possible both for patient and surgery team and the most suitable working conditions required in the surgery room.

All electrical controls can be done manually via Asset OCP Series Operating Room Control Panel's screen. Another feature is performing all data exchange required for automation, and solely undertake all automation tasks even in non-central automated environments.

A panel manufactured according to the isolated power system alarm fully complies with the technical specifications of the Ministry of Health. Panels allow operation of the four different armature groups separately such as; turning on/off and controlling the operation lamp, Negatoscope control, 4-channel music broadcast channel, Hands-Free phone, SIP-Phone, medical gas alarm indicator, temperature, humidity, hepa filter pollution, differential room pressure indicator and hour-chronometer features as integrated in the panel.



OCP-9



OCP-11



OCP-10



OCP-21

OCP-9 Operating Theatre Control Panel

OCP-9 provides many advantages to a user with its “ Smart Care ” supervision feature with 7” resistive touch screen which is easy to clean.

All electrical controls can be manually performed on the 7” touch screen, desired values can be displayed as integrated into air conditioning automation. Communication with high-quality audio provided by the digital audio processor with the hands-free phone through the same touch-screen is also available.



OCP-9

OCP-9 Technical Specifications

- DIN 4301 stainless steel front panel
- 7” Resistive touch screen
- Smart Care warning system
- General lightning control
- Operation lamp control
- Negatoscope control
- UV lamp control
- Busy lamp control
- Time and Chronometer (NTP Time Synchronisation)
- Four channel music broadcasting system
- 3 Watt powered audio amplifier
- External speaker support
- Medical gas alarm integrated to panel
- Temperature, humidity, hepa filter pollution, diffirential room pressure indicator
- Hands-Free analogue telephone
- AGS (Anaesthetic Gas Discharge) button
- Operating status: on / off information
- Event recording and system status
- Lightning dimmer control
- Temperature and humidity information outputs
- Electrical heater (automatic) control
- Embedded assembly
- Front panel dimensions: 600mm x 410mm
- Assembly dimensions: 585mm x 385mm x 110mm

OCP-10 Operating Theatre Control Panel

All electrical controls required in the operating room can be manually performed by the OCP-10 Operating Theatre Control Panel having 21.5” capacitive touch screen, IP65 protection standard. OCP-10 includes 4 latching relays to provide continuity of lighting. In addition, LINUX based Operating Theatre Control Panel is able to exchange data via ModBus to the building automation systems.



OCP-10

OCP-10 Technical Specifications

- 21.5” Capacitive touch screen
- DIN 4301 stainless steel front panel
- LINUX based operating system
- RS-485, Modbus RTU master/slave communication interfaces
- Scada integration
- Smart Care warning system
- General lightning control
- Time and chronometer (NTP Time Synchronisation)
- Operation light control
- Negatoscope control
- UV control
- Medical gas alarm integrated to panel
- Four channel music broadcasting system
- External speaker support
- 12 Watt powered hi-fi audio amplifier
- 10W internal speaker
- Hands-Free analogue telephone
- Telephone book feature
- Electrical interruption protection with latching in-rush relay
- Temperature, humidity, hepa filter pollution, room differential pressure indicator
- AGS (Anaesthetic Gas Discharge) button
- Operating status: on / off information
- Event recording and system status
- Lightning dimmer control
- Temperature and humidity information outputs
- Electrical heater (automatic) control
- Embedded assembly
- Front panel dimensions: 600mm x 410mm
- Assembly dimensions: 580mm x 380mm x 110mm

OCP-11 Operating Theatre Control Panel

All electrical controls required in the operating room can be manually performed by the OCP-11 Operating Theatre Control Panel having 21.5" capacitive touch screens, IP65 protection standard.

In addition, LINUX based Operating Theatre Control Panel is able to exchange data via Modbus to the building automation systems. Besides there are some additional features like SCADA Integration, SIP-Phone in OCP-11.

OCP-11 allows the user to start operation with pre-configured customizable input profiles. Enhances the comfort of the operation by new designed hi-fi amplifier with more vibrant, high-quality and louder voice level.

OCP-11 minimizes accidents in the field with analog input/output protections.



OCP-11

OCP-11 Technical Specifications

- 21.5" Capacitive touch screen
- LINUX based operating system
- RS-485, Modbus RTU master/slave communication interfaces
- Scada Integration
- Smart Care warning system
- Customizable login profiles
- General lightning control
- Time and chronometer (Central hour integration)
- Operation light control
- Negastroscope control
- UV control
- Medical gas alarm indicator
- Four channel music broadcasting system
- MP3 feature
- Hands-Free VoIP phone
- Telephone book feature
- 15 Watt powered hi-fi audio amplifier
- 13W internal speaker
- External 8 ohm speaker support
- Electrical interruption protection with latching in-rush relay
- Temperature, humidity, hepa filter pollution, differential room pressure indicator
- AGS (Anaesthetic Gas Discharge) button
- Operation on / off information
- Event recording and system status
- Lightning dimmer control
- Temperature and humidity information outputs
- Electrical heater (automatic) control
- Easy software update with USB key
- Embedded assembly
- Front panel dimensions: 660mm x 460mm
- Assembly dimensions: 640mm x 435mm x 125mm

OCP-21 Operating Theatre Control Panel

OCP-21 Operating Control Panel is a contemporary and reliable device, designed for maintaining the most comfortable environment possible both for patient and the surgery team and most suitable working conditions required in the surgery room.

All electrical controls required in the operating room can be manually performed by the OCP-21 Operating Theatre Control Panel having 21.5" capacitive touch screen with IP65 protection standard. In addition, LINUX based Operating Theatre Control Panel is able to exchange data via ModBus and TCP/IP to the building automation systems. Besides SCADA Integration, Internet access, Gesture sensor, PDF creation, IP phone, Ethernet, MP3 and USB connection features of the panel, the camera allows online video and voice streaming over the web.

Customizable inputs, 6-channel music broadcast input, external speaker support, voice command system, MP3 player, increased voice output to improve the comfort of the operation.

It offers the ability to communicate via VoIP and video conferencing over Skype platform.

While maintaining the safety of the device with analog input / output protection, it provides remote online live support with TeamViewer in case of any failure which may occur.



OCP-21

OCP-21 Technical Specifications

- LINUX based operating system
- DIN 4301 stainless steel front panel
- 21.5 inch capacitive touch screen
- RS-485, Modbus RTU master/slave, TCP/IP communication interfaces, external RS232 and CanBus support
- Voice control
- Scada and PACS Integration
- HBYS/PIMS over the web
- Internet access
- Hands-FreeVoIP phone, video conference over VoIP
- Hands-Free analog phone
- Telephone book feature
- Camera, MP3, USB features
- PDF viewer
- Customizable user profiles with macro function buttons
- 3 line general lighting control
- Power failure protection by latching in-rush relay
- Control of Operation, UV, Busy, Negatoscope light
- Lighting and negatoscope intensity controls between 0% to 100%
- 6 channel music broadcast channel selection
- 15 Watt power amplifier, music volume adjustment
- 13 Watt internal speaker
- External speaker support
- Digital clock and chronometer (ascending and descending counter), central clock integration
- Analog input/output protections
- 10 channel medical gas alarm panel
- 0-10V automation outputs for temperature and humidity levels
- Integration to different automation systems via customizable voltage / current options for analog inputs
- Temperature, humidity, differential room pressure, hepa filter pollution monitoring and setting, audible and minous warning when set value is exceeded
- Voice notification buttons to disable undesirable alarm notifications
- Operating status: on /off information, operating room busy lamp sign
- Damper open/close manual control, flow control
- AGS (Anaesthetic Gas Discharge) button
- Sends information to automation by 8 analog 0-10V outputs and 8 digital input/outputs
- Event recording and system status
- Embedded assembly
- Front panel dimensions: 660mm x 460mm
- Assembly dimensions: 640mm x 435mm x 125mm

OCP Series Comparison Chart

Physical	MODEL			
	OCP - 9	OCP - 10	OCP - 11	OCP - 21
7 inch resistive touch screen	✓	-	-	-
21.5 inch capacitive touch screen	-	✓	✓	✓
DIN 4301 stainless steel front panel	✓	✓	✓	✓
Monitoring & Control				
General lighting control	✓	✓	✓	✓
Operation, Negatoscope, UV, Busy sign control	✓	✓	✓	✓
Dimmer control	✓	✓	✓	✓
Operating on / off information	✓	✓	✓	✓
Electrical heater (automatic) control	✓	✓	✓	✓
Temperature, humidity, hepa filter pollution, room differential pressure indicator	✓	✓	✓	✓
AGSS (Anesthetic Gas Scavenging Systems)	✓	✓	✓	✓
Electrical interruption protection with latching in-rush relay	-	✓	✓	✓
Analog input / output protections	-	-	✓	✓
Voice Recognition & Control	-	-	-	✓
Customizable login profiles for surgery, cleaning and service	-	-	6 profiles	6 profiles
Communication				
Ethernet connections	1	1	2	2
Modbus-TCP/IP Communication	-	-	-	✓
Scada Integration with Modbus RTU	✓	✓	✓	✓
Gas alarm panel communication with Modbus-RTU	✓	✓	✓	✓
Audio				
Audio Channels	4	4	4	6
Internal speaker	✓	✓	✓	✓
Audio amplifier for external speakers	3W	12W	15W	15W
USB MP3 Player	-	-	✓	✓
Phone				
Hands-Free Analogue telephone	✓	✓	-	✓
Hands-Free VoIP phone	-	-	✓	✓
Telephone book feature	-	✓	✓	✓
Video Conference over VoIP	-	-	-	✓
Skype	-	-	-	✓
Multimedia				
Internet access with Browser	-	-	-	✓
PDF viewer	-	-	-	✓
Synchronization				
PACS Integration	-	-	-	✓
NTP Clock Synchronization	✓	✓	✓	✓
Support				
Event recording and system status	✓	✓	✓	✓
Teamviewer Support (Remote Support)	-	-	-	✓
Easy USB Software Upgrade	-	-	✓	✓

Watt White!

White...
Color of the beginning...
White, color of the purity, honesty and clarity...

Color of the stability and continuity, trust and quality...

Since 2010, we decided to apply white color which symbolizes all of these values to all of our products.

Switchgears and Substations

- Metal Enclosed Switchgears
- Metal Clad Switchgears
- Mobile Substations
- E-House / Compact Substations

Power Resistors

- Grounding Resistors
- Load Banks
- Filter Resistors
- Motor Control & Braking Resistors

Power Quality & Power Factor Correction

- LV Capacitor & Filter Banks
- MV Capacitor & Filter Banks
- Capacitors & Harmonic Filter Reactors
- Thyristor Switches

Medical Power & Control Panels

- Operating Room Control Panels
- Isolated Power Panel
- Isolation Transformers
- Automatic Transfer Relays

Smart Grid

- Energy Management Systems
- Metering & Submetering
- Power Analyzers & Quality Recorders
- Protection Devices

Traction Substation

- Traction Rectifiers
- DC Switchgears
- DC Disconnectors
- Traction Transformers

Renewable Energy & DC Conversion

- High Power Rectifiers
- Solar Inverters
- Energy Storage Systems
- EV Charging Stations



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