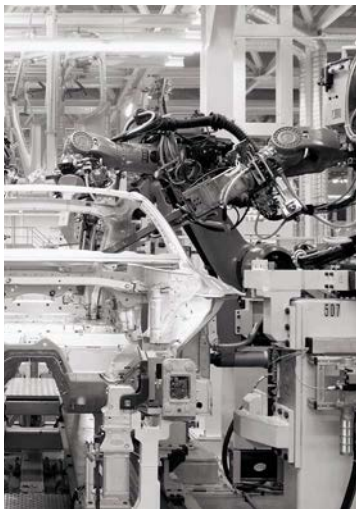



Timeline cards

1984 — **abmicro is created**
The first product is already an innovation: **Thermopulse 1000**, a high-class temperature controller for color photography

1986
Expansion of the R&D department, expanding the offer, including **EACT24 subscriber telephone** exchanges and the range of industrial automation products

1988 — **MULTIMATIC** is created – a family of modular PLC controllers developed and manufactured by abmicro

1991 — abmicro becomes an authorized distributor of **GE Power Controls** electrical equipment in Poland

1992 — abmicro becomes an authorized distributor of **GE Fanuc** industrial controllers – a novelty on the Polish automation market

1995 — abmicro AB-MICRO becomes an authorized distributor of **Intellution Inc.** SCADA software for the visualization of industrial processes

1996 — **FIX 6.15PL** is created – the first Polish version of SCADA software – entirely localized by abmicro

1997 — abmicro introduces large-format graphic and LED walls, now known under the **BARCO** brand

1998 — Automaticon Gold Medal and MPT Gold Medal for **FIX Dynamics** for Windows NT

1999 — abmicro becomes an authorized distributor of **HIRSCHMANN** network equipment

2001 — inVentia A sister company **Inventia** is created (production + R&D) **Telemetry solutions** appear in AB-MICRO's offer! In the same year, **iFIX 2.6 PL** is created – the Polish version of the new generation of object-oriented SCADA iFIX software, entirely localized by abmicro

2002 — Automaticon Gold Medal for the **iHistorian** archiver

2003 — abmicro becomes an authorized distributor of **EPLAN** – specialized systems for creating electrical diagrams and designing automation systems

2004 — abmicro honored with the **Control Engineering Editors' Choice Award** for the fourth time

2005 — Automaticon Gold Medal for the **RTIP** interactive visualization, analytical and reporting portal

2006 — GRAND PRIX of the WOD-KAN fair for **MT-703** – a battery-powered, energy-saving telemetry module with GPRS transmission

2009 — abmicro obtains the title of Business Gazelle

2013 — abmicro becomes a distributor of **PROGEA** SCADA software

2014 — abmicro **Jubilee** 30 years of knowledge and experience that pay off

2014 — abmicro AB-MICRO introduces **IntelliSAW** switchgear failure prevention systems

2015 — abmicro becomes a distributor of **SALICRU** transformer-free voltage converters

2017 — abmicro implements solutions based on industrial robots

2018 — abmicro becomes the manufacturer of reliable **Automatic Power Switch** control systems

2019 — **35th Jubilee**

2019 — abmicro becomes an authorized distributor of **ABB** products and services *(acquisition of GE Industrial Solutions)*

2020 — **Changing the location of the company's headquarter in Warsaw and the office in Katowice**

2021 — abmicro receives the **FORBES DIAMENT 2021** title

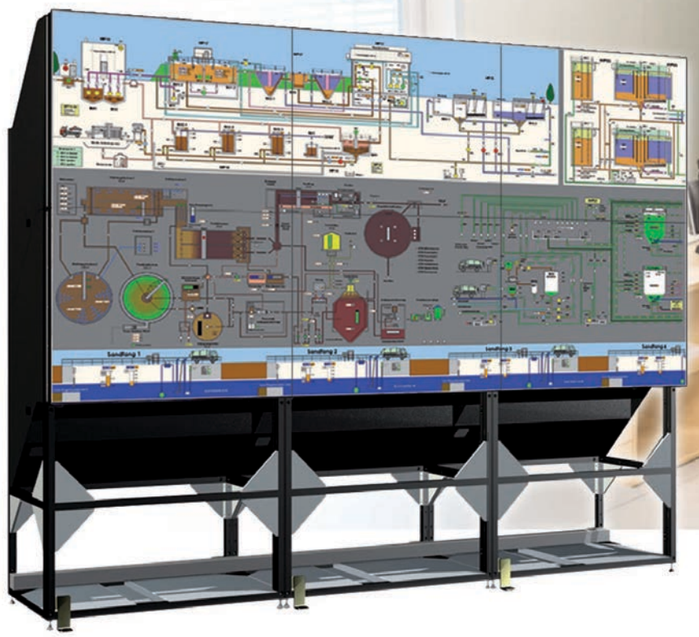
We look to the future with curiosity!

Headquarters of AB-MICRO & INVENTIA, Warsaw Platan Park II, Poleczki 23 Str., entrance F

Comprehensive industrial automation solutions

» Large-format visualization systems – BARCO 6
» Engineering CAE/CAD software – EPLAN 8
» Industrial HMI/SCADA software – PROGEA 10
» Energy distribution and industrial solutions – ABB 12
» Exertherm predictive maintenance – QHI 14
» Integration – Implementations – Applications 16
» APS Reliable control systems 18

Large-format visualization systems



BARCO is a leading global company that designs and constantly develops large-format visualization products. They cover the entire spectrum of available technologies adapted to use in various professional markets: industry, medicine, entertainment, and advertising. Operators use Large-format visualization products and the innovative integrated workstation system in management centres, energy plants, police, military, maintenance services, medical services, government agencies, television studios, telecommunications, entertainment, and advertising. AB-Micro has been a distributor of BARCO large-format visualization products for over 25 years. We offer our customers the highest quality large-format imaging systems used to optimize their tasks and missions.

Our offer of BARCO visualization systems includes:

- Modular DLP graphic walls of 50”, 70”, and 80” diagonals, with LED or laser RGB lighting system
- Graphic walls made of LCD panels with the unique UniSee technology
- Graphic walls in LED technology
- Laser DLP projectors of very high brightness, up to 75,000 ANSI lumens
- Innovative system of integrated OpSpace workstations
- Advanced graphics controllers
- ClickShare wireless presentation system

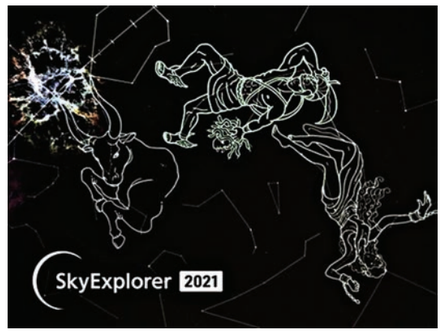
Among our references, we can boast of installations: at the Central Dispatching Point of the National Power Dispatch, European Border And Coast Guard Agency, Traffic Management Centers in Warsaw, Poznań and Białystok, the Network Management Center at Polkomtel, as well as in TVN and TVP studios, in Power Plants and Power Distribution Offices, at the National Opera House and in many other places.

Digital projection system at the Planetarium in Białków

In September 2020, the Centre for Astronomical Education of the Astronomical Institute of the University of Wrocław was enriched with a modern digital Planetarium in Białków. AB-Micro together with the French company RSA Cosmos delivered a spherical digital projection system to the Planetarium. This system uses two Sony GTZ240 projectors, specialized SkyExplorer space simulation software, and the advanced Full iPad Control remote control technology.

The digital projection system launched in the Planetarium combines modern laser projection technology, modern astronomical knowledge, advanced and efficient techniques for rendering highly realistic images, and the ability to freely conduct an interactive show with the use of wireless portable devices.

The combination of the current knowledge of the astronomers conducting the show with the enormous possibilities of the digital projection system means that the audience can experience incredibly realistic impressions. The astronomer–presenter can perform the show so that the audience feels interaction with the view of the sky displayed on the dome. The presentation is done using the graphic interface on the iPad tablet, which is integrated with the Planetarium projection system. Viewers feel as if they are right in the middle of the action.



Since 2003, we have set CAE software standards on the Polish market as an authorized distributor of EPLAN Software & Service. Successful cooperation between the companies resulted in their dynamic development and a constantly growing number of satisfied customers.

EPLAN provides software and service solutions for electrical engineering, automation and mechatronics. The company develops one of the world's leading engineering solutions for machine manufacturing and prefabrication control cabinets.

EPLAN was founded in 1984 and belongs to the Friedhelm Loh Group, which operates worldwide, employs 12,100 employees, has 12 production plants, and has 96 international subsidiaries. In 2020, it won the „Top German Employer" award for the thirteenth time in a row.

Working with EPLAN software means seamless communication in all areas of engineering. Whether they are small or large enterprises, customers can use their knowledge and experience more effectively. EPLAN grows with its customers and partners and accelerates integration and automation in engineering. EPLAN serves over 58,000 customers worldwide. „Effective engineering" is the company's watchword.

The EPLAN Platform technology ensures that all applications are supplied with the same functions and master data, improving project quality. It is possible to work on design based on the prepared article databases and macros available directly in the application through the Data Portal module.

Training packages, consulting, implementations, and a professional HOT-LINE service run by experienced engineers of the AB-Micro authorized training centre allow our customers to gain the necessary knowledge and experience to use the program.

EPLAN products::

- EPLAN Electric P8 – a global standard for electrical engineering and automation
- EPLAN Pro Panel – realistic installation of switchboards in 3D
- EPLAN Smart Wiring – simplified wiring in the control cabinet
- EPLAN Fluid – supporting the design of hydraulic and pneumatic installations
- EPLAN Harness proD – effective design and documentation of cable harnesses and assembly tables in 3D/2D
- EPLAN Preplanning – pre-planning of machines and installations
- EPLAN Engineering Configuration (EEC) – automation of design processes
- EPLAN Cogineer – automation of processes for creating electrical, hydraulic and pneumatic diagrams

The EPLAN ePULSE solution, which connects data, projects, industries, and engineers worldwide, is an extension of the EPLAN Platform with masterfully adopted cloud services. Within EPLAN ePULSE, we distinguish between:

- EPLAN Data Portal – The always up-to-date portfolio of high-quality product catalogues from more than three hundred component manufacturers. It includes around one million component data for direct download
- EPLAN eVIEW – A cloud service that is used to share and exchange information with all project participants in the cloud
- EPLAN eBUILD – A service for generating electrical and hydraulic diagrams in the cloud computing environment, which provides ready-made macros for entire electrical and hydraulic diagrams
- EPLAN eMANAGE – A service that allows users to easily upload projects from EPLAN Platform to the cloud environment and then manage, share, and work on them.

Industrial HMI/SCADA software

INDUSTRIAL AUTOMATION SOFTWARE
progea

www.movicon.pl

For twenty-five years Progea has been involved in the production of visualization, data acquisition, and management software for industrial automation. HMI/SCADA software offered by Progea quickly became an unwritten standard and an indicator of new trends in the automotive, chemical, food, pharmaceutical, energy, oil and gas mining, water and sewage management, building automation, telemetry and environmental protection.

In 2013, AB-MICRO, constantly searching for the most modern industry solutions, signed a distribution agreement with Progea to provide Polish companies the HMI/SCADA MOVICON software. This software is recognized worldwide and used to improve productivity, reduce operating costs and optimize assets. In 2020, Emerson expanded its scope of activities in the field of industrial automation control and SCADA software by signing an agreement to acquire the Progea group.

Movicon is a high-class visualization, monitoring, and control software, scalable from operator panels and workstations to extensive network SCADA systems based on the client-server architecture. It has been designed according to the requirements of modern industrial application structures, offering advanced architecture and ease of programming work with simultaneous flexibility in the selection of required functionalities. Thanks to such features of the Movicon environment, the costs of implementation and development of applications are minimized, because only one SCADA system is needed to perform various tasks of controlling and archiving production data.

Movicon offers tools for quickly creating advanced SCADA applications, which allow you to exchange data with standard automation devices and with business software, thanks to the use of modern technologies. Thanks to the use of WWW technology, the synoptic forms of SCADA applications can be easily displayed and operated from mobile devices.

Movicon enables remote visualization of objects and processes via the Internet, on desktop computer monitors and mobile device screens (smartphone, tablet, ultrabook, notebook). Over 150,000 installations of Movicon software have been implemented in various industries, which is proof of the high quality and universality of the solutions offered.

Important features of Movicon software include:

- open XML, ODBC, OPC, VBA, SOAP, SOA, Java, Web Services, TCP/IP, UDP, HTTP, RAS, SQL standards
- powerful, scalable SVG vector graphics with advanced animations
- fast real-time process database
- secure and efficient network architecture
- SoftLogic functionality in accordance with IEC 61131-3
- rich library of graphic objects and I/O drivers
- compliance with the requirements of FDA CFR21 Part 11

Energy distribution and industrial solutions

For many years, AB-Micro has been a leading distributor of General Electric products in Poland and has established itself as a reliable business partner. Starting from 1991, AB-Micro resold the GE products, identifying the needs and expectations of buyers on the domestic market, conducting demand forecasts, implementing sales contracts, and investing in a wide distribution of GE products. All this resulted in the view that both AB-Micro and General Electric brands were equated with each other.

In 2020, ABB took over the low voltage division of General Electric, a global manufacturer of electrical equipment. Some of GE's products have been included in its offer by the new owner, mainly polyester housings, such as ARIA, APO, and VMS. On the other hand, the remaining products were replaced by complementary ABB products. After taking over General Electric, the ABB concern became the owner of the most significant number of factories (among manufacturers in its industry) located in Poland.

ABB, appreciating the work done by AB-Micro during 20 years of cooperation with GE, offered us to remain a distributor of medium and low voltage devices. ABB's offer is significantly larger than General Electric's existing product base and covers every aspect of the electrotechnical industry. Access to such a wide range of products and services offered by ABB has set new challenges for AB-Micro. We are currently a supplier of devices in electrification, robotics, automation, drive systems, and digital solutions for customers from various industries and economies. The strong ABB brand provides us the certainty of product quality and business stability.

ABB's offer in Poland can be divided into four most important segments

- **Electrification** – low and medium voltage products
- **Drive systems** – frequency converters
- **Robotics** – robots to support industrial processes
- **Process automation** – PLC controllers, distributed control systems, turbocharging, and control equipment

AB-Micro actively supports business development as a supplier of ABB products and services in each of these segments.

However, the primary part of the activity, due to highly developed business contacts, remains the electrification segment, which can be divided into four major parts:

- Medium voltage products
- Low voltage products
- UPS
- Infrastructure for charging electric cars

Low voltage products include:

- DIN rail mounted modular equipment
- modular housings and housings for energy distribution up to 6300 A
- installation equipment, KNX intelligent building system
- ABB SIGNAL calling systems
- cable management systems such as trays, pipes, conduits, bands (formerly the Thomas & Betts brand)
- T-MAX compact circuit breakers up to 1600 A and E-MAX2 air circuit breakers up to 6300 A
- OT switch disconnectors up to 4000 A and OS, XLP, ZLBM, and SLimLine fuse switch disconnectors
- desk equipment of 22 and 30 diameter
- security systems
- engine control systems, including soft start systems
- limit switches.

Predictive maintenance

QHi - Group
SYSTEMS DIVISION

Safe operation of power equipment and prediction of critical threats is an area of particular interest for AB-Micro. The essential parameter for determining the risk of failure in power distribution systems is temperature. Temperature measurement at critical points of the switchgear allows you to monitor the phenomena that may pose a significant threat. AB-Micro is a leading supplier of next-generation temperature sensor systems for intelligent network applications. These systems are implemented in intelligent energy distribution networks, from where they provide essential data necessary to increase the efficiency and safety of energy transmission.

The system of effective prevention of electrical switchgear failures is based on continuous temperature monitoring. Failure of the electrical switchgear can stop production as well as threaten human life. The preventive system of wired or non-contact, battery-free temperature sensors enables constant monitoring of the switchgear operating temperature and does not require ongoing maintenance. Having accurate real-time metering data from the monitoring system of crucial energy transmission points provides energy companies with early warning of potential problems. The system generates an alarm signal when the dangerous temperature threshold set by the user is reached. This allows you to take adequate corrective actions. Measurement data can be presented on a computer screen or a local display and archived in a superior SCADA system, e.g. Movicon by Progea (Emerson).

Temperature monitoring systems can be placed in low- and medium-voltage switchgears, control cabinets, or high-current DC circuits. They can monitor the temperature on terminals supplying high-power motors and generators, on rails and cable heads, as well as on transformer terminals. Wherever the existing solutions, i.e. periodic thermal imaging measurements, permanent placement of cameras in controlled areas, or battery sensors signalling alarm states when the battery is exhausted, have failed or are very expensive. The solutions we offer can be applied to any existing energy infrastructure, maximizing its efficiency and securing assets. They do not require an additional power supply, are highly scalable, and, depending on the needs, allow the use of contact or non-contact sensors.

Depending on the technology used, the monitoring system based on the temperature sensors we offer allows you to monitor even several dozen critical points inside the switchgear effectively. The measurement technology described above enables the observation of virtually all points, including even those points, which for safety reasons, are not available for thermal imaging cameras or other conventional measurement methods.

Measurement data received from measuring devices can be transmitted with the open Modbus RTU protocol, displayed on the computer screen, and can be archived in the SCADA system. The RS-485 link is used to connect with the system. It allows for simultaneous access to many concentrators. An alternative to direct connection is to provide remote access via the Inventia MT series GPRS telemetry module and cloud imaging and archiving.

To improve the service of protected energy facilities, the system can be extended with network analyzers, displays, or humidity sensors.

Integration – Implementations – Applications

INDUSTRIAL AUTOMATION

We deliver and provide the integration services of control systems for various industry branches. We offer system implementations covering many advancement levels, from measuring and visualization to control the production processes. We implement so-called Smart Factory solutions, characterized by a high level of technical sophistication.

Programming of PLC and control devices, HMI

We offer programming services, from scratch, including the development of control algorithms, modification and migration of software. We implement systems containing HMI operator panels. We finish each programming task with the documentation and a backup of the completed applications, which are passed to the user.

Robotics

We offer implementations including cooperating robots. For the cooperating robots, we design robotic cells as well as the single or connected stations. We integrate robots with the classic automation systems and modern vision systems and with the measuring and control equipment.

Supply and assembly of control cabinets and C&I

We offer assembly, delivery and commissioning of control cabinets, that are made of our own materials or entrusted ones. The developed and delivered devices are prefabricated by qualified employees.

Object-oriented works

Within the executed implementations, we carry out object-oriented works related to starting, control of operation correctness and tuning of implemented systems. We carry out FAT and SAT testing phases.

Technical support

As a part of the implemented applications, we offer post-implementation services, post-warranty service as well as the extension and modification of the existing solutions. We conduct training in the field of operation and maintenance of implemented systems.

MASTER APPLICATIONS

We offer the delivery and implementation of master applications based on SCADA/HMI systems, software protocol converters, and data archivers. We integrate and prepare SCADA software for cooperation with a higher-level of IT systems.

Visualization and SCADA master applications

We make SCADA visualization systems allowing the monitoring, remote control, and parameterization of the process from a level of operator workstation. We implement stand-alone solutions, in client--server architecture and redundant solutions.

SCADA in WWW technology

Wide and easy access to the local and global computer networks affects more and more widespread use of internet technologies in presentation and data access. The use of WWW technology in industrial applications is becoming more visible. We offer development and implementation of SCADA applications in the Web Client architecture.

Data archiving, reporting

The master system, which we offer, has mechanisms for archiving process data based on relational SQL databases or industrial data archiver. Based on the collected data, we prepare production reports with varying levels of detail.

Data transmission, protocol conversion

Data transmission as the basic source of information is carried out using industrial communication protocols, which often require conversion to connect devices from different manufacturers. We offer hardware and software data conversion systems, concentrators, and converters of electrical signals into digital protocols.

Local and remote communications, industrial networks

We offer solutions for wired and wireless data transmission. We perform tasks using data transmission bus, Industrial Ethernet networks, and remote data transmission.

APS

Automatic Power Switch

Reliable control systems

Automatic reserve switching for electricians or automation workers is a widely known and widely used solution in power supply systems. One may ask the question of whether it is worth discussing this topic and repeating again that, after all, it is just a simple replacement of one „damaged" or disconnected power source with a second, spare and fully functional.

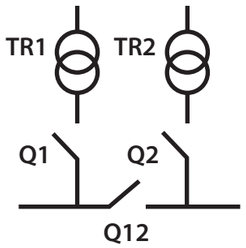
In principle, one could agree with this thesis if it were not for a fact that power sources and, more precisely – transformers with the entire power grid infrastructure, or generators offered in a wide range of different solutions are only devices that may not fully meet the high requirements of electricity consumers. Additionally, each designed power supply system with the passage of time (installation of subsequent receivers) reaches its limits on energy supply possibilities. In the case of introducing changes and increasing the number of energy receivers in relation to the basic design, there are needs for changes in the control of the power system. In addition, the newly designed facilities have by definition installed power (the sum of the power of all consumers on the facility) being higher than the total power of the power sources. Therefore, without delving into the issues of power systems design, it can be concluded from such premises that the requirements set for automatic reserve switching systems are constantly expanding.

During the optimization of the powering system project, it is possible to reduce significantly the costs of building the control infrastructure by using the wide possibilities and new technologies used in modern automatic reserve switching systems of APS Smart type. Simple switching is no longer sufficient.

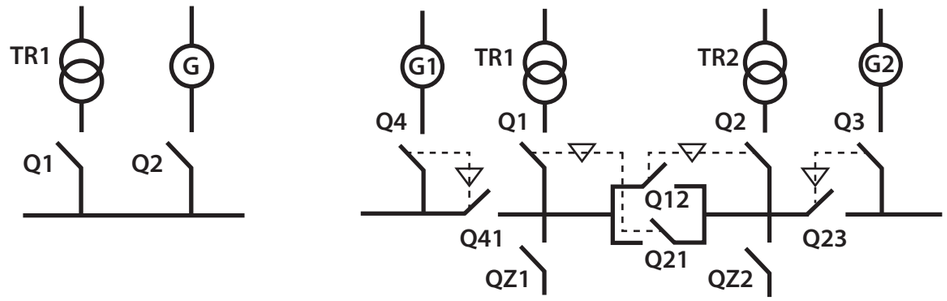
Such attributes as:

- flexibility in choosing the program version,
- adjustment of the control algorithm to the specific of the user object,
- the management of the load discharge,
- visualization with the local (up to 15 m) or remote (up to 1200 m) remote control,
- the event archive – the event log,
- the multi-level security system in APS automation,
- modular design – an option of choosing the equipment versions,
- secure GPRS/3G/LTE transmission,
- reliability of APS automation,
- visualization in the cloud – of the power system, of the processed data from network analyzers, of the selected temperature-sensitive temperature measurements (on-line „thermovision"), event archive,
- cloud access from mobile devices connected to the Internet (laptop, tablet, iPhone, etc.),
- SMS alarm notification for the selected events,

provide the wide possibilities of using APS Smart in the implementation of modern, easy to use and maintain power supply systems in industry and infrastructure. The following are selected examples of standard power installations supported by the APS family:



Typical solution



Basic solution

Complex solution

In most objects in which it is decided to create traditional, complex and expensive SCADA visualization systems, it is excluded, for security reasons, to connect such a system to the Internet. APS Smart has no such restrictions.

This advantage opens the way to the use of available data from the energy system in predictive maintenance, especially in the facilities without constant technical supervision.

Presentation in the form of:

- current power configuration;
- graphs of power consumption variation P, Q, S;
- changes in the current flow;
- fluctuations in the supply voltage level;
- detection and recording of anomalies in the mains;
- higher harmonics content and THD ratio control;
- temperature monitoring at critical points (on-line “thermovision”) such as transformers, main connections, selected points in the main switchboard,

gives a consistent view of the installation’s operation and the ability to assess its weaknesses. The selected and representative information, provided in the form of transparent SMS messages or the option to write to the event log, facilitate the operation and maintenance of the power installation with a high-reliability factor. They also allow seeing the potential opportunities for improvement in the power supply system, elimination of undesirable phenomena and achieving financial savings.

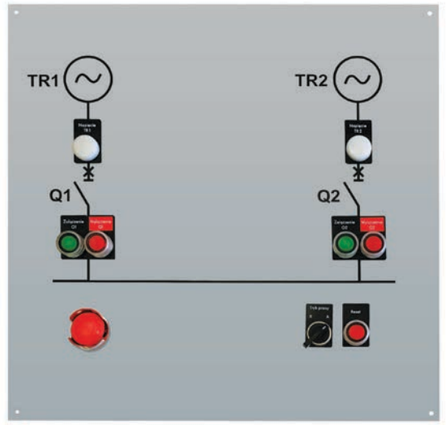
Despite the new projects, a number of operating power installations that require modernization exists on the market.

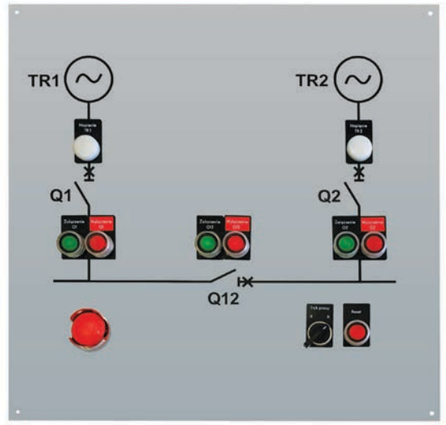
www.szr-aps.pl

Reliable control systems

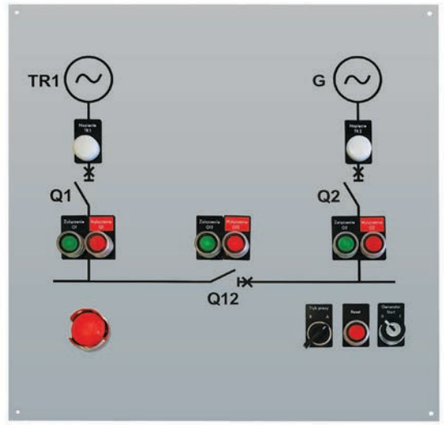
For such purposes AB-MICRO has prepared the sets of automatic reserve switching of APS RETROFIT type:

- automation board equipped with plug-in connectors;
- synoptic assembly equipped with cables with plug-in connectors for automatic reserve switching;
- operator terminal as an option to be installed or rented for the automatic reserve switching parameterization.



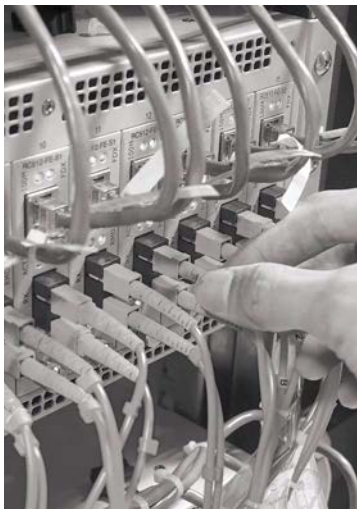


Such a set enables fast and efficient assembly of the automation system, without taking up valuable time necessary for labor-intensive works of replacing power equipment during the modernization of the switchboard. At facilities where even short-term power breaks are a huge difficulty disorganizing the operation of an enterprise, the time to complete modernization is crucial. There are cases when modernization is possible once a year for a few hours. A carefully thought-out modernization plan, the use of proven solutions and components allow the efficient, quick assembly and commissioning gives the chance for final success. The modular design of automatic reserve switching systems allows the selection of equipment and available functionalities needed by the user. This allows adjusting the price of the proposed solution to the expectations of the client.



AB-MICRO is a reliable supplier with certified
ISO 9001:2015 Quality Management System



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