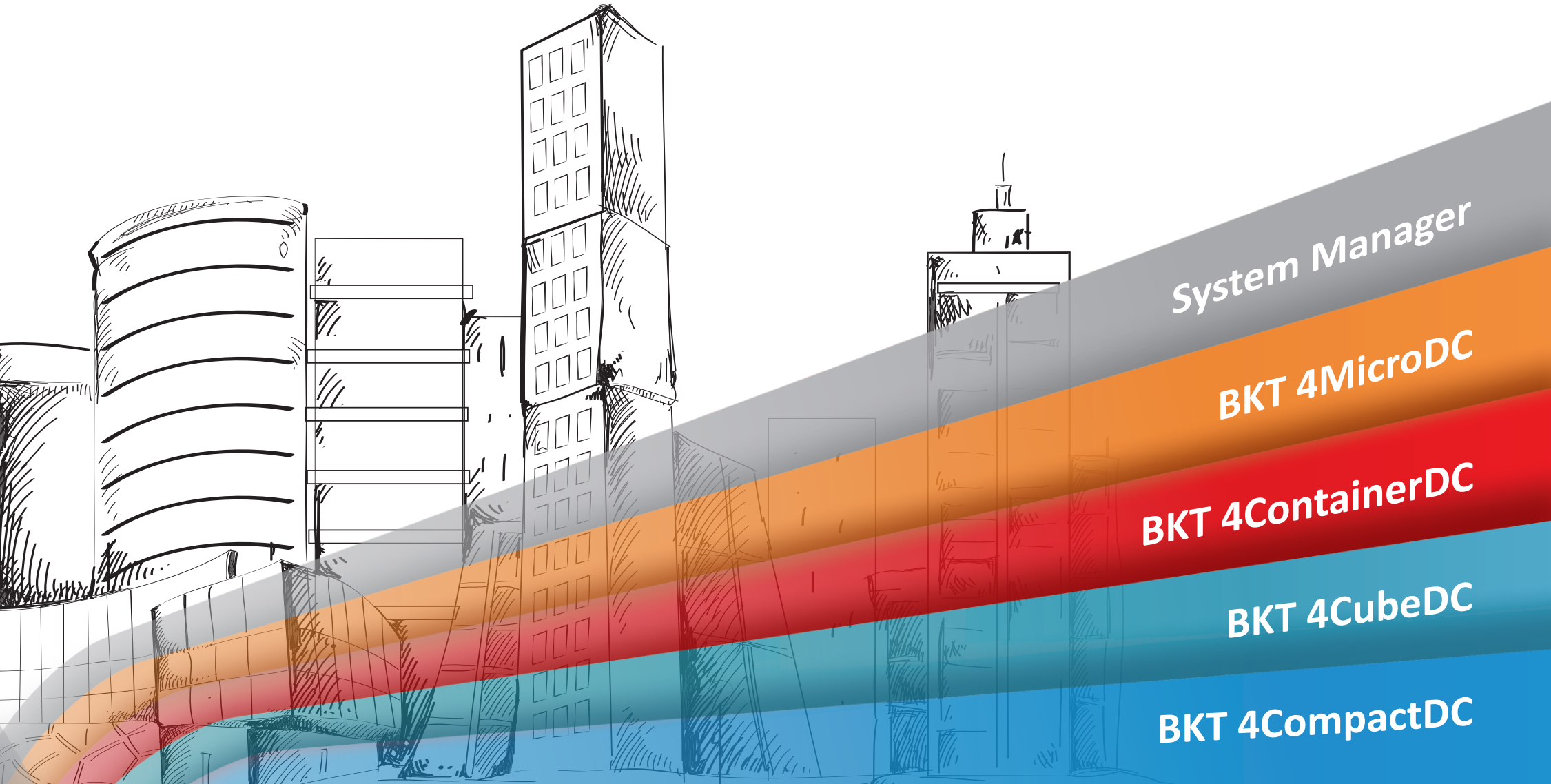
BKT ELEKTRONIK

4 Data Center

Data Center Solutions



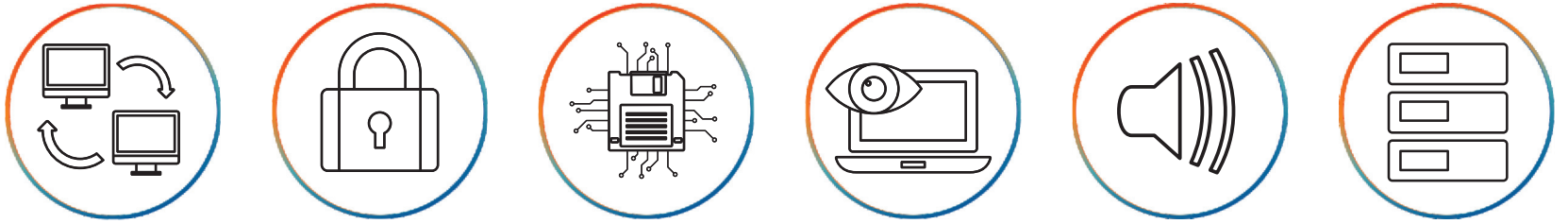
BKT 4Data Center

About the company

For more than 20 years BKT Elektronik, by dint of experienced technical staff and qualified employees, using state–of–the–art, advanced design and production processes, has been creating comprehensive solutions for the infrastructure of data transmission and security systems.

We owe our dynamic development to perpetual improvement of our production potential; at the same time, we are constraining the adverse impact of our activity and products on the environment.

We provide solutions based on copper and fiber optic technology under which the following subsystems operate:

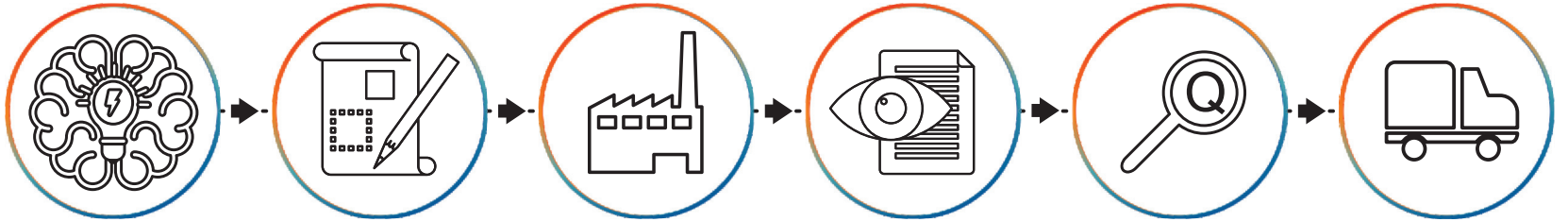


As for the area of Data Centers and LAN network arrangement, we manufacture and supply server racks and advanced cooling, distribution, power supply, and fire extinguishing systems.

We have a wide range of solutions for the entire passive infrastructure accompanied by specialist software that can be applied in residential buildings, office buildings, public establishments, and at mass events as well as in industry.

CUSTOMIZATION OF THE PRODUCTION OFFER

The main strength of our production offer is the ability to design any enclosure or industrial cabinet, manufacture and equip it, test it, and supply the finished product to the customer.




smart district
multimedia home
office buildings
and public establishments
mass event venues
passenger terminals
industrial facilities
data center
operator nodes

BKT 4Data Center

Relying on our wide experience and acquired knowledge and being supported by a number of qualified partners, BKT Elektronik is offering an array of comprehensive systems for Data Centers and supplying a full portfolio of solutions ensuring security of devices and data. The offer of the company includes not only racks safeguarding the equipment physically but also active components allowing for failure-free operation of the whole system, copper and fiber optic high density data transmission systems as well as advanced cooling, power supply, and fire extinguishing systems. All elements are carefully selected to suit customers' needs by a highly qualified team of engineers executing comprehensive Data Center projects according to the latest standards and guidelines.

TSi Professional for Data Centers
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Registration No: 2100837


BKT 4CompactDC
BKT 4CubeDC
4 Data Center
BKT 4MicroDC
BKT 4ContainerDC

BKT 4CompactDC

BKT 4CompactDC

BKT 4Data Center

What is it?

In the era of digitalization and e-commerce every company needs a secure and steadfast IT infrastructure.

A reliable and effective Data Center is made up of an accordingly prepared room furnished with the necessary infrastructure such as cooling, fire extinguishing, and power supply systems, cabinets, cabling, CCTV, and a raised floor. The abovementioned systems ensure both protection and optimal environment for the equipment.
Not all rooms can be adapted for the infrastructure referred to above. High costs of modernization and adaptation can be decisive in choosing a BKT solution – 4CompactDC.

BKT 4CompactDC is an all—in—one solution integrating all systems within one server rack. No external infrastructure has to be installed in order for the entire system to work – all you have to do is connect the power supply.
This solution is characterized by high reliability, ease of transport and adaptation, and limited costs of implementation.

BKT 4CompactDC

Why should you choose this solution?

Full protection
BKT 4CompactDC is suitable for industrial applications and rooms with unstable environmental parameters and dust. It ensures protection from water and dust with a rating of IP54. It can be used in various environmental/climate conditions.

Quick implementation and reliability
BKT 4CompactDC entails minimum implementation efforts as it is a Plug & Play solution. It's assembled, tested, and pre-commissioned before shipment, thus guaranteeing reliability. An additional advantage is the ability to quickly replace particular components of the system.

Ease of transport/migration
BKT 4CompactDC is a mobile solution. The entire system can be easily moved or transported to a new location if needed.

Space saving
BKT 4CompactDC can be adapted to various rooms, even those that are unfit for IT infrastructure. No additional place for external infrastructural elements is needed because everything is enclosed within the rack.

Easy +N extension
Extension involves mounting a subsequent rack by, with no need to add external infrastructural elements.

Where to use it?

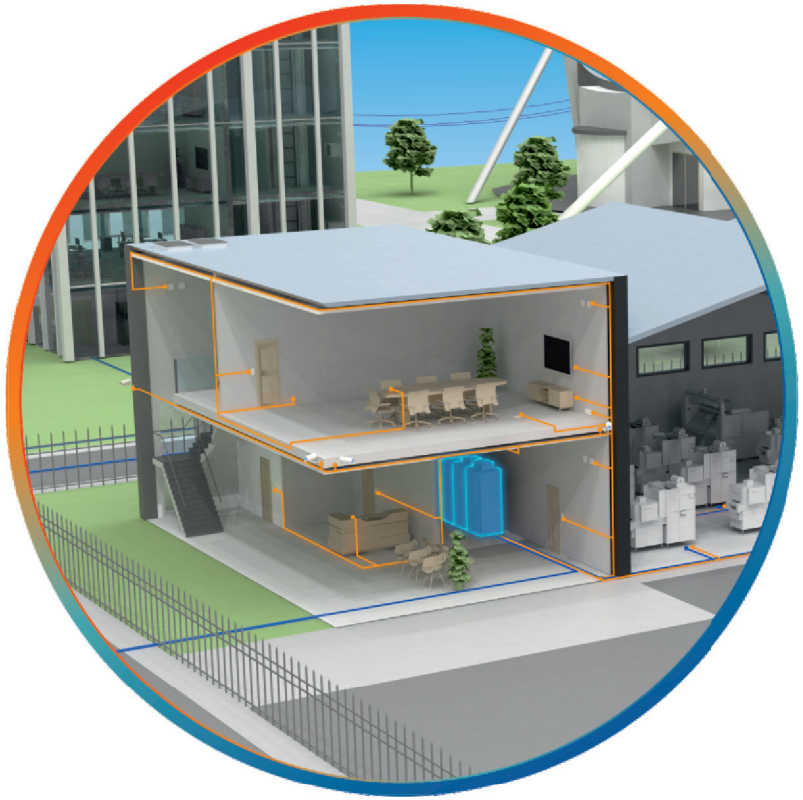
A solution suitable for environments other than Data Centers:

Historical buildings
The BKT 4Compact DC solution will be found useful when it is problematic to adjust buildings for the demanding Data Center infrastructure, e.g. when it is problematic / impossible to found elements on the façade or seal the room or there are structural or architectural conflicts regarding interference in the façade of a building or its floor slabs.

Warehouses and shop floors
The air conditioning or fire extinguishing system often necessitates adaptation of vast spaces for one or several server racks, which contributes to high costs of room adaptation.

Rented buildings, construction site facilities
Sites where there is a risk of changing the location within a short period of time.

No raised floor, low—ceiling rooms
Sites where height of the room makes it unfeasible to install a raised floor for air conditioning and cable routes.



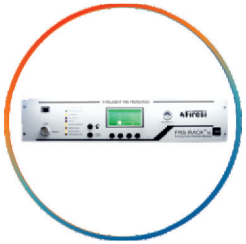
BKT 4CompactDC

Basic components of the system

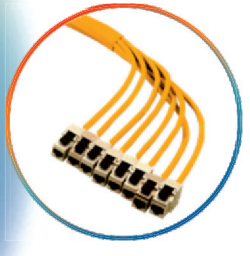
BKT InCab Rack
- Dust– and waterproof server rack, IP54
- 47U of usable space
- Dimensions: 800x1,000mm, 800x1,200mm
- Load capacity: 1,500 kg

Top and side cover air conditioning
- Power: from 2kW to 5kW
- Environmentally friendly refrigerant R134a
- No external unit
- Water supply connection and condensate

Monitoring system EC 335
- Dedicated 1U housing
- SMS, e-mail, and SNMP notifications
- Log of alarms, charts
- Configurable logic functions



Fire extinguishing system
- 19”–mounted panel design
- Safe extinguishant NOVEC 1230, HFC-236fa
- Double detection system
- Master/slave system



Copper cabling system
- High packing density
- 48 1U, HD ports
- Diagonal solutions
- Cat. 7A, 8 (preterm) trunk cables

Access control system
- Dedicated 1U housing
- Encrypted communication
- Log archiving
- Individual system components on dedicated connectors (the Plug & Play solution)

Power supply system BPS 2000, BPS 5000
- Manageable monitoring PDUs
- Power consumption, socket switching
- Color–coded sockets
- 1–phase or 3–phase units
- Max. load: 32A

Fiber optic cabling system
- High packing density
- MPO-OS2, OM3, OM4, OM5
- SC, LC, E2000
- Easily plugged out and administered

BKT 4MicroDC

BKT 4MicroDC

BKT 4Data Center

What is it?

Access to information became the key element determining success of any business. With increasing amount of data and the need for a more energy—efficient solution, the BKT 4MicroDC system was born.

BKT 4MicroDC is a solution for quick allocation of IT resources precisely where they are needed, without building full infrastructure, as is the case in a standard Data Center site. It's a module—based highly efficient solution that can easily be scaled to account for current needs and provide the ability to expand quickly. The solution is intended for high—density IT but it can also be configured for smaller powers.

BKT 4MicroDC

Why should you choose this solution?

High efficiency
By strict separation of cold and hot air masses/aisles, BKT 4MicroDC enables high energy efficiency to be achieved (the PUE indicator). Optimum temperature for IT equipment is maintained throughout the entire height of the rack by means of evenly spaced EC fans with smooth rpm adjustment for each separate fan.

Security
BKT 4MicroDC facilitates quick construction of redundant systems.
Fans operating in the so-called “hot swap” mode can be replaced while the system is running.
Automatic door opening system ensures safety during possible emergencies or uncontrolled incidents.

Scalability
Due to the wide selection of available models, this solution is suitable for both high—power Data Center facilities (20kW and more) and facilities with smaller requirements.

Ease of installation and extension
The system can be installed in facilities unequipped with a raised floor.
Extension takes place by mounting subsequent racks by and connecting them to external air conditioning units.

Where to use it?

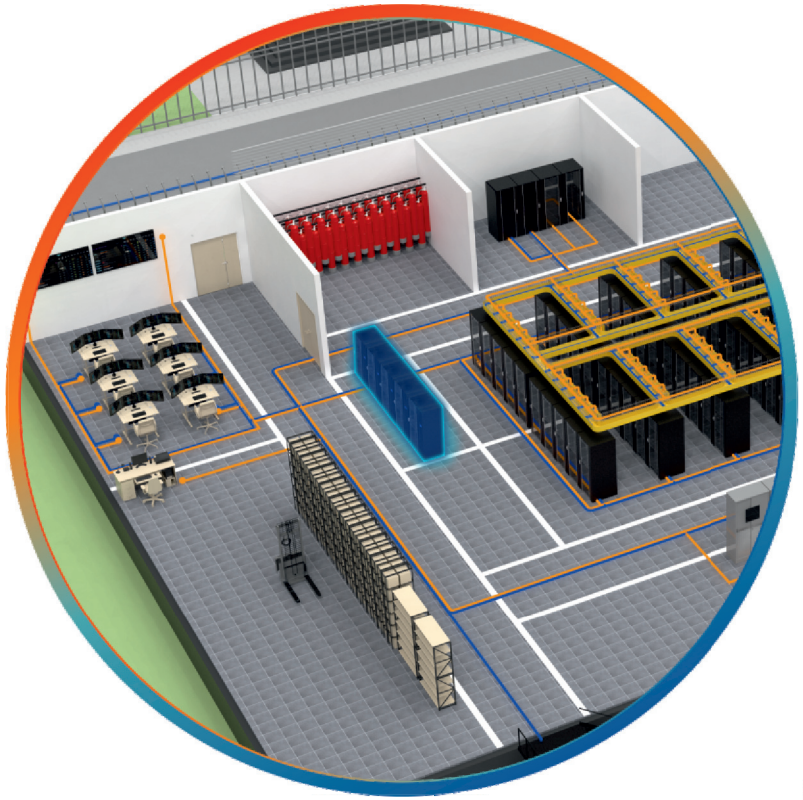
A solution suitable for Data Center environments with high power density and sites where the climatic and technical conditions are limited:

Data Center facilities with high power density zones
BKT 4MicroDC will be found useful when there is an increased demand for cold (15kW and more).

Climatic and technical limitations of buildings
Sites where implementation of an air conditioning or fire extinguishing system entails adaptation of vast spaces for one or several server racks, generating high costs of adaptation.

Unfeasible raised floor
Sites where height of the room makes it unfeasible to install a raised floor for air conditioning and cable routes.

High-demand IT devices
A necessity to add high—power IT devices in existing server rooms (selected server racks).



BKT 4MicroDC

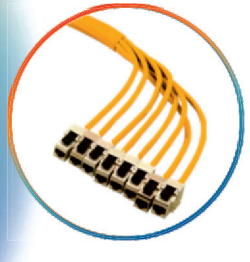
Basic components of the system

BKT InCab Rack
- Dust– and waterproof server rack, IP54
- 47U of usable space
- Dimensions: 800x1,000mm, 800x1,200mm
- Load capacity: 1,500 kg

Precision air conditioning system SideWall
- The DX and CW solution
- Power: from 5kW to 40kW
- EC fans with smooth rpm adjustment for each separate fan
- Ability to use units with free cooling

Monitoring system EC 335
- Dedicated 1U housing
- SMS, e-mail, and SNMP notifications
- Log of alarms, charts
- Configurable logic functions

High packing density
- MPO-OS2, OM3, OM4, OM5
- SC, LC, E2000
- Easily plugged out and administered



Copper cabling system
- High packing density
- 48 1U, HD ports
- Diagonal solutions
- Cat. 7A, 8 (preterm) trunk cables

Access control and emergency opening system
- Dedicated 1U housing
- Encrypted communication
- Log archiving
- Automatic enclosure door opening in case of an emergency
- Individual system components on dedicated connectors (the Plug & Play solution)

Power supply system BPS 2000, BPS 5000
- Manageable monitoring PDUs
- Power consumption, socket switching
- Color-coded sockets
- 1-phase or 3-phase units
- Max. load: 32A

Fire extinguishing system
- 19”- mounted panel design
- Safe extinguishant NOVEC 1230, HFC-236fa
- Double detection system
- Master/slave system

BKT 4CubeDC

BKT 4CubeDC

BKT 4Data Center

What is it?

BKT 4CubeDC is a solution based on server racks dedicated for Data Center facilities, which can be freely arranged into cold and hot aisles a.k.a. “cubes”. It's a solution for standard Data Center facilities equipped with infrastructure. Cube can be augmented with the IRow precision air conditioning system for more efficient cooling or in cases where raised floor is unavailable.

Why should you choose this solution?

Used with various cooling systems
The BKT 4CubeDC solution can be used with a variety of cooling systems suitable for respective power levels. Standard solutions with air blown underneath the raised floor, cold/hot aisles, or IRow units are available.

Ease of extension
Extension involves mounting a subsequent rack by through the use of a pre-arranged infrastructure.

Scalability
Due to the wide selection of available models, this solution is suitable for both high-power Data Center facilities (20kW and more) and facilities with smaller requirements.

Where to use it?

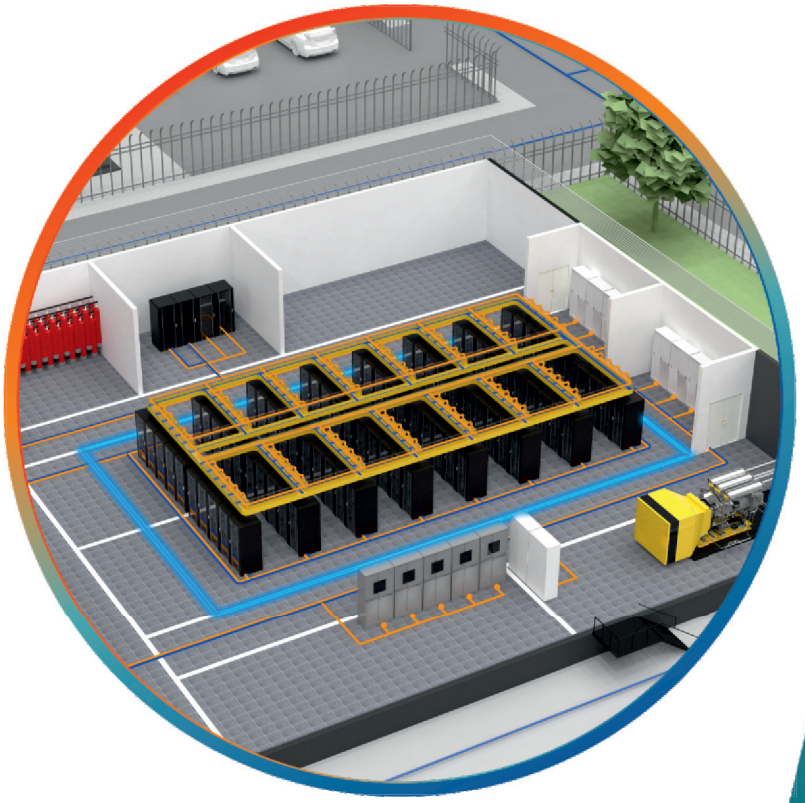
A solution suitable for Data Center environments with standard technical infrastructure:

Demand for higher performance
The increasing performance of servers makes conventional systems insufficient. Cold/hot aisle containment enables improvements in performance of the whole system.

Control of temperature distribution in the server room
Containment reduces uncontrolled mixing of hot and cold air. In addition, the BKT 4CubeDC solution lets you avoid hot spots.

Efficient utilization of volume AC units
The BKT 4CubeDC solutions allows for more efficient utilization of air conditioning units blowing air underneath the raised floor.

Economy – ECO
Greater cooling control and its precise application means smaller energy outlays.



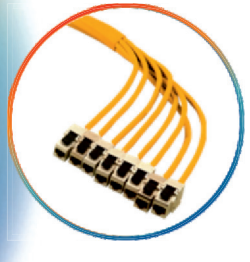
Basic components of the system

BKT 4DC Rack
- 42-47U of usable space
- Load capacity: 1,500 kg
- Dimensions: 800x1,000mm, 800x1,200mm 600x1,000 mm, 600x1,200 mm
- Suitable for access control

Precision air conditioning system IRow
- The DX and CW solution
- Power: from 5kW to 30kW
- EC fans with smooth rpm adjustment for each separate fan
- Ability to use units with free cooling

Monitoring system EC 335
- Dedicated 1U housing
- SMS, e-mail, and SNMP notifications
- Log of alarms, charts
- Configurable logic functions

Module rack enclosure
- Mechanical and automatic doors
- Enclosure integrated with racks and air conditioning



Copper cabling system
- High packing density
- 48 1U, HD ports
- Diagonal solutions
- Cat. 7A, 8 (preterm) trunk cables

Access control and emergency opening system
- Dedicated 1U housing
- Encrypted communication
- Log archiving
- Automatic enclosure door opening in case of an emergency
- Individual system components on dedicated connectors (the Plug & Play solution)

Power supply system BPS 2000, BPS 5000
- Manageable monitoring PDUs
- Power consumption, socket switching
- Color–coded sockets
- 1–phase or 3–phase units
- Max. load: 32A

Fiber optic cabling system
- High packing density
- MPO-OS2, OM3, OM4, OM5
- SC, LC, E2000
- Easily plugged out and administered

BKT 4ContainerDC

BKT 4ContainerDC

What is it?

Data storage site, sufficient safety level of working conditions, and protection against unauthorized access are all challenges Data Center infrastructure has to face. Moreover, the need for quick implementation requires flexible and easily introduced solutions. Infrastructure of the BKT 4ContainerDC container server room is an answer to all of these requirements.

BKT 4ContainerDC

Why should you choose this solution?

Quick implementation
Very low requirements for the preparatory infrastructure
Shorter lead times - as fast as 3 months
Reduced risk of changed rent for the rented space
Solutions with lower utilization cost rates

Mobility and flexibility
Solution designed to occupy the smallest space possible
Installation to be performed at any site
Quick relocation
Module-based design of all systems
Vertical extension according to increasing needs
High operating parameters of the devices

Modularity
All components extended module-wise
Extension may be conducted with the server room running
Containers may be joined into a single space

Where to use it?

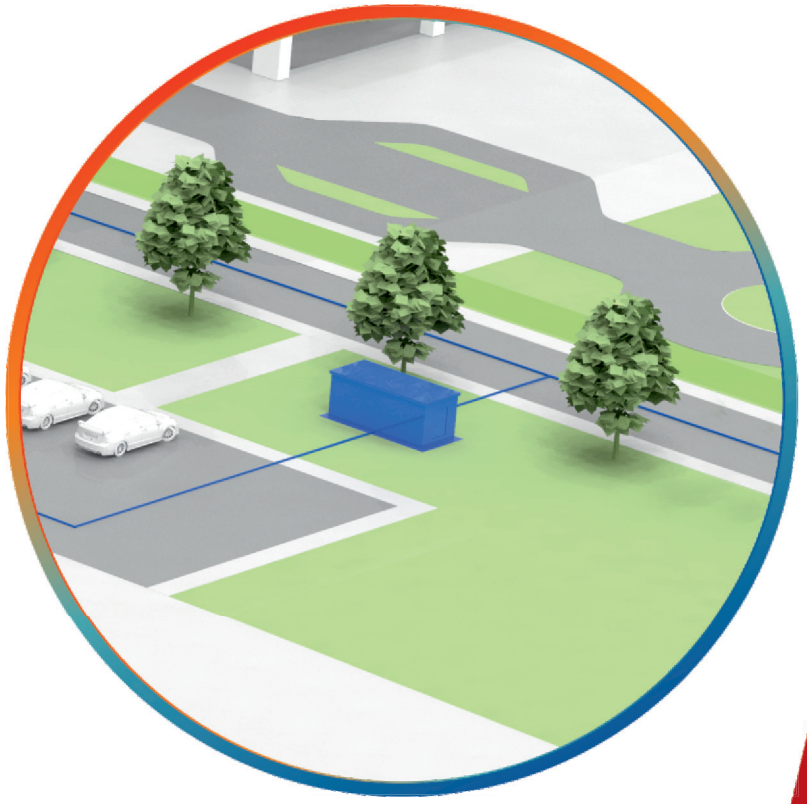
A need for quick implementation of a Data Center facility:

No building or room that might be adapted for a Data Center

The BKT 4ContainerDC solution requires small outlays on preparation of infrastructure ready for connecting the entire system. You don't have to build it - just set it down and connect it.

Efficient utilization of volume AC units

The BKT 4CubeDC solutions allows for more efficient utilization of air conditioning units blowing air underneath the raised floorys.



BKT 4ContainerDC

Basic components of the system

BKT 4DC Rack
- 42-47U of usable space
- Dimensions: 800x1,000mm, 800x1,200mm, 600x1,000 mm, 600x1,200 mm
- Load capacity: 1,500 kg
- Suitable for access control

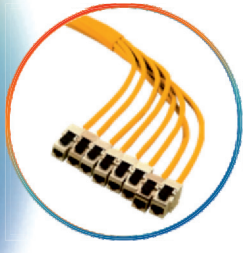
Module rack enclosure
- Mechanical and automatic doors
- Enclosure integrated with racks and air conditioning

Precision air conditioning system IRow or CoolWall
- The DX and CW solution
- Power: from 5kW to 40kW
- EC fans with smooth rpm adjustment

Access control and emergency opening system
- 1U
- Encrypted communication
- Log archiving
- Automatic opening in case of an emergency

Container
- Fire resistance: from EI30 to EI120
- Containers may be joined into a single space
- Ease of implementation

Monitoring system EC 335
- Dedicated 1U housing
- SMS, e-mail, and SNMP notifications
- Log of alarms, charts
- Configurable logic functions



Copper cabling system
- 48 1U, HD ports
- Diagonal solutions
- Cat. 7A, 8 (preterm) trunk cables

Power supply system BPS 2000, BPS 5000
- Manageable monitoring PDUs
- Power consumption, socket switching
- Color–coded sockets
- 1-phase or 3-phase units
- Max. load: 32A

Fiber optic cabling system
- MPO
- LC, E2000
- Easily plugged out and administered

System Manager

SYSTEM MANAGER 4DC

4 Data Center

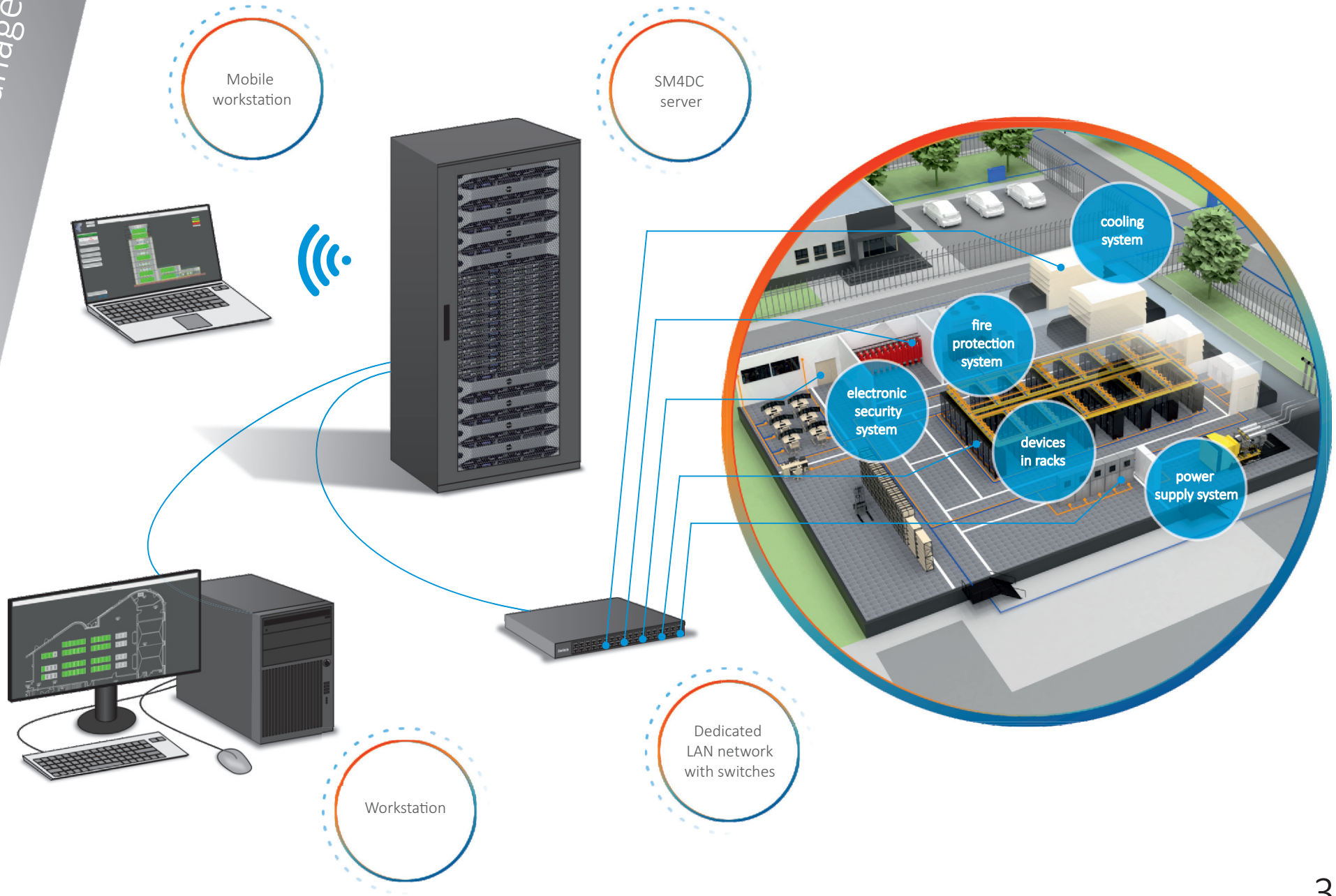
System Manager

What is it?

The SM4DC (System Manager for Data Center) software is used to display statuses and control devices installed in server rooms and Data Processing Centers. System Manager integrates all systemic solutions of BKT 4 Data Center.
System Manager is founded on market-proven industrial software SCADA (Supervisory Control and Data Acquisition). It lets you manage (monitor and control) the IT infrastructure installed in a facility in a clear, efficient, and safe manner.
The role of SM4DC is to minimize the risk of downtimes or failures by means of effective monitoring.

BKT 4Data Center

System Manager



Why should you choose this solution?

Easy and effective management

System Manager facilitates display of statuses and management of individual IT infrastructure components from the level of one coherent platform by using display screens adjusted to user needs. The web browser remote access function allows you to review and control the system, for example from your mobile device. The system can be installed on virtual machines.

Openness of the system

System Manager enables integration with BMSs (Building Management Systems). It communicates with devices using the most popular protocols such as SNMP, Modbus, and many others. In addition, the system gives the option of communication with most PLC controllers and databases available on the market.

Security

Users of System Manager are granted access after they have typed in a password. Users may be assigned different authorizations for operations within the system. Remote connection with a user may be encrypted using the HTTPS protocol. It is possible to archive all actions performed by system administrators and operators.

Basic elements that can be integrated into the system

Access control system
Readouts from the access control system on:
- current status of the system
- authorized door opening
- attempt at unauthorized door opening
- other emergency statuses

Power distribution system
- manageable monitoring power distribution units
- ATS devices
- readout of current values, power supply voltage, load, etc.
- display of current values, alarms about exceeded limits
- recording values in a database

Monitoring system for environmental conditions
- readouts of values from sensors; temperature, humidity, smoke, flooding, etc.
- display of current values
- alarms about exceeded limits
- recording values in a database

Precision air conditioning system
- readouts of values from sensors; temperature, humidity
- display of current values
- alarms about exceeded limits
- recording values in a database

Other systems of the IT infrastructure
- ventilation
- electric switchboards
- electric generators
- uninterrupted power supply (UPS) systems
- CCTV systems

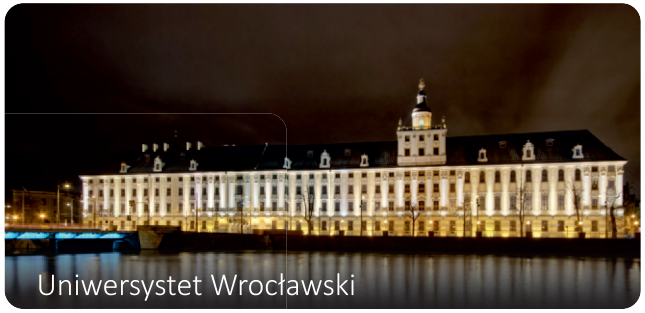
Fire extinguishing system
- display of current values
- alarms about exceeded limits
- recording values in a database

BKT 4Data Center

Summary

	 BKT 4CompactDC	 BKT 4MicroDC	 BKT 4CubeDC	 BKT 4ContainerDC
Cooling capacity	2-5 kW per rack	5-40 kW per rack	5-30 kW per rack	5-40 kW per rack
Usable space	42U	47U	42-47U rack	42-47U rack
Protection	IP 54 (water, dust)	IP 54 (water, dust)	IP 20	IP 20
Monitoring system	EC 335	EC 335	EC 335	EC 335
Cooling system	EGO, DEK	SideWall	Irow	Irow, CoolWall
Power distribution units	BPS 2000, BPS 5000	BPS 2000, BPS 5000	BPS 2000, BPS 5000	BPS 2000, BPS 5000
Fire extinguishing system	Fire extinguishing control panel	Fire extinguishing control panel	Volume extinguishing	Volume extinguishing
Integrating system	SM4DC	SM4DC	SM4DC	SM4DC
Data transmission system	Based on high-density copper, fiber optic, and hybrid solutions	Based on high-density copper, fiber optic, and hybrid solutions	Based on high-density copper, fiber optic, and hybrid solutions	Based on high-density copper, fiber optic, and hybrid solutions


Telewizja Polska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Motorola Solutions Systems Polska Sp. z o.o.


Centrum Badań EIT

BKT 4Data Center


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20
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years
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