ITALIAN COOLING SOLUTIONS

HiRef

DataDom Line

MODULAR SYSTEMS FOR DATA CENTERS

COMPONENTS CATALOGUE

HiRef

DataDomLine

MODULAR SYSTEMS FOR DATA CENTERS

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DataDomLine

DATA CENTER SPECIALISTS

MODULAR DATA CENTERS

the implementation of a Data Center implies a very heavy investment, which must necessarily take into account growth trends over time.

Modular systems are the ideal solution to maximise the return on investment over time and guarantee low plant management costs.

ZERO IMPACT CONTAINMENT

The simultaneous containment of air flows in the hot plenum and in the cold aisles allows for **instantaneous adaptation to load variations** and **effective modulation of the air temperature flows** required by IT equipment.

HEAT CONTAINMENT SYSTEMS

The design **compartmentalisation**, i.e. preventing cold air and hot air volumes from mixing, is the first step toward a highly efficient system.

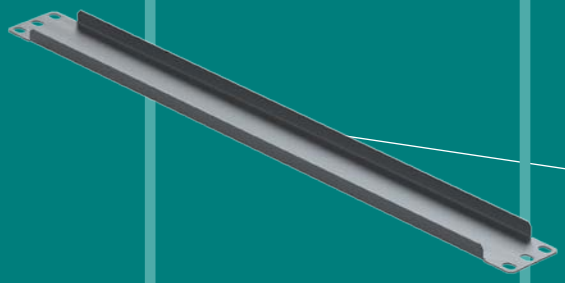
DataDom Line is a line of solutions suitable for achieving this goal.

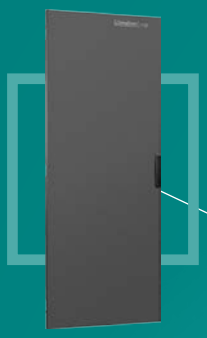
EFFICIENCY ENHANCEMENT

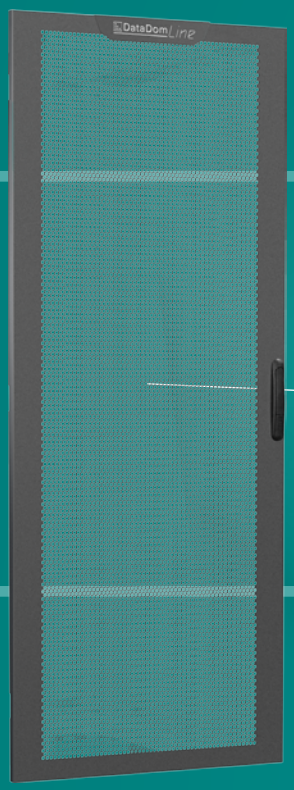
After a careful analysis of the criticalities of the existing system, **HiRef - DataDom** Line proposes actions to **improve the efficiency of Data Center systems -** aimed at reducing running costs.

HOTSPOT HUNTING SYSTEM

This innovative system, an exclusive **DataDom** Line design, helps to identify hotspots inside the server room and implement all the necessary actions to **maximise the efficiency of the air conditioning system**.



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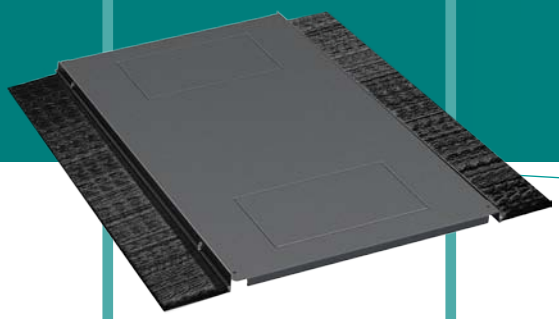

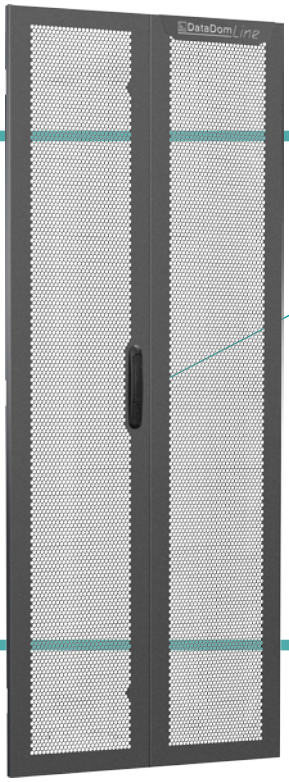
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HiRef

COMPONENTS

DataRack

DataDomLine

RACK STRUCTURE

HiRef presents its new series of "DataRack" data center modular racks. Easy to assemble, adaptable to your needs and requirements.

CUSTOMISED PAINT FINISHING ON REQUEST

STATIC CAPACITY 1200 KG

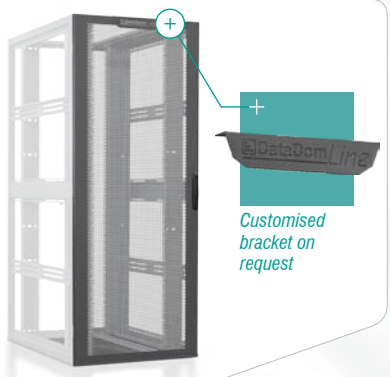
- Supporting frame 20/10 mm
- 4 crosspieces for structure stiffening
- Painting with scratch-resistant epoxy powders in RAL 7016 colour, crumpled matt finish
- Structure with provision for earthing and for mounting wheels for handling and fixing of adjustable feet
- The structure can be received disassembled on request

WIDTH [MM]	DEPTH [MM]	HEIGHT [U]
600	1000	42
		47
	1200	42
		47
800	1000	42
		47
	1200	42
		47

VENTILATED FRONT/REAR RACK DOORS

The racks are designed for different types of rear and front closure.

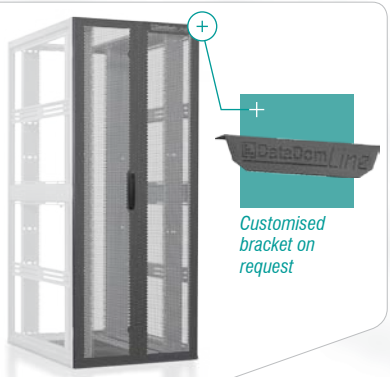
CUSTOMISED BRACKET AND PAINT FINISHING ON REQUEST



Ventilated single door

- Opening angle equal to 135°
- Painting with scratch-resistant epoxy powders in RAL 7016 colour, crumpled matt finish
- Guaranteed 75% more air flow
- Tilting flush handle with 4-point cremone bolt locking system
- Choice of locking systems between key, electric or mechanical

WIDTH [MM]	HEIGHT [U]
600	42
	47
800	42
	47



Ventilated double door

- Opening angle equal to 135°
- Painting with scratch-resistant epoxy powders in RAL 7016 colour, crumpled matt finish
- Guaranteed 75% more air flow
- Tilting flush handle with 2-point rod locking system
- Choice of locking systems between key, electric or mechanical

WIDTH [MM]	HEIGHT [U]
600	42
	47
800	42
	47

FRONT/REAR BLIND RACK DOORS

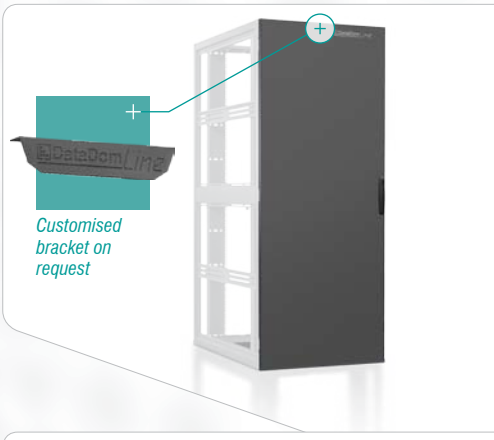
The racks are designed for different types of rear and front closure.

CUSTOMISED BRACKET AND PAINT FINISHING ON REQUEST

Blind single door

- Opening angle equal to 135°
- Painting with scratch-resistant epoxy powders in RAL 7016 colour, crumpled matt finish
- Foamed perimeter gasket
- Choice of locking systems between key, electric or mechanical

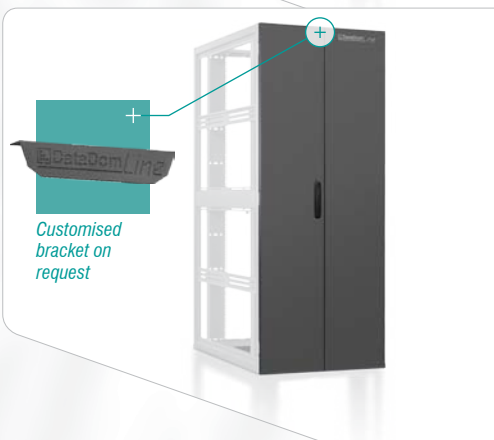
WIDTH [MM]	HEIGHT [U]
600	42
	47
800	42
	47



Blind double door

- Opening angle equal to 135°
- Painting with scratch-resistant epoxy powders in RAL 7016 colour, crumpled matt finish
- Foamed perimeter gasket
- Choice of locking systems between key, electric or mechanical

WIDTH [MM]	HEIGHT [U]
600	42
	47
800	42
	47



CLOSURE MODULES FOR FLUSH TILTING HANDLE

The door opening system can be customised according to the needs and security levels required. 4 options available:

Snap-in module with spring button

Module with single key EK333

Module with different keys

Electric activation module

SIDE PANELS

Double side panel in painted sheet metal for rack closure. It allows the upper and lower side parts of the rack to be inspected separately with minimum footprint and inconvenience.

CUSTOMISED PAINT FINISHING ON REQUEST

- Kit consisting of 2 (upper and lower) panels
- Closure with 2 quarter turn locks for each individual panel
- Painting with scratch-resistant epoxy powders in RAL 7016 colour, crumpled matt finish

DEPTH [MM]	HEIGHT [U]
1000	42
	47
1200	42
	47

ROOF

The rack can be fitted with top covers with a locking system from the inside by means of fixing screws. You can choose between:

Blind roof

WIDTH [MM]	DEPTH [U]
600	42
	47
800	42
	47

Roof with side dust brushes

Roof with *toolless* side dust-proofing brushes at the ends to make it easier to route cables through.

WIDTH [MM]	DEPTH [U]
600	42
	47
800	42
	47

ADDITIONAL ACCESSORIES

The following components can be used to further customise the DataRack

RACK BOTTOM

The rack can be fitted with lower covers (bottoms) with a locking system from the inside by means of fixing screws. You can choose between:

WARNING!
NON LOAD BEARING COVERS

Blind bottom

WIDTH [MM]	DEPTH [U]
600	42
	47
800	42
	47

Bottom for cable routing system

Roof with *toolless* side dust-proofing brushes at the ends to make it easier to route cables through.

WIDTH [MM]	DEPTH [U]
600	42
	47
800	42
	47

ADJUSTABLE FEET KIT

It is possible to adapt the DataRack to the different types of flooring.

ADJUSTABLE FEET KIT
Kit consisting of 4 M12 x 50 mm support feet.

ADJUSTABLE FEET KIT FOR ANTI-MIXING BASE PLINTH
Kit consisting of 4 M12 x 150 mm feet; it can be ordered together with the anti-mixing base plinth.

ADDITIONAL ACCESSORIES

LOAD-BEARING BASE PLINTH WITH INTEGRATED FEET AND REMOVABLE INFILL PANELLING PLATES

Kit composed of 4 load-bearing corner elements with height of 100 mm and with integrated adjustable foot, two removable front and side infill panels.

WIDTH [MM]	DEPTH [MM]
600	1000
	1200
800	1000
	1200
300	1000
	1200

ANTI-MIXING BASE PLINTH

80 mm height magnetic closing system in painted sheet metal to ensure the correct containment of air flows below the rack.

NON-LOAD BEARING CONTAINMENT SYSTEM

CLOSURE MAGNETIC TYPE

Toolless front/rear infill panel

WIDTH [MM]	HEIGHT [MM]
300	80
600	80
800	80

Side infill plates with sliding closure

WIDTH [MM]	HEIGHT [MM]
1000	80
1200	80

ADDITIONAL ACCESSORIES

WHEEL KIT

Standard wheel kit

Kit consisting of 4 swivelling wheels (two wheels with brake + two wheels without brake) for empty rack handling.

CAPACITY OF EACH WHEEL 80 KG

High capacity wheel kit

Kit consisting of 4 swivel wheels for full rack handling.

CAPACITY OF EACH WHEEL 280 KG

BLIND PANELS 19"

19" blind panels in painted sheet metal

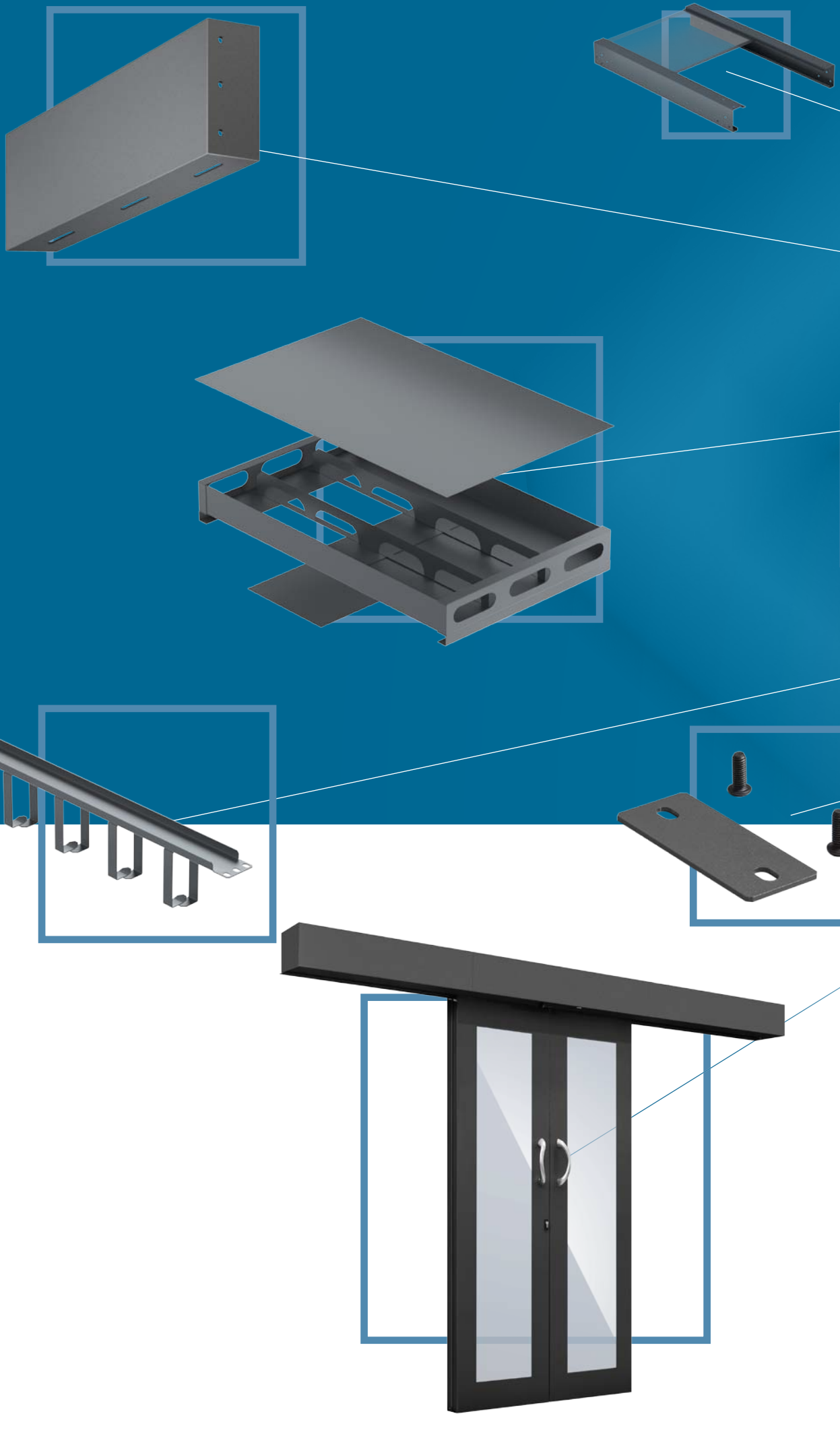
19” blind panels in paint-finished sheet metal for closing unused server spaces, designed to avoid the by-pass system.

UNIT [U]
1
2
3

19" blind panels in plastic

19” blind panels for closing unused server spaces, in order to avoid the by-pass system.

UNIT [U]
1
2



HiRef

- NO MIXING OF RETURN AIR WITH DELIVERY AIR
- THE AIR TEMPERATURE AT THE INLET TO THE AIR CONDITIONERS IS HIGHER, CONSEQUENTLY THEY ARE MORE EFFICIENT (WITH RESPECT TO A SOLUTION WITHOUT CONTAINMENT)
- THE VOLUME OF AIR TREATED IS LOWER THAN IN NOT COMPARTMENTED SOLUTIONS
- GREATER CONTROL OVER SET POINT TEMPERATURE COMPARED TO A SOLUTION WITHOUT CONTAINMENT

COMPONENTS

ISLAND
DataBox
ISLAND

DataDomLine

AISLE DOOR

Manual aisle door

The doors, installed in a dedicated track to facilitate their symmetrical sliding, can be opened from the outside by means of handles. In case of emergency, the doors have a safety opening system with unlocking from the inside. A key lock can be installed:

POSSIBLE CUSTOMIZATIONS AVAILABLE ON REQUEST

- Aluminium guide
- 4 slides
- Aisle spacer
- Top fixing brackets for the rack
- Lower guide for door sliding
- Guide cover for aesthetic purposes (customisable on request)

AISLE WIDTH [MM]	HEIGHT [U]
800	42
	47
1000	42
	47
1200	42
	47
1500	42
	47
1800	42
	47

Automatic aisle door

The sliding doors can be supplied with an automatic opening device.

POSSIBLE CUSTOMIZATIONS AVAILABLE ON REQUEST

- Standard opening system with infrared proximity sensor.
- Mechanical opening from inside the rack in case of emergency.
- Low noise (<45 dB)
- In the event of a power failure, the back-up batteries guarantee normal door operation

AISLE WIDTH [MM]	HEIGHT [U]
800	42
	47
1000	42
	47
1200	42
	47
1500	42
	47
1800	42
	47

BLIND AISLE CLOSURE PANEL

Back panel in painted sheet metal for aisle closing, supplied with screws and fixing brackets.

AISLE WIDTH [MM]	HEIGHT [U]
800	42
	47
1000	42
	47
1200	42
	47
1500	42
	47
1800	42
	47

UPPER FRONT/REAR PERIMETER CLOSING PANELS

Front/rear containment plate for the installation of polycarbonate roofs.

AISLE WIDTH [MM]	HEIGHT [MM]
300	150
600	150
800	150

UPPER SIDE PERIMETER CLOSING PANELS

Side containment plate for the installation of polycarbonate roofs.

AISLE WIDTH [MM]	HEIGHT [MM]
1000	150
1200	150

POLYCARBONATE ROOF FOR AISLE CLOSING

Self-supporting sheet metal structure with transparent Lexan surface.

AISLE WIDTH [MM]	DEPTH [MM]
800	300
	600
	800
1000	300
	600
	800
1200	300
	600
	800
1500	300
	600
	800
1800	300
	600
	800

CABINETS JOINING KIT

Kit consisting of 4 metal plates supplied with 8 screws for joining the racks and for stabilising the structure.

ADDITIONAL ACCESSORIES

The following components can be used to further customise the DataBox island.

AISLE PANEL WITH LED LIGHTING

Led lighting panel for aisle equipped with thin lamp (600x600 mm) on a metal frame. Equipped with easy to connect integrated 12 V transformer.

WIDTH [MM]	DEPTH [MM]
600	1000
	1200
	1500
	1800
800	1000
	1200
	1500
	1800

DROP ROOF FOR AISLE WITH AUTOMATIC RELEASE SYSTEM IN CASE OF FIRE

System consisting of:

- 4 electromechanical release sensors
- 1 polycarbonate panel
- 2 sheet metal supports to support the panel

Can also be installed to replace a standard polycarbonate panel for aisle closing.

CHANNEL ROOF FOR RACK CABLE MANAGEMENT

High density system for the management of cable drop lines composed of a protective cover and comb-type dividers, which allow for tidy arrangement of cables inside the rack. 3-part modular structure for maximised organizational freedom: parts completely independent and removable from inside the rack.

WIDTH [MM]	DEPTH [MM]	HEIGHT [MM]
600	1000	150
	1200	
800	1000	150
	1200	

ADDITIONAL ACCESSORIES

DataPower CABLE DIVIDER FOR MANAGEMENT OF RACK COOLER ROOF AND CONTROL PANEL CABLES

Cable divider to be installed on top of the roofs of rack coolers and electrical control panels with a width of 300 mm. The kit consists of 2 cable dividers with fixing screws and their covers.

AISLE WIDTH [MM]	DEPTH [MM]	HEIGHT [MM]
300	1000	150
	1200	

BRIDGE FOR ROUTING AND ARRANGING AISLE CABLES

The bridge can be inspected from inside the aisle through detachable panels for central management of cable routes between rows.

AISLE WIDTH [MM]	DEPTH [MM]	HEIGHT [MM]
800	300	150
	600	
	800	
1000	300	150
	600	
	800	
1200	300	150
	600	
	800	
1500	300	150
	600	
	800	
1800	300	150
	600	
	800	

HORIZONTAL SIDE CROSSPIECE FOR CABLE MANAGEMENT

Horizontal channel system allowing for tidy cable exchange routing between the front and rear parts of the rack.

DEPTH [MM]
1000
1200

ADDITIONAL ACCESSORIES

19" PANEL WITH RINGS FOR CABLE MANAGEMENT

19" panels in painted sheet metal equipped with 4 cable guide rings.

HEIGHT [U]
1
2
3

CABLE MANAGEMENT RING KIT

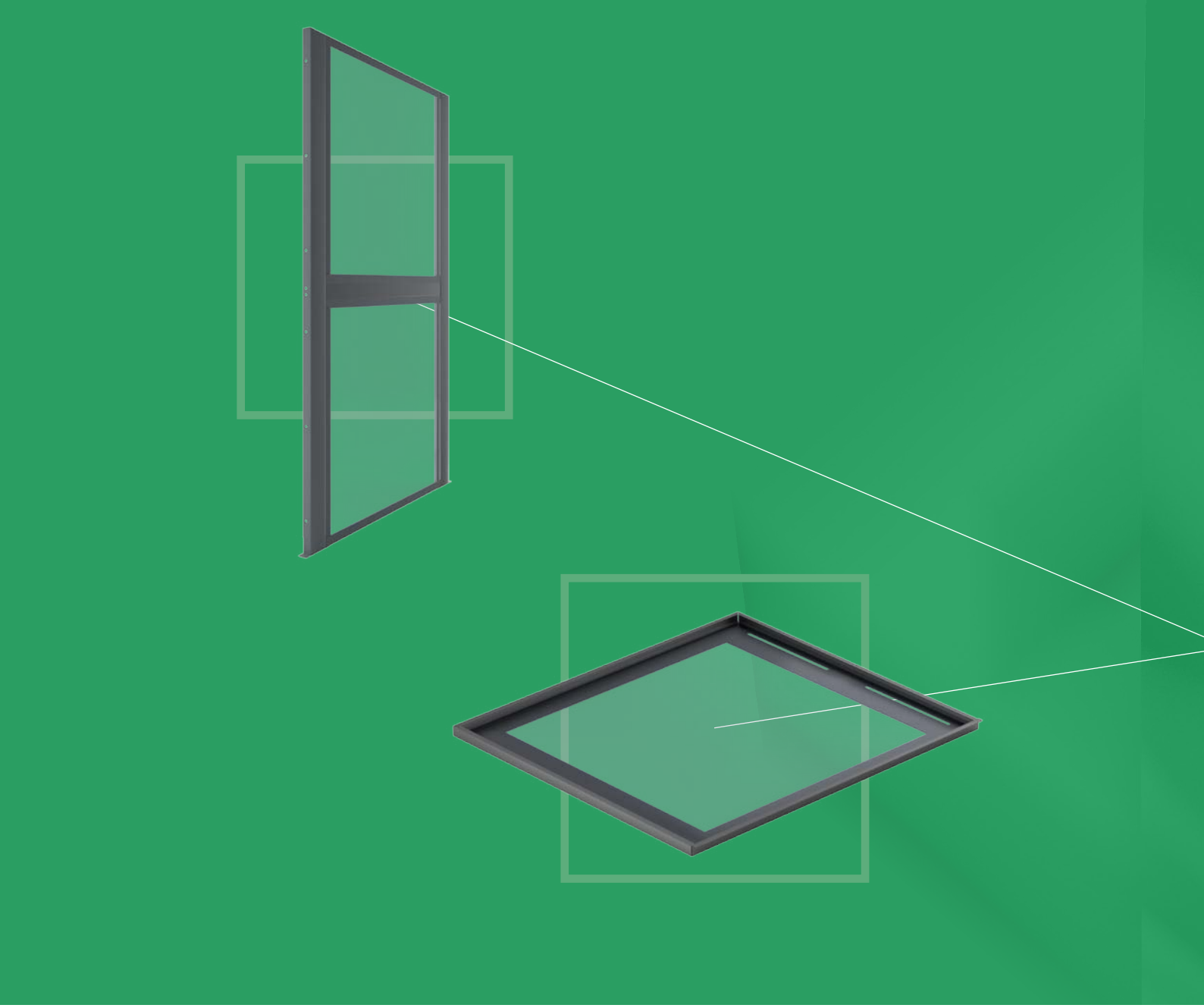
Kit consisting of 10 rings.

The following options are available:

Dimensions 80x80 mm

Dimensions 40x80 mm

Dimensions 40x40 mm



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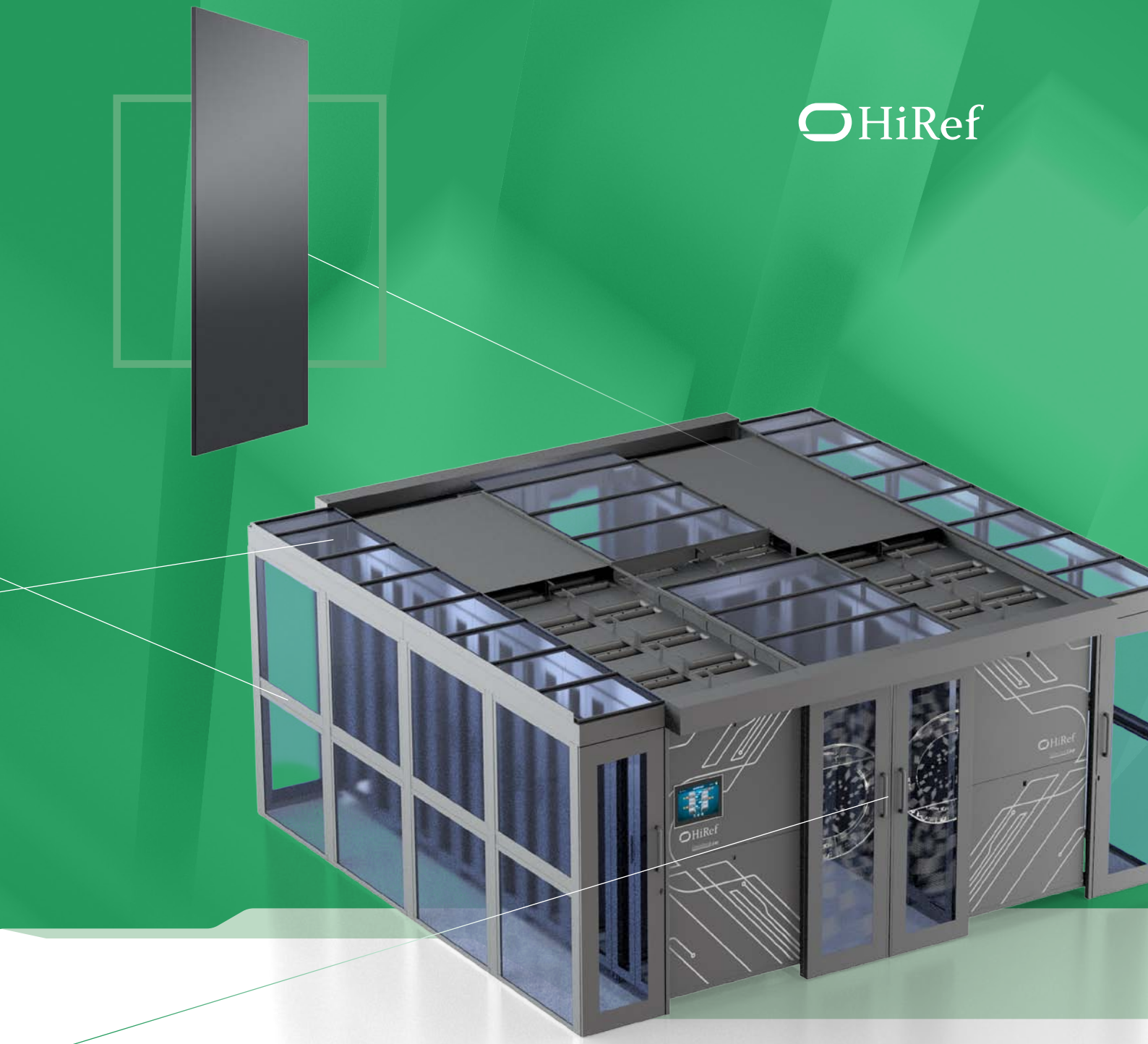


- THE AIR TEMPERATURE AT THE INLET TO THE AIR CONDITIONERS IS HIGHER, CONSEQUENTLY THEY ARE MORE EFFICIENT (WITH RESPECT TO A SOLUTION WITHOUT CONTAINMENT)
- SHARING OF DELIVERY AND INTAKE IN IT SYSTEMS ALLOWS FOR MORE ACCURATE MONITORING OF AIR FLOWS AND THERMO-HYGROMETRIC CONDITIONS
- NO THERMAL INFLUENCE BY THE SURROUNDING ENVIRONMENT
- ADVANCED PRESSURE CONTROL OF AIR IN THE AISLES

COMPONENTS

ZERO IMPACT SOLUTIONS

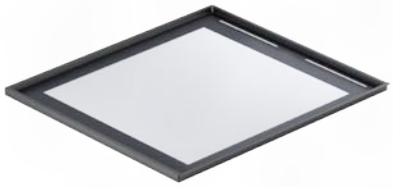
DataDomLine

HINGED DOOR FOR SIDE AISLE SUITABLE FOR ZERO IMPACT SOLUTIONS

3-point hinged door with key lock with transparent Lexan surface. Internal opening with quick release lock in case of emergency.

Door supplied with assembly kit.

WIDTH [MM]	HEIGHT [U]
800	42
	47
1000	42
	47



ROOF MODULES

Self-supporting sheet metal structure with transparent Lexan surface.

AISLE WIDTH [MM]	DEPTH [MM]
800	300
	600
	800
1000	300
	600
	800

SIDE CLOSURE

Self-supporting sheet metal frame composed of two-level Lexan side panels.

WIDTH [MM]	HEIGHT [MM]
300	1000
	1200
600	1000
	1200
800	1000
	1200

BLIND AISLE CLOSURE PANEL

Back panel in painted sheet metal for aisle closing, supplied with nuts and bolts and fixing brackets.

AISLE WIDTH [MM]	HEIGHT [MM]
800	42
	47
1000	42
	47

HiRef

UPS SYSTEM

DataDomLine

MODULAR UPS SYSTEM ON RACK

RANGE UP TO 4 X 25 KW

TYPES OF APPLICATION

- Integration in standard 19" rack cabinets
- Computer rooms
- Data Centers
- Banks
- Health facilities
- Insurance companies
- Telecommunications

ADVANTAGES

- Up to 4 X 25 kW
- UPS for rack mounting with high power density
- Power factor = 1
- The unit power factor ensures the best €/kW ratio
- High efficiency minimises energy consumption and cuts energy costs
- Pre-setting for Li-Ion battery. Ultra quick charge function

FULL INTEGRATION ON RACK

- Designed to guarantee simple and risk-free integration in 19" rack cabinets.
- Full compatibility with any standard 19" rack cabinet.
- High power density
- Simple management, integration and custom-isation
- Simplified and flexible wiring

Example of integration (3x25 kW). Only 15U of used racks: the compact design leaves room for other rack-mounted devices. An empty slot in the MODULYS RM GP subrack remains available for increased power or redundancy.

Rear view (before adding the rear protective cover). Flexible wiring management for easy connections and tidy cable routing.

OPTIMISATION OF GLOBAL COSTS

- Quick integration process
- No risk of overcharging or exceeding the budget
- Compact solution that saves valuable space
- Streamlined logistics
- Simple integration: avoids expensive configurations and re-working

Compact 15U case

Designed for full integration into any standard 19" rack cabinet.

FULLY REDUNDANT ARCHITECTURE

- N+1 redundancy level
- Designed without single points of failure
- No centralised parallel control
- Totally independent power modules

EXTREMELY IMPROVED MAINTENANCE

- Fast and safe maintenance thanks to hot-swap components (power modules, bypass, electronic boards, batteries)
- Designed to enable maintenance without transferring the load to the bypass
- The battery can be hot-plugged without turning off the connected equipment

"ETERNAL YOUTH" CONCEPT

- Exclusive life cycle extension program
- End-of-life critical issues eliminated
- Based on an electronics-free casing + a number of "plug-in" parts
- Module compatibility guaranteed for 20-plus years
- Ready to accept future module technology

STANDARD ELECTRICAL FUNCTIONS

- Two separate input networks
- Internal maintenance bypass
- Backfeed protection: detection circuit
- EBS (Expert Battery System) for battery management
- Battery temperature sensor

ELECTRICAL OPTIONS

- Electrical options
- 4U battery rack
- External battery cabinet
- High capacity battery charger

STANDARD COMMUNICATION FEATURES

- Intuitive multilingual interface with graphic colour display
- 2 slots for communication options

COMMUNICATION OPTIONS

- RS232/485 interfaces with clean contacts
- MODBUS RTU
- MODBUS TCP
- BACnet/IP interface
- NET VISION: WEB/SNMP professional interface for UPS monitoring and shutdown management for various operating systems

MAXIMUM RESILIENCE

- Electronics-free enclosure (fault-free)
- Fully self-sufficient and independent modules
- Actual selective disconnection of the modules with galvanic separation
- No centralised control for parallel management and load distribution among modules
- Bypass for fully segregated auxiliary network, centralised and sized for maximum power, and distributed bypass for inverter
- Configurable N + 1 redundancy (power and batteries)
- No single point of failure
- Connection with redundant parallel bus (ring configuration)

EXTREME RELIABILITY

- Power module designed and sized for superior strength verified by an independent organisation (MTBF > 1,000,000 h)
- Extremely strong bypass (MTBF > 10,000,000 h)
- Box for modular acid-leak proof batteries

MAXIMUM AVAILABILITY

- Quick restoration of lost redundancy thanks to a minimised MTTR (Mean Time To Repair) and maintenance
- No risk of down time during power surges
- No risk of fault propagation

TECHNICAL SPECIFICATIONS

		9U	15U
	Number of power modules	From 1 to 2 X 25 kW	From 1 to 4 X 25 kW
	Configuration	Redundancy N, N+1	
	Power (Sn)	25 to 50 kVA	25 to 75 kVA
	Power (Pn)	25 to 50 kW	25 to 75 kW
	Input/Output	3/3	
INPUT	Voltage	400 V three-phase + N (340 V at 480 V)	
	Frequency	50/60 Hz ±10%	
	Power factor/THDI	> 0.99/< 3%	
OUTPUT	Voltage	380/400/415 V ±1% three-phase + N	
	Frequency	50/60 Hz ±0.1%	
	Voltage distortion	<1% (linear load), <4% (non-linear load according to IEC 62040-3)	
	Short-circuit current	Up to 3 x In	
	Overload	125% for 10 minutes, 150% for 1 minute	
	Crest factor	3:1	
HOT-SWAP BYPASS	Voltage	Rated output voltage ± 15% (configurable from 10% to 20%)	
	Frequency	50/60 Hz ±2% (configurable for compatibility with generating set)	
	Weight	7 kg	7.5 kg
ENVIRONMENT	Ambient temperature	From 0 °C to + 40 °C (from 15 °C to 25 °C to optimise battery life)	
	Relative humidity	From 0 to 95% without condensation	
	Maximum altitude	1000 m without derating (max 3000 m)	
	Sound level at 1 m	<53 dBA	
RACK UPS	Dimensions L x W x H	442 mm x 920 mm x 9 U	442 mm x 920 mm x 15 U
	Weight (empty cabinet)	36 kg	42 kg
	Degree of protection	IP20	
HOT-SWAP POWER MODULE	Height	3U	
	Weight	34 kg	
	Type	Hot-pluggable ("hot plug-in")/hot-removable ("hot swap")	
	MTBF	> 1,000,000 hours (calculated and verified)	
HOT-SWAP BATTERY RACK	Type	Protection against acid leaks - Long life batteries	
	Protection	Independent protection for each row of batteries	
	Dimensions L x W x H	442 mm x 890 mm x 4 U	
	Weight (empty rack)	15 kg	
STANDARDS	Safety	EN 62040-1, EN 60950-1	
	Electromagnetic compatibility (EMC)	EN 62040-2 Class C2	
	Performance	EN 62040-3 (VFI-SS-111)	
	Product certification	CE	

HiRef

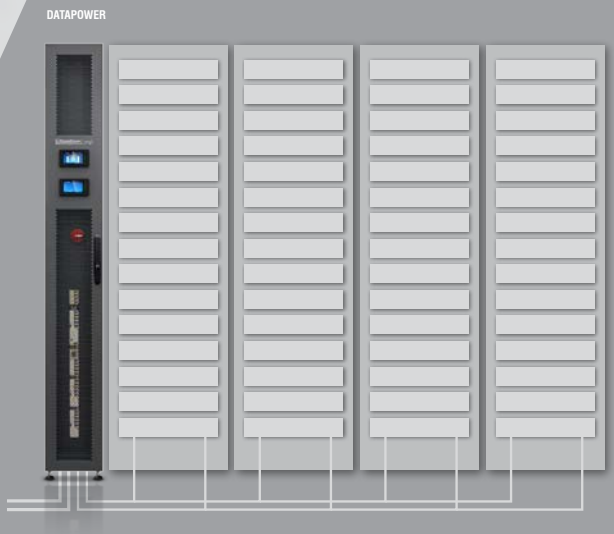
DataPower
CONTROL PANELS

DataDomLine

DataPower

INFRA RACK DISTRIBUTION PANEL

DataPower is a line of electrical control panels specifically designed for electricity distribution in rack applications. In these installations the main goal is to guarantee continuity of service: **DataPower** offers top configurability, guaranteeing different degrees of redundancy depending on specific customer needs.



With **DataPower**, depending on the system architecture, it is possible to power the (single-phase/three-phase) PDUs, air-conditioning systems with single or redundant power supply, and monitoring systems such as presence, smoke/fire or flooding sensors; it is also possible to manage the island's lighting system.

The structure consists of powder coat-finished structural metalwork on two 300 mm or 600 mm wide frames depending on the number of users to be powered.

Configurability requires the customer to choose between single or double power supply to the equipment, regardless of the number of input power lines. In particular:

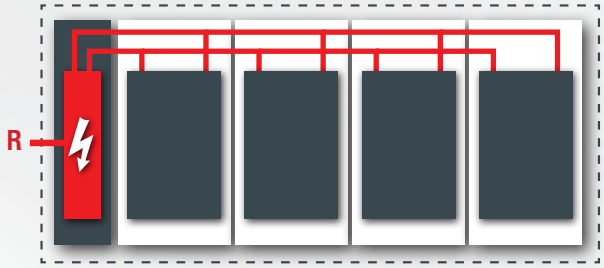
Input lines	1 x 400/3+N/50			
Output lines	1 x 400/3+N/50	2 x 400/3+N/50	1 x 230/1/50	2 x 230/1/50
Input lines	2 x 400/3+N/50			
Output lines	2 x 400/3+N/50	2 x 230/1/50		
Input lines	1 x 230/1/50			
Output lines	1 x 230/1/50	2 x 230/1/50		
Input lines	2 x 230/1/50			
Output lines	2 x 230/1/50			

The main power supply can be brought into the panel from the upper or lower part of the panel itself and must be connected to the main switch installed on the back of the structure.

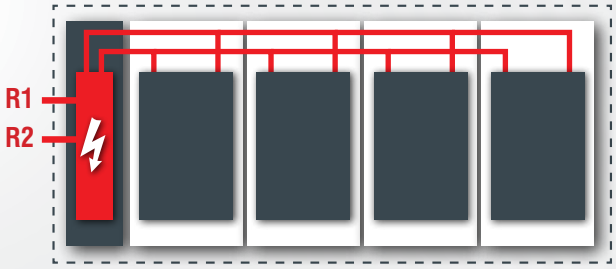
As for outgoing power supplies from the panel, they are provided from the roof of the structure with a cable kit and a corresponding IEC-309 type socket.

EXAMPLES OF CONNECTION

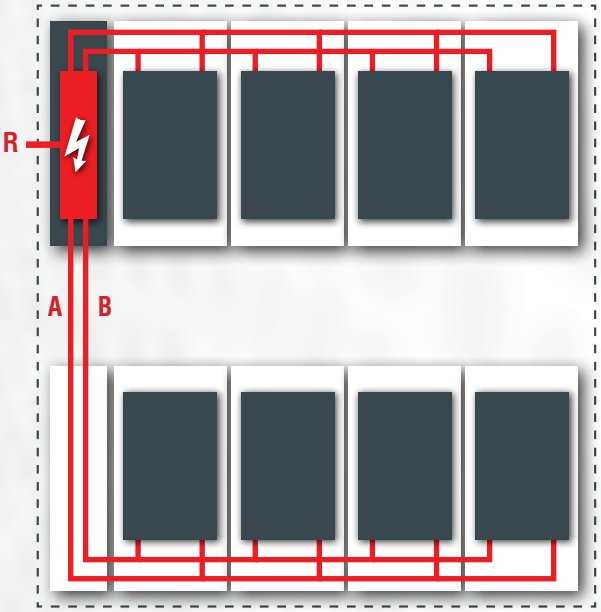
CASE 1A: DataBox with single row of Racks, 1 power supply.



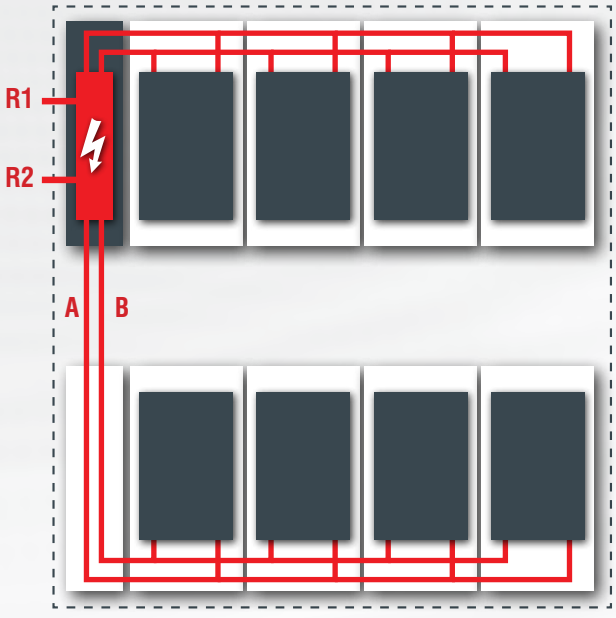
CASE 1B: DataBox with single row of Racks, 2 power supplies.



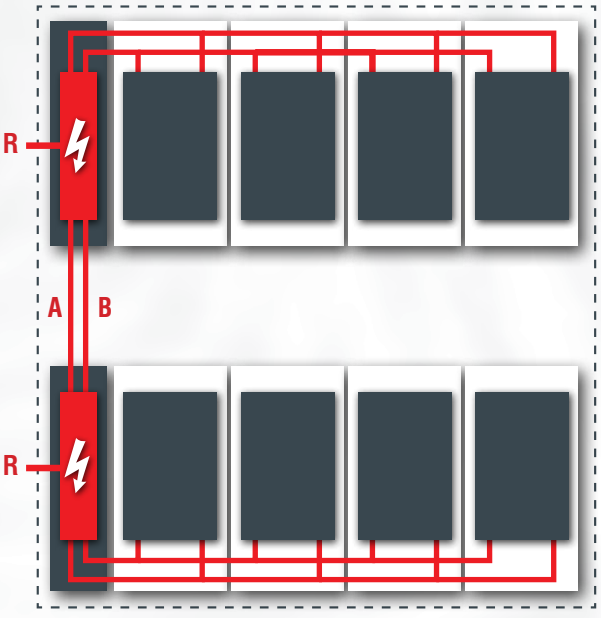
CASE 2A: DataBox with double row of Racks, 1 power supply.



CASE 2B: DataBox with double row of Racks, 2 power supplies.



CASE 3: DataBox with double row of Racks and dual electrical control panel.



DataPowerAdvanced

With **DataPowerAdvanced** it is possible to integrate in the rack structure containing the electrical distribution panel all the *features* available with the **HiNode** control system (see dedicated chapter).

The system is installed inside the panel via a 19" drawer module, with a height of 3U, positioned in the upper part of the rack. The module has an LCD display for advanced configuration operations.

Installation on *stand-alone* case

The user can interface with the control system via a **13" touch display,** which can be installed on-board the island - if the customer orders the island aisle door in its automatic version - or mounted on a *stand-alone* case.

Wall mounting (on-board the island)

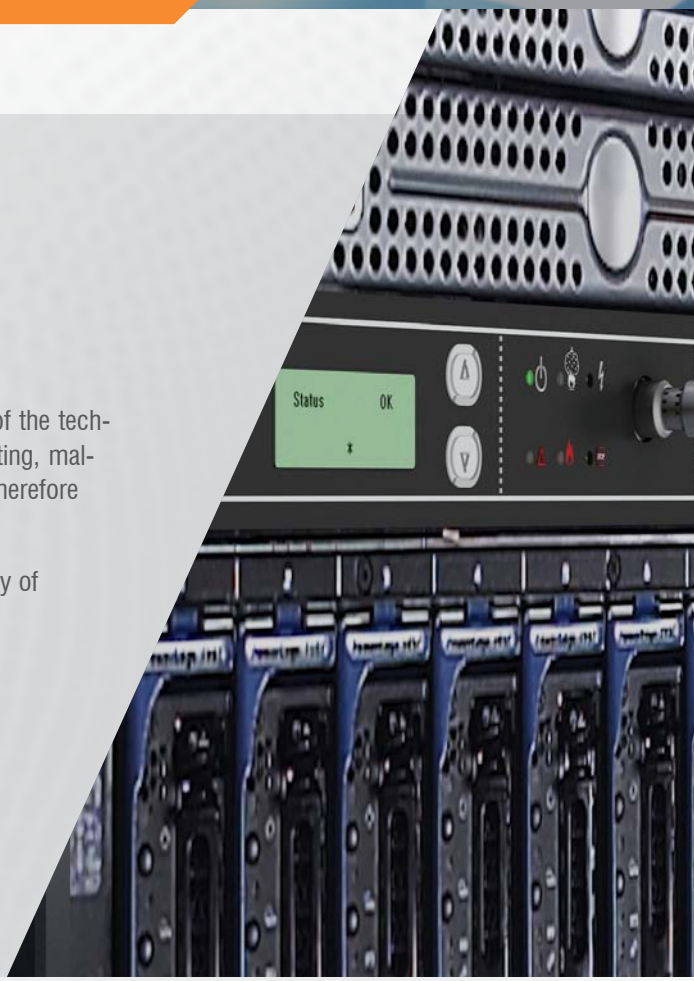
HiRef

DataFire
FIRE PROTECTION

DataDomLine

Fire protection

HEIGHT OF ONLY 44 MM



DataFire fire protection systems that guarantee service continuity of the technical devices also in the event of a short circuit, overload, overheating, malfunction or components faults that may start fires. The systems are therefore ideal for:

- server and network technology, which ensures 24-hour availability of company data;
- production checks, which control and monitor production processes;
- Telecommunication systems, which guarantee effective and uninterrupted communication for the company.

Active DataFire extinguishing system

ALL-IN-ONE

DataFire active fire extinguishing systems are autonomous and independent devices for detecting and extinguishing fires in closed IT racks.

They are easily installed in one of the top three slots of a rack.

Suction type smoke detection module

The smoke detection module continuously extracts air samples from the rack via a suction fan. The module is equipped with two highly sensitive smoke sensors, which analyse air samples to detect the presence of smoke particles. The sensors can be configured to have an adjustable response sensitivity. The different response sensitivity levels allow a combination of pre-alarms and main alarms to be created.

As soon as the first sensor detects smoke particles, the system activates a pre-alarm. In this phase, the electrical circuits can be automatically disconnected in order to avoid fire outbreaks.

However, if the fire continues to develop, the second sensor detects smoke particles which, in turn, activate the main alarm. At the same time, the system control electronics activate the fire extinguishing module.

AN INDIVIDUAL RACK UNIT CONTAINS:

- a suction type smoke detector module
- an extinguishing module
- a power supply module
- detection and control electronics
- monitored connections for external alarm devices
- free-potential contacts for switching off the power circuits
- an easy-to-use display and control panel

Extinguishing module

The extinguishing module consists of a pressure-resistant metal case containing Novec 1230® extinguishing agent, a release mechanism with valve and propellant gas cartridge, an extinguishing agent leak control device and the extinguishing nozzle.

During the extinguishing process, the propellant gas cartridge is opened and the liquid extinguishing agent is released. The special geometry of the nozzle allows the agent's vaporization and propagation in the rack, putting out the fire quickly and without leaving residues.

One module contains a sufficient amount of extinguishing agent to protect closed 19” racks with a maximum volume of 2.8 m^3.

Power supply, control system, information

The power supply module, consisting of a power supply and rechargeable batteries, guarantees uninterrupted operation for at least four hours.

The detection and control electronics constantly checks the correct operation of the smoke sensors and any contamination, automatically activating the extinguishing module in case of fire.

This can be activated via an external manual release.

Dry contacts are available to transmit alarms and malfunctions, for example to a central process control system or to a main fire detection system installed in the building, as well as to manage power cuts.

A two-line LCD display and six additional LEDs indicate the operation status of the **DataFire** fire protection system.

DataFire fire-fighting systems can also be integrated into Ethernet networks to forward messages via SMS or e-mail and to display them on devices configured with IP addresses.

INTERNAL SECTION OF A DataFire ACTIVE EXTINGUISHING SYSTEM

Suction type smoke detector module consisting of:

1 Fan

2 Smoke sensors

Extinguishing module Novec 1230® consisting of:

3 Propellant gas cartridge

4 Novec 1230 ® extinguishing agent container with leak monitoring

5 Extinguishing nozzle

Detection and control electronics 6

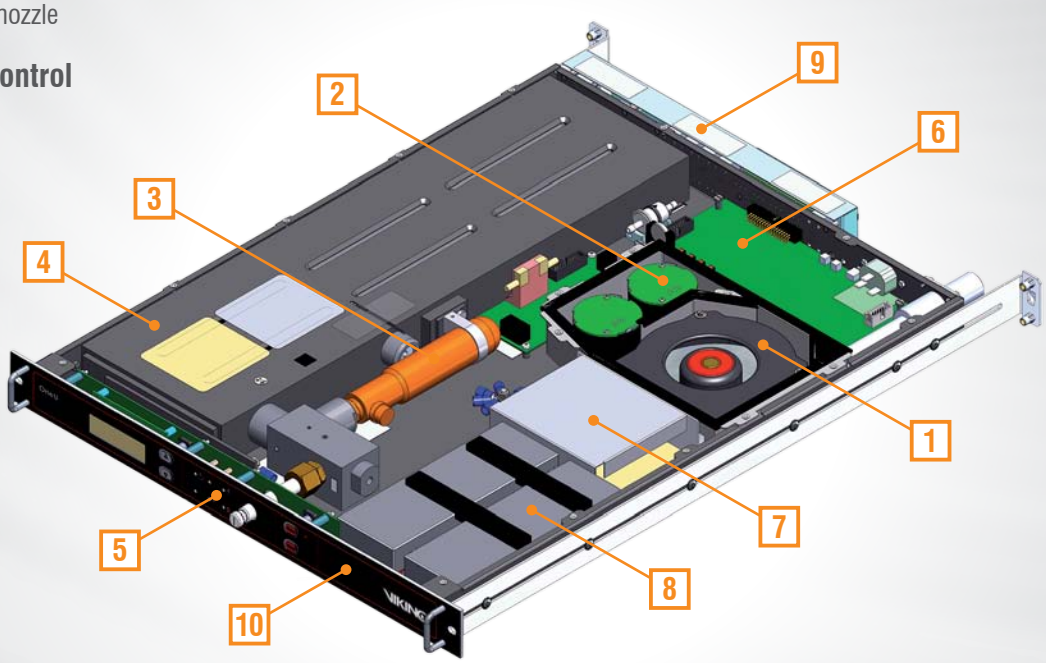
Power supply module consisting of:

7 Main power supply unit

8 Emergency power supply

Connections for power supply and for external systems 9

Front panel with viewing and control display 10



HiRef

HiNode CONTROL AND MANAGEMENT SYSTEM

DataDomLine

HiNode

MANAGEMENT AND SUPERVISION SYSTEM

HiNode is a management and supervision system for all the devices (see list of functions below) installed within the DataBox island.

HiNode manages the conditioning devices according to an integration and full redundancy research logic, to ensure correct and stable control of the thermal and hygrometric conditions to be maintained inside the DataBox. At the same time, it maximises system efficiency through the advanced *dynamic set-point function*, which allows the optimal set-point to be calculated based on actual load conditions.

In addition, the smart activation of individual air conditioning units avoids or reduces the hot spots within the system.

HiNode integrates air conditioners control with the following functions:

- Alarm management (high temperature, smoke/fire, flooding, etc.)
- Management of the opening state of the rack doors
- Management of the presence detection system
- Management of the lighting systems
- Monitoring of electricity consumption of each individual PDU
- Monitoring of the electrical consumption of the cooling units
- Calculating the PUE
- Monitoring of the thermo-hygrometric conditions of the island or of each individual rack

The **HiNode** system consists of a microprocessor to which an *LCD display* is connected, which allows access to advanced configuration, service and maintenance operations.

In addition, it is possible to install a user interface *13" touch display*, thanks to which the layout of the island can be viewed with instantaneous operating data and related graphs over time: temperatures, electrical absorption, operating variables, PUE, etc.

Finally, it is possible to obtain virtualizations of the display of each individual air conditioner (rack cooler/chiller) for the management of user-level parameters (set-points, ON/OFF, alarms).

HiNode is available in two versions:

IN-RACK VERSION

In this version the hardware components are available in an in-rack version with an integrated LCD display. The combined *13" touch display* only can be installed on a remote metal case or on-board the island, if the customer had ordered the island aisle door in its automatic version.

WALL MOUNTING VERSION

In this version, the complete kit is supplied in a *stand-alone* metal case to be installed on the wall.

HiRef

PDU - POWER DISTRIBUTION UNITS

DataDomLine

PDU POWER DISTRIBUTION UNITS

To complete the range of **DataDom** Line products, various models of **PDUs** are available with different functions to meet all user needs.

All **PDUs** are equipped with magneto-hydraulic switches which remain operational even in high temperature environments. They are also equipped with anti-release IEC sockets with selectable colour, suitable for *toolless* installation.

FEATURES RECAP

	INPUT METERED	OUTLET METERED	OUTLET SWITCHED	ENVIRON-MENTAL MONIT-ORING*	ETHERNET INTERFACE
Basic PDU	☒	☒	☒	☒	☒
PDU Input Metered	☑	☒	☒	☑	☑
PDU Input Metered & Outlet Switched	☑	☒	☑	☑	☑
PDU Outlet Metered & Outlet Switched	☒	☑	☑	☑	☑

INPUT METERED
Total energy consumption measurement function at PDU input, with overload monitoring and advanced alarm management.

OUTLET METERED
Energy consumption measurement function at each PDU socket, with overload monitoring and advanced alarm management.

OUTLET SWITCHED
Remote on and off control of each single socket of the PDU. The management of the power-on sequence of the sockets protects against inrush current-induced overload and allows users to establish the sequence and timing of the devices' power-on.

ENVIRONMENTAL MONITORING
Rack temperature and humidity monitoring function. **Requires connection with EA9102/EA9103 sensors (see dedicated section).*

ETHERNET INTERFACE
Allows remote connection of the PDU via a RJ45 Ethernet port.

EB0811

BASIC PDU

The **PDU Basic** family of products offers users a low-cost option in cases where there is no need for consumption measurement or remote management of loads.

ELECTRICAL INPUT DATA

CODE	PHASE	RATED AMPERAGE	POWER	NUMBER OF OUTPUTS	TYPE OF OUTPUTS
EB0322	Single phase	Single phase	3.84kVA	22	(20)C13, (2)C19
EB0321			7.68kVA	20	(20)C13
EB0337			7.68kVA	42	(36)C13, (6)C19
EB0809	Three Phase	Three Phase	23.04kVA	24	(18)C13, (6)C19
EB0811			23.04kVA	42	(30)C13, (12)C19

ENVIRONMENTAL CONDITIONS

OPERATING TEMPERATURE	STORAGE TEMPERATURE	HUMIDITY (OPERATING/STORAGE)	MAXIMUM OPERATING ALTITUDE (ABOVE SEA LEVEL)
-5 to 60 °C	-20 to 60 °C	5-90% RH / 5-95% r.h.; non-condensing	3,000 m

PDU INPUT METERED

ELECTRICAL INPUT DATA

CODE	PHASE	RATED AMPERAGE	POWER	NUMBER OF OUTPUTS	TYPE OF OUTPUTS
EN1326	Single phase	16A	3.84kVA	43	(20)C13, (4)C19
EN1325	Single phase	32A	7.68kVA	44	(20)C13, (4)C19
EN1330	Single phase	32A	7.68kVA	45	(28)C13, (6)C19
EN1335	Single phase	32A	7.68kVA	46	(32)C13, (6)C19
EN1337	Single phase	32A	7.68kVA	47	(36)C13, (6)C19
EN1402	Three Phase	16A	11.52kVA	30	(24)C13, (6)C19
EN1403	Three Phase	16A	11.52kVA	42	(36)C13, (6)C19
EN1808	Three Phase	32A	23.04kVA	24	(12)C13, (12)C19
EN1809	Three Phase	32A	23.04kVA	24	(18)C13, (6)C19
EN1811	Three Phase	32A	23.04kVA	42	(30)C13, (12)C19
EN1812	Three Phase	32A	23.04kVA	48	(36)C13, (12)C19

ENVIRONMENTAL CONDITIONS

OPERATING TEMPERATURE	STORAGE TEMPERATURE	HUMIDITY (OPERATING/STORAGE)	MAXIMUM OPERATING ALTITUDE (ABOVE SEA LEVEL)
-5 to 60 °C	-20 to 60 °C	5-90% RH / 5-95% r.h.; non-condensing	3,000 m


EN1403

PDU INPUT METERED & OUTLET SWITCHED

ELECTRICAL INPUT DATA

CODE	PHASE	RATED AMPERAGE	POWER	NUMBER OF OUTPUTS	TYPE OF OUTPUTS
EN2316-A	Single phase	16A	3.84kVA	16	(12)C13, (4)C19
EN2317	Single phase	16A	3.84kVA	16	(12)C13, (4)C19
EN2326	Single phase	16A	3.84kVA	24	(20)C13, (4)C19
EN2325	Single phase	32A	7.68kVA	24	(20)C13, (4)C19
EN2329	Single phase	32A	7.68kVA	32	(24)C13, (8)C19
EN2337	Single phase	32A	7.68kVA	44	(38)C13, (6)C19
EN2402	Three Phase	16A	11.52kVA	24	(18)C13, (6)C19
EN2403	Three Phase	16A	11.52kVA	36	(30)C13, (6)C19
EN2808	Three Phase	32A	23.04kVA	24	(12)C13, (12)C19
EN2810	Three Phase	32A	23.04kVA	36	(24)C13, (12)C19
EN2812	Three Phase	32A	23.04kVA	48	(36)C13, (12)C19

ENVIRONMENTAL CONDITIONS

OPERATING TEMPERATURE	STORAGE TEMPERATURE	HUMIDITY (OPERATING/STORAGE)	MAXIMUM OPERATING ALTITUDE (ABOVE SEA LEVEL)
-5 to 60 °C	-20 to 60 °C	5-90% RH / 5-95% r.h.; non-condensing	3,000 m


EN2810

PDU OUTLET METERED & OUTLET SWITCHED

ELECTRICAL INPUT DATA

CODE	PHASE	RATED AMPERAGE	POWER	NUMBER OF OUTPUTS	TYPE OF OUTPUTS
EN6326	Single phase	16A	3.84kVA	24	(20)C13, (4)C19
EN6325	Single phase	32A	7.68kVA	24	(20)C13, (4)C19
EN6329	Single phase	32A	7.68kVA	36	(24)C13, (8)C19
EN6337	Single phase	32A	7.68kVA	44	(38)C13, (6)C19
EN6402	Three Phase	16A	11.52kVA	24	(18)C13, (6)C19
EN6403	Three Phase	16A	11.52kVA	36	(30)C13, (6)C19
EN6808	Three Phase	32A	23.04kVA	24	(12)C13, (12)C19
EN6810	Three Phase	32A	23.04kVA	36	(24)C13, (12)C19
EN6812	Three Phase	32A	23.04kVA	48	(36)C13, (12)C19

ENVIRONMENTAL CONDITIONS

OPERATING TEMPERATURE	STORAGE TEMPERATURE	HUMIDITY (OPERATING/STORAGE)	MAXIMUM OPERATING ALTITUDE (ABOVE SEA LEVEL)
-5 to 60 °C	-20 to 60 °C	5-90% RH / 5-95% r.h.; non-condensing	3,000 m


EN6325

OPTIONAL SENSORS*

*Not available for the **BASIC PDU** family*

EA9101 luminous alarm signal

The luminous alarm signal is designed to visually signal an alarm condition due to malfunction (or to another condition - as established by the user), so as to warn the staff as quickly and effectively as possible.

EA9102 temperature sensor / EA9103 temperature and humidity sensor

The temperature and humidity sensors are designed to integrate full environmental monitoring in all PDU series (except **Basic PDUs**). Their smart design allows for easy plug & play installation in just a few moments. Installation of the sensors and constant maintenance of the equipment are further facilitated by the use of the quick connector and Ethernet cable, which allow the sensors to be used with extensions and the equipment to be handled.

EA9105 3T/1H sensor

The EA9105 item is composed of 3 temperature sensors and 1 humidity sensor connected to each other by means of an RJ45 connector.

EA9106 sensor hub

The sensor hub allows 3 additional sensor ports to be added to the PDU. Up to two sensor hubs can be installed simultaneously.

EA9109 door opening sensor

The door button sensor (consisting of two magnetic parts) is designed to trigger an alarm or a warning signal when the cabinet door is opened by more than 10mm.

Fluid detection sensor EA911

The fluid detection sensor is designed to reliably monitor the presence of water or any other conductive liquid. The sensor can be equipped with an extension (up to 30.5 m) using a standard RJ45 connector.

EA9112 cable sensor for fluid leak detection

The cable sensor for detecting fluid leaks is designed for early detection of leaks in a data centre or in a network cabinet. The cable can be extended to reach lengths up to 30 meters.

EA9116 smoke detection sensor

The smoke detection sensor is designed for early signalling to the PDU, through a red light, the presence of smoke in a data centre or in a network cabinet. The sensor cable can be extended up to a length of 30 metres, using a standard RJ45 connector.

EA9122 universal cabinet bracket

The universal bracket EA9122 allows the installation of PDUs both horizontally and vertically on any type of rack. If arranged horizontally, it allows two PDUs to be positioned in parallel.

POWER CABLES

CONNECTION TYPE C 13 - C 14

CODE	CABLE LENGTH	COLOUR
EP8702G	0.6 m	Grey
EP8704	1.2 m	Black
EP8704B	1.2 m	Blue
EP8704G	1.2 m	Grey
EP8706	1.8 m	Black
EP8706B	1.8 m	Blue
EP8706G	1.8 m	Grey

CONNECTION TYPE C 19 - C 20

CODE	CABLE LENGTH	COLOUR
EP8712	0.6 m	Black
EP8712B	0.6 m	Blue
EP8712G	0.6 m	Grey
EP8714	1.2 m	Black
EP8714B	1.2 m	Blue
EP8714G	1.2 m	Grey
EP8716	1.8 m	Black
EP8716B	1.8 m	Blue
EP8716G	1.8 m	Grey


DataDomLine
by
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DataDomLine

MODULAR SYSTEMS FOR DATA CENTERS

COMPONENTS CATALOGUE

HiRef

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