



**GTS Telecom**  
***Bucharest***  
***DATA CENTER***



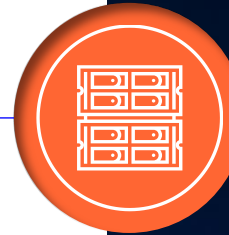
# GENERAL DESCRIPTION

## BUCHAREST GTS TELECOM DATA CENTER

The GTS Bucharest Data Center is **made out of independent data centers**, with **redundant N+1 technologies**, with a maximum installed **power of 2MW (with an estimated annual PUE of 1.39)** and a colocation capacity of **240 racks**.

The assembly consists of three data centers (DC2, DC3 and DC3.2), the most recent being completed and inaugurated in May 2015, and occupies a total of 600 square meters. Each data center consists of:

The data center also benefits from an **office area** and a **meeting room** (area dedicated to external GTS meetings).



**COLOCATION ROOM**, hosting the racks.



**TECHNOLOGY ROOM** dedicated to Data Center assets (UPS, batteries, extinguishing system, security systems, etc.)



**STAGING ROOM** (the area intended for troubleshooting operations for the collocated equipment)



## ELECTROMAGNETICA BUSINESS PARK

The assembly of GTS Bucharest data centers is located inside Electromagnetica Business Park, one of the largest office building complexes in the center of Bucharest:

**266 – 268 Calea Rahova, Bucharest.**



The location of the data centers in this technology park ensures an **additional first level of security** through the 24/7/365 security and protection staff, which monitors and records the access of the visitors.



Access to GTS data centers is done using **electronic control systems** that use proximity magnetic cards with different levels of access for each employee.



***ARCHITECTURAL.  
CIVIL WORKS***

**1**

## WALLS

they have a **nominal thickness of 150mm** and a **fire resistance** of 120 minutes, like the doors that separate the external imprint and the technical spaces.

**3**

## CEILING

a perforated cassette, **with a metal structure**, of the newest GTS Telecom imprint from Bucharest, DC3.2, **plays the role of an air cushion** (plenum) in the colocation room.

It **streamlines the entire cooling system** by faster and more concentrated absorption of hot air, generated by the installed equipment.

**2**

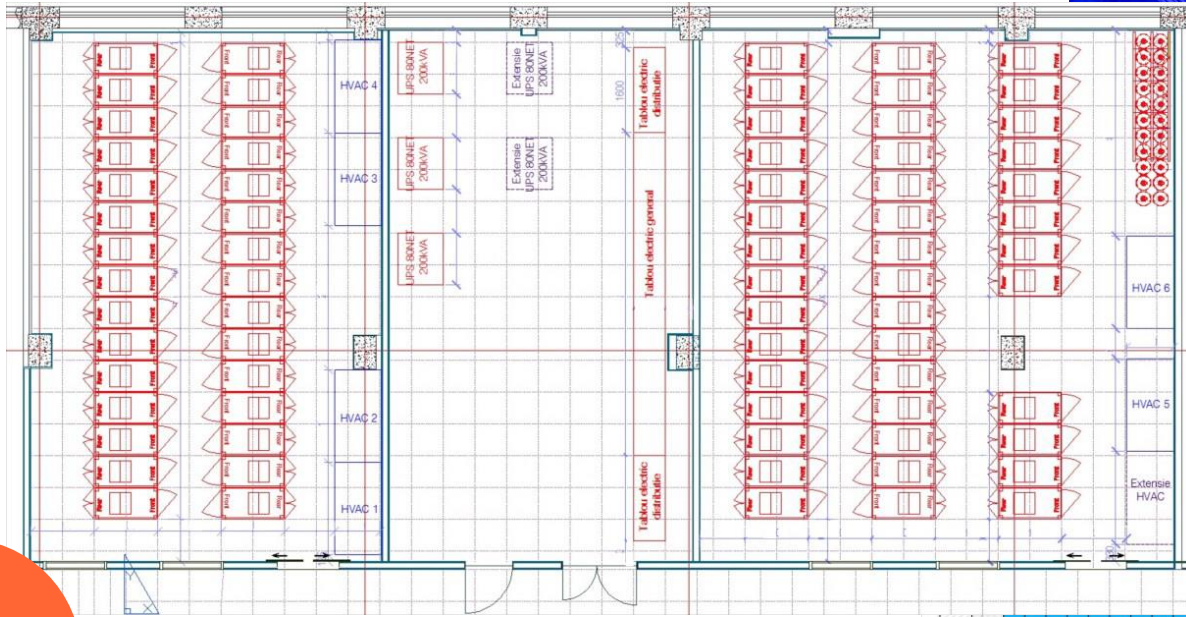
## FLOORING

**the anti-static float**, with a height between 500-800mm (in technical areas), is designed to withstand loads of 16kN/m<sup>2</sup> (one ton/m<sup>2</sup>) and has **an important role both in the distribution of cold air** and in the routing of electrical routes.

**4**

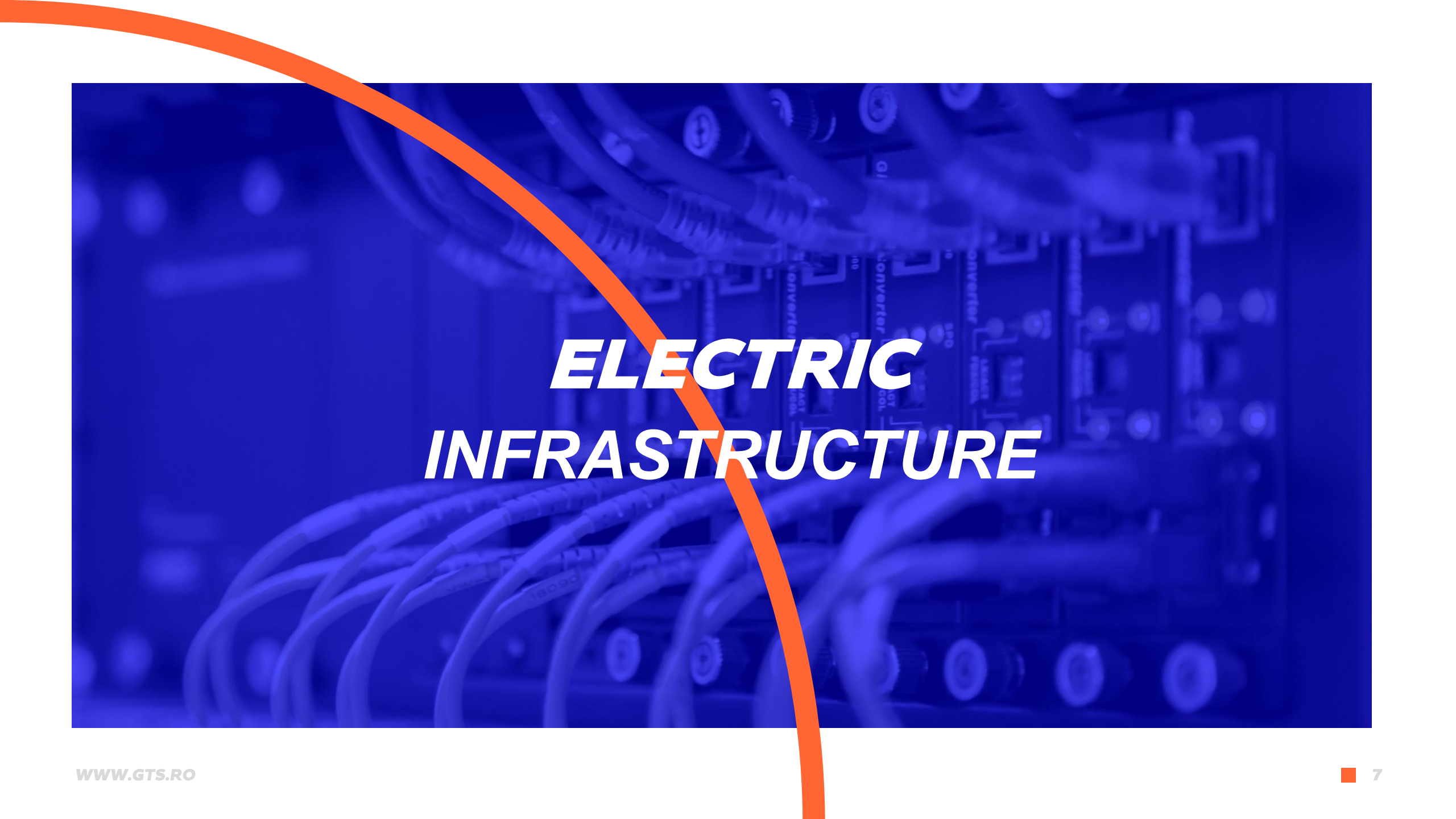
## LIGHTING

it is made with **LED panels**, both for low consumption and high efficiency, and **for alignment with the "Green" standards** of the host building.



# ARCHITECTURAL. CIVIL WORKS





# ***ELECTRIC INFRASTRUCTURE***



## ***ELECTRIC INFRASTRUCTURE***

- The electrical infrastructure is sized to supply a total load of **2MW** Data center.
- The electrical infrastructure ensures both the standard power supply of the racks, and the supply of **High Density racks**, ready for an active power of **10kW**.



### ***ELECTRIC PANEL***

The **electrical panel**, provided by EATON Romania and made in partnership with a local panel manufacturer, **integrates a redundant and diverse multifilament diagram** both in terms of power supply and vital consumers distribution.

The main distributions of the electrical panel are equipped with Janitza network analyzers, which, together with the dedicated software solution, perform **a real-time x-ray of the entire electrical network**, while ensuring the monitoring of electrical parameters and calculating the efficiency of the Data Center.



### ***UPS SYSTEM***

The DC2 and DC3 imprints are serviced by Riello UPS systems, which ensure a level of N+1 redundancy.

The DC3.2 imprint UPS system consists of Vertiv units with the same **level of N+1 redundancy**.



### ***DIESEL GENERATOR***

If there are power supply interruptions at the level of the power supply line found in the main distribution network, the power supply of the DC2 and DC3 data centers will be taken over by Diesel Petrogen generators, **in N+1 redundancy mode**.

The emergency supply of the DC3.2 imprint is provided by a **redundant N+1 system of Diesel SDMO generators**.





## AIR CONDITIONING



### COLOROOM

For the air conditioning in the colocation rooms we have used **equipment (redundancy N+1)** close control with double circuit, Emerson Liebert Hiross brand, type PX092EA (for DC2 and DC3) and L99UA (for DC3.2), with extended height, Downflow Down Smart Aisle configuration. These have a net sensitive cooling capacity of **100kW**, and **80kW** on each unit.



### COLD AISLE & SMART AISLE

Cold Aisle and Smart Aisle are the systems seen as an integrated part of the cooling solution, which **ensure the closure of the cold corridor and high efficiency from the perspective of energy consumption.**

The two systems have the role of separating the cold air zones and the hot air zones and are designed **to increase the efficiency of the cooling system.** Both types of systems adapt to different rack heights and depths and aisle widths in order to support the insulation of the hot or cold aisle.





# ***FGS (OPTICAL FIBER GUIDING SYSTEM)***



## **FGS (OPTICAL FIBER GUIDING SYSTEM)**

The FGS device from ADC Krone acts as a guide for the optical fiber patch cords between the two dedicated ODFs and the customer racks. The optical fiber reaches the Data Center on three separate routes, without a common point, and connects the GTS Data center to the regional data network.



## **RACKS**

The standard racks installed in the three data centers are 42U APS NetShelter SX AR3100 racks, with external dimensions of 600x1070x1991mm (WxDxH), and Emerson DCM.

With a strong focus on cooling, power distribution, cable management and environmental monitoring, rack enclosures provide a reliable hosting environment for mission-critical equipment.



## **PDU (POWER DISTRIBUTION UNIT)**

Given the need to load up to 10 kW for High Density racks, PDUs from 3.5kW to 10kW are used in the three imprints, in a 1+1 redundancy mode per rack.

Rack power distribution units (PDUs) include active measurement function to allow monitoring and optimization of power consumption.



***ACCESS CONTROL.  
VIDEO MONITORING***



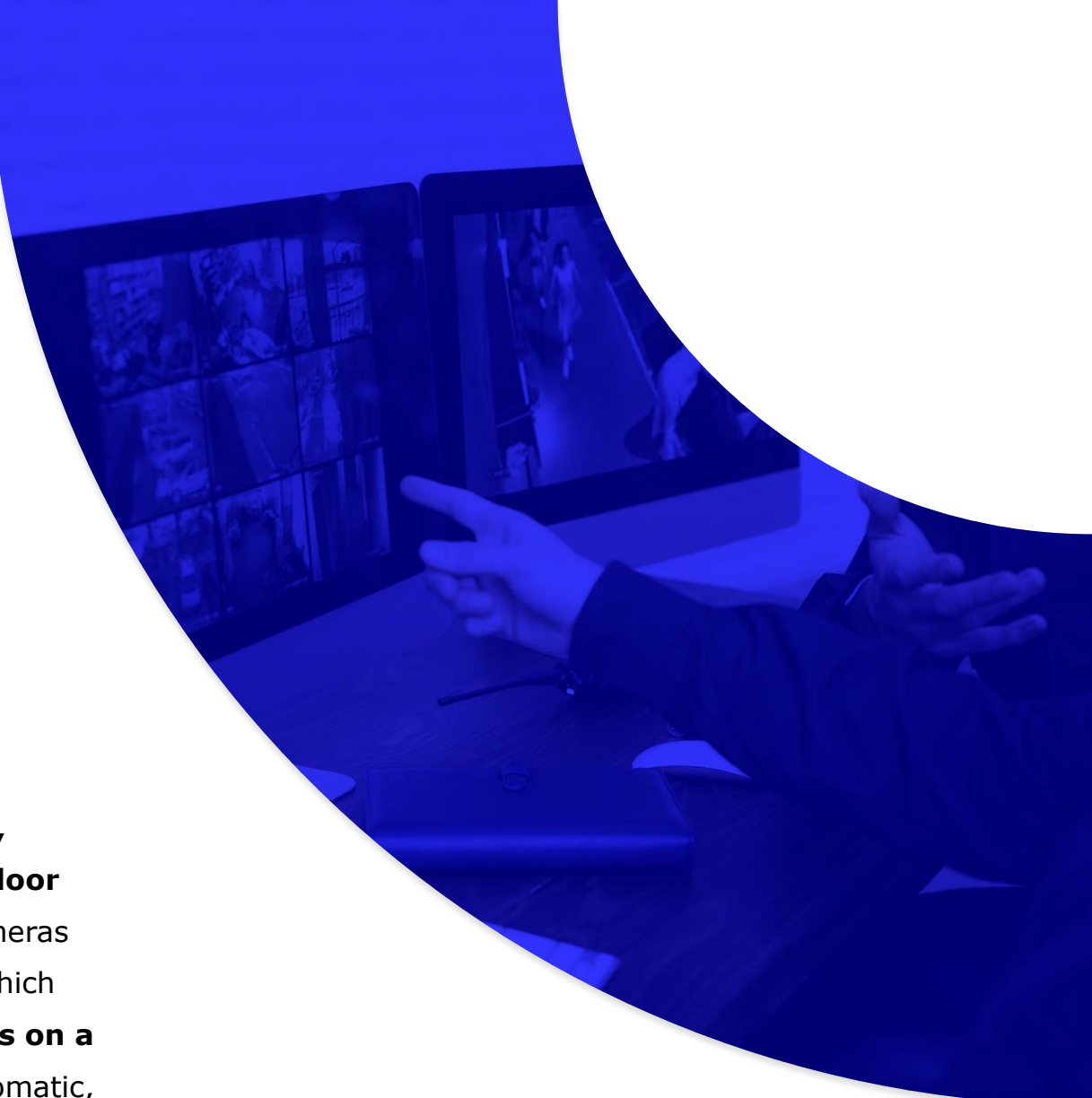
## ACCESS CONTROL AND ANTI-BURGLARY

The integrated DSC system **performs automatic surveillance of spaces** where burglary attempts, audible alarms, **manual signaling of armed attack attempts by using the panic button**, self-testing for detectors and control panels, **with the possibility of remote diagnosis**, protection against sabotage and access control in high-risk premises take place.



## VIDEO SURVEILLANCE

The closed-circuit video system is **a complex system, consisting of 39 indoor video cameras and 4 outdoor cameras** installed in points of real interest. These cameras are connected to a digital equipment system (NVR), which performs the simultaneous tracking of the **11 cameras on a monitor** and the successive switching, manual or automatic, of the cameras on the monitor assigned to it.





# ***DETECTION AND FIRE EXTINGUISHING***



## DETECTION AND WARNING SUBSYSTEM

Performs the following options:

- Automatic monitoring of the onset of fire (fire, smoke or change in temperature)
- Manual fire signaling
- Operation signaling / control of other auxiliary installations
- Ensures the evacuation possibilities under the conditions involved by the existence of an access control installation.



## FIRE-FIGHTING SUBSYSTEM

The colocation rooms and technology room of each data center have an inert gas fire extinguishing subsystem (INERGEN), a system made up of:

- Conventional extinguishing control panel
- Electromechanical extinguishing system
- Mechanical transport and discharge system extinguishing agent
- Alarm sirens in case of fire.

Each of the three data centers is equipped with its own fire extinguishing system.



	<b>SPECIFICATIONS</b>	<b>DC2</b>	<b>DC3</b>	<b>DC3.2</b>
<b>ENVIRONMENT WITH TEMPERATURE AND HUMIDITY</b>	Controlled temperature	✓	✓	✓
	Controlled and constant humidity percentage	✓	✓	✓
	Fire detection system	✓	✓	VESDA
	Inert gas extinguishing system	Inergen	Inergen	Inergen
<b>Power supply system</b>	Power supply system	0.63MW	1.25MW	1.25MW
	Independent power supply circuits from the electricity supplier	✓	✓	✓
	UPS and diesel generators for back-up	✓	✓	✓
	Two independent power circuits for each rack	A+B	A+B	A+B
	Active power	Up to 7kW/cabinet	Up to 7kW/cabinet	Up to 10kW/cabinet
<b>SECURITY</b>	Guard and protection staff	24x7	24x7	24x7
	Safety keys	✓	✓	✓
	GTS Access Control	Electronic	Electronic	Electronic
	CCTV system	✓	✓	✓
<b>TECHNICAL ASSISTANCE</b>	Proactive monitoring of the data center	24x7	24x7	24x7
	Technical assistance for equipment installation	✓	✓	✓
	Technical assistance, with excellent response times	24x7	24x7	24x7
<b>CERTIFICATIONS</b>	ISO/IEC 27001: 2005.	✓	✓	✓
<b>SLA</b>	Available Power supply	99.99%.	99.99%.	99.99%.
	Guaranteed humidity and temperature level, according to market standards	✓	✓	✓



**Thank You!**