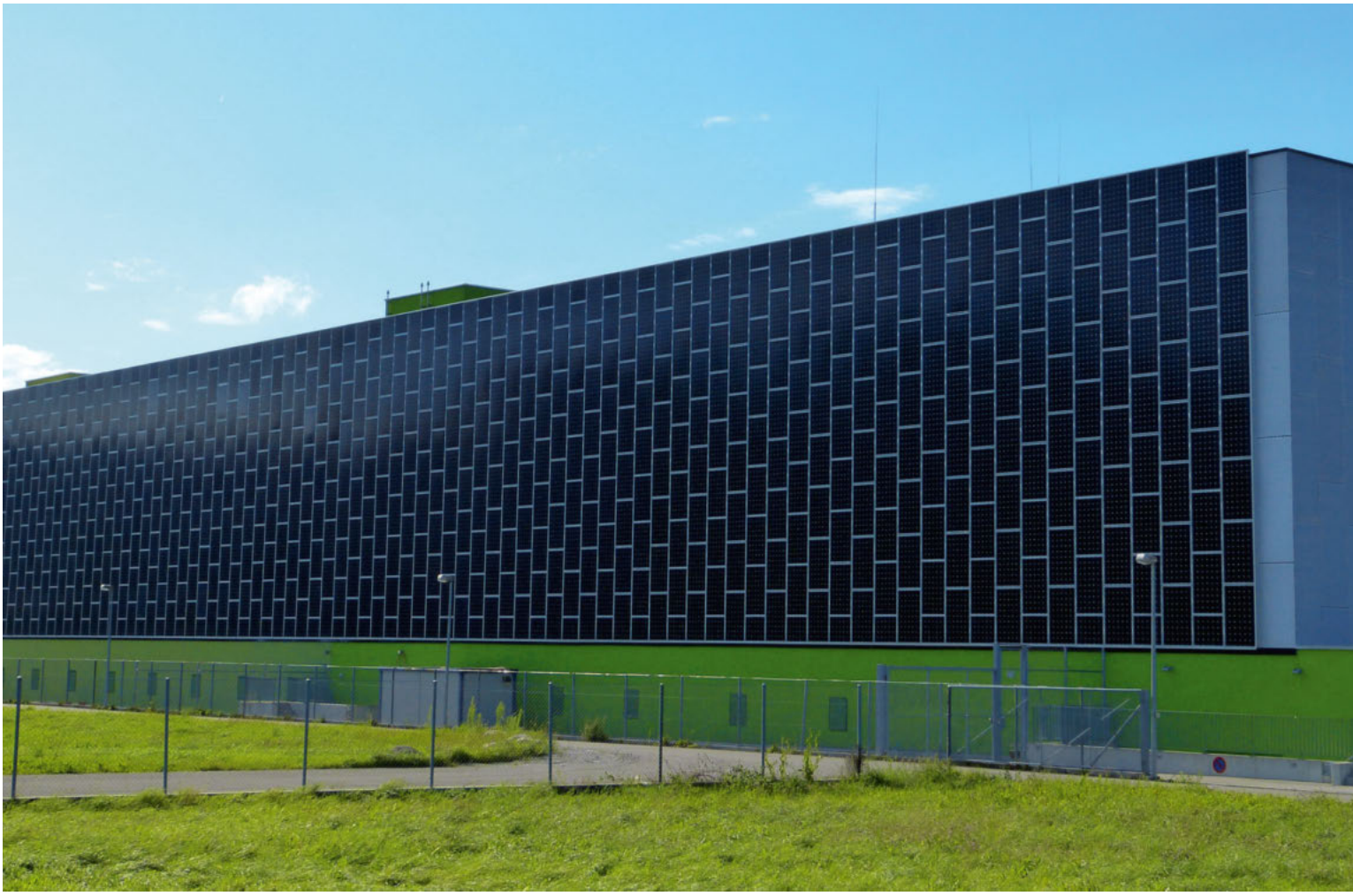
green Datacenter



Your first choice in Switzerland

greenDatacenter Zurich West

Advanced, secure, ecological: greenDatacenter Zurich West offers data center services that meet the highest requirements.

- Switzerland's largest commercial data center
- Conceived for a green field site and built in accordance with the Tier IV plus standard
- Maximum ecology (PUE 1.19) through use of state-of-the-art technology
- Consistent designated use as a data center
- Worldwide reference object for DC technology

Key figures greenDatacenter Zurich West

General

Owner	Green Datacenter AG
Founded	2010 (green.ch 1995)
Company headquarters	Industriestrasse 33, 5242 Lupfig – 100% Swiss company
Data center structure	Consists of three data centers – Zurich West 1, Zurich West 2 and Zurich West 3
Expansion possibilities	Zurich West 1 and 2 in operation, planning permission for Zurich West 3
Investment	Total investment of CHF 170 million
Purpose	Consistent designated use as a data center

Facts & figures*

Site size	16,335 m^2
Gross floor area (GFA)	26,240 m^2 (17,910 m^2)
Useable data center area	11,231 m^2 (7,266 m^2)
Equivalence in available IT racks (approx.)	3,700 (2,400)

*Zurich West 1, 2, 3 (Zurich West 1 and 2 currently in operation)

Zurich West per data center module*

Location benefits

Adress	Industriestrasse 33, 5242 Lupfig
Opened	Zurich West 1: March 2011, Zurich West 2: October 2014
Type of construction	New block constructed building – building class 3
Accessibility	Basel 60 km, Bern 80 km, Lucerne 70 km, Zurich 20 km Central location in the Zurich/Bern/Basel business triangle
Accessibility – public transportation	Bus and train within walking distance (5 minutes)
Accessibility – highway	A3 highway – Brugg exit
Parking spaces	In front of the data center
Delivery access	Ground-level loading ramp and drop boxes for small goods
Power supply	Main transit route of Swiss power provider
Substations	Two independent substations

Facts & figures

Gross floor area (GFA)	8,330 m^2
Useable data center area	3,965 m^2
Equivalence in available IT racks (approx.)	1,300

Risk analysis

Civil risks	Switzerland is deemed “safe” – low risk of strikes, crime and terrorism
Natural risks	No risk of natural catastrophes (e.g. earthquakes and flooding)
Industrial risks	No industries with dangerous goods or high amount of people traffic
Transport risks	Safe distance to international airports, national traffic corridors (road and rail traffic) and to large urban areas

Building security

Type of construction	New block constructed building – building class 3
Security perimeter	5 security perimeters
Use	Consistent designated use as a data center
Security personnel	24/7 on site
Audio/video surveillance	Internal and external surveillance cameras with continuous recording
Number of interlocks	Separate personnel and goods interlocks
Personnel interlocks	Separation system with badge and pin code checks as well as hand vein scanners

Power supply

Feed	Fully redundant 40 megawatt power connection (guaranteed supply)
Number of substations	Electricity from 2 independent substations
Power feed	Separate power feeds inside and outside the building
Emergency power	7 days of autonomous emergency power
Diesel generators	4 diesel generators
Diesel tanks	95,000 liter diesel tank
Electromagnetic compatibility	Protection against overvoltage, residual current and lightening
Transformer station	Inside the building
Uninterruptible power supply	In different fire protection zones, N+N redundancy
Available power	1.5 kW/m^2, 4.5 kW/rack as standard Project-specific, e.g. scalable for hot spots
Power connections	Choice of AC and/or DC hybrids (with up to 20% energy savings) Completely separate power supply with no crossing

green Datacenter

Cooling systems	
Cooling technology	Latest N+N generation Ambient air used for free cooling and mixed operation Night expansion tanks, 100,000 liter each
Waste heat utilization	Used for properties in the area (e.g. InnovationTower)
Convection cooling	Redundant N+1 convection cooling
Cooling concept	Cold aisle principle for maximum efficiency
Power supply	All air conditioning units and cooling production/distribution systems are equipped with an uninterruptible power supply

Fire protection	
Fire protection zones	Separate fire protection zones
Extinguishing systems	Redundant extinguishing systems/proven nitrogen systems
Early fire detection	Smoke and heat detectors in all data center premises

Connectivity	
Principle	Carrier-neutral data center
Number of available carriers	More than 30 carriers on site
Building access	7 independent access routes with 12 pipes each
Telecom rooms	Redundant, for each data center module
Data center interconnect	5 green data centers interconnected by own, redundant fiber optic ring

Housing premises	
Static load per m^2 of subflooring	1 ton per m^2
Ceiling clearance	3.60 m to 5 m above raised floor
Depth of subflooring	60 cm

greenIT/Ecology	
Energy-optimized architecture	World's first data center with energy-efficient DC technology (power savings of up to 20%)
Power Usage Effectiveness (PUE)	PUE (Power Usage Effectiveness) factor of 1.19, international ecological benchmark is 1.7
Energy management	Comprehensive ISO 50001 energy management
Renewable energy source – hydro power	Power available from Swiss hydroelectric stations
Renewable energy source – solar power	Photovoltaic solar power – 284 kWp (overall project)
Cooling technology	Latest cooling technology (free cooling and mixed operation), with 100,000 liter night expansion tanks and heat exchangers for heat distribution
Ecology	Maximum ecology through use of natural coolants (ammonia) Ozone Depletion Potential (ODP) = 0; Global Warming Potential (GWP) = 0

Infrastructure management system	
Infrastructure management system	Real-time measurements and ongoing analysis of all data center relevant operating parameters

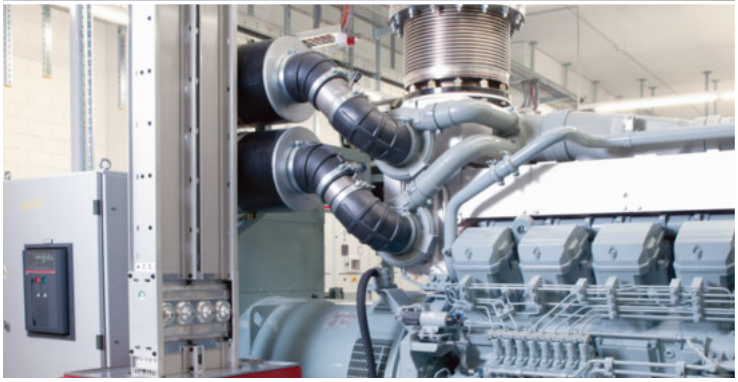
Customized packages	
Data center space	Starting at 20 m^2
Colocation	Racks, starting at ¼ rack
Height units (HU)	Starting at 2 height units (2 HU)
Planning and setup	Of specific customer data center infrastructure (deployment) cages, racks, cold aisle enclosures, routes, power and network cabling
Inter-rack cabling	Available through own deployment team
Regular and emergency workplaces	InnovationTower with 4,190 m^2 of leasable space offers more than 300 regular and emergency workplaces
Use of common rooms	Staging and conference rooms available

Service Level Agreement	
Power supply	99.99% availability in line with Uptime Institute Tier-IV
Temperature	18 °C to 26 °C
Humidity	40% to 60%

Certifications/Awards	
Institute classification	Built in accordance with the Tier-IV plus standard
Information security	ISO 27001 certified by SQS and IQNet
Energy management	ISO 50001 certified by SQS and IQNet
FINMA- and ISAE-3402 compliance	On request, can be audited in cooperation with a certification body
Energy efficiency award	Watt d'Or 2013 (top performance in the area of energy)
Swiss ICT award	Swiss ICT Public Award (2012)

* Figures based on Zurich West 2, Zurich West 1 with some smaller deviations such as the exact gross floor area




References

ABB

Primary and secondary data center for Europe

AVECTRIS
IT. Simply Personal.

Primary and secondary data center Avectris AG

Hewlett Packard Enterprise

Europe-wide cloud computing center

appriver

Europe-wide data center

Nord Stream
The new gas supply route for Europe

Primary data center

SAXO BANK

Primary data center and emergency workplaces

Green Datacenter AG
Industriestrasse 33
5242 Lupfig
Switzerland

Phone +41 56 460 23 80
Fax +41 56 460 23 00

info@greendatacenter.ch
www.greendatacenter.ch