policloud

P100 - P360 - P360H

Technical Specifications

1. Introduction

PoliCloud containers are self-contained outdoor datacenters engineered for continuous, unattended operation in all weather conditions from −40 °C to +45 °C. Each unit integrates high-performance GPU compute, mass storage, precision cooling, fire suppression, power distribution, and full security infrastructure within a single ISO container — eliminating the need for a traditional datacenter building.

The product family consists of three models addressing different deployment scales and use cases:

- P100: Compact 20 ft unit, ideal for edge deployments, proof-of-concept, or constrained sites (up to 104 GPUs, 100 kW).
- P360: 40 ft unit for high-density AI inference or training workloads (up to 360 GPUs, 450 kW).
- P360H: 40 ft unit with integrated heat recovery, designed for sites where waste heat can be reused for greenhouse heating, industrial processes, or district heating (up to 360 GPUs, 450 kW).

1.1 Standard Equipment Included in Every Unit

Every PoliCloud is delivered fully integrated and tested with the following systems:

- GPU compute and storage servers
- UPS and battery system
- Power distribution panels and PDUs with surge protection
- Precision cooling and humidity control (model-dependent, see Section 5)
- Novec™ 1230 total-flooding fire suppression system
- Access control: facial recognition, encrypted badge, QR code
- Video surveillance: cameras inside and outside with AI event detection
- Touchscreen control panel and remote monitoring interface
- High-speed networking and routing equipment
- Leak, smoke, and heat detection sensors
- Heat-recovery circuit (P360H only)

2. Specifications

Parameter	P100	P360	P360H
Container Type	20 ft Standard	40 ft Standard	40 ft Standard
Dimensions (L × W × H)	6 × 2.4 × 2.9 m	12 × 2.4 × 2.9 m	12 × 2.4 × 2.9 m
Approximate Weight	≈ 10 tonnes	≈ 24 tonnes	≈ 24 tonnes
Operating Temperature	−40 °C to +45 °C (all weather)		
Entrance Doors	2	3	3
IT Racks	5	10	10
Compute Servers	13	45	45
Total GPUs (max)	104	360	360
Storage Servers	10	9	9
Total Storage (max)	Up to 2 PB	Up to 2 PB	Up to 2 PB
Max Power Consumption	100 kW	450 kW	450 kW
Main Breaker (MCCB)	320 A	1,000 A	1,000 A
Electrical Input	3-phase 400 V AC		
Battery Bank	Lithium Battery Rack 512V100Ah x 1	Lithium Battery Rack 512V100Ah x 2	Lithium Battery Rack 512V100Ah x 2
UPS Runtime at full load	15 minutes		
Cooling Type	Wall-mounted precision AC	In-row rack	In-row rack + heat recovery
Total Cooling Capacity	84 kW	295 kW	295 kW
Heat Recovery Output	N/A	N/A	Up to 360 kW
Fire Suppression	Novec™ 1230		
Surveillance Cameras	8 (2 in / 4 out / 2 door access)		
Primary Connectivity	10 Gbps Symmetric Fiber		
Backup Connectivity	Starlink / 5G		
IP Rating (enclosure)	IP55 level in IEC60529		

Wind Load Rating	Rated for wind up to 60m/s
Estimated Lifespan	Up to 20 years

3. Power & Electrical

3.1 Power Input

Each PoliCloud is connected to the site power grid via two input connectors, one primary and one optional backup, and accepts 3-phase 400 V AC (European standard) or 400 V to 480 V AC (USA version).

Parameter	P100	P360H / P360
Electrical Input	3-phase 400 V AC (EU) / 400 V to 480 V AC (USA)	
Input Connectors	2 (primary + optional backup)	
Cable Cross-section Required	To be confirmed per site distance	
Connector Type	To be defined prior installation	
Bridge Location	Rear of container, above Main Power Board (MPB)	
ATS (Auto Transfer Switch)	250A/3P (WATSN-250A)	WTS1250/4DL/U
Power Factor at Full Load	1.0	1.0
PUE (measured at full load)	1.42	1.43
Grounding Requirement	TN-S system, 1 Ω maximum ground resistance	

3.2 Power Distribution & UPS

The internal Power Distribution Panel is a rack-mounted modular design. All circuit breakers (MCCBs and MCBs) are CE or UL certified. The panel includes surge protection and distributes power across the UPS, PDUs, cooling units, and other critical subsystems.

Parameter	**P100**	**P360 / P360H**
UPS Type	Online double-conversion	
Power Modules	TM200	
Total Capacity	90 kVA	400kVA
Form Factor	21 U	42 U
Efficiency	> 97%	
Power Factor	1.0	1.0
Protections	Temperature, current, over/under voltage	
Redundancy	N+1	
UPS Runtime at full load	15 minutes	
UPS Runtime at 50% Load	30 minutes	
Battery Type (standard)	HLithium Battery Rack 512V100Ah x 1	Lithium Battery Rack 512V100Ah x 2
Expected Battery Lifetime	15 years	
Battery Hot-Swap	Supported	
Battery Monitoring	Balancing, SoC and SoH and alarms/ reports	
Graceful Shutdown	Automatic on UPS low-battery threshold, configurable	
Manual Maintenance Bypass	Included	

4. GPU Compute & Server Configuration

4.1 GPU Configuration

The GPU model is selected at order time based on the client's workload requirements (AI training, inference, rendering, or hybrid crypto/AI).

GPU Selection	Client-defined at order Standard model Nvidia RTX 5090 32G
GPUs per Compute Server	8
Compute Servers per Container	13 (P100) ; 45 (P360H / P360)
Total GPU Slots (max)	104 (P100) ; 360 (P360H / P360)
GPU Condition	New, all GPUs are brand new at delivery
GPU Warranty Period	5 years, covered under the PoliCloud hardware warranty
Failed GPU Replacement Lead Time	1-2 business days (on-site spare units)

4.2 Compute Server Specifications

Chassis	5U PoliCloud custom chassis
CPU	2× AMD EPYC 9754 (4th Gen) - 128 cores / 256 threads per CPU
Motherboard	ASRock Rack TURIN/GENOA2D24G-2L+ PCIe 5, DDR5, 20×MCIO
Memory	1 TB DDR5 ECC (16 × 64 GB)
Network	Intel 25 Gbps - 2 ports
OS Storage	2× 1 TB SSD (RAID 1)
Data Storage	2× 4 TB SSD
Power Supply	5× 1,600 W (4+1 redundant)

4.3 Storage Server Specifications

Chassis	2U
CPU	AMD EPYC 7313 - 16 cores / 32 threads
Motherboard	ASRock Rack ROMED8-2T - DDR4, EPYC Rome CPU
Memory	256 GB DDR4 ECC (8× 32 GB)
Network	Intel 10 Gbps or 25 Gbps - 2 ports
OS Storage	2× 500 GB SSD
Data Drives	8× 24 TB Seagate 7200 RPM HDD
NVMe Cache	2 TB NVMe
Max Capacity	Up to 2 PB per P100 / Up to 4 PB per P360H and P360
Power Supply	2× 800 W (1+1 redundant)

4.4 Master Controller (Management Node)

Chassis	2U
CPU	AMD EPYC 7313 - 16 cores / 32 threads
Memory	256 GB DDR4 ECC (8× 32 GB)
Network	Intel 10 Gbps - 2 ports
OS Storage	2× 500 GB SSD
Data Storage	2× 2 TB HDD
Power Supply	2× 800 W (1+1 redundant)
Role	Cluster management, monitoring, remote access gateway (monitor both storage and compute servers)

5. Cooling System

All PoliCloud models are designed for continuous operation across the full ambient range of −40 °C to +45 °C. Each model uses a different cooling architecture matched to its power density and use case.

5.1 P100: Wall-Mounted Precision Air Conditioning

Cooling Architecture	Wall-mounted precision air-conditioning units
Cooling Capacity per Unit	21 kW
Total Cooling Capacity	84 kW (21kW x 4 units)
Redundancy	N+1 - units rotate automatically in master/slave mode
Target Internal Conditions	25 °C / 40–55% RH
Refrigerant	R32
Compressor Type	Inverter - variable speed for efficiency
Noise Level	< 60 dB at 1 m
Rated Ambient Temperature	Up to +45 °C outdoor ambient
Condensation & Leak Protection	Floor-level leak sensors; automatic shutdown and alarm on water detection
Remote Monitoring	SNMP - integrated with main supervision system
Annual Maintenance Interval	4 months

5.2 P360/P360H: In-Row Liquid Cooling with Heat Recovery (P360H)

The P360 and P360H share the same internal cooling design: In-Row Liquid Cooling.

The P360H is purpose-built for sites where waste heat is a resource rather than a problem. It adds a closed liquid loop that captures thermal energy directly from hot aisles and delivers it to an external heat exchanger for downstream use (greenhouse heating, industrial processes, district heating, etc.).

Cooling Architecture	In-row liquid cooling units + closed heat capture loop
Total Cooling Capacity	292.5kW (32.5kW x 9 units)
Max Recoverable Heat Output	Up to 360kW
Heat Recovery Efficiency	Up to 10% of total power input
Outlet Fluid Temperature	To be defined accordingly with the customer needs
Fluid Flow Rate	To be defined accordingly with the customer needs
External Pipe Connection Size	To be defined accordingly with the customer needs
Overheat Protection	Temperature-regulated outlet with automatic shutdown
Remote Monitoring	SNMP - integrated with main supervision system
Annual Maintenance Interval	4 months

6. Site Preparation Requirements

This section describes the minimum site conditions that must be in place before delivery and commissioning. PoliCloud can provide a pre-installation site checklist upon request.

6.1 Space & Clearance

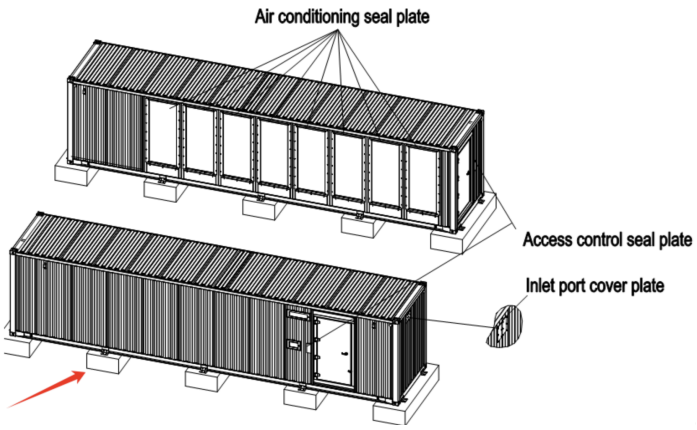
Minimum Clearance (all sides)	2.5 metres, required for ventilation and maintenance access
Minimum Total Ground Area (P100)	Approx. 90 m²
Minimum Total Ground Area (P360 / P360H)	Approx. 200 m²
Side-by-Side Deployment	Possible with 3 metres between units - contact PoliCloud for layout validation

6.2 Foundation & Elevation

The container must be elevated to protect against water ingress. Two options are accepted:

- Concrete slab: flat, level surface with minimum 300 mm thickness.
- Support blocks: approximately 40 cm high, capable of supporting 7 tonnes per square metre.
- Pylons: approximately 40 cm high, capable of supporting 3.5 tonnes minimum each.

Model	Number of Blocks	Number of Pylons	Support Location
P100	4	6	One at each corner
P360H / P360	5	10	Spread evenly along the length of the container



6.3 Access & Steps

- Steps must be installed at each door to provide safe entry into the container.
- Easily washable doormats must be installed to guarantee clean access to the container.
- Doors open outward, ensure clearance zones are kept clear of permanent structures.
- For maintenance of cooling and power systems, a minimum 2-metre working clearance at the rear/side bridge is required.

6.4 Power Infrastructure

The following must be arranged by the client or their electrician before delivery:

- Upstream transformer sized to the model's maximum power consumption (see Section 3.1 for ratings).
- Power cable runs to the container bridge, cable cross-section to be confirmed based on cable length and installation method.
- Protective earthing/grounding at the container connection point (TN-S system, 1 Ω maximum).

6.5 Internet Connectivity

The client is responsible for providing internet connectivity to the site before or at time of commissioning:

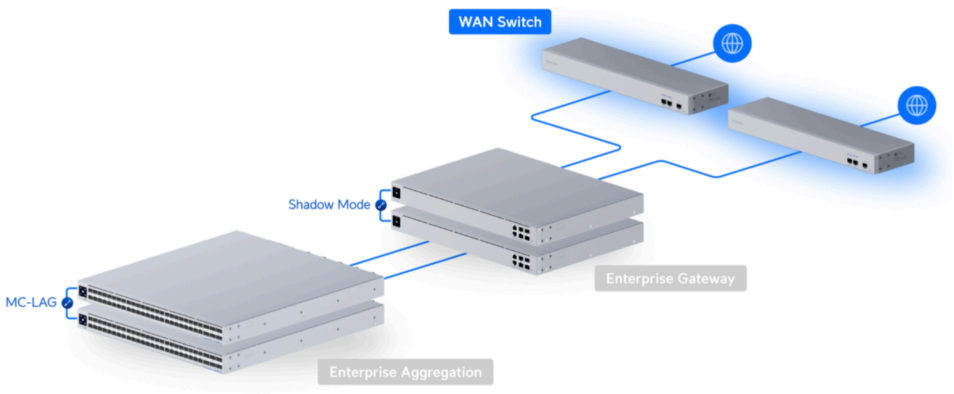
- Primary: dedicated fiber, minimum 10 Gbps symmetrical:
    - P100: 30 public addresses /27.
    - P360/P360H: 70 public addresses /25
- Backup (recommended): second fiber from a different provider (1 to 2 Gbps), Starlink Business, or 5G failover router.
- The modem/ONT must be set to bridge mode to allow PoliCloud to manage routing and NAT.

6.6 Security Requirements

The container includes a full access control and surveillance system (see Section 8). In addition, the site must provide:

- Physical perimeter barrier (wall or fence) to prevent unauthorized vehicle or pedestrian access.
- Site gate or entrance secured by key, padlock, or electronic code.
- Adequate external lighting for nighttime surveillance camera operation.

7. Networking & Connectivity



7.1 Internet Connectivity

Primary Connection	10 Gbps symmetrical dedicated fiber
Public IP Block	/27 (up to 30 public IPs P100) /25 (up to 70 public IPs for P360)
Backup Connection	Starlink Business / 5G failover (external cellular router)
Additional Backup Option	Second fiber from a different ISP (1to2 Gbps recommended)
Client-Supplied Modem/ONT	Required in bridge mode - supplied by client / ISP

7.2 Internal Network Architecture

Firewall / Router	Managed and monitored by PoliCloud
Firewall LAN Uplink	25 Gbps
Firewall WAN Capacity	10 Gbps
IDS/IPS Throughput	12.5 Gbps - active intrusion detection and blocking
Router Redundancy	Dual routers with VRRP for automatic failover
Power Supply (router)	2× hot-swap PSU
Core Server Switch Capacity	1.8 Tbps
Switch Layer	Layer 2/3
Switch Ports	48× 25 Gbps + 6× 100 Gbps uplinks
Switch Uplink Capacity	Up to 600 Gbps
MC-LAG Support	Yes
VRRP / BGP Support	Yes
Switch PSU	5× hot-swap
Console / Out-of-Band Switch	48 ports: 4× 10 Gbps + 16× 2.5 Gbps + 32× 1 Gbps
VLAN / Segmentation	Multi-tenant VLAN segmentation available on request
VPN Gateway	Site-to-site VPN supported
Client-Supplied Firewall	Client-specific rules on request

8. Security, Access Control & Fire Suppression

8.1 Video Surveillance

Camera Count	8 total: 2 indoor, 4 outdoor, 2 door access
Recording	Continuous 24/7 with remote access
Night Vision	Yes
AI Event Detection	Yes: motion, intrusion, and anomaly alerts, car plates
Audio Recording	Yes
Weatherproofing	Yes: rated for all deployment environments
Storage Location	On-site NVR
Footage Retention	35 days
Data Ownership	Client retains ownership of all surveillance data
GDPR Compliance	Yes, data stored inside the container

8.2 Access Control

Methods Supported	Facial recognition, encrypted badge, QR code, access request bell
User Enrollment	Managed via the PoliCloud control interface, client administrator access provided
Access Logging	All events time-stamped and logged with facial verification
Log Export	Yes, available via management interface
Multi-Site Management	Yes, centralized management across multiple units

8.3 Fire Suppression

Novec™ 1230 is a clean suppression agent that extinguishes fires without water, foam, or powder. It does not damage electronic equipment and leaves no residue, making post-activation recovery fast and straightforward.

Suppression Agent	Novec™ 1230 Fire Protection Fluid
Detection	Dual: independent smoke and heat sensors
Activation	Automatic total-flooding on confirmed detection
Pre-Discharge Warning	Audible alarm and siren before gas release
Manual Emergency Release	Yes: emergency exit available at all times
Post-Discharge Re-entry	Safe re-entry after 120 minutes with ventilation
Cylinder Recharge	Arranged by PoliCloud
Regulatory Compliance	Local fire regulation compliant

9. Operations & Maintenance

9.1 Remote Monitoring & Management

DCIM Software	Touchscreen on-site + remote web interface
Monitoring Scope	Power, cooling, temperature, humidity, UPS status, network, access events, fire system
Alert Channels	Email, SNMP with configurable thresholds
Remote Access	VPN-secured access to all management interfaces
Autonomous Operation	The container can operate without PoliCloud remote connection; local control panel always active

9.2 Maintenance Schedule

Preventive Maintenance Interval	4 months, includes cooling filter inspection, battery SOH check, fire system inspection, cable integrity check
Spare Parts	Critical items stocked on-site / Non critical items regional warehouse
Cooling Refrigerant Service	By certified PoliCloud technician or approved partner
Firmware Updates	Signed and version-controlled — applied during maintenance windows with client notification
Cybersecurity Patching	IDS/IPS signatures updated continuously; OS and firmware patches on scheduled cycles

9.3 Hardware Failure & Replacement

GPU Failure Response	Remote diagnosis → on-site replacement within 1-2 business days
Server Failure Response	Remote diagnosis → on-site replacement within 1-3 business days
Spare GPU Stock (on-site)	2 units per container (configurable at order)

Warranty Coverage	5 years, covers hardware defects; excludes physical damage and misuse

10. Hybrid Mode: AI + Storage + Crypto

PoliCloud containers can be configured in hybrid mode, combining GPU-based AI compute with crypto mining capabilities within the same infrastructure. Power, cooling, and networking are pre-engineered to support both workloads at full capacity.

Key benefits of hybrid mode:

- Diversified revenue streams: run GPU AI workloads and crypto mining simultaneously or alternate seasonally.
- Predictable baseline power consumption: ideal for energy producers with fixed-rate power contracts.
- Future-ready: seamless migration from mining to full AI compute by replacing GPU trays and updating firmware.
- Digital asset accumulation: generate Bitcoin or other crypto revenue during periods of low AI demand.

10.1 Hybrid Configuration Details

ASIC Models Supported	Specify at order
ASIC Efficiency	Model-dependent
Total Hash Rate per Container	Configuration-dependent
Mining Firmware Control	Independent from AI compute stack, client-managed
Wallet Configuration	Client controls all mining wallets and pool configuration
Power Delta (AI vs. Mining)	Model-dependent
Hardware Swap to AI Mode	Replace GPU trays and update firmware, no cooling or power system changes required
Components Replaced on Switch	GPU trays and firmware only, chassis, PSUs, networking, and cooling unchanged

11. Delivery & Installation

Production Lead Time	12-16 weeks from order confirmation
Delivery Method	Road / Rail transport / container ship for international, client confirms access route
Crane / Forklift Requirements	25000kg capacity minimum, lifting points at 4 positions on container frame
Customs & Logistics	Managed by PoliCloud for international shipments
On-Site Installation	Included, PoliCloud commissioning team
Installation Lead Time	5 days (depending on site readiness)
Commissioning Scope	Mechanical placement, power connection, network setup, system verification, burn-in test, handover training
Permits & Local Approvals	Client responsibility, PoliCloud provides required technical documentation
Transformer Supply	Not included, client responsibility (PoliCloud provides specifications)
Generator Supply	Not included, client responsibility (PoliCloud provides specifications)
Steps / Access Platforms	Not included, client responsibility

12. Frequently Asked Questions

Power & Electrical

How long will the UPS keep the servers running during a power cut?

➔ At full load: 15 minutes. At 50% load: 30 minutes. The UPS is sized to allow a clean graceful shutdown of all workloads if grid power is not restored within this window. Runtime can be extended by adding a Lithium battery option or an upstream generator with ATS.

What cable cross-section do I need to run from my transformer to the container?

➔ This depends on the cable run length and installation method (underground, tray, conduit). PoliCloud will provide the required specification as part of the site preparation documentation once the layout is confirmed.

Cooling & Heat

What happens if the ambient temperature exceeds +45 °C?

➔ The cooling system is rated for continuous operation at up to +45 °C ambient. Above this threshold, cooling capacity begins to derate. PoliCloud can provide derating curves for your specific climate. For sites with frequent extreme heat, additional cooling provision may be recommended.

Networking

Is the 10 Gbps internet connection guaranteed or best-effort?

➔ This depends on the local ISP and the service agreement in place at the deployment site. PoliCloud can advise on ISP selection and SLA requirements. Clients requiring guaranteed throughput should specify this in order so that ISP qualification is included in the site preparation phase.

Security & Fire Suppression

What happens after the fire suppression system activates?

➔ An audible pre-discharge alarm sounds before gas release, allowing personnel to evacuate. After discharge, the space should be ventilated for 120 minutes before re-entry. PoliCloud must be contacted immediately, a technician will coordinate cylinder recharge and system reset. All access events and sensor logs from the activation are preserved for incident review.

Who controls access to surveillance footage, and where is it stored?

➔ The client and PoliCloud retains ownership of all footage. Storage location (on-site NVR) is configured at commissioning. Remote access is available via the management interface. GDPR and local data protection compliance is the client's responsibility; PoliCloud can provide technical configuration support for data residency requirements.

Operations

What is the preventive maintenance schedule, and who performs it?

➔ Preventive maintenance is recommended every 4 months and includes cooling filter inspection, battery state-of-health check, fire system inspection, and general hardware verification. Maintenance can be performed by PoliCloud technicians or an approved local partner. A detailed maintenance schedule is provided at commissioning.