

# TECHNICAL DOSSIER

## 42U ScaleUp Edge Micro Data Center Rack

### Key Components & Technical Specifications

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## 01 | RACK & MECHANICAL SPECIFICATIONS

Feature	Specification
Model	RNS-42U-SRB-25-008
Rack Sizes	22U – 42U (Customizable)
Material	Powder-coated Steel (RAL9005)
Static Load	1000 Kg
Dimensions	800mm (W) x 1200mm (D)
Ingress Protection	IP54
Doors	Front: Glass
Side Panels	Secured & Integrated

## 02 | POWER & CONNECTIVITY

Component	Specification
UPS	3KVA To 15KVA Rack-Mount UPS with 15-20 minute backup
PDU	Zero-U 32A, 20xC13 + 4xC19, metered (Voltage, Power, PF)
Patch Panel	Labeled for "Field Site" and "Switch Site"
Ports	Data, Wi-Fi, CCTV, Biometric, Voice

## 03 | COOLING SYSTEM - INTEGRATED 2TR UNIT

Attribute	Value
Cooling Capacity	3.5 / 7.0 kW (1-2 Ton)
Supply Air Temp.	20-22 deg C
Return Air Temp.	34-36 deg C
Ambient Temp Range	-5 deg C to +50 deg C
Air Flow	1400 m3/h
Compressor Type	Rotary (Highly / Danfoss / Emerson)
Refrigerant	R410A
Evaporator Fan	Centrifugal - 250 mm Dia
Condenser Fan	Centrifugal - 450 mm Dia
Noise Level	Indoor: 60 dBa
Mounting	Bottom of Rack
Indoor/Outdoor IP Rating	IP54
Power Input	230V +/-10%, 50Hz
Weight	Indoor: 35 kg
Coils	Fin & Tube: Al (0.11mm), Cu (0.35mm), Sizes: 7mm & 9.52mm
Control Interface	Analog, 7-segment Display, RS485 with HP/LP alarms

## 04 | DISPLAY UNIT CONFIGURATION &amp; MONITORING

## 4.1 Display Unit - HMI

Attribute	Specification
Display Size	15.6"
Resolution	1920 x 1080
Display Panel	IPS, TFT, LCD
Touch Type	Capacitive
View Angle	Wide Viewing Angle: 85/85/85/85 deg (L/R/U/D)
Color	24-bit 8R8G8B
Display Area	343.2mm (W) x 192.6mm (H)
Power Supply	12-36V DC
Brightness	250 nit
Interface	TTL
Working Temperature	-10 deg C to +60 deg C
Display Type	HMI (Human-Machine Interface)

## 4.2 Rack Monitoring Parameters

Monitoring Type	Details
Temp. & Humidity	-10 deg C to +60 deg C / 0-99% RH (+/-0.5 deg C / +/-3% RH accuracy)
Water Leak Detection	Cable and pad-based, <1 sec alarm response
Door Status	Magnetic sensors + adjustable delay
A/C Monitoring	RS485 Modbus-based, live performance data
UPS & IPDU	SNMP v2/v3-based status monitoring
Protocols Supported	SNMP v2/v3, MQTT, Modbus RTU
Alerts	Popup + Email + SMS (client provides gateway)
Data Logging	Centralized cloud-based + local backup (SQL DB)
Dashboard	Real-time, multi-location capable
Power Supply	9-24V DC, <5W
Compliance	CE, FCC, RoHS

## 05 | SIMS – SCALEUP INFRASTRUCTURE MANAGEMENT SUITE

SIMS is ScaleUp's flagship platform delivering unified visibility, intelligent monitoring, physical security, and automated revenue operations — purpose-engineered for the unique demands of Edge Micro Data Centers. A unified platform consolidating:

- **DCIM:** Environmental & Physical Security
- **Server Monitoring:** SNMP/WMI Performance & Alerts
- **Billing Engine:** Automated Multi-Tenant Revenue
- **Remote Orchestration:** Zero-Touch Site Management

### 5.1 DCIM — Hardware Monitoring : EDGE SITE LOCAL RACK CONTROLLER (LRC)

- Temp, Humidity & Pressure
- Fire / Smoke & Water Leak
- RFID / EM Lock Access Control
- IP Camera (RTSP/ONVIF)
- Door-Open Snapshot Capture
- U-Space Rack Visualisation
- Real-Time Environmental Dashboard

**5.2 Server & Network Monitoring : CENTRAL NOC**

- SNMP Polling: Servers, Switches, UPS
- Metrics: CPU, RAM, Disk, Temp, Port traffic
- Network Intelligence: Latency & bandwidth graphs
- Alerting Engine: Email, SMS, Webhook escalation
- Escalation: Auto-escalate in 5 min if unacknowledged
- Global NOC Map: Green / Amber / Red site health
- WMI Support: Windows Server OS-level metrics

**5.3 Automated Billing & Orchestration : CLIENT DASHBOARD**

- **Tenant-Aware DB:** tenant\_id scoped isolation
- **U-Space Billing:** Per-U rack occupancy charges
- **Power Billing:** kWh via Time-Weighted Average (TWA)
- **Prorated Adjustments:** Mid-cycle equipment moves
- **Invoice Export:** PDF and CSV per tenant
- **SSH/RDP Console:** Browser-based remote access via VPN
- **PDU Reboot:** Remote power cycle per outlet

**Why SIMS for ScaleUp Edge Micro Data Centers**

Edge Micro Data Centers present a fundamentally different set of operational challenges from traditional hyperscale or enterprise data centers. SIMS is the only management platform purpose-engineered for these constraints:

The Edge Challenge	The SIMS Solution
No on-site staff for routine monitoring	Automated sensor polling, alerting & remote control eliminates need for physical presence.
Multiple tenants sharing a single rack	Tenant-aware database with RBAC ensures complete data isolation and self-service portals.
Distributed sites across geography	Central NOC with Global Map provides single-pane-of-glass oversight across all sites.
Manual billing is error-prone and slow	TWA-based power billing and rack-map space billing automate revenue collection entirely.
Physical security at unmanned sites	RFID access control, EM locks, IP cameras, and snapshot audit trail deliver enterprise-grade security.
Rapid response to physical events	MQTT real-time messaging ensures sub-second alert delivery for door-open, fire, and leak events.