CITEC

enterCITEC Mini Data

Integrated Solution

INTRODUCTION

CIDC SERIES

All-In-One Intelligent Data Center Solution – comes with usable rack space, critical power management & distribution, EMS system and other key accessories, served by CITEC's cooling system under one enclosure unit.
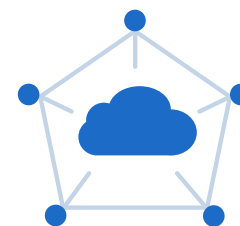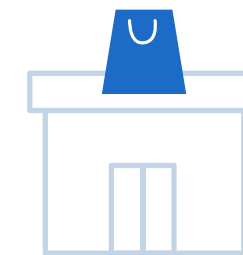
SINGLE
ROW

DUAL
ROW

In the next decade, we will see skyrocketing growth of new digital transformation technologies that will continuously transform and automate our everyday lives.

Implementation of 5G networks will continue to accelerate. Internet of Things (IoT) driven market such as Smart Cities and Smart Factories will expand at a breath-taking pace. Emergence of autonomous vehicles will require real-time communications with local processing resources to guarantee reliability and safety. Adoption of Virtual & augmented reality, artificial intelligence and machine learning will continue to boom.

Before we can fully realize the potential of these technologies, we need to overcome latency of networks. Latency is defined as delayed data transmission when data needs to travel over greater distances from the centralized cloud servers to the end user devices, going through several network switches and routers.

Edge Computing is the solution.

PRODUCT FEATURES

- All-in-One Data Center configuration.
- Fast deployment with "plug and play" concept.
- Swift installation with modular construction concept and pre-assembled modules.
- Customizable and suitable for low to medium dense application.
- Cost-effective solution with high scalability for future expansion.
- High flexibility suitable for non-data center or IT environment.
- High efficiency cooling operation within containment system eliminates hot and cold air mixing.
- Compatible with common racks in the market.

WHAT IS EDGE COMPUTING

Edge computing can be classified as a solution that facilitates data processing at/or near the source of data generation. Instead of bringing the users and devices to the data center, we bring the power of the data center to the users and devices. By bringing IT resources closer to the end users and devices they serve, high-speed, low-latency processing of applications and data can be achieved.

About 10% of enterprise-generated data is created and processed outside a traditional centralized Data Center or Cloud. By 2025, Gartner predicts this figure will reach 75%. (Gartner, 2018)

ADVANTAGE OF EDGE COMPUTING

- Low Network Latency increasing speed and performance
- Compliance to Data Sovereignty
- Reduce Bandwidth Costs
- System Availability

Adoption of edge computing drives the demand for smaller scale, mini data centers. Edge data centers consists of all the key components of a traditional data center housed within a small footprint.
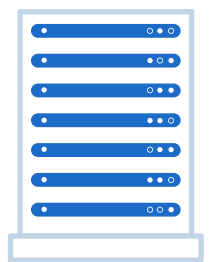
TARGETED APPLICATION

Edge Applications

Medium to Large sized Enterprise

Colocation service providers

SINGLE ROW CONFIGURATION

- Integrated with 19" 42U IT Rack with compliance to EIA-310-D standard.
- Option for Direct Expansion (DX) or Chilled Water row cooling system.
- Built-in power management and distribution system.
- Integrated with EMS system with 10" colour touch screen display, equipped with PUE monitoring function and 3D dynamic interface.
- Option for built-in UPS and battery.
- Enhanced security feature with individual locking system and built-in emergency exhaust.
- Built in dual-colour LED lighting for normal operation and alarm triggered indication.

Touch screen display for EMS system

IT Equipment Rack

Power distribution and UPS system

Precision cooling unit

Emergency Exhaust

TECHNICAL SPECIFICATIONS

SPECIFICATIONS	
Dimensions (L x D x H)	L x (Rack Depth + 400mm) x 2000mm;
	L < 6m
Power Supply	380~415Vac, 3P+N+E, 50/60Hz

RACK	
Dimensions (L x D x H)	600mm X 1100mm X 2000mm; 600mm X 1200mm X 2000mm
Compliance	EIA-310-D, BS15954, IEC197-2, and EIN4194
Space	42U

Door		Front Single, Rear Single
		Individual Locking System
		Fully Seal
Material		Cold Roll Steel
Withstand Weight (Static)		1800KG
Colour		RAL9005 (Black) / RAL9003 (White)
Protection Level		IP20
Accessory (Optional)		Side Panel, Equipment Rail, Equipment Tray, Cable Management Plate,
		1U Blanking Plate, Rack Mount PDU (16/32A-8~24 Slot)

AISLE	
Containment	Fully Contain, Cold Aisle/Hot Aisle Separated
Emergency Exhaust	Automatic Release During Emergency via Magnetic Release, Manual Restoration
Lighting	Embedded LED Light, Illumination 200lm
Accessory	Filler Panel, Temperature and Humidity Sensors, Smoke Detector, Door Sensor and Locking System, Audible Visual Alarm, Water Detection System, Overhead Busway System

POWER MANAGEMENT AND DISTRIBUTION	
Input	63A-125A, MCCB/MCB
Output	A/B Source Output, 30~60 Branch
Power Monitoring	3PH Voltage, 3PH Current, Frequency, Power Factor, Real Power, Reactive Power

COOLING SYSTEM	
Cooling Capacity [1]	20,25,30,40kW (Air Cooled) ; 30, 50kW (Chilled Water)
Airflow [2]	4750~9580 m³/h
Dimensions (L x D x H)	300mm x 1100mm x 2000mm ; 600mm x 1100mm x 2000mm;
	300mm x 1200mm x 2000mm ; 600mm x 1200mm x 2000mm;
Airflow Configuration	Horizontal Flow
Air Filter	G3, Washable
Cooling Control	Modulation
Humidifier (Optional)	Evaporative Humidifier
Heater	PTC Heater
Display	4.3" Colour Touch Screen
BMS	Built-in RS485 Modbus
Optional item	Top/Bottom Piping and Power Entry ; Dual Power Source with Built-in ATS ; Condensate Pump

ENVIRONMENT MONITORING SYSTEM	
Display	10" Colour Touch Screen
Display Language	English/Chinese
System Monitoring	Aisle Temperature & Humidity, Cooling System, Power Management System, UPS System, Smoke Detector, Water Detection
PUE Monitoring	Live PUE Monitoring & History PUE Monitoring
Alarm Log	500 Events

UPS AND BATTERIES MODULE (OPTIONAL)	
Input Voltage	380~415Vac, 3P+N+E, 50/60Hz
Input Power Factor	Up to 0.95 at Linear Load
Display	Status LED+LCD Display
UPS Module Dimensions (L x D x H)	440mm x 750mm x 5U
Capacity	20kVA per module
Protection	Overload Capacity, Short Circuit, EPO, Over Temperature
Compliance	Safety Standard-EN62040-1-1, EMC Standard-EN62040-2, CE Mark
Batteries Module Dimensions (L x D x H)	440mm x 680mm x 3U
Built-In Batteries	20 x 12V 9Ah
Batteries Type	Sealed Lead Acid Maintenance Free
Backup Time	15 minutes @ 20kVA Load With 3 x Batteries Modules

NOTES :
1. Cooling capacity is based on 35°C, 23.8%RH, R410A refrigerant, 45°C condensing temperature.

DUAL ROW CONFIGURATION

- Integrated with 19" 42U IT Rack with compliance to EIA-310-D standard.
- Option for Direct Expansion (DX) or Chilled Water row cooling system.
- Option for Cold Aisle and Hot Aisle Containment.
- Built-in power management and distribution system.
- Integrated with EMS system with 10" colour touch screen display, equipped with PUE monitoring function and 3D dynamic interface.
- Option for built-in UPS and battery.
- Built-in magnetic locking roof with automatic rotating mechanism for entry of fire suppression gas during power outage; equipped with one-click restoration control.
- Automated electric sliding door with fingerprint recognition and ID card security access.
- Built in dual-colour LED lighting for normal operation and alarm triggered indication.

Touch screen display for EMS system
LED Signage
Magnetic locking roof
IT Equipment Rack
Access control
Automatic Sliding Doors
Power distribution and UPS system
Precision Cooling Unit

TECHNICAL SPECIFICATIONS

SPECIFICATIONS	
Dimensions (L x D x H)	(L + 430mm) x (Rack Depth x 2 + 1200mm) x 2250mm; L < 15m
Power Supply	380~415Vac, 3P+N+E, 50/60Hz

RACK	
Dimensions (L x D x H)	600mm X 1100mm X 2000mm; 600mm X 1200mm X 2000mm
Compliance	EIA-310-D, BS15954, IEC197-2, and EIN4194
Space	42U
Door	Front Single, Rear Double Individual Locking System Opening Ratio 76%
Material	Cold Roll Steel

Withstand Weight (Static)	1800KG
Colour	RAL9005 (Black) / RAL9003 (White)
Protection Level	IP20
Accessory (Optional)	Side Panel, Equipment Rail, Equipment Tray, Cable Management Plate, 1U Blanking Plate, Rack Mount PDU (16/32A-8~24 Slot)

AISLE	
Containment	Cold Aisle Containment/Hot Aisle Containment Configurable
Roof Material	Tempered Glass with Aluminium Frame
Magnetic Locking Roof	Automatic Release During Emergency via Magnetic Release with Rotate Downward Mechanism Automatic Restoration with Motorized Control
Lighting	Embedded LED Light, Illumination 300lm
LED Signage	Included, Wording Changeable
Doorways	Automatic Sliding Door
Access Control	Keypad/ID Card/Fingerprint
Accessory (Optional)	Filler Panel, Temperature and Humidity Sensors, Smoke Detector, Door Sensor and Locking System, Audible Visual Alarm, Water Detection System, Overhead Busway System

POWER MANAGEMENT AND DISTRIBUTION	
Input	160A/250A, MCCB/Dual Source ATS
Output	A/B Source Output, 30~60 Branch
Power Monitoring	3PH Voltage, 3PH Current, Frequency, Power Factor, Real Power, Reactive Power, Branch Power Status

COOLING SYSTEM	
Cooling Capacity [1]	20,25,30,40kW (Air Cooled) ; 30, 50kW (Chilled Water)
Airflow [2]	4750~9580 m³/h
Dimensions (L x D x H)	300mm x 1100mm x 2000mm ; 600mm x 1100mm x 2000mm; 300mm x 1200mm x 2000mm ; 600mm x 1200mm x 2000mm;
Airflow Configuration	Horizontal Flow
Air Filter	G3, Washable
Cooling Control	Modulation
Humidifier (Optional)	Evaporative Humidifier
Heater	PTC Heater
Display	4.3" Colour Touch Screen
BMS	Built-in RS485 Modbus
Optional item	Top/Bottom Piping and Power Entry ; Dual Power Source with Built-in ATS ; Condensate Pump

ENVIRONMENT MONITORING SYSTEM	
Display	10" Colour Touch Screen
Display Language	English/Chinese
System Monitoring	Aisle Temperature & Humidity, Cooling System, Power Management System, UPS System, Smoke Detector, Water Detection
PUE Monitoring	Live PUE Monitoring & History PUE Monitoring
Alarm Log	500 Events

UPS AND BATTERIES MODULE (OPTIONAL)	
Input Voltage	380~415Vac, 3P+N+E, 50/60Hz
Input Power Factor	Up to 0.95 at Linear Load
Display	Status LED+LCD Display
UPS Module Dimensions (L x D x H)	440mm x 750mm x 5U
Capacity	20kVA per module
Protection	Overload Capacity, Short Circuit, EPO, Over Temperature
Compliance	Safety Standard-EN62040-1-1, EMC Standard-EN62040-2, CE Mark
Batteries Module Dimensions (L x D x H)	440mm x 680mm x 3U
Built-In Batteries	20 x 12V 9Ah
Batteries Type	Sealed Lead Acid Maintenance Free
Backup Time	15 minutes @ 20kVA Load With 3 x Batteries Modules

NOTES :
1. Cooling capacity is based on 35°C, 23.8%RH, R410A refrigerant, 45°C condensing temperature.

CIRC SERIES

CITEC INTELLIGENT RACK COOLING

CITEC CIRC series is a pre-assembled self-contained solution integrated with key Data Center components within a compact rack unit including precision cooling, power management, and environment monitoring system, designed for Edge applications.

PRODUCT FEATURES

- All-in-one pre-configured and standalone Data Center solution.
- Swift deployment with Plug & Play concept.
- Built in user friendly large 10" colour touch panel display.
- Option for integrated cooling or split cooling condenser.
- Option for built in UPS and battery.
- Eliminate the need of raised floor or IT room environment.
- High security feature with individual locking system.
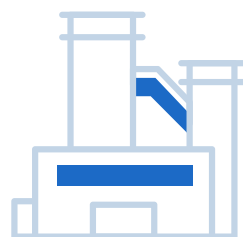- Low total cost of ownership.

TARGET APPLICATION

Small or medium sized enterprise (SME)

Branch offices of government or financial institutions (Banks, Insurance)

Exchange offices or Hubs of Telco's

Manufacturing & Retail

POWER MANAGEMENT UNIT

- Rack Mount, occupies 3U space.
- Integrated input and output power distribution management with lightning protection.

Built in PMU system; UPS and battery is optional.

UPS

- High performance redundancy 3kVA or 6kVA on-Line UPS.
- Designed and sized to match with CITEC CIRC system.
- Comes in a set of UPS module and battery module with single phase power supply.
- Occupies 2U and 5U space respectively for 3kVA and 6kVA.

TOUCH SCREEN DISPLAY FOR EMS SYSTEM

- Integrated with intelligent environment monitoring and power management unit to manage operation of key system measurables.
- Easy access and monitoring with 10" Colour Touch Screen display.

IT RACK SYSTEM

- 19" 42U fully enclosed rack complied to industry standard EIA-310-D.
- Durable Rack with withstand static load of 1800kg.
- Fully enclosed IT Rack with Tempered Glass.

Split Heat Rejection Unit

Integrated Heat Rejection Unit

PRECISION COOLING UNIT

- High efficiency direct expansion cooling system with 3.5kW cooling.
- Occupies 6U for Split Heat Rejection Unit and 11U for Integrated Heat Rejection Unit.

Emergency Exhaust

CIRC
SERIES

Technical Specifications

SPECIFICATION		CIRC-S	CIRC-I
Rack Dimension (L x D x H)	mm	600 x 1200 x 42U	600 x 1400 x 42U
Usable Space - With 6kVA UPS Option [1]		28U	23U
Usable Space – With 3kVA UPS Option [1]		31U	26U
Usable Space – Without UPS Option [1]		33U	28U
Power Supply	V/PH/Hz	220-240/1/50	
Maximum IT Equipment Load	kW	3	
Colour [2]		RAL 9005 Black	

PRECISION COOLING UNIT		CIRC-S	CIRC-I
Cooling Unit Dimension (L x D x H)	mm	440 x 800 x 6U	440 x 1150 x 11U
Cooling System		Direct Expansion Air Cooled	
Heat Rejection Unit for Cooling Unit		Split	Integrated
Rated Cooling Capacity [3]	kW	3.5	3.5
Rated Airflow [4]	m³/s	0.21	0.25
Rated Power Consumption	kW	1.63	1.76
Rated Current	A	7.54	8.24

POWER MANAGEMENT UNIT	
Installation and Dimension	Rack mounted, 3U
Power Distribution	40A Input; 25A/2P for UPS Input, Output and Bypass; 20A/2P for Precision Cooling Unit; 2 x 16/1P for PDU; 1 x 10/1P Spare.
Power Monitoring	Voltage, Current and Power
Power Output	12VDC for LED Lightning and Emergency System

ENVIRONMENTAL MONITORING SYSTEM	
Display Panel	10" Colour Touch Screen
Precision Cooling Unit Monitoring	Built-In
UPS Monitoring	Built-In

POWER DISTRIBUTION UNIT (OPTIONAL)	
Rack Mount PDU	16A, 12 Gang IEC320 C13

3KVA UPS AND BATTERIES MODULE (OPTIONAL)		
UPS Module Dimension (L x D x H)	mm	440 x 600 x 2U
Built-In Batteries		6 x 12V 9Ah
Backup Time		3 minutes @ Full Load

6KVA UPS AND BATTERIES MODULE (OPTIONAL)		
UPS Module Dimension (L x D x H)	mm	440 x 685 x 2U
Batteries Module Dimension (L x D x H)	mm	440 x 685 x 3U
Batteries Module Info		20 x 12V 7Ah
Backup Time		15 minutes @ Full Load

NOTES :
1. Usable space is remaining space after include precision cooling unit, power management unit.
2. Optional for others colour, please consult factory for colour option.
3. Cooling capacity is based on 35°C, 23.8%RH, R410A refrigerant, 45°C condensing temperature.
4. Airflow based on external static pressure: 20Pa.

CSR SERIES

Citec offers high-quality server racks for both 600mm and 800mm width with the availability of either 1100mm or 1200mm for lenght.

The rack meets the industry standards (EIA-310-D) for 19-inch rack-mounted equipment (i.e., server, voice equipment, data, network, internet, and power products), which is mainly used in professional medium to large-sized data centers. The products are fully compatible with the requirement of a building modular cold aisle and hot aisle containment.

The products also have a high load capacity and a static load ≤1800kg. The design and production meet the international industry certification standards: BS15954, IEC197-2, and EIN4194.

PRODUCT SPECIALTIES

Advanced Thermal Management Technology

- Perforated front and rear door with high-density hexagon hole design to optimize airflow
- Provide up to 76% of opening ratio for optimum airflow which is the highest in the industry
- 20-inch² free opening area per U space
- Fully meets the demand to keep the server cool

Advanced Rack Structure

- 19" standard width in the rack, and the mounting are adjustable (back and forth)
- The top and bottom of rack may be removed easily for accessibility
- The reversible front door may be opened from the left or right to accommodate various rack applications and rooms
- Fully supports top wiring system

Rack Modular Construction Application

- Fast assembly, high-precision rack structure of superior quality
- Mounting holes are located on top of the rack, suitable for modular hot and cold aisles containment
- Ability to accommodate various needs and may be adjusted accordingly to fit the application

Rack Cable Management

- Up to 12 cable entries for high-density cable assemblies
- The cabling holes are ready and covered by removable plastic protective cover plates
- The cable management panels or cable troughs located at the rear of the rack enables easy wiring
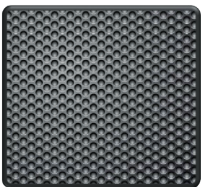
NOMENCLATURE

CSR 6 10 42 A-E/K-L

- **Unique Code**
  A-E: Whole Rack, Door's Design, Structure,
  K: Rack with front and back door
  L: Only frame and internal parts
- **Number of U in a rack** (1U=44.45mm): 42→42U ; 47→47U ; And so on
- **Rack's Actual Depth:** 10→1000mm ; 12→1200mm ; And so on
- **Rack's Actual Width:** 6→600mm ; 8→800mm
- **Rack's Series**

Model

Unique Code (Blank) → It is a standard rack loaded with a full set of standard accessories and standard packaging.

Unique Code (A/B/C/D/E) → Different designs of frame door.

Unique Code (K/L) → The rack only comes with the frame. No front, back, side door or casters will be included.

Note:
Currently the high-density door is fitted with Hexagon-Hole. High-density door with Round-Hole will only be produced once specified in the order form.

M7 Hexagon Hole
High-Density Door

M5 Round Hole
High-Density Door

PRODUCT SELECTION TABLE

SAFE AND RELIABLE (SERVICE) RACK

Exterior	CSR61042	CSR61047	CSR61142	CSR61147	GMA61242	CSR61247
Width (mm)	600	600	600	600	600	600
Depth (mm)	1000	1000	1100	1100	1200	1200
Height (mm)	2000	2200	2000	2200	2000	2200
Rack Unit	42U	47U	42U	47U	42U	47U

CONVENIENT AND RELIABLE (NETWORK) RACK

Exterior	CSR61042	CSR61047	CSR61142	CSR61147	GMA61242	CSR61247
Width (mm)	800	800	800	800	800	800
Depth (mm)	1000	1000	1100	1100	1200	1200
Height (mm)	2000	2200	2000	2200	2000	2200
Rack Unit	42U	47U	42U	47U	42U	47U

SPECIFICATION

Standard Part List:
19'' G-shape Frame (1-set), Side Door (4 pcs), Adjustable Leveling Foot (4 pcs), M6 Steel Bolt (40 pcs), Front Door (1 pcs), Back Door (1 pcs), Verticle Cable Tray (1 pcs), Manuals, Certificates, Standard Packaging and Rack's Label.

Material	: SPCC Cold Rolled Steel	Frame	: G-Shape Profile
Colour	: RAL9005 (Black)	Vertical Mounting Rails (with U position)	: 2.0 mm
Front/Back Door	: 1.2mm	Height of 1U	: 44.45mm
Side Door	: 1.2 mm	Rack's Net Weight	: 140KG
Standard	: Compliance with industry Standard EIA-310-D (19'')		

AVAILABLE RACK COLOURS

RAL 1028	RAL 2008	RAL 5002	RAL 5024	RAL 7035	RAL 9003	RAL 9005	RAL 9010

AIR CIRCULATION MANAGEMENT AND CABLE MANAGEMENT FOR 600 AND 800 RACK

Product	Model #	Description	Drawing
1U Steel Blanking Plate	GW1901B	· 19-inch 1U Standard · Quick-Snap Installation · 1.0~1.2 mm SPCC Material · Colour may be configured	
2U Steel Blanking Plate	GW1902B	· 19-inch 2U Standard · Quick-Snap Installation · 1.0~1.2 mm SPCC Material · Colour may be configured	
1U Plastic Blanking Plate	GW1901FP	· 19-inch 1U Standard · Quick-Snap Installation · Fire-Retardant ABS Material	
1U Steel Tray for Cable Management	GW1101UB	· 19-inch 1U Standard · Steel Cable Organizer · Suitable for Network Cabling	
1U Plastic Tray for Cable Management	GW1101UC	· 19-inch 1U Standard · New Design of Plastic Tray · Suitable for Network Cabling	
2U Plastic Tray for Cable Management	GW1102UC	· 19-inch 2U Standard · New Design of Plastic Tray · Suitable for Network Cabling	
2U Vertical Tray for Cable Management	GW1020/22UB	· 2U Width · New Design of Plastic Tray · Designated for vertical cable management and suitable for Network Cabling	
Cantilever Tray/ Equipment Tray/ Bracket	GA1121/LS/TS/KS/ FT/KT/RT/TC	· Suitable for all server racks and network racks.	
Rack Top Prefabricated Cable Tray	GES18M30/ 60/ 80	· Suitable for all server racks and network racks.	

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