

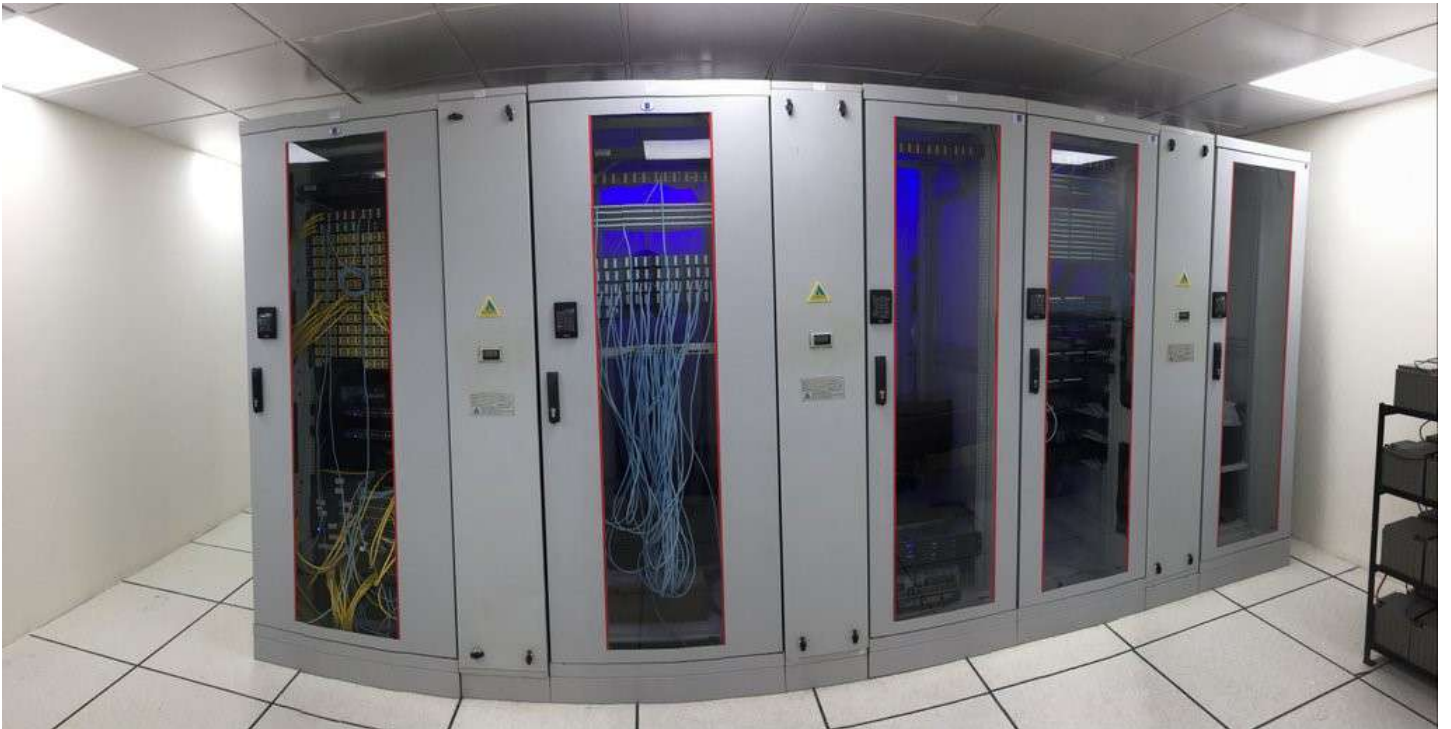
DHANANJAY INDUSTRIAL ENGINEER PRIVATE LIMITED

**BRAND: WQ INDIA
I-RACK [SMART RACK]**

**42U SMART RACK WITH 10.5 KW SIDE MOUNT COOLING
UNIT [N+N TOPOLOGY] AND OTHER ACCESSORIES**



**MAKE: WQ INDIA
MODEL NO.: iR-42U-8-15-10.5KW-3R**



OVERVIEW OF SMART RACK (iRACK)

Also known as EDGE Data Center a Modular Micro Data Center (MDCM) is a solution that consists of server cabinets with data center capabilities such as: cooling systems, UPS, monitoring, fire detection and extinguishing, and access control. This solution is useful wherever data processing is needed, for example, disaster recovery, temporary or permanent deployments in indoor or outdoor environments.

A micro data center (MDC) is a smaller or containerized (modular) data center architecture that is designed for computer workloads not requiring traditional facilities. Whereas the size may vary from rack to container, a micro data center may include fewer than four servers in a single 19-inch rack. It may come with built-in security systems, cooling systems, and fire protection. Typically there are standalone rack-level systems containing all the components of a 'traditional' data center, including in-rack cooling, power supply, power backup, security, fire and suppression. Designs exist where energy is conserved by means of temperature chaining, in combination with liquid cooling.

The product of iRack Micro Data Centre is a new generation of alternative solution to Small IT room, with complete integration of fire, dynamic environment monitoring system, power supply, distribution systems, battery, cooling system, cabinets and containment & the Hot Aisles & Cold Aisles are isolated to lower PUE to 1.3.

It is launched to meet the IT room infrastructure optimization needs and mainly used in small- and medium-sized enterprises, microenterprises, large enterprises, governments and other branches in finance, education and energy industries. The forward-looking enterprises have realized that the intelligent single-Cabinet IT room (micro data center) with high reliability and availability is the future trend from the perspectives of both current short-term investment and future long-term operating costs.

iRack micro data center can be used in the application that the cabinet is within 10 and total load is less than 40kVA. Usually, we give solution according to customer's requirement. Normally, there are three forms of selection: single cabinet series, dual rack series, and multi-cabinet series.

Uses for the Micro Data Center

The Modular Micro Data Center is useful wherever data processing is required, such as:

- Edge Computing
- Offices and Factories.
- Banking Agencies.
- Mobile Sites
- Health.
- Education
- Supermarkets
- Remote locations and in extreme environments such as:
 - Mines
 - Petroleum.
 - Farms
 - Telecommunications cells.

CHALLENGES OF SERVER ROOM INFRASTRUCTURE

BASIC CHALLENGES AND CRITICAL INFRASTRUCTURE REQUIREMENTS

- Space Constraints
- Proper Cooling required for Equipments
- Proper Measures to Prevent loss from Power
- Over IP Monitoring
- Minimize the chances of failures
- Access Control to prevent Intrusion
- Surveillance
- CAPEX and OPEX should fit the budget
- Future Expansion Provision for at least 5 years

WQ INDIA understands the basic challenges faced by IT and critical Infrastructure requirements needs to be met, thus presents i-Rack Solution.

INTELLIGENT INTEGRATED INFRASTRUCTURE SOLUTION –WQ INDIA I-RACK

Design and Deploy:

- Increase energy efficiency
- Reduce Capital costs
- Faster Deployment
- Reduce Space
- Lower engineering Costs
- Improve design efficiency

Operations:

- Free up Standard Capacity
- Increase availability
- Reduce energy costs with efficient technologies

Management:

- Streamline operations with management controls
- Improve asset utilization
- Simply change management
- Lower long-term operational costs with proactive maintenance programs



42U BASIC RACK STRUCTURE ALONG WITH THE ACCESSORIES

3 Nos. of 42U H x 800 mm W x 1500 mm D Rack , Broad Front and Rear Multi-folded Frames offer required level of stability and square-ness to the structure. This design ensure maximized width utilization for managing power distribution and vertical cable management.

Bolted construction of the rack enables the shipping of the rack in CKD. As a default practice, WQ India racks are assembled at site as per the user / system integrator's requirement.

- Front Transparent Toughened Glass Door with 3 Point Locking system having Swing type Locking mechanism.
- Rear Plain Door with 3 Point Locking system having Swing type Locking mechanism.
- Rear Door of the Rack will have Emergency Exhaust Fans - 2 Nos.
- Every door can open **180 degrees** – a much needed feature for the ease of servicing the rack after installation and / or mounting / removing the equipments. Rear door can be offered in split design also.
- Side panels with locks is also provided for making the rack completely secured with proper PU gasket to eliminate air loss.
- Multi fold heavy duty 19" mounting rails made from 2.0mm CRCA ensure further rigidity and load carrying capacity while maintaining the overall squareness of the structure. (As against conventional L Shaped Mounting Rails)
- The rack should comply minimum of **IP 54 rating** for protection against touch, ingress of foreign bodies and ingress of water.
- Full height 100mm reducing channels at all 4 mounting rails offer convenience for cabling along with sturdy format for appropriate load distribution.
- Made out of quality CRCA material of various thicknesses, also offers highly rigid and stable structure for loading per rack up to 1350 KG (All load bearing members being made from 2.0mm CRCA Steel with added strength by way of multi- fold design)
- Heavy Duty Fixed Shelf for 727mm Depth.
- Horizontal 1U Cable Manager with Cable loops.
- Vertical Cable Manager of 75mm/100mm Wide for quality cable dressing or cable ties.
- 1U Blanking Panels ABS Plastic.
- Baying Kit
- Air Sealing Kit
- Insulation Kit
- Base Plinth of 100mm also has much more detailed openings available for appropriate cable entry. This includes a mix of pre-punched holes for using cable glands along with the conduits options of line Brush Strip Cable Entry or Sealed Cable Entry Box. This facilitates easy entry and routing of the cables in to the rack.
- Adjustable Levelling Feet.
- Earthing Kit.
- LED Lights inside the Rack for Dark visibility and Aesthetic look.
- Compliance to ISO 9001, ISO 14001, ISO 45001, DIN 41494-8, EIA 310-D, ROHS, UL & CE Certifications.

AGGREGATED METERED TYPE POWER DISTRIBUTION UNIT (PDU) [42 WAY IEC TYPE PDU WITH C13 X 36 SOCKETS & C19 X 6 SOCKETS]

Input:	
Voltage:	1 Φ , 230VAC
Frequency:	50Hz / 60Hz [as per supply input]
Power out Socket type:	1 Φ , 32 Amps, IEC 60309 [P+N+E], 230VAC
Power Cord:	6 Sq.mm x 3 core 3.0 meter with rewire-able IEC 60309 32A IP44
Input current:	32Amps

Output:	
Voltage:	1 Φ , 230VAC
Frequency:	50Hz / 60Hz [as per supply input]
Power out socket Type:	IEC C13 Outlet 36 Nos. [Bank of 6 Nos.] & IEC C19 Outlet 6 Nos. [Bank of 1 No.] with IEC-320
Current operating range:	32Amps

Features:

- Aggregate Current Monitoring: Monitors the Aggregate/ Total Current flowing through the device.
- Monitors & Tracks Aggregate Power Consumption.
- Conforms to CLASS-I measurement Accuracy.
- Total Nos. of Outlets: 42U - IEC-320 C13 [36 Nos.] Blue Color & IEC-320 C19 [06 Nos.] Blue Color.
- Monitoring & Metering of Electric Parameters: Voltage [V], Current [I], Energy [kW, kWh], Power [kVA, kVAR], Power Factor [Cos Φ].
- Current Threshold Settings with warning LED on Front Panel & Buzzer Alarm.
- TFT Color Display.
- Provision to connect Temperature / Humidity Sensor.
- Event Log Features.
- Daisy Chaining.
- Branch Circuit Protection: Two [2] x 16A Hydraulic Magnetic Circuit Breaker.

User Interface:

- Integrates with any DCIM System through SNMP.

Interface and Protocol Support:

- HTTP
- SNMP
- MODBUS TCP/IP

Mechanical:

- Dimensions [L x W x H]: 1750mm x 60mm x 70mm
- Weight: approx. 5.300 Kg
- Mounting: 1443.50mm
- Color: RAL 9005
- Finish: Fine Texture

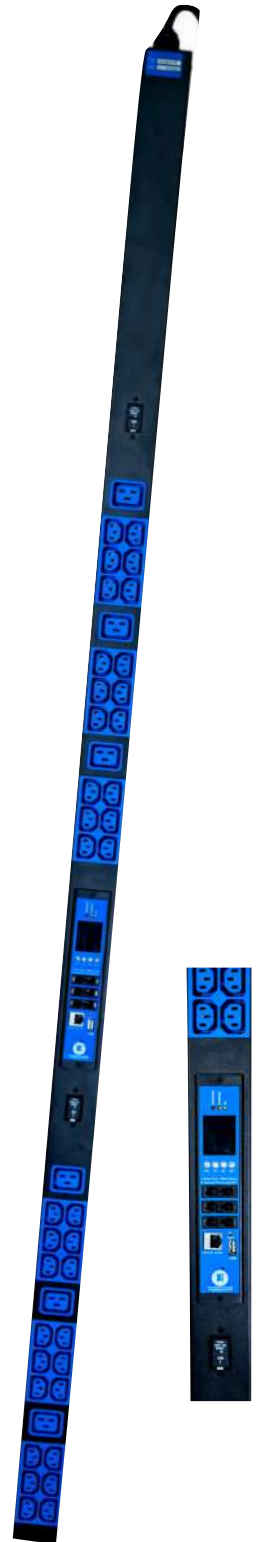
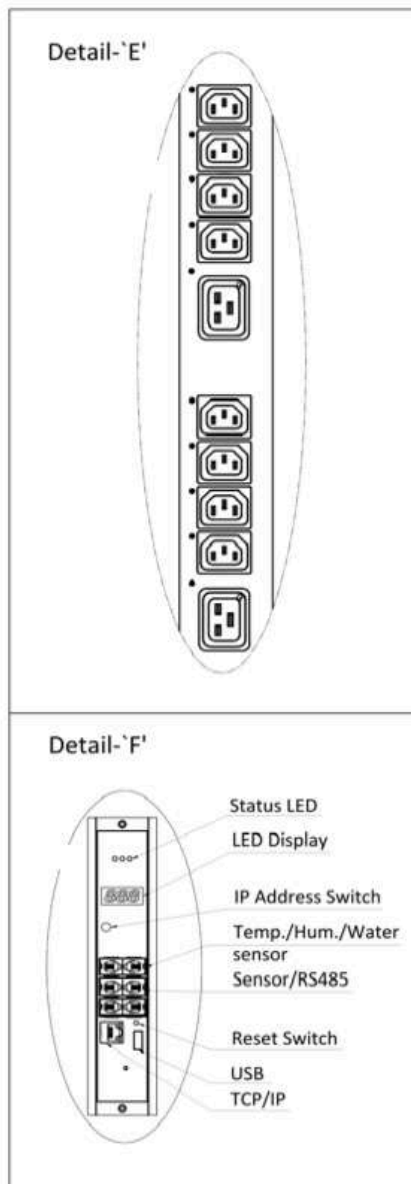
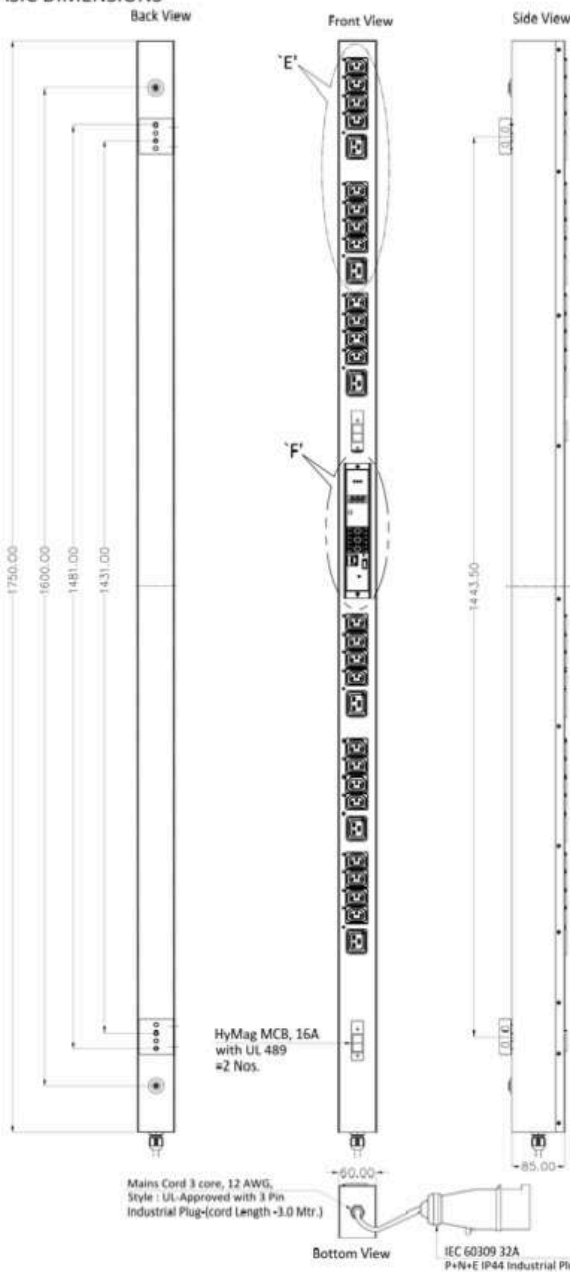
Environmental requirements:

- Operating temperature: 0 - 60 degrees celsius
- Humidity: 0 – 95 % RH non-condensing

Environmental requirements:

- As per UL 60950-1, IEC 60950-1

BASIC DIMENSIONS



RACK MOUNT 10.5 KW SIDE MOUNT COOLING UNIT

The solutions to **DX type 10.5 KW x 2 Units of Cooling System** Split Type Unit with Rack Side Mounted IDU and external ODU

In-Rack

- Each Cooling unit will have capacity of 10.5 KW. The unit shall be configured to provide air flow/pattern to provide uniform airflow over the entire height of the rack. EC fan /variable speed should be used for maximum efficiency and minimum power cost. A Rotary/Equivalent compressor, which permits staples adaptation of the output in partial-load operation. The system will remain in operation in case fan replacement is required. Cooling system will come with monitoring and control panel.
- Compressor will be electrically protected through the adequate protection devices. Total CFM (cubic feet per minute) of each unit should be adequate to maintain the rack temperature. Supply cooling temperature to be maintained at 22°C or lower with an accuracy of $\pm 1^\circ\text{C}$ at site ambient conditions of 40°C.

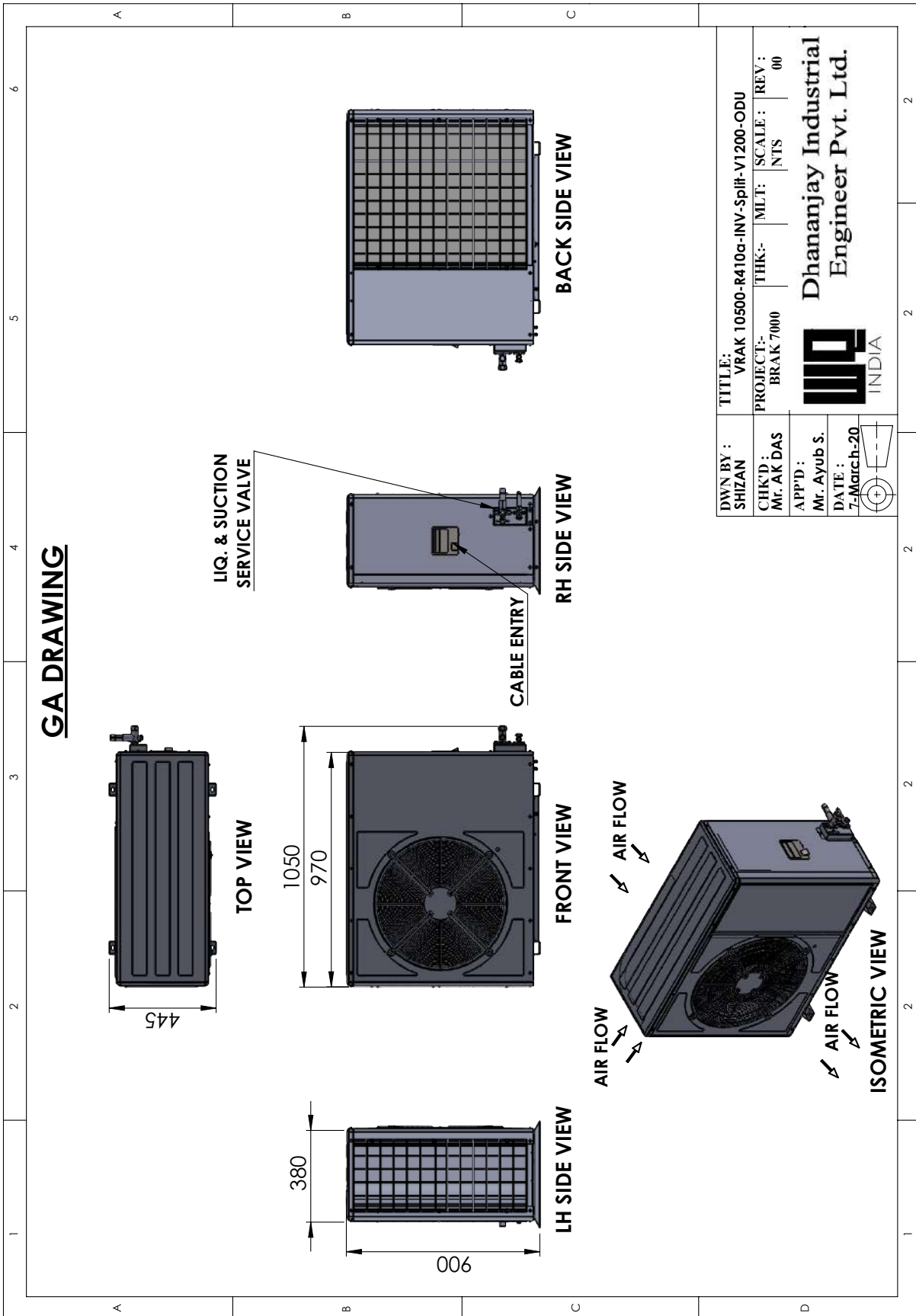
Outdoor

- Copper piping with insulation tube of elastomeric, nitrile foam between each sets of outdoor & indoor unit. Piping to be properly supported by MS clamp. All transmission wiring between indoor to outdoor units should be kept in PVC conduit. The distance between indoor and outdoor unit is considered as 15-20 meters.
- Solution provided will have integrated Rack Mounted - Self-contained Split Type Cooling Unit designed for cooling the racks with 24X7 operations in all respect as per ISHRAE/ASHRAE standard and also integrated with remote monitoring system.
- The Side Mount Cooling Unit shall be of 300mm Width also will have 100mm Base Plinth.

TECHNICAL SPECIFICATIONS		
Sr. No.	Particulars	Details
		10.5 KW Cooling Capacity
1	MODEL:	VRAK 10500 R410a INV Split V1200
2	Configuration :	Split type (Vertical Mounted)
3	*Cooling Capacity :	10,500 Watts
4	Rated outlet temperature :	22°C $\pm 1^\circ\text{C}$
5	Rated Ambient :	40°C
6	Maximum Ambient :	50°C
7	Ambient Temp. Range :	+10°C to + 50°C
8	Refrigerant:	R410a
	Refrigeration parts	
9	Expansion Device :	Electronic Expansion Valve
10	Drier	Danfoss/ equivalent
11	High pressure protection	Pressure Switch
12	Low pressure protection	Pressure transducer
	Electrical Specifications :	
13	Power Supply :	3 Phase + Neutral , 50 Hz.Voltage : 230 V
14	Temperature Controller :	Microprocessor based controller with LCD display

15	Duty Cycle :	Continues Duty
16	Communication:	RS485 ,MODBUS
17	Type of Connection :	3 Mtr. Cable
	Outdoor Unit	
18	Compressor:	Rotary compressor with BLDC motor
19	Type of Compressor :	Variable Speed
20	Condenser :	Air Cooled, Copper tube & Aluminium fins
21	Condenser Fan :	Axial type Fan
		No. of Fans per unit : 1 No.
22	Structure :	GI body Powder Coated: 7035
23	Unit Dimension(mm) :	970 Width x 380 Depth x 900 Height
	Indoor Unit	
24	Evaporator :	Air Cooled, Copper tube & Aluminium fins
25	Fan :	Backward Curve Centrifugal -variable speed Fan
		No. of Fans per unit : 3 No.
25	Structure :	MS Frame with MS Sheets, Powder Coated : 7035
26	Unit Dimension(mm) :	300 Width x 1200 Depth x 42U Height
	Safety features	
27	Motor & Compressor overload protection	
28	Refrigerant High pressure & low pressure switches	
29	Additional MCB in wiring circuit	
	HMI screen management	
30	Temperature Trends	
31	Fault History	
32	Alarm status	
33	Operational Parameter set up	
34	Safety parameter set up	
	* Performance acceptable tolerances \pm 5%	

CAD DRAWING OF BOTTOM MOUNT COOLING UNIT [OUTDOOR UNIT]



ACCESS CONTROL SYSTEM

[OPTION OF PIN PAD, BIOMETRIC, PROXY CARD/RFID CARD]

General Description:

Access Control System boasts of high aesthetics and ultra modern design. An appealing (2.4") TFT display with capacitive touchpad. Option of personalizing the display screen by adding company logo in specified display area is also available.



Main Features:

- Premium Biometric System with sleek design & Touch screen display
- Rugged Fingerprint optical sensor with 19K templates
- Touchscreen display for configuration of device
- Third party HR software compatible device
- Compatible to all types of cards
- IP65 rated robust enclosure
- Wi-Fi, GPRS enabled
- CE certified

More Features & Benefits:

- **Remote and easy Online Up gradation of the Firmware:** - The Device has an inbuilt capability for an online upgradation of the firmware.
- **LED Indication:** - Device has inbuilt tri-colour LED which indicate various kinds of device transaction processes i.e.; Access Granted, Unauthorized Access, Command Activated, etc.
- **Compact and Elegant Look:** - An aesthetic and elegant design with 2.4" TFT display and capacitive touch sense keypad is a value addition to the interior of the premises.
- **Fingerprint Sensor:** - Product automatically recognizes the minor natural changes in the fingerprint over a period of time and automatically updates them for future reference.

TECHNICAL SPECIFICATIONS

Application	Access & Attendance
CPU	32 Bit RISC ARM Processor
Memory	Up to 8 MB Flash
Events/Transactions	Up to 1,00,000
Users	Up to 50,000
Fingerprint Templates	Up to 19,000 (1:N),(1:1)
Operation Modes	Finger + Card + Pin
Inbuilt Card Reader Options	Proximity or Smart Card, HID
Exit Port	Egress Switch or Reader for Exit
Exit Reader Supported	Yes
Communications Port	TCP/IP, RS485, GPRS, Wi-fi, POE
Baud Rate	9600bps (Default)
Input/Output	3 I/P (Door Status, Egress, Fire) & O/P (DOTL, Egress, Fire)
Controller ID	Up to 9999
Display	2.4" TFT Color Display
Keypad	Capacitive Touch Sense Keypad
LED	Tricolour LED Bar
Sound	Beep & Buzzer Sound
Ingress Protection	IP65
Power Supply	12 V DC/ 2A (Min) , POE (Optional only for attendance)
Enclosure	ABS Material
Dimension(LxHxW) in mm	58 x 210 x 49
Mounting	Wall Mounting
Finger Print Sensor	Most rugged and accurate optical finger print sensor
Finger Score	Display finger quality score at the time of finger registration
Image Size Resolution	500 dpi
EER/FAR/FRR	<0.1%, 0.001%, 0.1%
Verification & Enrollment	<1 sec
Template Size	384 bytes
Authentication/Identification	1:1 & 1:N (User Groups for faster verification)
Facility Code	Available
Time Zone / Access Levels	63 + 1 (Free Time Zone) / Unlimited
Time Zone Slots	4 slots per Day
Anti-Passback	Hard, Soft, Escort (Reader Wise)
Holiday Settings	42

REMOTE MONITORING UNIT [RMU] [TEMPERATURE & HUMIDITY SENSOR, SMOKE DETECTOR, WATER LEAK SENSOR, AUTO EMERGENCY DOOR OPENING SENSOR]

General Description:

Rack Monitoring Unit [RMU] can connect multiple sensors at the front and rear end of the Rack as well as server room. If any Temperature or Humidity value goes beyond threshold or Pre-set value, then the system will generate alarm and connected hooter will sound. In addition to this it has smoke detector for any unprecedented fire casualty with Water-leak detection system. This system completely monitor's Rack's or Server Room's all Environmental parameters.



Main Features:

- 1U size device fits easily into 19" Rack which make installation easy.
- TCP/IP based System, helps to monitor system from remote location.
- Dedicated channels for Temperature + Humidity Sensors
- Water Leak & Smoke Detection
- SNMP traps enabled for critical alarms like temperature high, water leak, fire etc.
- Alert based SMS/Email configuration in desktop-based software.
- Dedicated software for various types of reports, graphs & critical event notifications.

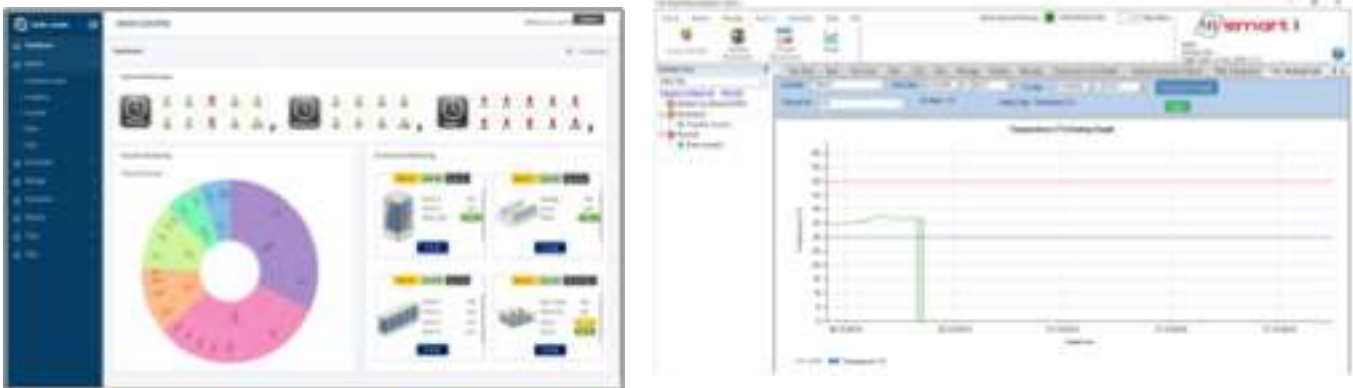
More Features & Benefits:

- **Data Centres:** - Remote Rack Environment monitoring with SNMP alert system
- **Security Systems:** - Environmental monitoring of IP surveillance cabinets with external sensors
- **Compact and Elegant Look:** - Value based System with rugged black enclosures and astute sensors
- **Critical Infrastructure Cabinets & Smart City:** Technology Sites, Telecom Cabinets, Smart City Hubs and Utilities like power, Water & Gas Sites.



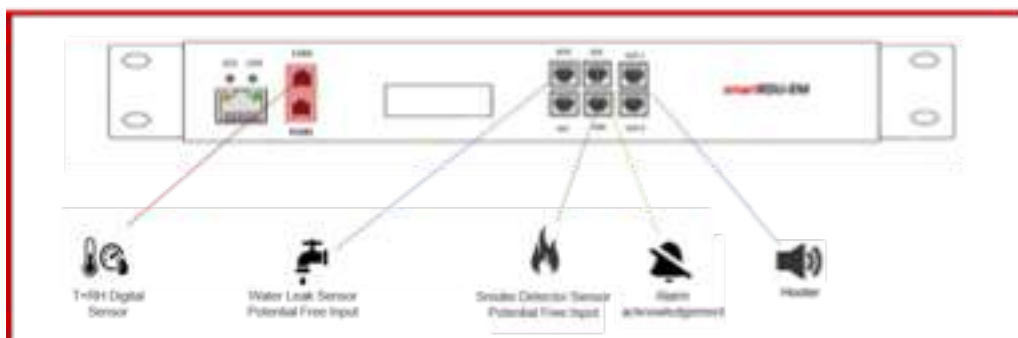
TECHNICAL SPECIFICATIONS	
CPU	32 Bit RISC ARM Processor
Memory	4MB Flash
Input	Digital Inputs X 4 Nos.
	1. Water Leak Sensor Input
	2. Smoke Detector Input
	3. Door Status
	4. Alarm Silence Key
Sensor Port	T + Rh Sensor Port can Connect Multiple Temp + Humidity Sensors in series.
Output	1. Alarm Output relay (to turn ON hooter or strobe light)
	2. To open door in case of temperature high alarm.
Communication Ports	TCP/IP, RS485
Display	16 x 2 LCD Display
Baud Rate	9600bps (Default)
Language	English
Power Supply	230V AC, 50 Hz
Enclosure	Industry Standard Metal Enclosure
Mounting	19" 1U Rack Mount (with Metal Enclosure)

Software:



Note: Dashboard shown here is for indicative purpose only.
Actual product is under improvisation and may vary due to constant enhancement

Connection Details:



FIRE SUPPRESSION AND DETECTION SYSTEM [NOVAC 1230 GAS]

OVERVIEW OF THE DEVICE

- Fire Detection and suppression unit complete with suppressant media gas NOVAC 1230
- Protects core IT equipment from fire with its intelligent Fire detection & suppression system
- Integrated fire fighting system is exclusively designed for i-Rack solution, produces savings over conventional room based access
- Emergency Fan Provision for Exhaust Air Ventilation in case of PAC failure.
- Front Panel With Display and control Panel

AUTOMATIC FIRE TUBING SYSTEM

Automatic self seeking fire tubing system puts out fires when they start, where they start. Designed for installation inside enclosures and inaccessible areas. No complex electronics. Safe against malfunction. Best cost-performance ratio.

FIRE TUBE – THE DIFFERENCE

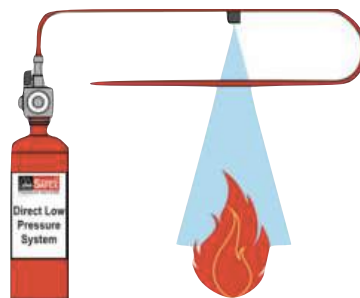
- Acts as multi-sensor and multi extinguishing jet.
- Made of a high-tech polymer.
- Combines long-time resistance & flexibility.
- Temperature sensitivity, when bursting at the hottest spot, it ruptures as a nozzle shape opening.



THE DIRECT SYSTEM

The extinguishing agent is transported through the tube exactly to the origin of the fire.

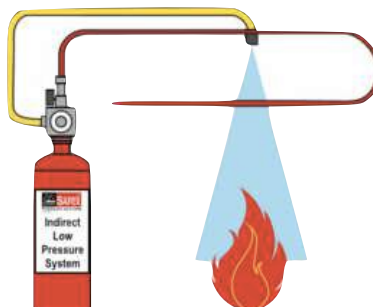
Cylinder Containing:
Clean Agent Gas



THE INDIRECT SYSTEM

The detection tube just triggers the valve when it detects a fire. The extinguishing agent discharges through a conventional outlet port.

CYLINDER CONTAINING:
Clean Agent Gas



ADVANTAGES

- Linear detection line
- Rapid reaction time
- 24 hours a day ready for use
- No external power supply
- Flexible positioning of the Safex tube
- Can be installed into inaccessible areas
- Minimal environmental damages
- Minimum maintenance
- No accidental discharges through a disruption of the fire detector
- Can be used in every environment (marine, industrial atmosphere)
- Low and high pressure applications Not affected by vibration or knocks
- Quick and simple installation
- Low price – high performance relationship

*The System is available in High Pressure and Low Pressure



RODENT REPELLENT SYSTEM

Ultrasonic Rodent Repeller:

- Ultrasonic Rodent Repellers are electronic transmitters of high frequency sound (well above the 20 KHz frequency which is the upper limit of the hearing range of the human ear). They emit intensive sound at high decibel levels (sound pressure) that is audible and painful to rodents but is inaudible and harmless to humans. The rodents will usually leave the area being protected by the ultrasound. They do not get killed.
- The powerful sound waves generated by the transducers of Maser repellers are within the hearing range of many rodents and cause them pain and discomfort. Sometimes they will leave the area being protected immediately, in other cases it will take as long as two to three weeks before significant reduction in infestation occurs.
- Transducers are completely quiet. if you cannot hear them do not think that the unit is not working. You cannot hear ultrasound.

Specifications		
No.	Parameter	Values
1	Power Supply :	230 Volts AC, 50 Hz
2	Operating Frequency :	Above 20 KHz
3	Sound Output :	80-100 Db
4	Power Output :	900 mW per Transducer
5	Power Consumption :	5 Watts
6	Dimensions :	225x65x115 (mm)
7	Weight :	1250gms



LIVE SITE IMAGES



LIVE SITE IMAGES

