YiTac(S) Pte Ltd
Navigating Towards Sustainability

MV2
VRF M&V SYSTEM

PRESS RELEASE

BEX Asia 2024

YiTac Unveils MV2: The Future of VRF System Evaluation

Empowering Green Solutions with Revolutionary MV2

A First in Commercial Onsite VRF M&V System

Singapore, September 2024 – YiTac, a leading provider of innovative engineering solutions, proudly announces the launch of MV2, a state-of-the-art Variable Refrigerant Flow (VRF) Measurement & Verification (M&V) system. Developed in collaboration with Ngee Ann Polytechnic, Centre for Environmental Sustainability (CfES) under the BCA GBIC Grant, MV2 redefines the standards for evaluating VRF air-conditioning systems.

YiTac is known for pioneering sustainable engineering solutions, including **twenty80** Passive Displacement Ventilation System, **GRUNDFOS** Distributed Pumping System, **YORK** modular air-cooled chillers and **Kingspan** Pre-Insulated Ducting System. These products exemplify YiTac's commitment to delivering cutting-edge solutions that meet evolving client needs while minimizing environmental impact across commercial, residential, and industrial sectors.

MV2 represents the pinnacle of innovation in the field of VRF M&V systems, ensuring optimal performance and promoting energy savings and sustainability. Designed for both intrusive and non-intrusive applications, MV2's system accuracy has been verified by A*STAR's National Metrology Centre and offers flexibility and precision in monitoring VRF systems based on real-world performance. The need for reliance on manufacturer data is thus eliminated.

"Our mission is to deliver practical and impactful solutions that drive sustainability," said Mr. Kelvin Chay, General Manager of YiTac Pte Ltd. "Our collaboration with Ngee Ann Polytechnic to bring MV2 to the industry is a testament to our dedication to empowering our clients with the tools they need to achieve their green goals."

YiTac(S) Pte Ltd
Navigating Towards Sustainability

MV2 VRF M&V SYSTEM

PRESS RELEASE

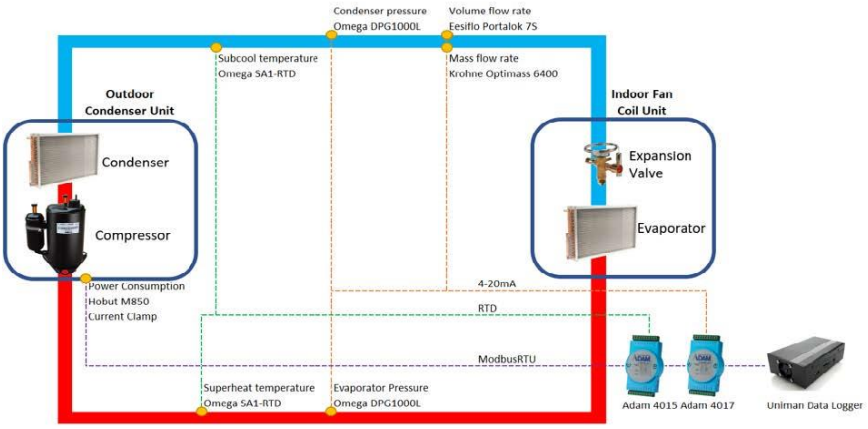

Figure 1: Sensor deployment for MV2

Innovative Features and Benefits

The MV2 service is designed to assist building owners and facility managers in enhancing energy efficiency and ensuring compliance with stringent regulatory standards. By enabling real-time performance evaluations and spot-checks, the service helps to ensure VRF systems operate at peak efficiency, ultimately reducing energy consumption and operational costs.

Configuration | Design | RealTime | Control | Data | Message | About

Date Time	Item Name	Value	Change	Status	Message
2024-04-15 15:45:31	Cooling Cap(kW)	5.513	-0.009		
2024-04-15 15:45:31	COP	3.732	-0.056		
2024-04-15 15:45:31	Density(kgm-3)	1.058	0.001		
2024-04-15 15:45:31	Mass Flow(kgm-3)	1.709	-0.005		
2024-04-15 15:45:34	Subcool Temperature(oC)	25.715	-0.063		
2024-04-15 15:45:31	System Stable	1.000	0.000		
2024-04-15 15:45:34	Superheat Temperature(oC)	18.039	0.000		
2024-04-15 15:45:35	Outdoor RH(%)	59.001	-0.049		
2024-04-15 15:45:35	Outdoor Temperature(oC)	34.678	0.000		
2024-04-15 15:45:35	Condenser Pressure(MPa)	2.649	0.002		
2024-04-15 15:45:35	Evaporator Pressure(MPa)	1.194	0.000		
2024-04-15 15:45:35	Ultrasound Flow Rate(lpm)	1.600	-0.009		
2024-04-15 15:45:35	Power(kW)	1.483	0.002		
2024-04-15 15:45:35	Power2(kW)	1.457	0.001		

Figure 2: Real time dashboard capture of temperature, pressure, power and COP

YiTac(S) Pte Ltd
Navigating Towards Sustainability

MV2 VRF M&V SYSTEM

PRESS RELEASE

Benefits

- **Real-Time Performance Monitoring:** Instantly calculates cooling capacity and Coefficient of Performance (COP) with real-time data output
- **Intrusive and Non-Intrusive Solutions:** Offers a permanent system with a mass flow meter for continuous readings and a non-intrusive system with an ultrasonic flow meter. This allows for on-demand measurements as well.
- **Comprehensive Data Collection:** Measures critical parameters including refrigerant flow, temperatures, pressures, and electrical inputs to calculate system efficiency (COP).
- **Adherence to International Standards:** Developed based on ISO5151-2017 standards, ensuring reliable and standardized performance metrics.
- **Versatile Compatibility:** Compatible with all VRF system brands, providing flexibility across diverse installation environments.
- **Data Driven Insights:** Delivers actionable data to pinpoint areas for improvement and optimise VRF system operation for maximum efficiency.
- **Eliminate Reliance on Estimates:** Provides concrete, real-world measurements for a precise and accurate evaluation of system performance.

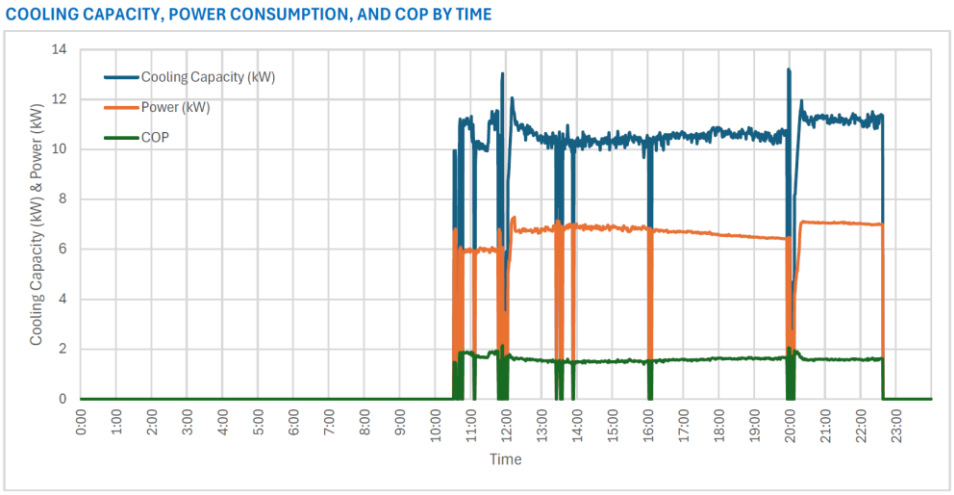

Figure 3: Plot of Cooling Capacity, Input Power and COP

Mr Tan Seow Kee, Manager of YiTac, shared, "MV2 is a breakthrough in VRF system evaluation. Its ability to provide accurate, real-time data without disrupting existing systems marks a significant advancement for the industry. We are excited to see the impact it will have on enhancing energy efficiency and sustainability."

YiTac(S) Pte Ltd
Navigating Towards Sustainability

MV2 VRF M&V SYSTEM

PRESS RELEASE

Technical Excellence:

MV2 adheres to the Annex E "Refrigerant enthalpy test method" of International Standard ISO5151-2017. This ensures accurate and reliable measurements. Both methods have been verified to achieve an uncertainty measurement in COP of less than 10%.

About YiTac:

YiTac is a leading provider of innovative engineering solutions, specializing in **twenty80** Passive Displacement Ventilation System, **GRUNDFOS** Distributed Pumping System, **YORK** modular air-cooled chillers and **Kingspan** Pre-Insulated Ducting System. Committed to delivering cutting-edge solutions that meet evolving client needs while minimizing environmental impact, YiTac serves the commercial, residential, and industrial sectors.

Contact Information

For more information, please contact:

Raymond Beh
Sales and Marketing Manager
YiTac Pte Ltd
Phone: +65 9329 9992
Email: raymondbeh@yitac.com.sg

Experience the future of VRF system evaluation with MV2. Contact us today and discover how our advanced M&V solution can elevate your air conditioning energy performance evaluation. See you at our **Booth B-H09** at BEX Asia 2024.

Join us for an insightful masterclass by Mr. Sam Lam Kwok Ho, Principal R&D Engineer at CfES, Ngee Ann Polytechnic, on optimizing VRF performance through innovative M&V solutions.

Masterclass Details:
Topic: *Optimizing VRF Performance: Innovative Measurement & Verification (M&V) Solutions for Improving Energy Efficiency*
Time: 12:30 PM - 1:00 PM
Location: Main Stage, BEX Asia 2024

Talk to us about our innovative and sustainable engineering solutions