



VFM Series is the newest product in the TMI controls offering.

VFM (Volume Flow Management) system is a simple and elegant solution that provides you a single point of control to fully utilize the operational savings and diagnostic benefits that EC fans provide. Our innovative new technology gives you the best platform for controlling and monitoring airflow for fan arrays with EC motors.

VFM controllers are designed to maximize the benefits of the EC motor technology for the customer by simplifying the integration of the fan array control and monitoring to any third-party controls or BMS system.

Our engineers have developed proprietary technology, standardizing how the individual devices communicate within the fan arrays, providing you a single intuitive interface to fully utilize all diagnostic and control benefits accessible with EC motors.



New EC motor technology from vendors such as Ziehl-Abegg and EBM Papst provide vast live diagnostic info that create significant benefits when properly utilized.

Some of the valuable system information available with EC motor technology:

- Communication Status
- Motor Speed
- Speed Signal
[External Analog Speed Signal]
- Line Voltage
- Active Fault Descriptions
[Scrolls through all if multiple active faults]

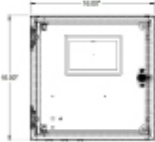
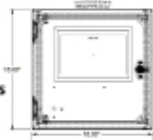
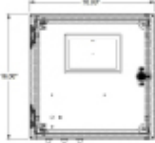
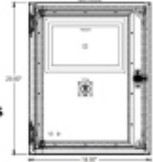


Additional motor properties information useful for motor diagnostic only:

- Motor Current
- DC-Link Voltage
- Electronics Temperature
- Motor Temperature
- Power Module Temperature

Our EVCmax option is intelligent enough to determine if the motor parameters are correct and produces a mismatch indication if parameters are incorrect. A user prompt then allows the parameters to be written directly from the controller.

TMI VFM systems provide reliable, low cost, compact control panels while allowing for flexibility in overall array size VFM is a turn-key solution to monitor and control your fan array and operate it as a single device.

		Size/Complexity	
		Micro	Max
Function	Monitor Airflow	EVM_{MICRO} <ul style="list-style-type: none"> • 7" HMI • Small Controller 	EVM_{MAX} <ul style="list-style-type: none"> • 10" HMI • Large Controller • 1-3 Expansion Modules 
	Control Fans monitor airflow ++ monitor fans	EVC_{MICRO} <ul style="list-style-type: none"> • 7" HMI • Small Controller 	EVC_{MAX} <ul style="list-style-type: none"> • 10" HMI • HOA Switch • Large Controller • 1-3 Expansion Modules 

++ EVCmax only

EC motor technology is relatively new and ever-changing, so not many manufacturers or contractors have invested the time, research or experience to fully utilize the diagnostic and control benefits offered in the new motors.

Many Facilities Managers have found that addressing the individual fan devices and communicating within arrays can be troublesome and confusing, especially in the field, and especially if it had not been standardized.

For these reasons, TMI Climate Solutions chooses to configure these motors in our factory prior to delivery, utilizing our VFM technology. Providing our clients with an easy to use, standardized, turn-key solution for the complete operation and monitoring of their fan array.



TMI has built a controls platform to maximize the benefits of the EC motor technology for our customers by simplifying the integration of the fan array control and monitoring to any third-party controls or BMS system- VFM.

Applications:

For **Retrofit** fan arrays (loose fans that will be installed in an existing unit)

Fan motors and control panels are factory-SPTS-configured and shipped to site ready to install and run.

For installation within a **new AHU**
(one controller or monitor per array)

We provide a complete turn-key solution. Everything is factory wired and ready for field integration with a third-party unit controller or BMS system.





VFM Controls Quick Reference

		EVM _{MICRO}	EVM _{MAX}	EVC _{MICRO}	EVC _{MAX}
General	Control Panel H X W	16" X 16"	16" X 16"	16" X 16"	20" x 16"
	RTP Expansion Module	n/a	1-3	n/a	1-3
	Windowed Enclosure	n/a	n/a	n/a	Standard
	Function	Monitor	Monitor	Control	Control
	Controller Hardware	Small	Large	Small	Large + Expander
	Maximum Fan Array Size	32	12-32	32	12-32
Velocity Pressure Transducer	1	Standard	n/a	Standard	n/a
	2	Optional	n/a	Optional	n/a
	3	Optional ¹	n/a	Optional ¹	n/a
	1 per fan	n/a	Standard	n/a	Standard
Duct Static Differential Pressure Transducer	1	Optional ¹	n/a	Optional ¹	Optional
Hard-Wired Inputs	2-10 VDC Demand Control	n/a	n/a	Pick one	Pick one
	2-10 VDC DSP Spt & Feedback	n/a	n/a		
	2-10 VDC Flow Spt Reset	n/a	n/a		
HMI Touchscreen	7" Touch Screen HMI	Standard	n/a	Standard	n/a
	10" Touch Screen HMI	n/a	Standard	n/a	Standard
HOA Switch	Virtual	n/a	n/a	Standard	n/a
	Mechanical Panel Mounted	n/a	n/a	n/a	Standard
Hard-Wired Outputs	Common Alarm BO	Standard	Standard	Standard	Standard
	Air Flow (Measured), 0-10 VDC = 0-Max Flow	Standard	Standard	Standard	Standard
	Fan Start BO	n/a	n/a	Standard	Standard
	Fan Speed Signal, 2-10 VDC = 0-100%	n/a	n/a	Standard	Standard
Other	Safety Interlock Relay (Fan)	n/a	n/a	Standard	Standard
	Preset Speed Demand BI	n/a	n/a	Pick one	Standard
	Isolation Damper Control and Interlock				Standard
EC Motor Monitoring	EC Motor Live Diagnostic Monitoring (Ziehl-Abegg, or EBM-Papst only)	n/a	n/a	n/a	Standard
BMS Protocol	Modbus RTU	Field Selectable	Field Selectable	Field Selectable	Field Selectable
	BACnet MS/TP				
	Modbus IP				
	BACnet IP				
	BACnet Ethernet				

Note 1: Option of third velocity pressure transducer OR duct static differential pressure transducer

If you are interested in learning more about TMI Climate Solutions **VFM** please contact your local TMI Rep or contact us directly at:

TMI Climate Solutions Canada

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