

# PowerGate H Series

## Product Overview

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## Description and Value proposition

PowerGate H Series is Mitsubishi's engineered solution for Heating, Ventilation and Air Conditioning bypass control. This solution utilizes the latest in variable frequency control to deliver air or fluid using the most energy efficient technology in the marketplace.



Ideal for commercial HVAC markets, mechanical and utility rooms  
to move air or fluid

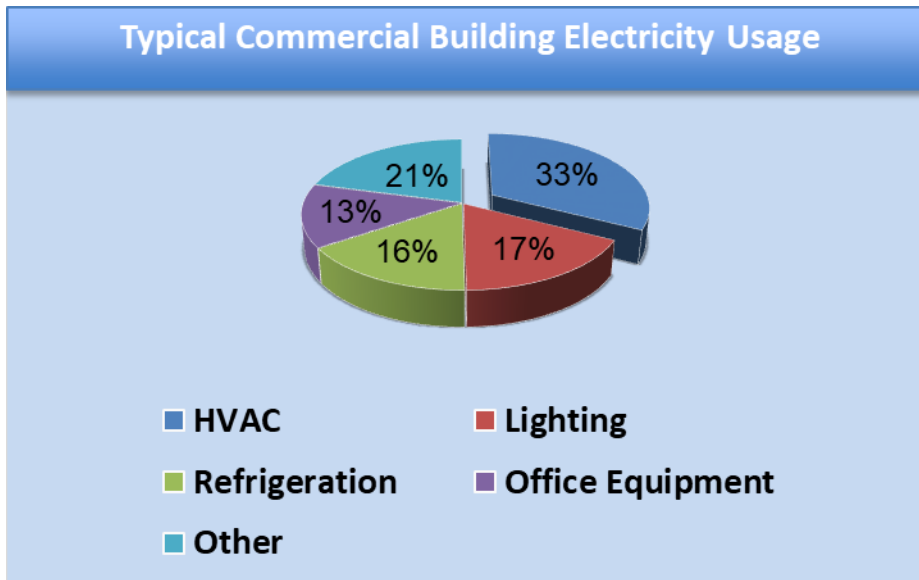


# PowerGate H - Overview

Did you know:

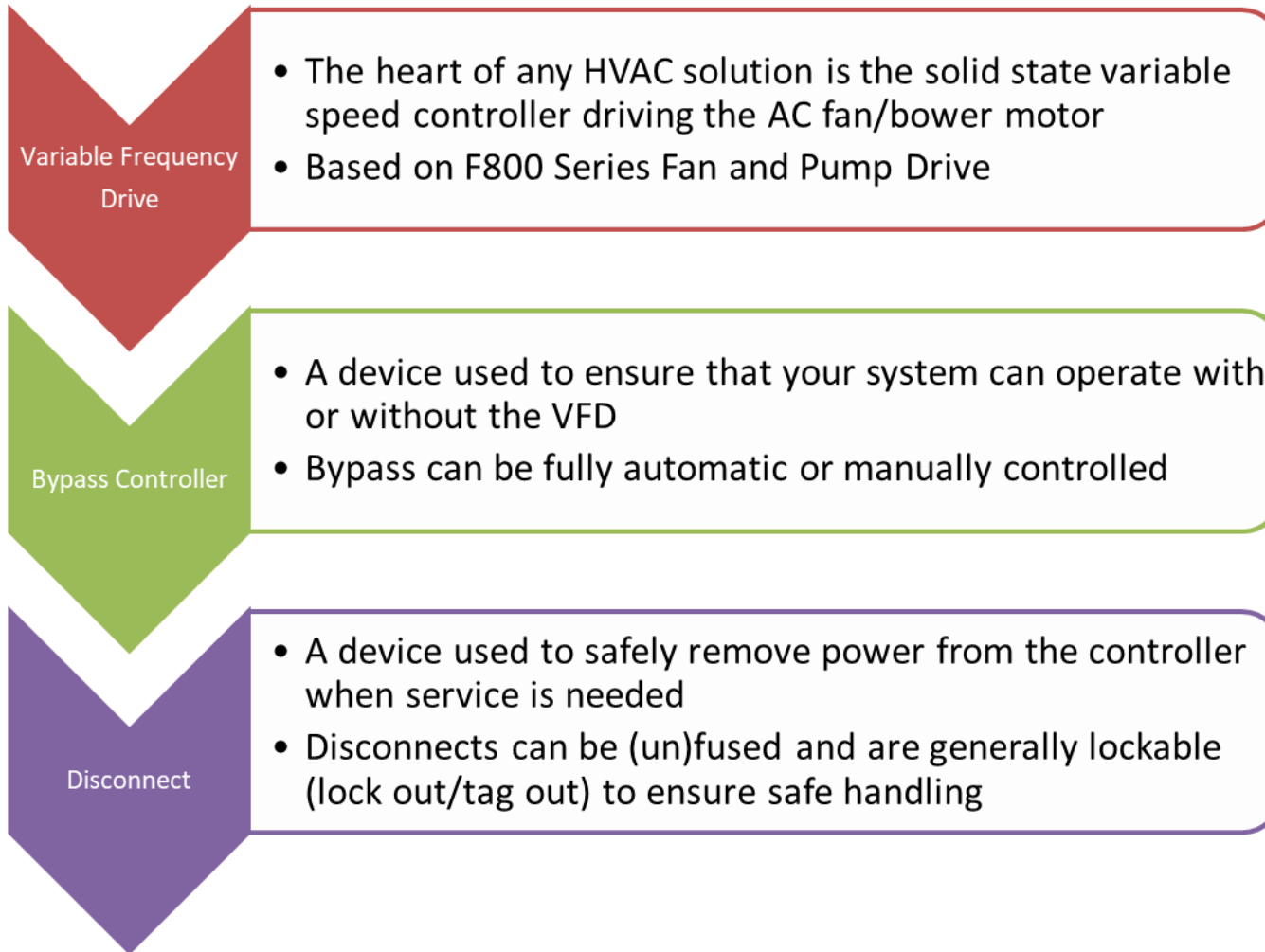
95% of HVAC electricity is consumed by fans, pumps and compressors

- Electrical costs for HVAC are about \$85K per year for a typical 150,000 sq. ft. building and the costs continue to rise
- Reducing energy consumption is one of the most effective ways to reduce operating costs and increase net operating income
- Reduce energy consumption by as much as 50% when adding Variable Speed Drives (VSDs)



# PowerGate H - Overview

## Main System Components



## PowerGate H - Hardware Overview

The PowerGate H Series has been designed to be a slim style bypass controller that save space and delivers more HP per square inch. This design package enable users to install units side by side in mechanical rooms where space is a premium.

Our smallest and most compact Frame size A (1-5HP) measures less than 7 inches wide (6.9 inches to be exact) and is less than a foot deep (11.1 inches to be exact). This slim style platform is ideal for confined spaces.



# PowerGate H - Hardware Overview

Environment and construction includes:

- NEMA 1, NEMA 12 , NEMA 3R enclosures
- Plenum Rated
- Radio Noise Filter
- 5sec power dip ride-through

Electrical

- 65kA Electrical short circuit current rating (SCCR) as standard
- Adjustable Class 20 Overload Relay
- DC Link Choke
- Programmable 4-20mA Analog Inputs



## PowerGate H - Hardware Overview

Variable Frequency Drive:

AC motor control is managed by the F800 Series Fan and Pump Drive  
Numerous control algorithms and motor types including V/F, Magnetic Flux Vector, Induction and Permanent Magnet Motors.

Reliable motor control that maximizes performance and energy savings.

Solutions for 200V / 400V / 600V in a number of capacities including:

200V 3Ø : 1 (0.75kW) - 120HP (90kW)

400V 3Ø : 1 (0.75kW) - 375HP (280kW)

600V 3Ø : 1(0.75kW) - 600HP (450kW)





# PowerGate H - Hardware Overview

Bypass Controller:

Available in Basic or Standard Bypass

The Basic Models: Utilize (2) Three position toggle switches, (2) LEDs for “VFD Ready” and “Bypass Run” and (1) Rotary Speed potentiometer for manual speed adjustment

The Standard Models: Utilizes Mitsubishi Alpha2 Simple Controller manage I/O control and sequencing, Real Time Clock and scheduling Operations, Fault/Alarm Messaging

Includes Three contactor bypass system that ensures the drive is completely removed from the incoming power circuit, making it simple to remove for service



# PowerGate H - Hardware Overview

Disconnect:

Two position (On/Off) Lockable fused disconnect to safety remove power from the PowerGate H Series



# PowerGate H – Software Overview

## Software Features include

- Built-in BACnet® MS/TP communications
- Dual independent PID control loops
- Real-time clock feature and alphanumeric keypad display (G option)
- Bi-directional coasting motor restart (anti-windmill) capability
- Broken belt / load abnormality detection
- Anti-jam system to clear clogged pumps
- Upload / download parameters using simple memory stick
- Compatible with IPM motors (auto-tuning)
- Motor flux control system saves energy and reduces motor heat and mechanical noise
- Connects directly to FR-Configurator2 commissioning software



## PowerGate H – Commissioning Tools

Mitsubishi offer a number of easy to use commissioning tools including: Onboard LED/LCD Keypad, Optional 10 Key Numeric Keypad and Configuration Software

- FR-DU08: LED display Model: M-Dial, Start/Stop/Parameter Read/Write
- FR-LU08: LCD Model with Real Time Clock: M-Dial, Start/Stop/Parameter Read/Write
- FR-PU07: LCD Model with 10 Key Numeric Keypad Start/Stop/Parameter Read/Write (not a direct mount)
- FR-Configurator2 is a versatile software tool that provides an intuitive interface which saves you valuable application setup and programming time. Users can quickly view and set VFD parameter lists, debug programs, check diagnostics and perform system monitoring functions conveniently from their PC, reducing down time when changes to the VFD are needed



# PowerGate H – Part Numbers and Ordering Info

## NEMA 1 Models

Standard Product with Circuit Breaker & 3 Contactor Bypass VFD System		208V Based VFD System		Panel Size	460V Based VFD System		Panel Size	600V Based VFD System		Panel Size
HP	KW	Model Number	Amps		Model Number	Amps		Model Number	Amps	
1	0.75	H1C2V001BD	4.2	N1A	H1C4V001BD	2.1	N1A	H1C6V001BD	2.5	N1A
2	1.5	H1C2V002BD	7	N1A	H1C4V002BD	3.5	N1A	H1C6V002BD	5.6	N1A
3	2.2	H1C2V003BD	9.6	N1A	H1C4V003BD	4.8	N1A	H1C6V003BD	5.6	N1A
5	3.7	H1C2V005BD	15.2	N1A	H1C4V005BD	7.6	N1A	H1C6V005BD	8.2	N1A
7.5	5.5	H1C2V007BD	23	N1B	H1C4V007BD	11.5	N1A	H1C6V007BD	16	N1B
10	7.5	H1C2V010BD	31	N1B	H1C4V010BD	16	N1A	H1C6V010BD	16	N1B
15	11	H1C2V015BD	45	N1B	H1C4V015BD	23	N1B	H1C6V015BD	27	N1B
20	15	H1C2V020BD	58	N1B	H1C4V020BD	29	N1B	H1C6V020BD	27	N1C
25	18.5	H1C2V025BD	70	N1C	H1C4V025BD	35	N1C	H1C6V025BD	41	N1C
30	22	H1C2V030BD	85	N1C	H1C4V030BD	43	N1C	H1C6V030BD	41	N1C
40	30	H1C2V040BD	114	N1D	H1C4V040BD	57	N1C	H1C6V040BD	62	N1D
50	37	-	-	-	H1C4V050BD	70	N1D	H1C6V050BD	62	N1D
60	45	-	-	-	H1C4V060BD	85	N1D	H1C6V060BD	99	N1D
75	55	-	-	-	H1C4V075BD	106	N1D	H1C6V075BD	99	N1D
150	110	-	-	-	H1C4V150BD	216	TBA	H1C6V150BD	144	TBA
200	150	-	-	-	H1C4V200BD	260	TBA	H1C6V200BD	243	TBA
250	185	-	-	-	H1C4V250BD	325	TBA	H1C6V250BD	243	TBA



# PowerGate H – Sales tools and Supporting Data

Available from the HVAC Sellers website

- Sales Briefs
- Product Overviews
- Product Manuals
- Product Presentations
- Submittal Packages
- Technical Drawings



## Take Aways

- PowerGate H Series is engineered for HVAC markets!
- Slim hardware design with flexible options
- Host of embedded software functions
- Numerous configurations including 200, 400 and 600V, NEMA1,12 and 3R
- Exceptional Reliability and timely delivery



Ideal for commercial HVAC markets, mechanical and utility rooms  
to move air or fluid



# Thank you and Happy Selling

