



GRAYHILL

EVERYTHING CLICKS

DON'T GIVE AN  
INCH



X Y Y X Y

X Y Y X Y

X Y Y X Y

SECURE FULL-  
SCALE CONTROL  
IN A FRACTION OF  
THE FOOTPRINT  
WITH **VP SERIES  
VECTORPAD**





# CONTROL WITHOUT COMPROMISE

**Modern systems demand more capability in less panel space.**

Displays, processors, and communications hardware compete for every inch. Operators still rely on responsive input to manage complex systems under pressure. Performance must be protected.

Finding a miniaturized HMI that fits is difficult. Off-the-shelf options are often too fragile to meet industry standards. Custom solutions require design and validation. Integrating complex bus-based or software-heavy inputs adds further design and qualification overhead. Fixing these issues can take time and money, and you can't afford delays on programs when systems are needed in the field now. There is no room for error.

Grayhill's VP Series VectorPad is designed to meet these challenges. It provides full directional control in a rugged 1.6 in. (41 mm) square footprint, delivering clear tactile feedback for every command. Discrete outputs simplify integration and reduce development overhead. The standard model is available off-the-shelf for fast integration. Grayhill experts can also support scalability across your wider platform.



**ENGINEERING  
EXPERTISE**

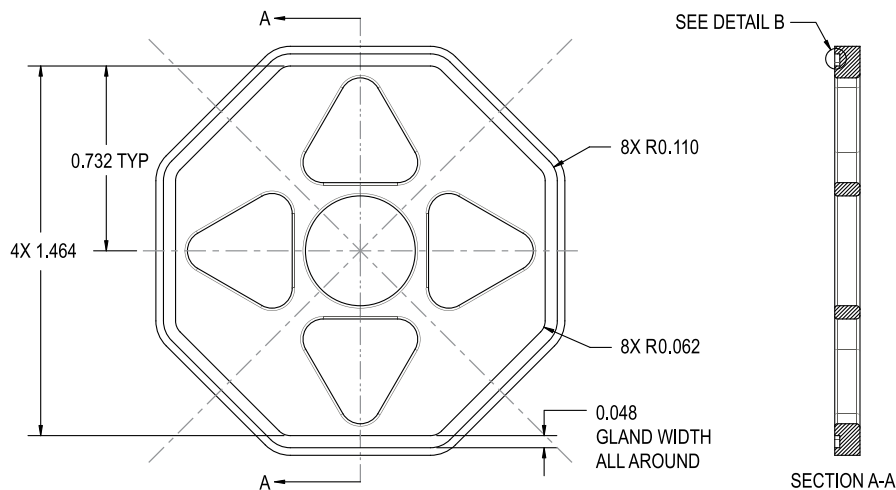
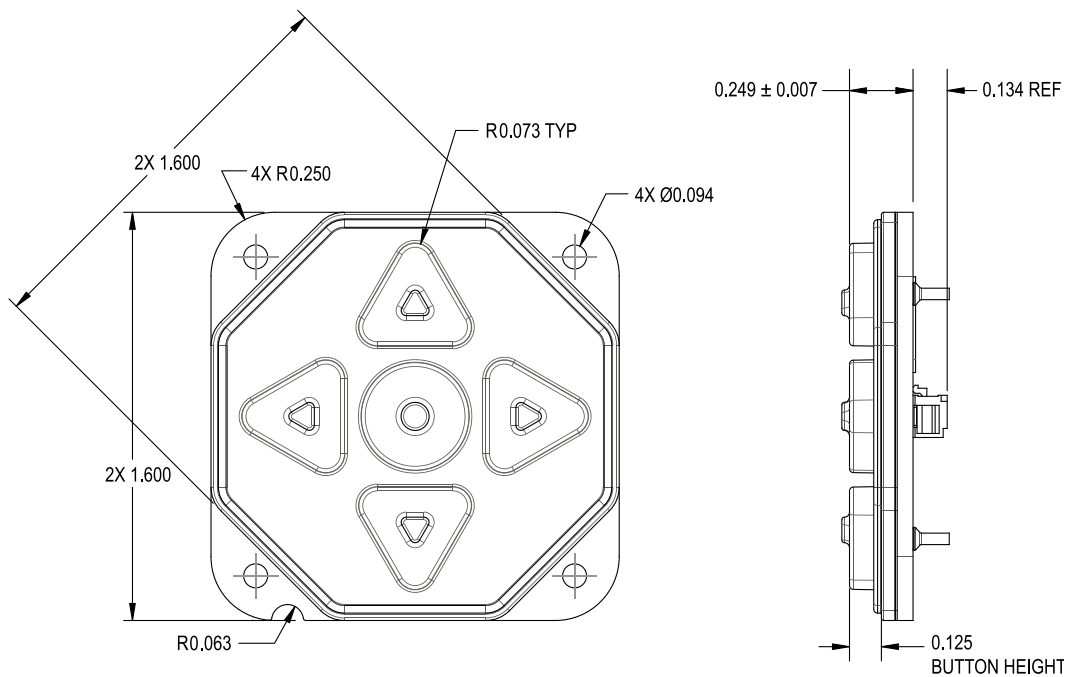




# FULL CONTROL IN TIGHT SPACES

Increase capability per square inch. The new VectorPad provides four directional inputs, and a center select in a 1.6 in. (41 mm) footprint. This compact design supports efficient system operation. It fits where other controls can't while maintaining clear, confident usability.

It's ideal for wearables, handheld devices, mobile radios, and any system with constrained panel space.



## FLEXIBLE ROUTING

Flat or 90 degree PicoBlade options simplify cable runs in tight spaces.

## BEHIND-PANEL MOUNTING

This installation preserves front panel space for covers or adjacent controls.

## DISCRETE OUTPUTS

Connect directly to system electronics for responsive control in dense layouts.

## KEYPAD WITH HOUSING





# BUILT FOR ALL CONDITIONS

## Control systems take a beating.

Shock, vibration, dust, chemicals and temperature changes can all impact performance. This creates issues for a lot of mini-HMIs. Reliability issues ultimately drive-up sustainment costs and increase program replacement cycles.

Reduce lifecycle risk with VectorPad's verified durability. An integrated seal bead works with Grayhill's defined gland geometry to reach IP67 protection, safeguarding against dust and immersion underwater. This rugged design preserves tactile feel under extreme conditions. MIL-STD-810H testing validates that VectorPad endures where other miniaturized controls falter.



**-50 °C**  
**+ 85 °C**

Performs reliably in extreme cold and hot temperatures.



**100%**  
**DUST-TIGHT**

Blocks sand, dirt and airborne dust completely.



**1 MILLION**  
**CYCLES**

Each key delivers long-life actuation for intense use.



**3.3 FT**  
**(1 M)**

Resists water immersion at this depth for 30 minutes.

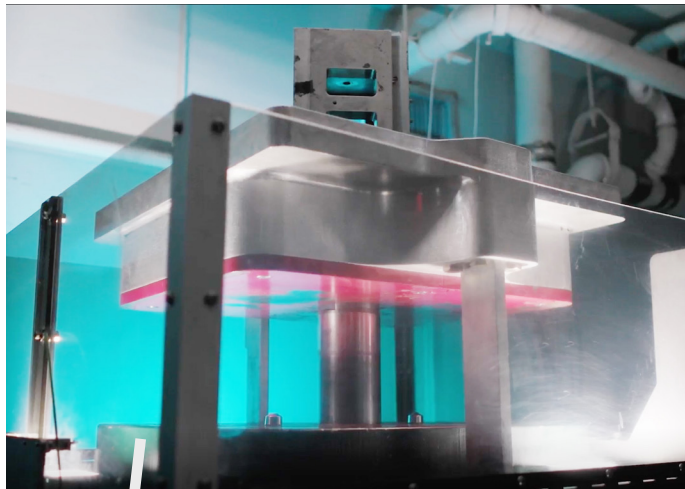
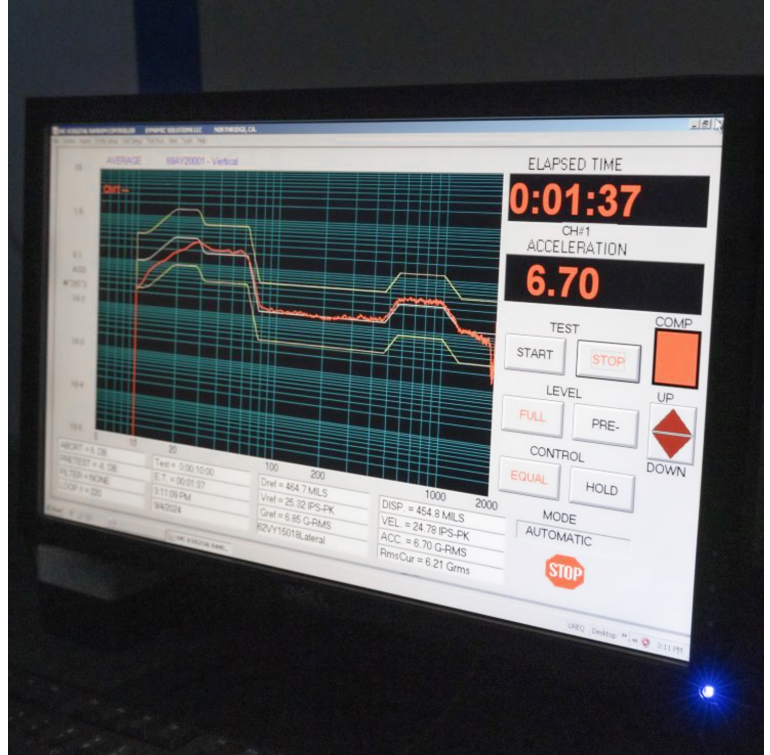


# PROVEN TO WITHSTAND MORE

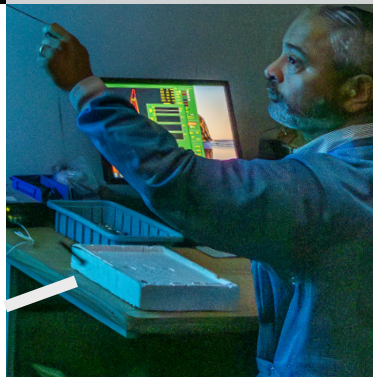
To build confidence into every VectorPad, we test it at our purpose-built facility in La Grange, Illinois. This starts with the validation lab. Specialized equipment subjects units to vibration, impact, and abrasion. This proves that the keypad can keep responding after repeated stress.

The environmental lab raises the stakes. Temperatures spike and plunge. Humidity surges. Salt spray, dust, and chemicals push at seals and surfaces, challenging the keypad to hold its integrity in all conditions.

Then comes the electrical lab. Engineers expose the device to electromagnetic noise, ESD, EMI, and sudden power interruptions. Through it all, signals must remain clean and dependable—no drift, no hesitation.



These tests are rated against **AS9100D:2015** and **ISO 9001** certification. They are also part of our broader quality system. This includes APQP, supplier validation, and controlled manufacturing.





# TACTILE CERTAINTY FOR COMPLETE CONFIDENCE

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Tactile feel is usually the first casualty of miniaturization. When HMIs are used in darkness or operated through gloves, this loss carries real consequences. Users' reaction times slow, and the chance of input errors rises. As a result, they're often forced to look at their controls when their attention should be elsewhere. Compensating for has long been one of design team's biggest challenges – until now.

Get confident actuation without looking with VectorPad. Despite its compact design, it delivers the tactile response operators need. An optional tactile dome can ensure a crisp audible click. A center locating bump anchors the thumb, while raised physical landmarks guide it back to neutral by touch alone. These elements support muscle memory, helping operators stay oriented during high-stress situations.





# INTEGRATE FAST. SIMPLIFY SCALING.

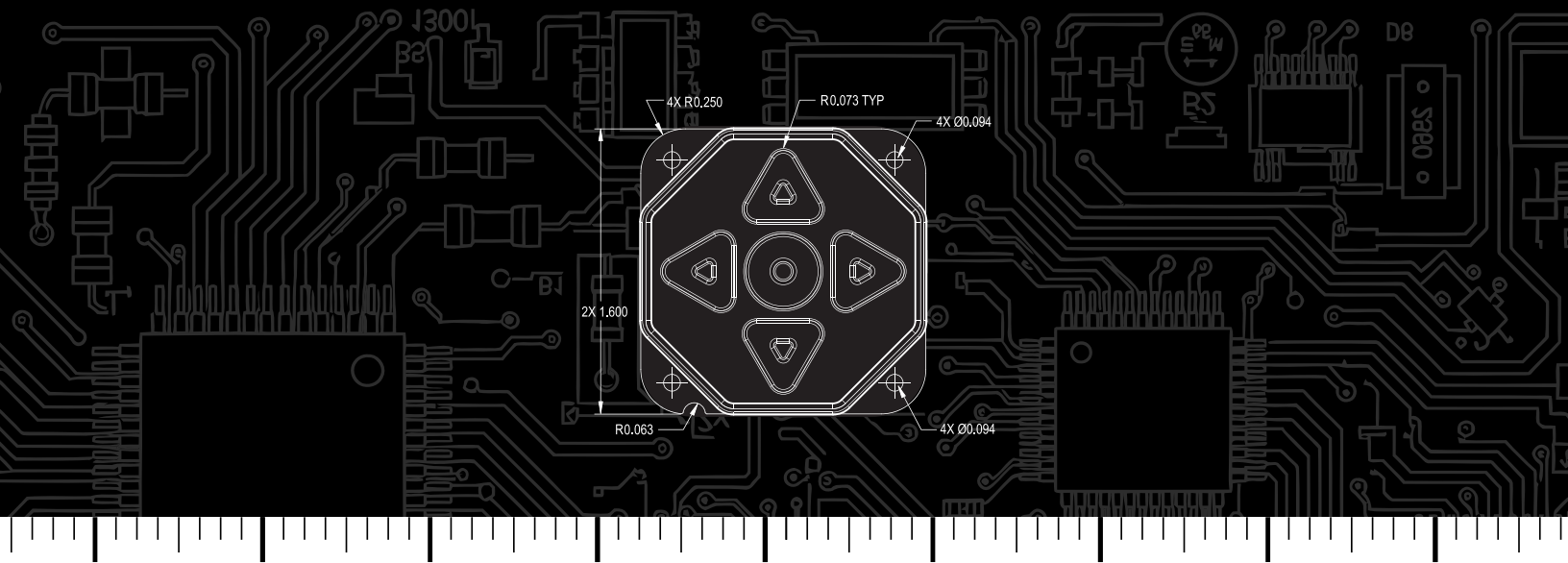
**VectorPad is designed to simplify system integration from the start.**

Its discrete outputs connect directly to microcontrollers, displays, or control boards. This avoids bus-based complexity and reduces firmware overhead. The PicoBlade connector supports flexible board layouts and efficient cable routing.

Available off-the-shelf with no NRE required, it's fast to fit. Not having to design a new interface can keep costs down as well as speed up development of your wider system. But VectorPad is more than

a standalone keypad. It acts as a building block for broader HMI integration.

You can begin with the plug-and-play unit and extend functionality as requirements evolve. Customization options include backlighting, unique legends, integrated housing, and display pairing. This means you can maintain consistent control interfaces across multiple platforms. Dedicated support from Grayhill specialists can help you adapt as system architectures change.



## MINIATURIZED HMI SYSTEMS

- Wearables
- Handheld devices
- Portable radios
- Compact control modules



## HARSH ENVIRONMENT INTERFACES

- Defense electronics
- Rugged industrial equipment
- Outdoor control systems
- Mobile & off-highway machinery



## DISPLAY NAVIGATION INTERFACES

- Non-touchscreen displays
- Glove-operated systems
- Side-mounted HMI interfaces





# THE GRAYHILL DIFFERENCE

With over 80 years experience, we build trust and accountability into every touchpoint so your machines feel like an extension of you.

# 1

## ENGINEERING EXPERTISE



Our engineers understand haptics, ergonomics, styling, and the evolving needs of end users. We customize to get to the fine-tuned nuances that make a meaningful difference.

# 2

## QUALITY IN OUR PROCESS



We integrate our own components into our intuitive interfaces, and we test and retest every step of the way to lower cost and risk.

# 3

## VERTICAL INTEGRATION



By utilizing in-house molding, tooling, testing, and manufacturing capabilities, we bring custom products to market faster.

## TRY VECTORPAD TODAY

Request a sample by visiting <https://grayhill.com/contact/>



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