



ccc VANGUARD

Vanguard S5 Pro Upgrade Package (VUP)

Extend the life of your existing Series 5 Vanguard hardware.

The Next Level of Performance for Series 5 Vanguard Is Yours Now.

Since 2000, the Series 5 Vanguard has been the industry standard for precision turbomachinery control. Now, with the introduction of the Vanguard S5 Pro, your Vanguard system can provide decades of additional service. Vanguard S5 Pro provides all the benefits and functionality of Prodigy using your existing Vanguard hardware, such as advanced control applications.

Cybersecurity and Connectivity

The CCC Vanguard S5 Pro operating system is designed and tested to the standard of ISA/IEC 62443-4-2.

The control platform provides secure connectivity with CCC supervisory systems and 3rd party systems.

S5 Pro supports MQTT Sparkplug B communication for lightweight Publish/Subscribe communication for integration with next generation of CCC operator HMI software.

Fully Integrated Platform for Your Challenging Turbomachinery Control Needs

It's More Than a System Upgrade. It's a New Lease on Life for Your Current Hardware.

Plug-in migration solution to extend lifecycle and enhance security and connectivity of your S5 Vanguard

Vanguard S5 Pro offers a plug-in migration solution to extend lifecycle of existing S5 Vanguard control system, which were designed for support of 576 I/O points. Vanguard S5 Pro runs CCC's **ProOS**, similar to Prodigy, with an intuitive programming environment for total train control including sequencing and auxiliary system for your turbomachinery. The following IEC 61131-3 programming language standards are supported:

- ✓ Ladder diagram (LD)
- ✓ Function block diagram (FBD)
- ✓ Structured text (ST)
- ✓ Instruction list (IL)
- ✓ Sequential function chart (SFC)

S5P Vanguard supports MQTT Sparkplug B communication – paving the way for integration with the next generation of CCC operator HMI software that leverages it. This lightweight Publish/Subscribe (Pub/Sub) protocol enables secure, bandwidth-efficient, and scalable communication that supplements the existing capabilities of your existing S5 Vanguard control system.



Enhanced Redundancy and Diagnostics

Vanguard S5 Pro runs **ProOS** which improves system availability and maintenance ease-of-use.



Flexible switching

Modular redundancy at every level – from power supplies, to main processors, to I/O processors



Self-learning

Plug-and-play replacement of faulty card without the need to manually load configuration files



Better diagnostics

Higher-resolution archiving with Sequence of Events (SoE) for digital inputs at 3 msec resolution



Extended Life Cycle

Protect your assets with updated software and hardware through new processor card

Defense-in-depth for some of the most critical assets in your process

Safe, reliable, and efficient operations of turbomachinery trains is critical to process facilities.

Vanguard S5 Pro helps you secure these assets with the following industry-leading capabilities:



Encrypted Communication

Prevent network sniffing of sensitive data like credentials



Communication Robustness

Certified for GE Digital Achilles Communications Certification Level 1 to defend against denial of service attacks



Security Logs

Ensure traceability of security events



Secure Boot and TPM module for encryption

Protect system integrity and encrypt sensitive data



Hardening Options

Further harden the device optionally by disabling non-essential functions

The Trusted Name for Turbomachinery Optimization.



2 Billion
Operating
Hours



10,000+
Machines



40+
OEMs



150+
Turbomachinery
Experts



14 Worldwide
Offices



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