

Integrated Safety Solutions



Safety Instrumented System

ProSafe-RS

Expanding the Safety Spectrum

Bulletin 32S51R10-01E

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The clear path to operational excellence

YOKOGAWA ◆

Change Your Expectations

An integrated safety instrumented system is no longer the same old shutdown system. It prevents unnecessary shutdowns, improves asset availability, and enhances operator effectiveness. Don't miss your opportunity to expand the safety spectrum.



Safety Instrumented System **ProSafe-RS**

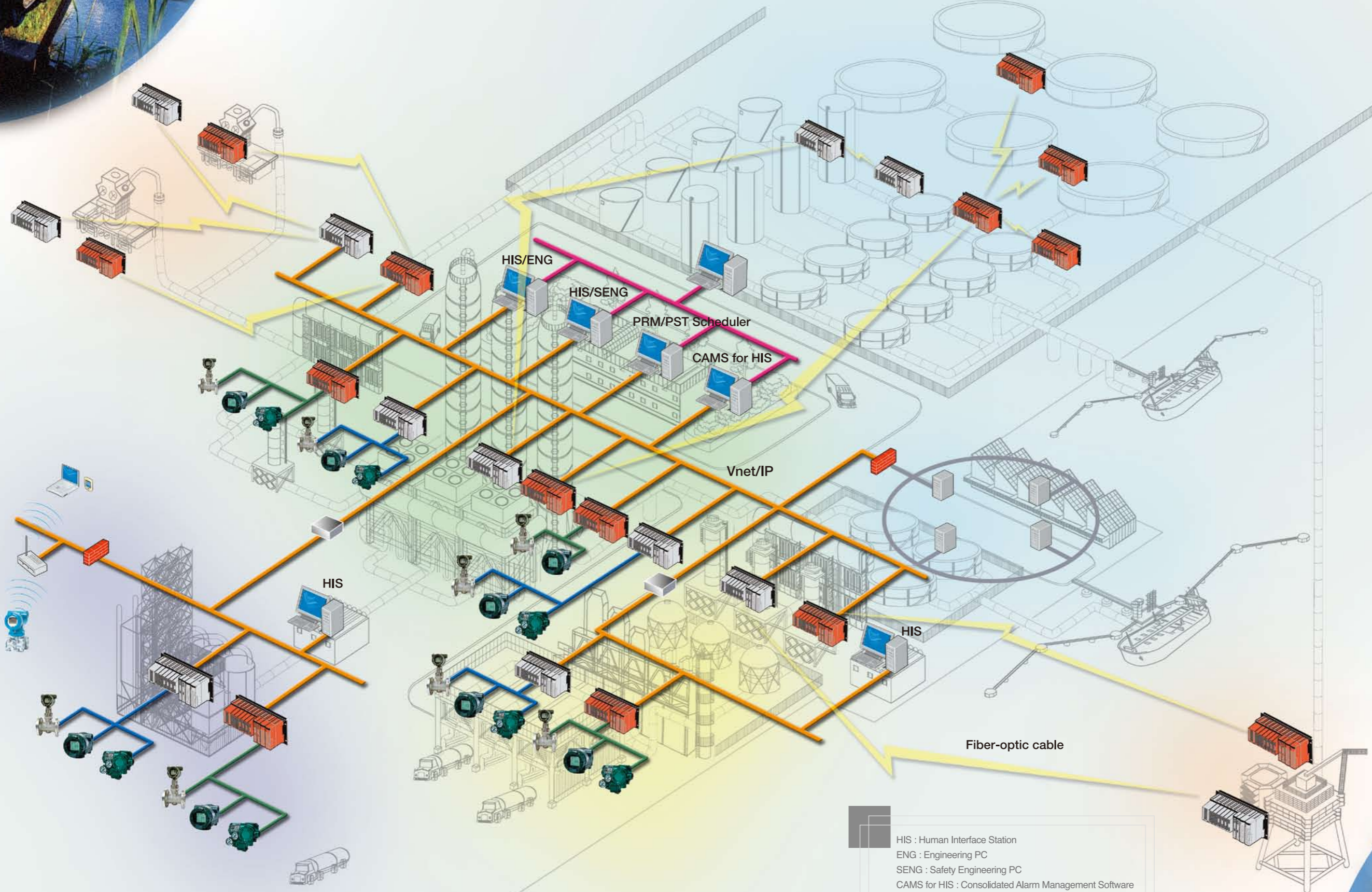
The ProSafe-RS safety instrumented system is more than just a shutdown system. Seamlessly integrated with Yokogawa's CENTUM VP/CS 3000 production control system, ProSafe-RS provides the backbone of secure, safe plant operation.

- One system meets all your safety application needs.
- Unified operation and monitoring from the same human interface station (HIS) helps operators avoid errors and improve operation speed in case of unexpected circumstances.
- Embedded test function on Safety Control Station (SCS) allows operators to be trained in the same environment as a real plant.
- Plant Resource Manager (PRM) collectively manages all field-networked devices online and enables maintenance crew to perform valve partial stroke tests remotely.
- Flexible, certified remote I/Os support widely distributed applications.

The ProSafe-RS keeps the operators fully aware of integrated information, securing an ideal operating environment that maximizes plant safety and production uptime.

For information on the basic functions of the ProSafe-RS, see the product brochure (Bulletin 32S01B10-01E).





HIS : Human Interface Station
 ENG : Engineering PC
 SENNG : Safety Engineering PC
 CAMS for HIS : Consolidated Alarm Management Software
 PRM : Plant Resource Manager
 PST : Partial Stroke Test



One System for All Your Safety Applications

- **Emergency shutdown (ESD) system** for safeguarding plant equipment
- **Fire and gas (F&G)** for preventing the spread of damage
- **Burner management system (BMS)** for shutting down combustion utilities



Explosion-proof standards:

Non-Incendive,
Type n (Type of protection "n")



Safety Instrumented System
ProSafe-RS



Safety, F&G and BMS certificate by TÜV

Codes and standards forming the basis of testing	IEC 61508, Part 1 - 7:2000 IEC 61511-1:2004 IEC 61131-2:2003 EN 298:2003-09	EN 50156-1:2004-10 NFPA 85:2007 EN 54-2:1999-02 NFPA 72:2007
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Marine standards:

- Bureau Veritas (BV)
- American Bureau of Shipping (ABS)
- Lloyd's Register



IEC 61131-3 Programming Languages:

- Function Block Diagram (FBD)
- Ladder Diagram (LD)
- Structured Text (ST)





Integrated Architecture

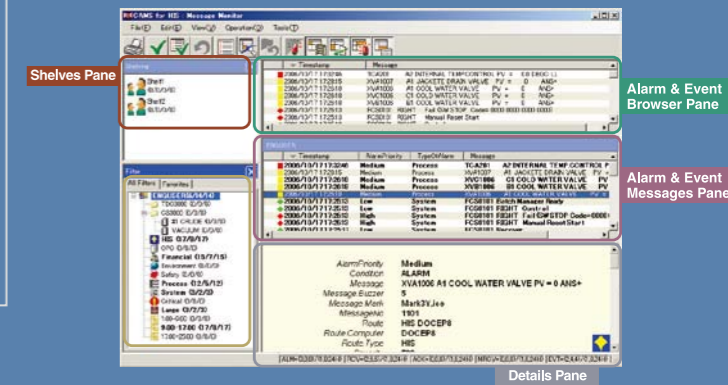
Operation and monitoring from an HIS can be performed on the Safety Control Station (SCS) in the same way as on the Field Control Station (FCS). All the information including the graphic, annunciator, process alarm, operation status and CAMS for HIS screens can be operated and monitored by the same HIS.

Operators can take prompt and safe actions under non-routine, unexpected situations such as emergency shutdown.

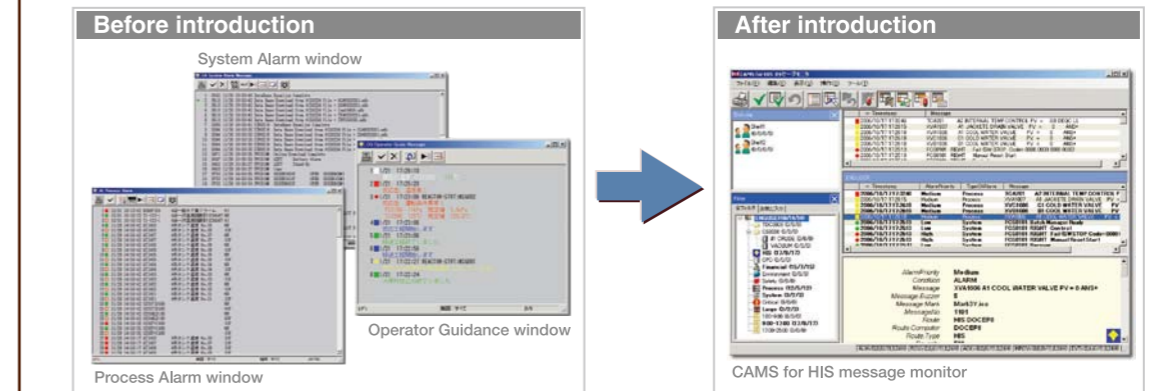


Consolidated Monitoring

Operators can monitor alarms and events for process, safety, and device conditions on a single screen by using the consolidated alarm management software (CAMS for HIS). CAMS for HIS allows operators to prioritize alarms and focus on the right information, preventing information overload.



In CAMS for HIS, all alarms and events are consolidated into a single screen.



For more information on the CAMS for HIS, see the Bulletin 33Q02N03-01E product brochure. CAMS for HIS requires the CENTUM VP/CS 3000 R3.08.10 or later.





Unified Operation

Operators can access and manipulate both control valves and safety valves from the HIS of CENTUM VP/CS 3000.

- Faceplate access control by a password
- Enabled by TÜV certified function blocks



High-Fidelity Training

Operators can be trained using the same integrated environment, learning how to use the SIS data and process alarms on HIS for safe operations.

The embedded test functions in both FCS and SCS allow users to set up a high-fidelity operation training system (OTS) and train the operators in advance, making them ready for abnormal situations.

With CENTUM VP/CS 3000 and ProSafe-RS, the integrated training environment can be achieved with no extra engineering such as mirroring SCS data into FCS.

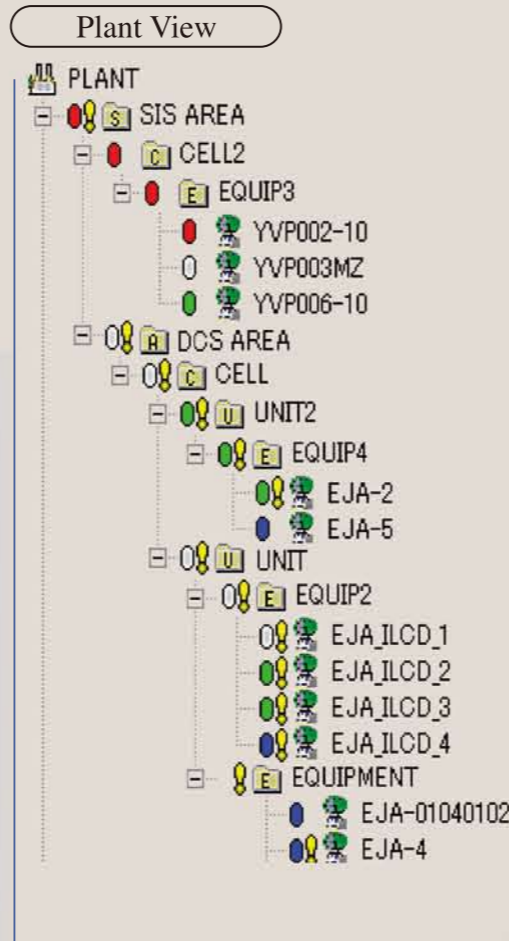




Plant Resource Manager (PRM)

Users can register and manage all field-networked device information through both FCS and SCS, securing a single window access to device intelligence.

- On-line collection of device information
- Plug and Play (function available in the future)
- "Device Security" for access control to each device



Partial Stroke Test (PST)

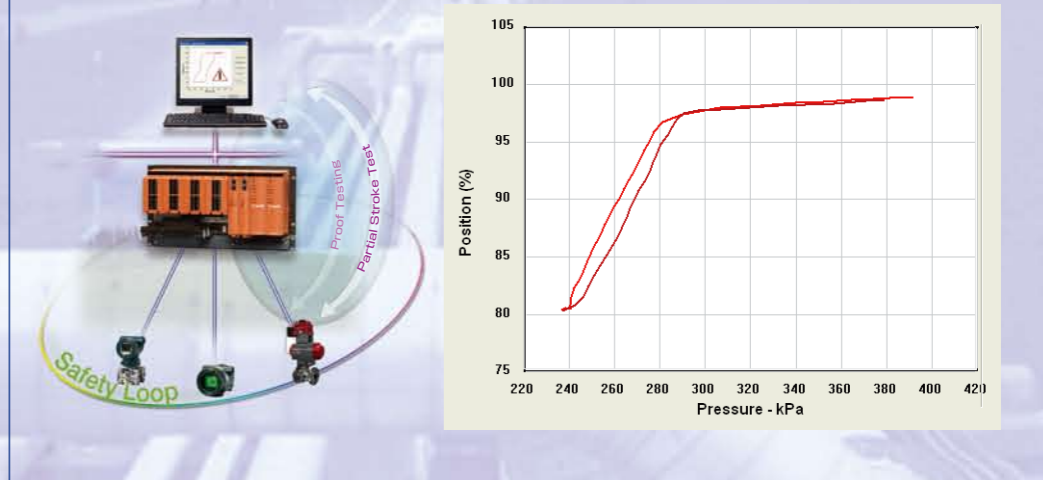
PST enables users to extend the time interval between proof tests and reduce plant maintenance costs.

Using PRM, PST for safety valves connected to the SCS can be performed remotely (function available in the future).

PST scheduler makes it possible to schedule the automatic execution of a PST.

Example of PST-based Diagnostic Information

Using PRM for on-line PST, the test records are automatically stored for audit trail.



Integrated Asset Management

For more information on Plant Resource Manager (PRM), see the Bulletin 33Y05Q10-31E product brochure.



For more information on Partial Stroke Test (PST), see the Bulletin 32S51Q10-01E product brochure. PST requires the PRM R3.01.00 or later.





Support of Long-distance, Wide-area Networking

Vnet/IP and remote I/Os* certified for long-distance safety communications support widely distributed applications.

ProSafe-RS remote I/Os are applicable for:

- Star connection
- Daisy chain connection



*Support for up to 50 km of fiber-optic cable for remote I/O using Vnet/IP system.

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The clear path to operational excellence

SEE
CLEARLY

KNOW
IN ADVANCE

ACT
WITH AGILITY

VigilantPlant is Yokogawa's automation concept for safe, reliable, and profitable plant operations. VigilantPlant aims to enable an ongoing state of Operational Excellence where plant personnel are watchful and attentive, well-informed, and ready to take actions that optimize plant and business performance.

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