

Intelligent and Predictive Pipeline Temperature Monitoring Software

OVERVIEW

Pipeline temperature monitoring on an operating pipeline is very helpful, but often severely underutilized due to operator inattention or lack of data interpretation skills. This is why customized algorithms and machine learning, when combined with fibre optic Distributed Temperature Sensing (DTS), can bridge the gap between "data" and actionable "information".

nVent RAYCHEM Pipeline Supervisor (RPS) is a culmination of nVent's many years of experience troubleshooting, optimizing and maintaining our clientele's temperature-critical Sulphur pipeline applications. We combined the power of distributed temperature data from DTS with specially customized algorithms that create a wealth of useful analytics, on a real-time basis. These analytics are configured to your specific pipeline geometry and use time trending to create warnings/alarms of predicted conditions, while also providing the time and location where problems are occurring (or may be about to occur), along your pipeline asset.

- **Enhanced Risk Avoidance:** Operators need to visualize all the risks to keep the pipeline in a safe operating zone. Catastrophic pipeline ruptures lead to significant financial, environmental, and reputational damage to any company. The implementation of pipeline predictive analytics provides your organization with an additional level of protection to help lower the risk profile of critical pipeline assets.
- **Critical Situational Response:** When you lose power or need to ensure uniform re-melt, critical monitoring and analytics minimize the risk state. Real-time data combined with targeted algorithms can help in significantly reducing hazards that are associated with unwanted operational situations or outcomes.
- **Operational Optimization:** Advanced alarm notifications of concerning trends or events are provided when an abnormality is detected, minimizing full-time operator engagement. A real time Risk Gauge in the dashboard provides a high level status indicator of your pipeline.
- **Flow Assurance:** Ensuring that the fluid in your pipeline is flowing (or ready to flow) by monitoring for a Uniform Thermal Profile is key. Remove the guesswork to verifying this critical prerequisite to starting your pumps.

NETWORK AND CONNECTIVITY

nVent RAYCHEM Pipeline Supervisor is designed as an on-premise solution, which automatically backs-up all data readings on a hard-drive, with the ability to download this data to a detachable hard-drive for future access.

The most recent 2 weeks of data will be available for viewing in the software dashboard. The browser-based user interface allows for access through multiple devices including smart phones, tablets and remote PC's.



SOFTWARE TIER LEVELS

Sr. No.	nVent RAYCHEM Pipeline Supervisor V1.0	Basic	Premium
1	Multiple Pipeline Asset Monitoring Functionality ¹	√	√
2	Sensing Fiber Attenuation Profile	√	√
3	Complete Pipeline Temperature Profile w/ Color Gradients	√	√
4	Critical Alarm Management (Temperature)	√	√
5	Automated Data Backup Access	√	√
6	Historical Time Trending Analysis (Temperature)	√	√
7	Enhanced Configurable GUI	√	√
8	Critical Alarm Management (DTS System Health)	√	√
9	Critical Alarm Management (Configurable Alarm Latching)	√	√
10	OAuth2 Identity Provider Access	√	√
11	Multiple Delivery Platforms (Tablet & Mobile Phone Access)	√	√
12	Pipeline Profile vs. Plan View Toggling		√
13	Critical Alarm Management (Time to Freeze)		√
14	Critical Alarm Management (Anchor Health)		√
15	Site Asset Landmark Mapping		√
16	Real-Time Pipeline Health Gauge (based on key metrics)		√
17	"Time to Freeze" Prediction		√
18	RTD Temperature Sensor Mapping ²		√
19	Shift-Summary Report Access ²		√

¹ Each pipeline asset will require a separate license and commissioning process to view.

² Only partially developed and implemented in V1.0.

The above offering is illustrative and may be modified by nVent from time to time with prior notification to Client.

New functionalities, features and/or modules developed by nVent may be assigned by nVent, in its sole discretion, to the Basic Offer, the Premium Offer, or to a new Offer category, which nVent reserves the right to create.

DATA ACCESS, PROTECTION AND PRIVACY

nVent RAYCHEM Pipeline Supervisor (RPS) adheres to strict data sharing protocols. By assigning users to role based access, multiple users can sign-on simultaneously as opposed to a single user/password combination. RPS resides on a Control Network, which is separated from a corporate network / Internet, which allows the software to be installed on-premise. Access outside of the Control Network is required to be provided to the RPS software to enable the delivery of alarms to mobile devices. In order to enable remote maintenance (including updates), access outside of the control network will be required for at least the duration of the maintenance period.

In addition, nVent follows current industry security standards and implements policies, procedures, practices and measures necessary to protect against unauthorized or accidental access of data residing on nVent RAYCHEM Pipeline Supervisor (RPS) or nVent's systems. nVent applies processes and technologies to prevent nVent RAYCHEM Pipeline Supervisor (RPS) from containing any viruses or any other contaminants that access (without authorization) or shut down computer systems, networks, software or other data or property ("Malware").

SYSTEM REQUIREMENTS AND HARDWARE

The nVent RAYCHEM Pipeline Supervisor system and hardware requirements vary slightly from project to project, and are dependent on the customer's unique system requirements. All on-premise solutions are delivered as a combination of a local server and the RPS software. The server is rack mounted and installed with an industrial PC, monitor and keyboard for stand-alone access to the software.

The solution allows for multi-users in different locations as well as remote access, provided the solution is setup on a Control Network (or corporate network if desired).

COMPATIBILITY / REGISTRATION

nVent RAYCHEM Pipeline Supervisor can be installed on new pipelines, or retrofitted to existing temperature-critical pipelines with the combination of Distributed Temperature Sensing (DTS) and Electrically Heat Traced (EHT) pipelines. For more information about the capabilities of this software, please visit <https://raychem.nvent.com/RPS>.

COMMUNICATION

Modbus RTU protocol via:

- TCP/IP
- RS-232
- RS-485

ORDERING DETAILS

Catalog Number	Tier Level	Description	Key Benefits
T1240031	nVent RAYCHEM Pipeline Supervisor Basic	Increased awareness with pipeline temperature trending and alarm severity indicators	Temperature profile, alarm management, phone/tablet/remote PC access
T1240032	nVent RAYCHEM Pipeline Supervisor Premium	Deeper performance & operational insights with pipeline health monitoring	Shift summary reports, virtual RTD's, parameter trending and overall pipeline health gauge

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