

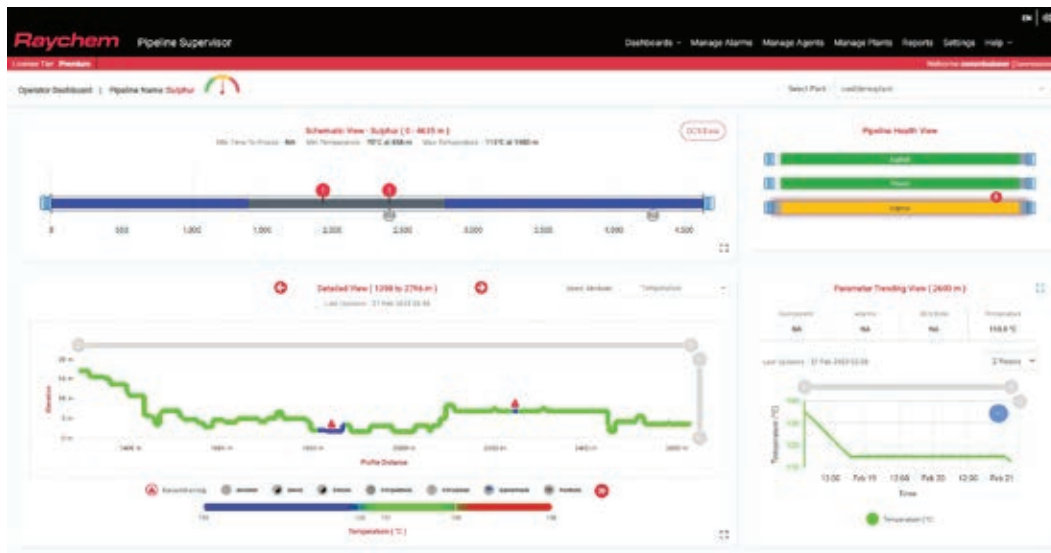
Pipeline Supervisor (Predictive Analytics Software)

Raychem

Intelligent and Predictive Pipeline Temperature Monitoring Software

OVERVIEW

Raychem Pipeline Supervisor (RPS) is a culmination of Chemelex's many years of experience in troubleshooting, optimizing and maintaining our clientele's temperature-critical pipeline applications. We combine 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.



NETWORK, CONNECTIVITY AND HARDWARE

Raychem Pipeline Supervisor is installed in a 19" rack with monitor, keyboard, PC and server with multiple hard drives. The most recent 2 weeks of data is available for viewing in the software dashboard, but older data is permanently backed up on the hard drives. The software uses a browser-based interface that allows for access through multiple devices including smart phones, tablets and remote PC's.



FEATURES BY TIERED GROUPING

	Raychem Pipeline Supervisor	Select	Premium
1	Monitor Multiple Pipelines	√	√
2	Pipeline Temperature Profile	√	√
3	DTS Sensing Fiber Attenuation Graph	√	√
4	Time vs Temperature Trending Analysis	√	√
5	Basic Temperature Alarm Management	√	√
6	Advanced Alarm Management - algorithm based	√	√
7	Customized 3D Pre-Configured GUI - for easy DTS visualization	√	√
8	Asset Landmarks Mapped to Physical Pipeline - anchors, bends, etc.	√	√
9	DTS System Health - fiber break, attenuation, communications	√	√
10	Configurable Alarm Settings - priority, types, latching/non-latching	√	√
11	Operator Role-based Permissions/Access to Software	√	√
12	Remote Delivery Platforms (Tablet & Mobile Phone Access) *	√	√
13	Email or Text Alerts / Notifications *	√	√
14	"One Click" Export of Temperature Data	√	√
15	Real-time Pipeline Health Gauge (based on key alarm algorithms)		√
16	Insulation Health Monitoring - excessive heat loss, material damage		√
17	RTD vs DTS 2-way Validation - continual heating system check		√
18	Shift Summary Report - downloads of previous day's activity		√
19	"Time to Freeze" Prediction - for proactive intervention		√

The above offering is illustrative and may be modified by Chemelex from time to time with prior notification to Client. New functionalities, features and/or modules developed by Chemelex may be assigned by Chemelex, in its sole discretion, to the Select Offer, the Premium Offer, or to a new Offer category, which Chemelex reserves the right to create.
*Internet access required

DATA ACCESS, PROTECTION AND PRIVACY

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. For on-premise solutions, RPS resides on an isolated network; however, access outside the network is required in order to enable the delivery of alarms to mobile devices and enable remote maintenance (including updates). Chemelex follows current industry security standards and implements policies, procedures, practices and measures necessary to protect against unauthorized or accidental access of data residing on Raychem Pipeline Supervisor or Chemelex's systems.

CLIENT (END USER) IT REQUIREMENTS AND PERMISSIONS FOR ACCESSIBILITY

- Client shall be responsible for supplying "As-built" pipeline routing and isometrics, including XYZ coordinate data for each. Data must be electronic (3D model idf or pcf files, MS Excel or CSV):
 - Mandatory – Location of every pipeline change-in-direction, pipeline anchors, outside of insulation boxes, RTDs.
 - Optional – Location of pressure sensors, flow sensors, heater junction boxes.
- Pipeline Heater design details:
 - Voltage, current, power output at start-up and maintain conditions (inc. ambient conditions for ea.).
 - Circuit lengths and locations.
- Client is responsible for any deviations from client deliverables discovered after delivery and/or during the commissioning of the Software.
- Client shall qualify and select specific individuals that will be given access to the Software for initial identity and access management set-up and configuration requirements as necessary.
- Client shall provide on premise access to the Software local network to deploy appliance server:
 - Network that is uniquely connected (isolated) to the Software stack.
- Client shall provide a dedicated IP or DNS register for the Software appliance (required for network connectivity).
- Client shall provide a TLS certificate for the Software appliance or be willing to trust a certificate self-assigned by the Software provider (required for network connectivity).

- Client shall provide an OAuth2 identity provider to allow integration with their identify and access management system, or allow the Software to connect to their internal OIDC solution allowing users to log-in using normal credentials (required for network connectivity).
- Client must allow access to post-installation Software data through the following means:
 - Back-up hard drive.
- Software upgrades and updates shall be delivered to client per the delivery options below:
 - Installed on premise as hardware appliance. Upgrades and updates delivered on-site.

SUPPORTED COMMUNICATION PROTOCOLS

The following MODBUS protocols are supported by RPS for Remote Terminal Unit (RTU) access:

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

ORDERING DETAILS

Catalog Number	Tier Level **	Description	Key Benefits
T1240031	Raychem Pipeline Supervisor Select	Increased awareness with pipeline temperature trending and alarm severity indicators	Temperature profile, alarm management, phone/tablet/remote PC access
T1240032	Raychem Pipeline Supervisor Premium	Deeper performance & operational insights with pipeline health monitoring	Shift summary reports, time-to-freeze predictions, pipeline health gauge and insulation health monitoring

** Refer to features by tiered grouping

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