

Innovation in pipeline monitoring

DETECT LIQUIDS | DETECT HYDRATES | DETECT FOAM

Inspiring you to excel

Increase uptime
Improve process safety
Lower maintenance costs
Extend asset life

LineVu | The Concept

INSPIRING CONFIDENCE | IMPROVING PROCESS SAFETY

Everyone wants to get the most out of the assets they have, but being able to see what is happening in a high-pressure gas treatment plant or gas pipeline has not been possible until now.

“ Enabling process engineers to see into their process is long overdue. ”

Liquid carry-over, foam or even hydrate formation are common problems that need attention as soon as they occur. Unexpected liquids appearing in gas systems are the cause of large scale loss and process failures, and can have an impact on asset integrity.

LineVu is a high precision camera system which can be used to define the real flow limits of a process to support and improve flow modelling of “as built” processing plants.

Permanent installation allows process failure events to be detected early, and prevent loss and damage of assets such as catalysts or absorber beds and foam control becomes easier to manage.



Increase production from existing assets

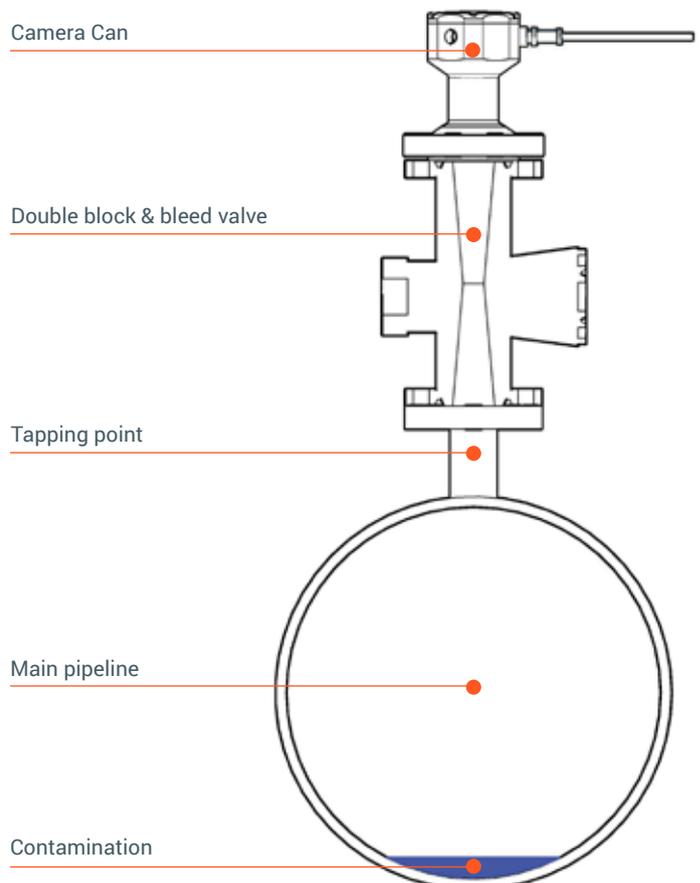
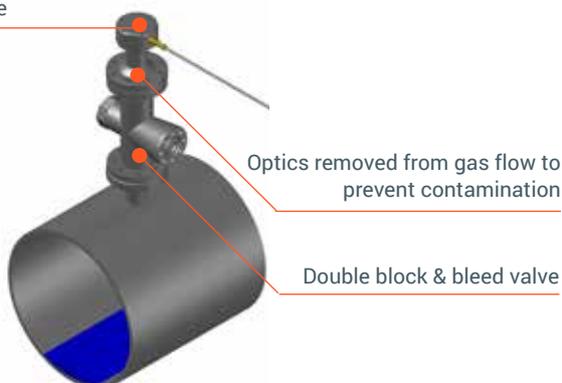
Design Principles

INNOVATION | ONE STEP AHEAD

The perfect combination of cutting-edge technology, innovation, and creative design. Its assertive styling with an electro-polished Camera Can sets the industry standard for monitoring high pressure gas system

LineVu is Process Vision’s primary process monitoring system: using image processing allows a flexible approach to detecting problems and setting alarm thresholds.

LineVu mounted above a gas pipeline



Design Technology

FLEXIBILITY | MULTIPLE APPLICATIONS

The information that LineVu delivers allows engineers throughout the gas and refining industry to make informed decisions. The confidence it brings allows engineers to find the real limits of gas/liquid separators, increasing production while remaining within safe operating limits.

Safety is our paramount consideration. A secondary containment (patent pending) system ensures no loss of containment, even under fault conditions. Design standards for the sapphire windows and secondary containment system use safety factors higher than industry standards. All ports are within the main process connection, with four illumination windows to allow future upgrade paths.

Connection to the control room and beyond can be made via Ethernet, optical fibre or WiFi connections.

ROBUST | HEAT MANAGEMENT

Experience counts: our dedicated team ensures that LineVu's robust design is suitable for installation on gas networks. A certified flameproof enclosure forms part of the Camera Can, mounted on top of the pipeline or pressurised system. Each LineVu system undergoes three separate pressure tests. A class 900 flange allows the standard system a maximum pressure rating of 2220 psi (153 Bar). Higher pressure ratings are available if required.

Built-in redundancy ensures long term unattended use. Heat management of the illumination system provides sufficient temperature elevation to avoid condensation on the optics even when process conditions are saturated with respect to water vapour or hydrocarbons.

Installing the LineVu system behind a double block and bleed valve means that it is set back from the contaminated flow, keeping the optics free from contamination.

Easy installation: flow arrow on lid for correct alignment

Easy installation: choice of 4 ports

Heat control: electro-polished finish reflects heat

Safety: secondary containment

Weight reduction: waisted design

Standard process flange: Class 900 3" RTJ



All connections within the process flange

Camera port



Two LED ports for illumination, two spare ports for future upgrades

“ Safety is our paramount consideration. ”

User Interface

WEB READY | PROCESS DATA OVERLAY

LineVu's user interface allows for live viewing of pipeline activity with a process data overlay. This allows flow rates, pressure variations, temperature or other process variables to be viewed on the same screen. The position of process control valves may also be displayed along with a notepad for process engineers to report events that may be relevant.

LIVE MODE

When contamination is detected, recording automatically starts and a volt free relay is activated. Still shots may be taken manually at any time, or at programmed times, to be added to reports, emailed or SMS messaged to specific staff members at set times or when a contamination event is detected.

PLAYBACK MODE

Engineers can review events to better understand process upsets. The full user interface screen is replayed for a complete picture, and provides evidence to justify operating decisions or support compensation claims.

SERVICE MODE

In service mode engineers can use password protected set-up of threshold limits, illumination levels and focus to ensure optimum performance.



User interface



Industrial rack-mount PC

Specification

Measurement principle	Image processing
Video output	Streamed video via Ethernet to a network location; web browser compatible
Modbus	All output and user configurable inputs available via Modbus over RS485 NOTE: process data can be input via Modbus for data overlay on video
Certification	ATEX Zone 1 Ex d IIB+H ₂ T4, Class 1 Div 1 Groups B to D T4, Class 1 Zone 1
LineVu	Approx. 25Kg for camera can; 10Kg for safe area equipment
Material (wetted parts)	316L Stainless Steel (other materials optional)
Process connection	3" RTJ (Standard); 3" RF (optional); flange adapter required for other flanges types
Ingress protection	IP66/NEMA 4X
Ambient temperature	-40 to +50°C
Pressure rating	2220 psiG (153 BarG) - Standard Class 900 Flange)
Power	36V DC MAX @ 40W MAX
Port size	M25 (others available on request)

HAZARDOUS AREA EQUIPMENT ————— SAFE AREA EQUIPMENT

FLANGE ADAPTER

FA-	Flange adapter and spacer
Process connection	
1	3" RTJ
2	2" RTJ
3	3" RF
4	2" RF
X	Other: please specify
Class	
1	Class 600: 1480 psiG (102 BarG)
2	Class 900: 2220 psiG (153 BarG)
3	Class 1500: 3705 psiG (255 BarG)
X	Other: please specify
Material	
1	Stainless Steel (316L) DIN/EN 1.4404
2	Stainless Steel (Duplex) DIN/EN 1.4462
3	Hastaloy® (C276) DIN/EN 2-4819
X	Other: please specify
Height	
1	4" (101.6mm) distance between flanges
2	8" (203.2mm) distance between flanges
3	12" (304.8mm) distance between flanges
X	Other: please specify

FA-						-	0	0	0
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INTERFACE UNIT

IU-	19" Rack Mounting Power and Interface for LineVu Camera Can
0	No power supply (DC power obtained locally to Camera Can)
1	24V DC power supply for up to 3 LineVu Camera Can systems
X	Other: please specify
Number of channels	
1	1 channel
2	2 channel
3	3 channel
X	Other: please specify

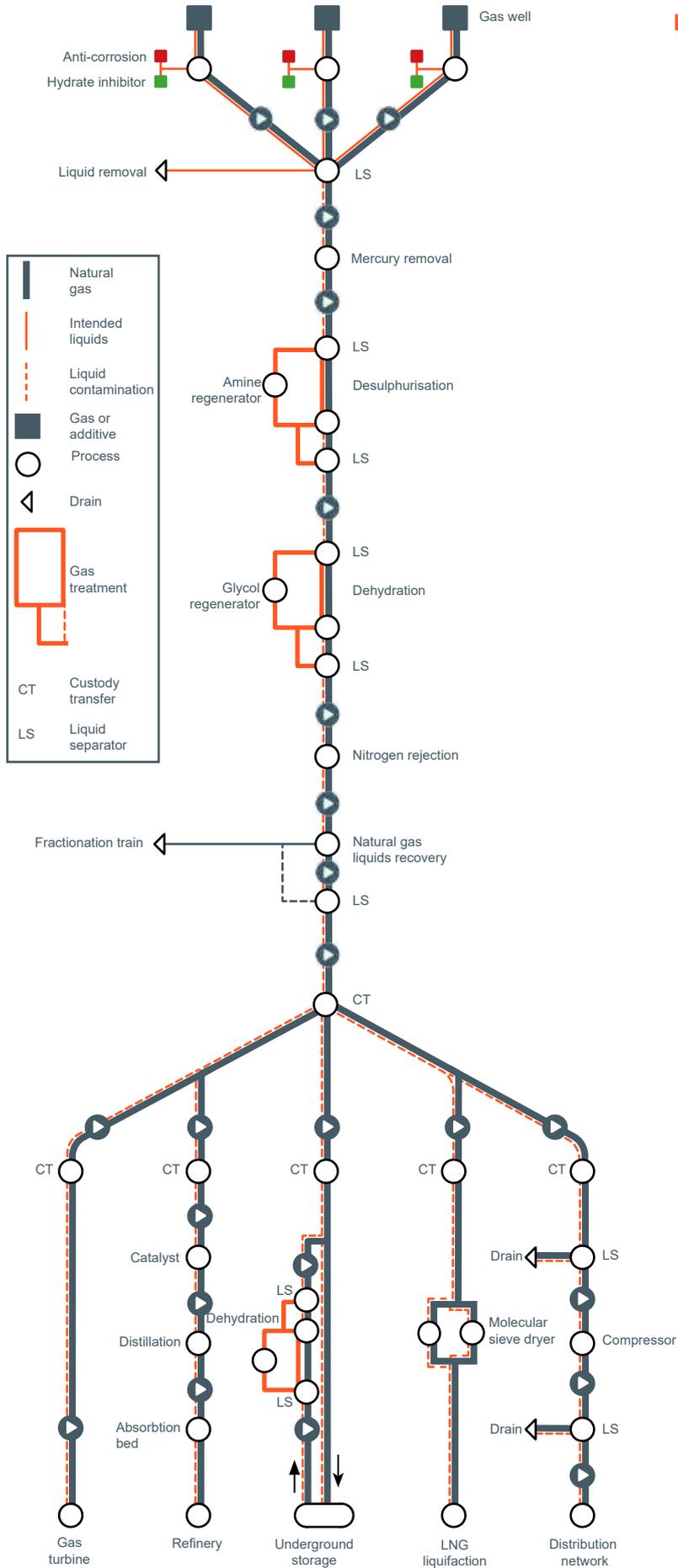
IU-						-	0	0	0
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LINEVU CONTROLLER

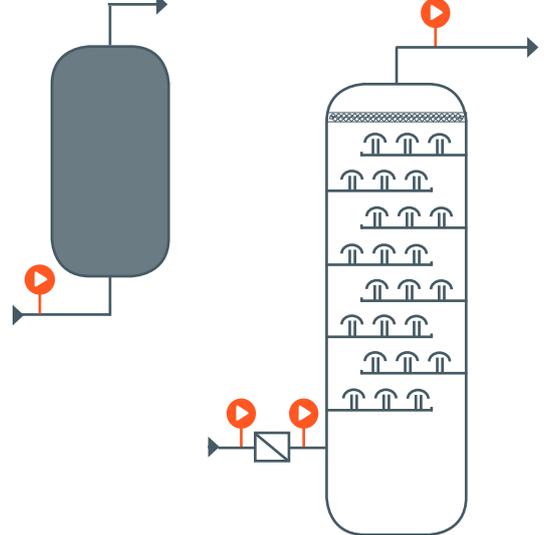
LC-	19" Rack Mount LineVu controller and user interface. Providing volt free relays for contamination detection and system alarm with Modbus TCP digital interface.
Number of channels	
1	1 channel
2	2 channel
3	3 channel
X	Other: please specify

LC-						-	0	0	0
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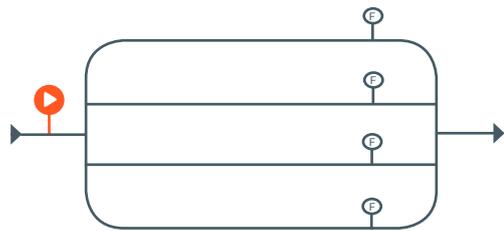
From well to user



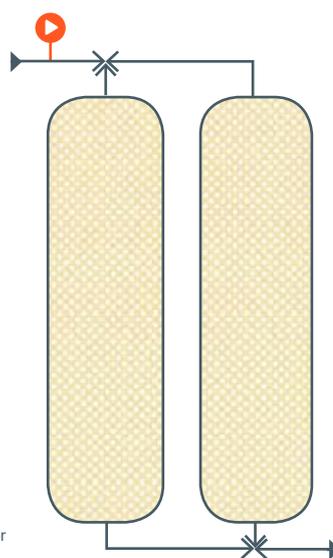
Mercury removal Desulphurisation dehumidifier



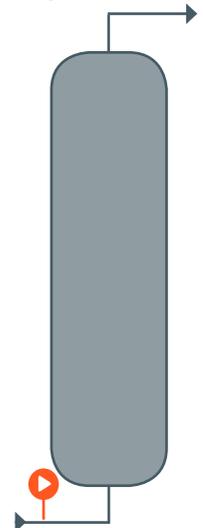
Flow assurance



Molecular sieve dryer



Catalyst



Our vision,
your solution.

General Note: Process Vision reserves the right to make changes in product specification without notice or liability. All information is subject to Process Vision's own data and is considered accurate at time of going to print.

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