

ILB24

Intelligent Line Breaker

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Product overview

The ILB24-series provides a straightforward solution to monitor and shutdown the pipeline in case of an emergency. The controller constantly monitors the pressure of the pipeline and will shut down the flow of the pipeline if abnormal pressure is detected.

Pipeline monitoring capabilities

- High pressure monitoring
- Low pressure monitoring
- Rate of Drop – RoD
- Rate of Rise – RoR
- Differential pressure

Logging and event functions

- Internal memory up to 30 years data
- 24/7 pipeline monitoring
- Advanced password protection with several levels
- Monitoring and logging software
- Generate reports for documentation

Key product features

- Local and remote control
- Low power consumption
- Solar power available
- Partial Stroke Testing
- Compatible with pneumatic and hydraulic actuated valves

Reliability

- Enclosures fit for harsh environments
- Ex d enclosure available
- ATEX, IECEx, UKCA and ECAS-Ex certified
- On site and remote support and service provided
- Field proven product – used by major end-users worldwide

Product applications

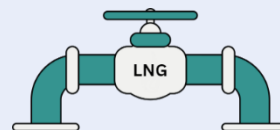
Gas Pipelines



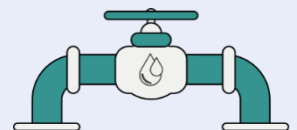
Oil Pipelines



LNG Pipelines



Water Pipelines



Model comparison

Maximum product quality and reliability are guaranteed as our products are carefully crafted and manufactured in Denmark using premium materials and cutting-edge testing and assembly facilities.

Features	ILB24-A	ILB24-AF	ILB24-AFL
All pipeline monitoring capabilities	✓	✓	✓
All logging and event functions	✓	✓	✓
All key product features	✓	✓	✓
Local user interface/ w. configuration and status	✓	✓	✓
Ex d enclosure		✓	✓
Local control panel			✓
ValConnect software			
Remote valve control	✓	✓	✓
Receive live valve data to the control room	✓	✓	✓
Historic valve data comparison	✓	✓	✓
Generate test reports	✓	✓	✓
Graphical overview of over all valve condition	✓	✓	✓
Advanced diagnostics	✓	✓	✓
Interface system alarm with central control system	✓	✓	✓

Product line

ILB24-A



ILB24-AF



ILB24-AFL



System philosophy

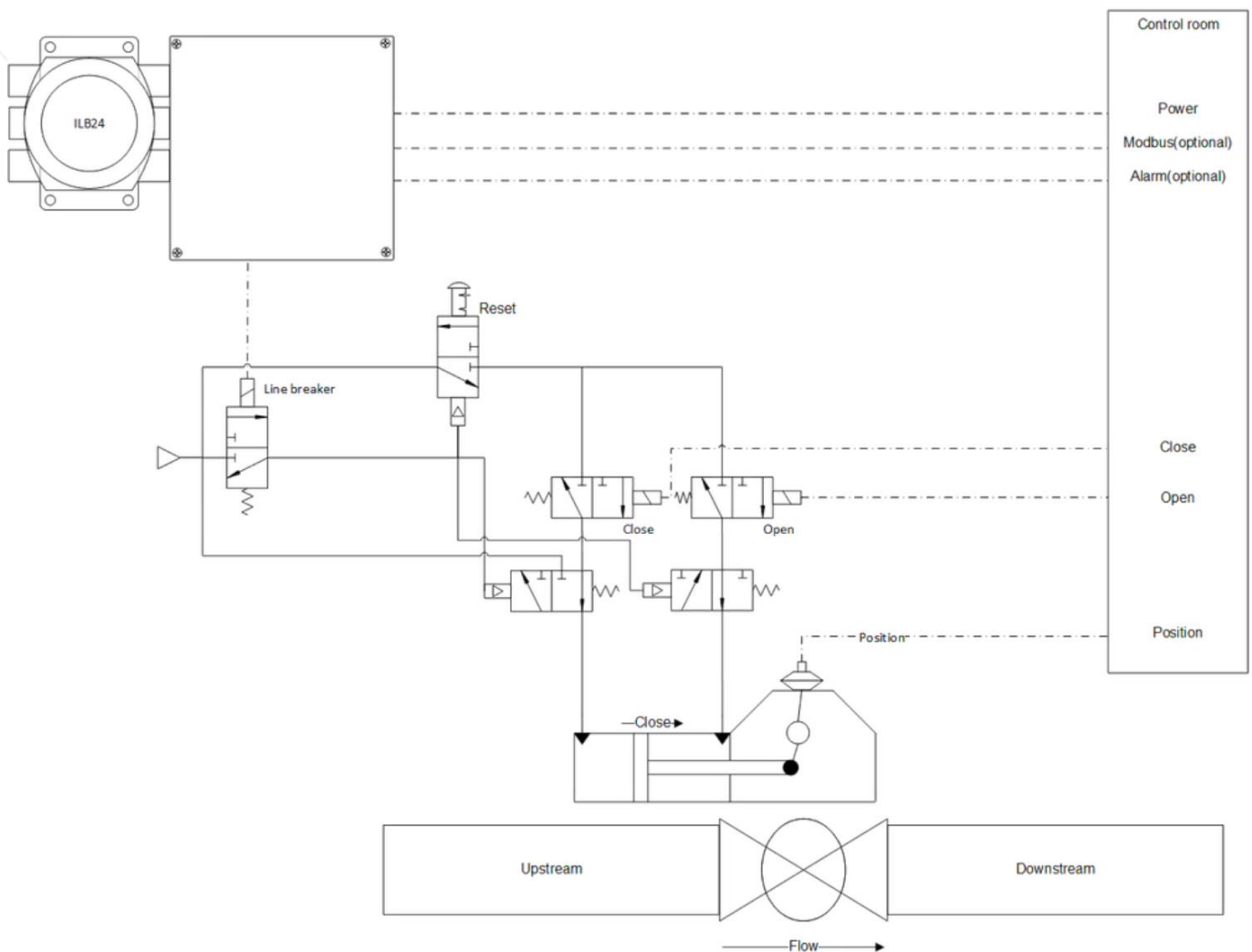
The Val Controls ILB24 has two main control methods:

- Line Breaker Control
- Valve Control

Please note that the ILB24 is compatible with most systems. For more information, please contact our sales team.

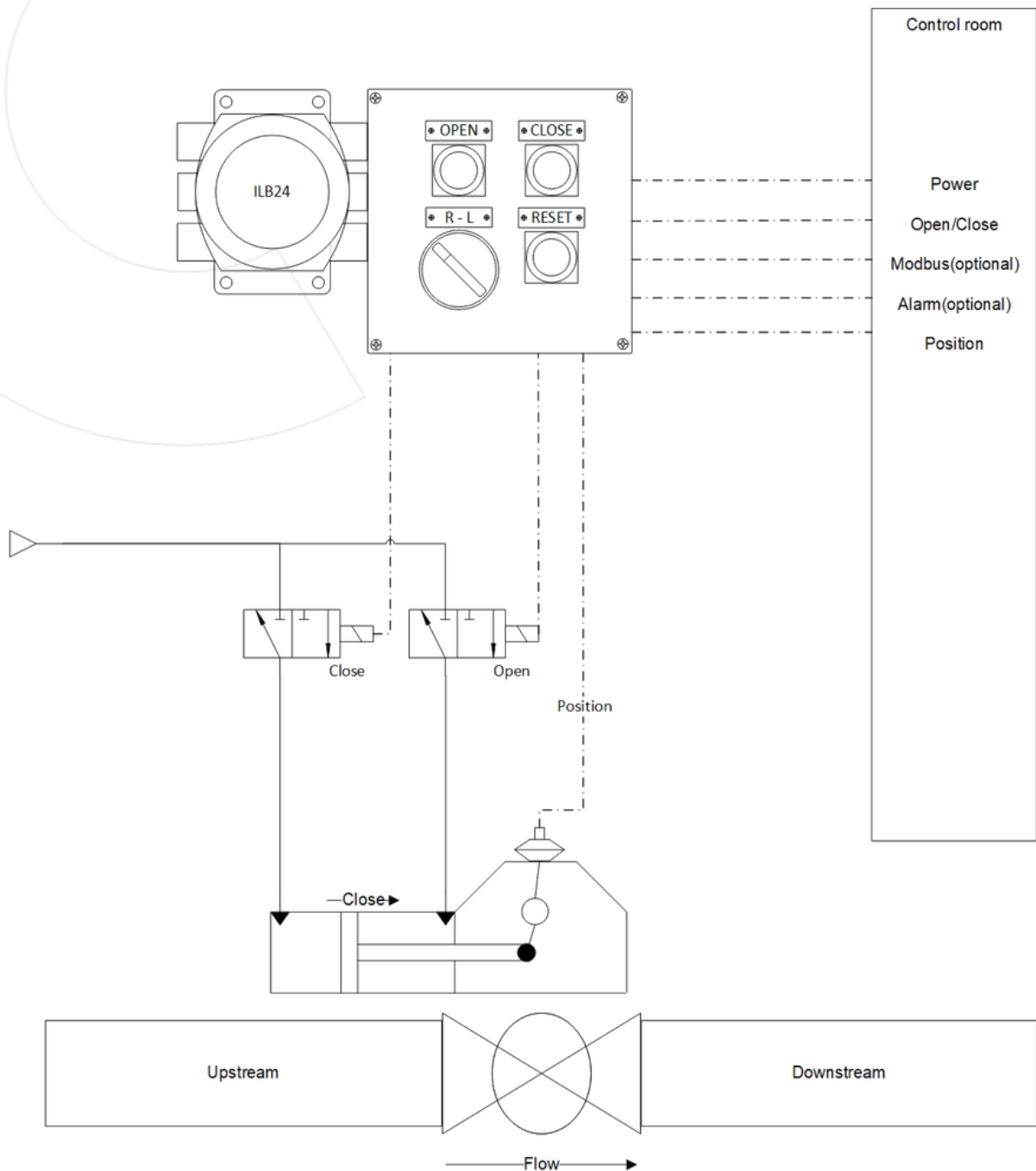
Line Breaker Control

In the Line Break Control, shown below, the ILB24 only controls the shutdown valve and all open and close is controlled directly from the control room.



Valve Control

In the Valve Control, shown below, the ILB24 only controls all functions and the control room has only connection to the ILB24.



Compatibility

The ILB24 is designed to be compatible with all types of environments and valve systems. We offer Ex d enclosures with area approvals for markets around the world.



Area approvals

Hazardous (ILB24-AF & AFL)

- IP 66
- ATEX - II 2 GD Exd IIC T4-T6
- IECEx - II 2 GD Exd IIC T4-T6
- UKCA - II 2 GD Exd IIC T4-T6
- ECAS-Ex - II 2 GD Exd IIC T4-T6
- EAC Ex - II 2 GD Exd IIC T4-T6

Non-Hazardous (ILB24-A)

- IP20

Valves & actuators

- SDV valves
- SR and DA actuators
- Hydraulic or pneumatic systems
- All solenoid valve brands

Communication

- Modbus RTU – RS-485
- 4-20mA transmitter output

Sensors and solenoid valves

- Pressure and position sensors: 4-20mA
- Solenoid valve output: 24VDC

Pipeline monitoring features

The ILB24 monitors the pressure in pipeline 24/7. The results can be read directly on the unit or from remote. Below we have provided a description of each monitoring feature along with a sample from ValConnect.

Sensors required for each feature

Each pipeline monitoring feature requires specific sensors to be placed at various points in the valve system. The list below shows the sensors needed at the upstream pipeline, downstream pipeline, and valve position.

Sensor placement	Downstream pressure	Upstream pressure	Valve Position
Low- and high-pressure	X		
Rate of drop - RoD	X		
Rate of Rise - RoR	X		
Differential pressure	X	X	
Movement alarm			X
Partial Stroke test			X

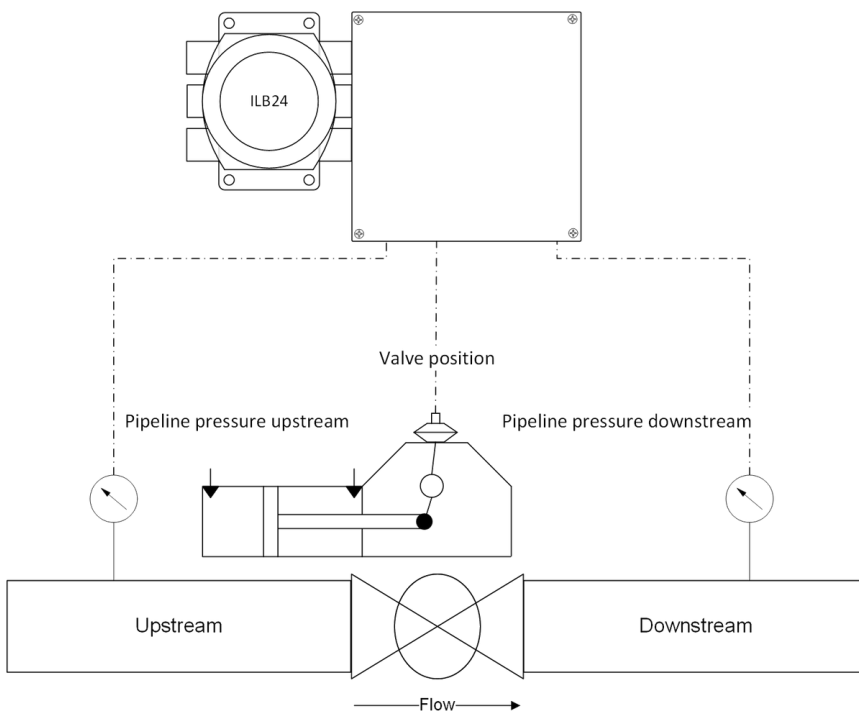


Image: Reference schematic for sensor placement

Major and minor alarms

When configuring the ILB24 a minor and a major pressure threshold are set. If the minor pressure threshold is reached an alarm is displayed on the ILB24 and a message can be sent to the control room. A minor alarm will not trigger any automatic action and it is up to the operator for any onwards actions.

If a major pressure limit is reached the ILB24 can be configured to do an automatic shutdown of the pipeline. It is also possible to only display a major alarm message and not do any automatic actions.

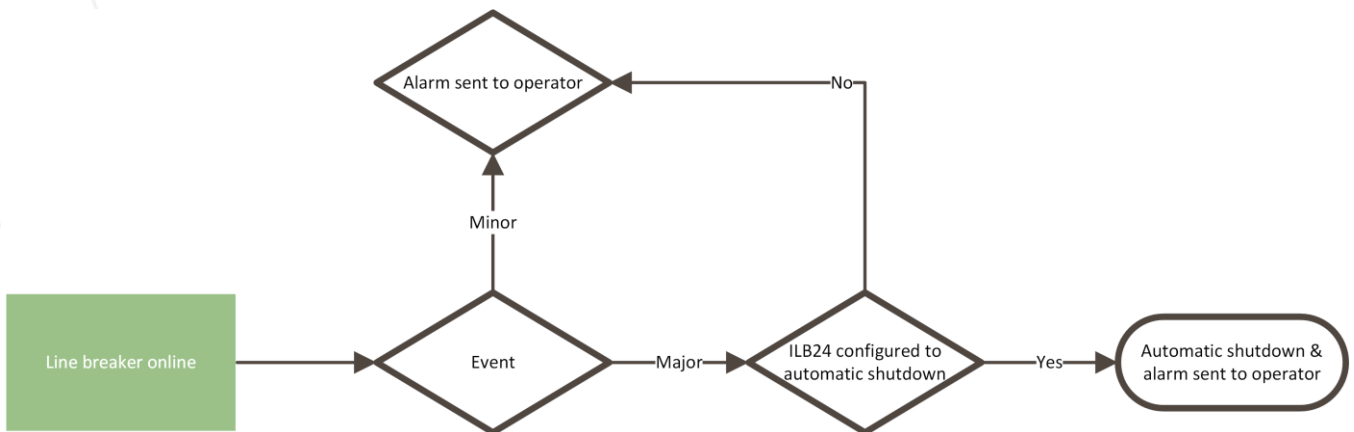


Image: ILB24 minor or major events flow chart

Low- and High-pressure monitoring

The ILB24 constantly monitors the downstream pressure of the pipeline and can be configured with a high- and low pressure limit. For each limit a major and minor pressure threshold can be set and if those are reached a predetermined action is performed.

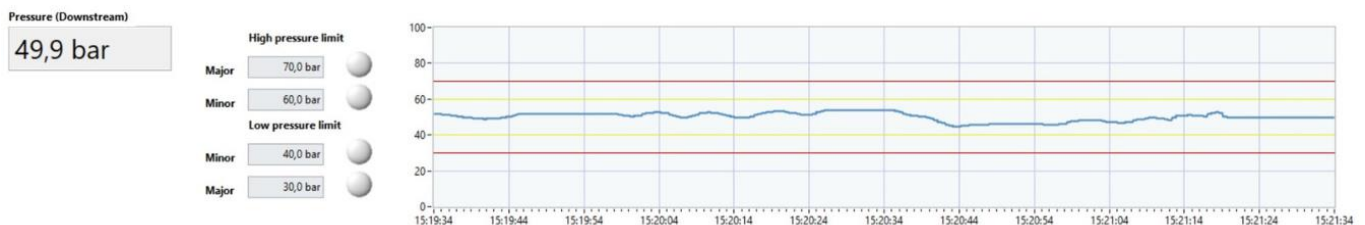


Image: ValConnect interface - Pipeline pressure

Rate of Drop – RoD

The rate of drop is used to determine if a pipeline rupture has occurred. If the pressure drops at a preset rate (measured in bars per minute), a major or minor alarm is triggered, and an automatic shutdown of the pipeline can be conducted.



Image: ValConnect interface - Rate of drop – RoD

Rate of Rise – RoR

The rate of rise indicates a sudden increase in pipeline pressure. If the preset major and minor thresholds are reached, a major or minor alarm is triggered, and an automatic shutdown of the pipeline can be conducted.

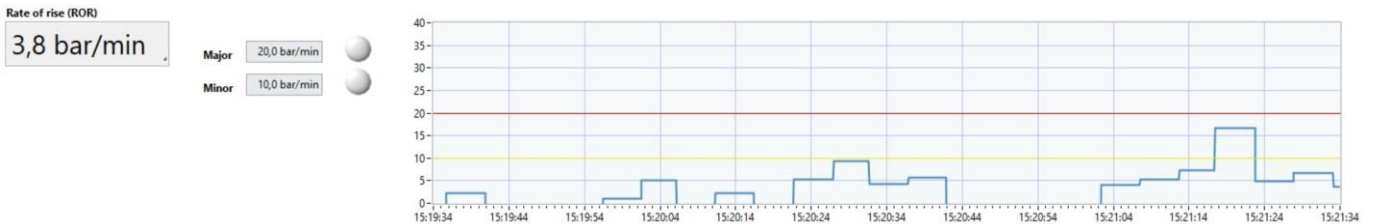


Image 1. ValConnect interface - Rate of rise - RoR

Differential pressure

The differential pressure shows the difference between the upstream and downstream pressure in the pipeline on each side of the valve. A pressure transmitter is placed to monitor the pressure on each side, which calculates the pressure difference. If the predetermined threshold of the differential pressure is reached, a minor or major alarm is triggered, and an automatic shutdown of the pipeline can be conducted.



Image: ValConnect interface - Differential pressure

Data and logging

The ILB24 uses a dynamic logging strategy which provides an easy and flexible way of keeping track of the events that has occurred. The unit has more than 50 loggable events which all can be viewed in the user manual.

Time	No.	Event	Description
2023-25-04 15:16:55	102 - 41	Line break controller online	The line break controller is online and monitoring the pressure
2023-25-04 15:05:46	103 - 12	Line break controller offline	The line breaker controller is offline. The signals are not monitored
2023-25-04 15:05:14	127 - 1	Pressure low major shutdown	The pressure was below the emergency threshold longer than the shutdown timeout, and
2023-25-04 15:04:42	125 - 1	Pressure low major start	The pressure is lower than the emergency threshold
2023-25-04 15:02:53	121 - 1	Pressure low minor start	The pressure is lower than the alarm threshold
2023-25-04 15:02:53	102 - 41	Line break controller online	The line break controller is online and monitoring the pressure
2023-25-04 15:00:55	103 - 12	Line break controller offline	The line breaker controller is offline. The signals are not monitored
2023-25-04 15:00:24	127 - 1	Pressure low major shutdown	The pressure was below the emergency threshold longer than the shutdown timeout, and
2023-25-04 14:59:52	125 - 1	Pressure low major start	The pressure is lower than the emergency threshold
2023-25-04 14:58:50	121 - 1	Pressure low minor start	The pressure is lower than the alarm threshold

Image: Sample of an ILB24 event log

Data storage

The ILB24 has internal storage with an SD card, providing a storage capacity of up to 10 years with 8 events per day. Logging is performed using the circular buffer principle, which saves data both before and after an event has occurred. This approach minimizes the amount of stored data, retaining only the relevant information.

Data extraction

The data can be extracted both locally and remotely. Local extraction is performed by connecting the ILB24 and a PC using a USB cable.

Local control options

Local control is available for all of the ILB24 models, and all of the models has the same local control features. However, there are three different ways to do the local control depending on the enclosure.

Option	ILB24-A	ILB24-AF	ILB24-AFL
Local display control	✓		
Local display control w/ MTControl		✓	✓
Local control panel			✓
Indication LED's	✓	✓	✓

Local display control (ILB24-A)

The local display control is available for the ILB24-A model, granting full access to configure the controller and control the valve system. Furthermore, the ILB24-A is equipped with various indicator LEDs that show the status of the system.



Image 2. ILB24-A local display interface

Local display control w/ MTControl (ILB24-AF & ILB24-AFL)

MTControl is utilized for operating units within Ex D enclosures. The magnetic pen emulates a button press, enabling users to operate the unit without needing to open the enclosure. This grants users full control and easy access to unit configuration, even in hazardous areas. Magnetic sensors are placed below the physical push buttons (Left, up, down, and right). These sensors monitor magnetic changes whenever the MTControl pen is tapped above them.

Highlights:

- Same features as a regular local display control.
- A simple and easy-to-use control option for the controller.
- The possibility to lock to MTControl with a password.



Video 1. MTControl in action

Local control panel (ILB24-AFL)

The Local Control panel option is available for the ILB24-AFL model. The Local control Panel option grants easy access for the operator to the most common actions.

A standard local control panel contains:

- Switch for local or remote control
- Push button to open the valve
- Push button to close the valve
- Push button to reset the system

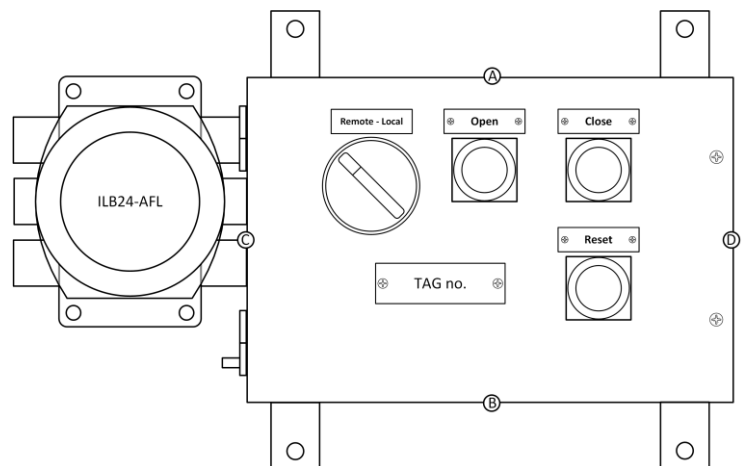


Image 3. ILB24-AFL drawing

Note: Please see ILB24-AFL datasheet for the specific in- and outputs.

Remote control & monitoring

The ILB24 is compatible with all major DCS/AMS systems and communicates through Modbus.

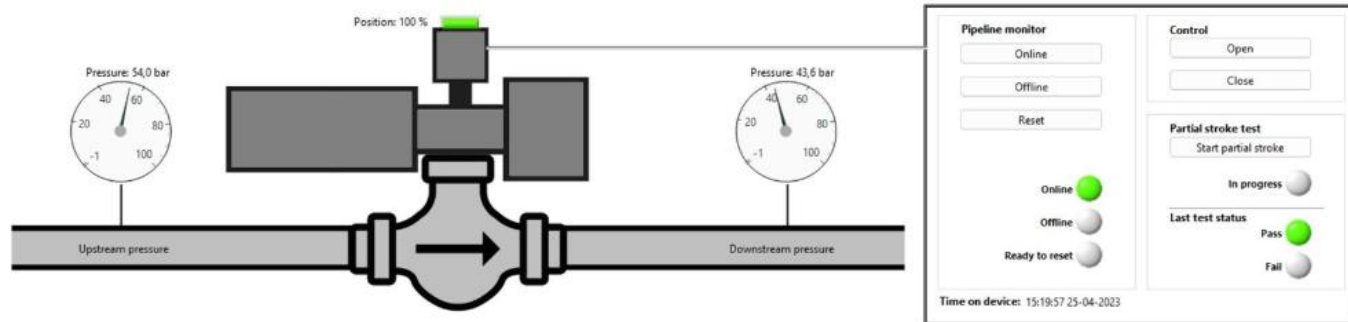


Image: Sample of live status interface

ILB24

Intelligent Line Breaker

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Collaboration with Val Controls

Benefit from our extensive global network of service agents and partners, ensuring you receive the best possible support wherever you are. We actively engage with end-users, contractors, OEMs, and SIS and DCS suppliers to provide the best possible service.

Valve automation expertise

For over 25 years, Val Controls has been at the forefront of valve automation, empowering you to enhance the performance of your valve systems. Our cutting-edge valve controllers and positioners are designed to optimize both existing and new setups. By collaborating with Val Controls, you gain access to a safer, eco-friendly, and cost-efficient solution.