

Minimum Data Requirements

Here are our minimum requirements to deliver a Flowstate LDS solution:



What is needed to get started?

- For creating models:
 - 4-6 weeks of continuous, operational data (depending on operations)
- For operational use:
 - access to real-time instrumentation data



What data inputs are used?

- At a *minimum*, the following tags are needed:
- Flow rate at all inputs and outputs of the segment
 - Pressure for No-Flow/Shut-in, Rupture, and Leak Location
 - Density (API gravity) for all multi-grade lines



What sample rate is needed?

- This depends on the goal.
- For alarming capability – sample rate of 1 per 60 sec or less is ideal
 - For leak location – 1 per 10 sec or less is needed
 - For Line Balance only – no specific scan rate requirement

Additional Requests

These additional items will improve performance or provide additional capabilities.



Additional Data Inputs

- Line pressure at all inputs (improves DL model and is needed for leak location or no-flow monitoring)
- All status tags (can improve sensitivity and reduce false alarm rate)
 - Pump run status
 - Control valve set point
 - Pump rate set point
- Any instrument that can provide insight into the pipeline operations.
Examples:
 - Pump RPM
 - VFD Frequency
 - DRA rate and status
 - Additional pressures (other than mainline)
 - PLC status / Comm Fail
 - Fluid Temperature
 - Control Valve Position



Leak Location Needs

- The following are required for leak location or no flow monitoring
- Pressure required at all inputs and outputs
 - Data scan rate of 1 per 10 sec or less (improves accuracy)
 - Pipeline alignment sheet & elev profile



Installation & Data Connectivity

- Preferred compatibility with OPC-UA and MQTT for streamlined data ingestion. (Additional configurations available for advanced use cases.)
- VPN connection to facilitate system install & configuration



Helpful Documentation

- The following items will help us better understand your line and be more successful in providing a solution for you.
- Pipeline Elevation profile (Including any laterals/injection lines) – Prefer .xls
 - Pipeline centerline – Prefer .kmz or .geojson
 - Mainline Block Valves & Pressure Transmitter Locations (coordinates if on ROW) – Lat/Long
 - List of relevant tags – Prefer .xls
 - Drawings (P&IDs, Alignment sheets, plan drawings etc.) – PDF
 - Pipeline Design Info (Fluid type, Density, Size, MOP, fill volume etc.)