

EVO™ SERIES ELECTRONIC LINE LEAK DETECTION

EVO™ Series Electronic Line Leak Detection (ELLDD) is designed to provide early detection of leaks in pressurized fuel lines. The system features automatic submersible pump shutdown in the event of a leak, minimizing the risks of costly spills and environmental cleanup. This pressure-based system utilizes learned line characteristics learned to monitor for changes in pressure to declare the line as tight or determine if a leak is present.

HIGHLIGHTS

- Optional software feature of EVO™ 600/6000.
- Utilizes pressure transducer installed in the submersible pump.
- Compatible with submersible pumps generating 25 psi or more.
- Automatically learns the pressure characteristics of each line.
- Automated 3 gph (11 lph), 0.2 gph (0.8 lph), and 0.1 gph (0.4 lph) compliance testing.
- Performs a 3 gph leak and pressure test after every dispense cycle or 45 min. Positive shutdown of the pump on test failure.
- Performs a 0.2 gph monthly and 0.1 gph annual precision leak test during the thermally stable periods of dispensing. Optional positive shutdown of the pump on test failure.
- Positive pump shutdown in the event of a gross leak can be disabled for generator applications.
- Performs pressure up, catch pressure, and other additional checks.
- Compatible with flexible, steel, fiberglass, or combination of pipe.

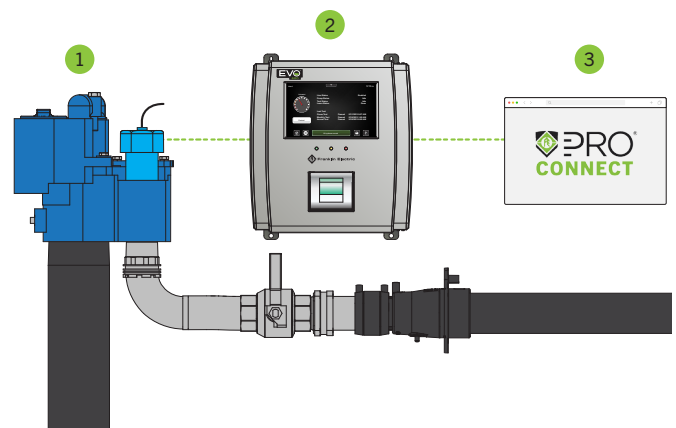
SPECIFICATIONS

Operation

- 1 The EVO™ Pressure Transducer is typically installed in the leak detector port of the submersible pump manifold. During the AUTO-LEARN® setup process, EVO™ learns the pressure decay curve characteristics of a calibrated leak.
- 2 During non-pumping periods, the EVO™ will conduct line leak testing by comparing the line pressure changes to those learned during the AUTO-LEARN® process. A deviation in pressure, such as a drop beyond predefined thresholds, will be declared as a leak and shut down the associated submersible pump.
- 3 With declaration of a leak, the system will notify the operator via the EVO™ display with additional email or SMS notification through the PRO® Connect Web Browser Interface.



- EVO™ leverages AUTO-LEARN® technology to automatically program the unique pressure characteristics of each pipework system. This ensures precise, customized leak detection, reducing the risk of false alarms and enhancing overall system accuracy.
- With Statistical Line Leak Detection (SLLD), EVO™ allows sites with constant fuel flow to perform 0.2 gph leak testing even during peak operation. This is ideal for busy fuel stations where quiet periods are rare, ensuring continuous compliance without disrupting operations.
- EVO™ streamlines the regulatory process by automating 3 gph, 0.2 gph, and 0.1 gph line leak detection compliance testing. This feature ensures that your system meets environmental standards effortlessly, with the EVO™ automatically performing the necessary tests at regular intervals.
- Remote access to line pressure, test, and alarm information.
- Dispenser Hook Isolation (DHI) and Turbine Pump Interface™ (TPI) pump control options.



INTRINSICALLY SAFE TRANSDUCERS

SPECIFICATIONS CONTINUED

Pressure Transducer

Dimensions	4" × 2" NPT
Operating temperature	-40° F to 140° F (-40° C to 60° C)
Operating pressure	0 to 100 psi (0 to 6.89 bar)
Sensor port fitting	2" female NPT
Sensor material	Anodized aluminum body and stainless steel sensor
Approvals / Certifications	- UL, cUL, ATEX, IECEx - Third party certification of leak detection capabilities

Minimum Pressure Requirements

Item	Value
Minimum Pump Off Pressure	15 psi (1.034 bar) for gross 3.0 gph (11.4 lph) hourly tests
	17.5 psi (1.207 bar) for monthly 0.2 gph (0.8 lph) precision tests
	22.5 psi (1.551 bar) for annual 0.1 gph (0.4 lph) precision tests
	20 psi (1.379 bar) for learning lines

Pipe Length Requirements - Gross Tests

Pipe Diameter ID (in/cm)	Rigid/Hybrid (ft)	Rigid/Hybrid (m)	UPP® (ft) (semi-rigid)	UPP® (m) (semi-rigid)	APT® (flexible) (ft)	APT® (flexible) (m)
1.0 (2.5)	62 – 29461	19 – 8979	62 – 15274	19 – 4655	62 – 7675	19 – 2339
1.5 (3.8)	28 – 13093	9 – 3991	28 – 6788	9 – 2068	28 – 3411	9 – 1039
1.75 (4.4)	21 – 9620	7 – 2933	21 – 4987	7 – 1520	21 – 2506	7 – 763
2.0 (5.1)	16 – 7365	5 – 2245	16 – 3818	5 – 1163	16 – 1918	5 – 584
2.5 (6.4)	10 – 4713	4 – 1437	10 – 2443	4 – 744	10 – 1228	4 – 374
3.0 (7.6)	7 – 3273	3 – 998	7 – 1697	3 – 517	7 – 852	3 – 259
4.0 (10.2)	4 – 1841	2 – 562	4 – 954	2 – 290	4 – 479	2 – 145
5.0 (12.7)	3 – 1178	1 – 360	3 – 610	1 – 185	3 – 307	1 – 93

Pipe Length Requirements - Precision Tests

Pipe Diameter ID (in/cm)	Rigid/Hybrid (ft)	Rigid/Hybrid (m)	UPP® (ft) (semi-rigid)	UPP® (m) (semi-rigid)	APT® (flexible) (ft)	APT® (flexible) (m)
1.0 (2.5)	62 – 13701	19 – 4176	62 – 3959	19 – 1206	62 – 1989	19 – 606
1.5 (3.8)	28 – 6089	9 – 1856	28 – 1759	9 – 536	28 – 884	9 – 269
1.75 (4.4)	21 – 4473	7 – 1364	21 – 1293	7 – 394	21 – 649	7 – 197
2.0 (5.1)	16 – 3425	5 – 1044	16 – 989	5 – 301	16 – 497	5 – 151
2.5 (6.4)	10 – 2192	4 – 669	10 – 633	4 – 192	10 – 318	4 – 96
3.0 (7.6)	7 – 1522	3 – 464	7 – 439	3 – 133	7 – 221	3 – 67
4.0 (10.2)	4 – 856	2 – 261	4 – 247	2 – 75	4 – 124	2 – 37
5.0 (12.7)	3 – 548	1 – 168	3 – 158	1 – 48	3 – 79	1 – 24

Line Volume Requirements - Gross Tests

Pipework System	Gallons	Liters
Rigid / hybrid (rigid + flexible)*	2.5 – 1202.02	9.5 – 2359.1
UPP® pipework (semi-rigid)	2.5 – 623.2	9.5 – 1185.5
APT® XP pipework (flexible)	2.5 – 313.17	9.5 – 4550.1

* To be considered hybrid, the bulk modulus of the line must be at a minimum of 20,000 psi for gross tests.

Line Volume Requirements - Precision Tests

Pipework System	Gallons	Liters
Rigid / hybrid (rigid + flexible)*	2.5 – 559.02	9.5 – 2116.1
UPP® pipework (semi-rigid)	2.5 – 161.46	9.5 – 611.2
APT® XP pipework (flexible)	2.5 – 81.19	9.5 – 307.3

* To be considered hybrid, the bulk modulus of the line must be at a minimum of 35,000 psi for precision tests.

ORDERING INFORMATION

Site Requirements

- EVO™ 600/6000
- TS-ELLD software option (TS-ELLD-G software option for generator-specific applications)
- TS-ACI, TS-420IB, *TS-RLY Modules

* TS-RLY Module is not required when utilizing Turbine Pump Interface™ (TPI) communications. Franklin Electric intelligent pump controllers required for TPI.

EVO™ Series Electronic Line Leak Detection Kits

Model	Description
FMP-LS500/1	1-line ELLD kit, includes (1) pressure transducer, (1) leak generator kit (TS-ALCAL), (1) needle valve kit (TS-ALNIP)
FMP-LS500/2	2-line ELLD kit, includes (2) pressure transducer, (1) leak generator kit (TS-ALCAL), (1) needle valve kit (TS-ALNIP)
FMP-LS500/3	3-line ELLD kit, includes (3) pressure transducer, (1) leak generator kit (TS-ALCAL), (1) needle valve kit (TS-ALNIP)
FMP-LS500/4	4-line ELLD kit, includes (4) pressure transducer, (1) leak generator kit (TS-ALCAL), (1) needle valve kit (TS-ALNIP)
FMP-LSU500	Replacement pressure transducer
TS-ALCAL	Leak generator kit
TS-ALNIP	Needle valve kit for standard fuels
TS-AFALNIP	Needle valve kit for E85 fuel

EXPLOSION-PROOF TRANSDUCERS

For sites without intrinsically-safe conduits available, explosion-proof transducers may be used that share the conduit of pump wiring.

SPECIFICATIONS

Pressure Transducer

Dimensions	6 1/4" × 2" NPT
Operating temperature	-40° F to 140° F (-40° C to 60° C)
Operating pressure	0 to 100 psi (0 to 6.89 bar)
Sensor port fitting	2" female NPT
Sensor material	Anodized aluminum body and stainless steel sensor
Approvals / Certifications	- UL, cUL, ATEX, IECEx - Third party certification of leak detection capabilities

Minimum Pressure Requirements

Item	Value
Minimum Static Pressure	15 psi (1.034 bar) for gross 3.0 gph (11.4 lph) hourly tests
	17.5 psi (1.207 bar) for monthly 0.2 gph (0.8 lph) precision tests
	22.5 psi (1.551 bar) for annual 0.1 gph (0.4 lph) precision tests
	20 psi (1.379 bar) for learning lines

Pipe Length Requirements

Pipe Diameter ID (in/cm)	Rigid (ft)	Rigid (m)	Flexible (ft)	Flexible (m)	Hybrid* (ft)	Hybrid* (m)	UPP® (ft)	UPP® (m)
1.0 (2.5)	62 – 7651	19 – 2332	62 – 2338	19 – 712	62 – 10191	19 – 3106	62 – 4313	19 – 1314
1.5 (3.8)	28 – 3400	9 – 1037	28 – 1039	9 – 316	28 – 4529	9 – 1380	28 – 1917	9 – 584
1.75 (4.4)	21 – 2498	7 – 762	21 – 763	7 – 232	21 – 3327	7 – 1014	21 – 1408	7 – 429
2.0 (5.1)	16 – 1912	5 – 583	16 – 584	5 – 178	16 – 2547	5 – 776	16 – 1078	5 – 328
2.5 (6.4)	10 – 1224	4 – 374	10 – 374	4 – 113	10 – 1630	4 – 496	10 – 690	4 – 210
3.0 (7.6)	7 – 850	3 – 260	7 – 259	3 – 78	7 – 1132	3 – 345	7 – 479	3 – 145
4.0 (10.2)	4 – 478	2 – 146	4 – 146	2 – 44	4 – 636	2 – 193	4 – 269	2 – 81
5.0 (12.7)	3 – 306	1 – 94	3 – 93	1 – 28	3 – 407	1 – 124	3 – 172	1 – 52

Line Volume Requirements

Pipework System	Gallons	Liters
Rigid pipework	2.5 – 312.2	9.5 – 1181.9
Flexible pipework	2.5 – 95.4	9.5 – 361.1
Hybrid pipework*	2.5 – 415.8	9.5 – 1574.0
UPP® pipework	2.5 – 176.0	9.5 – 666.2

* The capacity of the flexible component cannot exceed 95.4 gallons (361.1 liters)

ORDERING INFORMATION

Site Requirements

- EVO™ 600/6000
- TS-ELLD software options (TS-ELLD-G software option for generator-specific applications)
- TS-ACI, TS-420EXP, *TS-RLY Modules

* TS-RLY Module is not required when utilizing Turbine Pump Interface™ (TPI) communications. Franklin Electric intelligent pump controllers required for TPI.

EVO™ Series Explosion-Proof Electronic Line Leak Detection Kits

Model	Description
TSP-LSU500E	Replacement pressure transducer
TS-ALCAL	Leak generator kit
TS-ALNIP	Needle valve kit for standard fuels
TS-AFALNIP	Needle valve kit for E85 fuel