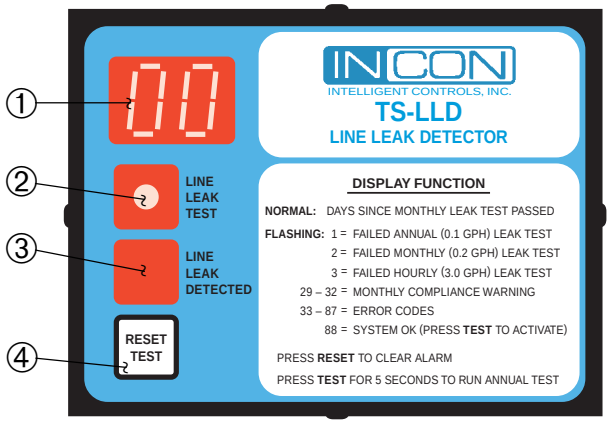
TS-LLD Quick Reference Guide



The **INCON** TS-LLD is a electronic line leak detector system. It has two components: a ***control unit*** (CU) and a ***leak sensing unit*** (LSU). The CU is mounted in the station, and the LSU is installed at the submersible pump. One system **per pump** is used to detect leaks from a **pressurized** fuel line.

The TS-LLD system does three different line leak tests, two of these run automatically. The gross **3.0 gph hourly test**, and an intermediate precision **0.2 gph monthly-compliance test** run automatically. The **0.1 gph annual test** must be started manually at the CU.

Normal Operation

1. **Product dispense** — any currently running line leak test is aborted, and a functional *self-check* is done.

Normal Operation (CONTINUED...)

2. **After every dispense — the system runs the 3.0 gph hourly test**. The 3.0 gph test takes about 3 minutes of ***quiet-time*** to finish. *The **LINE LEAK TEST** light ② is on throughout this test.*

Quiet-time *is the **inactive period between product dispensing*** — the dispense lever is down (switch **off**).

3. The system will automatically run the **0.2 gph monthly-compliance test** after a 3.0 gph test passes ***unless*** a 0.2 gph test has passed within the last 24 hours (**00** DAYS DISPLAYED).

   Depending on conditions at your site, the **0.2 gph monthly-compliance test** needs 13 minutes to 4 hours of ***quiet-time*** to finish. The CU runs one or more 13 minute test-cycles (version 3.2 displays two diagnostic codes for 2 minutes **between** test-cycles... the 1ST for 2 seconds and the 2ND for 6 seconds).

   The control unit displays ① rapidly-flashing alarm error codes, diagnostic codes, or days. Normally, it shows the total number of days since the last 0.2 gph monthly-compliance test passed. The display advances a day for every 24 hours that a 0.2 gph monthly test has not finished. It counts up to 28 days before a **Monthly-Compliance Warning is flashed** (starting on day **29**) *...see **Troubleshooting** for more details.* It may take days before the ***quiet-time*** is long enough to let the test finish (especially in busy 24-hour stations). *The **LINE LEAK TEST** light ② stays on throughout the test.*

   Monthly tests *start automatically* when the system is first powered up and whenever the display advances to the next day.

4. **Manual test (0.1 gph annual test)** — *Do you really want to start it ?* **See *Requirements*** (below) and **Flashing 80 Error code** (on side 2). The test starts when the **RESET-TEST** button is held down for 5 seconds **until** the **LINE LEAK TEST** light turns on.

   Requirements: **The manual test needs 4 hours of *quiet-time* before it's started, and takes about 13 minutes to finish** (after it's started). ***Prevent product dispensing throughout this test / time.***

The Control Unit (CU)

① The 2-digit Display

② The Line Leak Test light is on during any leak test.

It turns off: after a test finishes, or when a dispense occurs, which causes the test to abort and restart again (see Normal Operation # 1), or when the RESET - TEST button is pressed.

③ The LINE LEAK DETECTED light

flashes on and off continuously when a line leak test fails. *It keeps flashing until another test of equal or greater precision passes.*

④ The RESET - TEST button — push once *(**DO NOT** hold the button down longer than 4 seconds unless you want to start a manual test)* to:

- **Perform a Self-Test** — if the unit is functioning normally it will display an **88** (for system okay) when the button is pushed — *also see **"Diagnostics"***
- **Abort any line leak test that is running** — the **LINE LEAK TEST** light ② will turn off
- **Clear a Flashing Alarm error code, and enable product dispensing** — the Alarm error code will reappear if the fault condition remains, and
- **Reset and restart automatic line leak testing** — the leak detected light ③ cannot be reset

Troubleshooting DISPENSER DISABLED

Start an error-log and **record all:** Flashing alarm / error codes, the TS-LLD # (Product Line #), and the Date and Time that the error occurred. *Have this data on hand **before** calling for help, or service.*

Leak Test Failure – Alarm Codes:

FLASHING 3

A 3 gph line leak was detected (hourly test failed).

FLASHING 2

A 0.2 gph line leak was detected (monthly test failed).

FLASHING 1

A 0.1 gph line leak was detected (manual test failed).

What happens when a leak test fails:

1) product dispensing is not permitted **unless** the **RESET - TEST** button is pushed (to retest)

2) the **LINE LEAK DETECTED** light will keep flashing **until** another / equivalent test passes

Monthly-Compliance Warnings

happen on days #: 29, 30, 31 and 32 **WHEN** a 0.2 gph, monthly-compliance test still hasn't passed. **The line is nearly out of compliance** with State and Local regulations (requiring that a 0.2 gph line leak test must pass each month).

INCON Recommends — that you **push** the **RESET** button to clear the Alarm error code, **and to permit product dispensing for a maximum of 24 hours, or until the next day changes.**

Before day 32 is flashed, and before you go out of compliance, INCON Recommends — that you **push** the **RESET-TEST** button, **simulate a dispense**, and **prevent dispensing** so the test has time to finish. Alternatively, you can start a manual, 0.1 gph annual test if sufficient ***quiet-time*** has accumulated. *See **Normal Operation # 4)*** about the requirements of, and **how to start a manual test**.

Troubleshooting DISPENSER DISABLED

Flashing 80 Alarm error code

A dispense was attempted while a manual-test was running — the manual test aborts and dispensing is disabled — push **RESET** to allow dispensing and s*ee **Normal Operation # 4)*** about the *requirements of, and how to start a manual test.*

Flashing 81 Alarm error code

A component failed in the Leak Sensing Unit — push **RESET** to allow dispensing — **and call for service**.

Flashing 82 Alarm error code

Indeterminate test result – the line was not thermally stable – displayed only when viewing diagnostic codes.

Flashing 83 Alarm error code

The Leak Sensing Unit is not communicating with the Control Unit — push **RESET** for a permissive *dispense grace period* — **and call for service**.

Flashing 84 Alarm error code

The line is ***Out of Compliance*** — ***this alarm cannot be reset*** (33 or more days have elapsed since a 0.2 gph, monthly-compliance test has passed). **Product dispensing is not allowed when Out of Compliance.** A new 0.2 gph test automatically starts when this alarm is displayed — **Prevent dispensing** to give the test time to finish (13 minutes to 4 hours).

Flashing 85 Alarm error code

The Leak Sensing Unit needs maintenance — push **RESET** for a permissive *dispense grace period* — **and call for service**.

Questions & Answers (Q & A)

Q1 ***Why does the display count up days ?*** *– or –* ***Why do monthly tests take days to finish ?***

A1 Days count up, or tests don't finish **because**:
a) Test-times have increased (unstable thermal conditions exist within the fuel line) **and / or**
b) Dispensing occurs too frequently ***(quiet-time** is too short)* — tests automatically abort when product is dispensed.

Q2 ***What should I do if a line leak test fails ?***

A2 Contact your local inspection agency as required by State Laws and Regulations. Inspect the hydraulic plumbing for leaks. If there is a leak then go to A3 and follow those directions. If no obvious leaks exist — Press **RESET-TEST**, then raise and lower the dispense handle to start automatic leak tests (or start a manual test) to verify the first failure.

Note: ***Line leak tests may occasionally fail*** *when no leaks exist* ***because of:*** *product line instability, pump malfunction, or vapor recovery system malfunction.* Therefore, your service provider may ask you to push **RESET** to retest the line for leaks.

Note: *This TS-LLD Quick Reference Guide is for use with Control Unit version numbers 3.2 and above.*
INCON *Part Number 000-1482 Rev. A 92297*
– Side 2 –

Q3 ***What if the line leak test fails again ?***

A3 Contact your local inspection agency as required by State Laws and Regulations. Inspect for leaks, stop dispensing, and turn off all power to that dispenser and submersible pump. **Call INCON, or your local distributor for help** with line leak failures.

Follow the advice carefully and accurately.

DANGER **This line leak detector may start the pump at any time to pressurize fuel lines.** ***Avoid Fire, Explosion hazards, and Electrical shock hazards...*** **make sure that all dispenser and submersible pump power is turned off / locked out before attempting any service (such as: replacing fuel line filters).**

Diagnostics

A.) Two seconds after power is applied, the display will show the version number of the Control Unit, and then the version number of the Leak Sensing Unit.

B.) Pushing the **RESET - TEST** button multiple times causes display of several different diagnostic codes:

1st push: An 88 is displayed (if the system is OK)

2nd push: A factory diagnostic code is displayed

3rd push: Another diagnostic code is displayed

4th push: The last Flashing Alarm / Error code

Use an indelible marking pen and copy the ***name and phone number*** of your local Inspection Agency, local Distributor / Service provider(s) in the spaces below:

Need help or service ? Call **INCON** @ 1-800-984-6266 for the name and number of the nearest TS-LLD distributor or service organization.