Smart Leak Sensor

User Manual

Application version 1.0.0

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Control Narrative

Your **Smart Leak** unit is a **monitor**. It watches the pressure in your distribution system and reports it to the cloud, where a sustained pressure drop raises an alarm. A drop like that is the signature the system is watching for — the sign of a break or a leak somewhere on the line.

The unit has **no outputs and no control logic**. It does not start or stop pumps, close valves, or change anything about your system. It measures, it reports, and the cloud does the alarming.

The unit is a SmartController with a single Universal IO module, powered by a solar panel, a charge controller and a battery, so it can be placed anywhere on the system without utility power. System pressure comes from a 0–200 PSI, 4–20 mA transmitter plumbed into the line; the unit also reads the voltage coming in from the solar panel and the voltage at the battery.

The controller reads all three values continuously and sends them to the cloud **once a minute**. The same values appear on the controller's own display for a technician at the cabinet.

The alarms are evaluated in the cloud, not in the unit. They are created automatically when the device is set up from the Smart Leak template, and their thresholds, delays and notification recipients are all managed on the cloud dashboard. That means an alarm threshold can be retuned for your system at any time without touching the equipment in the field.

There are no operator settings on the unit itself: no modes, no setpoints, nothing to reset at the keypad. Everything adjustable lives on the dashboard.

Modes

This unit has no operator-selectable modes. It monitors and reports continuously from the moment it is powered up, and there is nothing to switch between — everything below is either a reading or, where noted, a value you may reset.

Setpoints

There are no setpoints to enter. This unit performs no control, so it has no thresholds of its own; the alarm limits that decide when you are notified live on the cloud dashboard, not in the unit, and are set for your site when it is commissioned.

Readings, Alarms and Status

Channel	Meaning	What to do
Pressure	System pressure at the point the transmitter is plumbed in, in PSI (0–200 PSI range). This is the reading the leak alarm watches.	Learn what your system normally runs at, so an unusual reading stands out. If it disagrees with a reference gauge at the same point, check that the isolation valve is open and the line has no trapped air, then contact support.
Solar Voltage In	The voltage the solar panel is delivering to the charge controller. In sun, a 12 V system typically reads about 17–21 V.	A panel reading near zero in good daylight points to a shaded, dirty, disconnected or failed panel. Have it checked before the battery runs down.
Battery Voltage	The voltage at the backup battery that runs the unit overnight and through cloudy weather. A healthy 12 V battery typically reads about 12.5–14.5 V.	If it drifts lower day over day, or stops recovering during the day, have the charging system checked or the battery replaced. A dead battery means the unit stops reporting and stops watching for leaks.

The cloud raises these alarms and notifies the contacts set up for your system. The values below are the defaults the unit ships with; the thresholds and delays are expected to be tuned to your system on the dashboard.

Alarm	Fires when	What it means and what to do
Low Pressure	Pressure stays below **50 PSI** for **10 minutes**	The reason this unit exists: a sustained pressure drop suggests a break or leak on the line. Investigate the system; check for a main break, an open hydrant or blowoff, or an unusually large draw. The threshold should be set to the pressure your system should never fall below.
Low Battery	Battery Voltage stays below **10.8 VDC** for **10 minutes**	The unit's own power is failing — 10.8 V is the usable floor of a 12 V lead-acid battery. Check the panel, charge controller and battery. If it is not corrected the unit will go dark and stop watching the system.
Device Inactive	Nothing at all is reported for **60 minutes**	The unit has gone silent — this is how you tell "pressure is fine" apart from "the unit is dead". Check its power (solar, battery) and cellular coverage. While it is silent you have no leak monitoring on this line.

> **Support:** if a reading looks wrong or the unit stops appearing on the dashboard, note what the controller display shows and contact D6 Labs support before changing alarm thresholds.

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