



# ELF Series Enhanced Low Flow Sensor

The Enhanced Low Flow (ELF) sensor from Creative Sensor Technology measures rate of flow in small diameter closed pipe irrigation systems.

This innovative new design, issued US patent no. 10060774 B1 in 2018, allows this sensor to measure flow rates over a range from .20 to 20 GPM using the proven impeller technology of the other CST flow sensors. Two models are available a 3/4" PVC socket or 1" threaded design.

The ELF also features two output signal options.

- 2 wire linear frequency similar to our FSI series sensors and compatible with most SMART irrigation controllers.
- 3 wire scaled pulse for counter type controller inputs.

This new design eliminates the need for straight pipe sections up and downstream of the sensor allowing for installation in tighter spaces. In fact, solenoid valves may be connected directly to the downstream end of threaded ELF versions resulting in a flow sensor/master valve combination less than 12 inches long.

Designed for the harsh environment of irrigation service, Creative Sensor Technology now warrants all of its sensor electronics with a lifetime replacement guarantee.



3/4" PVC



1" Noryl

## TECHNICAL ADVANTAGES

### Feature

### Benefit

- |   |   |  |
|---|---|--|
| 1. Unique design of custom molded mounting tee                  | → | Improved minimum flow detection, expanded measurement range and more repeatable outputs.<br>Eliminates the need for straight pipe sections before and after installed sensor |
| 2. Electronics fully encapsulated in proprietary epoxy compound | → | Sensor designed for installation below grade and underwater. Covered by lifetime warranty  |
| 3. Distinctive lightweight 4-bladed impeller                    | → | HDPE material reduces the minimum flow rate detection, resists wear, corrosion and fouling   |
| 4. Integral high clearance bearing                              | → | Self cleaning, flushes out solids, wear resistant  |
| 5. Improved detection circuitry                                 | → | Circuit contains superior over-voltage and over-current protection, noise filtering and signal conditioning  |
| 6. Removable flow sensing insert with o-ring seal               | → | Captive retaining nut holds insert in place. Simple, one-hand service in a valve box<br>Impeller bearing and shaft located out of flow path<br>Easy to troubleshoot          |

## Specifications

### Flow Range

- 0.20 to 20 GPM ( .75 to 75 LPM )

### Wetted Materials

- Impeller – HDPE (High Density Polyethylene)
- Shaft – Tungsten Carbide
- O-ring — BUNA N
- ELF-T75-P01 — Mounting Tee, Sensor Insert, Retaining Nut — Type 1 PVC
- ELF-T10-N01 \_\_ Mounting Tee, Sensor Insert, Retaining Nut — Noryl™

### Pressure Rating

- Laboratory tested to working pressure rating of 240 PSI

### Operating Temperature Range

- 32°F to 140° F (0° to 60° C)

## Output Signals

### 2 Wire Frequency output STD version

- Frequency Range 1 Hz to 150 Hz
- Output Pulse (low) 2 msec typical

### Transducer Excitation

- Quiescent current 330 uA@5 VDC to 35 VDC max.
- On State V(low)= 0.85 volts@ 50mA (max.)

### Output Leads

- 2 single conductor solid copper U.L. listed #20 AWG leads with direct burial insulation
- Lead length 24 inches
- Wiring may be extended up to 2,000 feet with direct burial, twisted pair shielded cable






### 3 Wire Scaled Pulse output SP3 version

- Transducer Excitation 24 VAC current = 4 mA typ.
- Open collector type output
- Output pulse width (low) = 25 msec typical
- On state V(low) = 0.85 volts@ 50 mA max.

### Output Leads

- 3 single conductor solid copper U.L. listed #22 AWG leads with direct burial insulation
- Lead length 24 inches

## Ordering Information and Dimensions

Model Number	Output	Size	End connection	Length	Height
 ELF-T75-P01 ELF-T75-SP3	2 Wire Frequency 3 Wire Scaled Pulse	3/4" (20mm)	Socket	6.5" (165mm)	3.875" (98 mm)
 ELF-T10-N01 ELF-T10-SP3	2 Wire Frequency 3 Wire Scaled Pulse	1" (25mm)	Male NPT Thread	7.125" (181mm)	3.875" (98 mm)
 ELF-T10-N02 ELF-T10-BSP3	2 Wire Frequency 3 Wire Scaled Pulse	1" (25mm)	Male BSP Thread	7.125" (181mm)	3.875" (98 mm)
 ELF-EAO-P01 ELF-EAO-SP3	2 Wire Frequency 3 Wire Scaled Pulse	Insert Assembly PVC		3.25" (83mm)	Allow 3.5"(90mm) over tee to remove
 ELF-EAO-N01 ELF-EAO-NSP3	2 Wire Frequency 3 Wire Scaled Pulse	Insert Assembly Noryl		3.25" (83mm)	Allow 3.5"(90mm) over tee to remove