

## 280-FP Flow Probes



The **Flow Probe** is a highly accurate water velocity instrument for measuring flows in open channels and partially-filled pipes. It consists of a protected water turbo-prop positive displacement sensor coupled

with an expandable probe handle ending in a digital readout display. The water flow meter incorporates true velocity averaging for the most accurate flow measurements. The flow probe is ideal for storm water runoff studies, sewer flow measurements, measuring flows in rivers and streams, and monitoring water velocity in ditches and canals.

The flow probe incorporates the unique **Turbo-Prop Propeller Sensor**, which uses the most accurate positive displacement technique available for velocity sensing. The turbo-prop is designed to shed debris and is protected inside a 2" diameter housing. The probe housing may be placed directly on the bottom of a pipe or streambed for measuring low flows down to 2" in depth. The flow meter propeller rotates freely on its bearing shaft with no mechanical interconnections for minimal friction. Magnetic material in the propeller tip passes a pickup point in the water velocity meter handle producing electrical impulses that are carried to the readout display by an internal cable. The turbo-prop is easily removed for cleaning or replacement.

The **Water Velocity Computer** receives an electrical signal from the propeller, amplifies the signal, and converts the reading to feet per second (or meters per second, depending on programming). The large LCD screen displays average, minimum, and maximum water velocity readings. Up to 30 sets of minimum, maximum, and average data readings can be stored in the water velocity computer. These data points can be reviewed on the computer screen for later analysis. The water velocity computer has a water-resistant housing and incorporates a unique four-button operation for changing functions and resetting the display. The water velocity computer is powered by a non-replaceable battery that will last approximately five years with normal use. Low battery warnings will also display as appropriate.

The **Flow Probe Handle** can telescope from 3.7 feet to 6 feet in length (FP111), 5.5 feet to 15 feet (FP211), or 2.5 feet to 5.5 feet (FP311). The handle is constructed of anodized aluminum for light weight and long life. The 15 foot length of the FP211 allows for measuring sewer flows

from street level and measuring stream flows from low bridges, while the 2.5 foot collapsed length of the FP311 is ideal for carrying into remote flow monitoring areas. A 3-foot (1.7-foot for the FP311) mylar coated staff gauge (graduated in hundredths of a foot and centimeters) is attached to the lower section of the probe for instant water depth measurements and accurate propeller positioning.

The flow probe can be used to measure the **True Average Water Velocity** of a channel's flow. As long as the turbo-prop sensor is in the water flow, the computer will average the water velocity. One reading is taken per second and a continuous average water velocity is displayed. To obtain the true average velocity, the flow probe should be slowly moved throughout the cross sectional area being measured. Once the reading becomes steady, the true average water velocity of the cross sectional area is obtained. This allows for highly accurate flow measurements, which average the differences in velocities that occur throughout a flow's cross-section and with water surges over time. The average water velocity can be saved by pressing the SAVE button and reviewed later.

### Specifications

Range: 0.3-19.9 FPS (0.1-6.1 MPS)  
 Accuracy: 0.1 FPS  
 Averaging: True digital running average. Updated once per second.  
 Display: LCD, Glare and UV Protected  
 Control: 4 button  
 Datalogger: 30 sets, MIN, MAX, and AVG  
 Features: Timer, Low battery warning  
 Sensor Type: Protected turbo-prop propeller with magnetic pickup  
 Weight/Shipping:  
     FP111: 2 lbs (0.9 kg)/13 lbs (5.9 kg)  
     FP211: 3 lbs (1.4 kg)/23 lbs (10.4 kg)  
     FP311: 2.8 lbs (1.3 kg)/19 lbs (8.6 kg)  
 Expandable Length:  
     FP111: 3.7 to 6 ft (1.1 to 1.8 m)  
     FP211: 5.5 to 15 ft (1.7 to 4.6 m)  
     FP311: 2.5 to 5.5 ft (0.76 to 1.7 m)  
 Materials:  
     Probe: PVC and anodized aluminum with stainless steel water bearing  
     Computer: ABS/Polycarbonate housing with polyester overlay  
 Power: Internal lithium battery, Approx 5 year life, non-replaceable  
 Operating temperature: -4° to 158° F (-20° to 70° C)  
 Storage temperature: -22° to 176° F (-30° to 80° C)  
 Carrying case: The flow probe is shipped in a padded carrying case.  
 Approvals: CE

### Ordering Information

280-FP111	Flow Probe (3.7' to 6' handle)
280-FP111-S	Flow Probe (3.7' to 6' handle with swivel)
280-FP211	Flow Probe (5.5' to 15' handle)
280-FP211-S	Flow Probe (5.5' to 15' handle with swivel)
280-FP311	Flow Probe (2.5' to 5.5' handle)