A Badger Meter® Brand

Water Quality Monitor

EchoSmart Sludge Blanket Monitor

OVERVIEW

EchoSmart sensors generate and process the ultrasonic signal for continuous, real-time measurement of underwater interfaces. Our sensors employ interface-detection algorithms with proven performance. EchoSmart sensors are easy to set up, easy to operate, and easy to secure consistent, reliable, trouble-free measurements.

FEATURES

- Large display with intuitive screens for quickly entering parameters
- Soft key operation with help prompts for all settings
- Automatic initialization for easy startup
- Monitors blanket levels 24/7/365
- Suitable for round or rectangular clarifiers

APPLICATIONS

- Water and Wastewater Treatment Clarifiers and Thickeners
- Industrial Process Applications

EchoSmart is suitable for most municipal and industrial liquid/solid separation processes in which a reliable measurement of the level of a solids or suspended-solids blanket is desired. Typical applications include municipal and industrial wastewater and water treatment clarifiers and gravity thickeners. Sensors with optional turbidity measurement are available for applications in which a 0…50 NTU turbidity indication at the location of the sensor is desired. A broad range of industrial process applications are also appropriate. Self-cleaning sensors and special design sensors to accommodate high temperature and exposure to chemical environments are available.

Contact Badger Meter Technical Support at tech support@badgermeter.com for details.

SENSOR TYPES

All sensors come standard with 20 feet of cable. Cable runs up to 400 feet are possible.

- **Standard Sensor:** Standard sensors are typically used for applications with surface skimmers. Multiflex assembly is required.
- **Wiper Sensor:** Wiper sensors have a self-cleaning face for applications without surface skimmers.
- **Level & Turbidity Sensor:** Level and turbidity sensors have a self-cleaning face with sludge level and turbidity in one sensor.

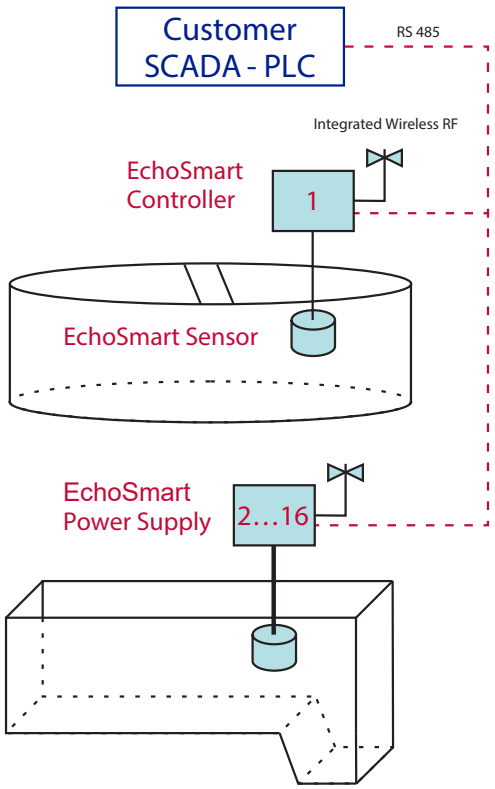

Figure 1: EchoSmart graphical overview

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Product Data Sheet

FLEXIBLE WIRED AND WIRELESS SOLUTIONS

Adaptable configuration options for a variety of installation requirements and straight forward plant retrofit solutions

- Available as a stand-alone system
- Networks of up to 16 sensors possible using only 1 controller
- Easily add more sensors to an existing network
- Communication between devices can be achieved through
  - Hard-wired connections
  - Powerful sub-1GHz RF with self-healing mesh technology [1]

[1] Radio available as internally mounted plug-and-play module with external antenna or in a separate enclosure for maximum range and flexibility. Self-healing mesh technology eliminates most line-of-sight interference.

SPECIFICATIONS

EchoSmart Sensor

Power Requirement	15V DC Standard: 2.4W Wiper Sensor: 3W
Range	1.0…32 ft (0.305…10.0 m)
Sensor Meas. Resolution	0.1 unit of measure
Accuracy	0.2 in. @ 10.0 ft (5 mm @ 3.05 m)
Operating Temperature	34…125° F (1…52° C)
Configuration Backup	Settings stored in FLASH memory
Sensor Construction	IP68, ABS and epoxy Stainless steel and rubber (wiper only)
Turbidity (Optional)	Measurement principle: 90 degrees scattered light, pulsed LED Range: 0…50 NTU
Weight	Standard sensor: 2.25 lb (1.02 kg) Wiper sensor: 2.75 lb (1.25 kg) Wiper sensor with turbidity: 2.75 lb (1.25 kg)
Certifications	CE

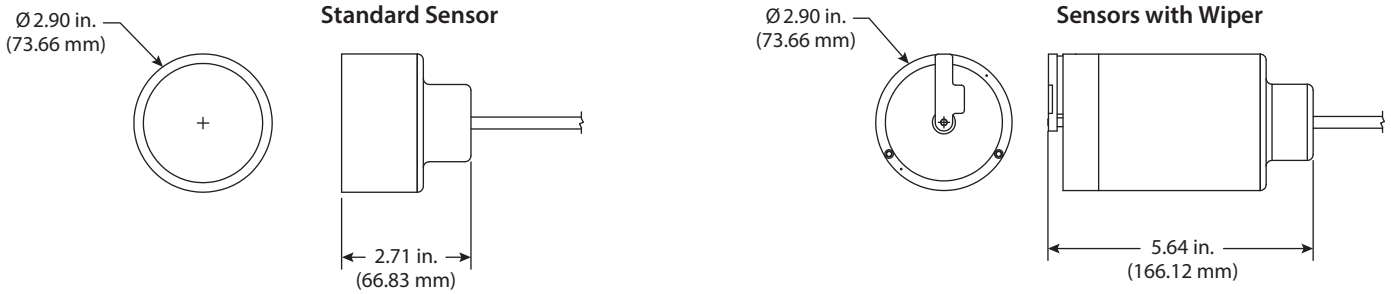

Figure 2: EchoSmart sensor dimensions

Controller

Input Power	100…240V AC, 50/60 Hz – 1.5A, 70W Optional 24V DC: 19…42V DC
Supply Cable	10…18 AWG, –40…140° F
Fuse	1.25A 250V 5 × 20 mm T-lag UL approved fuse
Analog Loops	(2) 4…20 mA Outputs 15…24V DC (provided by ESC for local sensor)
Ambient Temperature	–40…140° F (–40…60° C)
Display	Graphical backlit monochrome screen Resolution: 320 × 240 pixels Viewing Area: 2.6 × 3.45 in (92 × 122 mm)
Reported Meas. Resolution	1.0 (in. and cm), 0.1 (ft), 0.01 (m)
RF Module for Europe (Optional)	868 MHz frequency band Self-healing mesh network Approvals: CE Red
RF Module for North America (Optional)	900 MHz frequency band Self-healing mesh network Approvals: FCC Part 15C, Industry Canada
Relays (Optional)	(4) relays: 10A @ 250V AC; 10A @ 30V DC
Enclosure	NEMA 4X, IP65; Polycarbonate
Weight	Approximately 3 lb (1.36 kg) depending on configuration
Certifications	CE

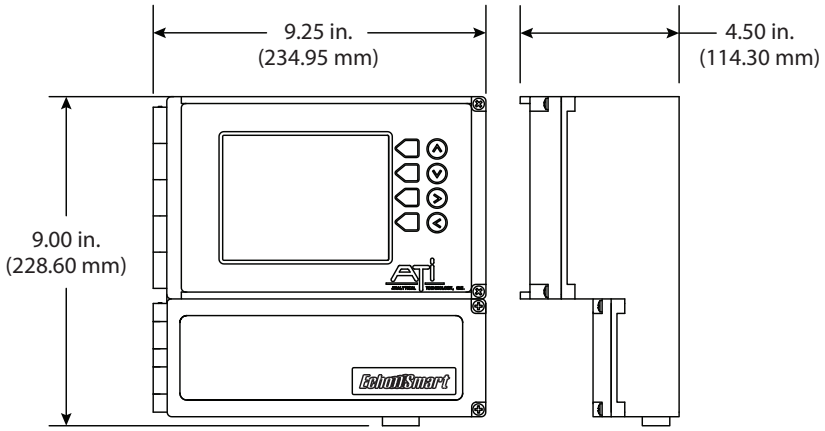

Figure 3: Controller dimensions

Power Supply Unit

Input Power	100…240V AC, 50/60 Hz – 1.5A, 20W Optional 24V DC: 18…36V DC
Supply Cable	10…18 AWG, –40…140° F
Fuse	0.250A 250V 5 × 20 mm T-lag UL approved fuse
Analog Loops	15…24V DC (provided by ESP for local sensor) (2) 4…20 mA Outputs
Ambient Temperature	–40…140° F (–40…60° C)
RF Module for Europe (Optional)	868 MHz frequency band Self-healing mesh network Approvals: CE Red
RF Module for North America (Optional)	900 MHz frequency band Self-healing mesh network Approvals: FCC Part 15C, Industry Canada
Enclosure	NEMA 4X, IP65; Polycarbonate
Weight	Approximately 1.5 lb (0.68 kg)
Certifications	CE

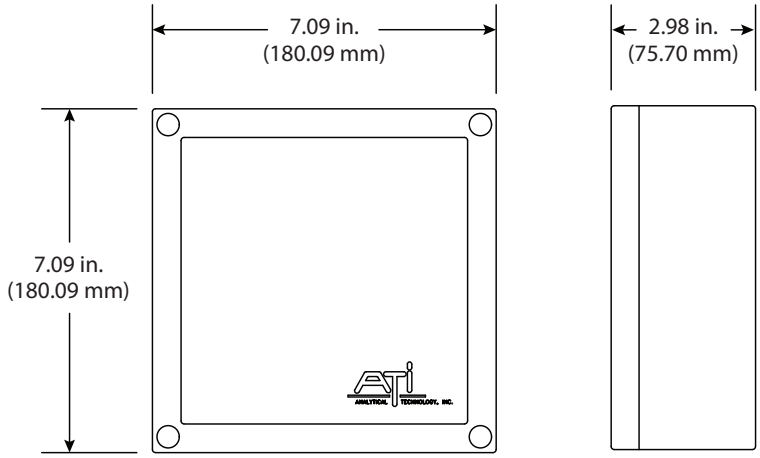

Figure 4: Power supply unit dimensions

CE