

THRU-HULL MOUNT • Speed • Temperature

S650, ST650

With Self-Closing Valve

U.S. Patent No.: 4,898,029; 5,186,050
Canadian Patent No. 1,313,775
Australian Patent No. 605,281
Japanese Patent No. 1851014

The S650/ST650 sensor incorporates a patented self-closing valve which minimizes the flow of water into the boat when the speed/temperature insert is removed. This allows routine paddlewheel cleaning without getting wet. Fins straighten water flow onto paddlewheel and improve flow stability and accuracy at low speeds. Because of the high degree of tooling, the ST650 is priced comparably with standard paddlewheel sensors.

The S/ST650 paddlewheel and valve assembly can be retrofitted into Airmar speed/temperature series: S/ST100, S/ST500, and S/ST550. Boaters can upgrade to a self-closing S/ST650 without changing their thru-hull fitting or hauling the vessel. Consult Airmar for the part number of the correct retrofit kit for your needs.

The S650 and ST650 are available in low profile and flush mount styles.

Specifications

- Paddlewheel has four asymmetrical, hydrodynamic blades
- Hall-effect magnetic sensor for high-level pulse output
- Unitary bearing inside the paddlewheel hub assures exact alignment and minimal rotational friction
- Polished paddlewheel shaft for quick start up
- Dual O-rings for superior sealing
- Reverse polarity protection
- Shielded cable to minimize noise pick-up and emission
- Designed to meet CE requirements
- Arrow and notch on housing facilitates installation
- Alignment key for easy speed/temperature assembly removal and insertion in difficult access locations
- Installation requires 51 mm (2") diameter hole
- Rubber washer allows tightening hull nut to irregular surfaces.
- Blanking plug included
- Standard cable length: 9 m (30')

Self-closing valve eliminates "gusher" when speed/temperature insert is removed

Plastic, bronze, and stainless housings

Low profile and flush mount housings



Applications

- Plastic not for use in wood hulls
- Bronze for fiberglass or wood hulls only
- Stainless steel compatible with any hull material

Options

- No fins on either side of paddlewheel
- Two wire speed circuit
- Temperature sensor
- Pulse division circuitry for other pulse rates
- Bronze cap nut for bronze housing #02-029
- Over-voltage protection (OVP)

Notes

- Use matching low profile or flush depth transducer for echosounders requiring depth, speed and temperature input
- For Parts and Accessories
See pages p2 through p4

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Housing	Min. Hull Thickness	Max. Hull Thickness	Weight
P17	6 mm (1/4")	55 mm (2 1/8")	0.7 kg (1.4 lb.)
P217, P314	9 mm (3/8")	63 mm (2 1/2")	0.7 kg (1.4 lb.)
B17, B119, SS557	6 mm (1/4")	55 mm (2 1/8")	1.3 kg (2.8 lb.)
B21	9 mm (3/8")	63 mm (2 1/2")	1.3 kg (2.8 lb.)

Specifications ¹	
Speed range ²	2–45 knots (2–52 MPH)
Linearity	Refer to <i>Airmar Technical Data Catalog</i>
Pulse rate (with fins)	17,000 pulses per nautical mile (4.8Hz per knot)
Pulse rate (no fins)	20,000 pulses per nautical mile (5.6Hz per knot)
Supply voltage	5–25 VDC
Supply current: "OFF"	2.3 mA
"ON"	8 mA at 5 VDC
Circuitry: standard optional	3 wire format
	2 wire format

1. Refer to "Application Notes" for more detailed information.
2. Requires correction for non-linearity below 3 knots (3MPH).

