

## STs6000 series

### submersible dissolved oxygen transmitter

#### features

- isolated 4-20 ma output -- operates down to 7 volts
- 316SS and PVDF construction -- titanium optional
- patented connector system -- allows for 'two-turn' cable and sensor assembly
- 'true' 2-wire operation
- automatic temperature compensation
- auto-polarity correction
- optional, independent temperature output (0 to 50 °C)
- small, 19 mm (3/4") diameter -- ideal for wells
- comes with 10 meter cable (33 feet) -- polyurethane jacketed, Kevlar reinforced, and water-blocked

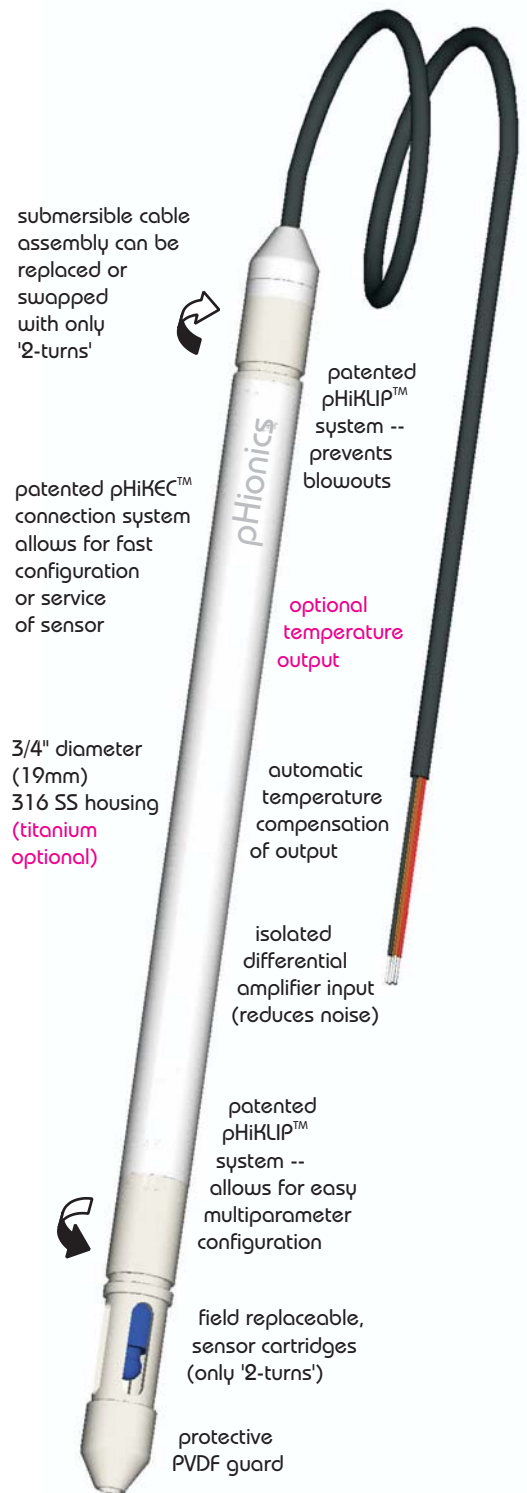
#### description

The STs series of submersible water quality transmitters have an integrated preamp and an isolated 'true 2-wire', 4-20 ma transmitter. Two independent channels can simultaneously transmit a O<sub>2</sub> and temperature signal -- two wires for O<sub>2</sub> and two wires for temperature. The compact design afforded by the patented pHiKEC™ keyless connection system -- and the 316SS (titanium optional) and PVDF construction -- make the rugged sensor/transmitter ideal for applications such as process control, data acquisition, wastewater treatment, and, groundwater monitoring. The units can be submersed to 200 feet (approximately 100 psi). Individual units can be combined to make redundant or multiparameter modules using the pHiionics' patented pHiKUP™ array system. The pHiKUP™ system also allows for the units to be used in in-line (insertion) applications without fear of blow-out. As with all pHiionics' designs, the sensor/transmitters are designed with 'ease of service' as a primary goal.

#### operation

The 'true 2-wire', 4-20 ma STs series sensor/transmitters send a current proportional to the parameter being measured on the same two wires that provide the power (7 to 40 volts dc). Current transmission allows for long runs of inexpensive cable or wire (up to three miles) that is virtually noise-free without any signal loss that is common to voltage (IR drop) or digital (capacitance affecting 'rise/fall' timing). The seven volt operation allows the units to be powered by 12 volt battery systems with 5 volts of compliance, making them compatible with RTU's and solar powered applications. The units are intended for calibration via software supplied with the datalogger, PLC, or through the DCS.

The O<sub>2</sub> signal on channel 1 is automatically temperature compensated -- providing a correction to yield the true O<sub>2</sub> output regardless of temperature changes. This is not to be confused with the temperature option (STs6010T), which provides an independent, isolated, 4-20 ma output proportional to the 0 to 50 °C range on channel 2. The auto-polarity correction feature directs the applied supply voltage to allow for proper operation regardless of wire hookup. Red and Black are for channel 1 -- O<sub>2</sub>, and Orange and Brown are for the optional channel 2 -- temperature.



submersible cable assembly can be replaced or swapped with only '2-turns'

patented pHiKEC™ connection system allows for fast configuration or service of sensor

3/4" diameter (19mm)  
316 SS housing (titanium optional)

patented pHiKUP™ system -- prevents blowouts

optional temperature output

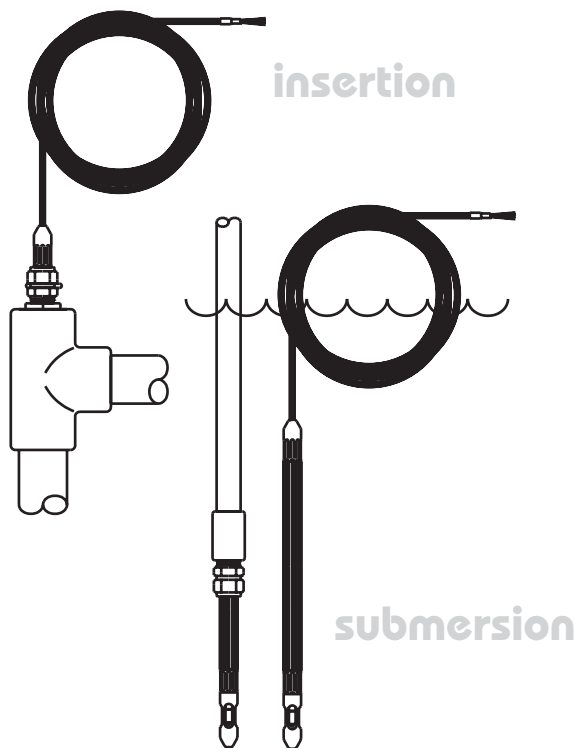
automatic temperature compensation of output

isolated differential amplifier input (reduces noise)

patented pHiKUP™ system -- allows for easy multiparameter configuration

field replaceable, sensor cartridges (only '2-turns')

protective PVDF guard



## ordering information

	STs
<b>model</b>	range (custom ranges available)
<b>6010</b>	0 to 10 mg/l
<b>6020</b>	0 to 20 mg/l
<b>temperature output option</b>	
<b>T</b>	0 to 50 degrees Celsius, output compatible with selection below
<b>output</b>	
<b>CI</b>	4 to 20 ma, <b>isolated</b>
<b>Cn</b>	4 to 20 ma, non-isolated
<b>housing material</b>	
<b>Ss</b>	316 SS
<b>Ti</b>	titanium
<b>cable length</b> (expressed in feet)	
<b>0033</b>	33 feet (10 meters) standard
<b>nnnn</b>	replace nnnn with desired feet of cable

For more information, contact your pHionics representative at:

**pHionics, inc.**  
**www.phionics.com**  
**1-800-964-0063**

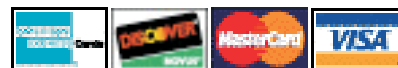
### Series STs6020 and STs6020T (Channel 1), 2-wire, 4-20 ma dissolved oxygen sensor/transmitters

O <sub>2</sub> sensing range	0-20 mg/l (0 to 10 optional)
Output	4 to 20 ma
Power supply voltage	7 to 40 vdc
Loop impedance (max)	250 ohms at 12 vdc, 850 ohms at 24 vdc, 1650 ohms at 40 vdc
Isolation	600 vdc, >70 db at 50/60 hz
(the following specs apply once calibrated via software)	
Linearity	± 0.5% of full scale
Accuracy	± 2.0% of full scale
Sensitivity	± 0.05% of full scale
Stability	± 2.0% of full scale
Repeatability	± 1.0% of full scale
Electrode type	galvanic, disposable 18 month typical life
Response time	
(including electrodes)	98% < 60 seconds
Temperature compensation	automatic, 0-50 °C
Pressure	0-100 psi
Humidity	0-100%
Wetted materials	316 ss, PVDF, Viton, glass titanium optional
Length	343 mm (13.5 in.)
Diameter	19 mm (0.750 in.) maximum
Weight	
(excluding cable)	< 0.22 kg (0.5 lb.)
Cable type	Shielded polyurethane, water-blocked, Kevlar reinforced, 1.36 kg/100 feet
Cable length (standard)	10 meters (33 feet)
Cable from transmitter to power supply	4 conductor, twisted pair, 3 mile maximum

### Series STs6020T, 2-wire, 4-20 ma O<sub>2</sub> sensor/transmitters with optional, independent 2-wire, 4-20 ma temperature output. The following specifications pertain to the channel 2 temperature output option.

Range	0-50 °C
Output	4 to 20 ma
Linearity	± 0.5 °C
Accuracy	± 1.0 °C
Power supply voltage	7 to 40 vdc
Loop impedance (max)	250 ohms at 12 vdc, 850 ohms at 24 vdc, 1650 ohms at 40 vdc
Cable from transmitter to power supply	4 conductor, twisted pair, 3 mile maximum
Isolation	600 vdc, >70 db at 50/60 hz

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voice: 1-775-246-2711, fax: 1-775-246-2722, 800: 800-964-0063  
 e-mail: sales@phionics.com, web: http://www.phionics.com  
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