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YSI ProDSS Multiparameter Sampling Instrument

Portable digital sampling system for the measurement of pH, ORP, dissolved oxygen (optical-based sensor), conductivity, turbidity, temperature, depth and more.

Designed for use in applications such as surface water, groundwater, coastal waters, aquaculture, and wastewater, the rugged and reliable ProDSS allows for measurement of up to 19 parameters. The ProDSS features digital smart sensors that are automatically recognized by the instrument when connected. A backlit color display, large memory, convenient calibration procedures, rechargeable battery, and powerful PC data management program (KorDSS) make the ProDSS user friendly. The optional GPS function, wide selection of sensors, and varying cable options and lengths allow for complete customization of the ProDSS. Mil-spec (military spec) connectors and a waterproof (IP-67), rubber over-molded case ensures durability to provide years of sampling even in the harshest field conditions.



Parameters:

- Dissolved Oxygen (Optical)
- Turbidity
- pH
- ORP/Redox
- Conductivity
- Specific Conductance
- Salinity
- Total Dissolved Solids (TDS)
- Resistivity
- Seawater Density
- Total Suspended Solids (TSS)
- Depth
- GPS Coordinates
- Ammonium
- Ammonia
- Chloride
- Nitrate
- Temperature
- Barometric Pressure

- Single cable design with lengths up to 100 meters
- User-replaceable cables provide versatility, reduce down time and reduce overall cost of ownership
- 4 port cables feature user-replaceable sensors; universal ports can accept any 4 sensors; optional depth sensor available
- ODO/CT probe and cable assemblies feature integral (built-in) optical DO and conductivity sensors; rugged ODO sensor cap with 2-year warranty is pre-installed on new assemblies
- Long-life rechargeable lithium-ion battery to power handheld and sensors
- Color display and backlit keypad allow for sampling in all lighting conditions
- Digital smart sensors are automatically recognized by the instrument and store calibration data
- Large memory (> 100,000 data sets) with extensive site list and Data ID tag capabilities
- KorDSS, a powerful PC data management program, is included with the instrument
- USB On-The-Go connector for PC connection, recharging/powering the ProDSS and connecting directly to a USB stick
- Global Positioning System (GPS) (optional)
- Rugged, waterproof case (IP-67 rated) with rubber over-mold and metal, military-spec (MS) cable connectors as well as rugged titanium sensors
- Multiple languages in handheld and KorDSS: English, Spanish, Portuguese, French, German, Italian, Japanese, Norwegian, Chinese (simplified and traditional), Korean, and Thai
- Warranty: 3-year instrument; 2-year cable assembly and sensors; 1-year pH and pH/ORP sensor modules; 6-months ammonium, nitrate and chloride sensor modules.

ProDSS General Specifications

Size	Instrument: 4 port bulkhead with sensor guard, no depth: 4 port bulkhead with sensor guard, with depth: ODO/CT assembly with sensor guard:	8.3 cm width x 21.6 cm length x 5.6 cm depth (3.27 in x 8.5 in x 2.21 in) 42.82 cm (16.86 in) length and 4.75 cm (1.87 in) outer diameter 45.36 cm (17.86 in) length and 4.75 cm (1.87 in) outer diameter 26.14 cm (10.29 in) length and 2.46 cm (0.97 in) outer diameter
Handheld weight with batteries	567 grams (1.25 lbs)	
Power	Rechargeable lithium-ion battery pack provides ~48 hours with the handheld only and ~20 hours with the handheld, 4 port cable and 4 smart sensors; battery recharge time is ~9 hours with the AC power adapter The instrument can also be powered via AC or external power pack through the USB port	
Instrument operating temperature	0 to 50 °C (32 to 122 °F)	
Instrument storage temperature	0 to 45 °C (32 to 113 °F) with battery installed; 0 to 60 °C (32 to 140 °F) without battery installed	
Display	Color, LCD graphic display; 3.9 cm width x 6.5 cm height	
USB port	Built-in micro USB On-The-Go port for PC connection, recharging/powering the ProDSS and connecting directly to a USB stick	
Cables	ProDSS 4 port, ProDSS ODO/CT, and ProODO field cables available in 1, 4, 10, 20, 30, 40, 50, 60, 70, 80, 90, and 100-meters; ProDSS 4 port cables feature an optional depth sensor; ProOBOD cable assemblies are also compatible	
Sensor ports	4 port cables feature universal sensor ports that can accept any ProDSS sensor; other compatible cables feature integral sensors	
Warranty	3-year instrument; 2-year bulkhead, cable assembly, sensors, and extended warranty ODO sensor cap (627180); 1-year pH and pH/ORP sensor modules, ODO sensor caps, and Li-ion battery pack; 6-months ammonium, nitrate, and chloride sensor modules	
Memory	> 100,000 data sets	
Logging modes	Single point or continuous with autostable feature	
GLP compliance	Yes; 400 detailed GLP records can be stored and are available to view, download, and print.	
Languages	English, Spanish, German, French, Italian, Norwegian, Portuguese, Japanese, Chinese (Simplified & Traditional), Korean, Thai	
Certifications	CEC, CE; RoHS; IP-67; WEEE; FCC; UN Part III, Section 38.3, Test methods for lithium-ion batteries (Class 9)	
GPS	Optional internal GPS; coordinates are stored with measurement data and site lists	
Sites and data ID	100 user-defined sites and 100 user-defined data ID tags; site pictures can be sent to the handheld via KorDSS	

ProDSS System Specifications (Instrument, Sensor, and Cable)

Sensor/Parameter	Range	Accuracy	Resolution	Units
Temperature	-5 to 70 °C (temperature compensation range for DO mg/L measurement: -5 to 50 °C)	±0.2 °C	0.1 °C or 0.1 °F (user selectable)	°C, °F, K
pH	0 to 14 pH units	±0.2 pH units	0.01 pH units	pH, pH mV
ORP	-1999 to 1999 mV	±20 mV	0.1 mV	mV
Dissolved Oxygen	0 to 500%, 0 to 50 mg/L	0 to 200%: ±1% of reading or 1% saturation, whichever is greater 200 to 500%: ±8% of reading 0 to 20 mg/L: ±0.1 mg/L or 1% of reading, whichever is greater 20 to 50 mg/L: ±8% of reading	0.01 mg/L and 0.1%, or 0.1 mg/L and 1% (user selectable)	% saturation, % saturation local, mg/L, ppm
Barometer	375 to 825 mmHg	±1.5 mmHg from 0 to 50 °C	0.1 mmHg	mmHg, inHg, mbar, psi, kPa, atm
Conductivity	0 to 200 mS/cm	0 - 100 mS/cm: ±0.5% of reading or .001 mS/cm, whichever is greater 100 - 200 mS/cm: ±1.0% of reading	0.001, 0.01 or 0.1 µS/cm (range dependent)	µS/cm, mS/cm
Specific Conductance*	0 to 200 mS/cm	0 - 100 mS/cm: ±0.5% of reading or .001 mS/cm, whichever is greater 100 - 200 mS/cm: ±1.0% of reading. User selectable reference temperature (15 to 25 °C; default 25 °C) and compensation coefficient (0 to 4%/°C; default 1.91%)	0.001, 0.01, 0.1 mS/cm	µS/cm or mS/cm
Salinity*	0 to 70 ppt	±1.0% of reading or ±0.1 ppt, whichever is greater	0.01 ppt	ppt or PSU
Total Dissolved Solids (TDS)*	0 to 100 g/L	Calculated from specific conductance and a user-selectable TDS multiplier (0.30 to 1.00; default 0.65)	0.001, 0.01, 0.1 g/L	mg/L, g/L, kg/L
Resistivity*	0 to 2 Mohms	±0.1% Full Scale	0.001, 0.01, 0.1 ohms	ohm-cm, kohm-cm, Mohm-cm
Seawater Density*	0.0 to 50.0 sigma, sigma T	-	0.1 sigma or sigma T	Sigma, Sigma T
Turbidity	0 to 4000 FNU	0 to 999 FNU: 0.3 FNU or ±2% of reading, whichever is greater 1000 to 4000 FNU: ±5% of reading	0.1 FNU	FNU, NTU
Total Suspended Solids (TSS)*	-	User correlated from turbidity field measurements and lab TSS measurements from grab samples	0.01, 0.1 mg/L	mg/L
Ammonium**	0 to 200 mg/L NH ₄ -N	±10% of reading or 2 mg/L, whichever is greater	0.01 mg/L	NH ₄ -N mg/L, NH ₄ -N mV
Ammonia*	0 to 200 mg/L NH ₃ -N	-	0.01 mg/L	NH ₃ -N mg/L
Chloride**	0 to 18000 mg/L Cl	±15% of reading or 5 mg/L, whichever is greater	0.01 mg/L	Cl mg/L, Cl mV
Nitrate**	0 to 200 mg/L NO ₃ -N	±10% of reading or 2 mg/L, whichever is greater	0.01 mg/L	NO ₃ -N mg/L, NO ₃ -N mV
Depth	0 to 328 feet (0 to 100 m)	±0.013 ft (±0.004 m) for 1, 4, and 10 m cables ±0.13 ft (±0.04 m) for cables 20 m and longer	0.001 m or 0.01 ft	m, ft

*Derived/calculated parameter

**ISEs for freshwater only; 20 meter maximum depth

ProDSS System Specifications (Instrument, Sensor, and Cable)

Sensor/Parameter	Sensor Type/Measurement Method	Calibration	Maximum Depth	Warranty
Temperature	Thermistor, installed on conductivity sensor	Not available	100 m	2 years for conductivity/temperature sensor
pH	Combination glass bulb electrode, Ag/AgCl reference electrode with gelled electrolyte	1, 2, or 3 point	100 m	2 years for pH and pH/ORP sensors 1 year for pH and pH/ORP sensor modules
ORP	Platinum button with Ag/AgCl reference	1 point	100 m	2 years for pH/ORP sensor 1 year for pH/ORP sensor module
Dissolved Oxygen	Optical luminescence - lifetime method	1 or 2 point	100 m	2 years for optical DO sensor 1 year for optical DO sensor cap
Barometer	-	1 point	-	3 years, integrated into ProDSS handheld
Conductivity	Four nickel electrode cell	1 point	100 m	2 years for conductivity/temperature sensor
Specific Conductance*	Calculated from conductivity and temperature	1 point	-	-
Salinity*	Calculated from conductivity and temperature	1 point	-	-
Total Dissolved Solids (TDS)*	Calculated from specific conductance and a user-selectable TDS multiplier (0.30 to 1.00; default 0.65)	-	-	-
Resistivity*	Calculated from conductivity and temperature	-	-	-
Seawater Density*	Sigma is calculated from salinity, temperature, and pressure (depth) Sigma T is calculated from salinity and temperature	-	-	-
Turbidity	Nephelometric - Optical, 90° scatter Meets ISO 7027	1, 2, or 3 point	-	2 years for turbidity sensor
Total Suspended Solids (TSS)*	User correlated from turbidity field measurements and lab TSS measurements from grab samples	-	-	-
Ammonium**	Ion selective electrode	1, 2, or 3 point	20 m	2 years for ammonium sensor 6 months for ammonium sensor module
Ammonia*	Calculated from ammonium, temperature, salinity, and pH	-	-	-
Chloride**	Ion selective electrode	1, 2, or 3 point	20 m	2 years for chloride sensor 6 months for chloride sensor module
Nitrate**	Ion selective electrode	1, 2, or 3 point	20 m	2 years for nitrate sensor 6 months for nitrate sensor module
Depth	Pressure transducer	1 point	-	2 years, integrated into cable assembly

*Derived/calculated parameter

**ISEs for freshwater only ; 20 meter maximum depth

ProDSS Order Guide

Step 1: Order Instrument

All instruments include a rechargeable lithium-ion battery (pre-installed), hand strap, USB cable for charging the ProDSS battery and for connection to a PC, universal AC charger, cable for connection to a USB memory stick, ProDSS quick start guide, and USB memory stick containing KorDSS software and digital copy of the user manual.

626870-1: Handheld without GPS

626870-2: Handheld with GPS

Step 2: Order Cable Assembly

There are two types of cables available - those with integral (built-in) sensors and those without.

Cables without Integral Sensors - ProDSS 4 Port

These cables do not include any integral sensors, although an optional built-in depth sensor is available. With the exception of depth, all sensors are user-replaceable. All cables include 4 universal sensor ports and a maintenance kit (3 port plugs, tube of o-ring lubricant, brush for conductivity probe, syringe for depth sensor, and sensor installation/removal tool). A 1 lb. weight is included with all cables 10 meters and longer while 10, 20, and 30 meter cables include a cable management kit.

626909: No depth sensor integrated in **1, 4, 10, 20, 30, 40, 50, 60, 70, 80, 90,** or **100** meter cable.

626910: Depth sensor integrated in **1, 4,** or **10** meter cable.

626911: Depth sensor integrated in **20, 30, 40, 50, 60, 70, 80, 90,** or **100** meter cable.

ProDSS Order Guide continued

Cables with Integral Sensors - ProDSS ODO/CT, ProODO, and ProOBOD

These cables feature integral (i.e. built-in) sensors. These sensors are non-replaceable and there is no depth option. A cable management kit is included with ProDSS ODO/CT cables that are 4, 10, 20, 30, 40, and 50 meters. ProODO 4, 10, 20, and 30 meter cables include a cable management kit. A sensor cap comes pre-installed on optical DO sensors.

- 627150**: ProDSS ODO/CT cable with integral optical DO, conductivity, and temperature sensors; **1, 4, 10, 20, 30, 40, 50, 60, 70, 80, 90, or 100** meter cable.
- 626250**: ProODO cable with integral optical DO and temperature sensors; **1, 4, 10, 20, 30, 40, 50, 60, 70, 80, 90, or 100** meter cable.
- 626400**: ProOBOD BOD probe/cable assembly, lab probe; U.S./Japanese version with power supply.
- 626401**: ProOBOD BOD probe/cable assembly, lab probe; International version with power supply.

Step 3: Order Smart Sensor(s) for 4 Port Cables

ProDSS 4 port cables do not have integral sensors, so ProDSS smart sensors must be used with these cables. Any combination of 4 ProDSS smart sensors can be used at a time. If a depth sensor is integrated into the cable assembly, it will not use of one of the ports.

A conductivity/temperature sensor must be installed in a sensor port for accurate temperature compensation and measurement of all parameters except turbidity and TSS.

- | | |
|---|--|
| <input type="checkbox"/> 626900 : Optical dissolved oxygen (ODO) | <input type="checkbox"/> 626904 : pH/ORP sensor with module |
| <input type="checkbox"/> 626901 : Turbidity | <input type="checkbox"/> 626905 : Nitrate sensor with module |
| <input type="checkbox"/> 626902 : Conductivity and temperature | <input type="checkbox"/> 626906 : Ammonium sensor with module |
| <input type="checkbox"/> 626903 : pH sensor with module | <input type="checkbox"/> 626907 : Chloride sensor with module |

Step 4: Order Standards

- | | |
|---|--|
| <input type="checkbox"/> 065270 : Conductivity standard, 1000 umhos/cm (quart) | <input type="checkbox"/> 003841 : 1 mg/L ammonium standard (500 mL) |
| <input type="checkbox"/> 065272 : Conductivity standard, 10000 umhos/cm (quart) | <input type="checkbox"/> 003842 : 10 mg/L ammonium standard (500 mL) |
| <input type="checkbox"/> 065274 : Conductivity standard, 100000 umhos/cm (quart) | <input type="checkbox"/> 003843 : 100 mg/L ammonium standard (500 mL) |
| <input type="checkbox"/> 603824 : 2 pints each of 4, 7, and 10 pH buffers | <input type="checkbox"/> 003885 : 1 mg/L nitrate standard (500 mL) |
| <input type="checkbox"/> 061320 : Zobell standard for ORP (mV) calibration, 125 mL | <input type="checkbox"/> 003886 : 10 mg/L nitrate standard (500 mL) |
| <input type="checkbox"/> 608000 : Turbidity standard, 0 FNU (1 gallon) | <input type="checkbox"/> 003887 : 100 mg/L nitrate standard (500 mL) |
| <input type="checkbox"/> 607200 : Turbidity standard, 12.4 FNU (1 gallon) | |
| <input type="checkbox"/> 607300 : Turbidity standard, 124 FNU (1 gallon) | |
| <input type="checkbox"/> 607400 : Turbidity standard, 1010 FNU (1 gallon) | |
| <input type="checkbox"/> 005580 : Confidence Solution® to verify pH, ORP and conductivity data (not for calibration) | |

Step 5: Order Accessories

- | | |
|--|--|
| <input type="checkbox"/> 626946 : Large, hard-sided carrying case (ProDSS 4 port and ODO/CT cables 10, 20, and 30 meters in length) | |
| <input type="checkbox"/> 626945 : Small, hard-sided carrying case (ProDSS 4 port and ODO/CT cables 1 and 4 meters in length, flow cell) | |
| <input type="checkbox"/> 603075 : Large, soft-sided carrying case | <input type="checkbox"/> 626918* : 1 lb weight |
| <input type="checkbox"/> 599080 : Flow cell for ProDSS 4 port cables | <input type="checkbox"/> 605978 : 4.9 oz weight |
| <input type="checkbox"/> 603056 : Flow cell mounting spike | <input type="checkbox"/> 063507 : Tripod |
| <input type="checkbox"/> 626943 : Small external USB portable battery pack | <input type="checkbox"/> 603070 : Shoulder strap |
| <input type="checkbox"/> 626944 : Large external USB portable battery pack | <input type="checkbox"/> 626942 : USB car charger |

*Included with all ProDSS 4 port cables that are 10 meters and longer



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