

Wahl

Wahl DST500, DSX500 and DSX501 High Accuracy RTD Systems For Process Monitoring and Control

DST500, DST540, DSX500, DSX540 and DSX501 Series Digital RTD Thermometer System

The **DST500 & DST540** are a highly reliable and accurate option for digital temperature measurement in a wide variety of applications. Meter has local display with easy to read 1 inch high digits, and is powered by a field replaceable C cell sized Lithium Metal Battery.

The **DSX500 & DSX540** are the same high reliable temperature measurement system, with the addition of a 4-20 mA transmitter. Unit is loop powered from an integrated customer supplied 10-36VDC power with 4-20 mA transmitter for reliable data transfer to the platform of your choice.

DSX501 is same as DSX500 except input power and output is via a waterproof 4-pin Turck connector in the side mount conduit connector.

FEATURES

Safety & Security

- LCD Screen with easy to read 1 inch high digits. Resolution to 1/10th of 1°.¹ Display works in ambient temperatures as low as -40°C / -40°F.

- Microprocessor based for flexibility.
- Low ambient temperature coefficient.
- The Wahl **DST500 & DST540** includes an exclusive compensation feature utilizing a programmable RO calibration coefficient for increased accuracy. This allows the meter and probe to be “matched” to each other, to guarantee an accurate system.
- The programmable RO allows any initial tiny probe error to be offset in the meter.
- Available in rigid, remote, and adjustable angle configurations to meet the installation requirements of your process.
- User selectable °F or °C
- Tamper Resistant. All adjustments require DSTCAL, our user friendly single point calibration software (sold separately).
- Adjustable meter update rate.² Powered by a C cell sized Lithium Metal Battery.³ Two years nominal battery life with default update rate.⁴
- Available with mercury-in-glass standard tapered bulb style stem for direct drop-in replacement of MIGs in thermowells.
- Optional mounting bracket is available for mounting remote meters to walls, panels, pipes, etc.⁵
- **DSX500 & DSX540** has all the features above, with a built in programmable 4-20 mA Transmitter. This model is 24VDC loop powered. Input power and transmitter output is connection via 1/2" F NPT conduit port on side of case.
- **DSX501** is same as DSX500 except output is from a waterproof 4-pin Turck connector in side mount conduit connector.



Wahl DST500 with Rigid Mount shown with 1-1/4"- 18 Swivel Nut Fitting with Tapered Bulb for use in thermowells.

Wahl DSX501

Wahl DSX500

Probes

- Pair with an adjustable angle, straight or angle rigid, or remote mount probe configured to meet the requirements of your installation. Remote cables available with IP68 Quick Disconnect connector option on meter and/or probe sides.
- Quick Disconnect Turck IP68 connectors available for remote probes and cables. Disconnect the meter and probe and leave your connection cable in place when checking calibration using short calibration cable.
- Panel mount option is available with remote probes. With panel mount option, connection is mounted on the rear of the enclosure.⁶
- Probes utilize Pt100, Class A 4 wire platinum RTD sensors in MgO packed MI cable.
- Sanitary probes are in compliance with 3A Sanitary Standard.

Enclosure

- NEMA 4X Housing

Certifications

- NIST Traceable Certificate of Conformance is available.
- CE approved (DST500 ONLY)



¹ "R" models have switchable resolution to 0.1° or 1.0°.

² Default update rate is 2 seconds unless otherwise specified at time of order. Adjustable from 0.25 seconds to 10 seconds in 0.25 second intervals.

³ Standard models use a single 3.6V Lithium Thionyl Chloride battery, part number DSA3062. "I" models contain a 3.6 volt "AA" size lithium metal battery, part number 12234-03, in compliance with air transportation regulations regarding lithium metal batteries.

⁴ Low battery is indicated by "LOW BATT" displaying in the lower right corner of the display.

⁵ Mounting bracket with grounding lug is P/N: DSA3031, and mounting bracket without grounding lug is DSA3030.

⁶ Panel mount models are designated with "P". They are also equipped with two threaded studs on the rear with a Li-bracket, wing nuts and washers. An additional gasket is placed on the rear facing surface of the H-frame to seal the panel opening.

| DST500, DST540, DSX500 and DSX540 RTD METER SPECIFICATIONS | | | |
|--|---|---|---|
| Stainless Steel Case Polycarbonate H Frame / Window | DST500 | DSX500 | DSX501 |
| Stainless Steel Case and H Frame / Polycarbonate Window | DST540 | DSX540 | |
| | Meter with Local Display | Meter with Local Display and 4-20mA Transmitter 1/2" NPT Female Connector | Meter with Local Display and 4-20mA Transmitter Turck 4 pin Connector |
| Battery for International Shipments | add "I" to end of Model number For 1 Lithium Thionyl Chloride "AA" Battery | N/A | N/A |
| Meter Range / Scale | -328° to 1472°F (-200° to 800°C), User Selectable for °F or °C | | |
| Meter Accuracy | ± 0.1°F/C, over 1-year period (@ Tamb = 23°C ± 5°C) | | |
| Meter and Probe Accuracy | Greater of ± 0.4°F / 0.22°C or ± 0.5% of reading, over 1 year period (@ Tamb = 23°C) | | |
| Display | 1.0" 4-digit LCD display with icons for °F, °C and Low Battery | | |
| Display Resolution | 0.1°F/C. 1°F above 999.9°F | | |
| Display Update Rate | 2 sec.s std, adjustable in .25 sec. intervals from .25 to 10 seconds | | |
| Ambient Operating Environment | -40° to 158°F (-40° to 70°C), 10% to 100% RH non-condensing, Vibration - MIL STD 202G | | |
| Ambient Temperature Coefficient | Maximum of 0.003°/°C over Ambient Operating Temperature Range from 23°C ± 5°C | | |
| Enclosure Weight / Dimensions | SS and Polycarbonate (NEMA 4X), Weight: 2 lbs. (1kg) Dim: 5.3" W x 4.3" H x 2.7" D (13.5 x 10.9 x 6.9 cm). | | |
| Sensor/Probe | <ul style="list-style-type: none"> • Sensor - 4-wire RTD, R0 = 100Ω, Alpha = .00385 Ω/Ω/°C • 304 or 316 Stainless Steel Probe construction • Fixed Stem Probes or Remote probes with rugged IP68 connection system | | |
| CE Approval | Yes | N/A | |
| 4-20mA Output | No | Yes | |
| Output Accuracy | N/A | ± 0.2°F/0.1°C | |
| Minimum Span | N/A | 18°F (10°C) | |
| Output Scaling | N/A | Factory or user programmable with DST Software Kit | |
| Output Connection | N/A | 1/2" NPT Female | |
| Battery - User Replaceable | 1 Lithium Thionyl Chloride "C" Battery / Optional "I" Model: 1 Lithium Thionyl Chloride "AA" Battery | Loop Powered 10-36VDC | |
| Battery Life | 1 year nominal at 2 second update interval | N/A | |
| Programming & Calibration Software | Optional: DSTCAL Calibration Software | | |
| Enclosure | DST500, DSX500, DSX501 Series: Stainless Steel Enclosure with Polycarbonate H Frame and Window (NEMA 4X) | | |
| | DST540, DSX540 Series: Stainless Steel Enclosure and H Frame with Polycarbonate Window (NEMA 4X) | | |
| Dimensions / Weight | Dimensions: 5.3" W x 4.3" H x 2.7" D (13.5 x 10.9 x 6.9 cm). Weight: 2 lbs. (1kg) | | |

| Models | |
|---------------|---|
| DST500 | RTD Meter, LCD, Battery Powered Display, ("C" Battery included) -328° to 1472°F (-200° to 800°C) |
| DST540 | RTD Meter, All SS Case/H Frame, LCD, Battery Powered Display, ("C" Battery included) -328° to 1472°F (-200° to 800°C) |
| DSX500 | Transmitter RTD Meter LCD, 1/2" NPT Female, LCD, Loop Powered, 4-20mA Transmitter, -328° to 1472°F (-200° to 800°C) |
| DSX540 | Transmitter RTD Meter, All SS Case/H Frame, LCD, 1/2" NPT Female, LCD, Loop Powered, 4-20mA Transmitter, -328° to 1472°F (-200° to 800°C) |
| DSX501 | Transmitter RTD Meter, LCD, Turck Connector, LCD, Loop Powered, 4-20mA Transmitter, -328° to 1472°F (-200° to 800°C) |

| Meter Options | |
|---|---|
| Battery Options - if desired, see note to right | Note: Battery Options - DST Meters come standard with a "C" cell battery, ready for ground shipment in the contiguous 48 states and some areas of Canada. For air shipments, either an "I" model with a "AA" battery, or "NB" model with no battery is required to avoid additional charges in compliance with transportation regulations regarding "C" cell lithium metal batteries. |
| International Shipping, ("AA" Battery included) | |
| No Battery incl. Requires local purchase of "C" battery | |
| Options - If desired | |
| Panel Mount, Bottom Back Stem Connected | |
| Quick Disconnect at Meter end, Probe end, or both ends | |

| Optional Accessories | |
|---|--|
| DST500 Series Software, Accessories, and NIST Traceable Certificate of Conformance | |
| DSTCAL | DST500 Series Calibration Software Kit (includes USB Cable, DST/USB Interface Module, and Serial Interface Cable) |
| 12360-002 | DST500 Series Interconnect Calibration Cable, 2 meter length - 4 Conductor |
| 13500-04 | DST500 Series Fixed Probe Calibration Cable |
| DSA3030 | Wall Mount Bracket (for Remote Mount units) |
| DSA3031 | Wall Mount Bracket (for Remote Mount units) with Grounding Lug |
| DSA3032 | Security Screw Kit (Screws, washers, security wire seal, instructions. Installed when purchased with meter) |
| DSA3033 | Security Wire Seals, Tamper Resistant, 10/pack, Toolless, 8", SS Wire |
| DSA3062 | Spare Lithium Thionyl Chloride "C" Battery, 3.6V, for all DST meters except FM version |
| 12234-03 | Spare Lithium Thionyl Chloride "AA" Battery for "I" versions |
| | Standard Calibration & Firmware Upgrades ² |
| | DST500 Series NIST Traceable Certificate of Conformance of System & Firmware Upgrades ² |
| 13146X | 90 Degree Elbow ³ for Rigid Stem models, Specify X: Back Connection (B), Left (L) or Right Side (R) Mount |

² Upgrades if applicable, are included in price.

³ For Back, Left, or Right Side Mounting, 1) specify Code B - Rigid Stem, under Mounting Style, 2) add #13146X - 90 Degree Elbow accessory, and 3) specify code as shown above.

