

Wahl

INSTRUMENTS, INC.



DIGI-STEM[®]

Thermometer and Transmitter Systems

Measure Process Temperatures
with Digital Accuracy

Remote Sensor Systems

RTD or Thermocouple Output

PALMER Wahl

INSTRUMENTATION GROUP

Digi-Stem® Thermometers and Transmitters



Digi-Stem Thermometer with Brazed Stem

- Selectable Stems, Integral or Remote
- Large 1 inch LCD Continuous Display
- Easy to Read from Over 20 Feet
- Battery Operated
- Meter Accuracies from $\pm 0.3^{\circ}\text{F}$ ($\pm 0.2^{\circ}\text{C}$)
- Factory Calibration Lot Traceable to NIST
- Direct Replacement for Bimetal, Mercury-in-Glass, Bulb and Capillary Thermometers
- Temperature Ranges from 0 to 800°F (-20 to 425°C)
- Easy to Install
- NEMA-4X Stainless Housing
- Hose-Down Proof, Vibration Tolerant
- Optional RTD or Thermocouple Output
- 4-20mA Transmitter with Local Display, Loop Power

Wahl's Digi-Stem Thermometer and Transmitter Systems provide digital accuracy and reliability for temperature measurements in rugged industrial environments.

Our variety of rigid stems and remote interface connections accommodate most installations.

A Quick Look at Models Most Often Specified

Model	DST200	DST300	DST310
Range	0 to 199.9°F -20 to 130°C	0 to 300°F	200 to 800°F 100 to 425°C
Display Resolution	0.1°F or °C	0.1°F: 0 to 150°F 1°F: above 150°F	1°F or °C
Meter Accuracy	$\pm 0.3^{\circ}\text{F}$ $\pm 0.2^{\circ}\text{C}$	$\pm 1.1^{\circ}\text{F}$: 0 to 150°F $\pm 2^{\circ}\text{F}$: above 150°F	$\pm 2^{\circ}\text{F}$: 200 to 600°F $\pm 2^{\circ}\text{C}$: 100 to 425°C

Approvals

3-A Sanitary Standard 74-02 Authorization	Intrinsically Safe FM Approved	Housing per NEMA-4X
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Digi-Stem®

Thermometers and Transmitters

Remote Sensor Systems

Digi-Stem is offered in a variety of configurations to measure process temperatures remotely located from the meter. Optional remote sensor cables are available with different stem configurations. Stems can be specified for a variety of process connections or interfaces, including different thermowell adapters, penetration probes and immersion probes. See Ordering Guide on pages 5 and 6.

RTD or Thermocouple Output

Direct Connection: Wahl provides Digi-Stems with optional dual-element temperature sensors in the stem for direct connection to recorders and controllers. The primary sensor drives the local display while the dedicated secondary sensor (RTD or Thermocouple) provides access to a 3- or 4-wire RTD circuit or a Thermocouple system interface. The connecting port is 1/2" NPT.

In Situ Calibration: Specify option DSA392M or DSA392HP for in situ calibration of Digi Stem Model DST200 without removal from a process. This instrument has an RTD as the secondary sensor, which allows single-point calibration using Wahl's highly accurate platinum-RTD Heat Prober 392 Meter. This provides the accuracy of a laboratory calibration, and saves time as well as money.

Transmitter Systems

Wahl offers loop-powered transmitter versions of Digi-Stem with continuous, digital, local display. The transmitter is an integral meter and electronics assembly in NEMA-4X housing with a 4-20mA, 2-wire current loop. Model DSX300 has a temperature range of 0 to 300°F (-18 to 150°C), while Model DSX310's range is 200 to 800°F (100 to 425°C). The transmitters incorporate all Digi-Stem family features, including stainless steel construction, large digital display, reliability, and rugged construction.



Digi-Stem with Sanitary Stem

Stainless Steel Stems

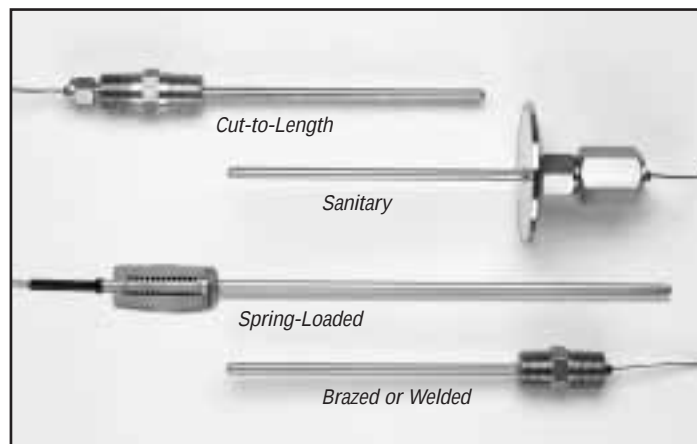
Cut-to-Length: Compression seal; for direct immersion in fluids and for thermowell applications.

Sanitary: Authorized 3-A Sanitary Standard 74-02 for 1.5" to 3.0" diameter tube sizes with tri-clamp fitting for milk, food and pharmaceutical processing.

Spring Loaded: Maintains a positive force against the bottom of thermowells; not for direct immersion in fluids; assembly is not sealed.

Brazed: For use in thermowells.

Welded: Sealed for immersion in fluids; for use in thermowells, sanitary, and high-pressure applications.



Stainless Steel Stems

Calibration Services Available

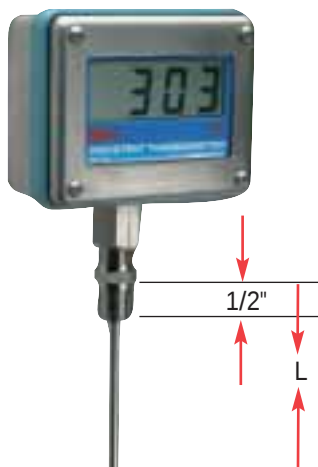
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Meter Specifications

		Battery Powered Display			Display Transmitters	
Model		DST200	DST300	DST310	DSX300	DSX310
Range	Standard °F or °C	0.0 to 199.9°F -20.0 to 130°C	0.0 to 300°F	200 to 800°F 100 to 425°C	0.0 to 300°F -18.0 to150°C	200 to 800°F 100 to 425°C
	Option	Option DSA20: 0.0 to 199.9°C Option DSA21: -20.0 to 150°C	Option DSA 30: 0.0 to 600°F	Option DSA 31: 0 to 800°F or 0 to 425°C	N/A	N/A
Display Resolution		0.1°F or °C	0.1°F : 0.0 to 150°F 1°F: above 150°F	1°F or °C	0.1°F : 0.0 to 150°F 1°: 150°F to 300°F 0.1°C	1°F or °C
Meter Accuracy Display & Loop @ 75°F (±1 LCD included)		±0.3°F ±0.2°C	±1.1°: 0.0 to 150°F ±2°: above 150°F	±2°F: 200 to 600°F ±4°F: elsewhere ±2°C: 100 to 425°C	±1.1°F: 0 to 150°F ±2°F: 150 to 300°F ±0.7°C: -18.0 to 150°C	±2°: 200 to 600°F +4 / -2°: 600 to 800°F ±1°: 100 to 325°C +2°/ -1°: 325 to 425°C
	Option	Option DSA21: ±0/0.4°C @ 150°C				
Point Calibration		External	Internal			
Ambient Temp. Rated Accuracy Operating*		20 to 130°F (-7 to 54°C) with Alkaline Batteries 20 to 158°F (-7 to 70°C) with Lithium Battery			20 to 158°F (-7 to 70°C)	
Ambient Temp. Coefficient		0.02 deg/deg from 75°F	0.04 deg/deg from 75°F			
Material		Meter Case, Fittings, Stems: 300 Series Stainless Steel Window and Molding: Polycarbonate Gasket: Silicone, O-Ring Sealed				
Battery Power Battery Life		2 Alkaline** 18 months	1 Lithium 2 years	2 Alkaline** 18 months	N/A	N/A
Loop Power		N/A			12/42 V DC min/max	
Loop Output		N/A			4-20 mA; fixed zero and span	
Housing		Rating NEMA 4-X. 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)				

*Temperature Rating for Alkaline Batteries: -20 to 130°F ; for Lithium Batteries: -40 to 185°F
** "C" Cell Alkaline Batteries



Stainless Steel Stems

When measuring the probe length for your Digi-Stem Rigid Stem Sensors or some Remote Stem Sensors the measurement includes 1/2" of the threads, depending on the connection. Please contact Wahl Customer Service at 1-800-421-2853 for more information. also, see Ordering Guide on pages 5 and 6.

Ordering Guide for Meters and Rigid Stem Sensors

Digi-Stem®
Meters and Rigid
Stem Sensors

DIGI-STEM® METERS FOR RIGID & REMOTE SENSORS

Insert Model Number Code in white boxes at bottom of table to construct Part Number for product desired.

Code	Meter Description
DST200	Meter, 0.0/199.9°F (-20.0/130.0°C), Battery Powered Display
DST300	Meter, 0.0/300°F, (Not available in C), Battery Powered Display
DST310	Meter, 200/800°F (100/425°C), Battery Powered Display
DSX300	Meter, 0.0/300°F (-18.0/150.0°C), Loop Powered, 4-20mA, Display Transmitter
DSX310	Meter, 200/800°F (100/425°C), Loop Powered, 4-20mA, Display Transmitter
Code	Scale
F or C	Fahrenheit or Celsius <i>Stop here if ordering Meter only. To order Meter with Rigid Stem Sensor continue below.</i>

To order Meter with Remote Stem Sensor see page 6, and order as a separate line item.

DIGI-STEM® RIGID STEM SENSORS

<i>Start here → if ordering Replacement Probe only</i>	Code	Rigid Probe (This Code is not required if ordering complete unit)
	DSTP	Grounded Stem (for DST Display Meters)
	DSXP	Ungrounded Stem (for DSX Display Transmitters)

<i>Continue here → if ordering complete unit</i>	Code	Process Connections
	12	1/2" NPT Fitting (Standard)
	13	3/4" NPT Adapter
	20	1-1/4" x 18 NEF2 Thermowell Adapter
	30	1-1/2" Diameter 3-A Sanitary Std. 74-02, Welded (Stem Material Codes 2 or 3)
	31	2" Diameter 3-A Sanitary Std. 74-02, Welded (Stem Material Codes 2 or 3)
	32	2-1/2" Diameter 3-A Sanitary Std. 74-02, Welded (Stem Material Codes 2 or 3)
	33	3" Diameter 3-A Sanitary Std. 74-02, Welded (Stem Material Codes 2 or 3)
	50	Union Thermowell Fitting, 1-1/4" x 18 NEF2
	Code	Stem Type
	1	Cut to Length (User), 12" Std (Shipped in 6" increments thereafter)
	2	Cut to Length (Factory)
	3	Brazed
	4	Welded (included with all 3A Connections)
	5	Spring Loaded (not available with Connection Code 50)
	Code	Stem Material
	1	304SS, Temp Rating 400°F (Standard)
	2	316SS, Temp Rating 400°F
	3	316SS, Temp Rating 900°F
	4	304SS, Temp Rating 900°F
	Code	Stem Tip Diameter
	2	1/4" Immersion (Standard)
	3	3/8" with Stem Adapter
	4	1/2" with Stem Adapter
	5	7/16" with Stem Adapter, Tapered
	6	7/16" with Stem Adapter, not Tapered

*Insert Model Number Code in white boxes
below to construct Part Number
for product desired.*

Code	Stem Lengths ¹
01-12	1" to 12" (12" Std)(Specify exact length desired)
13-99	13" to 99" add per inches over 12" (Specify)
	over 99" in length (Specify exact length desired)

¹ Fractional Lengths available: A = 1/4", B = 1/2", C = 3/4" Example: 08C = 8-3/4"

Calibration Services Available

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Ordering Guide for Remote Stem Sensors

DIGI-STEM REMOTE STEM SENSORS						
<i>Insert Model Number Code in white boxes below to construct Part Number for product desired.</i>						
Code	Remote Probe	<i>Start here when ordering a Remote Stem Sensor separately or as part of a complete unit with a Meter.</i>				
DSTP	Grounded Stem (for DST Display Meters)					
DSXP	Ungrounded Stem (for DSX Display Transmitters)					
	Code	Remote Cable Type (and/or Remote Probe)				
	40	PVC				
	41	Teflon Covered				
	42	Armored				
	44	Coiled (TPE Insulated only)				
	Code	Remote Cable Lengths ¹				
	01-06	Codes 40, 41, 42 (above) only, Code 06 = 6 foot length Std, (Specify exact length desired 01 = 1 ft, etc)				
	07-99	7 to 99 feet - PVC or Teflon, add per foot over 6' (Specify exact length desired)				
	07-99	7 to 99 feet - Armored, add per foot over 6' (Specify exact length desired)				
	01	Code 44 (above) - Coiled only, 5:1 Expansion Ratio, Code 01 = 1 Foot (Standard)				
	02-04	Code 02 = 2 ft, 03 = 3ft, 04 = 4ft, (Add per ft over 1 ft) (Specify exact length desired)				
	Code	Remote Stem Material				
	1	304SS, Temperature Rating 400°F (Standard)				
	2	316SS, Temperature Rating 400°F				
	3	316SS, Temperature Rating 900°F				
	4	304SS, Temperature Rating 900°F				
	Code	Remote Stem Tip Diameter/Termination				
	2	1/4" Immersion (Standard)				
	3	3/8" with Stem Adapter				
	4	1/2" with Stem Adapter				
	5	7/16" with Stem Adapter, Tapered				
	6	7/16" with Stem Adapter, not Tapered				
	8	TC817 Style Piercing Probe w Handle				
	Code	Remote Stem Connections/Fittings (insert 0 if not applicable)				
1	1/2" NPT Compression					
2	1/2" NPT Compression w/ 3/4" NPT Adaptor.					
3	1-1/4X18 NEF2 Thermowell Adapter					
5	Union Thermowell Fitting, 1-1/4X18 NEF2					
6A	1-1/2" Dial 3-A Sanitary Std 74-02, Welded					
6B	2" Dial 3-A Sanitary Std 74-02, Welded					
6C	2-1/2" Dial 3-A Sanitary Std 74-02, Welded					
6D	3" Dial 3-A Sanitary Std 74-02, Welded					
7	1/2" NPT - Braze					
8	1/2" NPT - Welded (Included w/ all 3A Connections)					
9	1/2" NPT - Spring Loaded (Not Avail. w/Conn Code 50)					
<i>Insert Model Number Code in white boxes below to construct Part Number for product desired.</i>		Code	Remote Stem Lengths ²			
		01-12	1" to 12" (12" Standard)(Specify exact length desired)			
		13-99	13" to 99" (add per inches over 12")(Specify length)			
			over 99" in length (Specify exact length desired)			

¹ 01= 1 foot, 02 =2 feet, 03 = 3 feet, etc. ² Fractional Lengths available: A =1/4", B =1/2", C = 3/4" Example: 08C = 8-3/4"

Options and Accessories

Digi-Stem® Options and Accessories

ADDITIONAL OPTIONS FOR DIGI-STEM THERMOMETERS

Order as separate line items from Meter Model Numbers

Code	Range Expansion Options
D1284-2	Range Ext, DST310/DSA31, -30/125°C
D1284-3	Range Ext, DST200F, -50/200°F
D1284-4	Range Ext, DST200F, -50/1450°F *
DSA20	Range Ext. DST200C, 0/199.9°C
DSA21	Range Ext. DST200C, -20/150°C
DSA30	Range Ext. DST300F, 0.0/600°F *
DSA31	Range Ext. DST310F/C, 0/800°F or 0/425°C *
* Stem Material Codes 3 & 4 only	
Code	Secondary Element Options
DSA204-3	Secondary Element Direct RTD Access 3-wire
DSA204-4	Secondary Element Direct RTD Access 4-wire
DSA205J	Secondary Element Type J Thermocouple
DSA205K	Secondary Element Type K Thermocouple
DSA392HP	Secondary Element Stem/Wahl 392HP Meter
DSA392M	Secondary Element Stem/Wahl 392 Meter
Code	Cables
DSAC392HP	Interface Cable, Wahl 392HP Meter
DSAC392M	Interface Cable, Wahl 392 Meter
Code	Batteries
DSA3060	Lithium Battery
DSA3061	Alkaline Battery, Type C, Set of 2
Code	Certifications
DSAFM-T	DST Intrinsically Safe Ratings
DSAFM-X	DSX Intrinsically Safe Ratings
DSTNIST	NIST Calibration Test Report
Code	Misc. Options
DSA3030	Wall Mount Bracket
DSA3121	High Humidity/Moisture Resistant Opt
DSA3130	Thermowell Adapter Kit
13146	90 Degree Elbow



Digi-Stem Remote Transmitter with DSA3030
Wall Bracket



Digi-Stem Meter DST300 with Wahl Heat Prober® Sanitary Remote
Model #DSTP4010226C04.



Calibration Services Available

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- Heat Spy® Monitor Fixed Infrared Sensors
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- Digi-Stem® Digital Thermometers and Transmitters
- Temperature Transmitters and Switches
- Temp-Plate® Temperature Recording Labels
- In situ RTD and Thermocouple Probes and Connection Systems
- Thermistor Probes and Connection Systems
- Specialty Probes for OEM applications
- Probe Extension Cables and Connectors



- Portable Electronic Temperature and Process Calibrators
- Bench Top Electronic Temperature and Process Calibrators
- Bench Top Precision Thermometers
- Megohmmeters-Ohmmeters
- Cable Testers



- Dataloggers for Temperature, Humidity, Barometric Pressure, CO₂, and Meteorological Conditions
- Modular Data Logger for Measuring, Logging, and Control
- Hand-Held RTD, Dual Thermocouple, and Combination Thermocouple and RTD Meters
- Hand-Held Pressure and Differential Pressure Meters, Temperature, Humidity, and Dew Point Meters
- Electronic Weather Stations

Palmer Wahl Warranty

Manufacturer warrants all products listed in this catalog to be free from defects in material or workmanship under normal use and service. The Manufacturer agrees to repair or replace any product which upon examination is revealed to have been defective due to faulty workmanship or material if returned to our factory, transportation charges prepaid, within the product specific warranty period stated in the catalog by the manufacturer. This warranty is in lieu of all other warranties, expressed or implied and of all obligations or liabilities on its part for damages including but not limited to consequential damages, following the use or misuse of instruments sold by the Manufacturer. No agent is authorized to assume for Manufacturer any liability except as set forth above.

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