Wahl

Rugged Industrial Design
IP68 Stainless Steel Housing
Designed and Built in Asheville, NC

Digi-Stem® DSPG - Advanced Digital Process Pressure Gauge with Data Logger, Alarms and option for Transmitter and Switch Module

The **Wahl DSPG Pressure Gauge** is designed for precision, durability and ease of use. Now with two accuracy options, the DSPG offers you the same rugged reliability and handy features of our entire Digi-Stem product line.

Precision Accuracy: ±0.1% Full Scale at 23°C or
Reference Accuracy: ±0.05% Full Scale at 0° to 50°C with included 9-Point NIST Certificate of Conformance

The advanced capability of this gauge also offers options for multiple functions to run simultaneously; with the ability to take a pressure reading and display it; transmit it; switch it; and have visual alarms.

Continuous Self-Checking Technology consistently verifies the accuracy of 12 critical factors for the electronics and the sensor, listed below, and indicates any out-of-tolerance conditions with a unique error code. This ensures that the accuracy and ability to function properly are not compromised during processing.

Pressure above gauge range	*Pressure sensor disconnected*
Pressure below gauge range	*Pressure sensor shorted*
Ambient above 50°C	*Ambient sensor Temp too low*
Ambient below 0°C	*Ambient sensor Temp too high*
Sensor signal unstable	*Power supply problem*
Ambient RTD disconnected, shorted/damaged	*Memory problem*

- 4 year battery life with 1 second update rate (default).
- Large, Easy to Read LCD with 0.9" 5-digit Primary Display and 0.4" 5-digit Secondary Display.
- Bottom Connection or Adjustable Angle mounting option to adjust to the best reading angle.
- EMI and RFI protection - External Electromagnetic Signals do not effect the function of the unit.
- IP68, NEMA 6P Protection/Ingress Protection/Dust Tight - Survives Water Submersion up to 1 meter. Ideal for harsh environments:
- Optional Built-in Switch and Transmitter, User Selectable - 4-20mA or 0 to 5V DC. This option requires user supplied 24V DC power.



Accuracy Options
Precision Accuracy ±0.1% Full Scale at 23°C or
Reference Accuracy ±0.05% Full Scale at 0° to 50°C
with included 9-Point NIST Certificate of Conformance

Digi-Stem DSPG Series Menu Features

Digital Pressure Gauge with Display, Alarm and Data Logger

- Pressure Range: -15 to 15,000 PSI
- Pressure Types: Relative Gauge, Absolute, Compound, Vacuum, and Barometric Ranges.
- Long Battery Life: 4 years with "C" cell Lithium Metal Battery
  External Power: DC Power Supply 24 VDC (Optional)
- Display: 0.9" Back-lit LCD display, easy to read from 30 feet away
  Primary Display: 0.9", 5-digit for Real-time Pressure
  Secondary Display: 0.4", 5-digit for MAX, MIN, AVG, Delta P, High and Low Alarms and Internal Electronics Temperature
- Menu Icons with 4-key touch-pad operation:
  11 Pressure Units: psi, bar, mbar, Pa, kPa, MPa, kg/cm2, inH2O, mmH2O, inHg, mmHg
  3 Selectable update rates: 1s, 2s, 5s
  Date and Time: (Y/M/D and H/M/S)
  Settings, Analog Output, Backlight, System Info
- 20-Step Range Bar Percentage Indicator
- Battery Status icon

Digi-Stem DSPG Series Applications

All Processing Plants	Mobile Calibration Labs
Calibration Service Companies	OEM's
Chemical and Petrochemical	Oil and Gas Industry
Field Calibrations	Test and Calibration
Gauge Repair Facilities	Test Bench
Maintenance and Service Facilities	Test Measurement & Validation

IP68 COMPLIANT · TWO YEAR 2 WARRANTY · CALIBRATION TRACEABLE TO NIST · ISO 9001:2015 CERTIFIED QUALITY MANAGEMENT SYSTEM · MNC Manufactured in North Carolina · MADE IN THE USA

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Digi-Stem DSPG Series Specifications

CASE STYLE	Stainless Steel Case Polycarbonate H Frame/Window	DSPG Pressure Gauge
	Model Feature	**Digital Pressure Gauge with Display, Alarm and Data Logger Optional Transmitter and Switch**
METER SPECIFICATIONS	**Meter Range / Scale**	-15 to 15,000 PSI, depending on Pressure Type
	Pressure Units	11 units: psi, bar, mbar, Pa, kPa, MPa, kg/cm2, inH2O, mmH2O, inHg, mmHg
	Precision Accuracy	±0.1% Full Scale Accuracy at 23°C
	Reference Accuracy	±0.05% Full Scale Accuracy at 0° to 50°C, includes 9-Point NIST Certificate of Conformance*
	Operating Environment	-4° to 158°F (-20° to 70°C)
	Relative Humidity	10% to 100% RH non-condensing
	Storage Temperature	-25° to 85°C (-13° to 185°F)
	Vibration	Vibration Resistant
	Meter Battery Option	1 - C size, Lithium Thionyl Chloride Battery, 3.6 V, User Replaceable or 1 - AA, Lithium Thionyl Chloride Battery, 3.6 V, User Replaceable
	Battery Life	4 years standard operation with C size lithium battery at 1 second update rate, (default) AA Battery Life - 1.2 years at default update rate
DISPLAY SPECIFICATIONS	**Primary Display**	0.9" 5-digit LCD Display of Real-Time Pressure, Readable up to 30 ft. away
	Secondary Display	Display: 0.4" 5-digit for Secondary Pressure: MAX / MIN / AVG / Delta P, Hi and Low Alarm Settings and Internal Electronics Temperature
	Advanced Visual Alarm Backlight	High Alarm RED/Icon, Low Alarm BLUE/Icon, Normal Operation GREEN, Fully Adjustable
	Display Resolution	Five Digit Display with Automatic Decimal point
	Sample / Display Update Rate	For Long Battery Life or Quicker Response Time, 3 User Selectable Update Rates: 1s (default) , 2s, 5s
DATA LOGGER (Included)	**Data Storage**	1,000,000 Pressure Readings with Date/Time Stamp
		30 Second Intervals for 365 Days Recording
		120 Second Intervals for 4 Years Recording
	Time Stamp	Year: 20xx / Month: xx / Day: xx / Hour: xx / Minute: xx / Second: xx
	Sampling Interval	10 Seconds Default. Keypad Selectable: 20 / 30 / 60 / 120 / 300 / 600 Seconds
	Digital Output	Utilize Wahl Protocol to integrate digital output with your application
	Output File	MS Excel File (Download via Wahl Data Logger software)
PRESSURE TRANSMITTER AND SWITCH (Optional)	**Analog Output**	4 to 20mA or 0 to 5V
	Output Accuracy	Transmitter: 0.1% plus 0.005% Span
		Switch: 0.1% plus 0.1% Span
	Switch	Switch triggered at High Alarm and Low Alarm Two programmable pressure points for High/Low (On/Off) switch
	Switch Relays	Consistent Open Relay, Overload Protection Relay, Polarized Relay, Safety Relays, Solid- State Relay, Time Delay Relay
	Power Supply Requirements	Loop Powered, 24 V DC (Customer supplied). Required for Switch and Transmitter Option. (Battery required for display backup).
ENCLOSURE	**EMI Interference**	EMI and RFI Protection. External Electromagnetic Signals do not affect function.
	Protection Ratings	NEMA 6P, IP68. Dust Tight - Survives Water Submersion up to 1 meter.
	Enclosure Dimensions / Weight	5.3" W x 4.3" H x 2.7" D (135 x 109 x 69 mm) / Weight: 2.0 lbs. (1kg)
* 9-Point NIST Certificate of Conformance included with ±0.05% Accuracy Option. Includes 0%, 50% and 100% of pressure at 0°, 23° and 50°C.		
Includes: Quick Start Guide, Data Logger software on USB flash drive, Custom fit foam lined Box, suitable for returning unit for Calibration and User Manual as download.		

Digi-Stem DSPG Series Data Logger

Data Logger Hardware: The built-in Data Logger records up to 1 million pressure data points to the memory chip on the PCB with time stamp. Users can turn the Data Logger on or off and set seven different recording intervals through the menu using the 4-key keypad on the DSPG gauge. MS Excel file Output, downloaded via Wahl Data Logger Software. (Included with unit on USB Flash Drive). Wahl Protocol* can be utilized to integrate digital output with customer software for system monitoring.

Data Logger Features:
- Data Logger with time stamp feature
- Capacity: 1,000,000 pressures with time stamp
- Pressure with time stamp (Year/Month/Day/Hour/Min/Sec)
- Sampling Interval: 10 Seconds (default). Keypad Selectable: 20 / 30 / 60 / 120 / 300 / 600 Sec

Examples:
- 30 Second Intervals for 365 Days Recording
- 120 Second Intervals for 4 Years Recording

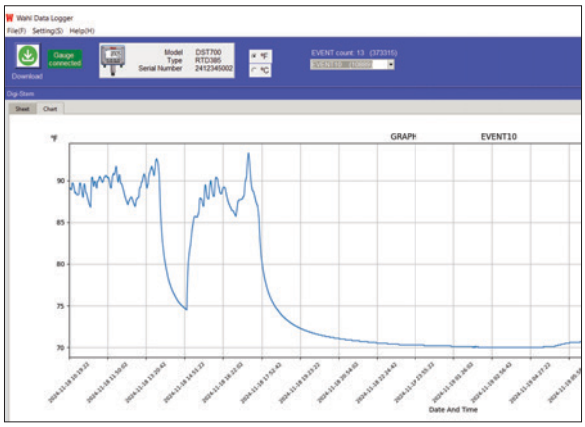
Data Logger Software: The software offers three major features:

Data Download: Allows users to download all data stored in the DSPG to computer.

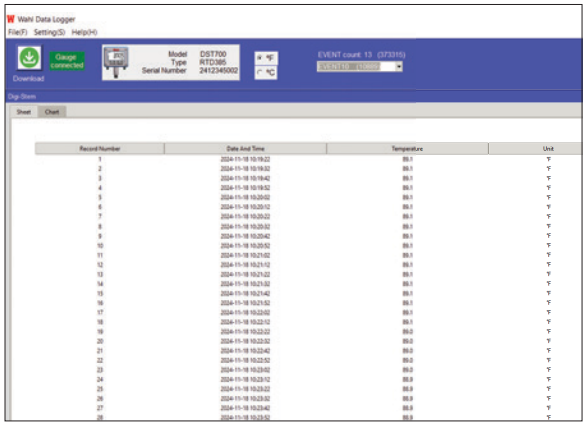
Pressure Monitoring: Provides tools to monitor pressure history using a graphic chart, including options to zoom in/out on the time axis, zoom in/out on pressure ranges, pan and snapshot the desired curves.

Data Conversion: Converts all data to an MS Excel file for further analysis and data storage.

Software package: CP210x Windows Drivers with installation guide, Data Logger Program with user guide. Software compatible with Windows 8, Windows 10 and Windows 11.



Data Logger Graph view



Data Logger List view

Digi-Stem DSPG Series Advanced Features

Advanced Visual Alarm System - Fully Selectable
- High Alarm RED Backlight and Icon
- Low Alarm BLUE Backlight and Icon
- Normal Operation GREEN Backlight (continuous with Loop Power)



High Alarm Icon *Low Alarm Icon* *Normal Operation*

When the meter is powered by battery, if alarm conditions are met, the appropriate color backlight shown above will come on for 1 second and the HAL or LAL icon will continue to blink on the screen until the unit is put out of alarm mode.

When the meter is loop externally powered, if alarm conditions are met, the appropriate color backlight will come on and stay on, and the HAL or LAL alarm icon will continue to blink on the screen until the alarm condition is resolved.

During normal operation when externally powered, the Green backlight is continuously on. Under battery power, the Green backlight can be set for 15 (default), 30, 45 or 60 seconds.

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* Compatible with all Wahl new generation Infrared, RTD and Thermocouple product lines.

Pressure Transmitter (Requires user supplied 24V DC) For continuous, precise pressure measurement data, allowing for detailed monitoring and control of the process.
- Analog 4-20 mA or 0-5 Volts

Pressure Switch (Requires user supplied 24V DC)
- Consistent Open Relay
- Switch Triggered by setting High Alarm and Low Alarm
- Two programmable pressure points for ON/OFF switch

Works with: Overload Protection Relay, Solid-state Relay, Polarized Relay, Time Delay Relay, Safety Relays

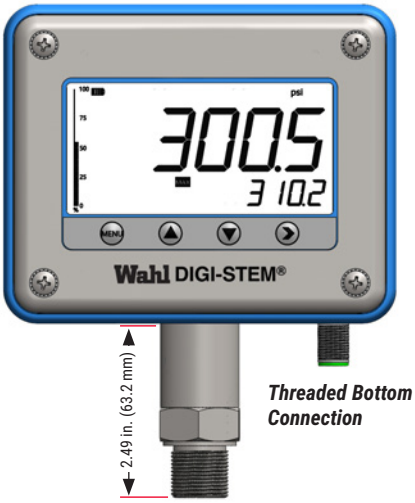
Digi-Stem DSPG Accuracy Options

- **Precision Accuracy -** ±0.1% Full Scale at 23°C. Covers 3 pressure points at 23°C.
- **Reference Accuracy -** ±0.05% Full Scale at 0° to 50°C with included 9-Point NIST Certificate of Conformance. This covers 3 pressure points, at 0%, 50% and 100% of the pressure range, at each of 3 temperature points: 0°, 23° & 50°C to assure accuracy across the ambient temperature range.

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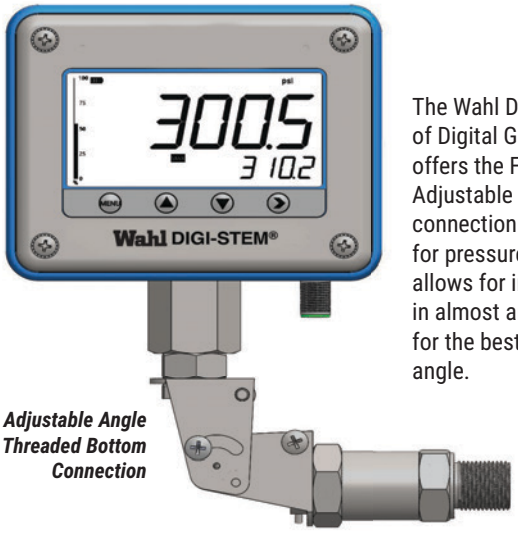
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Digi-Stem DSPG Series Mounting Type Options



Threaded Bottom Connection

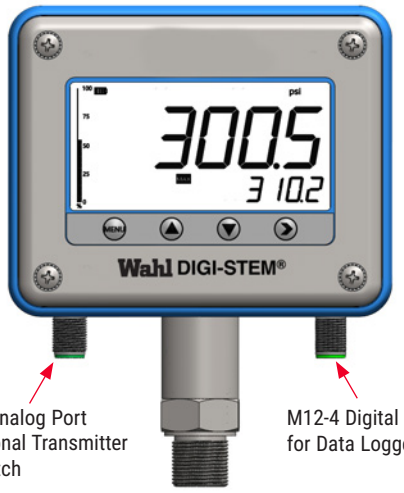
The Industry's FIRST ADJUSTABLE ANGLE Digital Pressure Gauge



Adjustable Angle Threaded Bottom Connection

The Wahl DSP Series of Digital Gauges offers the FIRST Adjustable Angle connection option for pressure, which allows for installation in almost any location for the best viewing angle.

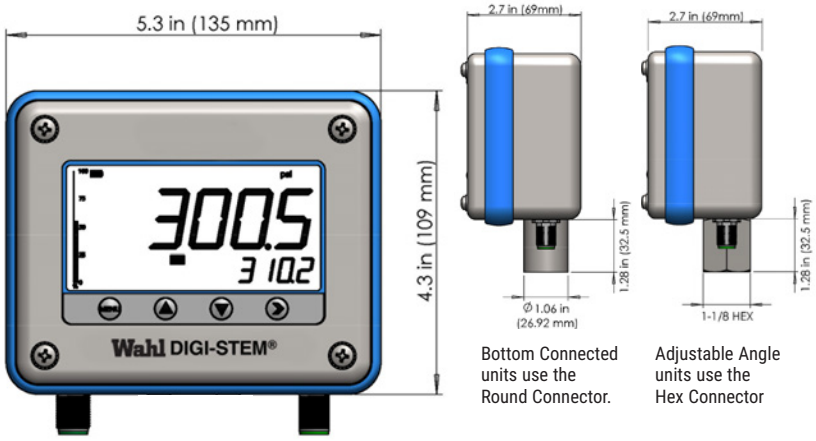
Digi-Stem DSPG Transmitter/Switch Options



M12-8 Analog Port for optional Transmitter and Switch

M12-4 Digital Port for Data Logger

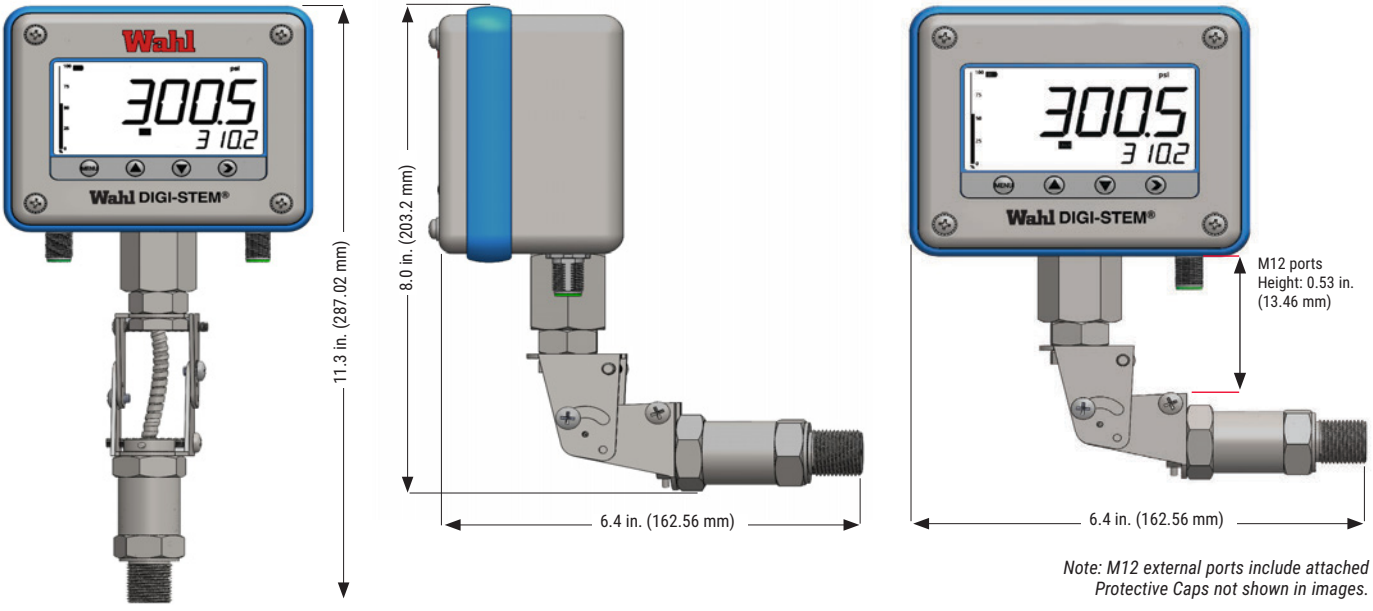
Digi-Stem DSPG Case Dimensions



Bottom Connected units use the Round Connector.

Adjustable Angle units use the Hex Connector

Digi-Stem DSPG Adjustable Angle Mounting Dimensions



Note: M12 external ports include attached Protective Caps not shown in images.

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Digi-Stem DSPG Series Pressure Types and Available Ranges

Relative Gauge Ranges			Media
PSI	Pascal	Bar	
1	7k	0.07	G
3	20k	0.2	G
5	35k	0.35	G
10	70k	0.7	G
15	100k	1.0	G/L
30	200k	2.0	G/L
50	350k	3.5	G/L
100	700k	7.0	G/L
150	1.0M	10	G/L
300	2.0M	20	G/L
Sealed Gauge Ranges			**Media**
PSI	Pascal	Bar	
500	3.5M	35	G/L
1000	7.0M	70	G/L
1500	10M	100	G/L
3000	20M	200	G/L
5000	35M	350	G/L
10,000	70M	700	G/L
15,000	100M	1,000	G/L

Absolute Gauge Ranges			Media
PSI	Pascal	Bar	
5	35k	0.35	G
10	70k	0.7	G
15	100k	1.0	G
30	200k	2.0	G
50	350k	3.5	G
100	700k	7.0	G/L
150	1.0M	10	G/L
300	2.0M	20	G/L

Compound Gauge Ranges			Media
PSI	Pascal	Bar	
-5 / 0 / 5 PSI	±35k	±0.35	G
-10 / 0 / 10 PSI	±70k	±0.7	G
-15 / 0 / 15 PSI	±100k	±1.0	G
-15 / 0 / 30 PSI	-100k/200k	-1.0/2.0	G
-15 / 0 / 50 PSI	-100k/350k	-1.0/3.5	G
-15 / 0 / 100 PSI	-100k/700k	-1.0/7.0	G/L

Vacuum Gauge Ranges			Media
PSI	Pascal	Bar	
-5	-35k	-0.35	G
-10	-70k	-0.7	G
-15	-100k	-1.0	G
Note: Zero Output = Ambient Pressure			

Barometric Gauge Ranges			Media
InHg	KPa	PSI	
0 / 32	0 / 110	0 / 16	G
16 / 32	55 / 110	8 / 16	G
26 / 32	88 / 110	12.8 / 16	G

Notes for all Range Types:
G = Gas
L = Liquid
1. Accuracy: Includes non-linearity, hysteresis, non-repeatability, zero offset, span setting errors and thermal drift.
2. Stability: ±0.10% Span/year @ reference conditions.
3. Durability: Greater than 10 million cycles.

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Digi-Stem DSPG Series Order Guide

Step 1: Select Digi-Stem DSPG Digital Pressure Gauge with Display, Alarm and Data Logger	
Code	**Select Digi-Stem Gauge, Stainless Steel Case / Polycarbonate H Frame and Window, LCD.**
DS	Digi-Stem Advanced Digital Pressure Gauge with Display, Alarm and Data Logger

Code	Select Gauge Type
PG	Pressure Gauge

Code	Select Mounting Style (Select One)
A	Adjustable Angle Connection
B	Bottom Connection

Code	Select Connection Type (Select One)
H	1/2" NPT, Male, Standard
Q	1/4" NPT, Male
B	M20 x 1.5, Male
C	BSPP 1/2" (G 1/2), Male
D	BSPT 1/2" (R 1/2), Male
F	BSPP 1/4" (G 1/4), Male
G	BSPT 1/4" (R 1/4), Male

Code	Select Battery Holder (Select One)
A	AA size Battery Holder installed. Requires purchase of battery separately.
C	C size Battery Holder installed. Requires purchase of battery separately.

Code	Select Functionality (Select One)
1	Gauge with Display, Alarm and Data Logger. Includes: Software and #24040-01 Data Logger Connection Cable with M12-4, 90° Easy Connect to USB-A, 1 meter length.
2	Gauge with Display, Alarm, Data Logger, Transmitter and Switch. Includes: Software and #24040-01 Data Logger Connection Cable with M12-4, 90° Easy Connect to USB-A, 1 meter length. Requires user supplied Loop Power 24V DC. (Required for Transmitter and Switch. Battery is required for Display backup) Requires selection of #24040-03-XXX Transmitter Cable, Step 4 in order process.
	Transmitter Model Specify Pressure Set Points if different from default: 4 mA _____ (default: Lower point in range) and 20 mA _____(default: Upper point in range). Burnout: High _____* or Low _____*

Code	Select Accuracy (Select One)
P	±0.1% Full Scale at 23°C Precision Accuracy
R	±0.05% FS at 0° to 50°C Reference Accuracy*
	* Includes 9-Point NIST Certificate of Conformance List as separate line item

DS	PG						
Gauge	**Gauge Type**	**Mounting Style**	**Connection Type**	**Battery Holder Type**	**Function**	**Accuracy**	

Insert appropriate Codes in spaces above and move on to Step 2 (on next page) to select Pressure Type and Range.

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Step 2: Select Pressure Type and Range			
Code	**Select Pressure Type**		
G	**Relative Gauge**		
	Code	**Range**	**Select**
	1#	1 PSI	_____
	3#	3 PSI	_____
	5#	5 PSI	_____
	10#	10 PSI	_____
	15#	15 PSI	_____
	30#	30 PSI	_____
	50#	50 PSI	_____
	100#	100 PSI	_____
	150#	150 PSI	_____
	300#	300 PSI	_____
	Sealed Gauge		
	500#	500 PSI	_____
	1000#	1,000 PSI	_____
	1500#	1,500 PSI	_____
	3000#	3,000 PSI	_____
	5000#	5,000 PSI	_____
	10000#	10,000 PSI	_____
	15000#	15,000 PSI	_____
A	**Absolute Gauge**		
	Code	**Range**	**Select**
	5#	5 PSI	_____
	10#	10 PSI	_____
	15#	15 PSI	_____
	30#	30 PSI	_____
	50#	50 PSI	_____
	100#	100 PSI	_____
	150#	150 PSI	_____
	300#	300 PSI	_____
C	**Compound Gauge**		
	Code	**Range**	**Select**
	5#	-5 / 0 / 5 PSI	_____
	10#	-10 / 0 / 10 PSI	_____
	15#	-15 / 0 / 15 PSI	_____
	30#	-15 / 0 / 30 PSI	_____
	50#	-15 / 0 / 50 PSI	_____
	100#	-15 / 0 / 100 PSI	_____

Code	**Select Pressure Type and Range**		
V	**Vacuum Gauge (Zero Output = Ambient Pressure)**		
	Code	**Range**	**Select**
	5#	-5 PSI	_____
	10#	-10 PSI	_____
	15#	-15 PSI	_____
B	**Barometric Gauge**		
	Code	**Range**	**Select**
	0/32"Hg	0 to 32"Hg	_____
	16/32"Hg	16 to 32"Hg	_____
	26/32"Hg	26 to 32"Hg	_____

Pressure Type	**Range**
Pressure	

DSPG GAUGE Final Part Number:

Step 1: Insert Codes from previous page in boxes below.							**Step 2: Insert Codes from this page in boxes below.**		
DS	**PG**								
Gauge	**Gauge Type**	**Mounting Type**	**Connection Type**	**Battery Holder Type**	**Function**	**Accuracy**	**Pressure Type**	**Range**	
Gauge							**Pressure**		

Note: If ±0.05% Accuracy option is chosen, list included NIST Certificate of Conformance as separate line item. Continue to next page to select Battery Type (if desired) and Transmitter Cable (if desired).

Step 3 - Select which Battery to include if desired, or select No Battery. (Requires purchase of battery separately.) List as a separate line item.

No Battery is suggested to avoid additional charges in compliance with transportation regulations regarding lithium metal batteries.

WAHL DSP SERIES BATTERY SELECTION	
Step 3 - Select Battery to Include or No Battery	
DSA3062	Lithium Thionyl Chloride "C" Battery, 3.6V, for all DST/DSP meters (except FM version). NOT FOR INTERNATIONAL SHIPMENTS.
12234-03	Lithium Thionyl Chloride "AA" Battery, for all DST/DSP meters (except FM version).
NB	No Battery included. Please indicate on PO when ordering.

Battery Part Number:

Battery Part # or NB (NO Battery)

Step 4 - If Functionality Option Code 2 for Transmitter and Switch is selected, use this table to order required Connection Cable and desired length. List as a separate line item.

TRANSMITTER CABLE Final Part Number:

WAHL DSP TRANSMITTER CABLE			
Step 4 - Select Transmitter Cable length. List as separate line item.			
24040-03	**DST/DSP Transmitter Cable, M12-8 Connector to Bare Wires**		
	Code	**Select Transmitter Port Cable Connection**	
	8	Easy Connect - 90° Connection	
		Code	**Specify Transmitter Cable Length**
		001-100	001 = 1 meters, etc. up to 100 meters. Specify exact length desired _____
			Current Output 4-20mA Cable max 100 meters Voltage Output 0-5V Cable max 3 meters
24040-03			
Cable	**Connector**	**Transmitter Cable Length**	



DSA3062 - Lithium Thionyl Chloride "C" Battery, 3.6V. NOT FOR INTERNATIONAL SHIPMENTS.



12234-03 - Lithium Thionyl Chloride "AA" Battery, 3.6V. No shipping restrictions.

WAHL DSP SERIES ACCESSORIES	
Step 5 - Select Accessory Options. List as separate line item.	
DSA3062	Spare Lithium Thionyl Chloride "C" Battery, 3.6V. NOT FOR INTERNATIONAL SHIPMENTS.
12234-03	Spare Lithium Thionyl Chloride "AA" Battery for "I" versions.
	NIST Certificate of Conformance available.

MADE IN THE USA

MNC Manufactured in North Carolina

ISO 9001:2015 CERTIFIED QUALITY MANAGEMENT SYSTEM

CALIBRATION TRACEABLE TO NIST

TWO YEAR 2 WARRANTY

IP68 COMPLIANT

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