Dwyer Instruments

Precision instruments for measuring, transmitting and controlling pressure, temperature, level and flow

December 2004

RSP-PRC030-EN
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Magnehelic® Differential Pressure Gages

Series 2000

Indicate Positive, Negative or Differential, Accurate within 2%

Select the Dwyer Magnehelic® gage for high accuracy — guaranteed within 2% of full scale — and for the wide choice of models available to suit your needs precisely. Using Dwyer’s simple, frictionless Magnehelic® movement, it quickly indicates low air or non-corrosive gas pressures — either positive, negative (vacuum) or differential. The design resists shock, vibration and over-pressures. No manometer fluid to evaporate, freeze or cause toxic or leveling problems. It’s inexpensive, too.

The Magnehelic® is the industry standard to measure fan and blower pressures, filter resistance, air velocity, furnace draft, pressure drop across orifice plates, liquid levels with bubbler systems and pressures in fluid amplifier or fluidic systems. It also checks gas-air ratio controls and automatic valves, and monitors blood and respiratory pressures in medical care equipment.

Specifications

Service: Air and non-combustible, compatible gases. (Natural Gas option available.)

Wetted Materials: Consult factory.

Housing: Die cast aluminum case and bezel, with acrylic cover. Exterior finish is coated gray to withstand 168 hour salt spray corrosion test.

Accuracy: ±2% of full scale (±3% on -0, -100PA, -125PA, 10MM and ±4% on -00, -60PA, -6MM ranges), throughout range at 70°F (21.1°C).

Pressure Limits: -20" Hg. to 15 psig.† (-0.677 bar to 1.034 bar); MP option: 35 psig (2.41 bar), HP option: 80 psig (5.52 bar).

Overpressure: Relief plug opens at approximately 25 psig (1.72 kPa), standard gages only.

Temperature Limits: 20 to 140°F.* (-6.67 to 60°C).

Size: 4" (101.6 mm) Diameter dial face.

Mounting Orientation: Diaphragm in vertical position. Consult factory for other position orientations.

Process Connections: 1/8" female NPT duplicate high and low pressure taps - one pair side and one pair back.

Weight: 1 lb 2 oz (510 g), MP & HP 2 lb 2 oz (963 g).

Standard Accessories: Two 1/8" NPT plugs for duplicate pressure taps, two 1/8" pipe thread to rubber tubing adapters and three flush mounting adapters with screws. (Mounting and snap ring retainer substituted for 3 adapters in MP & HP gage accessories.)

*Low temperature models available as special option.

†For applications with high cycle rate within gage total pressure rating, next higher rating is recommended. See medium and high pressure options at lower left.
Magnehelic® Differential Pressure Gages

Options and Accessories

Portable Units
HDL00953 (A-432) Combine carrying case with any Magnehelic® gage of standard range, except high pressure connection. Includes 9 ft. (2.7 m) of 3/16" I.D. rubber tubing, standhang bracket and terminal tube with holder. Portable Kit.

Air Filter Gage Accessory Package
KIT07478 (A-605) Adapts any standard Magnehelic® for use as an air filter gage. Includes aluminum surface mounting bracket with screws, two 5 ft. (1.5 m) lengths of ¾" aluminum tubing two static pressure tips and two molded plastic vent valves, integral compression fittings on both tips and valves. Air Filter Kit.

Range
<table>
<thead>
<tr>
<th>ServiceFirst Mfg.</th>
<th>Item # # of Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAG00987</td>
<td>2000-001</td>
</tr>
<tr>
<td>GAG00888</td>
<td>2000-01</td>
</tr>
<tr>
<td>GAG00139</td>
<td>2001</td>
</tr>
<tr>
<td>GAG00874</td>
<td>2002</td>
</tr>
<tr>
<td>GAG01004*</td>
<td>2002-LT (low temp)</td>
</tr>
<tr>
<td>GAG00896</td>
<td>2003</td>
</tr>
<tr>
<td>GAG00897</td>
<td>2004</td>
</tr>
<tr>
<td>GAG00902</td>
<td>2005</td>
</tr>
<tr>
<td>GAG00903</td>
<td>2006</td>
</tr>
<tr>
<td>GAG01039</td>
<td>2008</td>
</tr>
<tr>
<td>GAG01040</td>
<td>2010</td>
</tr>
<tr>
<td>GAG00988</td>
<td>2015</td>
</tr>
</tbody>
</table>

*These ranges calibrated for vertical scale position. • Accuracy +/-3%, •• Accuracy +/-4%
*Low temperatures down to -20°F

Dual Scale Air Velocity Units

<table>
<thead>
<tr>
<th>ServiceFirst Mfg.</th>
<th>Item # # F.PM.</th>
<th>Range in W.C.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAG01032</td>
<td>2000-OAV</td>
<td>0-50/2000-2800</td>
</tr>
<tr>
<td>GAG01000</td>
<td>2002AV</td>
<td>0-2000/5600</td>
</tr>
<tr>
<td>GAG01036</td>
<td>2010AV</td>
<td>0-10/2000-12,500</td>
</tr>
</tbody>
</table>

ServiceFirst Mfg.
<table>
<thead>
<tr>
<th>Item # # Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDL00953  A-432 Portable Kit</td>
</tr>
<tr>
<td>KIT07478  A-605 Air Filter Kit</td>
</tr>
</tbody>
</table>

RSPPRC030_EN
Minihelic® II Differential Pressure Gages

Series 2-5000

Combining High Accuracy, Compactness, Dependability, and Low Cost

Specifications

**Service:** Air and compatible gases.

**Wetted Materials:** Consult factory.

**Housing:** Glass filled nylon; polycarbonate lens.

**Accuracy:** ±5% of full scale at 70°F (21.1°C).

**Pressure Limits:** 30 psig (2.067 bar) continuous to either pressure connection.

**Temperature Limits:** 20 to 120°F (-6.67 to 48.9°C).

**Size:** 2-1/16" (52.39 mm) diameter dial face.

**Mounting Orientation:** Diaphragm in vertical position. Consult factory for other position orientations.

**Process Connections:** Barbed, for 3/16" I.D. tubing (standard); 1/8" male NPT (optional).

**Weight:** 6 oz (170.1g).

Mounting hardware is supplied with the Minihelic® II gage for panel mounting through a single hole, 2-5/8" (67 mm) in diameter. Panel thickness up to 1/2" (13 mm) can be accommodated with the hardware supplied. If necessary, surface mounting of the gage can be accomplished by means of two 4-40 screws into the tapped mounting bracket stud holes in the rear of the gage. Surface mounting requires clearance holes in the panel for the two pressure taps.

Panel Mounting

The Series 2-5000 Minihelic® II low differential pressure gage provides excellent readability in a compact size.

<table>
<thead>
<tr>
<th>ServiceFirst</th>
<th>Mfg. #</th>
<th>Range Inches of Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item #</td>
<td></td>
<td>GAG00996 2-5005 0-5.0</td>
</tr>
</tbody>
</table>

**Accessories**

KIT09647 (A-434) Portable Kit
3-in-One Indicating Gage, Lo-Limit and Hi-Limit Control

Photohelic® Switch/Gages function as versatile, highly repeatable pressure switches combined with a precise pressure gage employing the time-proven Magnehelic® design. The Photohelic® measures and controls positive, negative or differential pressures of air and compatible gases. Standard models are rated to 25 psig (1.7 bar) with options to 35 (2.4) or 80 (5.5 bar) psig. Single pressure 36000S models measure to 6000 psig (413 bar) with a 9000 psig (620 bar) rating.

Two phototransistor actuated, DPDT relays are included for low/high limit control. Easy to adjust setpoint indicators are controlled by knobs located on the gage face. Individual setpoint deadband is one pointer width — less than 1% of full scale. Setpoints can be interlocked to provide variable deadband — ideal for control of fans, dampers, etc. Gage reading is continuous and unaffected by switch operation, even during loss of electrical power. Choose from full scale pressure ranges from a low 0-.25” (0-6 mm) w.c. up to 30 psi (21 bar); single positive pressure to 6000 psig (413 bar).

Specifications

Gage Specifications

Service: Air and non-combustible, compatible gases.
Wetted Materials: Consult factory.
Accuracy: ±2% of full scale at 70°F (21.1°C), ±3% on -0 and ±4% on -00 models.
Pressure Limits: -20” Hg. to 25 psig (-0.677 to 1.72 bar). MP option; 35 psig (2.41 bar), HP option; 80 psig (5.52 bar). 36003S – 36010S; 150 psig (10.34 bar). 36020S and higher; 1.2 x full scale pressure.
Temperature Limits: 20 to 120°F. (-6.67 to 48.9°C) Low temperature option available.

Process Connections: 1/8” female NPT.
Size: 4” (101.6 mm) dial face, 5” (127 mm) O.D. x 8-1/4” (209.55 mm).
Weight: 4 lb (1.81 kg).

Switch Specifications

Switch Type: Each setpoint has 2 Form C relays (DPDT).

Set Point Adjustment: Adjustable knobs on face.

Agency Approvals: UL, CSA, CE.

Electrical Rating: 10A @ 28 VDC, 10A @ 120, 240 VAC.
Electrical Connections: Screw terminals.
Power Requirements: 120 VAC, 50/60 Hz; 240 VAC & 24 VAC Power optional.
Mounting Orientation: Diaphragm in vertical position. Consult factory for other position orientations.

Repeatability: ±1% of full scale.

RSPPRC030_64678.pmd 12/28/2004, 3:52 PM
Slack-Tube® Manometers

NO. 1212 Gas Pressure Kit For Servicing Gas Appliances
A handy, complete kit containing a 16” Slack-Tube® Manometer, necessary tubing and connection fittings for checking gas pressures in virtually all gas appliances such as water heaters, furnaces, stoves and dryers. Different range manometers may be specified at corresponding prices. Compared to the cost of purchasing items separately the assembly of component parts into kit form represents substantial savings.

KIT09644 (1212) Gas Pressure Kit

What the kit consists of:
1 – #1211-16 Slack-Tube® Manometer, reads pressure to 16” water.*
1 – Carrying case, plastic, 8 1/2” x 7” x 3 1/8”
1 – 3/4 oz. bottle Fluorescein green color concentrate with wetting agent
2 – 1/8” pipe thread rubber tubing adapters
1 – 1/8” to 1/4” pipe thread bushing
1 – 3 ft. length 3/16” rubber tubing
1 – Rubber tubing adapter to fit standard 7/16” dia. spud.

*Other ranges available.
Flex-Tube® U-Tube Manometers

These inexpensive manometers measure positive, negative and differential pressures. Dwyer Flex-Tube® U-Tube Manometers combine the inherent accuracy of the simple “U” Tube with the durability of tough, long-lasting plastic construction. Columns are of .375” O.D. flexible and shatter proof clear butyrate tubing. They are easily accessible for cleaning. Indicating tube is backed by white scale channel to provide maximum color contrast. Scales are extruded high impact polystyrene plastic, formed to hold columns in perfect alignment. Stark white scales have graduations and numbers silkscreen-printed in black for maximum legibility.

You can choose from numerous models and features including overpressure safety traps, in full scale ranges from 8” to 36” of water or mercury. All are suitable for total pressures to 100 psi — for determining velocity and static pressures, leakage, fan and blower efficiency, filter resistance, and gas pressures. Ideal wherever a portable, direct reading manometer is needed.

Ranges and Dimensions

<table>
<thead>
<tr>
<th>Model or Range</th>
<th>Hg Required To Fill</th>
<th>Length “A”</th>
<th>O.A. Length “B”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inches H₂O</td>
<td>Millimeters H₂O</td>
<td>Grams</td>
<td>Ounces W/M</td>
</tr>
<tr>
<td>8 (4-0-4)</td>
<td>M200 (100-0-100)</td>
<td>178.5</td>
<td>6.3</td>
</tr>
<tr>
<td>12 (6-0-6)</td>
<td>M300 (150-0-150)</td>
<td>225.5</td>
<td>7.9</td>
</tr>
</tbody>
</table>

Not recommended for vacuum service above 5 in. Hg (68 in. w.c.)

*Type “b” connections

Standard Accessories

Series 1222 — 2 magnetic mounting clips; tube clamp; 2 plastic carrying plugs and 2 flexible plastic tubing connectors for attachment of 3/16” rubber or plastic tubing without kinking. 3/4 ounce bottle .826 sp. gr. red gage oil furnished for “D” style manometers. Fluorescein green dye concentrate furnished with “W/M” style manometers. Mercury is available at extra cost.

<table>
<thead>
<tr>
<th>ServiceFirst Item #</th>
<th>Mfg. #</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAG00989</td>
<td>1222-12-W/M</td>
</tr>
<tr>
<td>GAG00990</td>
<td>1222-12-D</td>
</tr>
<tr>
<td>GAG01031</td>
<td>1223-8-D</td>
</tr>
<tr>
<td>GAG01033</td>
<td>1223-12-Db*</td>
</tr>
</tbody>
</table>
Dual Range Flex-Tube®
U-Inclined Manometers

Standard accessories
Two plastic carrying plugs with retainers for use when manometer is not in service. Two magnetic clips to hold instrument to metal surface. Flexible red vinyl plastic tubing connectors. Brass terminal tube 1/4" diameter x 8" long. One terminal tube holder. Brass adapter, 1/8" pipe thread to plastic tubing. One 4 1/2-foot length of Tygon plastic tubing. One 3/4 ounce bottle .826 sp. gr. red gage fluid. Vinyl carrying case.

Above — Use Series 1227 as a regular U-tube manometer to read high-range pressure on the right leg, or as an inclined manometer (shown here) to read low-range pressure on the bottom leg. Simply incline manometer until fluid levels read zero. No spirit level required. Magnetic clips hold the gage in position on a steel duct surface.

Series 1227 Manometer — Most versatile and useful low cost manometer we know of. Designed for installation and servicemen. A sturdy, clear plastic manometer, it offers single, direct readings in two ranges: As a U-tube, it reads from 0 to 16" of water; as an inclined gage, it reads from -.20 to 0 to 2.6" of water. “How-to-use” instructions are printed directly on the scale.

Indicating Tubing — Clear .400" O.D., tough, shatterproof butyrate. Pressure connection end is bent to provide over pressure protection when used as an inclined gage. One 4 1/2' x 3/8" Tygon tube included for pressure source connection.

Scale — Stark white high-impact styrene, 21" long. Adjustable for precise zeroing.

Markings — 1" major, .2" minor graduations on high range; .02" graduations on low range. Silkscreened in black on stark white for positive definition. Acrylic-coated for permanence.
Dwyer Mark II series molded manometers are of the inclined and inclined-vertical types. The curved inclined-vertical tube of the Model 25 gage provides higher ranges with more easily read increments at low readings. The Model 25 is excellent for general purpose work.

Installation — Mark II manometers can be mounted on any vertical surface with the two mounting screws provided. A built-in spirit level simplifies leveling before mounting screws are tightened. Simply fill the reservoir, adjust fluid level to zero, connect the tubing, and the gage is ready for operation.

<table>
<thead>
<tr>
<th>ServiceFirst Item #</th>
<th>Mfg. #</th>
<th>Range</th>
<th>Fluid Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAG00991</td>
<td>Mark II 25</td>
<td>0-3 in w.c.</td>
<td>Red oil, .826 s.g.</td>
</tr>
<tr>
<td>GAG00997</td>
<td>Mark II 27*</td>
<td>0-7000 fpm</td>
<td>Red oil, .826 s.g.</td>
</tr>
</tbody>
</table>

*Require pitot tube at additional cost.
Digital Differential Manometer

Model 478-0

Selectable Engineering Units, Min/Max, Backlight, ±1.5%

Accuracy

- Economically Priced.
- Multi-Functioning: Positive, Negative, or Differential Measurement.
- Display Readings in Inches w.c. or mbar.
- Min/Max, Hold and Zero Functions.
- Backlit Display.
- Extruded Aluminum Case.

Quickly verify filter condition, monitor cleanrooms, troubleshoot HVAC systems, or perform field calibrations with the Model 478-0 Digital Differential Manometer. The Model 478-0 is an indispensable tool for the HVAC technician, plant engineer, or industrial hygienist. The electronics are housed in a rugged extruded aluminum case to provide long life and exceptional durability.

The manometer can be used to measure positive, negative, or differential pressures from -60 to 60” w.c. (-150 to 150 mbar). The unit features selectable units in inches w.c. or mbar and a Min/Max function. Press the Hold key to freeze the current pressure measurement on the display. The 478-0 manometer includes a zeroing button to null out any minor pressure differences. To view the display clearly in poorly lighted areas, use the backlight key.

The Model 478-0 Digital Differential Manometer includes a quick start reference guide and a 9V battery.

Specifications

Service: Air and compatible gases.
Wetted Materials: Consult factory.
Accuracy: ±1.5% F.S. from 32 to 104°F (0 to 40°C).
Pressure Hysteresis: ±0.1% of full scale.
Pressure Limits: -60 to 60” w.c. (-150 to 150 mbar).
Temperature Limits: 32 to 104°F (0 to 40°C).
Storage Temperature Limits: -4 to 176°F (-20 to 80°C).
Display: 0.42” (10.6 mm) 4-1/2 digit liquid crystal.
Resolution: 0.01” from -9.99” w.c. to 9.99” w.c.; 0.1” <-10” w.c., >10” w.c.
Power Requirements: 9V alkaline battery, (up to 40 hours of operation). Battery included but not connected.
Weight: 10.8 oz (306 g).
Connections: Two barbed connections for use with 1/8” (3.18 mm) or 3/16” (4.76 mm) I.D. tubing.
Agency Approvals: CE.
Dimensions: 6-9/16” H x 2-13/16” W x 29/32” D.

HOL00954 (A-402A) CARRYING CASE — Tough gray nylon pouch protects any Series 478-0 Manometer. Double zippered for quick and easy access. With belt loop that snaps closed.

7 1/2”H x 3”W x 2 1/4”D
(191 x 76 x 57 mm)
Mk III Handheld Digital Manometer

Specifications
Service: Air and compatible gases.
Wetted Materials: Consult factory.
Accuracy: ±0.5% F.S., 60 to 78°F (15.6 to 25.6°C); ±1.5% F.S. from 32 to 60°F and 78 to 104°F (0 to 15.6°C and 25.6 to 40°C).
Pressure Hysteresis: ±0.1% of full scale.
Pressure Limits: See chart.
Temperature Limits: 0 to 140°F (-17.8 to 60°C).
Compensated Temperature Limits: 32 to 104°F (-0 to 40°C).
Storage Temperature Limits: -4 to 176°F (-20 to 80°C).

Display: 0.5" liquid crystal. 3-1/2 digits.
Resolution: See chart.
Power Requirements: 9 volt alkaline battery. Battery not connected.
Weight: 10.8 oz (306 g).
Connections: Two barbed connections for use with 1/8" (3.18 mm) or 3/16" (4.76 mm) I.D. tubing. Two compression fittings for use with 1/8" (3.18 mm) I.D. x 3/16" (4.76 mm) O.D. tubing for 475-7-FM & 475-8-FM only.
Agency Approvals: FM, CE.

Ranges from 1 in. w.c. to 150 psid, ±0.5% Accuracy
- Measures Positive, Negative and Differential Pressures
- Rugged, Extruded Aluminum Case
- Lightweight, Fast and Easy to Use
- Dual Calibration with English and Metric Units
- FM Approved

ServiceFirst Mfg. English Metric Maximum
<table>
<thead>
<tr>
<th>Item #</th>
<th>#</th>
<th>Range</th>
<th>Range</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOL02233</td>
<td>475-1-FM</td>
<td>0-19.99 in. w.c.</td>
<td>0-4.97 kPa</td>
<td>10 psig/68.9 kPa</td>
</tr>
</tbody>
</table>

HDL00954 (A-402A) CARRYING CASE — Tough gray nylon pouch protects any Series 475 Manometer. Double zippered for quick and easy access. With belt loop that snaps closed. 7 1/2"H x 3"W x 2 1/4"D (191 x 76 x 57 mm)

KIT09645 (475-1-FM-AV) AIR VELOCITY KIT — Includes the Series 475-FM Manometer, two A-303 static pressure tips two 9 ft. lengths 3/16" I.D. rubber tubing, no. 166-6-CF Pitot tube, A-397 step drill, A-532 air velocity slide chart and instruction bulletin H-11, all packed in a tough, molded plastic carrying case with die cut foam liner.
Large Diaphragm Pressure Switches

Series 1630

Visual Set Point Adjustment in 5 Standard Ranges, 0.05" to 12" w.c. Repetitive Accuracy within ±1%

Our highest precision conventional large diaphragm pressure switch provides maximum dependability. In addition, it incorporates a visible set point indicator for maximum convenience. UL and CSA listed, FM approved for general service, these switches are suitable for most applications in air conditioning and industrial service. Electrical capability of 15 amps handles most small electrical loads.

Specifications
- **Service**: Air and non-combustible, compatible gases.
- **Wetted Materials**: Consult factory.
- **Temperature Limits**: -30 to 110°F (-34.4 to 43.3°C).
- **Pressure Limits**: 10 psig (68.95 kPa) continuous, 25 (172.4 kPa) psig surge.
- **Switch Type**: Single-pole double-throw (SPDT).
- **Repeatability**: ±1%.

Electrical Rating: 15 A @ 120-480 VAC, 60 Hz. Resistive 1/8 HP @ 125 VAC, 1/4 HP @ 250 VAC, 60 Hz.

<table>
<thead>
<tr>
<th>ServiceFirst Item #</th>
<th>Mfg. #</th>
<th>Operating Range, Inches, W.C.</th>
<th>Approximate Dead Band</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWT1638-0</td>
<td>1638-0</td>
<td>0.05 to 0.25</td>
<td>At Min. Set Point</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>At Max. Set Point</td>
</tr>
</tbody>
</table>

CAUTION: FOR USE ONLY WITH AIR OR COMPATIBLE GASES.
Floating Contact Null Switch for High and Low Actuation

Series 1640

Visual Set Point Adjustment... Adjustable Null Zone

The unique electric switch design in the 1640 is another Dwyer innovation. The Dwyer Model 1640 Differential Pressure Switch resembles the Series 1630 switches. The Model 1640, however, is equipped with a single pole, double throw floating contact switch (not snap acting) so it functions as a null switch.

Drawing shows the switching action schematically. As the diaphragm moves in response to pressure changes, it moves the floating contact to cause switching action at two preset points with no switching action between these points. The “high” circuit will be closed when rising pressure differential reaches the preset level. The “low” circuit will be closed when falling pressure differential reaches the preset level.

A typical example of usage is to position motorized dampers when static pressure in a duct system reaches a desired maximum and reposition the dampers when the static pressure falls to a pre-established minimum. By using a pitot tube sensing element the Model 1640 switch can serve in the same way to control air velocity and maintain a constant volume of air in a supply duct.

Temperature Limits: -30 to 110°F (-34.4 to 43.3°C).

Pressure Limits: 10 psig (68.95 kPa) continuous, 25 psig (172.4 kPa) surge.

Switch Type: Single-pole double-throw (SPDT) floating contact (not snap action).

Electrical Rating: Non-inductive — 2.5 A @ 110 VAC; 1.5 A @ 220 VAC; 1 A @ 24 VDC; 0.5 A @ 110 VAC; Inductive — 1 A @ 110 VAC; 0.5 A @ 220 VAC; 0.5 A @ 24 VDC (De-rate 70-80% for very slow pressure changes).

Electrical Connections: 3 screw type, common, normally open and normally closed.

Process Connections: 1/8” female NPT.

Mounting Orientation: Diaphragm in vertical position. Consult factory for other position orientations.

Set Point Adjustment: Screw type.

Weight: 4 lb, 13 oz (2.18 kg).

Agency Approvals: CE.

CAUTION: FOR USE ONLY WITH AIR OR COMPATIBLE GASES.

See page 16 for additional information.
Floating Contact Null
Switch for High and Low Actuation

Typical Wiring Hook-Up
Rising pressure closes the “high” contact which causes the motor to rotate in a counterclockwise direction. Decreasing pressure closes the “low” contact and causes the motor to rotate in a clockwise direction. When the floating contact is in the null zone there is no switching action and motor is at rest.

CAUTION: Because of the very low electrical rating, the 1640 switch is almost always used with a relay which has suitable current carrying capability.

Adjustment of the Switch
The “high” actuation point of the Model 1640 switch is indicated on a calibrated scale secured to the transparent range screw enclosure. Resetting is accomplished simply by turning the adjustment screw with a screwdriver to the desired setting on the scale. The “low” actuation point is set by adjusting the span of the null by turning the Span Adjusting Screw on top of the switch element inside conduit enclosure (See photo).

Specifications
Service: Air and non-combustible, compatible gases.
Wetted Materials: Consult factory.

<table>
<thead>
<tr>
<th>ServiceFirst Item #</th>
<th>Mfg. #</th>
<th>Ranges</th>
<th>Adjustable Null Span</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWT01879 1640-0</td>
<td>0.01 to 0.2</td>
<td>0.01</td>
<td>0.03</td>
</tr>
<tr>
<td>SWT01880 1640-1</td>
<td>0.2 to 1.0</td>
<td>0.02</td>
<td>0.06</td>
</tr>
<tr>
<td>SWT02824 1640-2</td>
<td>1.0 to 4.0</td>
<td>0.03</td>
<td>0.12</td>
</tr>
</tbody>
</table>
Low Differential Pressure Switches
for General Industrial Service

Series 1800

Set Points from 0.07” to 85” w.c. Repetitive Accuracy within 2%

Essential for industrial environments, the Series 1800 combines small size and low price with 2% repeatability for enough accuracy for all but the most demanding applications. Set point adjustment inside the mounting stud permits mounting switch on one side of a wall or panel with adjustment easily accessible on the opposite side. UL and CSA listed, FM approved.

CAUTION: FOR USE ONLY WITH AIR OR COMPATIBLE GASES.

Specifications
Service: Air and non-combustible, compatible gases.

Wetted Materials: Consult Factory.

Temperature Limits: -30 to 180°F (-34 to 82.2°C). 1823-00, -20 to 180°F (-28.9 to 82.2°C).

Pressure Limits: 10 psig (68.95 kPa) continuous, 25 psig (172.4 kPa) surge.

Switch Type: Single-pole double-throw (SPDT).

Repeatability: ±2%.

Electrical Rating: 15 A @ 120-480 VAC, 60 Hz. Resistive 1/8 HP @ 125 VAC, 1/4 HP @ 250 VAC, 60 Hz. Derate to 10 A for operation at high cycle rates.

Electrical Connections: 3 screw type, common, normally open and normally closed.

Process Connections: 1/8” female NPT.

Mounting Orientation: Diaphragm in vertical position. Consult factory for other position orientations.

Set Point Adjustment: Screw type inside mounting spud.

Weight: 1 lb, 5 oz (595 g).

Agency Approvals: CE, UL, CSA, FM.

<table>
<thead>
<tr>
<th>ServiceFirst Item #</th>
<th>Mfg. #</th>
<th>Operating Range, Inches W.C.</th>
<th>At Min. Set Point</th>
<th>At Max. Set Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWT02826</td>
<td>1823-0</td>
<td>0.07 to 0.22</td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>SWT02825</td>
<td>1823-9</td>
<td>0.15 to 0.5</td>
<td>0.06</td>
<td>0.06</td>
</tr>
<tr>
<td>SWT02827</td>
<td>1823-1</td>
<td>0.3 to 1.0</td>
<td>0.09</td>
<td>0.09</td>
</tr>
<tr>
<td>SWT02828</td>
<td>1823-5</td>
<td>0.5 to 2.0</td>
<td>0.1</td>
<td>0.12</td>
</tr>
<tr>
<td>SWT02829</td>
<td>1823-5</td>
<td>1.5 to 5.0</td>
<td>0.14</td>
<td>0.28</td>
</tr>
</tbody>
</table>

BRK03439 (A-389) Mounting Bracket is 16 ga. steel, zinc plated and dichromate dipped for corrosion resistance. Provides rugged, permanent mounting and speeds installation.
Compact Low Differential Pressure Switches

Series 1900

Set Points from 0.07" to 20" W.C. Repetitive Accuracy within 3%

The Dwyer-engineered force-motion amplifier increases the leverage of diaphragm movement and results in a switch with excellent sensitivity and repeatability.

Specifications
Service: Air and non-combustible, compatible gases.
Wetted Materials: Consult Factory.
Temperature Limits: -30 to 180°F (-34 to 82.2°C).
Pressure Limits: 45" w.c. (11.2 kPa) continuous, 10 psig (68.95 kPa) surge.
Switch Type: Single-pole double-throw (SPDT).
Repeatability: ±3%.
Electrical Rating: 15 A @ 120-480 VAC, 60 Hz. Resistive 1/8 HP @ 125 VAC, 1/4 HP @ 250 VAC, 60 Hz. Derate to 10 A for operation at high cycle rates.

Electrical Connections: 3 screw type, common, normally open and normally closed.
Process Connections: 1/8" female NPT.
Mounting Orientation: Diaphragm in vertical position. Consult factory for other position orientations.
Set Point Adjustment: Screw type inside conduit enclosure.
Weight: 1lb, 4.5 oz (581 g).
Agency Approvals: CE, UL, CSA, FM.
CAUTION: FOR USE ONLY WITH AIR OR COMPATIBLE GASES.

<table>
<thead>
<tr>
<th>ServiceFirst Item #</th>
<th>Min. #</th>
<th>Operating Range, Inches W.C.</th>
<th>Approximate Dead Band</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWT01159</td>
<td>1910-00</td>
<td>0.07 to 0.15</td>
<td>0.04 at Min. Set Point</td>
</tr>
<tr>
<td>SWT00606</td>
<td>1910-0</td>
<td>0.15 to 0.95</td>
<td>0.10 at Max. Set Point</td>
</tr>
<tr>
<td>SWT02830</td>
<td>1910-1</td>
<td>0.40 to 1.6</td>
<td>0.15 at Min. Set Point</td>
</tr>
<tr>
<td>SWT02354</td>
<td>1910-5</td>
<td>1.40 to 5.5</td>
<td>0.30 at Max. Set Point</td>
</tr>
<tr>
<td>SWT01371</td>
<td>1910-10</td>
<td>3.0 to 11.75</td>
<td>0.40 at Max. Set Point</td>
</tr>
</tbody>
</table>
Minihelic® Differential Pressure Indicating Transmitter

The Dwyer Series 604D Minihelic® Indicating Transmitter combines visual monitoring with electronic control of low differential air or compatible gas pressures. This versatile device is ideal for building HVAC systems where local indication is needed during maintenance checks or when troubleshooting the system. The transmitter design employs the latest strain gage technology and operates in 2-wire control loop circuits. Separate Zero and Span controls plus a 4-screw terminal strip are protected in a gasketed side enclosure. Cable gland fits .10 - .25" round cable. A 10-35 VDC power supply is required.

Specifications

Gage Specifications
Service: Air and non-combustible, compatible gases.
Wetted Materials: Consult factory.
Accuracy: ±5% F.S.O.
Stability: ±1% F.S./yr.
Pressure Limits: 30 psig (206.8 kPa) continuous; 50 psig (344.7 kPa) surge.
Temperature Limits: 20 to 120°F (-6.67 to 48.9°C).
Process Connections: Barbed, for 3/16" (4.76 mm) I.D. tubing.
Size: 2-1/16" (52.39 mm) diameter dial face.
Weight: 5.6 oz (159 g).
Agency Approvals: CE.

Transmitter Specifications
Accuracy: ±2% of full span output (includes linearity, hysteresis and repeatability).
Temperature Limits: 20 to 120°F (-6.67 to 48.9°C).
Compensated Temperature Range: 32 to 120°F (0 to 48.9°C).
Thermal Effect: ±0.025% F.S./°F (0.045% F.S./°C).
Power Requirements: 10-35 VDC (2 wire*).
Output Signal: 4 to 20 mA.
Zero and Span Adjustments: Internally accessible potentiometers.
Loop Resistance: DC; 0-1250 ohms maximum.
Current Consumption: DC; 38 mA maximum.
Electrical Connections: Terminal block.
Mounting Orientation: Diaphragm in vertical position. Consult factory for other position orientations.

<table>
<thead>
<tr>
<th>ServiceFirst Mfg. Range</th>
<th>Item #</th>
<th>Mfg. #</th>
<th>Range Inches w.c.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRM00042</td>
<td>604D-1</td>
<td>0-1.3</td>
<td></td>
</tr>
</tbody>
</table>
Field Adjustable – 1 to 6 Inch Pipe, Leak Proof Body

V8 Flotect® Flow Switch Protects Equipment: Operation is simple and dependable. In most applications, the switch is normally off while there is sufficient flow of liquid or air. When flow stops, the vane spring moves the vane, actuating a single pole double throw switch rated 5A @ 120/250 VAC to start or stop motor, pump, engine, etc. Operate a damper or valve; shut down a burner or actuate an alarm or signal, protecting unattended equipment from damage or loss of production.

The V8 Flotect® Flow Switch has a leak proof body and vane constructed of tough durable polyphenylene sulfide (equivalent to RYTON®) which has excellent chemical resistance. The full size trimmable vane is provided with molded-in graduations allowing for installation in a 1 inch through 6 inch pipe. Operating pressures are up to 150 psig (10 bar) and temperatures to 212°F (100°C). The V8 flow switch can be used in various chemical processes, industrial systems and similar applications where process conditions are compatible with polyphenylene sulfide, ceramic 8 and 316SS. The V8 Flotect® flow switch is UL recognized as an industrial motor controller per UL standard 508, suitable for mounting in a protected environment.

Applications
Applications are chemical processing, air conditioning, refrigeration, heating systems, cooling lines, machinery, liquid transfer systems, water treatment, food processing, and machine tools. Also, other applications compatible with the materials of construction.

Specifications
Service: Compatible gases or liquids.
Wetted Materials:
- Vane and Body: Polyphenylene Sulfide (PPS).
- Pin and Spring: 316 SS or Inconel.
- Magnet: Ceramic 8.
Temperature Limit: 212°F (100°C).
Pressure Limit: 150 psig (10.34 bar).
Enclosure Rating: General purpose, WP option is weatherproof.
Switch Type: SPDT snap switch, MV option: SPDT gold contact snap switch.
Electrical Rating: 5A @ 125/250 VAC, 5A resistive, 3A inductive @ 30 VDC. MV option: 1A @ 125 VAC, 1A resistive, 0.5A inductive @ 30 VDC.
Electrical Connections: 18 AWG, 18" (460 mm) long.
Conduit Connection: 1/2" male NPT.
Process Connection: 1" male NPT.
Mounting Orientation: Switch can be installed in any position but the actuation/deactuation flow rates are based on horizontal pipe runs and are nominal values.
Set Point Adjustment: Vane is trimmable.
Weight: 4.5 oz (0.13 kg).
## Series V8

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Cold Water Flow Rates</th>
<th>Air Flow Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GPM upper, LPM lower</td>
<td>SCFM upper, LPM lower</td>
</tr>
<tr>
<td>1&quot;</td>
<td>10.8/9.1</td>
<td>39/32.6</td>
</tr>
<tr>
<td></td>
<td>40.9/34.6</td>
<td>1105/923</td>
</tr>
<tr>
<td>11D4&quot;</td>
<td>9.8/8.3</td>
<td>37.5/32.2</td>
</tr>
<tr>
<td></td>
<td>37.2/31.4</td>
<td>1062/912</td>
</tr>
<tr>
<td>11D2&quot;</td>
<td>8.6/6.8</td>
<td>33.4/26.7</td>
</tr>
<tr>
<td></td>
<td>32.4/25.7</td>
<td>945/757</td>
</tr>
<tr>
<td>2&quot;</td>
<td>10.9/8.8</td>
<td>43/36.8</td>
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<tr>
<td></td>
<td>41.2/33.4</td>
<td>1218/1042</td>
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<tr>
<td>3&quot;</td>
<td>12.9/8.9</td>
<td>52.7/38.9</td>
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<td></td>
<td>48.8/33.5</td>
<td>1493/1100</td>
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<tr>
<td>4&quot;</td>
<td>21.1/13.8</td>
<td>87.6/63.6</td>
</tr>
<tr>
<td></td>
<td>79.7/52.2</td>
<td>2482/1802</td>
</tr>
<tr>
<td>6&quot;</td>
<td>170.2/124.7</td>
<td>168.6/137.4</td>
</tr>
</tbody>
</table>

**Suggested Specifications:**
Automatic Polyphenylene Sulfide plastic flow switch shall be vane operated to actuate a single pole, double throw snap switch. Motion of the vane shall actuate switch by action of a magnet which controls the switch inside the one piece leak proof switch body. Control shall be suitable for pressure up to 150 psig (10 bar) and temperature to 212°F (100°C). Switch shall be W.E. Anderson Model No. V8.
Molded Plastic Air Velocity Meters

Mark II

Low in Cost – Direct Reading
Scales Offer 3% Accuracy – For Portable or Stationary Applications

Construction and installation features:
Construction is simple with virtually indestructible molded white styrene-acrylonitrile housing, indicating tube and fluid wells, molded ABS knobs and zero adjust plunger, shock mounted glass level vial and leak proof “O” ring seals. Scales are lithograph printed on aluminum and epoxy coated.

For stationary applications, the Mark II air velocity meters can be easily mounted on any vertical surface with the two screws provided. A built in spirit level simplifies leveling.

Just fill the reservoir, adjust fluid level to zero, connect the pitot tube, and it is ready for operation.

<table>
<thead>
<tr>
<th>ServiceFirst</th>
<th>Mfg. #</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAG09997</td>
<td>Mark II</td>
<td>0-7,000 fpm</td>
</tr>
</tbody>
</table>

Pitot tube not included
Digital Thermo-Anemometer

Series 471
Four Field Selectable Ranges from 500 to 15,000 FPM

Stainless steel probe with comfortable hand grip is etched with insertion depth marks from 0-8 inches and 0-20 cm on the Model 471-1. When fully extended, the probe length on models 471-2 and 471-3 reach 33 inches (83 cm). Model 471-3 features a telescoping bendable probe for easy access in hard-to-reach locations.

Extruded aluminum housing fully protects electronics, yet is lightweight and comfortable to hold even when taking multiple readings as part of duct traverses. An integral sliding cover protects sensors when not in use.

Standard accessories are 9 volt alkaline battery, wrist strap, custom fitted carrying case and step drill for making duct holes from 3/16" to 1/2".

MTR00947 (Model 471-2) Digital Thermo Anemometer with telescoping probe includes battery, wrist strap, 6-step drill, carrying case and instructions.

Specifications

Air Velocity Specifications:
Service: Air.
Range: Field Selectable 0-500, 0-1500, 0-5000, 0-15000 FPM (see chart for Metric Conversions).
Accuracy: Depending on range (See chart) @ 59 to 86°F (15 to 30°C). Outside this range add 0.11% per °F (0.2% per °C).

Temperature Limits: Probe: 0 to 200°F (-18 to 100°C).
Ambient: 32 to 104°F (0 to 40°C).

Extruded aluminum housing fully protects electronics, yet is lightweight and comfortable to hold even when taking multiple readings as part of duct traverses. An integral sliding cover protects sensors when not in use. Standard accessories are 9 volt alkaline battery, wrist strap, custom fitted carrying case and step drill for making duct holes from 3/16" to 1/2".

MTR00947 (Model 471-2) Digital Thermo Anemometer with telescoping probe includes battery, wrist strap, 6-step drill, carrying case and instructions.

Temperature Specifications:
Range: 0 to 200°F (-18 to 100°C).
Accuracy: ±2°F (1°C).
Temperature Limits: Probe: 0 to 200°F (-18 to 100°C).
Ambient: 32 to 104°F (0 to 40°C).
Display: 4-1/2 Digit 0.4" high.
Resolution: 1 FPM / 0.1 MPS.
Response Time: 15 Seconds.
Power Requirements: 9 volt alkaline battery, included.
Probe: 5/16" (8.13 mm) diameter probe with integral hand grip and 6 ft. (15.2 cm) coiled cord. Length of probe: Model 471-1=10" (25.4 cm); Models 471-2 and 471-3= 33" (83 cm) extended.

Weight: 12 oz (340 g).

Display: 4-1/2 Digit 0.4" high.
Resolution: 1 FPM / 0.1 MPS.
Response Time: 15 Seconds.
Power Requirements: 9 volt alkaline battery, included.
Probe: 5/16" (8.13 mm) diameter probe with integral hand grip and 6 ft. (15.2 cm) coiled cord. Length of probe: Model 471-1=10" (25.4 cm); Models 471-2 and 471-3= 33" (83 cm) extended.

Weight: 12 oz (340 g).

<table>
<thead>
<tr>
<th>Range Number</th>
<th>Velocity, FPM</th>
<th>Velocity, MPS</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0-500</td>
<td>0-3.0</td>
<td>±3% F.S.</td>
</tr>
<tr>
<td>2</td>
<td>0-1500</td>
<td>0-7.0</td>
<td>±3% F.S.</td>
</tr>
<tr>
<td>3</td>
<td>0-5000</td>
<td>0-30</td>
<td>±4% F.S.</td>
</tr>
<tr>
<td>4</td>
<td>0-15000</td>
<td>0-75</td>
<td>±5% F.S.</td>
</tr>
</tbody>
</table>
Portable Magnehelic®
Pressure-Air Velocity Gages

Use with Pitot tube for air velocity measurement or without for pressure measurement. Easy and quick to use, Portable Magnehelic® Gages with dual scale are less sensitive to level than liquid gages, yet offer accuracy to ±2% over the full scale. Air Velocity Scale provides direct reading for standard air without conversions. They are handy to use on a ladder or in confined locations encountered in field testing. Dwyer magnetic linkage provides exceptionally responsive, consistently accurate indication of air velocity, positive, negative or differential pressures in air and non-corrosive gases. Pointer movement is inertia-free and drift-free. Highly resistant to shock and vibration.

Portable Magnehelic Unit includes:
Maximum total pressure rating 15 psig. Ambient temperature range 30 to 140°F. Aluminum stand iridite-dipped; gage has baked gray hammerloid finish. Furnished in gray plastic carrying case. Connections include 1/8" NPT high and low pressure taps, duplicated—one pair side and one pair back. Two 1/8" NPT plugs included. Rubber Tubing and Adapters — One 9 ft. length of 3/16" I.D. tubing, terminal tube and two pipe thread to tubing adapters.

<table>
<thead>
<tr>
<th>ServiceFirst Item #</th>
<th>Mfg. #</th>
<th>Pressure, Inches w.c.</th>
<th>Velocity, FPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAG01025</td>
<td>2001AV-Port</td>
<td>0.1.0</td>
<td>500-4000</td>
</tr>
<tr>
<td>GAG01003</td>
<td>2002AV-Port</td>
<td>0.2.0</td>
<td>1000-5600</td>
</tr>
</tbody>
</table>
Air Velocity Kit

Model KIT09645 (475-1-FM-AV)

Includes Digital Manometer, Pitot Tube, Accessories

Convenient all-in-one kit is small, light and easy to use. No set-up or leveling needed. Digital manometer reads from 0-19.99 in. w.c. with ±0.5% F.S. accuracy and minor divisions to 0.01. Large 1/2" LCD readout is easy to see in poorly lighted areas and has “low battery” warning. Included is a 6" stainless steel Pitot tube with integral compression fitting to hold it securely when taking readings. Also, two static pressure tips with magnetic mounting measure pressure drop across filters, condenser coils, etc. Kit comes complete with rubber tubing, 9V battery, step drill, AV calculator slide rule, and custom fitted carrying case. An indispensable test kit for the plant engineer, industrial hygienist and HVAC technician.

KIT09645 (475-1-FM-AV) Air Velocity Kit

Complete Kit Includes:
- Model 475-1 Digital Manometer, range 0-19.99 in. w.c.
- Model 166-6-CF, 6" Pitot Tube with Compression Fitting
- Two No. A-303 Static Pressure Tips with Magnetic Mounting
- Two 9 Ft. Lengths 3/16" I.D. Rubber Tubing
- No. A-397 Step Drill for 3/16"-1/2" Holes in 1/16" Increments
- No. A-532 AV Slide Chart
- 9 Volt Battery
- Fitted Polyethylene Case
Air Meter

No. 460

A Low-Cost, Direct Reading Instrument Used for Both Air Velocity & Static Pressure Tests

Simple and quick, the No. 460 Air Meter is popular for servicing air conditioning, heating and ventilating equipment. Direct reading velocity and static pressure scales — both low and high ranges — show supply and return grille velocities, furnace draft, pressure drop across filters, etc. The 460 gives consistent, accurate results with no tedious calibration. Rugged plastic for rough daily use. Dual velocity ranges read 260-1200 and 1000-4000 fpm; pressure ranges from .005-.09 and .05 - 1.0 inches w.c.
Smoke Gage Kit

No. 920
Complete Kit, Includes 10 Components

Popular with professional heating engineers, the No. 920 Smoke Gage Kit includes these quality components:

1. Dwyer Smoke Gage Pump — Fast working; the first known unit to conform with ASTM D-2156-XX standards for testing smoke density in flue gases from burning distillate fuels. Filter paper clamps instantly into pump inlet.
2. Hole Plugs — Packet of 20 to fill awl holes.
3. Smoke Chart — For easy comparison with samples taken. Laminated plastic, wipes clean.
4. Awl — Pierces smoke pipe for thermometer and sampling tubes. Large, comfortable plastic handle.
6. Metal Terminal Tube — 8-1/2” long, heavy gauge brass.
8. Rubber Tubing — Flexible, long-lived.
10. Kit Case — Tough, durable, one piece high density polyethylene with living hinge and clasp. Foam liner protects contents.

Easy-to-Use Smoke Gage Kit enables you to quickly balance maximum CO₂ with minimum smoke for clean, efficient combustion. Simply take an actual sample of the smoke being tested and compare it to the standards on the Smoke Chart included. Just 10 full strokes of the pump produces an accurate test sample. Complete testing instructions are included.

KIT12065 (No. 920) Smoke Gage Kit
Combustion Test Kit

No. 1200-B
A Complete Kit – With Extra Supplies to Save You Time and Money

Quick and Easy-to-Use Dwyer Combustion Test Kit.
Measure all four factors that govern overall efficiency: CO₂ content, draft, stack temperature and smoke. Accuracy to ±1/2% CO₂ fully meets the requirements of the professional Heating Engineer. Yet an apprentice can follow the simple, illustrated step-by-step instructions. Add a small pitot tube, which will fit into the kit case, for air velocity measurements.

1. New easy-to-carry, impact resistant polyethylene. Carrying Case with handle.
2. No. 1101 CO₂ Indicator — Clear acrylic plastic, virtually unbreakable.
3. Aspirator Bulb, Filter and Tubing Assembly.
4. Filter Wool — Extra supply in bag for about 1000 tests.
5. No. 171 Draft Gage — Continuously indicating, permanently accurate. 0 to .25” W.C. range in .01 divisions.
6. Dwyer Smoke Gage Pump — Fast-working, the first known unit to conform with ASTM D-2156-XX standards for testing smoke density in flue gases.
8. Magnehelic® Gage — 0-.25” W.C. and 300 to 2000 FPM. Included in Model 1200-B kit below.
10. CO₂ Absorbent Solution — Extra supply for many tests.
11. No. A-503 Stack Thermometer — Dial type, stainless steel 200 to 1000°F.
12. Gage Oil — Long-lasting extra supply.
13. Spring Holders — For thermometer and terminal tubes.
15. Smoke Chart — Laminated plastic, for comparison with samples taken.
18. Combustion Data Cards and Parts List — Plastic, weighs only 6 lb 8 oz.

KIT12066 (No. 1200-B) Combustion Test Kit
Includes portable Dwyer Magnehelic® Draft Gage with large 4” dial instead of No. 171 Inclined Draft Gage, 0 to .25” W.C. range in .01 divisions. Also has air velocity scale with 300 to 2000 F.P.M., range. No leveling necessary; no gage oil required. Kit is otherwise identical to No. 1200-A and weighs only 7 lb 5 oz.

8. Magnehelic® Gage — 0-.25” W.C. and 300 to 2000 FPM. Included in Model 1200-B kit below.
10. CO₂ Absorbent Solution — Extra supply for many tests.
11. No. A-503 Stack Thermometer — Dial type, stainless steel 200 to 1000°F.
12. Gage Oil — Long-lasting extra supply.
13. Spring Holders — For thermometer and terminal tubes.
15. Smoke Chart — Laminated plastic, for comparison with samples taken.
18. Combustion Data Cards and Parts List — Plastic, weighs only 6 lb 8 oz.
**Accessories**

**Gage Fluids**
Gage fluids in the 3/4 ounce size are furnished in unbreakable plastic dispenser type bottles. Larger sizes are supplied in plastic bottles with screw caps. CAUTION: Use only Dwyer fluids in Dwyer gages.

Red Gage Oil, .826 sp. gr. The standard fluid for use in inclined manometers, “D” type vertical manometers and all Dwyer gages using red oil.

- OIL00156 (A-101), 3/4 oz. dispenser bottle
- OIL00157 (A-102), 4 oz. bottle

**Gage Tubing**
Clear plastic tubing is easily inspected and is therefore best for test applications where a possibility of fluid entering the tubing exists. Rubber tubing has less tendency to kink in storage and occupies less space, thus is best for portable work. Metal tubing is recommended for permanent installations. Double column tubing is used with Mark II manometers and the Wind Speed Indicator.

- TUB11284 (A-201), Rubber Tubing, 3/16” I.D., 9 ft length
- TUB11345 (A-221-100), Flexible Vinyl Tubing, Clear 1/8” I.D. x 3/16” O.D. 100 ft. lengths, 40 psi maximum pressure @ 165°F
Accessories

Static Pressure Sensors

These sensors are for use with manometers, Magnehelic® gages, pressure switches and other controllers to pick up or sense static pressure drop across air filters and cooling coils, blower input and discharge pressures, etc. The angled tips shown have 4” insertion depth. Each has four radially drilled .040” sensing holes. All except Model A-303 mount in 3/8” hole in duct. For portable use, a magnet holds No. A-303 in place. No. A-305 is used where a very low actuation or sensing point is required on a pressure switch or gage or where response time is critical. No. A-307 and A-308 are suitable for use in low velocity systems or where the need for accuracy is less critical.

SEN01275 (A-301), Static Pressure Tip, for 1/4” metal tubing connection
SEN01276 (A-302), Static Pressure Tip, for 3/16” and 1/8” I.D. plastic or rubber tubing
SEN01277 (A-303), Portable Static Pressure Tip, for 3/16” I.D. rubber or plastic tubing with 4” insertion
SEN01278 (A-305), Static Pressure Tip, low resistance application, furnished with two (2) hex jam nuts and two (2) mounting washers for duct mounting and with 1/8” NPT pipe thread for pressure connection
SEN01279 (A-306), Outdoor static pressure sensor. Provides average outdoor pressure signal for reference in building pressurization applications. Includes sensor, 50 ft. vinyl tubing, mounting bracket and hardware
FTG01022 (A-307), Static Pressure Fitting, for 1/4” metal tubing connection
FTG01023 (A-308), Static Pressure Fitting, for 3/16” and 1/8” I.D. plastic or rubber tubing

Valves - Connectors

Instrument valves for permanent installation. They mount in part A-316, A-317, type C manometer connections or Magnehelic® gage and connect to metal tubing or 1/8” pipe.

VAL08310 (A-310A), 3-Way Vent Valve, plastic, 1/8” NPT to 1/4” metal tubing. Positions are: (1) Line: Gage connected to pressure source. (2) Off: Both gage and connection to pressure source closed. (3) Vent: Gage vented to atmosphere and connection to pressure source closed. 80 PSI rating. Replaces former model A310 (brass)
CON01272 (A-315) Gage connector, shut-off type, for 3/16” rubber tubing
## Accessories

### Fittings - Filters

- **PLG00033 (A-331)**, 1/8” NPT Filter Vent Plug, nylon and sintered metal
- **ADP01103 (A-339)**, Adapter, brass, 1/8” NPT to 3/16” rubber and 1/8” I.D. plastic tubing
- **TEE00957 (A-342)**, “T” Assembly, plastic, for 3/16” I.D. rubber or 1/4” plastic tubing
- **FLG01114 (A-345)**, Flange, aluminum with gasket and sheet metal screws, 1/8” NPT

### Miscellaneous

- **PLT03904 (A-368)**, Surface mounting plate, aluminum, for Magnehelic® gage
Accessories

Carrying Cases

Steel cases are substantially constructed and finished in gray hammerloid. Molded plastic cases are gray, high density polyethylene.

HDL00954 (A-402A), Nylon Carrying Pouch for Series 475, 477 490 Digital Manometers and Series 450 CO Monitor — 7-1/2” x 3” x 2-1/4”

HDL00953 (A-432), Plastic Carrying Case for Magnehelic® Gage includes mounting stand, rubber tube, etc.

Optional Accessory Kits for Air Filter Switches

KIT09668 (A-602), Air Filter Kit. Accessory package for using switch without a gage includes two pressure tips with integral compression fittings, two 5 ft. lengths of 1/4” aluminum tubing and two 1/8” NPT to 1/4” tubing compression fittings.

KIT09646 (A-604), “T” Kit. Accessory package for using pressure switch in conjunction with Mark II gages includes two plastic tubing connector tees and two plastic tubing to 1/8” NPT adapters.

Slide Chart

TOL02245 (A-532), Air Velocity Calculator Slide Chart
## Cross Reference

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