

Differential Pressure for Filter Restriction

20DP, 25DP, A20DP and A25DP Series

2 and 2-1/2 in. (51 and 64 mm) Dial



20DP-50

- Monitors Engine Oil and Fuel Filters
- Actuates Alarm or Shutdown System When Filter Becomes Clogged
- Combination Indicating Gage and Limit Switch
- Actuates Filter Backwash
- Signals Coolant Loss or Aeration On Engine Water Pump

Description

The 20DP and A20DP Series (2 inch/51 mm dial) and the 25DP and A25DP Series (2-1/2 inch/64 mm dial) SWICHGAGE® models are diaphragm-actuated, differential pressure-indicating gages, with a built-in electrical switch. This switch is used for tripping alarms and/or shutting down equipment. These gages are intended to monitor and indicate oil, fuel or water filter restriction and can reduce the risk of dangerously high pressure which may rupture the filter, resulting in contaminants entering the system.

The 20DP and 25DP series mechanism is enclosed in a steel case coated to resist corrosion. The A20DP and A25DP series have a polycarbonate case and are sealed from the environment. All feature a polycarbonate, break-resistant lens and a polished, stainless steel bezel to help protect these rugged, built-to-last instruments.

The gage pointer acts as a pressure indicator and as one switch pole which completes a circuit when it touches the adjustable limit contact. Contacts have self-cleaning motion to ensure electrical continuity.

Features

- **CONSTANT VISUAL INDICATION** of the condition of your filter is shown on the dial.
- **TWO INSTRUMENTS IN ONE** – an accurate indicating gage and adjustable p.s.i.d. limit switch. Reduces inventory and installation time.
- **ADJUSTABLE CONTACT** lets you set the monitoring range of the gage. The contact is tamperproof and can be set only with a 1/16 Allen-head wrench.
- **DURABILITY** – All gages are made of durable materials allowing them to withstand rugged applications.

- **EARLY FILTER CHANGES** cost you money and increase the risk of contaminants entering the system. A Murphy filter restriction SWICHGAGE® will let you know when to change the filter and maintain peak efficiency.

Specifications

Dial: White on black, dual scale; U.S.A. standard scale is psi/kPa. Other scales available—inquire.

Case: 20DP and 25DP Series: *plated steel.*

A20DP and A25DP Series: *polycarbonate.*

Bezel: Polished stainless steel, standard; others are available (see How to Order).

Lens: Polycarbonate, high-impact.

Temperature Range:

Ambient: -40°F (-40°C) thru 150°F (66°C).

Process: -40°F (-40°C) thru 250°F (121°C).

Process Connection: 1/8-27 NPTM brass.

Sensing Element: Beryllium copper diaphragm.

Gage Accuracy: ±3% maximum across scale.

Adjustable Limit Contact: SPST contact; pilot-duty only, 2 A @ 30 VAC/DC; closed when the low limit is met, open when pointer is in normal operating range. Contacts are gold flashed silver.

Limit Contact Adjustment: by 1/16 in. hex wrench thru 100% of scale.

Limit Contact Wire Leads (20DP and 25DP Series): 18 AWG (1.0 mm²) x 12 in. (305 mm).

Limit Contact Terminals: A20DP Series number #4 screw terminals. A25DP Series number 6 terminals.

Snap-Switch Rating (“DPE” models):

SPDT, 3 A @ 30 VDC inductive; 4 A @ 125 VAC inductive.

Unit Weight:

20DP and A20DP Series: 9 oz. (0.25 kg);

25DP and A25DP Series: 11 oz. (0.29 kg).

Unit Dimensions:

20DP and A20DP Series: 3 x 2-3/4 x 2-3/4 in. (76 x 70 x 70 mm).

25DP and A25DP Series: 4-3/4 x 4-3/4 x 2-3/4 in. (121 x 121 x 70 mm).

Base Models

20DP, 25DP, A20DP and A25DP SWICHGAGE®

The gage pointer makes with an adjustable contact to complete a pilot-duty circuit.

20DPE, 25DPE, A20DPE and A25DPE SWICHGAGE®

20DPE (was 20DPEO), 25DPE (was 25DPEO), A20DPE (was A20DPEO) and A25DPE (was A25DPEO).

Features an internal snap-acting SPDT switch, instead of the single pole/pointer contacts. When the switch closes on rising pressure, it becomes Set, as pressure falls the switch Resets.

20DPG, 25DPG, A20DPG and A25DPG MURPHYGAGE®

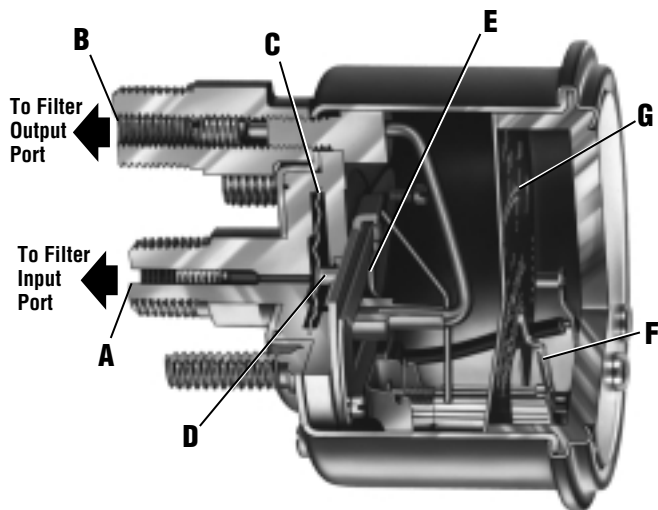
Gage without contact(s).

Warranty

A two-year limited warranty on materials and workmanship is given with this Murphy product. Details are available on request and are packed with each unit.

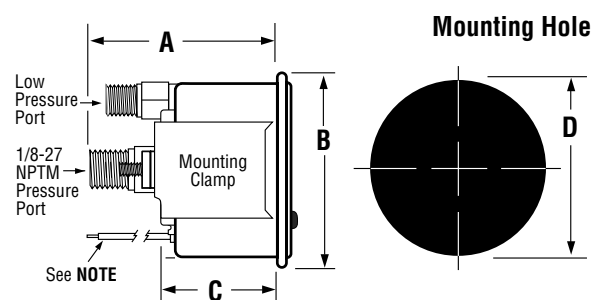
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Operating Characteristics



Port **A** connects to the input side of the filter. Pressure pushes diaphragm **C** forward thus pushing the button **D** which turns the crank arm **E** which in turn moves pointer **F** to register the amount of pressure on dial **G**. Port **B** connects to the outlet side of the filter. Pressure is exerted through tube **H** and pushes on the diaphragm thus applying pressure on both sides of the diaphragm. The pointer displays pressure in the amount that the input pressure is greater than the outlet pressure. As the filter is restricted by contaminants and the pressure difference reaches the critical point, the pointer touches the pre-set limit contact and shuts down the system or activates a visual or audible signal to alert the operator.

Dimensions



	20DP Series	A20DP Series	25DP Series	A25DP Series
A	2-7/32 (56)	2-9/64 (54)	2-1/8 (54)	1-51/64 (46)
B	2-15/64 (57)	2-1/4 (57)	3-1/8 (79)	2-29/32 (74)
C	1-5/16 (33)	1-27/64 (36)	1-3/8 (35)	1-27/64 (36)
D	2-1/16 (53)	2-1/16 (53)	2-11/16 (68)	2-11/16 (68)

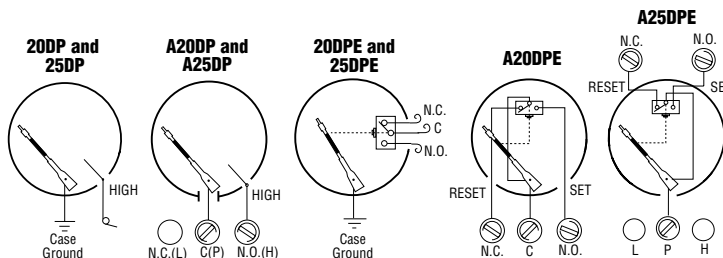
NOTE: 20 and 25 Series have 18 AWG (1.0 mm²) wire. A20 Series has #4 screw terminals and A25 Series has #6 terminals. Dimensions are in inches and (millimeters).

Ranges and Factory Settings

Ranges* Available	Max. Static Pressure	Max. Differential Pressure	Contact Setting
0-15 (0-103) [0-1.0]	200 (1.4) [14]	30 (207) [2.0]	10 (69) [0.8]
0-30 (0-207) [0-2.0]	300 (2.1) [20]	60 (414) [4.0]	20 (138) [1.0]
0-50 (0-345) [0-3.5]	300 (2.1) [20]	100 (690) [7.0]	30 (207) [2.0]
0-75 (0-517) [0-5.0]	300 (2.1) [20]	150 (1.0) [10]	50 (345) [3.5]
0-100 (0-690) [0-7.0]	300 (2.1) [20]	200 (1.4) [14]	60 (414) [4.0]

*Values are shown in psi, (kPa/MPa) and [bar]. Values in kPa/MPa and bar are mathematical conversions from psi—they do not reflect actual second scale range.

Internal Wiring



How to Order

To order, use the diagram below. List options in ascending alphabetical order (A-Z). Example: **20DP-F-30**.

Base Model	Range ^{††}
20DP	15 = 0-15
A20DP	30 = 0-30
20DPE	50 = 0-50
A20DPE	75 = 0-75
20DPG	100 = 0-100
A20DPG	

^{††}Select scale so your normal operating pressure is in the middle half of the scale.

Options[†]

A = Argon filled case (not available for A25DP, 25DPE, 20DPE Series)
B1 = Black bezel
B2 = Bezel 05051857 (was "HP")
B3 = Bezel 05051836 (was "HBB")
EX = Explosion-proof
EL = Explosion-proof less case

F = "FS" contact (includes "ES" as appropriate)
K = Knob adjusting face contact

[†]Options not available on all models or configurations.



FWMurphy

P.O. Box 470248
 Tulsa, Oklahoma 74147 USA
 (918) 627-3550
 fax (918) 664-6146
 e-mail sales@fwmurphy.com
 www.fwmurphy.com



CONTROL SYSTEMS & SERVICES DIVISION
 P.O. Box 1819; Rosenberg, Texas 77471; USA
 (281) 342-0297 fax (281) 341-6006
 e-mail sales@fwmurphy.com

MURPHY DE MEXICO, S.A. DE C.V.
 Blvd. Antonio Rocha Cordero 300, Fracción del Aguaje
 San Luis Potosí, S.L.P.; México 78384
 +52-48-206264 fax +52-48-206336
 e-mail ventasmex@murphymex.com.mx

FRANK W. MURPHY, LTD.
 Church Rd.; Laverstock, Salisbury SP1 1QZ; U.K.
 +44 1722 410055 fax +44 1722 410088
 e-mail sales@fwmurphy.co.uk
 www.fwmurphy.co.uk

For Service in French:
Pour service en français:
 +44 1722 410697 fax +44 1722 410088
 e-mail france@fwmurphy.co.uk
 www.fwmurphy.co.uk/francais.htm

MURPHY SWITCH OF CALIFORNIA
 41343 12th Street West
 Palmdale, California 93551-1442; USA
 (661) 272-4700 fax (661) 947-7570
 e-mail sales@murphyswitch.com
 www.murphyswitch.com

MACQUARRIE CORPORATION
 1620 Hume Highway;
 Campbellfield, Vic 3061; Australia
 +61 3 9358-5555 fax +61 3 9358-5558
 e-mail murphy@macquarrie.com.au

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Installation Instructions for Pressure and Vacuum 2 and 2-1/2 in. (51 and 64 mm) Dial MURPHYGAGE® and SWICHGAGE® Instruments. 20, 25, A20, A25 Series

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Section 05
(00-02-0162)



Please read the following instructions before installing. A visual inspection of this product for damage during shipping is recommended.

GENERAL INFORMATION

WARNING

BEFORE BEGINNING INSTALLATION OF THIS MURPHY PRODUCT

- ✓ Disconnect all electrical power to the machine.
- ✓ Make sure the machine cannot operate during installation.
- ✓ Follow all safety warnings of the machine manufacturer.
- ✓ Read and follow all installation instructions.

Description

The 2 and 2-1/2 in. (51 and 64 mm) dial size MURPHYGAGE® and SWICHGAGE® instruments are diaphragm-actuated, pressure or vacuum gages with a 1/8-27 NPTM pressure port connection (2 pressure ports for differential pressure models).

Models with face-adjustable contact(s) are rated for 2 A @ 30 V (pilot duty). If the gage case is steel (20P, 25P, 20DP, 25DP etc.) the ground path for the contact circuit is through the case. Therefore, the case must be installed in the ground plane of the electrical power supply.

If the case is polycarbonate (A20P, A20DP, A25P, A25DP etc.) the ground path is isolated and is made through the "C" or "P" terminals on the back of the gage case ("C" for A20 models; "P" for A25 models).

Models 20PE, 25PE, A20PE, A25PE etc. have a snap-acting switch instead of the face adjustable pointer type contact. Electrical rating is 3 A @ 30 VDC, 4 A @ 125 VAC. Reset differential for the switch is approximately 10% of the scale.

NOTE: Select a scale so your normal operating pressure is in the upper middle of the scale.



CAUTION: Certain dangers to human safety and to equipment may occur if some equipment is stopped without pre-warning. It is recommended that monitored functions be limited to alarm-only or to alarm before shutdown.

Alarm Before Shutdown Models

The 20PABS, A20PABS, 25PABS and A25PABS feature a front limit contact for equipment shut-down and an internal SPDT snap switch for Alarm Before Shut-Down. When the low side (preset point) of the snap switch trips, the N.C. terminal completes a circuit to activate an alarm. A continued decrease in pressure will complete the shutdown circuit. An increase in pressure of approximately 10% of scale is necessary before the snap-switch (alarm) will RESET and open the circuit.

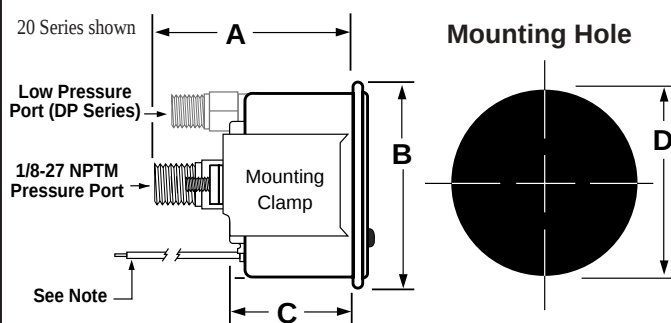
NOTE: Face contact shut-down limit setting and snap switch low point are factory-set; specify when ordering if setting is other than standard.

Typical TATTLETALE® Magnetic Switch

Murphy manufactures several, patented Magnetic Switches for protection of the pilot duty SWICHGAGE® contacts and to ensure positive shut-down of equipment. There are Magnetic Switches for CD ignition, Magneto, Battery systems and electric motor driven equipment. TATTLETALE® annunciators show the cause of shut-down. The first one to trip will lockout all other TATTLETALE® annunciators. Be sure the type of Magnetic Switch/TATTLETALE® matches the power source used to trip it.

NOTE: At equipment start-up (for models not having a built-in time delay) the reset button must be held in until normal operation occurs, or an external time delay may be used. Instructions are packed with each Magnetic Switch/TATTLETALE®.

Typical Mounting Dimensions



	20 Series	A20 Series	25 Series	A25 Series
A	2-7/32 (56)	2-9/16 (65)	2-1/8 (54)	1-51/64 (46)
B	2-15/64 (57)	2-1/4 (57)	3-1/8 (79)	2-29/32 (74)
C	1-5/16 (33)	1-1/4 (32)	1-3/8 (35)	1-27/64 (36)
D	2-1/16 (53)	2-1/16 (53)	2-11/16 (68)	2-11/16 (68)

NOTES: 20/25 Series: 18 AWG pigtails. A20/A25 series: #4/#6 screws. The dimensions above are in inches and (millimeters).

Panel Mounting

All models can be installed in a panel from 0.032 to 0.250 in. (1 to 6 mm) thick. Remove the mounting bracket and insert the gage from the front side of the panel. Replace bracket and secure it. Do **NOT** overtighten. (See Figure 2).

Connecting the Pressure Port

1. Pressure tubing is generally not provided. Use of good quality flexible pressure tubing/hose and fittings is strongly suggested. Use at least 3/16 in. (5 mm) I.D. tubing. If using copper or rigid tubing, install at least 12 in. (305 mm) flexible hose from the gage to the rigid tubing. This prevents damaging vibration from reaching the gage. For most models a pulsation orifice, within the pressure port, is provided and it is removable for cleaning (Figure 2).

2. Connect tubing to the 1/8-27 NPTM port. Use of non-hardening thread sealing compound is recommended although thread is "dry seal".

IMPORTANT: Make sure NOT to foul pressure orifices with sealant. NEVER exceed maximum pressure rating for the gage range; see chart on p-2.

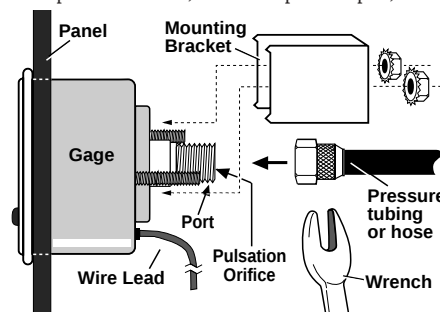


Figure 2

IMPORTANT: SWICHGAGE® instruments, Magnetic Switches and shut-down or alarm devices, properly used, are effective tools in any preventive maintenance program. For optimum performance, check these tools periodically: look for frozen pointers, kinked/worn tubing, broken wiring or loose connections; operate the contacts and watch for expected results. Replace damaged/worn parts; clean/repair as necessary. Check for correct/complete wiring, unbroken insulation and no accidental grounds. DO NOT run shut-down wires with ignition wiring. Check all tubing and connections for leaks. Mount Magnetic Switches and valves upright, to prevent moisture collection.



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Pressure Ranges and Factory Settings

Ranges Available		Maximum Pressure	Std. Settings*		Hi Settings**		20/25PABS Settings				Start-up Lockout Settings					
psi	Bar		psi	Bar	psi	Bar	Low		Alarm†		Contact		Lockout		Release (max.)	
0-15 (103)	1.0	30 psi (21 MPa)	3 (21)	0.2	12 (83)	0.8	3 (21)	0.2	6 (41)	0.3	3 (21)	0.2	4 (28)	0.3	6 (41)	0.4
0-30 (207)	2.0	60 psi (21 MPa)	7 (48)	0.4	24 (165)	1.6	7 (48)	0.4	10 (69)	0.6	4 (28)	0.4	7 (48)	0.5	10 (69)	0.7
0-50 (345)	3.5	100 psi (21 MPa)	10 (69)	0.8	40 (276)	2.8	10 (69)	0.8	13 (90)	1.0	10 (69)	0.5	13 (90)	1.0	20 (138)	1.4
0-75 (517)	5.0	150 psi (21 MPa)	15 (103)	1.0	60 (414)	4.0	15 (103)	1.0	18 (124)	1.5	10 (69)	0.7	15 (103)	1.0	23 (159)	1.6
0-100 (690)	7.0	200 psi (21 MPa)	20 (138)	1.5	80 (552)	5.5	20 (138)	1.0	23 (159)	1.5	20 (138)	1.0	25 (173)	2.0	35 (241)	2.4
0-150 (1.0 MPa)	10	300 psi (3.4 MPa)	30 (207)	2.0	120 (827)	8.0	30 (207)	1.5	33 (228)	2.0	20 (138)	1.5	30 (207)	2.0	45 (310)	3.1
0-200 (1.4 MPa)	14	400 psi (3.4 MPa)	50 (345)	3.0	150 (1 MPa)	10	50 (345)	3.0	53 (365)	4.0	40 (276)	3.0	50 (345)	3.5	70 (482)	4.8
0-300 (2.1 MPa)	20	500 psi (3.4 MPa)	75 (517)	5.0	225 (1.6 MPa)	15	75 (517)	5.0	78 (538)	5.0	50 (345)	3.5	75 (517)	5.0	105 (724)	7.2
0-400 (2.8 MPa)	28	500 psi (3.4 MPa)	150 (1MPa)	7.0	300 (2.1 MPa)	20	75 (517)	5.0	150 (1MPa)	10	100 (690)	6.0	—	7.0	150 (1MPa)	10

Values in () are mathematical conversions from psi to kPa/MPa—they do not reflect second scale range. U.S.A. standard scale is psi/kPa; U.K. standard scale is psi/bar. Consult factory for other scales.

* Standard setting for 20P/25P and 20PE/25PE models.

** Low settings for Hi/Lo option same as standard settings. Hi/Lo option available for 20P/25P models only.

† SPDT Snap-switch is the alarm switch.

Connecting Vacuum Models

The vacuum SWICHGAGE®/MURPHYGAGE® measures intake manifold vacuum and gives an indication of the load applied to the engine.

1. Mount the gage in a suitable location so that the face is visible and easily accessible.



CAUTION: Make SURE NOT TO FOUL the pressure orifices with pipe dope or dirt or the SWICHGAGE® instrument will not operate.

2. Connect suitable tubing to the 1/8-27 NPT port of the gage and to an open port in the intake manifold. Mounting kit V5179 is suggested and includes tubing and necessary fittings. The manifold fitting is 1/4 NPT. **Figure 3** shows a typical mounting using V5179 kit. A Murphy PD2160 is also recommended.
3. Be sure connections are tight—gage will not operate properly if line leaks.

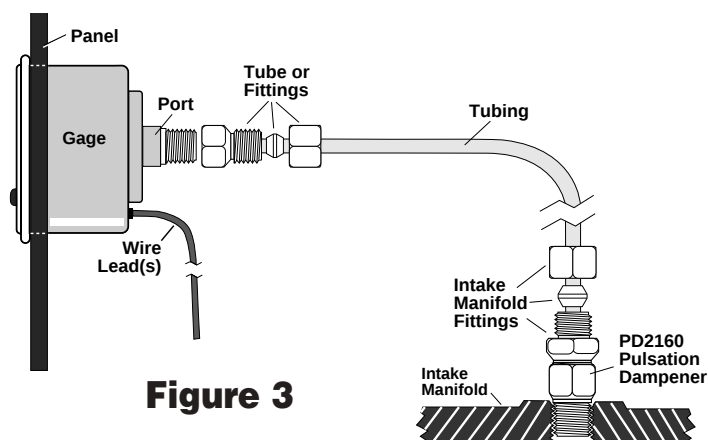


Figure 3

Connecting Differential Pressure Models

Differential pressure models are typically applied to indicate restriction in oil/fuel filters. The “High” pressure port (center mounted) is piped to the Inlet side of the filter. The “Low” pressure port (top center mounted) is piped to the Outlet side of the filter.



CAUTION: Make SURE NOT TO FOUL the pressure orifices with pipe dope or dirt or the SWICHGAGE® instrument will not operate.

1. To connect the high pressure tubing use at least 3/16 in. (5 mm) I.D. flexible pressure tubing/hose and fittings. If using copper or rigid tubing, install at least 12 in. (305 mm) flexible hose from the gage to the rigid tubing (to prevent damaging vibration to the gage, see **Figure 2**).

2. You **MUST** use a second wrench on the **Low Pressure** port when tightening tube fittings. (**Figure 4**). Notice that a wrench is used for holding the low pressure port while a second wrench will tighten the pressure tubing/hose fitting onto the port.



WARNING: Failure to use a second wrench on the low pressure port when tightening tube fittings may result in damage to the internal pressure tubing. Do NOT overtighten connection to port.

IMPORTANT: NEVER exceed maximum static pressure or differential pressure ratings for your gage range; stated in chart below.

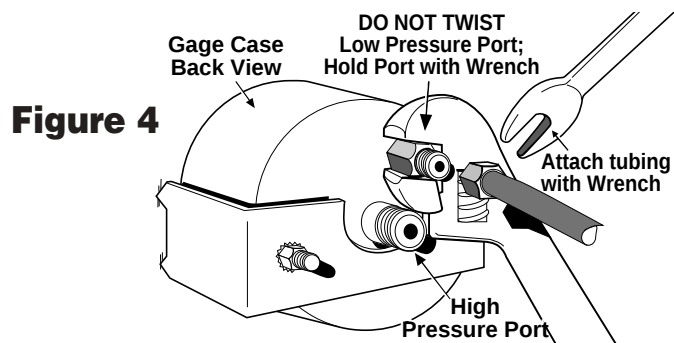


Figure 4

Ranges* Available	Max. Static Pressure	Max. Differential Pressure	Contact Setting
0-15 (0-103) [0-1.0]	200 (1.4) [14]	30 (207) [2.0]	10 (69) [0.8]
0-30 (0-207) [0-2.0]	300 (2.1) [20]	60 (414) [4.0]	20 (138) [1.0]
0-50 (0-345) [0-3.5]	300 (2.1) [20]	100 (690) [7.0]	30 (207) [2.0]
0-75 (0-517) [0-5.0]	300 (2.1) [20]	150 (1.0) [10]	50 (345) [3.5]
0-100 (0-690) [0-7.0]	300 (2.1) [20]	200 (1.4) [14]	60 (414) [4.0]

*Values are shown in psi, (kPa/MPa) and [bar]. Values in kPa/MPa and bar are mathematical conversions from psi—they do not reflect actual second scale range.

Setting the SWICHGAGE® contacts



IMPORTANT: If the SWICHGAGE® has a lockout push button on the face, a contact setting higher than the factory setting will make the lockout device inoperative.

For 20PE, 25PE, 25DPE, A20PE, A25PE and A25DPE models the switch trip point CANNOT be set at either the lowest or the highest extremes of the scale. Trip point MUST allow for the switch reset differential. For adjustable switch versions, the switch point is adjustable ONLY over the lower half of the scale.

1. All contacts are set using a 1/16 in. hex wrench (Figure 5).
2. Some models such as A20PE, A25PE, etc. may not have field adjustment. Consult the factory if in doubt. For adjustable models, 1/4 turn clockwise lowers switch operating point approximately 7% of scale.
3. Observe the "normal operating" pressure or vacuum readings. Set the contact slightly below minimum reading observed or slightly above minimum pressure recommended by equipment manufacturer. For differential pressure models set the contact slightly below the desired maximum differential pressure.

Testing the Contacts

1. With equipment running; use a 1/16 in. hex wrench to rotate contact until it touches the pointer. **Do NOT force contact against the gage pointer.** Equipment should shut down and/or alarm should operate. *Reset the contact* (See Figure 5).
2. **VERY IMPORTANT** Each time you start the machine, observe that the SWICHGAGE® is indicating pressure or vacuum. Visual inspection and regular testing should be normal procedure to ensure proper operation and to achieve maximum results from your SWICHGAGE®.

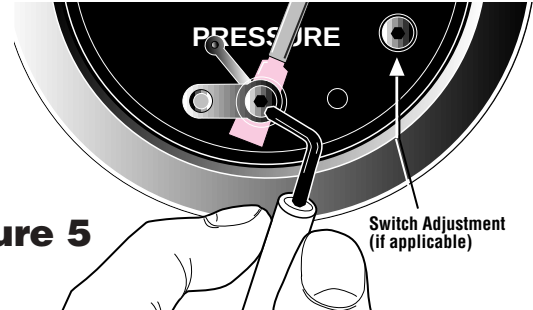


Figure 5

Wiring Installation



WARNING: DISCONNECT ALL ELECTRICAL POWER BEFORE BEGINNING THE WIRING INSTALLATION. FOR BATTERY IGNITION SYSTEMS, DISCONNECT THE BATTERY GROUND STRAP. FACE ADJUSTED POINT-ER TYPE CONTACTS ARE PILOT DUTY. DO NOT EXCEED CONTACT RATINGS ON ANY SWICHGAGE® MODEL.

20 and 25 Series models wire leads are 18 AWG or 20 AWG, 12 in. (305 mm) long. A20 and A25 Series models have number 4 or number 6 screw terminals.

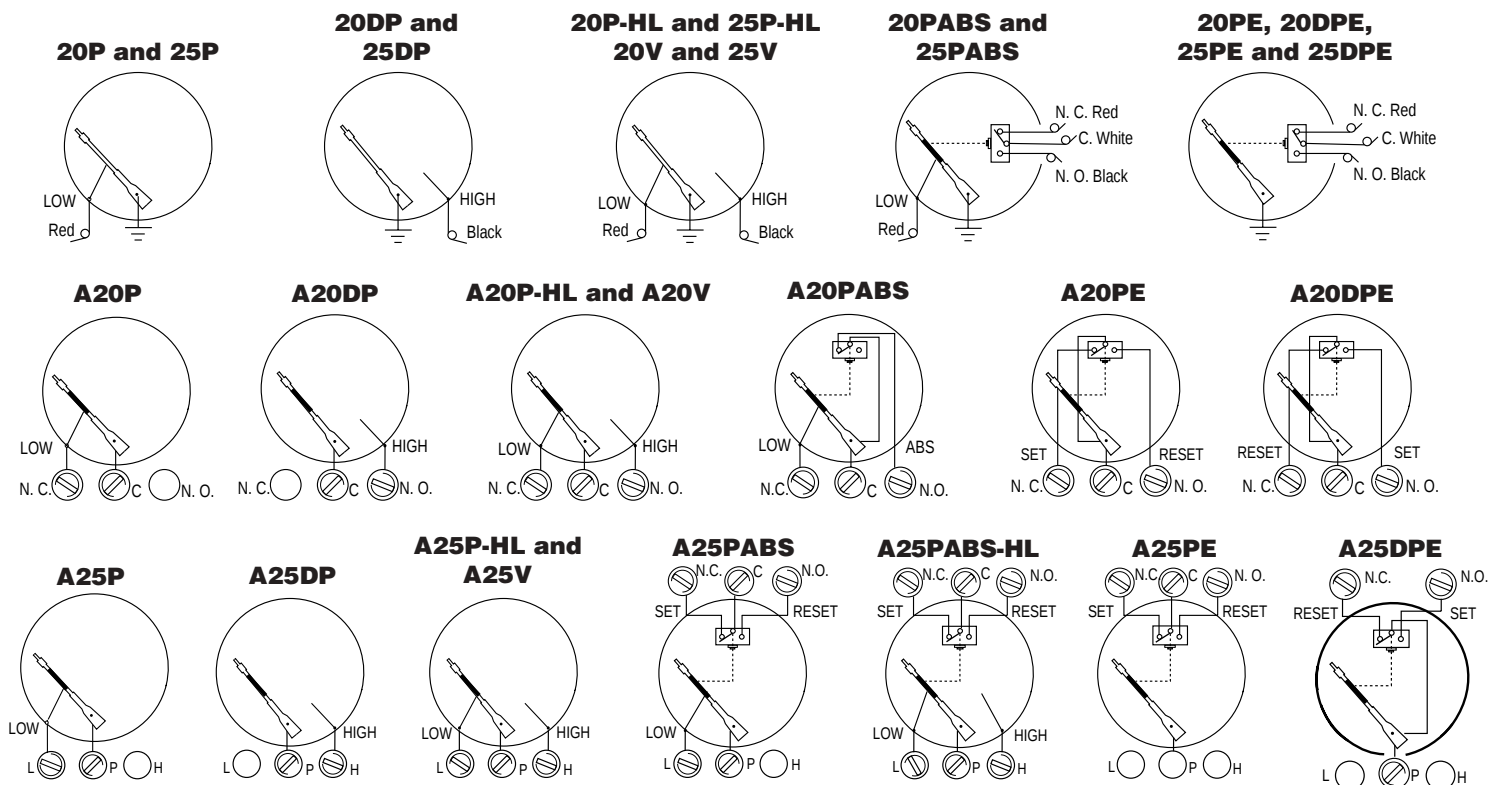
When installing the SWICHGAGE® on a ungrounded panel, you MUST provide a ground wire from the SWICHGAGE® to a common ground. Install ONLY in a 12 or 24 V system. Warning lights or audible signal MUST be of the same voltage as the battery. Current draw should NEVER exceed SWICHGAGE® contact ratings.

CAUTION: Ordinary incandescent lights are damaging to SWICHGAGE® contacts. We recommend using our direct connected alarms TL-7 flashing lamp and/or SAH MINI-SIREN®.

The pictorial below shows typical wirings for each base model. Look for specific typical wiring diagram with your base model number and wire accordingly.

The pointer is shown in the **Shelf Position**. Face adjusted pointer type contacts are rated pilot duty 2 A @ 30 VAC/DC. Snap-switch contacts are rated 3 A @ 30 VDC; 4 A @ 125 VAC.

CAUTION: On some models pointer contact and ABS switch share the same "Common". Voltage source MUST be the same. Maximum voltage is 30 V. Consult factory for applications with 120 VAC systems.



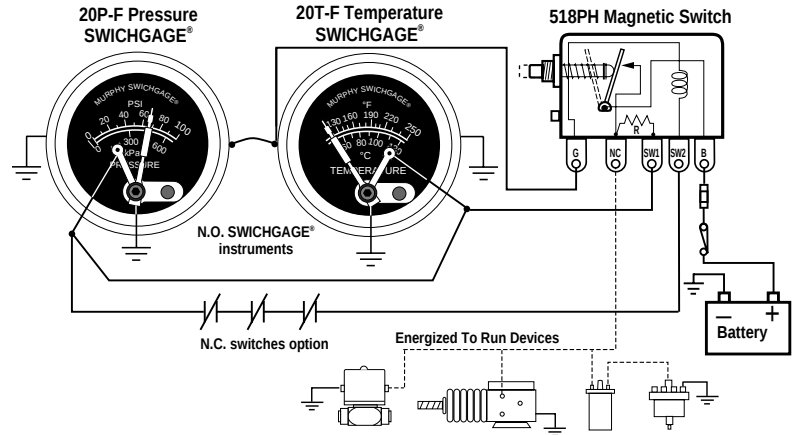
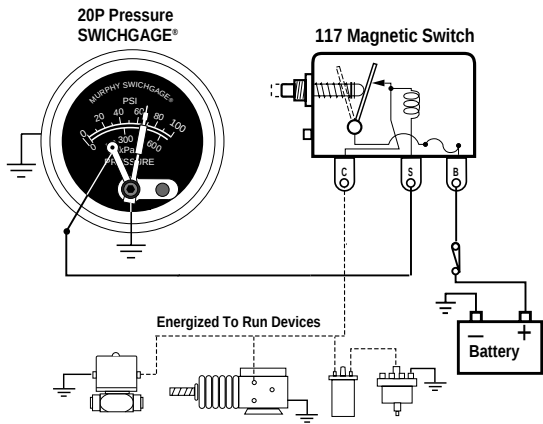
Installing The Magnetic Switch



WARNING: DISCONNECT THE BATTERY OR POWER SOURCE BEFORE BEGINNING THE INSTALLATION. SEE SPECIFIC WIRING INSTRUCTIONS PACKED WITH EACH MAGNETIC SWITCH / TATTLETALE®.

1. Mount with electrical lugs down. Drill mounting holes in panel.
2. Clean away burrs and filings. Position the Magnetic Switch in the panel, making sure the pilot stud is in place.
3. Add decal, then washer, then nut and tighten.

NOTE: Murphy components are easily wired and maintained. Use good quality wire and terminals. The type of Magnetic Switch differs for various applications. See typical wirings below. Wiring and instructions are packed with each Magnetic Switch.



Troubleshooting

DO THIS FIRST: Look for broken wiring, frozen pointer, dirty contacts (will not make), burnt pointer or contact. Verify that all wiring is intact and connections are tight. Verify that SWICHGAGE® has not been damaged (hit or dropped). Verify that there is pressure/vacuum supplied to the gage. Verify that the SWICHGAGE® is operative (it reads). Verify that the alarm or shutdown device is fully operable; and check other components such as spark plugs, ignition, fuel pump and filter, etc. Reset Magnetic Switch and verify that it stays latched.

SYMPTOM	CAUSE	TEST/REMEDY
Engine will not start.	1. Short or Open circuit, be sure the Magnetic Switch latches and puts out power to the run device or removes ground (ignition). Check for power/ground at run device. 2. Control circuit overloaded by accessories (blown fuse in Magnetic Switch). 3. False ground in control circuit.	1. Reset Magnetic Switch and make sure it stays latched. Refer to installation instructions for 518PH Magnetic Switch (provided with unit). 2. Find blown fuse and replace (use 14 A fuse). Reroute the accessories. 3. Repair.
False shutdown.	1. SWICHGAGE® circuit has intermittent open or short. 2. Vibration causes the Magnetic Switch to trip.	1. Check all wiring and repair/replace as necessary. 2. Repair and relocate the switch as needed.
SWICHGAGE® closes but does not trip the magnetic switch or kill the engine.	1. Incomplete shutdown circuit. 2. Dirty SWICHGAGE® contacts. 3. Ignition not providing power to primary terminal post. 4. SWICHGAGE® case may not be grounded. 5. Incorrect Magnetic Switch for type of power.	1. Locate open circuit and repair. 2. Clean and check that contacts make. 3. Repair ignition. 4. Ground case. 5. Replace with correct Magnetic Switch.
Magnetic Switch tripped but engine is still running.	1. Open circuit between the Magnetic Switch and the shutdown device. 2. Lost ground to kill the engine.	1. Check wiring from Magnetic Switch to shutdown device, repair or replace. 2. Check all wiring and connections and repair.
Pointer will not operate properly. Inaccurate reading.	1. Frozen pointer 2. Loose pointer spring (caused by hitting or dropping gage). 3. Plugged pressure orifice. 4. Over Pressure	1. Return for repair or replacement. 2. Return for repair or replacement. 3. Remove and clean. 4. Return for repair or replacement.
Pointer/contact burned-in two.	Without exception this condition is caused by incorrect wiring or short circuit.	Recheck wiring; replace SWICHGAGE® or return for repair.

Warranty

A two-year warranty on materials and workmanship is given with this FWMurphy product. A copy of the warranty may be viewed or printed by going to www.fwmurphy.com/warranty.

murphy®
FWMurphy
P.O. Box 470248
Tulsa, Oklahoma 74147 USA
(918) 317-4100
fax (918) 317-4266
e-mail sales@fwmurphy.com
www.fwmurphy.com

CONTROL SYSTEMS & SERVICES DIVISION
P.O. Box 1819; Rosenberg, Texas 77471; USA
(281) 633-4500 **fax** (281) 633-4588
e-mail sales@fwmurphy.com

MURPHY DE MEXICO, S.A. DE C.V.
Blvd. Antonio Rocha Cordero 300, Fracción del Aguaje
San Luis Potosí, S.L.P.; México 78384
+52-444-8206264 **fax** +52-444-8206336
Villahermosa Office +52-993-3162117
e-mail ventas@murphymex.com.mx
www.murphymex.com.mx

FRANK W. MURPHY, LTD.
Church Rd.; Laverstock, Salisbury SP1 1QZ; U.K.
+44 1722 410055 **fax** +44 1722 410088
e-mail sales@fwmurphy.co.uk
www.fwmurphy.co.uk

MURPHY SWITCH OF CALIFORNIA
41343 12th Street West
Palmdale, California 93551-1442; USA
(661) 272-4700 **fax** (661) 947-7570
e-mail sales@murphyswitch.com
www.murphyswitch.com

MACQUARRIE CORPORATION
1620 Hume Highway
Campbellfield, Vic 3061; Australia
+61 3 9358-5555 **fax** +61 3 9358-5558
e-mail murphy@macquarrie.com.au



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