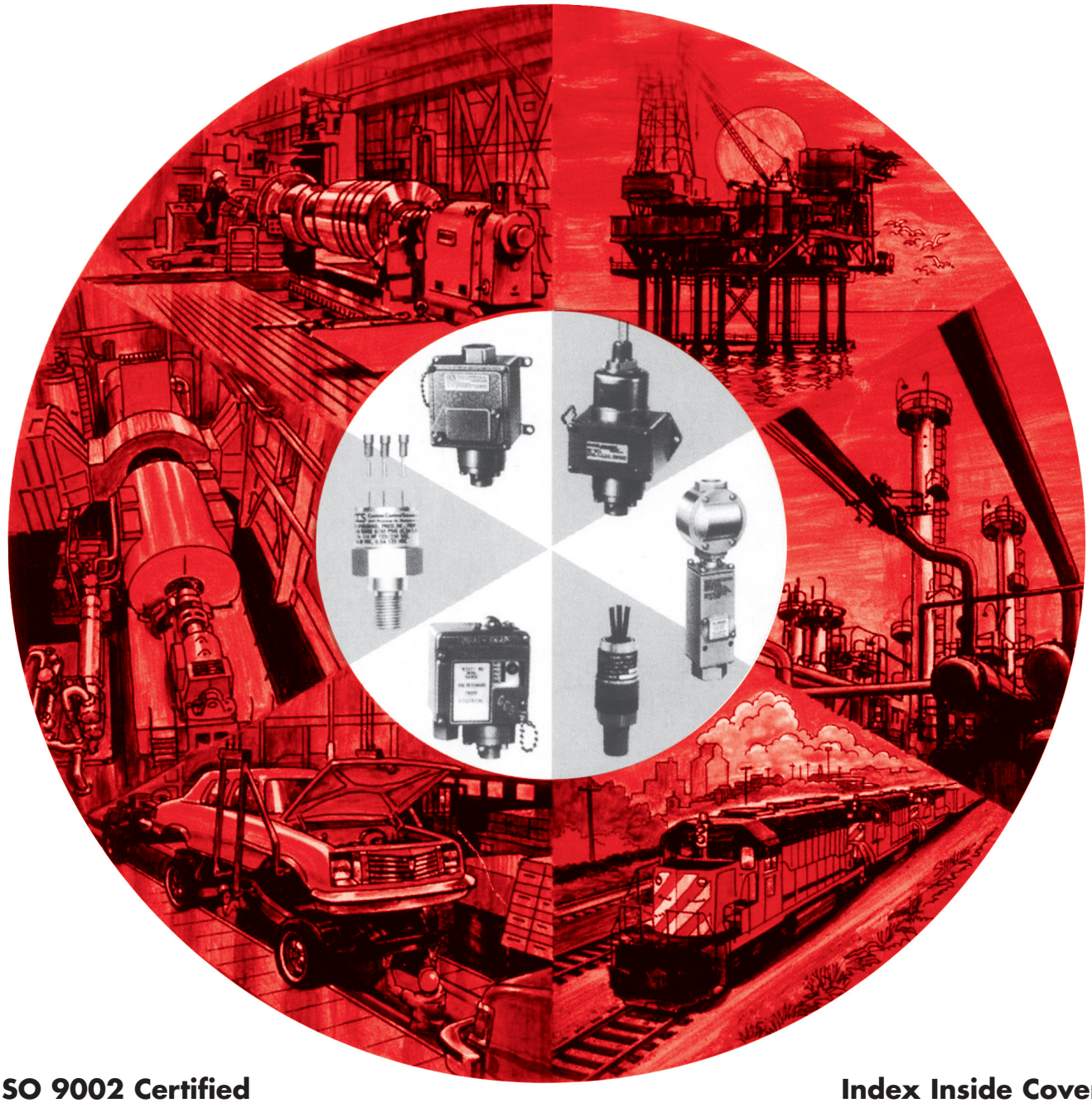
CCS™ DUAL-SNAP® COMPOSITE CATALOG

PRESSURE AND TEMPERATURE SWITCHES

AN ADJUSTABLE STANDARD SWITCH FOR EVERY APPLICATION



ISO 9002 Certified

Index Inside Cover

Custom Control Sensors, Inc.
21111 Plummer Street, Chatsworth, CA 91311
Tel: (818)341–4610 • Fax: (818)709–0426
e–mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com
European Sales Office: Unit 13, Shrivenham Hundred Business Park
Watchfield, Nr. Swindon, United Kingdom SN6 8TZ
Tel: (+441 793) 783–545 • Fax: (+441 793) 783–532
e–mail: dualsnap@ccsdualsnap.co.uk • http://www.ccsdualsnap.co.uk

WHERE TO BUY

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***CAUTIONS FOR INSTALLATION AND USE OF CCS PRESSURE, TEMPERATURE, AND FLOW SENSORS:**

WARNING: If this switch is used to protect equipment or personnel from unsafe pressure or to guard against the hazardous release of contained substances, it must be installed and operated in accordance with applicable codes, regulations and standards. This switch must be used in conjunction with system design(s) or procedure(s) necessary to mitigate any hazard resulting from its failure. Conform to installation instructions accompanying this switch. Individuals who ignore this warning may suffer serious or fatal injury and do so at their own risk. Custom Control Sensors is not liable for any misuse, abuse, suitability or adequacy of user's application of the switch.Service by qualified personnel only.

MEDIA: System media must be compatible with the specified wetted materials. Oxygen media cannot be utilized without special cleaning and packaging provided by the factory.

OPERATING CONDITIONS: The electrical load, ambient temperature ranges, and proof pressure specified must not be exceeded. Field adjustable units should be set no closer than 1/2 turn from either end of their adjustment range.

UL/CSA/BASEEFA/CENELEC: Field repairs or modifications of "listed" units may void the listing of the repaired or modified unit.

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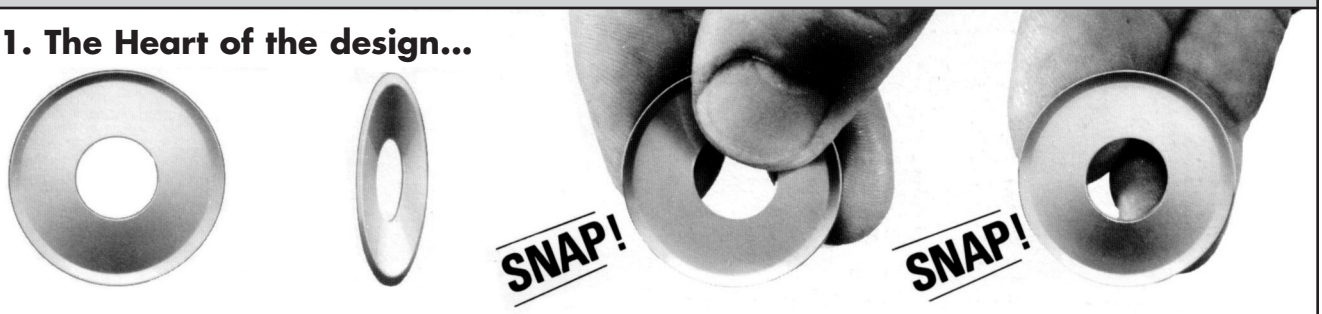
How a Wide Range DUAL–SNAP® Pressure Switch Works

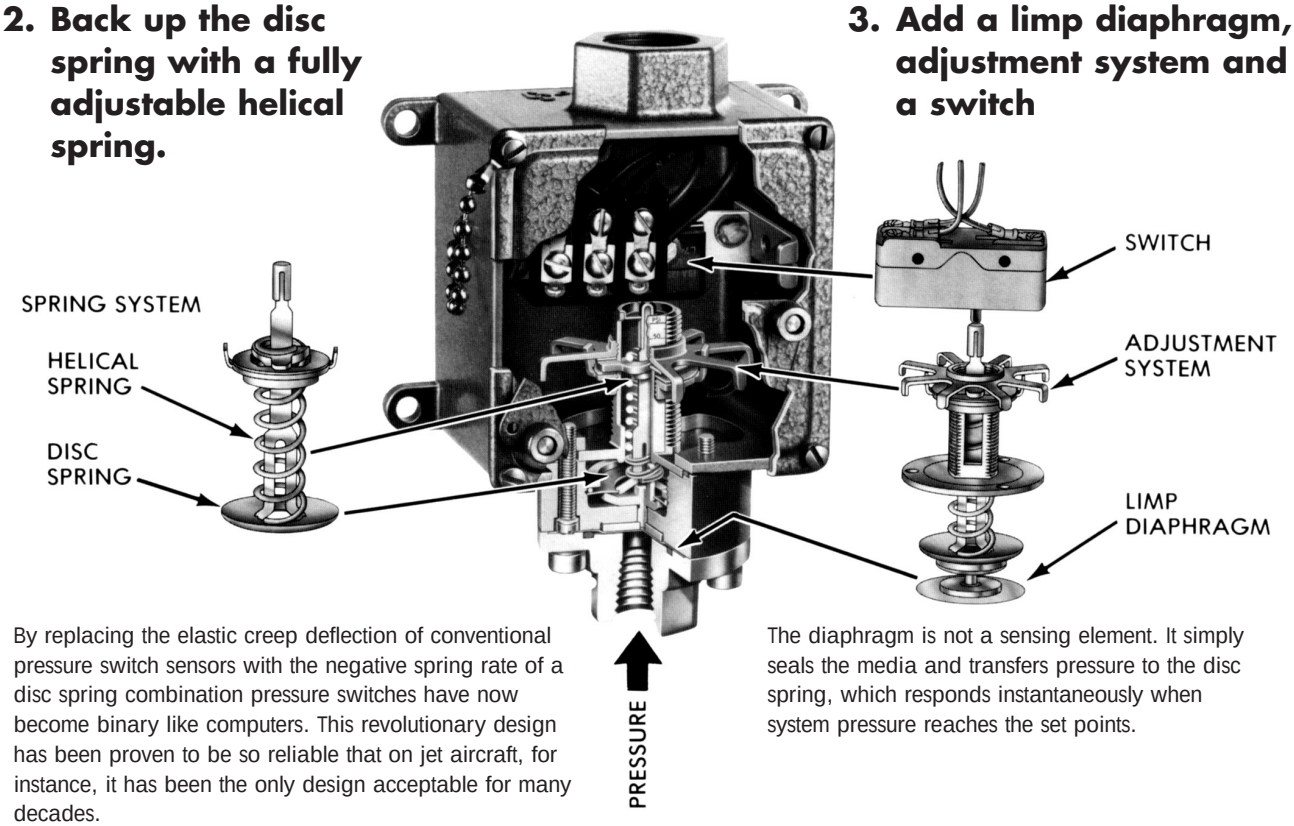
1. The Heart of the design...



- It's a convex disc spring with a center hole.
- It snaps to concave under pressure. And it snaps back when pressure is released.

2. Back up the disc spring with a fully adjustable helical spring.

3. Add a limp diaphragm, adjustment system and a switch



By replacing the elastic creep deflection of conventional pressure switch sensors with the negative spring rate of a disc spring combination pressure switches have now become binary like computers. This revolutionary design has been proven to be so reliable that on jet aircraft, for instance, it has been the only design acceptable for many decades.

The diaphragm is not a sensing element. It simply seals the media and transfers pressure to the disc spring, which responds instantaneously when system pressure reaches the set points.

4. Complete the system with components suitable for specific pressures, fluids and environments...and you have a Wide Range DUAL–SNAP® Pressure Switch with these advantages:

- Set points stay set – not sensitive to shock, vibration, temperature variations, or other ambient conditions.
- No "tracing" of fluctuating pressures – no "teasing" of the electrical element. The switch is either "on" or "off."
- Reduces the adverse effects of pump ripple, contact chatter, fatigue, premature wear, and other common switch problems.
- Maximum life expectancy with lifelong reliability and precise repeatability assured.
- A wide range of set points available in each switch model series.

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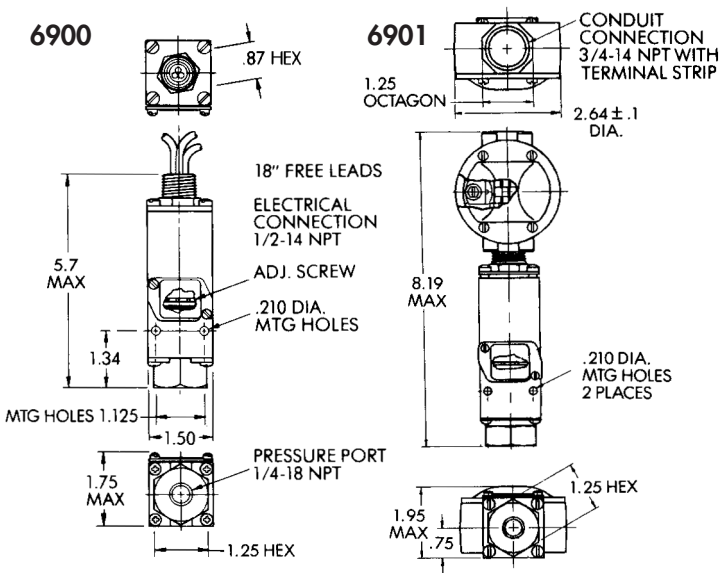
INSTALLATION DRAWING



6900G & 6900P
SHIPPING WT.
APPROX. 13 OZ.
(368 GRAMS)

6900GZ
SHIPPING WT.
APPROX. 15 OZ.
(425 GRAMS)

Press. **1** to **6500** psi

SERIES: 6900G 6900GZ 6900P

Standard Features:

- **NEMA: 4, 13**
- **Weatherproof**
- **Model 6900 CSA**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

PRESSURE SWITCHES MODEL 6900G • 1/4" ALUMINUM PRESSURE PORT & POLYIMIDE DIAPHRAGM — Wetted Parts: Aluminum Polyimide Buna N

Max Sys. Press. psi	Proof (Test) Press. psi	Adjustable Set–Point Range: On Incr. Press. psi	Adjustable Set–Point Range: On Decr. Press. psi	Approx. Dead–band psi	Free Leads: MODEL SPDT–Std.	Free Leads: MODEL DPDT "M"
500	750	3–20	1–18	2	6900G12	6900GM12
500	750	6–75	2–71	4	6900G14	6900GM14
1500	2000	12–150	4–142	8	6900G16	6900GM16
1500	2000	30–375	10–355	20	6900G18	6900GM18
2000	3000	300–1000	250–950	50	6900G20	6900GM20
3000	4500	700–2500	600–2400	100	6900G22	6900GM22

PRESSURE SWITCHES MODEL 6900GZ • 1/2" STAINLESS STEEL PRESSURE PORT & DIAPHRAGM — Wetted Parts: 316 SST Viton

500	750	3–20	1–18	2	6900GZ12	6900GZM12
500	750	9–75	3–69	6	6900GZ14	6900GZM14
1500	2000	18–150	6–138	12	6900GZ16	6900GZM16
1500	2000	45–375	15–345	30	6900GZ18	6900GZM18
2000	3000	300–1000	225–925	75	6900GZ20	6900GZM20
3000	4500	700–2500	520–2320	180	6900GZ22	6900GZM22

PRESSURE SWITCHES MODEL 6900P
• FOR HIGH CYCLING – LONG LIFE – HYDRAULIC APPLICATIONS
• PISTON PRESSURE SWITCH 1/4" ALUMINUM PRESSURE PORT

Hyd. psi	Hyd. psi				Wetted Parts: Aluminum 400 SST	Wetted Parts: Buna N Teflon
2000	3000	15–200	5–190	10	6900P32	6900PM32
3000	5000	150–1600	40–1490	110	6900P34	6900PM34
5000	7500	500–3200	330–3030	170	6900P36	6900PM36
10,000	13,000	2000–6500	1500–6000	500	6900P38	6900PM38

Options Code:
"A" Viton O–ring
"F" Ethylene Propylene O–ring
"7008" Gold Contacts
"7038" SST Port and SST Piston

Note:
Order 6901 Model for Terminal Strip

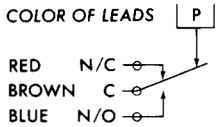
ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

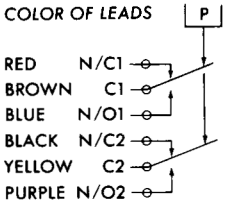
VOLTS	AMPERES SPDT Res.	AMPERES DPDT "M" Res.
125 AC – 50/60 Hz	11	11
250 AC – 50/60 Hz	11	11
30 DC	5	5
125 DC	.5	.5

SCHEMATIC AND WIRING CODE:

SPDT–Standard



DPDT "M"



ENCLOSURE/CERTIFICATIONS:

MODEL 6900 ONLY
CSA Certified for enclosure (4) non–hazardous locations (File No. LR22665).

HOW TO ORDER: **Specify model number, add desired "options" listing letter codes first followed by numbers:**

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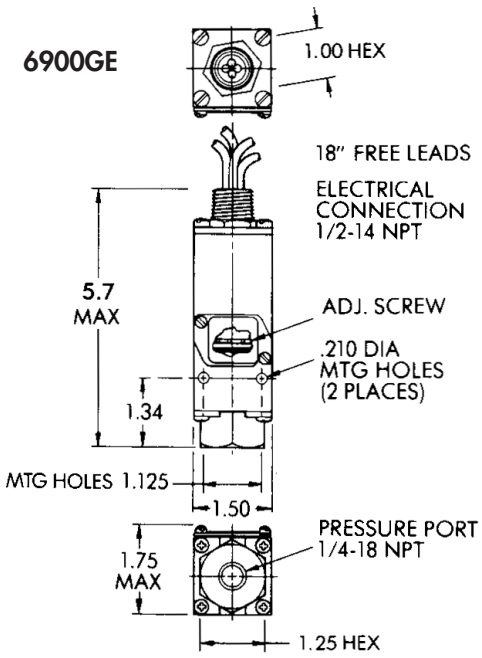
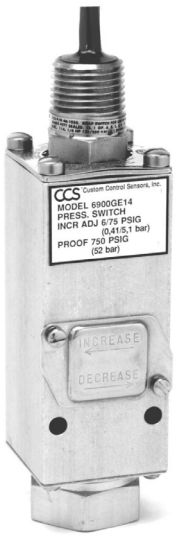
INSTALLATION DRAWING





6900GE & 6900PE
SHIPPING WT.
APPROX. 16 OZ.
(467 GRAMS)

Press. **1** to **6500** psi

SERIES: 6900GE 6900PE

Standard Features:
- **U.L./CSA**
- **Explosion Proof: Div. 1, 2**
- **NEMA: 4, 7, 9, 13**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

PRESSURE SWITCHES MODEL 6900GE

- 1/4" ALUMINUM PRESSURE PORT AND POLYIMIDE DIAPHRAGM

Max Sys. Press. psi	Proof (Test) Press. psi	Adjustable Set–Point Range: On Incr. Press. psi	Adjustable Set–Point Range: On Decr. Press. psi	Approx. Dead–band psi	Wetted Parts: Aluminum Polyimide Buna N — Model No.: MODEL SPDT–Std.	Model No.: MODEL DPDT "M"
500	750	3–20	1–18	2	6900GE12	6900GEM12
500	750	6–75	2–71	4	6900GE14	6900GEM14
1500	2000	12–150	4–142	8	6900GE16	6900GEM16
1500	2000	30–375	10–355	20	6900GE18	6900GEM18
2000	3000	300–1000	250–950	50	6900GE20	6900GEM20
3000	4500	700–2500	600–2400	100	6900GE22	6900GEM22

PRESSURE SWITCHES MODEL 6900PE

- FOR HIGH CYCLING – LONG LIFE – HYDRAULIC APPLICATIONS
- PISTON PRESSURE SWITCH 1/4" ALUMINUM PRESSURE PORT

Hyd. psi	Hyd. psi				Wetted Parts: Aluminum 400 SST	Buna N Teflon
2000	3000	15–200	5–190	10	6900PE32	6900PEM32
3000	5000	150–1600	40–1490	110	6900PE34	6900PEM34
5000	7500	500–3200	330–3030	170	6900PE36	6900PEM36
10,000	13,000	2000–6500	1500–6000	500	6900PE38	6900PEM38

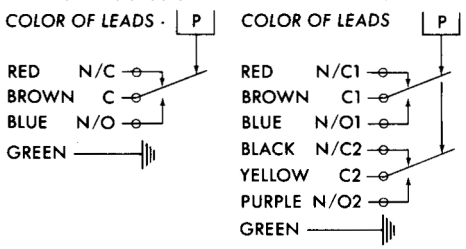
Options Code:
"A" Viton O–ring
"F" Ethylene Propylene O–ring
"7008" Gold Contacts
"7038" 316 SST Port & Piston
"7042" SST Body
"7043" SST Body & Gold Contacts
"7076" Teflon Wire

ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

VOLTS	AMPERES SPDT Res.	AMPERES DPDT "M" Res.
125 AC – 50/60 Hz	11	11
250 AC – 50/60 Hz	11	11
30 DC	5	5
125 DC	.5	.5

SCHEMATIC AND WIRING CODE:



ENCLOSURE/CERTIFICATIONS:

Div. 1 explosion–proof and hermetically sealed electrical assembly Part No. 46–1058 (46–1061 for "M" model option), listed by both Underwriter's Laboratories, Inc. (File No. E32961) and CSA Testing Laboratories (File No. 22921) for hazardous locations, Class 1, Groups A, B, C, and D; Class 2 Groups E, F, and G.

HOW TO ORDER: **Specify model number, add desired "options" listing letter codes first followed by numbers:**

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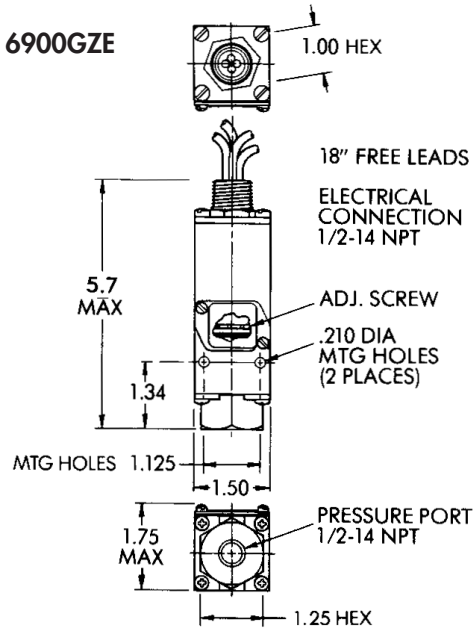
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

INSTALLATION DRAWING



6900GZE
SHIPPING WT.
APPROX. 19 OZ.
(539 GRAMS)

Press. **1** to **2500** psi

SERIES: 6900GZE

Standard Features:

- **U.L./CSA Explosion Proof: Div. 1, 2**
- **NEMA: 4, 7, 9, 13**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

PRESSURE SWITCHES MODEL 6900GZE • 1/2" STAINLESS STEEL PRESSURE PORT AND DIAPHRAGM — Wetted Parts: 316 SST Viton

Max Sys. Press. psi	Proof (Test) Press. psi	Adjustable Set–Point Range: On Incr. Press. psi	Adjustable Set–Point Range: On Decr. Press. psi	Approx. Dead–band psi	Model No.: MODEL SPDT–Std.	Model No.: MODEL DPDT "M"
500	750	3–20	1–18	2	6900GZE12	6900GZEM12
500	750	9–75	3–69	6	6900GZE14	6900GZEM14
1500	2000	18–150	6–138	12	6900GZE16	6900GZEM16
1500	2000	45–375	15–345	30	6900GZE18	6900GZEM18
2000	3000	300–1000	225–925	75	6900GZE20	6900GZEM20
3000	4500	700–2500	520–2320	180	6900GZE22	6900GZEM22

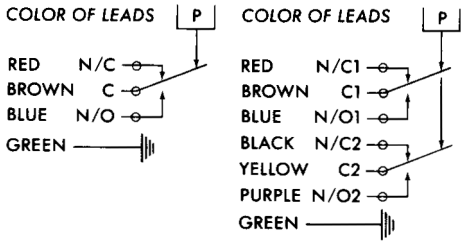
Options Code:
"F" Ethylene Propylene O–ring
"7008" Gold Contacts
"7042" SST Body
"7043" SST Body & Gold Contacts
"7044" Monel Port & Diaphragm
"7045" Hastelloy Port & Diaphragm
"7052" Exp. Proof w/3' Leads
"7054" Exp. Proof w/6' Leads
"7065" Exp. Teflon Wire & SST Diaphragm

ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

VOLTS	AMPERES SPDT Res.	AMPERES DPDT "M" Res.
125 AC – 50/60 Hz	11	11
250 AC – 50/60 Hz	11	11
30 DC	5	5
125 DC	.5	.5

SCHEMATIC AND WIRING CODE:



ENCLOSURE/CERTIFICATIONS:

Div. 1 explosion–proof and hermetically sealed electrical assembly Part No. 46–1058 (46–1061 for "M" model option), listed by both Underwriter's Laboratories, Inc. (File No. E32961) and CSA Testing Laboratories (File No. 22921) for hazardous locations, Class 1, Groups A, B, C, and D; Class 2 Groups E, F, and G.

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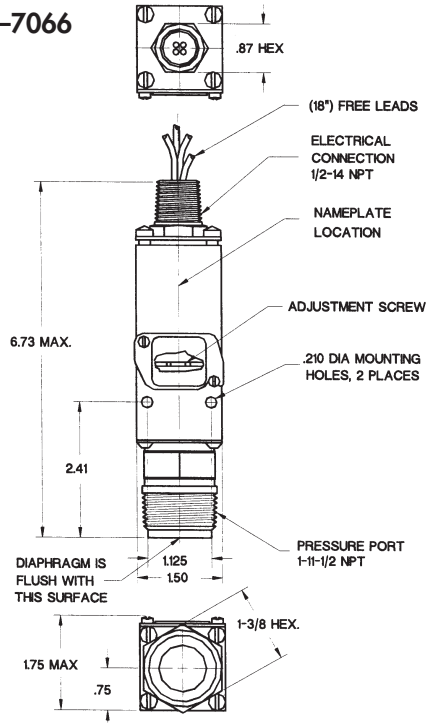
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

INSTALLATION DRAWING

6900GZE–7066



6900GZE–7066
SHIPPING WT.
APPROX. 26 OZ.
(737 GRAMS)

Press. **1** to **2500** psi

FLUSH MOUNT SERIES: 6900GZE**–7066

Standard Features:

- **Flush Mount Diaphragm**
- **U.L./CSA Explosion Proof: Div. 1, 2**
- **NEMA: 4, 7, 9, 13**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

PRESSURE SWITCHES MODEL 6900GZE–7066 • 1" STAINLESS STEEL PRESSURE PORT & WELDED DIAPHRAGM — Wetted Parts: Stainless Steel Port & Diaphragm

Max Sys. Press. psi	Proof (Test) Press. psi	Adjustable Set–Point Range: On Incr. Press. psi	Adjustable Set–Point Range: On Decr. Press. psi	Approx. Dead–band psi	Model No.: MODEL SPDT–Std.	Model No.: MODEL DPDT "M"
500	750	3–15	1–13	2	6900GZE12–7066	6900GZEM12–7066
500	750	12–75	6–69	6	6900GZE14–7066	6900GZEM14–7066
1500	2000	18–150	6–138	12	6900GZE16–7066	6900GZEM16–7066
1500	2000	45–375	15–345	30	6900GZE18–7066	6900GZEM18–7066
2000	3000	300–1000	225–925	75	6900GZE20–7066	6900GZEM20–7066
3000	4500	700–2500	520–2320	180	6900GZE22–7066	6900GZEM22–7066

Options Code:
"7074" Hastalloy "C" Port and Welded Diaphragm

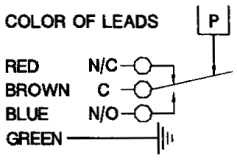
ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

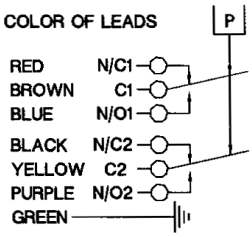
VOLTS	AMPERES SPDT Res.	AMPERES DPDT "M" Res.
125 AC – 50/60 Hz	11	11
250 AC – 50/60 Hz	11	11
30 DC	5	5
125 DC	.5	.5

SCHEMATIC AND WIRING CODE:

SPDT–Standard



DPDT "M"



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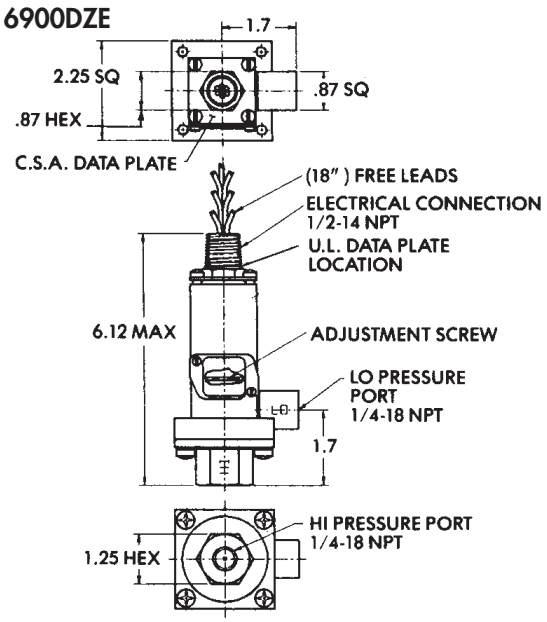
INSTALLATION DRAWING



6900DZE
SHIPPING WT.
APPROX. 49 OZ.
(1372 GRAMS)

Diff. **.4** to **75** psid

SERIES: 6900DZE

Standard Features:

- **U.L./CSA Explosion Proof: Div. 1, 2**
- **NEMA: 4, 7, 9, 13**
- **Fire Resistant Stainless Steel Body**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

DIFFERENTIAL SWITCHES
MODEL 6900DZE
• 1/4" STAINLESS STEEL PRESSURE PORTS & POLYIMIDE DIAPHRAGM
Wetted Parts: 300 SST Polyimide Viton

Max Sys. Press. psi		Proof (Test) Press. psi			Adjustable Set–Point Range		Approx. Dead–band psi	Model Number	
High Press. Port	Low Press. Port	Both Ports Simul–taneous	High Over Low / Low Over High: High	High Over Low / Low Over High: Low	On Incr. Press. psi	On Decr. Press. psi		**MODEL** SPDT–Std.	**MODEL** DPDT "M"
400		750	750	400	1.2 to 18 6 to 75	.4 to 17.2 2 to 71	1 4	6900DZE8 6900DZE10	6900DZEM8 6900DZEM10

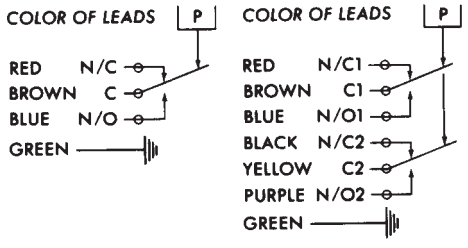
Options Code:
"7008" Gold Contacts
"7076" Teflon Wire

ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

VOLTS	AMPERES	
	SPDT Res.	DPDT "M" Res.
125 AC – 50/60 Hz	11	11
250 AC – 50/60 Hz	11	11
30 DC	5	5
125 DC	.5	.5

SCHEMATIC AND WIRING CODE:



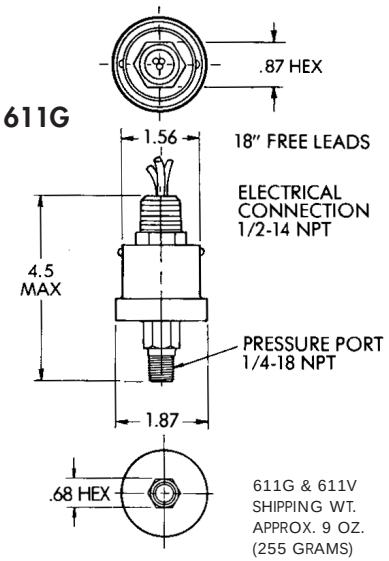
ENCLOSURE/CERTIFICATIONS:

Div. 1 explosion–proof and hermetically sealed electrical assembly Part No. 46–1058 (46–1061 for "M" model option), listed by both Underwriter's Laboratories, Inc. (File No. E32961) and CSA Testing Laboratories (File No. 22921) for hazardous locations, Class 1, Groups A, B, C, and D; Class 2 Groups E, F, and G.

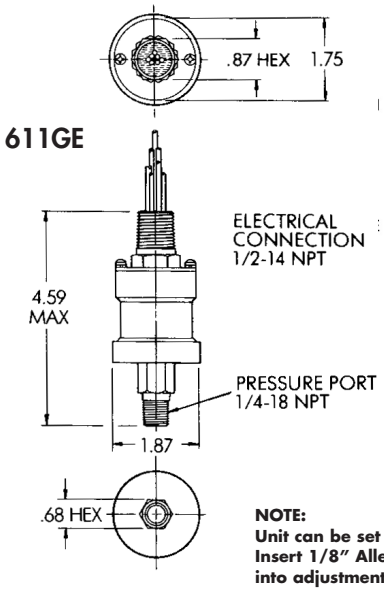
HOW TO ORDER: **Specify model number, add desired "options" listing letter codes first followed by numbers:**

Custom Control Sensors, Inc. • 21111 Plummer Street, Chatsworth, CA 91311 • Tel: (818)341-4610 • Fax: (818)709-0426
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

INSTALLATION DRAWING



611G & 611V SHIPPING WT. APPROX. 9 OZ. (255 GRAMS)
611GE & 611VE SHIPPING WT. APPROX. 12 OZ. (346 GRAMS)



NOTE:
Unit can be set prior to installation. Insert 1/8" Allen wrench into adjustment screw (located in pressure port) and turn clockwise to decrease setting.

Press. **.75** to **180** psi
Vac. **1.5** to **28.5"** Hg.

SERIES:
611G 611V
611GE 611VE

Standard Features:
- **NEMA: 4, 13**
- **Weatherproof**
- **Model 611GE/611VE U.L./CSA Explosion Proof: Div. 1, 2 NEMA: 4, 7, 9, 13**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

PRESSURE SWITCHES MODEL 611G	• 1/4" ALUMINUM PRESSURE PORT & POLYIMIDE DIAPHRAGM	Wetted Parts	Aluminum, Polyimide, Buna N, Cadmium Plated Steel, 300 SST	
Max Sys. Press. psi	Proof (Test) Press. psi	Adjustable Set–Point Range: On Incr. Press. psi	Adjustable Set–Point Range: On Decr. Press. psi	Approx. Dead–band psi	Model No.: MODEL SPDT–Std.	Model No.: MODEL DPDT "M"
250	500	1.5–12.1	.75–11.35	.75	611G8001	611GM8001
500	1000	12.1–30	10.1–28	2.0	611G8003	611GM8003
500	1000	30.1–70	27.1–67	3.0	611G8005	611GM8005
500	1000	70.1–180	63.1–173	7.0	611G8007	611GM8007
PRESSURE SWITCHES MODEL 611GE	• 1/4" ALUMINUM PRESSURE PORT & POLYIMIDE DIAPHRAGM	Wetted Parts	Aluminum, Polyimide, Buna N, Cadmium Plated Steel, 300 SST			
250	500	1.5–12.1	.75–11.35	.75	611GE8001	611GEM8001
500	1000	12.1–30	10.1–28	2.0	611GE8003	611GEM8003
500	1000	30.1–70	27.1–67	3.0	611GE8005	611GEM8005
500	1000	70.1–180	63.1–173	7.0	611GE8007	611GEM8007
VACUUM SWITCHES MODEL 611V	• 1/4" ALUMINUM PRESSURE PORT & POLYIMIDE DIAPHRAGM	Wetted Parts	Aluminum, Polyimide, Buna N, Cadmium Plated Steel, 300 SST			
Max Sys. Press. psi	Proof (Test) Press. psi	Adjustable Set–Point Range: On Incr. Vacuum In. Hg	Adjustable Set–Point Range: On Decr. Vacuum In. Hg	Approx. Dead–band In. Hg	Model No.: MODEL SPDT–Std.	Model No.: MODEL DPDT "M"
150	250	4–28.5	1.5–26	2.5	611V8000	611VM8000
VACUUM SWITCHES MODEL 611VE	• 1/4" ALUMINUM PRESSURE PORT & POLYIMIDE DIAPHRAGM	Wetted Parts	Aluminum, Polyimide, Buna N, Cadmium Plated Steel, 300 SST			
150	250	4–28.5	1.5–26	2.5	611VE8000	611VEM8000

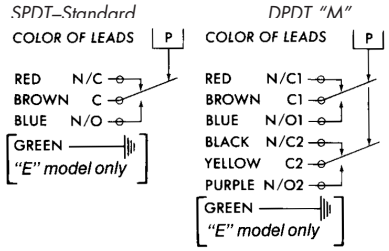
Options Code:
"A" Viton O–ring
"F" Ethylene Propylene O–ring
"7008" Gold Contacts
"7052" Exp. Proof w/3' Leads
"7054" Exp. Proof w/6' Leads
"7076" Teflon Wire

ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

VOLTS	AMPERES	
	SPDT Res.	DPDT "M" Res.
125 AC – 50/60 Hz	11	11
250 AC – 50/60 Hz	11	11
30 DC	5	5
125 DC	.5	.5

SCHEMATIC AND WIRING CODE:



ENCLOSURE/CERTIFICATIONS:

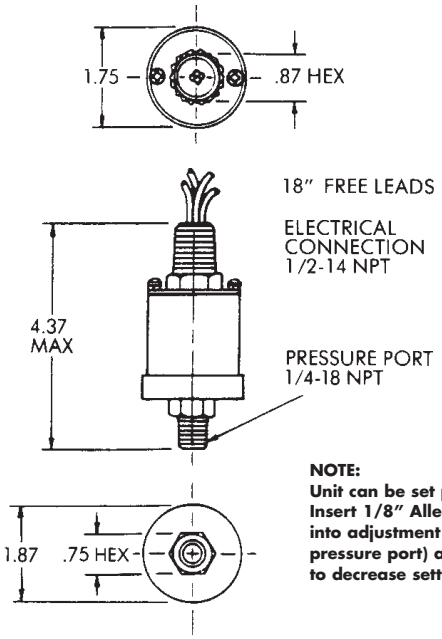
Div. 1 explosion–proof and hermetically sealed electrical assembly Part No. 46–1058 (46–1061 for "M" model option), listed by both Underwriter's Laboratories, Inc. (File No. E32961) and CSA Testing Laboratories (File No. 22921) for hazardous locations, Class 1, Groups A, B, C, and D; Class 2 Groups E, F, and G.

HOW TO ORDER: **Specify model number, add desired "options" listing letter codes first followed by numbers:**

Custom Control Sensors, Inc. • 21111 Plummer Street, Chatsworth, CA 91311 • Tel: (818)341-4610 • Fax: (818)709-0426
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

INSTALLATION DRAWING

611GZE



NOTE:
Unit can be set prior to installation. Insert 1/8" Allen wrench into adjustment screw (located in pressure port) and turn clockwise to decrease setting.

611GZE
SHIPPING WT.
APPROX. 22 OZ.
(623 GRAMS)

Press. **1** to **180** psi

SERIES: 611GZE

Standard Features:

- **External Parts: Stainless Steel Construction**
- **U.L./CSA Explosion Proof: Div. 1, 2**
- **NEMA: 4, 7, 9, 13**
- **Low Range**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

PRESSURE SWITCHES
MODEL 611GZE • 1/4" STAINLESS STEEL PRESSURE PORT & DIAPHRAGM — Wetted Parts: 316 SST, Inconel, Viton

Max Sys. Press. psi	Proof (Test) Press. psi	Adjustable Set–Point Range: On Incr. Press. psi	Adjustable Set–Point Range: On Decr. Press. psi	Approx. Dead–band psi	Model No.: MODEL SPDT–Std.	Model No.: MODEL DPDT "M"
250	500	3–12	1–10	2	611GZE8101	611GZEM8101
500	1000	12–30	9–27	3	611GZE8103	611GZEM8103
500	1000	30–70	25–65	5	611GZE8105	611GZEM8105
500	1000	70–180	60–170	10	611GZE8107	611GZEM8107

Options Code:
"7008" Gold Contacts
"7052" Exp. Proof w/3' Leads
"7054" Exp. Proof w/6' Leads
"7065" Teflon Wire

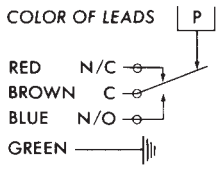
ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

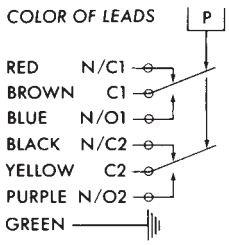
VOLTS	AMPERES SPDT Res.	AMPERES DPDT "M" Res.
125 AC – 50/60 Hz	11	11
250 AC – 50/60 Hz	11	11
30 DC	5	5
125 DC	.5	.5

SCHEMATIC AND WIRING CODE:

SPDT–Standard



DPDT "M"



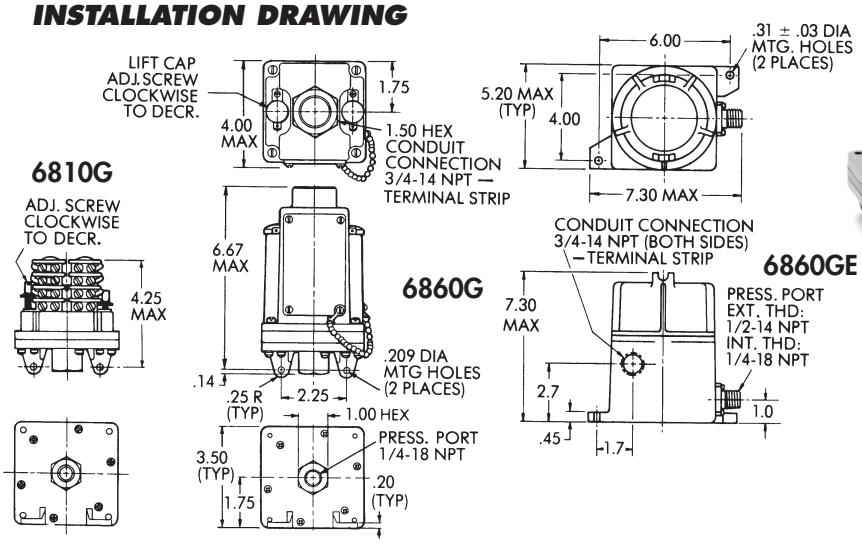
ENCLOSURE/CERTIFICATIONS:

Div. 1 explosion–proof and hermetically sealed electrical assembly Part No. 46–1058 (46–1061 for "M" model option), listed by both Underwriter's Laboratories, Inc. (File No. E32961) and CSA Testing Laboratories (File No. 22921) for hazardous locations, Class 1, Groups A, B, C, and D; Class 2 Groups E, F, and G.

HOW TO ORDER: **Specify model number, add desired "options" listing letter codes first followed by numbers:**

Custom Control Sensors, Inc. • 21111 Plummer Street, Chatsworth, CA 91311 • Tel: (818)341-4610 • Fax: (818)709-0426
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

INSTALLATION DRAWING



6810G & 6812G SHIPPING WT. APPROX. 25 OZ. (709 GRAMS)

6860G & 6862G SHIPPING WT. APPROX. 43 OZ. (1219 GRAMS)

6860GE & 6862GE SHIPPING WT. APPROX. 7 LBS. (3.2 KGS.)

Press. **1.5" H_20** to **100** psi

SERIES:
6810G 6860G
6812G 6862G
6860GE 6862GE

Standard Features:

- **Housed Models: NEMA: 4, 13 Weatherproof**
- **Model 6860GE, 6862GE Explosion Proof: Designed to Meet Div. 1, 2**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

Options Code:
"7008" Gold Contacts

OPERATING AND ORDERING DATA:

PRESSURE SWITCHES 1/4" ALUMINUM PRESSURE PORT & POLYIMIDE DIAPHRAGM

MODEL 6810G • STRIPPED — SINGLE SETTING **MODEL 6860G** • HOUSED — SINGLE SETTING

MODEL 6812G • STRIPPED — DUAL SETTING **MODEL 6862G** • HOUSED — DUAL SETTING

Proof (Test) Press.	Adjustable Set–Point Range		Approx. Dead–band	Model Number and Wetted Parts				
				Stripped Model		Housed Model		Wetted Parts
	On Incr. Press.	On Decr. Press.		Single Setting	Dual Setting	Single Setting	Dual Setting	
50 psi	5 to 80" H_20	1.5 to 76.5" H_20	2.5" H_20	6810G0	Not Avail.	6860G0	Not Avail.	Aluminum
100 psi	1 to 27 psi	.95 to 26.75 psi	.1 to .2 psi	6810G1	6812G1	6860G1	6862G1	Polyimide
250 psi	3 to 100 psi	2.8 to 98.5 psi	.2 to 1.0 psi	6810G3	6812G3	6860G3	6862G3	Buna N

PRESSURE SWITCHES EXPLOSION PROOF — HOUSED — 1/2" EXT. THREADS, 1/4" INT. THREADS ALUMINUM PRESSURE PORT & POLYIMIDE DIAPHRAGM

MODEL 6860GE • SINGLE SETTING **MODEL 6862GE** • DUAL SETTING

Proof (Test) Press.	Adjustable Set–Point Range		Approx. Dead–band	Model Number and Wetted Parts		
	On Incr. Press.	On Decr. Press.		Single Setting	Dual Setting	Wetted Parts
50 psi	5 to 80" H_20	1.5 to 76.5" H_20	2.5" H_20	6860GE0	Not. Avail.	Aluminum
100 psi	1 to 27 psi	.95 to 26.75 psi	.1 to .2 psi	6860GE1	6862GE1	Polyimide
250 psi	3 to 100 psi	2.8 to 98.5 psi	.2 to 1.0 psi	6860GE3	6862GE3	Buna N

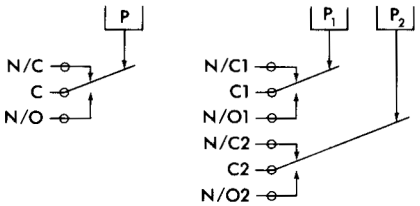
ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

VOLTS	AMPERES SPDT Res.
125 AC – 50/60 Hz	15
250 AC – 50/60 Hz	15
28 DC	.5

SCHEMATIC AND WIRING CODE:

Single Switch *Dual Switches*



ENCLOSURE/CERTIFICATIONS:

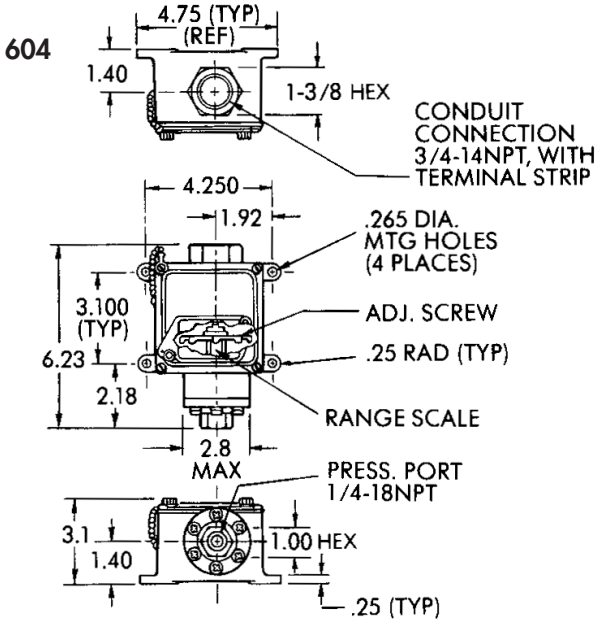
MODELS 6860GE, 6862 GE ONLY
Designed to meet the requirements of Division 1 and 2 explosion proof for hazardous locations, Class 1, Groups A, B, C, and D; Class 2 Groups E, F, and G.

Must be installed with an approved conduit seal and breather to meet the Division 1 and 2 requirements.

HOW TO ORDER: **Specify model number, add desired "options" listing letter codes first followed by numbers:**

Custom Control Sensors, Inc. • 21111 Plummer Street, Chatsworth, CA 91311 • Tel: (818)341-4610 • Fax: (818)709-0426
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

INSTALLATION DRAWING



604G & 604V
SHIPPING WT.
APPROX. 39 OZ.
(1092 GRAMS)

604P
SHIPPING WT.
APPROX. 35 OZ.
(992 GRAMS)

Press. **.3** to **4700** psi
Vac. **1.0** to **28.5"** Hg

SERIES: 604G 604P* 604V

Standard Features:

- **U.L. Listed**
- **NEMA: 4, 13**
- **Weatherproof**
- **Internal Case Ground**

*** For High Cycling – Long Life – Hydraulic Applications**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

Options Code:
"A" Viton O–ring
"F" Ethylene Propylene O–ring
"J" CSA Approved
File No. LR22665
"7008" Gold Contacts
"7038" SST Port and SST Piston
(604P Models Only)

OPERATING AND ORDERING DATA:

PRESSURE SWITCHES MODEL 604G	• 1/4" ALUMINUM PRESSURE PORT & POLYIMIDE DIAPHRAGM			Wetted Parts	Aluminum Polyimide Buna N
Max Sys. Press. psi	Proof (Test) Press. psi	Adjustable Set–Point Range: On Incr. Press. psi	Adjustable Set–Point Range: On Decr. Press. psi	Approx. Dead–band psi	MODEL SPDT–Std.	MODEL DPDT "M"
500	750	1–16	.3–15.3	.7	604G1	604GM1
3000	5000	8–75	3–70	5	604G2	604GM2
3000	5000	20–150	8–138	12	604G11	604GM11
3000	5000	50–375	22–347	28	604G3	604GM3
3000	5000	330–1000	265–935	65	604G5	604GM5

PRESSURE SWITCHES MODEL 604P*	• PISTON PRESSURE SWITCH WITH 1/4" ALUMINUM PRESSURE PORT			Wetted Parts	Aluminum 400 SST	Buna N Teflon
Hyd. psi	Hyd. psi	Piston switch dead bands shown are narrowest at bottom and widest at top adjustable range.				
2000	3000	20–200	10–188	10–12	604P12	604PM12
3000	5000	170–1400	90–1230	80–170	604P15	604PM15
5000	7500	300–3000	180–2780	120–220	604P21	604PM21
7500	10,000	2500–5000	2220–4520	280–480	604P31	604PM31

VACUUM SWITCHES MODEL 604V	• 1/4" ALUMINUM PRESSURE PORT & POLYIMIDE DIAPHRAGM			Wetted Parts	Aluminum Polyimide Buna N
Max Sys. Press. psi	Proof (Test) Press. psi	Adjustable Set–Point Range: On Incr. Vacuum In. Hg	Adjustable Set–Point Range: On Decr. Vacuum In. Hg	Approx. Dead–band In. Hg	MODEL SPDT–Std.	MODEL DPDT "M"
150	250	3.5–28.5	1.0–26.0	2.5	604V1	604VM1

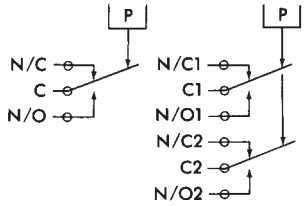
ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

VOLTS	AMPERES	
	SPDT	DPDT "M"
	Res.	Res.
125 AC – 50/60 Hz	15	5
250 AC – 50/60 Hz	15	5
480 AC – 50/60 Hz	15	—
28 DC	6	5
125 DC	.4	.5

SCHEMATIC AND WIRING CODE:

SPDT–Standard *DPDT "M"*



ENCLOSURE/CERTIFICATIONS:

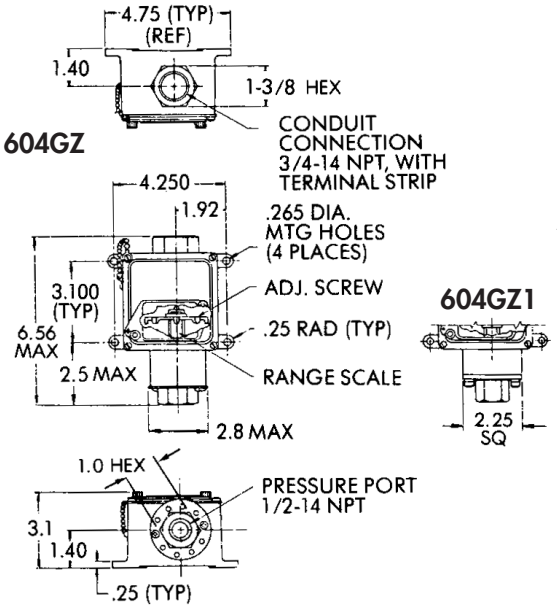
All Models shown are Underwriter's Laboratories, Inc. listed in the Recognized Components Index, Guide NKPZ "Motor Controllers, Float and Pressure Operated," File No. E72038.

Models 604GM1 & 604GX1 have an approximate dead band of .9 psi.

HOW TO ORDER: **Specify model number, add desired "options" listing letter codes first followed by numbers:**

Custom Control Sensors, Inc. • 21111 Plummer Street, Chatsworth, CA 91311 • Tel: (818)341-4610 • Fax: (818)709-0426
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

INSTALLATION DRAWING



604GZ & 604GZ–7011
SHIPPING WT.
APPROX. 52 OZ.
(1474 GRAMS)

Press. **.3** to **5000** psi

SERIES: 604GZ 604GZ–7011

Standard Features:

- **U.L. Listed**
- **NEMA: 4, 13**
- **Weatherproof**
- **Internal Case Ground**
- **Fire Resistant Steel Body**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

PRESSURE SWITCHES MODEL 604GZ • 1/2" STAINLESS STEEL PRESSURE PORT & POLYIMIDE DIAPHRAGM					Wetted Parts	316 SST Polyimide Viton
Max Sys. Press. psi	Proof (Test) Press. psi	Adjustable Set–Point Range On Incr. Press. psi	Adjustable Set–Point Range On Decr. Press. psi	Approx. Dead–band psi	**MODEL** SPDT–Std.	**MODEL** DPDT "M"
500	750	1.2–16	.4–15.2	.8	604GZ1	604GZM1
3000	5000	8–75	3–70	5	604GZ2	604GZM2
3000	5000	20–150	8–138	12	604GZ11	604GZM11
3000	5000	50–375	22–347	28	604GZ3	604GZM3
3000	5000	330–1000	265–935	65	604GZ5	604GZM5
3000	5000	950–2300	775–2125	175	604GZ7	604GZM7
PRESSURE SWITCHES MODEL 604GZ–7011 • 1/2" STAINLESS STEEL PRESSURE PORT & POLYIMIDE DIAPHRAGM					Wetted Parts	316 SST Viton
500	750	1.4–16	.4–15	1	604GZ1–7011	604GZM1–7011
3000	5000	10–75	3–68	7	604GZ2–7011	604GZM2–7011
3000	5000	20–150	6–136	14	604GZ11–7011	604GZM11–7011
3000	5000	50–375	16–347	34	604GZ3–7011	604GZM3–7011
3000	5000	330–1000	250–920	80	604GZ5–7011	604GZM5–7011
3000	5000	950–2300	750–2100	200	604GZ7–7011	604GZM7–7011
5000	7500	2100–3400	1820–3120	280	604GZ9–7011	604GZM9–7011
5000	7500	3200–5000	2720–4520	480	604GZ10–7011	604GZM10–7011

Options Code:
"F" Ethylene Propylene O–ring
"J" CSA Approved
File No. LR22665
"7008" Gold Contacts
"7030" Gold Contacts w/SST Diaphragm
"7044" Monel Port and Diaphragm
"7045" Hastelloy Port and Diaphragm

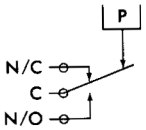
ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

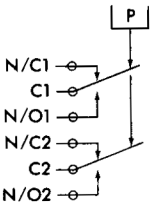
VOLTS	AMPERES	
	SPDT	DPDT "M"
	Res.	Res.
125 AC – 50/60 Hz	15	5
250 AC – 50/60 Hz	15	5
480 AC – 50/60 Hz	15	—
28 DC	6	5
125 DC	.4	.5

SCHEMATIC AND WIRING CODE:

SPDT–Standard



DPDT "M"



ENCLOSURE/CERTIFICATIONS:

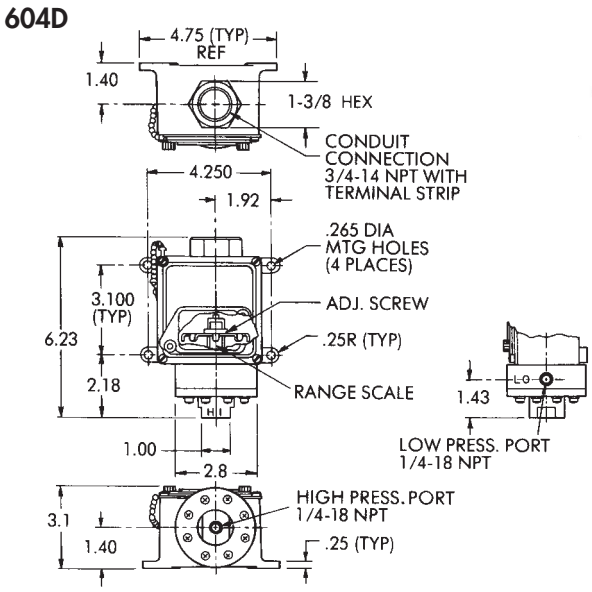
All Models shown are Underwriter's Laboratories, Inc. listed in the Recognized Components Index, Guide NKPZ "Motor Controllers, Float and Pressure Operated," File No. E72038.

Model 604GZM1 has an approximate dead band of .9 psi.

HOW TO ORDER: Specify model number, add desired "options" listing letter codes first followed by numbers:

Custom Control Sensors, Inc. • 21111 Plummer Street, Chatsworth, CA 91311 • Tel: (818)341-4610 • Fax: (818)709-0426
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

INSTALLATION DRAWING



604D
SHIPPING WT.
APPROX. 41 OZ.
(1162 GRAMS)

Diff. **.3** to **75** psid

SERIES: 604D

Standard Features:

- **U.L. Listed**
- **NEMA: 4, 13**
- **Weatherproof**
- **Internal Case Ground**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

DIFFERENTIAL SWITCHES
MODEL 604D

● 1/4" ALUMINUM PRESSURE PORTS & POLYIMIDE DIAPHRAGM

Wetted Parts: Aluminum Polyimide / 300 SST Viton

Max Sys. Press. psi		Proof (Test) Press. psi			Adjustable Set–Point Range		Approx. Dead–band psi	Model Number	
High Press. Port	Low Press. Port	Both Ports Simul–taneous	High Over Low Low Over High		On Incr. Press. psid	On Decr. Press. psid		**MODEL** SPDT–Std.	**MODEL** DPDT "M"
			High	Low					
400		750	750	400	1 to 18 6 to 75	.3 to 17.5 2 to 71	.6 4	604D1 604D2	604DM1 604DM2

Options Code:

"F" Ethylene Propylene O–ring
"J" CSA Approved
File No. LR22665
"Z" Stainless Steel Port
"7008" Gold Contacts
"7011" SST Port and SSt Diaphragm (only on 604DZ)
"7030" SST Port and SST Diaphragm w/Gold Contacts

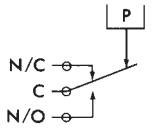
ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

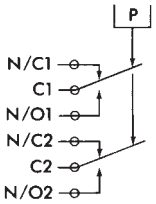
VOLTS	AMPERES	
	SPDT Res.	DPDT "M" Res.
125 AC – 50/60 Hz	15	5
250 AC – 50/60 Hz	15	5
480 AC – 50/60 Hz	15	—
28 DC	6	5
125 DC	.4	.5

SCHEMATIC AND WIRING CODE:

SPDT–Standard



DPDT "M"



ENCLOSURE/CERTIFICATIONS:

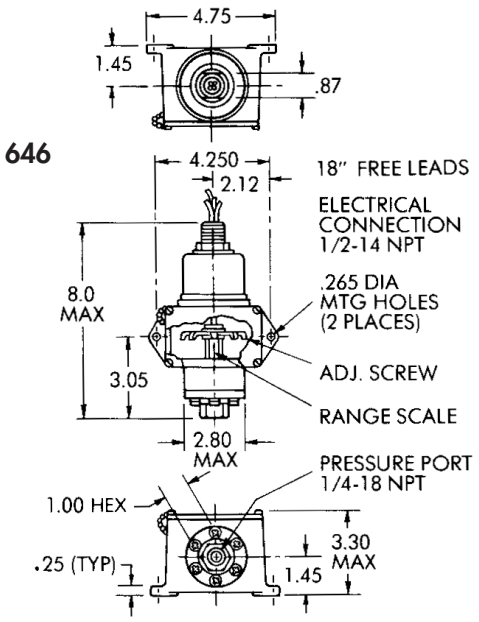
All Models shown are Underwriter's Laboratories, Inc. listed in the Recognized Components Index, Guide NKPZ "Motor Controllers, Float and Pressure Operated," File No. E72038.

Model 604DM1 has an approximate dead band of .9 psi.

HOW TO ORDER: **Specify model number, add desired "options" listing letter codes first followed by numbers:**

Custom Control Sensors, Inc. • 21111 Plummer Street, Chatsworth, CA 91311 • Tel: (818)341-4610 • Fax: (818)709-0426
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

INSTALLATION DRAWING



646GE & 646VE
SHIPPING WT.
APPROX. 44 OZ.
(1247 GRAMS)

646PE
SHIPPING WT.
APPROX. 39 OZ.
(1105 GRAMS)

Press. **.4** to **4700** psi
Vac. **1.0** to **28.5"** Hg

SERIES: 646GE 646PE 646VE

Standard Features:

- **U.L. / CSA Explosion Proof: Div. 1, 2**
- **NEMA: 4, 7, 9, 13**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

PRESSURE SWITCHES MODEL 646GE • 1/4" ALUMINUM PRESSURE PORT & POLYIMIDE DIAPHRAGM — Wetted Parts: Aluminum Polyimide Buna N

Max Sys. Press. psi	Proof (Test) Press. psi	Adjustable Set–Point Range: On Incr. Press. psi	Adjustable Set–Point Range: On Decr. Press. psi	Approx. Dead–band psi	Model Number: MODEL SPDT–Std.	Model Number: MODEL DPDT "M"
500	750	1.2–16	.4–15.2	.8	646GE1	646GEM1
3000	5000	8–75	3–70	5	646GE2	646GEM2
3000	5000	20–150	8–138	12	646GE11	646GEM11
3000	5000	50–375	22–347	28	646GE3	646GEM3
3000	5000	330–1000	265–935	65	646GE5	646GEM5

PRESSURE SWITCHES MODEL 646PE
- FOR HIGH CYCLING – LONG LIFE – HYDRAULIC APPLICATIONS
- PISTON PRESSURE SWITCH 1/4" ALUMINUM PRESSURE PORT

Hyd. psi	Hyd. psi				Wetted Parts: Aluminum 400 SST	Wetted Parts: Buna N Teflon
2000	3000	20–200	10–188	10–12	646PE12	646PEM12
3000	5000	170–1400	90–1230	80–170	646PE15	646PEM15
5000	7500	300–3000	180–2780	120–220	646PE21	646PEM21
7500	10,000	2500–5000	2220–4520	280–480	646PE31	646PEM31

Piston switch dead–bands shown are narrowest at bottom and widest at top of adjustable range.

VACUUM SWITCHES MODEL 646VE • 1/4" ALUMINUM PRESSURE PORT & POLYIMIDE DIAPHRAGM — Wetted Parts: Aluminum Polyimide Buna N

Max Sys. Press. psi	Proof (Test) Press. psi	Adjustable Set–Point Range: On Incr. Vacuum In. Hg	Adjustable Set–Point Range: On Decr. Vacuum In. Hg	Approx. Dead–band In. Hg	Model Number: MODEL SPDT–Std.	Model Number: MODEL DPDT "M"
150	250	3.5–28.5	1.0–26.0	2.5	646VE1	646VEM1

Options Code:
"A" Viton O–ring
"F" Ethylene Propylene O–ring
"Y" EECS Certified to EXsIIT5
"7008" Gold Contacts
"7038" SST Port and SST Piston (PE Models Only)
"7076" Teflon Wire

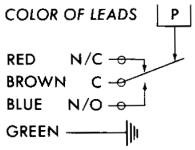
ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

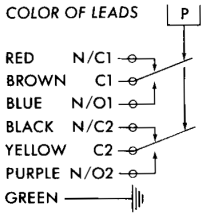
VOLTS	AMPERES SPDT Res.	AMPERES DPDT "M" Res.
125 AC – 50/60 Hz	15	5
250 AC – 50/60 Hz	15	5
480 AC – 50/60 Hz	15	—
125 DC	.4	.5

SCHEMATIC AND WIRING CODE:

SPDT–Standard



DPDT "M"



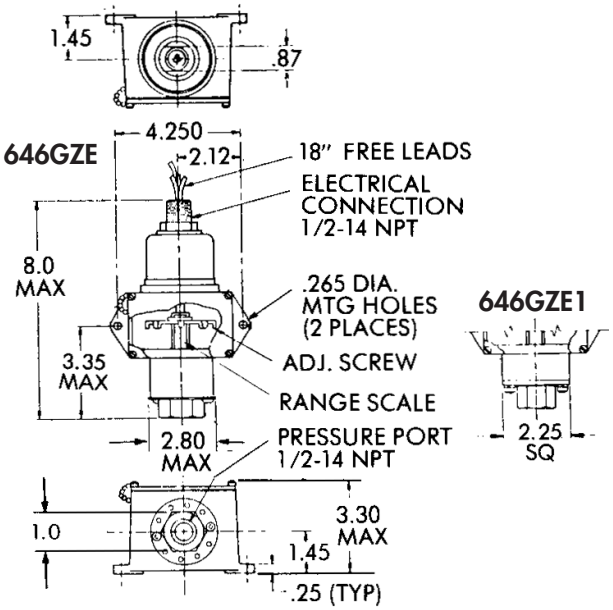
ENCLOSURE/CERTIFICATIONS:

Div. 1 explosion–proof and hermetically sealed electrical assembly Part No. 17–51 (17–73 for "M" model option), listed by both Underwriter's Laboratories, Inc. (File No. E32961) and CSA Testing Laboratories (File No. 22921) for hazardous locations, Class 1, Groups A, B, C, and D; Class 2 Groups E, F, and G.

HOW TO ORDER: **Specify model number, add desired "options" listing letter codes first followed by numbers:**

Custom Control Sensors, Inc. • 21111 Plummer Street, Chatsworth, CA 91311 • Tel: (818)341-4610 • Fax: (818)709-0426
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

INSTALLATION DRAWING



SHIPPING WT.
APPROX. 56 OZ.
(1587 GRAMS)

Press. **.4** to **5000** psi
Vac. **1.0** to **28.5"** Hg

SERIES: 646GZE 646GZE–7011 646VZE

Standard Features:

- **U.L. / CSA Explosion Proof: Div. 1, 2**
- **NEMA: 4, 7, 9, 13**
- **Fire Resistant Steel Body**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

Options Code:
"F" Ethylene Propylene O–ring
"Y" EECS Certified to EXsIIT5
"7008" Gold Contacts
"7030" Gold Contacts w/SST Diaphragm
"7044" Monel Port and Diaphragm
"7045" Hastelloy Port and Diaphragm
"7065" Teflon Wire w/SST Diaphragm

OPERATING AND ORDERING DATA:

PRESSURE SWITCHES MODEL 646GZE • 1/2" STAINLESS STEEL PRESSURE PORT & POLYIMIDE DIAPHRAGM					Wetted Parts	316 SST Polyimide Viton
Max Sys. Press. psi	Proof (Test) Press. psi	Adjustable Set–Point Range On Incr. Press. psi	Adjustable Set–Point Range On Decr. Press. psi	Approx. Dead–band psi	**MODEL** SPDT–Std.	**MODEL** DPDT "M"
500	750	1.2–16	.4–15.2	.8	646GZE1	646GZEM1
3000	5000	8–75	3–70	5	646GZE2	646GZEM2
3000	5000	20–150	8–138	12	646GZE11	646GZEM11
3000	5000	50–375	22–347	28	646GZE3	646GZEM3
3000	5000	330–1000	265–935	65	646GZE5	646GZEM5
3000	5000	950–2300	775–2125	175	646GZE7	646GZEM7
PRESSURE SWITCHES MODEL 646GZE–7011 • 1/2" STAINLESS STEEL PRESSURE PORT & DIAPHRAGM					Wetted Parts	316 SST Viton
500	750	1.4–16	.4–15	1	646GZE1–7011	646GZEM1–7011
3000	5000	10–75	3–68	7	646GZE2–7011	646GZEM2–7011
3000	5000	20–150	6–136	14	646GZE11–7011	646GZEM11–7011
3000	5000	50–375	16–347	34	646GZE3–7011	646GZEM3–7011
3000	5000	330–1000	250–920	80	646GZE5–7011	646GZEM5–7011
3000	5000	950–2300	750–2100	200	646GZE7–7011	646GZEM7–7011
5000	7500	2100–3400	1820–3120	280	646GZE9–7011	646GZEM9–7011
5000	7500	3200–5000	2720–4520	480	646GZE10–701	646GZEM10–701
VACUUM SWITCHES MODEL 646VZE • 1/2" STAINLESS STEEL PRESSURE PORT & POLYIMIDE DIAPHRAGM					Wetted Parts	316 SST Polyimide Viton
Max Sys. Press. psi	Proof (Test) Press. psi	Adjustable Set–Point Range On Incr. Vacuum In. Hg	Adjustable Set–Point Range On Decr. Vacuum In. Hg	Approx. Dead–band In. Hg	**MODEL** SPDT–Std.	**MODEL** DPDT "M"
150	250	3.5–28.5	1.0–26.0	2.5	646VZE1	646VZEM1

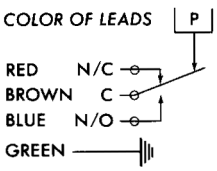
ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

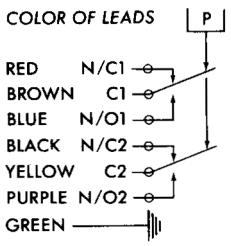
VOLTS	AMPERES SPDT Res.	AMPERES DPDT "M" Res.
125 AC – 50/60 Hz	15	5
250 AC – 50/60 Hz	15	5
480 AC – 50/60 Hz	15	—
125 DC	.4	.5

SCHEMATIC AND WIRING CODE:

SPDT–Standard



DPDT "M"



ENCLOSURE/CERTIFICATIONS:

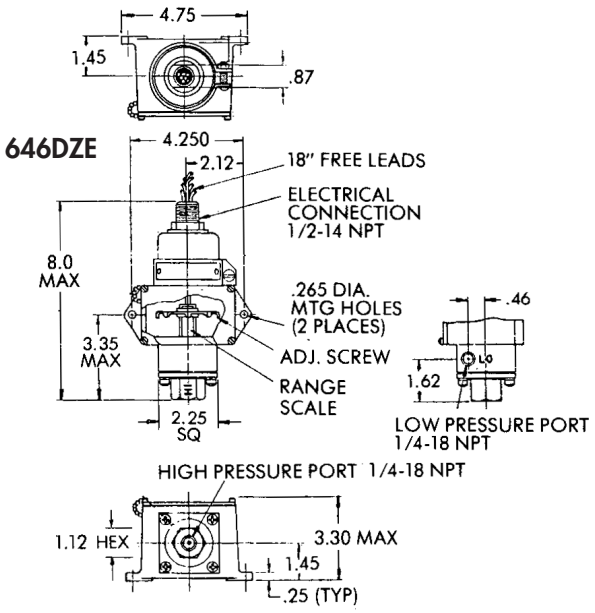
Div. 1 explosion–proof and hermetically sealed electrical assembly Part No. 17–51 (17–73 for "M" model option), listed by both Underwriter's Laboratories, Inc. (File No. E32961) and CSA Testing Laboratories (File No. 22921) for hazardous locations, Class 1, Groups A, B, C, and D; Class 2 Groups E, F, and G.

Model 646GZEM1 has an approximate dead band of .9 psi.

HOW TO ORDER: Specify model number, add desired "options" listing letter codes first followed by numbers:

Custom Control Sensors, Inc. • 21111 Plummer Street, Chatsworth, CA 91311 • Tel: (818)341-4610 • Fax: (818)709-0426
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

INSTALLATION DRAWING



SHIPPING WT.
APPROX. 60 OZ.
(1700 GRAMS)

Diff. **.4** to **75** psid

SERIES: 646DZE

Standard Features:

- **U.L./CSA Explosion Proof: Div. 1, 2**
- **NEMA: 4, 7, 9, 13**
- **Fire Resistant Steel Body**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

DIFFERENTIAL SWITCHES
MODEL 646DZE • 1/4" STAINLESS STEEL PRESSURE PORTS & POLYIMIDE DIAPHRAGM

Wetted Parts: 300 SST Polyimide, Viton

Max Sys. Press. psi		Proof (Test) Press. psi			Adjustable Set–Point Range		Approx. Dead–band psi	Model Number	
High Press. Port	Low Press. Port	Both Ports Simul–taneous	High Over Low Low Over High		On Incr. Press. psid	On Decr. Press. psid		**MODEL** SPDT–Std.	**MODEL** DPDT "M"
			High	Low					
400		750	750	400	1.2 to 18 6 to 75	.4 to 17.2 2 to 71	.8 4	646DZE1 646DZE2	646DZEM1 646DZEM2

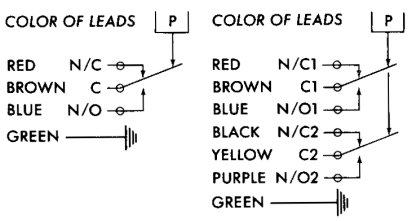
Options Code:
"F" Ethylene Propylene O–ring
"Y" EECS Certified to EXsIIT5
"7008" Gold Contacts
"7011" SST Diaphragm
"7030" Gold Contacts w/SST Diaphragm
"7065" Teflon Wire w/SST Diaphragm

ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

VOLTS	AMPERES	
	SPDT	DPDT "M"
	Res.	Res.
125 AC – 50/60 Hz	15	5
250 AC – 50/60 Hz	15	5
480 AC – 50/60 Hz	15	—
125 DC	.4	.5

SCHEMATIC AND WIRING CODE:



ENCLOSURE/CERTIFICATIONS:

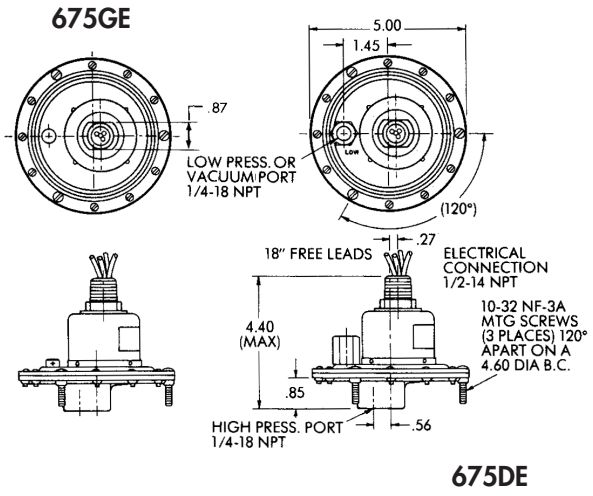
Div. 1 explosion–proof and hermetically sealed electrical assembly Part No. 17–51 (17–73 for "M" model option), listed by both Underwriter's Laboratories, Inc. (File No. E32961) and CSA Testing Laboratories (File No. 22921) for hazardous locations, Class 1, Groups A, B, C, and D; Class 2 Groups E, F, and G.

Model 646DZEM1 has an approximate dead band of .9 psi.

HOW TO ORDER: **Specify model number, add desired "options" listing letter codes first followed by numbers:**

Custom Control Sensors, Inc. • 21111 Plummer Street, Chatsworth, CA 91311 • Tel: (818)341-4610 • Fax: (818)709-0426
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

INSTALLATION DRAWING



SHIPPING WT.
APPROX. 25 OZ.
(708 GRAMS)

Press. **.8"** to **30"** H_2O
Diff. **.8"** to **30"** H_2O
Vac. **.8"** to **30"** H_2O

SERIES: 675GE 675DE 675VE

Standard Features:

- **U.L./CSA Explosion Proof: Div. 1, 2**
- **NEMA: 4, 7, 9, 13**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

PRESSURE SWITCHES
MODEL 675GE

- 1/4" ALUMINUM PRESSURE PORT & POLYIMIDE DIAPHRAGM

Wetted Parts: Aluminum, Polyimide Buna N, 300 SST

Max Sys. Press. psi	Proof (Test) Press. psi	Setting Ranges — For Customer Specified Set Points: Fixed Set Point Range, On Incr. Press. In. H_2O	Fixed Set Point Range, On Decr. Press. In. H_2O	Approx. Dead Band, At Bottom of Range In. H_2O	Approx. Dead Band, At Top of Range In. H_2O	Model Number, MODEL SPDT–Std.	Model Number, MODEL DPDT "M"
10	15	1.5–30	.8–27	.7	3.0	675GE1	675GEM1

DIFFERENTIAL SWITCHES
MODEL 675DE

- 1/4" ALUMINUM PRESSURE PORT & POLYIMIDE DIAPHRAGM

Wetted Parts: Aluminum, Polyimide, Buna N, 300 SST, Tin Plated Steel, Silver Plated Beryllium Copper and Brass

High Press. Port psi	Low Press. Port psi	High Press. Port psi	Low Press. Port psi	On Incr. Press. In. H_2O	On Decr. Press. In. H_2O	At Bottom of Range In. H_2O	At Top of Range In. H_2O	MODEL SPDT–Std.	MODEL DPDT "M"
10	10	15	15	1.5–30	.8–27	.7	3.0	675DE1	675DEM1

VACUUM SWITCHES
MODEL 675VE

- 1/4" ALUMINUM PRESSURE PORT & POLYIMIDE DIAPHRAGM

Wetted Parts: Aluminum, Polyimide, Buna N, 300 SST, Tin Plated Steel, Silver Plated Beryllium Copper and Brass

Max System Press. psi	Proof (Test) Press. psi	On Incr. Vacuum In. H_2O	On Decr. Vacuum In. H_2O	At Bottom of Range In. H_2O	At Top of Range In. H_2O	MODEL SPDT–Std.	MODEL DPDT "M"
10	15	1.5–30	.8–27	.7	3.0	675VE1	675VEM1

Options Code:
"A" Viton O–ring
"7008" Gold Contacts
"7076" Teflon Wire

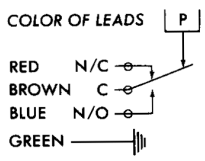
ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

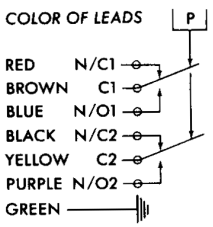
VOLTS	AMPERES SPDT Res.	AMPERES DPDT "M" Res.
125 AC – 50/60 Hz	15	5
250 AC – 50/60 Hz	15	5
480 AC – 50/60 Hz	15	—
125 DC	.4	.5

SCHEMATIC AND WIRING CODE:

SPDT–Standard



DPDT "M"



ENCLOSURE/CERTIFICATIONS:

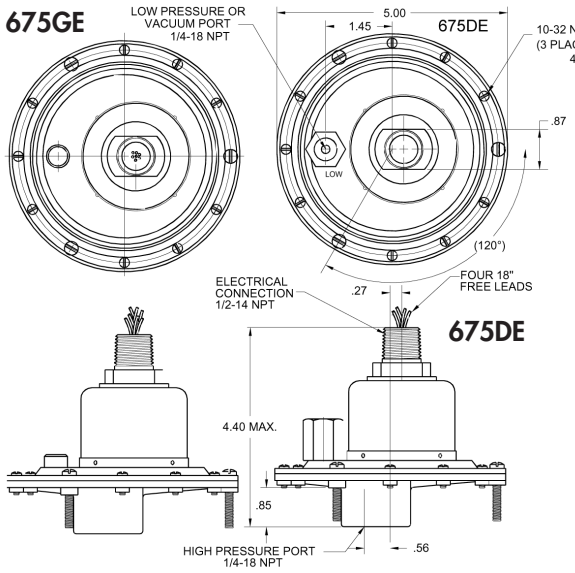
Div. 1 explosion–proof and hermetically sealed electrical assembly Part No. 17–52 (17–283 for "M" model option), listed by both Underwriter's Laboratories, Inc. (File No. E32961) and CSA Testing Laboratories (File No. 22921) for hazardous locations, Class 1, Groups A, B, C, and D; Class 2 Groups E, F, and G.

Models 675GEM1, 675DEM1, and 675VEM1 have an approximate dead band of 1.5 In. H_2O.

HOW TO ORDER: **Specify model number, add desired "options" listing letter codes first followed by numbers:**

Custom Control Sensors, Inc. • 21111 Plummer Street, Chatsworth, CA 91311 • Tel: (818)341-4610 • Fax: (818)709-0426
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

INSTALLATION DRAWING



SHIPPING WT. APPROX. 25 OZ. (708 GRAMS)

NOTE:
Unit can be set prior to installation. Insert 1/8" Allen wrench into adjustment screw (located in pressure port) and turn clockwise to decrease setting.

Press. **.2"** to **31"** H_2O

Diff. **.2"** to **31"** H_2O

SERIES: 675GE800* 675DE800*

Standard Features:

- **U.L./CSA Explosion Proof: Div. 1, 2**
- **NEMA: 4, 7, 9, 13**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

PRESSURE SWITCHES
MODEL 675GE800* • 1/4" ALUMINUM PRESSURE PORT & POLYIMIDE DIAPHRAGM

Max Sys. Press. psi	Proof (Test) Press. psi	Adjustable Set–Point Range: On Incr. Press. In. H_2O	Adjustable Set–Point Range: On Decr. Press. In. H_2O	Approx. Dead–band In. H_2O	Model No. & Wetted Parts: MODEL	Model No. & Wetted Parts: Wetted Parts
10	15	1.5–6.9	0.2–5.6	1.3	675GE8001	Aluminum, Polyimide Buna N, 300 SST
		7–12.9	5.5–11.4	1.5	675GE8002	
		13–18.9	11–16.9	2.0	675GE8003	
		19–24.9	16.5–22.4	2.5	675GE8004	
		25–31	22.5–28	3.0	675GE8005	
		2–6.9	0.2–5.1	1.8	675GEM8001	
		7–12.9	5–10.9	2.0	675GEM8002	
		13–18.9	10.8–16.7	2.2	675GEM8003	
		19–24.9	16.5–22.4	2.5	675GEM8004	
		25–31	22.5–28	3.0	675GEM8005	

PRESSURE SWITCHES
MODEL 675DE800* • 1/4" ALUMINUM PRESSURE PORT TIN PLATED STEEL & POLYIMIDE DIAPHRAGM

Max Sys. Press. psi	Proof (Test) Press. psi	Adjustable Set–Point Range: On Incr. Press. In. H_2O	Adjustable Set–Point Range: On Decr. Press. In. H_2O	Approx. Dead–band In. H_2O	Model No. & Wetted Parts: MODEL	Model No. & Wetted Parts: Wetted Parts
10	15	1.5–6.9	0.2–5.6	1.3	675DE8001	Aluminum, Polyimide Buna N, 300 SST, Tin Plated Steel, Silver Plated Beryllium Copper and Brass
		7–12.9	5.5–11.4	1.5	675DE8002	
		13–18.9	11–16.9	2.0	675DE8003	
		19–24.9	16.5–22.4	2.5	675DE8004	
		25–31	22.5–28	3.0	675DE8005	
		2–6.9	0.2–5.1	1.8	675DEM8001	
		7–12.9	5–10.9	2.0	675DEM8002	
		13–18.9	10.8–16.7	2.2	675DEM8003	
		19–24.9	16.5–22.4	2.5	675DEM8004	
		25–31	22.5–28	3.0	675DEM8005	

Options Code:
"7008" Gold Contacts
"7076" Teflon Wire

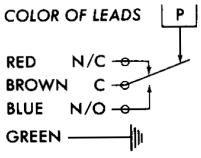
ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

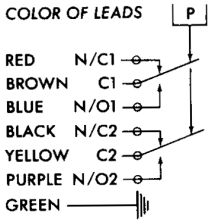
VOLTS	AMPERES: SPDT Res.	AMPERES: DPDT "M" Res.
125 AC – 50/60 Hz	15	5
250 AC – 50/60 Hz	15	5
480 AC – 50/60 Hz	15	—
125 DC	.4	.5

SCHEMATIC AND WIRING CODE:

SPDT–Standard



DPDT "M"



ENCLOSURE/CERTIFICATIONS:

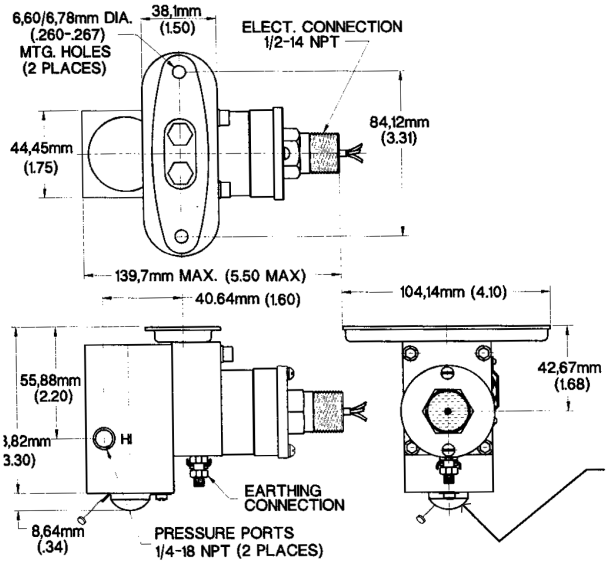
Div. 1 explosion–proof and hermetically sealed electrical assembly Part No. 17–52 (17–283 for "M" model option), listed by both Underwriter's Laboratories, Inc. (File No. E32961) and CSA Testing Laboratories (File No. 22921) for hazardous locations, Class 1, Groups A, B, C, and D; Class 2 Groups E, F, and G.

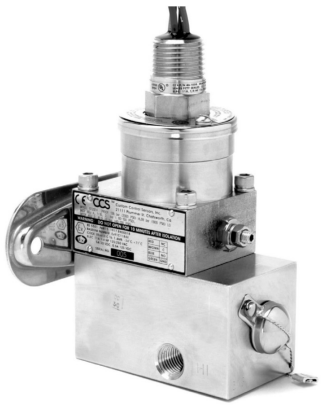
HOW TO ORDER: **Specify model number, add desired "options" listing letter codes first followed by numbers:**

Custom Control Sensors, Inc. • 21111 Plummer Street, Chatsworth, CA 91311 • Tel: (818)341-4610 • Fax: (818)709-0426
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

INSTALLATION DRAWING

672DE





SHIPPING WT. APPROX. 67 OZ. (1876 GRAMS)

NOTE:
To adjust setting, loosen screw lift cap turn adj. screw clockwise to decrease setting

Diff. **2** to **425** psi

SERIES: 672DE

Standard Features:

- **U.L. / CSA — Listed & Certified, Explosion Proof: Div. 1, 2,**
- **BASEEFA & CENELEC Certified & Approved,**
- **External Parts: 300 SST**
- **Meets requirement: IP–67, NEMA: 4, 4x, 7, 9, 13, NACE MR–0175 and CE**
- **Fire Resistant 316 SST Body**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

DIFFERENTIAL SWITCHES
MODEL 672DE

- 1/4" STAINLESS STEEL 316 STAINLESS STEEL BODY & DIAPHRAGM, VITON "O"–RING

Wetted Parts: 300 SST Viton

Max Sys. Press. psi		Proof (Test) Press. psi			Adjustable Set–Point Range		Approx. Dead–band psi	Model Number	
High Press. Port	Low Press. Port	Both Ports Simul–taneous	High Over Low	Low Over High	On Incr. Press. psid	On Decr. Press. psid		**MODEL** SPDT–Std.	**MODEL** DPDT "M"
3000		4500	2000	1000	7 to 65 9 to 65 60 to 150	2 to 60 3 to 59 40 to 130	5 6 20	672DE1 672DE4	 672DEM1 672DEM4

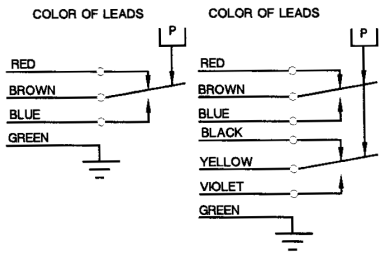
Options Code:
"F" Ethylene Propylene O–ring
"7008" Gold Contacts
"7065" Teflon Wire w/SST Diaphragm

ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

VOLTS	AMPERES	
	SPDT Res.	DPDT "M" Res.
125 AC – 50/60 Hz	11	11
250 AC – 50/60 Hz	11	11
30 DC	5	5
125 DC	.5	.5

SCHEMATIC AND WIRING CODE:



ENCLOSURE/CERTIFICATIONS:

Div. 1 explosion–proof and hermetically sealed electrical assembly Part No. 46–1058 (46–1061 for "M" model option), listed by both Underwriter's Laboratories, Inc. (File No. E32961) and CSA Testing Laboratories (File No. 22921) for hazardous locations, Class 1, Groups A, B, C, and D; Class 2 Groups E, F, and G.

CENELEC and BASEEFA Certified Switches conform to the harmonized European Standard: Electrical apparatus for potentially explosive atmospheres Part 5. Flameproof enclosure 'd' BS5501: Part 5: 1977 EN50018. Cenelec Code: EExdIICT6 BASEEFA Number: Ex91C1184X.

HOW TO ORDER: **Specify model number, add desired "options" listing letter codes first followed by numbers:**

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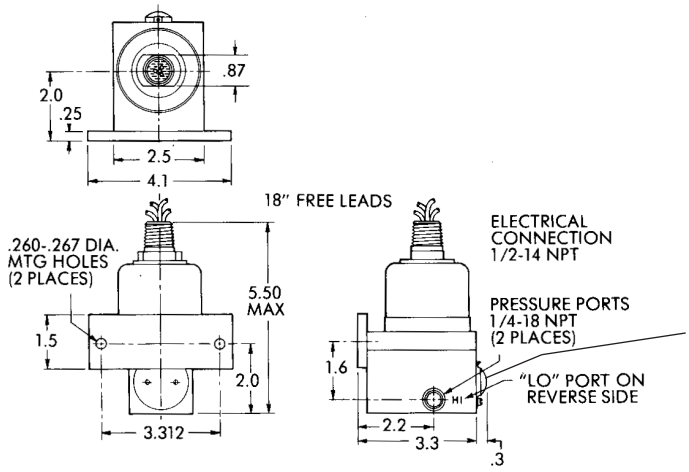
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

INSTALLATION DRAWING

673DE



NOTE:
To adjust, loosen screw lift cap turn adj. screw clockwise to decrease setting.

SHIPPING WT.
APPROX. 60 OZ.
(1700 GRAMS)

Press. **2** to **60** psid

SERIES: 673DE

Standard Features:

- **U.L./CSA Explosion Proof: Div. 1, 2**
- **NEMA: 4, 7, 9, 13**
- **Fire Resistant Steel Body**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

DIFFERENTIAL SWITCHES
MODEL 673DE8011 • 1/4" STAINLESS STEEL PRESSURE PORTS & DIAPHRAGM — Wetted Parts: 300 SST Viton

Max Sys. Press. psi		Proof (Test) Press. psi			Adjustable Set–Point Range		Approx. Dead–band psi	Model Number	
High Press. Port	Low Press. Port	Both Ports Simul–taneous	High Over Low	Low Over High	On Incr. Press. psid	On Decr. Press. psid		**MODEL** SPDT–Std.	**MODEL** DPDT "M"
			High	Low					
3000		4500	2000	1000	7 to 60	2 to 55	5	673DE8011	673DEM8011

Options Code:
"F" Ethylene Propylene O–ring
"Y" EECS Certified to EXsIIT5
"7008" Gold Contacts
"7065" Teflon Wire

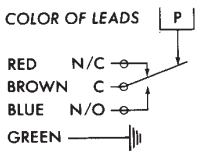
ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

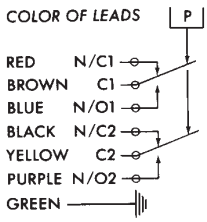
VOLTS	AMPERES	
	SPDT	DPDT "M"
	Res.	Res.
125 AC – 50/60 Hz	15	5
250 AC – 50/60 Hz	15	5
480 AC – 50/60 Hz	15	—
125 DC	.4	.5

SCHEMATIC AND WIRING CODE:

SPDT–Standard



DPDT "M"



ENCLOSURE/CERTIFICATIONS:

Div. 1 explosion–proof and hermetically sealed electrical assembly Part No. 17–51 (17–73 for "M" model option), listed by both Underwriter's Laboratories, Inc. (File No. E32961) and CSA Testing Laboratories (File No. 22921) for hazardous locations, Class 1, Groups A, B, C, and D; Class 2 Groups E, F, and G.

Model 673DEM8011 has an approximate dead band of 7 psi.

HOW TO ORDER: **Specify model number, add desired "options" listing letter codes first followed by numbers:**

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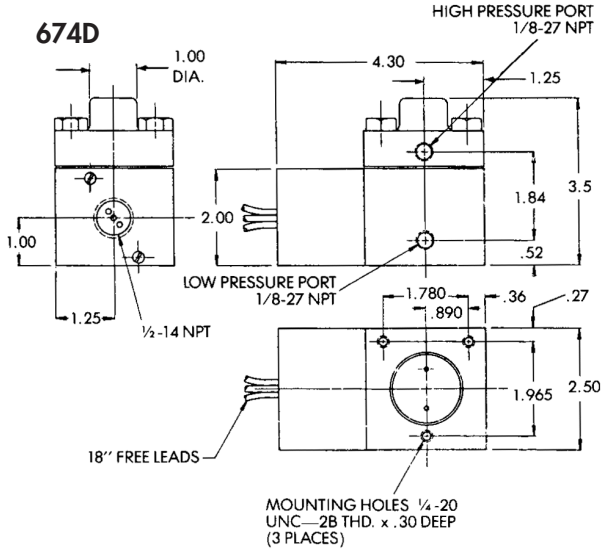
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

INSTALLATION DRAWING



SHIPPING WT.
APPROX. 45 OZ.
(1275 GRAMS)

Diff. **2** to **800** psid

SERIES: 674D

Standard Features:
- **NEMA: 4, 13**
- **Weatherproof**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

DIFFERENTIAL SWITCHES MODEL 674D • 1/8" ALUMINUM PRESSURE PORTS & POLYIMIDE DIAPHRAGM — Wetted Parts: Aluminum Polyimide Viton, 300 SST

Max Sys. Press. psi	Proof (Test) Press. psi			Setting Ranges For Customer Specified Set Points				Model Number
				Fixed Set–Point Range		Approx. Dead Band		
	Both Ports Simul–taneous	High Over Low Low Over High		On Incr. Press. psi	On Decr. Press. psi	At Bottom of Range psi	At Top of Range psi	**MODEL** SPDT–Std.
		High	Low					
3000	4500	2500	2500	5 to 80 81 to 350 351 to 800	2 to 68 67 to 297 299 to 680	3 14 60	12 52 120	674D1 674D2 674D3

Options Code:
"F" Ethylene Propylene O–ring
"7008" Gold Contacts

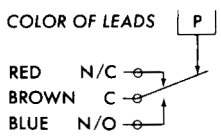
ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

VOLTS	AMPERES SPDT Res.
125 AC – 50/60 Hz	15
250 AC – 50/60 Hz	15
480 AC – 50/60 Hz	15
125 DC	.4

SCHEMATIC AND WIRING CODE:

SPDT–Standard



HOW TO ORDER: **Specify model number, add desired "options" listing letter codes first followed by numbers:**

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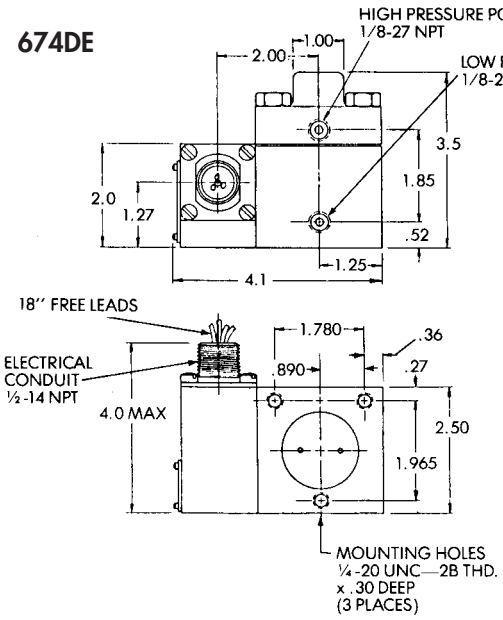
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

INSTALLATION DRAWING



SHIPPING WT.
APPROX. 47 OZ.
(1332 GRAMS)

Diff. **2** to **800** psid

SERIES: 674DE

Standard Features:

- **U.L./CSA Explosion Proof: Div. 1, 2**
- **NEMA: 4, 7, 9, 13**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

DIFFERENTIAL SWITCHES
MODEL 674DE

- 1/8" ALUMINUM PRESSURE PORT & POLYIMIDE DIAPHRAGM

Wetted Parts: Aluminum Polyimide; Buna N, 300 SST

Max Sys. Press. psi	Proof (Test) Press.			Setting Ranges — For Customer Specified Set Points				Model Number	
				Fixed Set Point Range		Approx. Dead Band			
	Both Ports Simul–taneous	High Over Low / Low Over High		On Incr. Press. psi	On Decr. Press. psi	At Bottom of Range psi	At Top of Range psi	**MODEL** SPDT–Std.	**MODEL** DPDT "M"
		High	Low						
3000	4500	2500	2500	7 to 80 81 to 350 351 to 800	2 to 68 66 to 297 291 to 680	5 14 60	12 52 120	674DE1 674DE2 674DE3	674DEM1 674DEM2 674DEM3

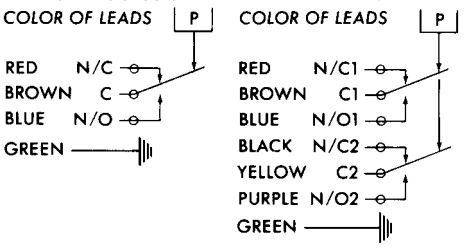
Options Code:
"F" Ethylene Propylene O–ring
"7008" Gold Contacts
"7065" Exp. Proof w/Teflon Wire

ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

VOLTS	AMPERES	
	SPDT	DPDT "M"
	Res.	Res.
125 AC – 50/60 Hz	11	11
250 AC – 50/60 Hz	11	11
30 DC	5	5
125 DC	.5	.5

SCHEMATIC AND WIRING CODE:



ENCLOSURE/CERTIFICATIONS:

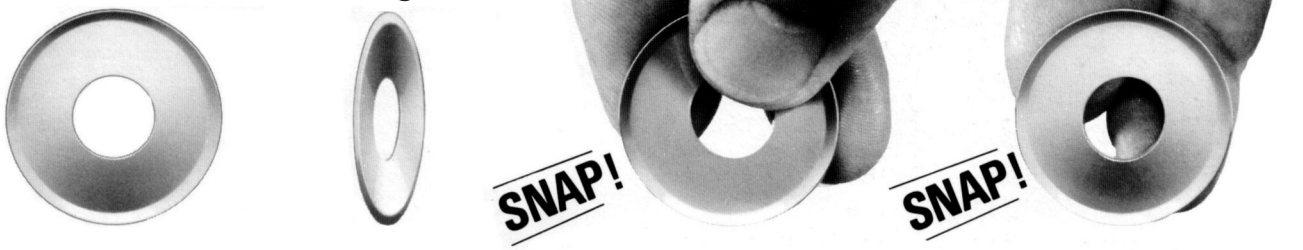
Div. 1 explosion–proof and hermetically sealed electrical assembly Part No. 46–1058 (46–1061 for "M" model option), listed by both Underwriter's Laboratories, Inc. (File No. E32961) and CSA Testing Laboratories (File No. 22921) for hazardous locations, Class 1, Groups A, B, C, and D; Class 2 Groups E, F, and G.

HOW TO ORDER: **Specify model number, add desired "options" listing letter codes first followed by numbers:**

Custom Control Sensors, Inc. • 21111 Plummer Street, Chatsworth, CA 91311 • Tel: (818)341-4610 • Fax: (818)709-0426
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

How a Wide Range DUAL–SNAP® Temperature Switch Works

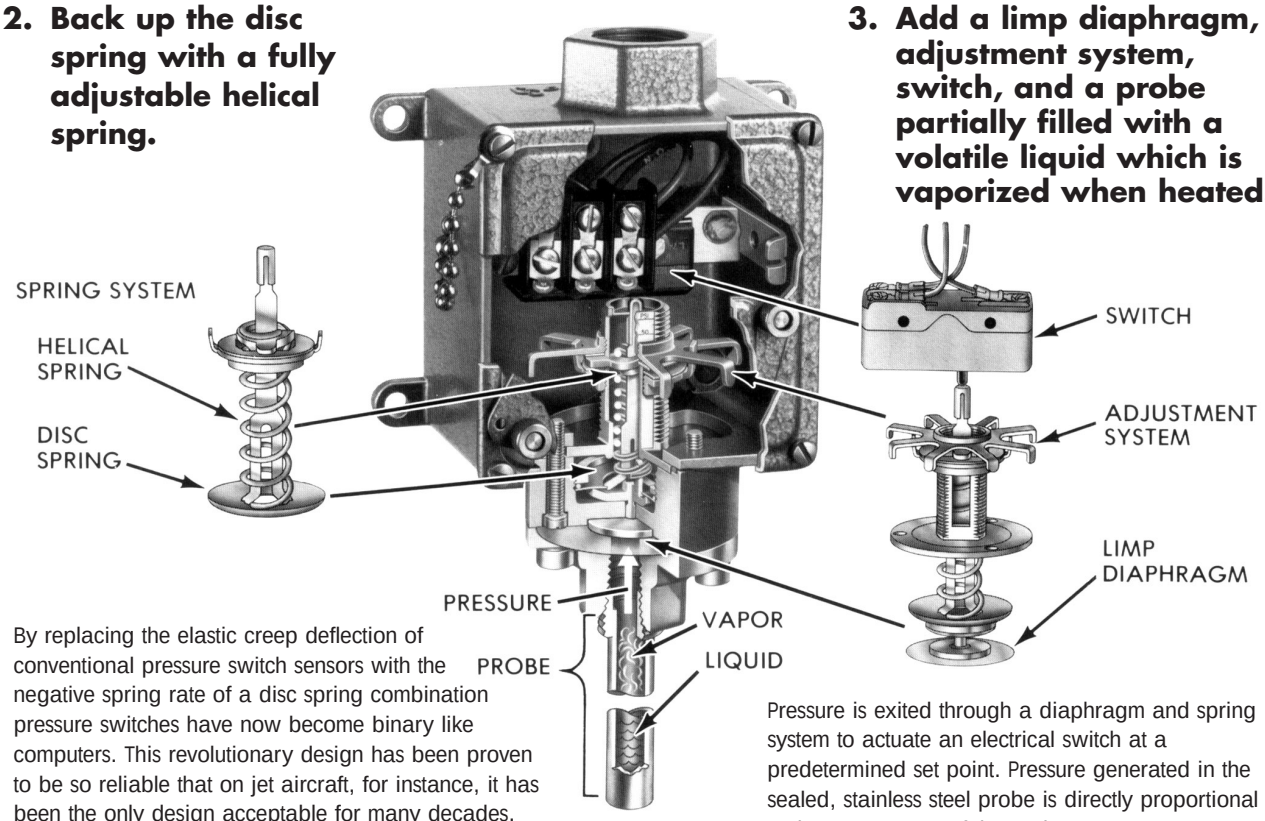
1. The Heart of the design...



- It's a convex disc spring with a center hole.
- It snaps to concave under pressure. And it snaps back when pressure is released.

2. Back up the disc spring with a fully adjustable helical spring.

3. Add a limp diaphragm, adjustment system, switch, and a probe partially filled with a volatile liquid which is vaporized when heated.



By replacing the elastic creep deflection of conventional pressure switch sensors with the negative spring rate of a disc spring combination pressure switches have now become binary like computers. This revolutionary design has been proven to be so reliable that on jet aircraft, for instance, it has been the only design acceptable for many decades.

Pressure is exited through a diaphragm and spring system to actuate an electrical switch at a predetermined set point. Pressure generated in the sealed, stainless steel probe is directly proportional to the temperature of the probe.

4. Now the system is packaged with components suitable for specific temperature and environment...and you have a Wide Range DUAL–SNAP® Temperature Switch with these advantages:

- Extremely fast response.
- Set points stay set – not sensitive to shock, vibration, ambient temperature, or other environmental conditions. No drifting set points to cause trouble.
- Vapor type temperature sensing is more accurate than bimetallic types – simpler than thermocouples.
- No "tracing" because of fluctuations in system temperature or pressure – no "teasing" of the electrical element.
- Reduces the adverse effects of ripple, contact chatter, fatigue, premature wear, and other common switch problems.
- Maximum life expectancy with lifelong reliability and precise repeatability assured.
- Broad spectrum of temperature and system pressure ranges in each switch model series.

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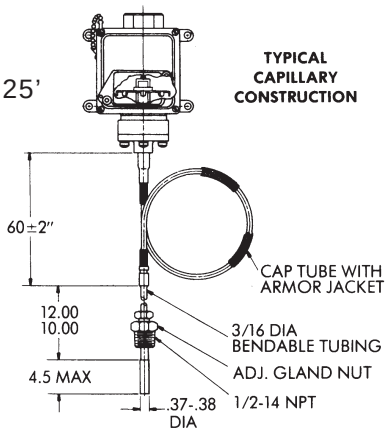
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

DETAIL DATA
ON AVAILABLE CAPILLARIES AND THERMOWELLS

CAPILLARIES —OPTIONAL TUBE LENGTHS

Standard model 604TU, 646TUE and 6900TU series temperature switches are furnished with a 5' capillary. Optional 10', 15', and 25' capillaries are available. Order as listed below:

10' capillary: When ordering add **–7001** to model number
15' capillary: When ordering add **–7002** to model number
25' capillary: When ordering add **–7003** to model number



HOW TO ORDER:

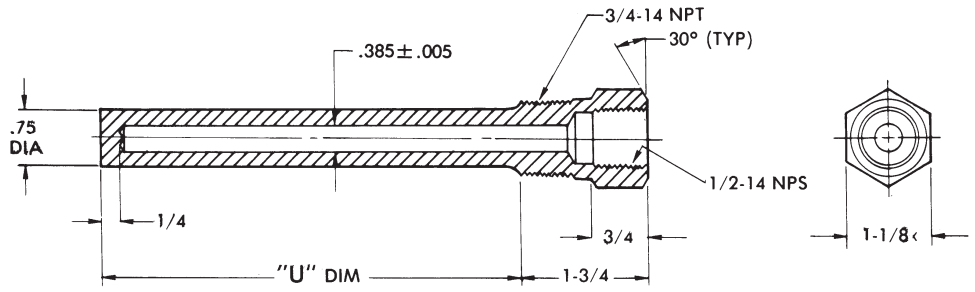
1. Specify standard model number of temperature switch desired.
2. Add the above number that specifies capillary length to end of standard number.

EXAMPLE: To order 646TUE1 with 15' capillary, specify 646TUE1–**7002**

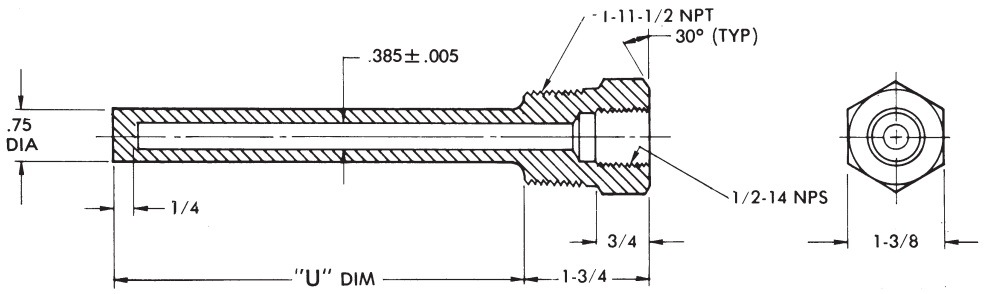
THERMOWELLS

Readily available convenience items for use with Temperature Switch Models.

THERMOWELL NO. 113–35 • 3/4" NPT • Material: Series 316 Stainless Steel



THERMOWELL NO. 113–34 • 1" NPT • Material: Series 316 Stainless Steel

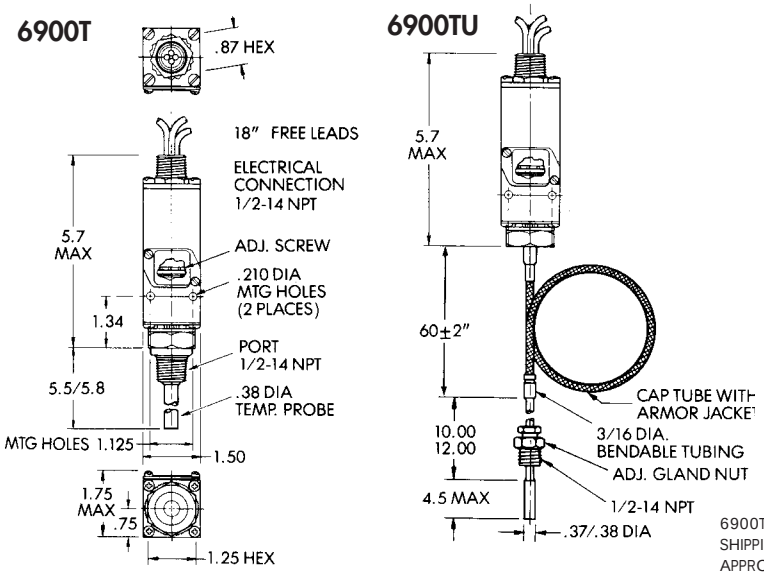


HOW TO ORDER:

Specify thermowell part number as a separate item.

"U" Dim.	Part Number	Part Number
4 1/2"	113–35–1	113–34–1
7 1/2"	113–35–2	113–34–2
10 1/2"	113–35–3	113–34–3
13 1/2"	113–35–4	113–34–4

INSTALLATION DRAWING



6900T SHIPPING WT. APPROX. 18 OZ. (510 GRAMS)

6900TU SHIPPING WT. APPROX. 26 OZ. (737 GRAMS)

Temp. **0** to **650°** F

SERIES: 6900T 6900TU

6900T Models with Probe

6900TU Models with Capillary Tube

Standard Features:
- **CSA**
- **Weatherproof**
- **NEMA: 4, 13**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

TEMPERATURE SWITCHES MODEL 6900T • STAINLESS STEEL TEMPERATURE PROBE — Wetted Parts: 300 SST

Maximum Probe Temperature Degrees F	Adjustable Set Point Range: On Incr. Temperature Degrees F	Adjustable Set Point Range: On Decr. Temperature Degrees F	Approx. Dead Band: At Bottom of Range Degrees F	Approx. Dead Band: At Top of Range Degrees F	Model Number: MODEL SPDT–Std.	Model Number: MODEL DPDT "M"
+200°	+20° to +120°	+0° to +113°	20°	5°	6900T12	6900TM12
+300°	+80° to +205°	+60° to +198°	20°	5°	6900T14	6900TM14
+400°	+185° to +315°	+165° to +308°	20°	5°	6900T16	6900TM16
+500°	+280° to +405°	+260° to +398°	20°	5°	6900T18	6900TM18

TEMPERATURE SWITCHES MODEL 6900TU • STAINLESS STEEL TEMPERATURE PROBE WITH 5' CAPILLARY TUBE — Wetted Parts: 300 SST & Graphite Lubricated Glass Fiber

+200°	+20° to +120°	+0° to +113°	20°	5°	6900TU12	6900TUM12
+300°	+80° to +205°	+60° to +198°	20°	5°	6900TU14	6900TUM14
+400°	+185° to +315°	+165° to +308°	20°	5°	6900TU16	6900TUM16
+500°	+280° to +405°	+260° to +398°	20°	5°	6900TU18	6900TUM18
+650°	+385° to +565°	+360° to +555°	25°	10°	6900TU20	6900TUM20
+700°	+465° to +650°	+440° to +640°	25°	10°	6900TU22	6900TUM22

EXTERNAL PROBE PRESSURE
System Pressure: 1250 psi
Proof Pressure: 1500 psi

Options Code:
"7001" 10' Capillary
"7002" 15' Capillary
"7003" 25' Capillary
"7008" Gold Contacts

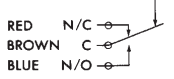
ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

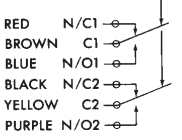
VOLTS	AMPERES SPDT Res.	AMPERES DPDT "M" Res.
125 AC – 50/60 Hz	11	11
250 AC – 50/60 Hz	11	11
30 DC	5	5
125 DC	.5	.5

SCHEMATIC AND WIRING CODE:

SPDT–Standard



DPDT "M"



ENCLOSURE/CERTIFICATIONS:

CSA Certified for enclosure (4) non–hazardous locations (File No. LR22665)

HOW TO ORDER: **Specify model number, add desired "options" listing letter codes first followed by numbers:**

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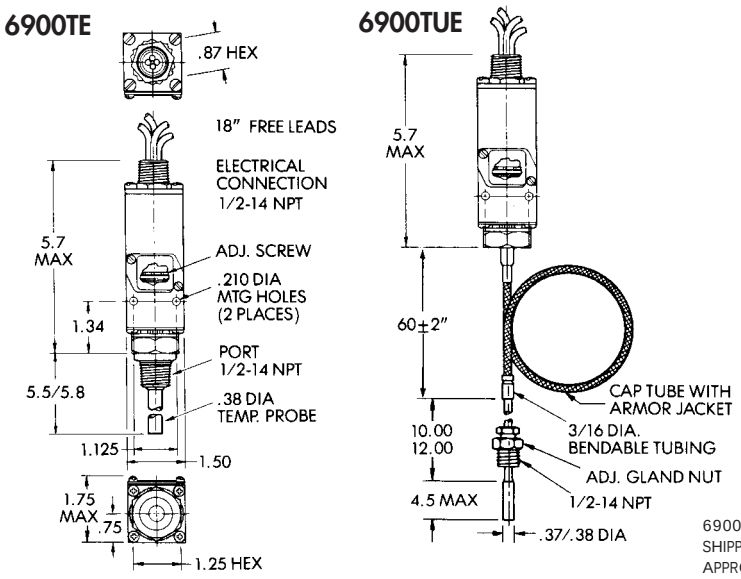
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

INSTALLATION DRAWING



6900TE SHIPPING WT. APPROX. 21 OZ. (595 GRAMS)

6900TUE SHIPPING WT. APPROX. 29 OZ. (822 GRAMS)

Temp. **0** to **650°** F

SERIES: 6900TE 6900TUE

6900TE Models with Probe

6900TUE Models with Capillary Tube

Standard Features:

- **U.L./CSA Explosion Proof: Div. 1, 2**
- **NEMA: 4, 7, 9, 13**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

TEMPERATURE SWITCHES MODEL 6900TE • STAINLESS STEEL TEMPERATURE PROBE — Wetted Parts: 300 SST

Maximum Probe Temperature Degrees F	Adjustable Set Point Range		Approx. Dead Band		Model Number	
	On Incr. Temperature Degrees F	On Decr. Temperature Degrees F	At Bottom of Range Degrees F	At Top of Range Degrees F	**MODEL** SPDT–Std.	**MODEL** DPDT "M"
+200°	+20° to +120°	+0° to +113°	20°	5°	6900TE12	6900TEM12
+300°	+80° to +205°	+60° to +198°	20°	5°	6900TE14	6900TEM14
+400°	+185° to +315°	+165° to +308°	20°	5°	6900TE16	6900TEM16
+500°	+280° to +405°	+260° to +398°	20°	5°	6900TE18	6900TEM18

TEMPERATURE SWITCHES MODEL 6900TUE • STAINLESS STEEL TEMPERATURE PROBE WITH 5' CAPILLARY TUBE — Wetted Parts: 300 SST & Graphite Lubricated Glass Fiber

+200°	+20° to +120°	+0° to +113°	20°	5°	6900TUE12	6900TUEM12
+300°	+80° to +205°	+60° to +198°	20°	5°	6900TUE14	6900TUEM14
+400°	+185° to +315°	+165° to +308°	20°	5°	6900TUE16	6900TUEM16
+500°	+280° to +405°	+260° to +398°	20°	5°	6900TUE18	6900TUEM18
+650°	+385° to +565°	+360° to +555°	25°	10°	6900TUE20	6900TUEM20
+700°	+465° to +650°	+440° to +640°	25°	10°	6900TUE22	6900TUEM22

EXTERNAL PROBE PRESSURE
System Pressure: 1250 psi
Proof Pressure: 1500 psi

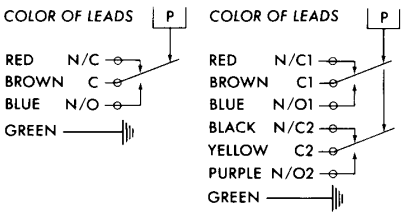
Options Code:
"7001" 10' Capillary
"7002" 15' Capillary
"7003" 25' Capillary
"7008" Gold Contacts
"7042" SST Body
"7043" SST Body & Gold Contacts
"7052" Exp. Proof w/3' Leads
"7054" Exp. Proof w/6' Leads
"7076" Teflon Wire

ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

VOLTS	AMPERES	
	SPDT Res.	DPDT "M" Res.
125 AC – 50/60 Hz	11	11
250 AC – 50/60 Hz	11	11
30 DC	5	5
125 DC	.5	.5

SCHEMATIC AND WIRING CODE:

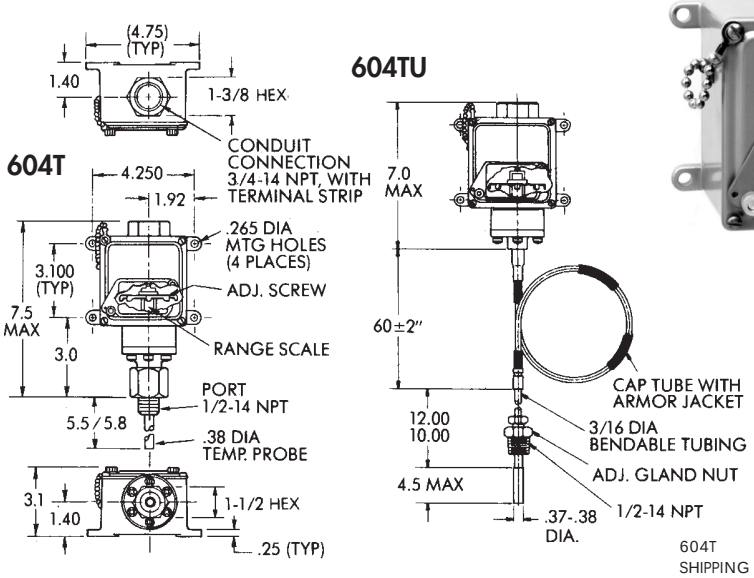


ENCLOSURE/CERTIFICATIONS:

Div. 1 explosion-proof and hermetically sealed electrical assembly Part No. 46–1058 (46–1061 for "M" model option), listed by both Underwriter's Laboratories, Inc. (File No. E32961) and CSA Testing Laboratories (File No. 22921) for hazardous locations, Class 1, Groups A, B, C, and D; Class 2 Groups E, F, and G.

HOW TO ORDER: **Specify model number, add desired "options" listing letter codes first followed by numbers:**
See Page 23 for detail data on available Capillaries and Thermowells
Custom Control Sensors, Inc. • 21111 Plummer Street, Chatsworth, CA 91311 • Tel: (818)341-4610 • Fax: (818)709-0426
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

INSTALLATION DRAWING



604T SHIPPING WT. APPROX. 66 OZ. (1871 GRAMS)

604TU SHIPPING WT. APPROX. 65 OZ. (1843 GRAMS)

Temp. **–39** to **+630°** F

SERIES: 604T 604TU

Standard Features:

- **U.L.**
- **NEMA: 4, 13**
- **Weatherproof**
- **Internal Case Ground**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

TEMPERATURE SWITCHES MODEL 604T • STAINLESS STEEL TEMPERATURE PROBE — Wetted Parts: 300 SST, Nickel Plated Steel; Buna N (Ranges 1–3); Silicone Rubber (Ranges 4, 5)

Maximum Probe Temperature Degrees F	Adjustable Set Point Range		Approx. Dead Band		Model Number	
	On Incr. Temperature Degrees F	On Decr. Temperature Degrees F	At Bottom of Range Degrees F	At Top of Range Degrees F	**MODEL** SPDT–Std.	**MODEL** DPDT "M"
+250°	–30° to +55°	–39° to +52°	9°	3°	604T1	604TM1
+300°	+35° to +140°	+21° to +135°	14°	5°	604T2	604TM2
+300°	+90° to +210°	+75° to +195°	15°	5°	604T3	604TM3
+500°	+175° to +310°	+159° to +305°	16°	5°	604T4	604TM4
+500°	+275° to +420°	+256° to +414°	19°	6°	604T5	604TM5

TEMPERATURE SWITCHES MODEL 604TU • STAINLESS STEEL TEMPERATURE PROBE WITH 5′ CAPILLARY TUBE — Wetted Parts: 300 SST & Graphite Lubricated Glass Fiber

+200°	–30° to +55°	–39° to +52°	9°	3°	604TU1	604TUM1
+300°	+35° to +140°	+21° to +135°	14°	5°	604TU2	604TUM2
+300°	+90° to +210°	+75° to +195°	15°	5°	604TU3	604TUM3
+500°	+175° to +310°	+159° to +305°	16°	5°	604TU4	604TUM4
+500°	+275° to +420°	+256° to +414°	19°	6°	604TU5	604TUM5
+600°	+380° to +525°	+355° to +520°	25°	5°	604TU6	604TUM6
+650°	+480° to +630°	+456° to +624°	24°	6°	604TU7	604TUM7

Options Code:
"7001" 10' Capillary
"7002" 15' Capillary
"7003" 25' Capillary
"7008" Gold Contacts

EXTERNAL PROBE PRESSURE
System Pressure: 1250 psi
Proof Pressure: 1500 psi

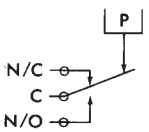
ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

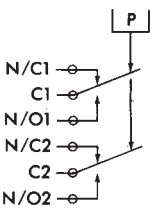
VOLTS	AMPERES	
	SPDT Res.	DPDT "M" Res.
125 AC – 50/60 Hz	15	5
250 AC – 50/60 Hz	15	5
480 AC – 50/60 Hz	15	—
28 DC	6	5
125 DC	.4	.5

SCHEMATIC AND WIRING CODE:

SPDT–Standard



DPDT "M"



ENCLOSURE/CERTIFICATIONS:

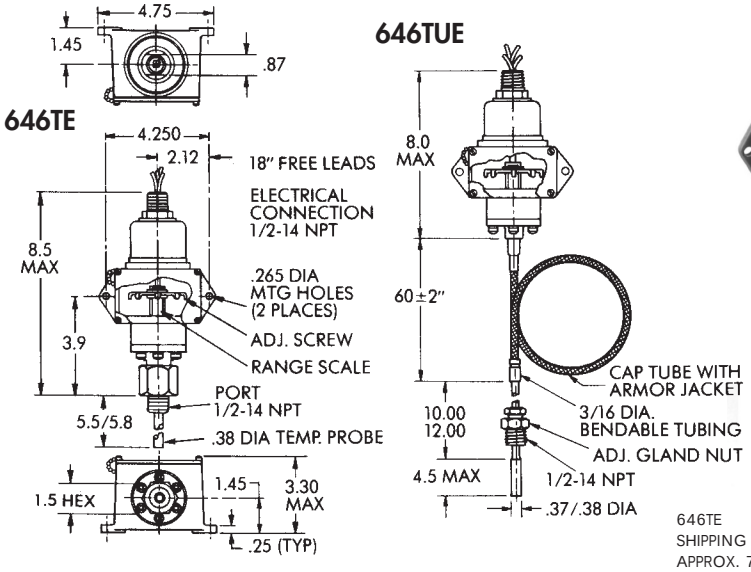
All Models shown are Underwriter's Laboratories, Inc. listed in the Recognized Components Index, Guide NKPZ "Motor Controllers, Float and Pressure Operated," File No. E72038.

HOW TO ORDER: **Specify model number, add desired "options" listing letter codes first followed by numbers:**

See Page 23 for detail data on available Capillaries and Thermowells

Custom Control Sensors, Inc. • 21111 Plummer Street, Chatsworth, CA 91311 • Tel: (818)341-4610 • Fax: (818)709-0426
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

INSTALLATION DRAWING



646TE SHIPPING WT. APPROX. 71 OZ. (2013 GRAMS)

646TUE SHIPPING WT. APPROX. 68 OZ. (1928 GRAMS)

Temp. **–39** to **+630°** F

SERIES: 646TE 646TUE

Standard Features:

- **U.L./CSA Explosion Proof: Div. 1, 2**
- **NEMA: 4, 7, 9, 13**

AMBIENT TEMP. RANGE
–30° to 160° F
–34° to 71° C

OPERATING AND ORDERING DATA:

TEMPERATURE SWITCHES MODEL 646TE • STAINLESS STEEL TEMPERATURE PROBE — Wetted Parts: 300 SST, Nickel Plated Steel; Buna N (Ranges 1–3); Silicone Rubber (Ranges 4, 5)

Maximum Probe Temperature Degrees F	Adjustable Set Point Range		Approx. Dead Band		Model Number	
	On Incr. Temperature Degrees F	On Decr. Temperature Degrees F	At Bottom of Range Degrees F	At Top of Range Degrees F	**MODEL** SPDT–Std.	**MODEL** DPDT "M"
+250°	–30° to +55°	–39° to +52°	9°	3°	646TE1	646TEM1
+300°	+35° to +140°	+21° to +135°	14°	5°	646TE2	646TEM2
+300°	+90° to +210°	+75° to +195°	15°	5°	646TE3	646TEM3
+500°	+175° to +310°	+159° to +305°	16°	5°	646TE4	646TEM4
+500°	+275° to +420°	+256° to +414°	19°	6°	646TE5	646TEM5

TEMPERATURE SWITCHES MODEL 646TUE • STAINLESS STEEL TEMPERATURE PROBE WITH 5′ CAPILLARY TUBE — Wetted Parts: 300 SST & Graphite Lubricated Glass Fiber

+200°	–30° to +55°	–39° to +52°	9°	3°	646TUE1	646TUEM1
+300°	+35° to +140°	+21° to +135°	14°	5°	646TUE2	646TUEM2
+300°	+90° to +210°	+75° to +195°	15°	5°	646TUE3	646TUEM3
+500°	+175° to +310°	+159° to +305°	16°	5°	646TUE4	646TUEM4
+500°	+275° to +420°	+256° to +414°	19°	6°	646TUE5	646TUEM5
+600°	+380° to +525°	+355° to +520°	25°	5°	646TUE6	646TUEM6
+650°	+480° to +630°	+456° to +624°	24°	6°	646TUE7	646TUEM7

Options Code:
"7001" 10' Capillary
"7002" 15' Capillary
"7003" 25' Capillary
"7008" Gold Contacts
"7076" Teflon Wire

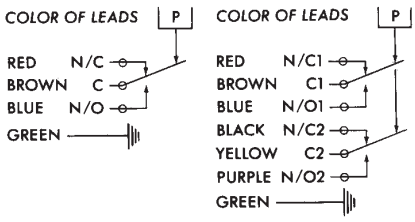
EXTERNAL PROBE PRESSURE
System Pressure: 1250 psi
Proof Pressure: 1500 psi

ELECTRICAL CHARACTERISTICS:

RATING OF SWITCH ELEMENT

VOLTS	AMPERES	
	SPDT Res.	DPDT "M" Res.
125 AC – 50/60 Hz	15	5
250 AC – 50/60 Hz	15	5
480 AC – 50/60 Hz	15	—
125 DC	.4	.5

SCHEMATIC AND WIRING CODE:



ENCLOSURE/CERTIFICATIONS:

Div. 1 explosion-proof and hermetically sealed electrical assembly Part No. 17-51 (17-73 for "M" model option), listed by both Underwriter's Laboratories, Inc. (File No. E32961) and CSA Testing Laboratories (File No. 22921) for hazardous locations, Class 1, Groups A, B, C, and D; Class 2 Groups E, F, and G.

HOW TO ORDER: **Specify model number, add desired "options" listing letter codes first followed by numbers:**

See Page 23 for detail data on available Capillaries and Thermowells

Custom Control Sensors, Inc. • 21111 Plummer Street, Chatsworth, CA 91311 • Tel: (818)341-4610 • Fax: (818)709-0426
e-mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

DETAIL DATA ON OPTIONS NOT COVERED ELSEWHERE

If more than one option shown here is needed on any single pressure switch, contact factory for feasibility or special model number.

OPTIONAL FEATURE	ORDERING NUMBER
GOLD CONTACTS SWITCH ELEMENT ..... Available in SPDT and DPDT models. NOTE: The electrical rating is as follows: 1 amp max. at 125 V.A.C. 1 amp max. at 30 V.D.C.	**–7008**

HOW TO ORDER:

1. Specify standard model number of switch desired.
2. Add the above number that specifies option desired to the end of standard number.

EXAMPLE: To order 604P21 with gold contacts,specify 604P21–**7008**

MISCELLANEOUS ITEMS

OPTIONAL FEATURE	ORDERING NUMBER
VITON O–RING ..... Check factory for availability and price on any specific model where it is not shown as a standard option.	**A**
ETHYLENE PROPYLENE O–RINGS..... Check factory for availability and price on any specific model where it is not shown as a standard option.	**F**
TAGGING If tagging is required,it must be specified on the face of order by indicating whether it is Mylar or Stainless Steel.	

HOW TO ORDER:

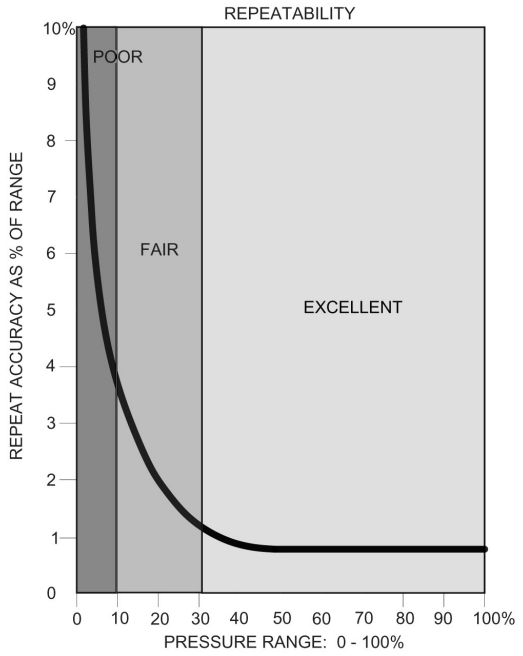
1. First specify the standard model number of the switch desired.
2. Specify optional features desired by inserting the letter designation of the o-ring optional feature after the last letter in the model number and then followed by options numbers.

EXAMPLE: To order 604P21 with Viton O–Ring and Gold Contacts, specify 604P**A**21-7008

APPLICATION AND TECHNICAL INFORMATION

PRESSURE SWITCH

Approximate Pressure Sensing Performance Characteristics



Surge and Ripples

The Disc Spring design used in DUAL–SNAP® switches makes them relatively impervious to surges or pump ripples that may be expected in conventional hydraulic systems.

This resistance to sharp pressure changes in the media has been the prime reason for many customers changing to DUAL–SNAP® pressure switches after experiencing false shutdown and failure with other competitive design principles such as flat metal diaphragms, bourdon tubes and bellows type.This makes DUAL–SNAP ® switches particularly suitable for rugged applications on off the road machinery, heavy presses,and systems using pulsating piston pumps

Pressure Switch Application Conditions

Ambient Temperature: The pressure switch should be installed wherever possible in a location that has the most constant ambient temperature available.

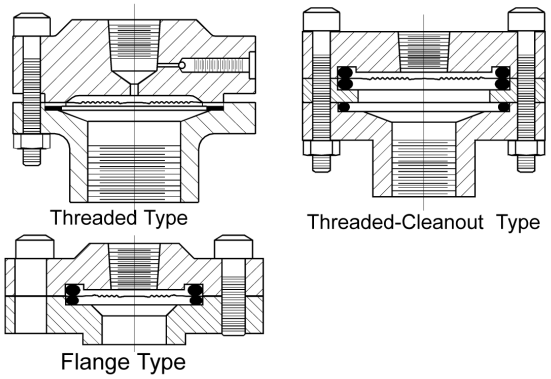
Steam Service: For steam or other high temperature applications the pressure switch should be mounted with the pressure connection up and with three or four circular loops,or pigtails, in the pressure lines. The vertical mounting allows condensate to accumulate in the dead ended pressure line and to be cooled in the pigtail which acts as a temperature buffer between the sensing element and the steam.

Corrosive Fluids

Occasionally liquids or gases are encountered that are not compatible with the “wetted parts ”as shown in the catalog. When this occurs it is common practice to use a chemical seal as an interface between the corrosive fluid and the pressure switch.Custom Control Sensors does not manufacture or accept orders for chemical seals. The reason for this is to insure that the customer gets exactly what he needs for his application.

We will drop ship switches to any manufacturer of chemical seals that the customer may specify,or we can recommend a suitable source of supply if asked (Note: The customer can then place a purchase order with appropriate instructions directly with his source of supply so that the supplier can then coordinate the customer’s wishes with the chemical seal that will be assembled, filled,calibrated and tested to fit the needs outlined).

Typical and readily available CHEMICAL SEALS



Pressure Switch Installation

The pressure switches can be mounted in any position. When the electrical conduit is connected, it is recommended that the conduit line (if it is over 6 feet in length)be clamped firmly close to the switch to keep thermal expansion from causing it to place a high stress load onto the housing of the pressure switch.If moisture in the conduit line is a potential problem, it is recommended that a potting Y connection be placed between the switch and the conduit.This will eliminate drainage from the electrical conduit into the pressure switch housing.

Line mounting is possible and recommended for any of our “Compact ”pressure switches.Installation must not impose loads on connections.

Seismic Shock and Vibration

Due to their unique design principle, DUAL–SNAP® pressure and temperature switches will meet all the conventional seismic shock and vibration specifications now being applied to many projects such as power plants for ecological protection.These specifications by their severity eliminate the use of mercury filled switching elements and many vibration critical sensing elements found in most competitive designs.

APPLICATION AND TECHNICAL INFORMATION

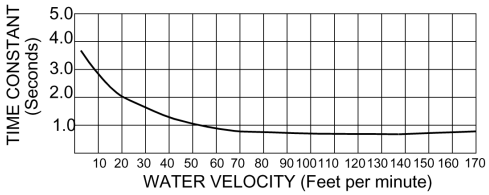
TEMPERATURE SWITCH

Fast Response

Response characteristics of CCS temperature switches are the second key feature among a host of performance benefits. DUAL–SNAP® Temperature Switches utilize a vapor pressure system,an established, reliable principle, to sense temperature changes. With the vapor pressure system, pressure is generated in a noncorrosive stainless steel probe that is partially filled with a volatile liquid and pre–selected according to temperature range requirements.The pressure generated is directly proportioned to the probe temperature according to precise vapor–pressure law; switch actuation and deactuation can thus be predetermined at precise temperatures.

All in all, CCS temperature switches exhibit response, sensitivity and dead band characteristics that surpass competitive models in accuracy, repeatability and long–life.

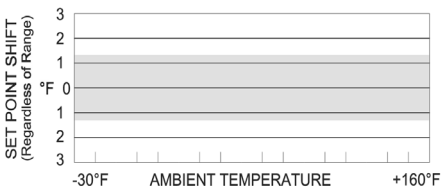
FIGURE 1 — Response Characteristics
Series 604T,646T,Only



Typical Time Constant: To calculate thermal lag, (1) determine the time constant based on water velocity from Fig.1 (Note:most oils will increase the time constant by a factor of approximately 4X); and (2) multiply the time constant by the temperature rise rate in °F/sec.

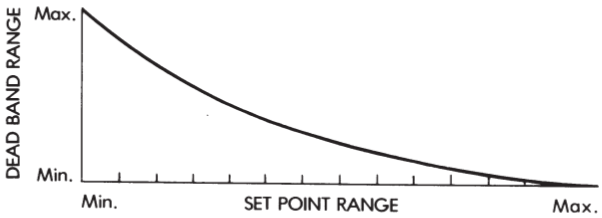
L=Tc x R where L=Lag in °F; Tc=time constant in seconds; and R=temperature rise rate in °F/sec.

FIGURE 2 — Sensitivity Characteristics



Typical ambient temperature effect on temperature settings.

FIGURE 3 — Dead Band Characteristics
Series 604T,646T,Only



Typical effect of set point on dead band.Dead band decreases as set point is increased.

Temperature Switch Application Conditions

DUAL–SNAP® Temperature Switches may be utilized virtually anywhere. These switches may be used in systems with proof pressures up to 1500 psi, with system temperatures varying from –30 °F to +630 °F, and at any altitude above sea level. Typical applications include use on water and steam lines, heat exchangers, lube oil and gear box bearings. Capillary tube units permit use in hazardous or hard–to–service situations.

Temperature Switch Installation

DUAL–SNAP® Temperature Switches can be mounted in any position. However, when electrical conduit is connected, it is recommended that the conduit line (if it is over 6 feet in length) be clamped firmly and close to the switch to prevent thermal expansion from creating a high stress load onto the housing of the temperature switch. If moisture is a problem, it is recommended that a potting Y connection be placed between the switch and the conduit. This will eliminate drainage from the electrical conduit into the temperature switch housing.

GLOSSARY OF TERMS AND DEFINITIONS

ACCURACY (REPEATABILITY) — Accuracy is the maximum operational set point deviation of a single sensor (a pressure, temperature, or flow switch) under one given set of environmental and operational conditions.

ACTUATION AND DEACTUATION POINT — The actuation point (sometimes called the set point)is the exact point at which the electrical circuit controlled by the switching element is opened (or closed) on increasing pressure or temperature.The deactuation point is the opposite, or the point at which the electrical circuit is closed (or opened) on decreasing pressure or temperature.

ADJUSTABLE RANGE — The total range within which the actuation point (set point) of a sensor may be adjusted.

AMBIENT TEMPERATURE RANGE — The maximum and minimum temperature that will surround the sensor during use and/or test.

ANSI (American National Standards Institute) — A federation of trade associations,professional and scientific societies, and individual company members. ANSI approves and serves as a clearinghouse for voluntary, nongovernmental American national standards.

API (American Petroleum Institute) — The national trade association that provides information in the form of standards, bulletins, and recommended practices for the petroleum industry.

BASEEFA (British Approvals Service for Electrical Equipment in Flammable Atmospheres) — The British national testing and certification authority for electrical equipment used in hazardous locations other than mines.

CENELEC (European Committee for Electrotechnical Standardization) — An organization comprised of the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. CENELEC coordinates and approves European standards for electrical equipment. Upon approval, a European standard becomes a national standard in each of the participating countries.

CHARGE — The fluid with which the temperature sensing probe is filled.

CRITICAL SET POINT — The critical set point is the set point of the unit which is held to the closest tolerance. It can be either the actuation (increasing) or deactuation (decreasing) point.

CSA (Canadian Standards Association) — A nonprofit voluntary association engaged in standards development and certification activities. A CSA certified electrical product conforms to applicable requirements of the Canadian Electrical Code.Representative prototypes are tested prior to certification and CSA maintains a production surveillance program to ensure continuing conformity.

DOUBLE BREAK SWITCHING ELEMENT — A double break switching element has two isolated circuits; one normally open and one normally closed, the four terminals facilitate wiring.

DEAD BAND (DIFFERENTIAL, ACTUATION VALUE) — The difference between the actuation point and the deactuation point of a sensor. For instance, if a pressure switch reaches its actuation point and closes the snap action switch at 100 psi, it is in an actuated condition. If the pressure then drops and the switch deactuates (returns to its normal condition) at 90 psi, it is said to have a dead band of 10 psi.

DOUBLE POLE DOUBLE THROW (DPDT) SWITCHING ELEMENT — A DPDT switching element has six electrical terminals. In simple terms, it is two SPD switches operating at the same settings. This type of switch can handle two independent circuits without using a relay.

DUAL SETTING — A dual setting pressure sensor has two independently adjustable electrical switches that are actuated by a shared pressure source. Equivalent to two field adjustable pressure switches in one package.

FACTORY SET — Tamperproof sensor which can be set only at the factory to customer 's requirements.

FIELD ADJUSTABLE — A pressure switch design that provides for adjustment of set points in the field.

FIELD SET (611G8000 series only) — A pressure switch design that provides for field adjustment of set points. Adjustment is accomplished by turning an adjustment screw located inside of pressure port prior to installation. After unit is installed, set points can be adjusted by removing pressure fittings to access adjustment screw.

FIRE RESISTANT — A pressure sensor that is designed with a high melting point barrier (steel) that will prevent full flow of sensed flammable fluid from feeding on externally caused fire.

FLUID — A liquid or gas that alters its shape in response to any applied force and that tends to conform to the outline of its container.

GOLD CONTACTS — Gold contact switching elements are characterized by high corrosion resistance and high reliability in switching low voltage and amperage circuits. They are recommended for intrinsically safe and computer interface circuits.

HERMETIC SEAL — A method of sealing the electrical switching element in a sensor so that it is unaffected by all ambient external corrosive agents and explosive gases. Sealing must be accomplished by soldering, brazing, welding, and glass to metal fusion.

JIC (Joint Industrial Council) — A voluntary organization of industrial equipment producers and users that developed standards for industrial equipment. This organization is presently inactive and the standards are soon to be superseded by new standards written by the National Fire Protection Association and the National Fluid Power Association.

LIMP DIAPHRAGM — An elastomer or plastic diaphragm which is used in a pressure sensor. This type of diaphragm conforms to the shape of the sensing pressure plate and has no rigid structure itself. CCS uses polyimide or viton/dacron limp diaphragms.

NACE (National Association of Corrosion Engineers) — Nonprofit technical association that develops and maintains standards that deal exclusively with protection and performance of materials in corrosive environments. The membership represents a cross–section of industry concerned with corrosion prevention and control.

NEC (National Electrical Code) — The American national standard that contains provisions considered necessary for safeguarding persons and property from hazards arising from the use of electricity. Generally, the code covers electric conductors and equipment installed within or on public and private buildings or other structures.

GLOSSARY OF TERMS AND DEFINITIONS

NEMA (National Electrical Manufacturers Association) — A voluntary organization that adopts standards for electrical equipment. NEMA standards are designed to eliminate misunderstandings between the manufacturer and the purchaser and to assist the purchaser in selecting and obtaining the proper product for a particular need.

NFPA (National Fire Protection Association) — An organization that promotes the science and improves methods of fire protection. NFPA codes, standards, and recommended practices are intended to prescribe reasonable measures for minimizing losses of life and property by fire. NFPA sponsors the National Electrical Code under auspices of the American National Standards Institute.

NFPA (National Fluid Power Association) — A nonprofit national trade association that coordinates and develops voluntary standards for manufacturers of hydraulic and pneumatic systems and components.

NORMALLY CLOSED SWITCHING ELEMENT — Is one in which the terminals are wired so that current can flow through the switching element until the plunger pin is actuated to open the circuit.

NORMALLY OPEN SWITCHING ELEMENT — Is one in which the terminals are wired so that no current can flow through the switching element until the plunger pin is actuated to close the circuit.

POLYIMIDE — A polymeric film possessing a unique combination of physical and mechanical properties which include long life, excellent deformation/set resistance, high resistance to temperature extremes, good tensile strength, and outstanding resistance to organic compounds. Polyimide is not recommended for water service above 140 °F (60 °C).

PRESET — A factory set pressure switch available from stock, set to a predetermined set point.

PRESSURE, ABSOLUTE — The difference between zero pressure (a perfect vacuum) and some known pressure. It may be arrived at by adding barometric pressure to gage pressure.

PRESSURE, AMBIENT — The pressure (usually,but not necessarily atmospheric) surrounding a pressure sensor.

PRESSURE, ATMOSPHERIC — The actual weight per unit area of the earth's atmosphere at a given locale and altitude. Atmospheric pressure at sea level is approximately 14.7 psi or 30 inches of mercury or 408 inches of water.

PRESSURE, DIFFERENTIAL — The difference between a reference pressure and a variable pressure.

PRESSURE, GAGE — Gage pressure uses atmospheric pressure as a reference, and therefore will vary according to the barometric reading.

PRESSURE, PROOF — Proof pressure (normally 11⁄2 times system pressure) is the maximum pressure which may be applied to any pressure sensor without causing permanent damage.

PRESSURE, SYSTEM — The nominal pressure level that a system will operate at including work load.

PRESSURE SENSING ELEMENT — That portion of the pressure switch that is in contact with and moves as a result of a in pressure of the fluid. The most common type of sensing elements are diaphragms, accordion bourdon tubes, and pistons.

PRESSURE SWITCH — A sensor that upon the increase or decrease of a pressure or vacuum, opens or closes one or more electrical switching elements at a predetermined set point.

PROOF TEMPERATURE — The maximum temperature of the media which the sensing portion of the switch can be subjected to without causing permanent damage.

RESPONSE TIME OR TIME CONSTANT — The amount of time (in seconds) in which the sensor operates after being subjected to a step temperature increase where the difference between the initial soak temperature and actuation temperature equals 63% of the step temperature. The response time is expressed for a designated flow (feet per second), media and system pressure (PSIG).

RISE RATE OR RAMP RATE — The number of degrees (Fahrenheit or Celsius) that the media will increase in a unit of time (minute or second).

SEISMIC SHOCK AND VIBRATION — Low frequency, high amplitude waves produced as a result of earth movement. CCS pressure sensors are generally unaffected by seismic shock and vibration.

SINGLE POLE DOUBLE THROW (SPDT)SWITCHING ELEMENT — A SPDT switching element has one normally open, one normally closed and one common terminal. Three terminals mean that the switch can be wired with the circuit either normally open (N/O) or normally closed (N/C).

TEMPERATURE LAG — The number of degrees above the actuation point that the media will be when the sensor operates. The log is expressed for a designated rise rate (degrees per second), flow (feet per second), and system pressure (PSIG). The log is determined by multiplying the rise rate by the response time. Example:If a system with a constant flow,pressure, and rise rate of 10 °F per second incorporated a sensor with a response time of 3 seconds, the log would be 30 degrees.

TEMPERATURE SWITCH — A temperature switch is a sensor that upon the increase or decrease of a temperature, opens or closes one or more electrical switching elements at a predetermined set point.

THERMOWELL — A housing that can be provided with temperature switches to isolate the temperature probe from the media.

UL (Underwriters Laboratories) — A nonprofit corporation engaged in developing standards and testing for safety. Products bearing UL labels have been tested for conformity to UL standards. UL maintains a product surveillance program to ensure continuing conformity to UL standards.

UL LISTED PRODUCT — A product that has been tested and complies to UL requirements for reasonably foreseeable hazards associated with the product and is subject to continuing UL product surveillance. UL authorizes the manufacturer to use the UL Listing mark.

UL RECOGNIZED COMPONENT — A part or subassembly that has been tested and complies to UL requirements for components used in an end product which complies with UL requirements. The component is subject to continuing UL surveillance. UL authorizes the manufacturer to use the UL Recognized mark.

WETTED PARTS — Materials in a sensor that are directly exposed to the media.

Custom Control Sensors, Inc.

21111 Plummer Street, Chatsworth, CA 91311

Tel: (818)341–4610 • Fax: (818)709–0426

e–mail: switchnet@ccsdualsnap.com • http://www.ccsdualsnap.com

European Sales Office: Unit 13, Shrivenham Hundred Business Park

Watchfield, Nr. Swindon, United Kingdom SN6 8TZ

Tel: (+441 793) 783–545 • Fax: (+441 793) 783–532

e–mail: dualsnap@ccsdualsnap.co.uk • http://www.ccsdualsnap.co.uk

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