

How a Wide Range CCS™ DUAL-SNAP® Pressure Switch Works

1. The Heart of the Design



• It's a convex disc spring with a centre hole

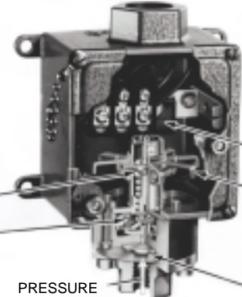
• It snaps to concave under pressure. And it snaps back when pressure is released

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

SPRING SYSTEM

HELICAL SPRING

DISK SPRING



PRESSURE

3. Add a limp diaphragm to receive and seal system pressure and switch to operate the electrical system

SWITCH

ADJUSTMENT SYSTEM

LIMP DIAPHRAGM

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 set point

4. Now the system is packaged with components suitable for specific pressures, fluids and environments...and you have 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 elements. The switch is either "on" or "off."
- Reduces the adverse effects of pump ripple, contact chatter, fatigue, and premature wear
- Maximum life expectancy with life long reliability and precise repeatability assured

Series 6905GZE/PE**-7042

- CENELEC AND BASEEFA Certified and Approved
- CENELEC Code: EExdIICT6 (Tamb:-34°C to +71°C) & T5 (Tamb:-34°C to +86°C)
- BASEEFA Number: EX9OC1218X

Electrical Connection (Fitted Terminal boxes available as an option) PG 13.5 thread

Earthing Connection

Switching Element 11 AMP SPDT - HERMETICALLY SEALED (also available DPDT and Gold Contacts for intrinsically safe circuits)

Flameproof Enclosure SST construction

Actuator Assembly

Actuator Pin

Weatherproof Enclosure IP67

Disk Spring "DUAL SNAP" "ON-OFF" operation

Adjustable Helical Spring (for set point adjustment)

Wheel for Precise wide-range adjustment

Vent Valve Prevents pressure build-up in chamber

316 Stainless Steel (options available) Diaphragm or Piston and TFE/Viton O-Ring Pressure Seal

Pressure Plate

Pressure Port 316 Stainless Steel (options available)

The on going success of the company is due to the continually expanding customer acceptance



Some of the extensive Markets served:

- Oil and Gas Production and Exploration (on & off-shore)
- Food and Beverages
- Pulp and Paper
- Chemical
- Pharmaceutical
- Petroleum Refining
- Industrial and Commercial Machinery
- Transportation
- Electronic Equipment
- Utilities, Water & Sewage
- Pipelines
- Power Generation
- Marine
- Ordnance
- Instrumentation
- Natural Gas Transmission and Distribution
- Mining and Construction

The Innovative DUAL-SNAP disc spring principle was initially developed by CCS



Vac. .8" to 30"
SERIES:
675GE
675DE
675VE

Standard Features:

- U.L./CSA — See N
- Explosion Proof: D
- NEMA: 4, 7, 9, 13

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CCS™ DUAL-SNAP®
 Pressure & Temperature Switches

Electrical Equipment Certification Service (BS EN ISO 9002)
 UKAS Quality Management (ISO 9001)

ISA™

United Kingdom, France, Italy, USA, Germany, Spain



Pressure & Temperature Switches

Founded in 1958, Custom Control Sensors introduced to the world an innovative range of products that revolutionised the accuracy, reliability and performance of mechanical sensing pressure and temperature switches used throughout industry.

An initiative by the founder of the company responding to problems experienced and reported in the aerospace industry led to the development of the CCS DUAL-SNAP switch principle.

Hitherto, convention was unreliable and erratic, tracing pumping variables and irregularities and every shock and vibration in the system being sensed and switching prematurely with set-point drift and reduced cycle life.

So successful was the CCS DUAL-SNAP negative rate disc-spring principle that it was widely adopted by the military and aerospace industries meeting their rigorous specifications and high quality expectations in these most technologically advanced and demanding of applications.

The same proven features and benefits and cost effective competitiveness are maintained in the CCS DUAL-SNAP industrial product range. As a world leader in this innovative technology our product is used internationally by the following industries Oil, Gas, Petrochemical, Chemical, Pharmaceutical, Power generating, Pulp and Paper, Hydraulic, Utilities, Transportation systems, Machinery and Machine tools.

For industrial hazardous area use product is certified by the following approved authorities, Underwriters Laboratories, Canadian Standards Association, CENELEC and BASEEFA.

The company is quality audited to ISO9002 by the Electrical Equipment Certification Service, United Kingdom and is fully committed to continual development of its products, manufacturing processes and materials to maintain the highest quality and reliability of the finished product.

We invite your consideration.



“Electrical termination options, all switches can be furnished to suit individual applications. We offer a choice of approved junction boxes, DIN connectors [weatherproof, compact models] or free leads.”



A selection of some of our popular Industrial models

All CCS DUAL-SNAP Pressure and Temperature switch models are available with a choice of SPDT or DPDT micro-switches including Gold contacts for Intrinsically safe applications. All certified explosion-proof models have hermetically sealed electrical assemblies as standard.

Electrical termination options*, all switches can be furnished to suit individual applications. We offer a choice of approved junction boxes, DIN connectors [weatherproof, compact models] or free leads.

On corrosive or sour service, wetted process parts can be supplied as standard in 316 Stainless steel, Monel or Hastelloy all in full compliance with the latest NACE [National Association of Corrosion Engineers] specifications. A choice of corresponding elastomer seals available.

Adjustable Pressures from 38 mmH2O to 1100 BarG [1 1.5" H2O to 16000 PSIG]. Vacuum from 2.79 to 724 mmHg. Temperatures from -34 to 343°C.

604 Series



Pressure/Differential Pressure/Vacuum:
Wide range Diaphragm and Piston versions
Externally adjustable set-point
Weatherproof - IP66
Pressure ranges 0.05 to 345 Bar [0.8 to 5000 PSI]
Vacuum range 88 to 724 mmHg
DP range 0.05 to 5.2 Bar [0.8 to 75 PSID]
Process wetted parts standard options: Aluminium, Brass, 316SS, Monel and Hastelloy.

Temperature:
Direct mount and Capillary options
Range from -34 to 343°C [-30 to 650°F]
Standard capillary lengths 1.5, 3, 4.5 and 7.6 metres [5, 10, 15 and 25 ft.]
Thermowells [for all series]:
316SS, .75" or .5" NPTM sizes with standard insertion lengths of 114, 190, 266 and 342 mm [4.5", 7.5", 10.5 and 13.5"]
Flanged types on request.

646 Series*



Pressure/Differential Pressure/Vacuum:
Wide range Diaphragm and Piston versions
Externally adjustable set-point
Explosion-proof certified to UL, CSA and/or BASEEFA - IP66
Pressure ranges 0.08 to 345 Bar [1.2 to 5000 PSI]
Vacuum range 88 to 724 mmHg
DP range 0.08 to 5.2 BarD [1.2 to 75 PSID]
Process wetted parts standard options: Aluminium, 316SS, Monel and Hastelloy.

Temperature:
Direct mount and Capillary options
Range from -34 to 630°C [-30 to 630°F]
Capillary lengths same as for 604 series.

6900/6904/6905 Series*

Pressure/Differential Pressure:
Compact size wide range Diaphragm and Piston versions
Flush Diaphragm
Externally adjustable set-point
Weatherproof and Explosion-proof options - IP66/67
Explosion-proof models certified to UL, CSA and CENELEC
Pressure ranges 0.21 to 1100 Bar [3 to 16000 PSI]
DP range [1.2 to 5.2 BarD] 1.2 to 75 PSID
Process wetted parts options: Aluminium, 316SS, Monel and Hastelloy.

Temperature:
Direct mount and Capillary options
Range from -7 to 49°C [20 to 650°F]
Capillary lengths same as for 604 models.

611 Series*

Pressure/Vacuum:
Compact size low range Diaphragm
Internally adjustable set-point
Weatherproof and Explosion-proof options - IP66
Explosion-proof models certified to UL and CSA
Pressure ranges 0.1 to 12.4 Bar [1.5 to 180 PSI]
Vacuum range 101 to 724 mmHg
Process wetted parts options: Aluminium, Brass and 316 Stainless steel.

672/673/674 Series*

Differential Pressure:
Low, medium and high range Diaphragm
Factory set and externally adjustable set-point models
Weatherproof and Explosion-proof IP66/67
Explosion-proof certified to UL, CSA and CENELEC
Ranges 0.48 to 55 BarD [7 to 800 PSID]
Process wetted part options: Aluminium, 316SS.

6401/6403 Series

Pressure/Differential Pressure/Vacuum:
Wide range Diaphragm and Piston versions
Externally adjustable set-point
Explosion-proof certified to UL, CSA and CENELEC - IP66
Integral Junction box
Pressure ranges 0.08 to 448 Bar [1.2 to 6500 PSI]
Vacuum range 88 to 724 mmHg
DP range 0.08 to 5.2 BarD [1.2 to 75 PSID]
Process wetted parts standard options: 316SS, Monel and Hastelloy.

Temperature
Capillary models
Range -34 to 332°C [-30 to 630°F]
Capillary lengths same as for 604 series.

