MODEL 621 INLINE BODY FLOW SWITCH
PRECALIBRATED SWITCH POINT – HIGH RELIABILITY MECHANICAL TYPE

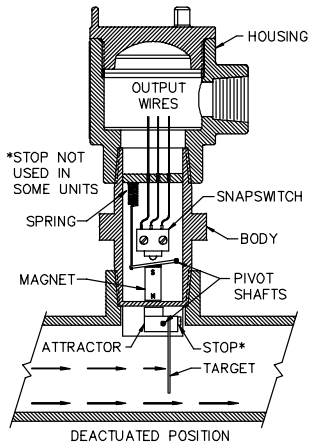
APPLICATION

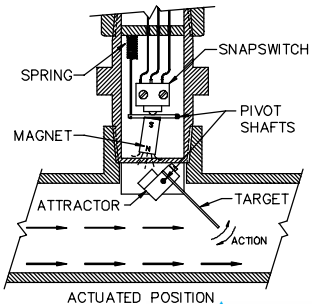
The Delta Controls Model 621 target actuated flow switch is equipped with a body that fits directly in and becomes part of the pipeline. The inside body dimensions and end connections conform to those of the pipeline. These switches protect pumps, blowers, heat exchangers, etc. They are factory calibrated to switch at the specified flowrate. An internal adjustment allows small switchpoint changes to be made in the field. Large changes require changing the size of the target.

Connection of the target to the output switch is done magnetically. A heavy-duty solid sealing tube separates the process fluid from the switch mechanism. Failures due to seal, diaphragm, and bellows leaks are eliminated.

OPERATING PRINCIPLE

A pivoted target extends down into the flowing stream. A force is created by the flowing fluid as it strikes the target. At a predetermined velocity, the force becomes great enough to cause the target and the attractor to rotate about the pivot point. The magnet reacts to the new attractor position and the output switch operates. The target rotates back to its original position as the flow decreases; and the output switch then returns to its original





FLANGED BODY AND PIPELINE CONNECTIONS – FABRICATED STYLE SHOWN

HARDWARE MODEL NUMBER*

* Application and Service Number must also be provided.

Actuation Point: Within 10% basic, closer optional
Housing: Class 1, Division 1, Groups BCD, X-Proof, also 4X, IP64. Third Party Listed by CSA; NRTL/C (USA & Canada)
Body/Tube Connection: NPT; flanged, pipeline weld stub

Basic Type	-	Wetted Material	-	Switch Contact	-	Pipeline O.D./I.D.	-	Pipeline Conn.	-	Options

Example 621 - YCY - C - 3.50/3.07 - 3"/150/RF - AA

WETTED MATERIAL COMBINATIONS BY SIZE

M/N	NPT	Flanged	Body	Trim	Target
LBY	½" to 3"	N.A.	Brass	304 SS	316 SS
SCY	½" to 3"	½" to 8"	Steel	400 SS	316 SS
YCY	1½" to 3"	1½" to 8"	316 SS	416 SS	316 SS
MMM	1½" to 3"	1½" to 8"	Monel	Monel	Monel

Titanium, Alloy 20, and other materials are available

M/N	CONTACT	AMPS *	MAX °F
A	SPDT	10	220
B	SPDT	5	450
C	DPDT	10	220
H	DPDT	5	450

* Ratings up to 250 VAC; all rated 4 amps at 24 VDC

M/N	DESCRIPTION
AA	None
FJ	Body/Tube Flange
SH	304 SS Housing
TS	Wiring Terminals
TC	Traceable Calibration

NPT OR WELD STUB

SIZE	PSI WORKING
½" to 3"	150 or 1000
1½" to 3"	2000

FLANGED CONNECTION

SIZE	RATING	FACE
1½" to 8"	150# to 1500# ANSI	RF, FF, RTJ

Example: M/N for:
2" S40 = 2.37/2.06
4" S80 = 4.50/3.83

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APPLICATION AND SERVICE NUMBER

Complete information is required to calibrate the flow switch.
Provide the service details by building up an application number as shown below:

	Basic Type		Switch Point		Switch Action		Flow Direction		Max Pressure		Fluid SPG		Fluid Viscosity		Name of Fluid		Max. Flow
Application Example	621	-	5.5G	-	D	-	U	-	110	-	1.03	-	2CP	-	Boric Acid Solution	-	25G

SPECIFY IN FLOW RATE UNITS AS:
"G" GALLONS PER MINUTE
"L" LITERS PER MINUTE
"S" STANDARD CUBIC FEET PER MINUTE
"M" M3 PER MINUTE

SPECIFY THE PSIG

SPECIFY THE SPECIFIC GRAVITY OF FLUID AT OPERATING TEMPERATURE

SPECIFY NAME OF FLUID

MAXIMUM EXPECTED FLOW RATE:
G=GALLONS PER MINUTE
S=STANDARD CUBIC FEET
M=M^3/MINUTE

A/N	SWITCH ACTION OCCURS
D	DEACTUATE ON DECREASING FLOW
N	ACTUATE ON INCREASING FLOW

A/N	* DIRECTION THAT FLUID IS MOVING
H	HORIZONTAL FLOW (STANDARD)
U	VERTICAL UPFLOW (SEE OPTION "VU")

* NOT AVAILABLE FOR VERTICAL DOWNFLOW

SPECIFY VISCOSITY, OF FLUID IN CENTIPOISE, "CP" AT OPERATING TEMPERATURE C/F IF OVER 8 CP

Select the Switch Point Flow Rate between the maximum and minimum values shown in the range table below:

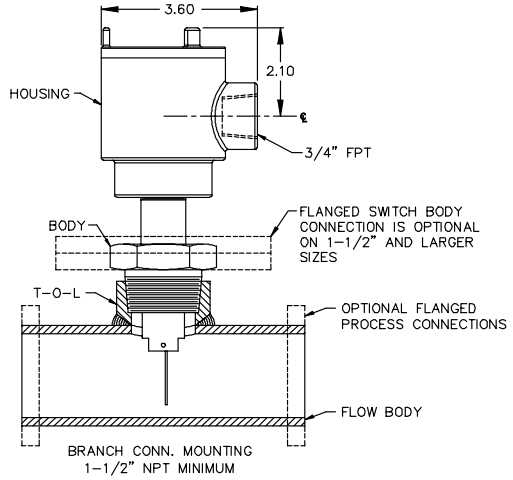
MEDIA	SWITCH ACTION AT FLOW RATE	BODY SIZE (EQUAL TO ANSI SCHEDULE 40 PIPE)								
		½	¾	1	1 ¼	1 ½	2	2 ½	3	4
Water at 77 °F	Min Actuate – GPM	1.6	2.0	2.8	5.0	5.0	7.0	14	21	32
	Min Deactuate - GPM	1.3	1.5	2.5	4.5	2.8	3.9	7.7	12	18
	Max Actuate – GPM	3.0	10	9.0	12	12	60	80	130	220
	Max Deactuate - GPM	2.4	8.0	8.2	10	8.4	42	56	91	154
	GPM @ 3 PSI Drop	10	15	30	60	100	150	225	350	650
Air at STP (1 Atmosphere and 77 °F)	Min Actuate – SCFM	6.4	8.0	12	21	30	40	50	60	70
	Min Deactuate - SCFM	3.8	6.5	10	18	17	22	28	33	39
	Max Actuate – SCFM	12.0	39	32	43	70	115	200	310	440
	Max Deactuate – SCFM	9	36	30	40	49	83	140	220	310
	SCFM @ 3 PSI Drop	100	150	250	400	550	650	800	1000	1421

Maximum Flow Rate Limit is 10 feet per second.

1" Size with Butt Weld Ends

FACTORS FOR LIQUIDS OR GASES WITH DENSITIES DIFFERENT FROM WATER OR AIR AT STP

Density	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.05	1.10	1.15	1.20	1.25	1.30	1.35	1.40	1.45	1.50
Multiply by	1.41	1.35	1.29	1.24	1.19	1.15	1.12	1.08	1.05	1.02	0.97	0.95	0.93	0.91	0.90	0.88	0.86	0.84	0.82	0.80



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Face To Face Dimensions (150# Rating NPT Body)

Body Size	½	¾	1	1 ½	2	2 ½	3
Brass Flow Body	2.0	2.4	2.9	3.7	4.2	5.4	6.2
150# Steel or SS Body	2.25	2.62	3.00	3.90	4.50	5.45	6.12
2000# Steel or SS Body	2.25	2.32	3.00	4.00	4.75	6.00	6.75

"B" Laying Length Dimension For Flanged Pipeline Connections

Body Size	½ to 1	1 ½	2	3	4	6	8	*
150# & 300#	7.5	7.5	8.0	8.0	8.0	10.0	10.0	4.0
600#	7.5	7.5	8.0	9.0	9.0	10.0	11.0	5.0
900# & 1500#	7.5	7.5	9.0	10.0	10.0	12.0	13.0	6.0

Note: Deduct 1.0 inch (25 mm) from above laying lengths for butt weld ends.
* Add this amount to laying length if switch body connection is a 2" flange.

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