Selection Guide & How They Work



- Piston Type
- Shuttle Type
- Paddle Type
- Flow Conditioner
- Viscosity Compensator











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12691

NODELNO. 2000 PARTNO. 12866

OW RATE 0.5 GPM

DEL NO. 2100 PART NO. 15 GPM

ATE FLOW



How They Work Overview



Positive displacement flow switches are well known for being extremely dependable, accurate and repeatable.



Field Adjustable Set Points

- In-line or 90° flow paths
- Field adjustable
- .75 20 GPM set points
- 3/4" 1" IPS
- Typical adjustable flow set point operation

1200 1400 1400



Return Spring

Set Point

Adjustment Vane

Magnet

Metering Disc

Pat No. 5,162,624

Internal

Reed Switch

Bypass Port -

This unique flow switch design features the standard shuttle set point operation and includes a patented clapper design for high flow bypass.

The liquid flow switch's set point is determined by a fixed-size metering bore and a machined disc (shuttle). The relation between these two creates a specific-sized annular orifice for liquid to pass (set point). When the flow exceeds the set point, the fluid displaces the shuttle which is equipped with a magnet to actuate a hermetically sealed reed switch within the bonnet assembly's stem. If flow increases beyond the set point the shuttle is further displaced to reveal a clear path to exit through the out port. Internally there is a partition with large escape holes. Affixed to the partition is a stainless-steel clapper, again, with a bypass hole. Guide pins with springs hold the clapper against the partition sealing off the flow. When the flow further increases, it displaces the clapper opening up a direct bypass for the fluid to exit through the out port.

Factory Fixed Set Points

- · In-line flow paths with bypass design
- .5 2.0 GPM set points
- 2" IPS









How They Work Overview



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REV R

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How They Work Overview

K Flow Switches

Follower

Paddle

Flow

Bidirectional Cam

Positive displacement flow switches are well known for being extremely dependable, accurate and repeatable.

2400

A Paddle Type Liquids

Upon liquid flow, a bidirectional cam is rotated, pushing against a follower equipped with a magnet. A hermetically sealed reed switch in the housing is actuated changing switch state. Upon decreased flow, the return spring keeps the follower in the cam valley deactivating the reed switch.

Field Adjustable Set Points

- Paddle type flow switches
- · Easy solution to confirm flow
- All metal wetted components
- 1" pipe size and larger



Return

Spring

The housing has two separate chambers. In the front chamber behind a transparent lens is a two color roller, half red, half green and it is equipped with a magnet. The rear chamber is equipped with a target and magnet, free to swing with the action of the liquid's flow. The two magnet's opposite poles create a permanent interlock. As the liquid flow falls, the target and magnet swing to rotate the roller exposing the red side indicating low liquid flow. Accordingly, as the flow rises, the green side appears indicating a satisfactory liquid flow condition.

Factory Fixed Set Points

- Non electrical
- Roller flag stays dry
- 3/4" NPT
- All metal wetted parts
- 1" Pipe size and larger
- · Replaces hard to read sight windows

Kine Karle K



Pat No. 10,323,664



The measured orifice (A) captures the center flow layers, raising the restriction to flow ratio, that causes the outside layers to flow through the larger low pressure bypass ports (B) enabling the fluid to flow faster creating a flatter parabolic profile as it exits the out port.

The Model 280 produces dramatic improvements in quality of flow to appliances, like meters, flow sensors etc.

5200





В





	ow Switch	96	Selection Guid Overview
Shuttle Type 1/2" - 3" Pipe Sizes		1100 M-SB	1100 M-UE Style 1
Housing Material	Bronze or SST	Bronze	Bronze
Trim Material	Brass, SST, Ceramic, Viton & PTFE	Monel, Ceramic, Viton & PTFE	Monel, Ceramic, Viton & PTFE
Advantages	True globe shaped housing & reduces ΔP, 25%. Shock & vibration, resistant.	Marine, salt water. Approved for shock, vibration, salt spray. 1100 MSB listed Navy QPL 16032.	Marine, salt water. Approved for shock, vibration, salt spray. 1100 MSB listed Navy QPL 16032.
Process Connections	3/4" - 3" NPT	3/4" - 3" pipe sizes	1/2" - 2" pipe sizes
Reed Switch	20 or 100 VA SPDT	SPST 10 VA lamp load	SPST 10 VA lamp load
Set Points	.5 - 100 GPM	.5 - 100 GPM	.5 - 50 GPM
Operating Temp	- 20° F to + 300° F - 29° C to + 149° C	- 20° F to + 300° F - 29° C to + 149° C	- 20° F to + 300° F - 29° C to + 149° C
Operating PSI	400 PSI @ 100° F operating 800 PSI @ 100° F proof load	400 PSI @ 100° F operating 800 PSI @ 100° F proof load	400 PSI @ 100° F operating 800 PSI @ 100° F proof load







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Selection Guide Overview



Shuttle Typ 3/4" - 2" Pipe Size	es 1400	RL 6 R 1800 Pat. 5,162,624	Pat. 5,162,624	2650 at. 5,162,624
Housing Material	Bronze	PVC	PVC	PVC
Trim Material	Brass, SST, Ceramic, Viton & PTFE	SST, PVC, Ceramic Viton & PTFE	SST, PVC, Ceramic & Viton	SST, PVC, Ceramic & Viton
Advantages	Wide range of field adjustable set points, 90° flow path.	True flow switch operation, removable bonnet assem- bly, economical.	Bypass design, low Δ P, low set points, high max. flow. Economical.	True flow switch operation, removable bonnet assembly, economical.
Process Connections	3/4" NPT	1" Slip, accepts standard adapters.	2" Slip, accepts standard adapters.	1" Slip, accepts standard adapters.
Reed Switch	20 VA SPDT	20 VA SPST, 20 VA SPDT	20 VA SPST, 20 VA SPDT	20 VA SPST, 20 VA SPDT
Set Points	.75 - 14 GPM Field adjustable	.5 & 1.0 GPM 6.0 GPM Max.	.5 & 1.0 & 2.0 GPM 6.0 GPM Max.	.5 & 1.0 GPM 6.0 GPM Max.
Operating Temp	-20° F to + 300° F - 29° C to + 149° C	0° F to + 140° F -18° C to + 60° C	0° F to + 140° F -18° C to + 60° C	0° F to + 140° F -18° C to + 60° C
Operating PSI	400 PSI @ 100° F	150 PSIG Max.	150 PSIG Max.	150 PSIG Max.

SL SL **Piston Types** 1/4" - 1/2" Pipe Sizes

Housing Material	Brass or 316 SST	Brass or 316 SST	Brass or 316 SST	Brass or 316 SST
Trim Material	Brass or 316 SST or Polysulfone & Viton	Brass or 316 SST or Polysulfone & Viton	Brass or 316 SST or Polysulfone & Viton	Brass or 316 SST
Advantages	Field adjustable set points or factory set from either side, lead wires or conduit connection.	Long-lasting pistons with wide lands. Hardened and lapped bore. Replacement parts.	Long-lasting pistons with wide lands. Hardened and lapped bore. Replacement parts.	Improved integral piston stop. Hardened and lapped bore. Mounting holes, economical.
Process Connections	1/2" NPT	1/4" NPT	1/4" NPT	1/4" NPT
Reed Switch	20 VA SPDT	20 VA SPST, 20VA SPDT	20 VA SPDT	20 VA SPST, 20 VA SPDT
Set Points	Liquid .5 - 20 GPM Gas 2 - 200 SCFM	Water .1 - 1.5 GPM Air .06 - 8.0 SCFM	Water 2 - 300 CC / min. Air 2 SCFH - 50 SCFH	Water .1 - 1.5 GPM
Operating Temp	- 20° F to + 300° F - 29° C to + 149° C	- 20° F to + 300° F - 29° C to + 149° C	- 20° F to + 300° F - 29° C to + 149° C	- 20° F to + 300° F - 29° C to + 149° C
Operating PSI	1000 PSIG Max.	1000 PSIG Max.	1000 PSIG Max.	1000 PSIG Max.







Selection Guide



Piston Type 1/8" - 1/2" Pipe Si	2000 Szes	2001		American State
Housing Material	Brass or 316 SST	Brass or 316 SST	Polysulfone	Polysulfone
Trim Materials	Brass, 316 SST & Epoxy	PPS, 316 SST, Viton & Epoxy	Polysulfone, 316 SST, Viton & Epoxy	Polysulfone, Viton
Advantages	Self-cleaning, 1/2" IPS, silicone potted shock & vibration resistant.	In-line, low ΔP, increased housing capacity. wider range of set points. .05–4.0 GPM.	Stronger one-piece housing, sil- icone potted, shock & vibration resistant, reverse taper bore, self cleaning.	Stronger one-piece housing, silicone potted, shock & vibra- tion resistant, reverse taper bore, self cleaning. All wetted material PSF.
Process Connections	1/2" NPT	3/8" - 1/2" Male NPT 3/8" Female NPT	9/16" - 18 UNF threads. Accepts variety of adapters.	9/16" - 18 UNF threads. Accepts variety of adapters.
Reed Switch	20 VA SPST	20 VA SPST	15 VA SPST or 20 VA SPDT	20 VA SPDT
Set Points	Water .5 - 3.0 GPM	Water .05 - 4.0 GPM	Water .1 to 1.5 GPM Optional 1 cc/min to 300 cc/min	Water .1 to .75 GPM
Operating Temp	Brass - 20° F to +250° F SST - 20° F to +300° F	-20° F to + 275°F -29° C to +135° C	-20° F to + 225° F - 29° C to + 107° C	-20° F to + 225° F - 29° C to + 107° C
Operating PSI	1500 PSIG Max.	1500 PSIG Max.	250 PSIG @ 70° F Max.	250 PSIG @ 70° F Max.

Paddle Type 3/4" NPT - 1" NPT	2400 S	2500	5200
Housing Material	Brass or 316 SST	Polysulfone	Brass or 316 SST
Trim Materials	316 SST	Polysulfone 316 SST	316 SST
Advantages	All metal wetted parts, rugged investment cast components.	SPDT reed switch assembly. Potable water.	Can be used in non electric hazardous locations, 2 color flag.
Process Connections	1" NPT	1" NPT	3/4" NPT
Reed Switch	20 VA SPDT	20 VA SPDT	NA
Set Points	Field adjustable set points, custom cut paddle to appropriate pipe size.	Field adjustable set points, custom cut paddle to appropriate pipe size.	1.5 - 5.0 GPM
Operating Temp	-30° F to +300° F - 34° C to + 149° C	-20° F to + 225° F - 29° C to + 107° C	-20° F to + 225° F - 29° C to + 107° C
Operating PSI	850 PSIG Max.	150 PSIG Max.	400 PSI @ 70° F









Visit our website for detailed information on our product line of switches, controls, indicators & accessories.

Flow Switches

How They Work And Selection Guide. **Piston & Shuttle Flow Switches**

Level Switches

How They Work And Selection Guide. **Single - Point Level Switches**



Multi-Point Level Switches

How They Work And Selection Guide. **Custom Made Level Switches**



Pump Controls

How they work and selection guide. **Chemical Feed Pump Controls**





Flow & Level Indicators

How they work and selection guide. Sight Glass Window Indicator



Accessories

NEMA Type 2 Plastic JIC Enclosures, Latching Relays, Adapters



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Rev R