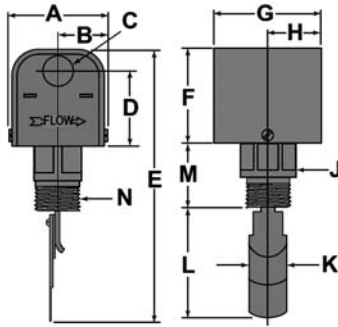
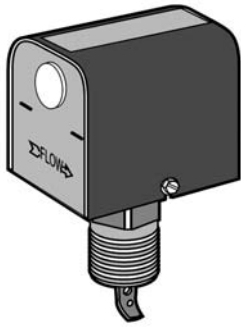


# McDonnell-Miller FS4-3 Liquid Flow Switches

## FS4-3 Series of Flow Switches



### FS4-3 Dimensions (inches)

A	B	C	D	E	F	G
7-5/16	4-15/16	4-5/8	3-9/16	1/2	2-15/16	3-3/8
H	J	K	L	M	N	
1-11/16	1-7/16	1-1/8	3-7/16	2-1/16	1 pipe	

### FLOW RATES of FS4-3 Series

Pipe Size	Switch Setting	Flow GPM	No Flow GPM
1	Minimum	6	3.6
1	Maximum	10.2	9.2
1-1/4	Minimum	9.8	5.6
1-1/4	Maximum	16.8	15
1-1/2	Minimum	12.7	23
1-1/2	Maximum	7	19.5
2	Minimum	18.8	32.8
2	Maximum	9.4	24
2-1/2	Minimum	24.3	42.4
2-1/2	Maximum	11.6	37.5
3	Minimum	30	52.1
3	Maximum	12	46.1
4	Minimum	39.7	73.5
4	Maximum	19.8	64.2
5	Minimum	58.7	115
5	Maximum	29.3	92
6	Minimum	79.2	39.6
6	Maximum	166	123

**Complete FS4 Series  
DISCONTINUED and  
REPLACED by the  
250 Series.**

**See the following page.**

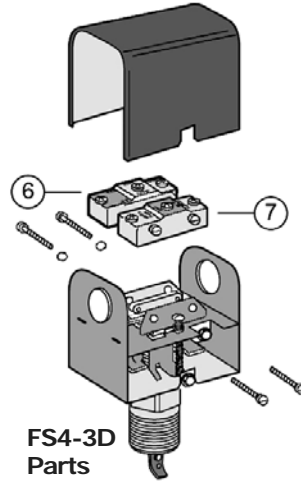
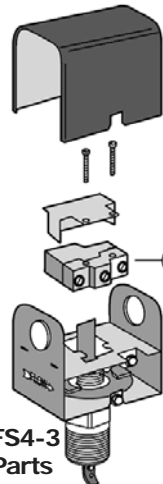
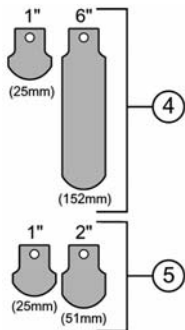
*Complete FS4 units shown here  
for historical reference only.*

### FS4-3 Flow Switches

Model No.	Description	Order No.
FS4-3	Liquid flow switch, SPDT switch	N/A
FS4-3D	with 2 SPDT switches	
FS4-3F	for sprinkler service	
FS4-MV	for millivolt service, <b>discontinued</b>	
FS4-3S	stainless steel construction	N/A
FS4-3DS	SS construction w/SPDT switch	
FS4-3RP	with reinforced paddle	
FS4-3-5R	with 5 second timer delay	
FS4-3-20	with 20 second timer delay	

**FS4-3 Repair Parts  
are available . . .**

### Replacement Paddles for FS4 Models

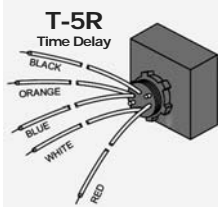


### Repair Parts for FS4-3 Series

For Model No.	Item No.	Description	Order No.
FS4-3	4	<b>Stainless Steel paddle kit:</b> 1", 2", 3" and 6" reinforced paddles.  The 6" paddle can be trimmed to fit down to 3"	MI 1183A
FS4-3D			
FS4-MV			
FS4-3S			
FS4-3DS			
FS4-3-5R			
FS4-3-20			
FS4-3RP			
All Models Except FS4-3D	3	SPDT switch	MI 1187
FS4-3D	6	SPDT switch	MI 1186
FS4-3D	7	SPDT switch, next to adjustment screw	MI 1182

### Time Delay Relays

T5R	5 second delay on break, for 120 volts	MH1177
T5R-24V	T5R but for 24 volts	MH1178
T20	20 second delay on make, for 120 volts	MH1180
T20-24V	T20 but for 24 volts	MH1181
T20-24VDC	T20 but for 24 volts DC battery (direct current)	MH1182



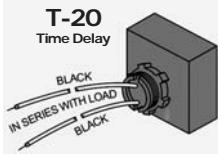
### TIME DELAY RELAYS

A short time delay feature in your flow switch may be desirable to eliminate false signals caused by system pulsation and turbulence.

**No. T-5R** provides a 5-second delay in breaking (opening) the circuit.

**No. T-20** provides a 20-second delay in making (closing) the circuit.

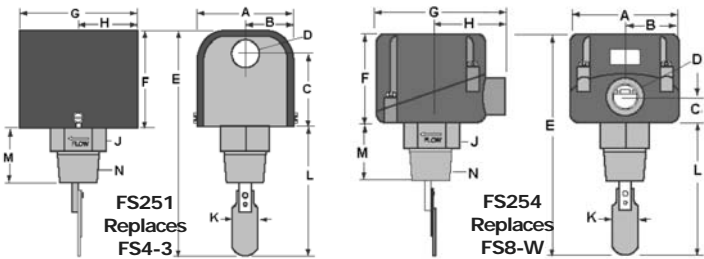
Each model is furnished with a locknut for standard 1/2" conduit fitting, spacer washer and 10" lead wires.



# McDonnell-Miller FS251 & FS254 Liquid Flow Switches

FS251 Flow Switch

FS254 Flow Switch



## FS250 Series Flow Switches REPLACE the FS4-3 and FS8W Liquid Flow Switches.

McDonnell & Miller new General-Purpose, Liquid Flow Switches, the Series FS250 - FS251 (NEMA1 version - Replaces the FS4-3), and FS254 (NEMA4 version - Replaces the FS8-W). These flow switches incorporate key changes to address customer expressed needs of greater reliability and lower flow sensing capabilities in a general purpose flow switch.

The flow rate at which the FS250 switches prove flow and the differentials between flow and no-flow actuation, is more consistent from switch to switch than flow switches that use a bellows as the sealing technique. Consistency in flow rate sensing provides closer equipment protection control for critical applications such as turning off boiler burners and chiller compressors when liquid flow is below required minimums.

### FS250 Series, Dimensions (inches)

Model	A	B	C	D	E	F	G
251	3	1-1/2	2-7/32	7/8	6-3/8	2-15/16	3-3/8
254	3-1/4	1-5/8	3/4	1/2 FIP	6-3/16	2-3/4	3-7/8
Model	H	J	K	L	M	N	
251	1-11/16	1-1/2	1-1/8	3-7/16	2-1/16	1" Pipe	
254	2-1/4	1-1/2	1-1/8	3-7/16	1-7/8	1" Pipe	

### Features of the FS250 Series of Flow Switches:

- Common switching mechanism for both the FS251 and FS254
- 1" pipe size connection
- Sensitivity adjusting screw makes flow adjustment easy
- Flow detection via stainless steel paddles inserted into flow stream piping
- Brass body, paddle arm and pivot shaft
- Minimum fluid temperature to 32° F; Maximum to 300° F.
- Maximum pressure to 150 psi.
- EPDM O-Ring seals on the pivot shaft for longer-life and durability in multiple chemical environments
- Cam actuation of electrical switch
- Easily accessible electrical connections and flow sensing adjustment screws.
- Measured flow-rate sensing of 5.8 gpm in 1" pipe (2.2 fps) in horizontal pipe installations, which is 18% lower than measured flow of comparable general purpose flow switches from major competitors.
- 1-inch NPTM brass pipe connection. ■ 1", 2", 3" and 6" Stainless steel paddles standard. ■ Section IV boiler ratings of 250° F and 160 psig. ■ No lead construction.

#### Housing materials:

- FS251 – stamped sheet steel base with glass reinforced polycarbonate cover
- FS254 – Cast aluminum base and cover

### 5-YEAR WARRANTY

As a result of our test experience, we are pleased to offer a FIVE-year limited warranty, from date of manufacture, on the Series FS250 flow switches. You can have confidence that they meet the reliability requirements you demand.

### EXTENSIVE LAB AND FIELD TESTING

The Series FS250 switches were field tested for over 18 months in numerous applications. They were also laboratory tested, at full rated pressure and temperature, achieving over 240,000 cycles with no failures.

### FLOW RATES of FS250 Series

Pipe Size	Switch Setting	Flow GPM	No Flow GPM	Max Flow GPM
1	MIN	6	3.6	27
1	MAX	10.2	9.2	
1-1/4	MIN	9.8	5.6	47
1-1/4	MAX	16.8	15	
1-1/2	MIN	12.7	23	63
1-1/2	MAX	7	19.5	
2	MIN	18.8	32.8	105
2	MAX	9.4	24	
2-1/2	MIN	24.3	42.4	149
2-1/2	MAX	11.6	37.5	
3	MIN	30	52.1	230
3	MAX	12	46.1	
4	MIN	39.7	73.5	397
4	MAX	19.8	64.2	
5	MIN	58.7	115	654
5	MAX	29.3	92	
6	MIN	79.2	39.6	900
6	MAX	166	123	

## FS250 Ordering Guide

### FS-250 Flow Switches

Model No.	Description	Order No.
FS251	with NEMA-1 Switch	MH1142
FS254	with NEMA-4 Switch	MH1142C