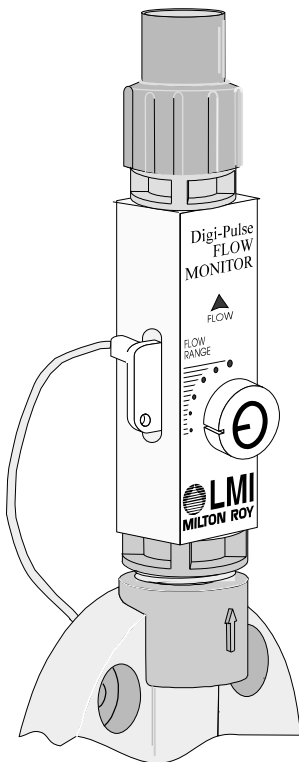


Information Sheet

Digi-Pulse™ Flow Monitor Series FM-PRO



- Corrosion resistant UHMW PE
- Senses pulsating metering pump flow
- Adjustable, in-line
- Flow range: ml/stroke Max. LMI Pump Output
 0.05 - 5.0 7.9 GPH (30.0 l/h)
- Usable as Adjustable Flow Switch for non-pulsating flow
- Economical

Pulsating flow of your pump can be monitored and transmitted using the LMI Digi-Pulse™ Flow Monitor. Designed to electrically signal a low flow or no flow condition, you can be assured of your pumping performance; an advantage when working with pulsating or very low flows. A transmitter can be connected to a remote counting or recording device. The FM-PRO-9 transmitter is wired to be plugged directly into the receptacle, mounted in the Series A9 pump housing. The Digi-Pulse™ Flow Monitor is adjustable to any desired pulsating flow rate within its range.

SPECIFICATIONS

Flow Range	ml/stroke	Max. LMI pump output
	0.05 - 5.0	7.9 GPH (30.0 l/h)
Max. Pulse (stroke) Rate	100 per minute	
Max. Pressure	150 psi (10 Bar)	
Transmitter	Reed Switch (No Flow = N.O. Switch Condition) Polarity Independent Minimum pulse width 15 msec	
Max. Load	100 mA AC or DC, 36V max.	
Cable Length	10 ft (3 m) <i>(except FM-PRO-9)</i> FM-PRO-9: Cable Length 20" (0.5 m)	
Body Material	UHMW PE (ultra high molecular weight polyethylene)	
Valve Fitting Material	Carbon Fiber Reinforced PVDF <i>(where supplied)</i>	
Seals & O-Rings	Polyprel® (TFE copolymer)	

CONFIGURATIONS

Model No.	Connection
FM- PRO	Supplied without valve fitting (for use w/ 3FV's or 4FV's)
FM-PRO-9	Supplied without valve fitting (for use with w/ 3FV's or 4FV's and Series A9 pump)
FM -PRO1	Supplied w/ PVDF valve connection for 1/4" OD tubing
FM -PRO2	Supplied w/ PVDF valve connection for 3/8" OD tubing
FM -PRO3	Supplied w/ PVDF valve connection for 1/2" OD tubing (or 9 x 12 mm)
FM -PRO4	Supplied w/ 1/4" NPT male PVDF valve housing
FM -PRO5	Supplied w/ 1/4" OD fitting and Metric Tubing Adapter Kit for: 3 x 6 mm PE Tubing; or 4 x 6 mm PE Tubing
FM -PRO6	Supplied w/ 3/8" OD fitting and Metric Tubing Adapter Kit for: 6 x 8 mm PE Tubing; or 6 x 12 mm PE Tubing


LMI
 LIQUID METRONICS DIVISION
MILTON ROY
 A unit of Sundstrand Corporation

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Instruction Sheet

Digi-Pulse™ Flow Monitor Series FM-PRO

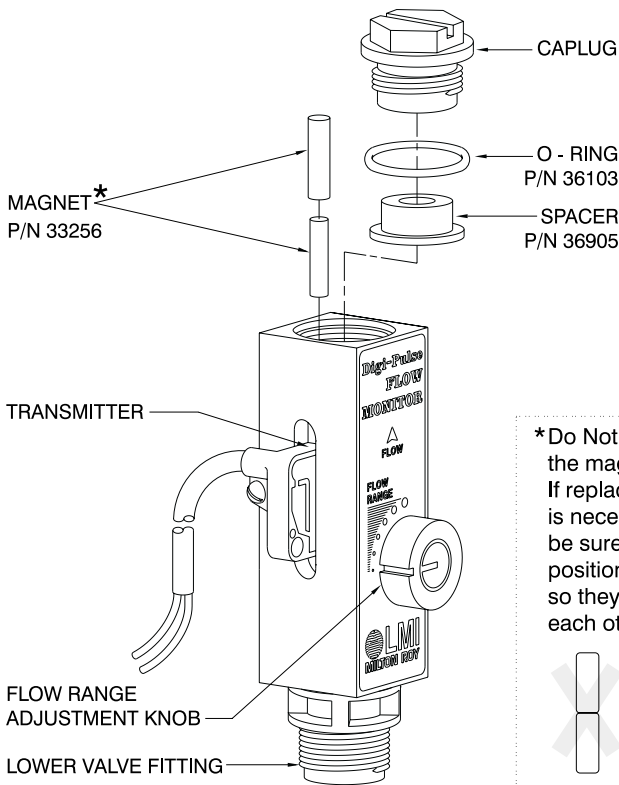
1. With your pump turned off, screw the lower valve fitting of the Digi-Pulse™ Flow Monitor to the discharge side of the pump head.
2. Remove the red Caplug from the top of the Digi-Pulse™. **Be sure to save the O-ring seal and spacer.** Attach your 3FV or 4FV to the top of the Digi-Pulse™.
3. Connect the Digi-Pulse™ cable to your counter, computer, or other recording device (polarity is not critical). If cable extension is desired, consult factory. Plug the FM-PRO-9 cable directly into the receptacle in the Series A9 pump housing.
4. Loosen the locknut of the flow-range knob of the flow monitor and set the knob to the largest dot. Start the pump and adjust it (calibrate, if necessary) for proper output to satisfy your system requirements.
5. With the pump running, gradually turn the adjustment knob of the flow monitor counter-clockwise ↺ until the sensor just begins to trigger your electronic device.
This will be the most sensitive setting of the Digi-Pulse™, given your pump setting and fluid properties. Every stroke of the pump will output enough volume of solution to cause the Digi-Pulse™ flow monitor to register a pulse. If the flow drops below the initial pump setting, the Digi-Pulse™ will no longer register strokes to your electronics, indicating some type of pump failure or low-level condition.
6. Tighten the adjustment locknut without altering the adjustment position.

Note:

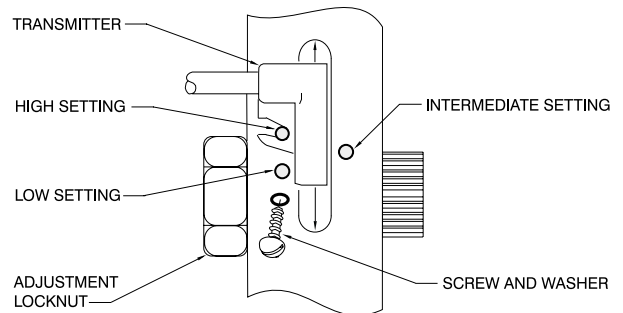
After the initial pump and Digi-Pulse™ setup is complete, any adjustment of the stroke length of the pump (output per stroke) will require a readjustment of the Digi-Pulse™ flow monitor (repeat steps 4 - 6 above).

To change the flow range setting:

A set screw holds the transmitter body in a notch on the side of the flow monitor. Remove the screw and washer and slide or turn the transmitter 180° to an alternate position and tighten the screw and washer in the hole to secure the transmitter. The Digi-Pulse™ Flow Monitor comes factory set at the "LOW" setting which should accommodate most applications. However, the "INTERMEDIATE" or "HIGH" settings may be appropriate for a particular application if the sensor does not trigger in the "LOW" setting.



***Do Not remove the magnets. If replacement is necessary, be sure to position them so they repel each other.**



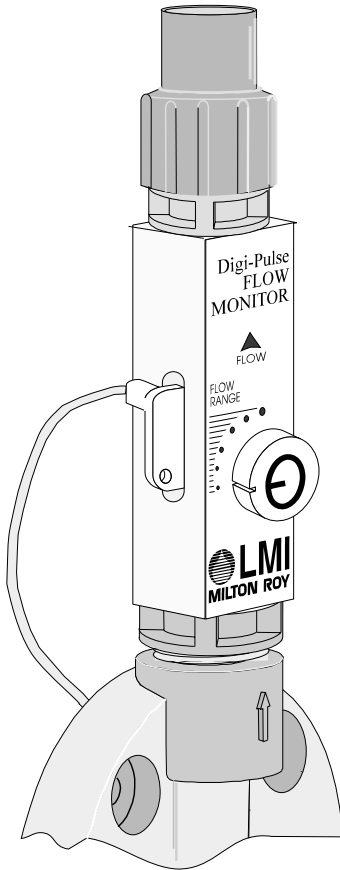
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Information Sheet

Digi-Pulse™ Flow Monitor Series FM-200



- Corrosion resistant UHMW PE
- Senses pulsating metering pump flow
- Adjustable, in-line
- Flow range: ml/stroke Max. LMI Pump Output
0.05 - 5.0 7.9 GPH (30.0 l/h)
- Usable as Adjustable Flow Switch for non-pulsating flow
- Economical
- For LMI pumps with 3/8" check balls

Pulsating flow of your pump can be monitored and transmitted using the LMI Digi-Pulse™ Flow Monitor. Designed to electrically signal a low flow or no flow condition, you can be assured of your pumping performance; an advantage when working with pulsating or very low flows. A transmitter can be connected to a remote counting or recording device. The FM-200-9 Series transmitters are wired to be plugged directly into the receptacles of Series A9 pump housings. The Digi-Pulse™ Flow Monitor is adjustable to any desired pulsating flow rate within its range.

SPECIFICATIONS		
Flow Range	ml/stroke	Max LMI pump output
	0.05 - 5.0	7.9 GPH (30.0 l/h)
Max. Pulse (stroke) Rate	100 per minute	
Max. Pressure	150 psi (10 Bar)	
	<i>For pressure over 150 psi, consult factory.</i>	
Transmitter	Reed Switch (No Flow = N.O. Switch Condition) Polarity Independent Minimum pulse width 15 msec	
Max. Load	100 mA AC or DC, 36V max.	
Cable Length	10 ft (3 m) (except FM-200-9) FM-200-9 : Cable Length 20 in (0.5 m)	
Body Material	UHMW PE (ultra high molecular weight polyethylene)	
Valve Fitting Material	Carbon Fiber Reinforced PVDF (where supplied)	
Seals & O-Rings	Polyprel® (PTFE copolymer)	

CONFIGURATIONS	
Model No.	Connection
FM- 200	Supplied without valve fitting (for use w/4FVs)
FM-200-9	Supplied without valve fitting (for use with 4FVs and Series A9 or B9 pumps.)
FM -201	Supplied w/ PVDF valve connection for 1/4" OD tubing
FM -202	Supplied w/ PVDF valve connection for 3/8" OD tubing
FM -203	Supplied w/ PVDF valve connection for 1/2" OD tubing (or 9 x 12 mm)
FM -204	Supplied w/ 1/4" NPT male PVDF valve housing
FM -205	Supplied w/ fitting and Metric Tubing Adapter Kit for: 3 x 6 mm PE Tubing 4 x 6 mm PE Tubing
FM -206	Supplied w/ fitting and Metric Tubing Adapter Kit for: 6 x 8 mm PE Tubing 6 x 12 mm PVC Tubing



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1708.H 7/99

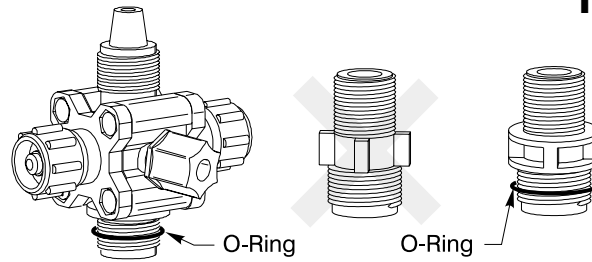
Instruction Sheet

Digi-Pulse™ Flow Monitor Installation




WARNING:

The valve fitting on the discharge portion of the Digi-Pulse™ Flow Monitor must be a flange type fitting to ensure a proper seal with the O-Ring. Using a winged type valve fitting will not create a seal and leakage of solution will occur.



1. With your pump turned off, screw the lower valve fitting of the Digi-Pulse™ Flow Monitor to the discharge side of the pump head.
2. **FM-200 and FM-200-9:** Remove the yellow Caplug from the top of the Digi-Pulse™. *Be sure to save the O-Ring seal and install it onto the mating end of the valve housing or 4FV you will be using.* Attach your 4FV or valve housing to the top of the Digi-Pulse™.
3. **All other models:** Attach tubing to top of valve housing.
3. Connect the Digi-Pulse™ cable to your counter, computer, or other recording device (polarity is not critical). If cable extension is desired, consult factory. Plug the FM-200-9 cable directly into the receptacle in the Series A9 pump housing.

4. Loosen the locknut of the flow-range knob of the flow monitor and set the knob to the largest dot. Start the pump and adjust it (calibrate, if necessary) for proper output to satisfy your system requirements.
5. With the pump running, gradually turn the adjustment knob of the flow monitor counter-clockwise  until the sensor just begins to trigger your electronic device.

This will be the most sensitive setting of the Digi-Pulse™, given your pump setting and fluid properties. Every stroke of the pump will output enough volume of solution to cause the Digi-Pulse™ flow monitor to register a pulse. If the flow drops below the initial pump setting, the Digi-Pulse™ will no longer register strokes to your electronics, indicating some type of pump failure or low-level condition.

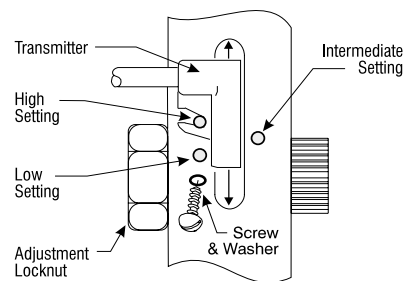
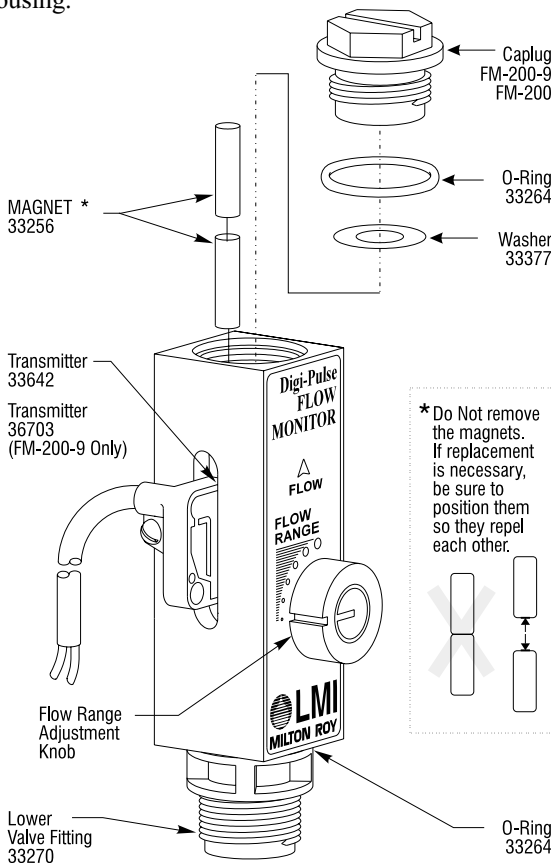
6. Tighten the adjustment locknut without altering the adjustment position.

Note:

After the initial pump and Digi-Pulse™ setup is complete, any adjustment of the stroke length of the pump (output per stroke) will require a readjustment of the Digi-Pulse™ Flow Monitor (repeat steps 4 - 6 above).

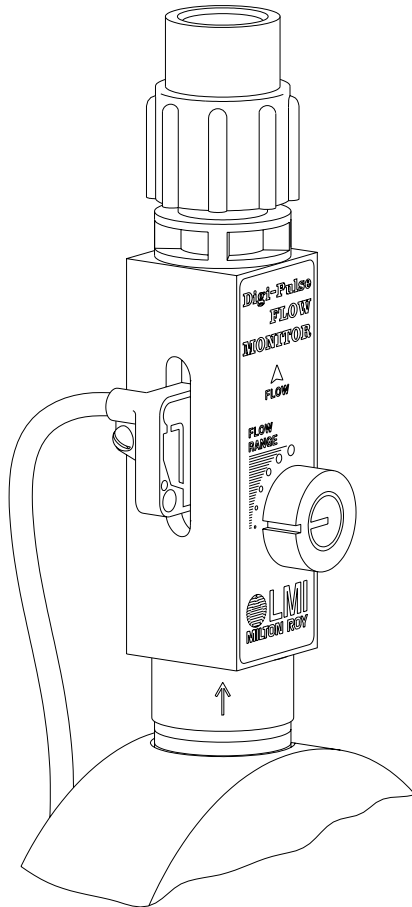
To change the flow range setting:

A set screw holds the transmitter body in a notch on the side of the flow monitor. Remove the screw and washer and slide or turn the transmitter 180° to an alternate position and tighten the screw and washer in the hole to secure the transmitter. The Digi-Pulse™ Flow Monitor comes factory set at the “LOW” setting which should accommodate most applications. However, the “INTERMEDIATE” or “HIGH” settings may be appropriate for a particular application if the sensor does not trigger in the “LOW” setting.



Information Sheet

Digi-Pulse™ Flow Monitor Series FM-300




- Corrosion resistant UHMW PE
- Senses pulsating metering pump flow
- Adjustable Flow Range
- Flow range: ml/stroke Max. LMI Pump Output
 0.5 - 16.0 25 GPH (95 l/h)
- Usable as Adjustable Flow Switch for non-pulsating flow
- Economical
- For LMI pumps with 1/2" check balls

Pulsating flow of your pump can be monitored and transmitted using the LMI Digi-Pulse™ Flow Monitor. Designed to electrically signal a low flow or no flow condition, you can be assured of your pumping performance; an advantage when working with pulsating or very low flows. A transmitter can be connected to a remote counting or recording device. The FM-301-9 and the FM-302-9 are wired to be plugged directly into the receptacles of Series C9 pump housings. The Digi-Pulse™ Flow Monitor is adjustable to any desired pulsating flow rate within its range.

SPECIFICATIONS	
Flow Range	0.5 - 16.0 ml/stroke 25 GPH (95 l/h) Max LMI pump output
Max. Pulse (stroke) Rate	100 per minute
Max. Pressure	150 psi (10 Bar)
Transmitter	Reed Switch (No Flow = N.O. Switch Condition) Polarity Independent Minimum pulse width 15 msec
Max. Load	100 mA AC or DC, 36V max
Cable Length	FM-301,FM-302 : 10ft (3m) FM-301-9, FM-302-9 : 20 in (0.5 m)
Body Material	UHMW PE (ultra high molecular weight polyethylene)
Valve Fitting Material	Carbon Fiber Reinforced PVDF <i>(where supplied)</i>
Seals & O-Rings	Polyprel® (TFE copolymer)

CONFIGURATIONS	
Model No.	Connection
FM- 301	Supplied w/ PVDF valve housing for 1/2" OD tubing (or 9x12 mm)
FM-301-9	Supplied w/ PVDF valve housing for 1/2" OD tubing (or 9x12 mm) for Series C9 pump
FM -302	Supplied w/ 1/2" NPT male PVDF valve housing
FM -302-9	Supplied w/ 1/2" NPT male PVDF valve housing for Series C9 pump



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Instruction Sheet

Digi-Pulse Flow Monitor Installation



WARNING:

The valve fitting on the discharge portion of the Digi-Pulse™ Flow Monitor must be a flange type fitting to ensure a proper seal with the O-Ring. Using a winged type valve fitting will not create a seal and leakage of solution will occur.



1. With your pump turned off, screw the lower valve fitting of the Digi-Pulse™ Flow Monitor to the discharge side of the pump head.
2. Attach tubing to top of valve housing.
3. Connect the Digi-Pulse™ cable to your counter, computer, or other recording device (polarity is not critical). If cable extension is desired, consult factory. Plug the FM-300-9 Series cable directly into the receptacle in the Series C9 pump housing.
4. Loosen the locknut of the flow-range knob of the flow monitor and set the knob to the largest dot. Start the pump and adjust it (calibrate, if necessary) for proper output to satisfy your system requirements.
5. With the pump running, gradually turn the adjustment knob of the flow monitor counter-clockwise until the sensor just begins to trigger your electronic device.

This will be the most sensitive setting of the Digi-Pulse™ Flow Monitor. Every stroke of the pump will output enough volume of solution to cause the Digi-Pulse™ flow monitor to register a pulse. If the flow drops below the initial pump setting, the Digi-Pulse™ will no longer register strokes to your electronics, indicating some type of pump failure or low-level condition.
6. Tighten the adjustment locknut without altering the adjustment position.

Note:

After the initial pump and Digi-Pulse™ setup is complete, any adjustment of the stroke length of the pump (output per stroke) will require a readjustment of the Digi-Pulse™ flow monitor (repeat steps 4 - 6 above).

To change the flow range setting:

A set screw holds the transmitter body in a notch on the side of the flow monitor. Remove the screw and washer and slide or turn the transmitter 180° to an alternate position and tighten the screw and washer in the hole to secure the transmitter. The Digi-Pulse™ Flow Monitor comes factory set at the "LOW" setting which should accommodate most applications. However, the "INTERMEDIATE" or "HIGH" settings may be appropriate for a particular application if the sensor does not trigger in the "LOW" setting.

