

SCADAmetrics[®] is pleased to introduce the newest member of its DINstrumentation[™] series – **The Signalizer[™]!**

This new electronic signal generator for water meters provides a 4-20 milliamp (flow) output and a dry contact pulse (per volume) output! – while still maintaining the meter's ability to be co-connected to an AMI/AMR endpoint!

Meter Owners have traditionally been required to make a weighted buying decision: encoder-type meter?... or milliamp/pulse-type meter? **The Signalizer** allows you to easily have <u>both</u> with the same meter!

The Signalizer utilizes the popular encoder signal from the water meter to generate both a 4-20mA rate-of-flow signal¹ and a dry-contact pulse-per-volume signal. ...And because **The Signalizer** is outfitted with an integral pass-thru port, it can co-exist with an AMI/AMR system². Even if power is removed, the pass-thru port is always functional – ensuring continuous connectivity to the AMR/AMI system!

The Signalizer is compatible with the MVR Turbine, HbMag, Positive Displacement, and SSM meters by Mueller Systems (Cleveland, NC).

Permitting – If the meter is owned by the water utility, we recommend that you first contact its engineering department for permission!

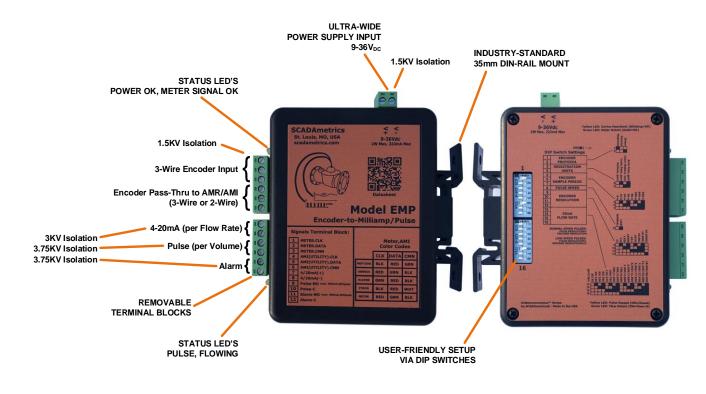
Key Features -

- 4-20mA Flow-Proportional Output (3KV Isolation).
- Dry-Contact, Volume-Proportional Output (3.75KV Isolation).
- Dry-Contact Alarm Output (3.75KV Isolation).
- Built-In Pass-Thru Port for Co-Connection to an AMI/AMR System Works Even If Power Down!
- Compatible with 3-wire version Mueller registers.
- Works with All Popular Registration Units (Gallons, Cubic Feet, Cubic Meters, Acre Feet).
- No Computer Required! Setup via DIP Switches Only!
- Removable Terminal Blocks, Simplified Wiring Procedures.
- Mounts on standard 35mm industrial DIN-rail.
- 24VDC-Powered (1.5KV Isolation). Low 1.2W Power Consumption.
- Enclosure and Circuit Board: UL 94-VO recognized materials.
- Simulation-Mode Feature: Emits 12mA and 1 Hz Pulse.

Are you interested in how SCADAmetrics meter technology can help you more closely monitor the flow through your water meters? Give us a call! We'll be glad to discuss the details!

> SCADAmetrics scadametrics.com Wildwood, Missouri USA 636.405.7101

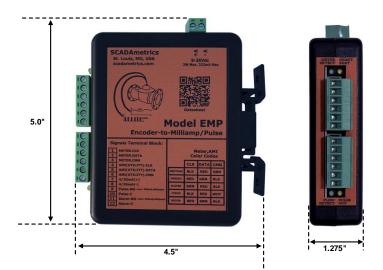
¹Encoder Resolution – a high-fidelity 4-20mA signal requires high-resolution encoder resolution (8+ digits), which is only available on select Mueller water meter registers. In those cases, we recommend the register be pre-programmed to transmit at least eight (8) totalizer digits or more.



Engineering Specifications -

Dimensions:	4.5" x 5.0" x 1.275"
Weight:	6.5 Ounces
Supply Voltage:	9-36V _{DC}
Supply Power:	1.25W
Power Supply Isolation:	1500V _{RMS}
Neptune Protocol Support: Sensus/Mueller Protocol Support: Elster Protocol Support: AMI Pass-Thru Port Support:	Yes, 8,9-Digit "MACH-10/ProCoder/E-CODER", and 6-Digit "ProRead" Protocols Yes, Both Fixed and Variable Digit Sensus/Mueller Protocols (4-9 digits) Yes, Auto-Fills Units and Decimal Shift, Based on Embedded Info within Elster K-Frame Universal – Works with All Major-Brand AMI/AMR Endpoints: Neptune, Sensus, Aclara, Badger, Metron-Farnier, Itron, Master Meter, Hersey/Mueller, RG3, Zenner, Honeywell, Kamstrup, SCADAmetrics, Touchpads (All), Remote Displays (All)
Supported Units:	Gallon, Cubic Feet, Cubic Meters, Acre-Feet
Supported Scalors:	x1 , x10 , x100 , x1,000 x0.1 , x0.01 , x0.001 , x0.0001 , x0.0001
Encoder Sample Period (s):	5, 10, 15, 30, 60, 300, 600, 900 (User-Selectable)
Programming Method:	Integrated DIP Switches, 16-Poles
 4-20mA Flow Range (gpm): 4-20mA Flow Range (lpm): 4-20mA Resolution: 4-20mA Isolation: 4-20mA Max Series Resistance: 4-20mA Signal Type: 	$\begin{array}{l} 20,30,50,80,125,200,300,500,750,1200,2000,3000,4600,7300,11400,18000\\ 75,120,200,300,475,750,1200,2000,3000,4500,7000,11000,17500,27500,43000,68000\\ 16-Bit DAC\\ 3000V_{\text{RMS}}\\ 500\ \Omega\\ \text{Active. Therefore, } \underline{do\ not} \ add\ an\ external\ loop\ supply,\ or\ else\ damage\ to\ the\ unit\ will\ result! \end{array}$
Pulse Output Type: Contact Closure Duration: Alarm Output Type: Pulse Resolution: Closed-Contact Resistance: Closed-Contact Max Current: Open-Contact Max Voltage: Pulse/Alarm Isolation:	Solid-State Dry-Contact, 1 Pulse-per-Encoder Resolution 50% Duty Cycle or 1000ms – whichever is less Solid-State Dry-Contact, Closes if Meter or Signalizer Fault Normal-Speed Mode: Pulse Resolution = Encoder Resolution Low-Speed Mode: Pulse Resolution = Encoder Resolution / 10 0.4 ohm, typical 500mA 60V 3750V _{RMS}
Meter Cable Connection:	3-Position, Removable Screw-Down Terminal Block, 12-26 AWG
Pass-Thru Cable Connection:	3-Position, Removable Screw-Down Terminal Block, 12-26 AWG
Pass-Thru Port for AMR/AMI:	Yes, Supports both 3-Wire and 2-Wire AMR Devices
Temperature:	-40C to 85C (-40°F to 185°F)
Relative Humidity:	5% to 95%, Non-Condensing
Enclosure Rating:	Built to IP40 Specifications, Not Rated for Submersion/Outdoor Use
Manufacturing Location:	USA
Environmental:	ROHS-Compliant, Lead-Free
Meter Interface:	AWWA C707-05
Warranty:	2 Years (see www.scadametrics.com for details)

Engineering Dimensions (Inches) -



Meter Terminal Block Hookup -

Term.	Function	Mueller Meter with Standard Cable	Mueller Meter with Nicor Cable	Mueller Meter with Itron ERT Cable	
1	Meter Clock	Red	Red	Black	
2	Meter Data	Green White	Green	Red	
3	Meter Ground	Black	Black	White Shield	

AMR/AMI Terminal Block Hookup -

Term.	Function	Mueller (Metron-Farnier, Badger, Master Meter, Kamstrup, Sensus, Zenner, RG3, Nicor Cable)	Neptune Color	Elster Color	Itron ERT Cable
4	Utility AMI Clock	Red	Black	White Green	Black
5	Utility AMI Data	Green White	Red	Red	Red
6	Utility AMI Ground	Black	Green	Black	White Shield

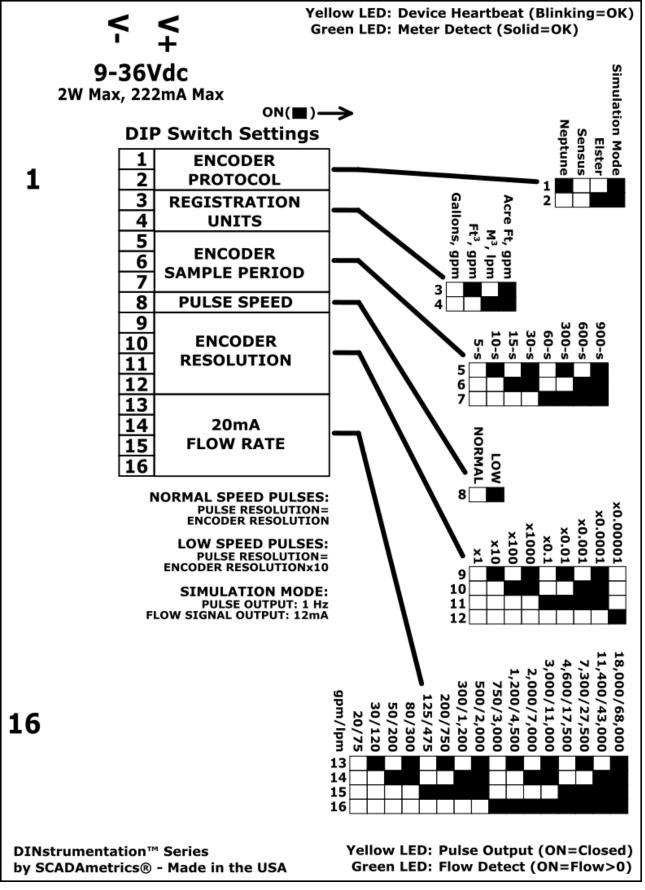
Wiring Notes:

- 1. <u>Meter</u> Terminal Block Hookup (Terminals 1,2,3): Apply the color-coding that pertains to the manufacturer of the Water Meter (or manufacturer of the Specialty Cable, such as Nicor or Itron).
- 2. <u>Utility AMI/AMR</u> Terminal Block Hookup (Terminals 4,5,6): Apply the color-coding that pertains to the manufacturer of the AMI/AMR Endpoint (or manufacturer of the Specialty Cable, such as Nicor or Itron).

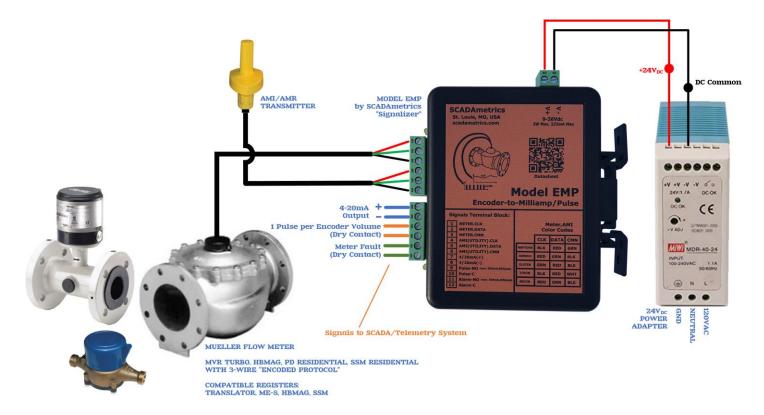
Signal Terminal Block Hookup -

Terminal	Function	Notes
7	4-20mA +	Cottoble Dange via DID Switches
8	4-20mA –	Settable Range via DIP Switches
9	Pulse +	Solid-State Dry Contact (N-O)
10	Pulse –	500mA Max, 60V Max
11	Alarm +	Solid-State Dry Contact (N-O)
12	Alarm –	500mA Max, 60V Max

DIP Switch Setup (Also Imprinted on Device Rear Cover) -



QUICK-START GUIDE -



WIRING FOR: MUELLER MVR, HBMAG, PD RESIDENTIAL, & SSM WATER METERS

Fig.1

Initial Setup:

- **1.** Attach the water meter's three (3) encoder wires to Signalizer terminals 1,2,3 (see above table for color-coding).
- 2. (If Applicable) Attach the AMR/AMI endpoint's three (3) encoder wires to Signalizer terminals 4,5,6 (see above table for color-coding).
- 3. (If Applicable) Connect the 4-20mA output signal to PLC/Controller: Terminals 7(+) and 8(-). Important Note! – The Signalizer[™] provides loop power. The user <u>must not</u> add an additional loop power supply, or else damage to the unit will result.
- 4. (If Applicable) Connect the pulse output signal to the PLC/Controller: Terminals 9 and 10. Important Note! – The pulse output is a solidstate, dry-contact type. 500mA max, 60V max. Circuit must be current-limited by external means.
- 5. (If Applicable) Connect the alarm output signal to the PLC/Controller: Important Note! The alarm output is a solid-state, dry-contact type. 500mA max, 60V max. Circuit must be current-limited by external means.
- 6. Set the DIP Switches, per the Datasheet.

Mueller water meters communicate using Sensus protocol. Therefore, set DIP Switches 1,2 = OFF,OFF

7. Connect DC voltage source to the Signalizer's V+/V- terminals. An isolated $24V_{DC}$ power supply is recommended.

Apply Power, and Observe...

- The Upper Yellow 'Hearbeat' LED should light up YELLOW, with an OCCASIONAL BLINK, signifying that the Signalizer is working.
- The Upper Green 'Meter OK' LED should light up SOLID GREEN, signifying that the meter has been successfully detected.
- The Lower Yellow LED will follow the Pulse Output (LED ON=Contact Closure).
- $_{\odot}$ The Lower Green LED will light up SOLID GREEN during periods when Positive Flow is Detected.

MUELLER MVR & PD METERS w/ TRANSLATOR REGISTER -

Mecommended Di		164 .	
Size	Gallon	Cubic Feet	
5/8″	DipSw.1=	DipSw.1=	
	DipSw.2=	DipSw.2=	
3/4"	DipSw.3=	DipSw.3=ON	
1″	DipSw.4=	DipSw.4=	0
	DipSw.5=ON	DipSw.5=ON	
	DipSw.6=ON	DipSw.6=ON	
	DipSw.7=	DipSw.7=	
	DipSw.8=	DipSw.8=	
	DipSw.9=ON	DipSw.9=	
	DipSw.10=	DipSw.10=	
	DipSw.11=	DipSw.11=	
	DipSw.12=	DipSw.12=	
	Normal Speed Pulse:	Normal Speed Pulse:	
	1 Pulse / 10 Gal	1 Pulse / 1 FT ³	
	Low Speed Pulse:	Low Speed Pulse:	
	1 Pulse / 100 Gal	1 Pulse / 10 FT ³	
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1.5"	DipSw.2=	DipSw.2=	
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3″	DipSw.3= DipSw.4=	DipSw.3=ON DipSw.4=	
4″	Dip3W.4=	DIp3W.4=	N
4	DipSw.5=ON	DipSw.5=ON	•••
	DipSw.6=ON	DipSw.6=ON	
	DipSw.7=	DipSw.7=	Tran
	DipSw.8=	DipSw.8=	
	DipSw.8=	DipSw.8=	rela
	DipSw.9=	DipSw.9=ON	totalize
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	DipSw.10=ON DipSw.11=	DipSw.10=	
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	Low Speed Pulse:	Low Speed Pulse:	
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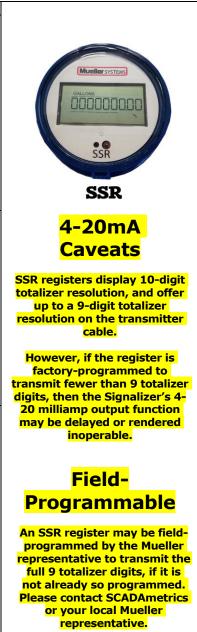
MUELLER MVR & PD & ULTRASONIC METERS w/ ME-8 OR SSM REGISTER -

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be field-pro Mueller re transmit th digits, if it i programme



MUELLER MVR (FUTURE) & PD METERS w/ SSR REGISTER -

Size	Gallon	Cubic Feet	
5/8″	DipSw.1=	DipSw.1=	
	DipSw.2=	DipSw.2=	
3/4"	DipSw.3=	DipSw.3=ON	
1″	DipSw.4=	DipSw.4=	
	DipSw.5=	DipSw.5=	Mue
	DipSw.6=	DipSw.6=	
	DipSw.7=ON	DipSw.7=ON	GALLON
	DipSw.8=	DipSw.8=	
	DipSw.9=ON	DipSw.9=	
	DipSw.10=	DipSw.10=ON	
	DipSw.11=ON	DipSw.11=ON	
	DipSw.12=	DipSw.12=	
	Normal Speed Pulse:	Normal Speed Pulse:	
	1 Pulse / 0.01 Gal	1 Pulse / 0.001 FT ³	
			S
	Low Speed Pulse:	Low Speed Pulse:	
	1 Pulse / 0.1 Gal	1 Pulse / 0.01 FT ³	
1.5″	DipSw.1=	DipSw.1=	A ~
2″	DipSw.2=	DipSw.2=	<mark>4-2</mark>
- 3″	DipSw.3=	DipSw.3=ON	
4″	DipSw.4=	DipSw.4=	Cav
4	DipSw.5=	DipSw.5=	
	DipSw.6=	DipSw.6=	
	DipSw.7=ON	DipSw.7=ON	SSR registers
	DipSw.8=	DipSw.8=	totalizer reso
	-	-	up to a 9-o
	DipSw.9=	DipSw.9=ON	resolution on
	DipSw.10=	DipSw.10=	
	DipSw.11=ON	DipSw.11=ON	Ca
	DipSw.12=	DipSw.12=	
	Normal Speed Pulse:	Normal Speed Pulse:	However, if
	1 Pulse / 0.1 Gal	1 Pulse / 0.01 FT ³	factory-pro
	i Fuise / 0.1 Gai	1 Puise / 0.0111	transmit fewe
	Low Speed Pulse:	Low Speed Pulse:	
	1 Pulse / 1 Gal	1 Pulse / 0.1 FT ³	digits, then th
6" and Larger	DipSw.1=	DipSw.1=	20 milliamp
• • • • • • • • • • • • • •	DipSw.2=	DipSw.2=	may be delay
	DipSw.3=	DipSw.3=ON	inop
	DipSw.4=	DipSw.4=	
	DiscourF	Discus F-	
	DipSw.5=	DipSw.5=	
	DipSw.6= DipSw.7=ON	DipSw.6= DipSw.7=ON	Fi
	DipSw.8=	DipSw.7=ON DipSw.8=	
	Dipott.0-	5.000-	Drease
	DipSw.9=	DipSw.9=	Progra
	DipSw.10=	DipSw.10=	
	DipSw.11=	DipSw.11=ON	An CCD read
	DipSw.12=	DipSw.12=	<mark>An SSR regis</mark>
			programme
	Normal Speed Pulse:	Normal Speed Pulse:	representativ
	1 Pulse / 1 Gal	1 Pulse / 0.1 FT ³	full 9 totaliz
	Low Control Dulars	Low Coord Dulars	not already
	Low Speed Pulse:	Low Speed Pulse:	
	1 Pulse / 10 Gal	1 Pulse / 1 FT ³	Please conta
			<mark>or your l</mark>
			repres



MUELLER HBMAG METERS -

Size	Gallon	Cubic Feet	
	DipSw.1=	DipSw.1=	
- "	DipSw.2=	DipSw.2=	
3″	DipSw.3=	DipSw.3=ON	
	DipSw.4=	DipSw.4=	- Star New
	DipSw.5=ON	DipSw.5=ON	277
	DipSw.6=ON	DipSw.6=ON	S S
	DipSw.7=	DipSw.7=	
	DipSw.8=	DipSw.8=	
	DIP3W.0=	DIP3W.0=	-
	DipSw.9=ON	DipSw.9=	
	DipSw.10=	DipSw.10=	
	DipSw.11=	DipSw.11=	
	DipSw.12=	DipSw.11= DipSw.12=	
	DIp3w.12-	Dip3w.12=	
	Normal Speed Pulse:	Normal Speed Pulse:	
	1 Pulse / 10 Gal	1 Pulse / 1 FT ³	
	I Puise / 10 Gai	I Puise / I FI°	
	Low Spood Dulas	Low Speed Bulact	
	Low Speed Pulse:	Low Speed Pulse:	HBMAG
	1 Pulse / 100 Gal	1 Pulse / 10 FT ³	
	DipSw.1=	DipSw.1=	
4″	DipSw.2=	DipSw.2=	
•	DipSw.3=	DipSw.3=ON	<mark>4-20mA</mark>
	DipSw.4=	DipSw.4=	
			Caveats
	DipSw.5=ON	DipSw.5=ON	Caveals
	DipSw.6=ON	DipSw.6=ON	
	DipSw.7=	DipSw.7=	The HBMAG register offers up
	DipSw.8=	DipSw.8=	
			to 8-digit totalizer resolution.
	DipSw.9=ON	DipSw.9=	
	DipSw.10=	DipSw.10=	However, if the register is
	DipSw.11=	DipSw.11=	
	DipSw.12=	DipSw.12=	factory-programmed to
	Normal Speed Pulse:	Normal Speed Pulse:	transmit fewer than 8 totalizer
	1 Pulse / 10 Gal	1 Pulse / 1 FT ³	digits, then the Signalizer's 4-
	I Puise / 10 Gai	I Puise / I FI*	
	Low Speed Pulse:	Low Speed Pulse:	20 milliamp output function
	1 Pulse / 100 Gal	1 Pulse / 10 FT ³	may be delayed or rendered
	DipSw.1=	DipSw.1=	inoperable.
	DipSw.1= DipSw.2=	DipSw.1= DipSw.2=	inoperable.
6" and Larger	DipSw.2= DipSw.3=	DipSw.2= DipSw.3=ON	
- 2 -	DipSw.3= DipSw.4=	DipSw.3=ON DipSw.4=	
	-+-wequ	5-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	Piald
	DipSw.5=ON	DipSw.5=ON	Field-
	DipSw.5=ON DipSw.6=ON	DipSw.5=ON DipSw.6=ON	
	DipSw.7=	DipSw.7=	Programmable
	DipSw.7= DipSw.8=	DipSw.7= DipSw.8=	l logi annubic
	DipSw.8=	DipSw.8=	
	DipSw.9=	DipSw.9=ON	An HBMAG register may be
	DipSw.9= DipSw.10=ON	DipSw.10=	field-programmed by the
	DipSw.10=ON DipSw.11=	DipSw.10= DipSw.11=	
	DipSw.11= DipSw.12=	DipSw.11= DipSw.12=	Mueller representative to
	Dip3W.12-	Dip3W.12-	transmit the full 8 totalizer
	Normal Speed Pulse:	Normal Speed Pulse:	digits, if it is not already so
	1 Pulse / 100 Gal	1 Pulse / 10 FT ³	
	I Fuise / 100 Gdl	I FUISE / IU FI	programmed. Please contact
	Low Speed Pulse:	Low Speed Pulse:	SCADAmetrics or your local
	1 Pulse / 1000 Gal	1 Pulse / 100 FT ³	
	I Puise / 1000 Gal	1 Puise / 100 FI-	Mueller representative.

MUELLER WATER METERS -

Recommended DIP Switches 13-16:

The Following Are *Suggested* Flow Span Settings, and May Need to Be Adjusted Based on Anticipated Max Flow Conditions.

Size	Gallon , Cubic Feet , Cubic Meters	
5/8″	DipSw.13=	
-	DipSw.14=	
20 gpm	DipSw.15=	
75 lpm	DipSw.16=	
3/4"	DipSw.13=ON	
-, -	DipSw.14=	
30 gpm	DipSw.15=	
120 lpm	DipSw.16=	
1″	DipSw.13=	-
1	DipSw.14=ON	
F0 anm	DipSw.15=	
50 gpm	•	
200 lpm	DipSw.16=	_
1.5″	DipSw.13=	
105	DipSw.14=	1 1
125 gpm	DipSw.15=ON	<mark>.02</mark>
475 lpm	DipSw.16=	
2″	DipSw.13=ON	
	DipSw.14=	in Sp
200 gpm	DipSw.15=ON	4-20mA Span Settings Are Based Solely on I Size and Maximum Expected Flow Rates
750 lpm	DipSw.16=	
3″	DipSw.13=ON	<mark>≚i et</mark>
	DipSw.14=ON	걸음
500 gpm	DipSw.15=ON	
2000 lpm	DipSw.16=	ΠÞ
4″	DipSw.13=ON	X P
	DipSw.14=	e B
1200 gpm	DipSw.15=	
4500 lpm	DipSw.16=ON	d ed
6″	DipSw.13=ON	- S
•	DipSw.14=ON	
3000 gpm	DipSw.15=	<mark>공</mark> 것
11000 lpm	DipSw.16=ON	Are Based Solely on Meter Expected Flow Rates,
8″	DipSw.13=	S.
0	DipSw.15=	e Se
4600 apm	•	l <mark>e</mark>
4600 gpm	DipSw.15=ON	
17500 lpm	DipSw.16=ON	4
10″	DipSw.13=ON	
	DipSw.14=	
7300 gpm	DipSw.15=ON	
27500 lpm	DipSw.16=ON	4
12″	DipSw.13=	
	DipSw.14=ON	
11400 gpm	DipSw.15=ON	
43000 lpm	DipSw.16=ON]
16″	DipSw.13=ON	
	DipSw.14=ON	
18000 gpm	DipSw.15=ON	
68000 lpm	DipSw.16=ON	
		1