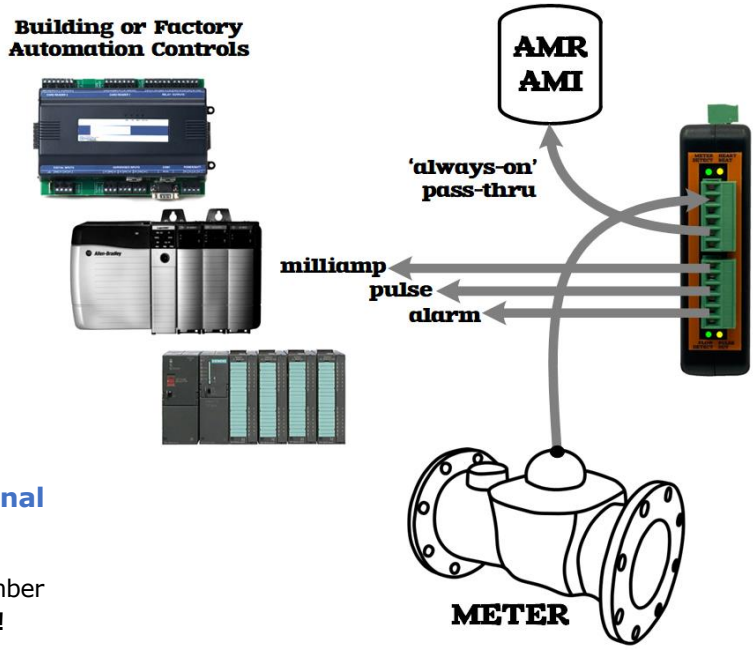
SCADAMETRICS®

The Signalizer™

Model EMP$_{V2}$ – US Patent No. 11,041,738



The Versatile 4-20 Milliamp and Pulse Signal Source for Neptune Water Meters!

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 both with the same meter!

The Signalizer utilizes the popular encoder signal from the water meter to generate both a 4-20mA rate-of-flow signal[1] 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 system[2]. 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 Neptune PROCODER, E-CODER, and MACH-10[(3)] registers.

[(1)]**Encoder Resolution** – a high-fidelity 4-20mA signal requires high-resolution encoder resolution (8+ digits). Therefore, for optimal SIGNALIZER performance, we recommend the MACH-10, PROCODER or E-CODER register. When the SIGNALIZER is utilized with a ProRead register, it will only produce a pulse output signal. The SIGNALIZER is NOT compatible with the R900i (integrated radio) versions of these registers.

[(2)]**Permitting** – If the meter is owned by the water utility, we recommend that you first contact its engineering department for permission!

[(3)]**MACH-10 Reaction Time** – In order to preserve the battery life of the MACH-10, the sample period of the Signalizer should be set to 120+ seconds, resulting in a signal reaction delay of up to 120s for both the 4-20mA and pulse signals. If a more "realtime" signal is required, then a mechanical meter with PROCODER or E-CODER register should be used.

Key Features –

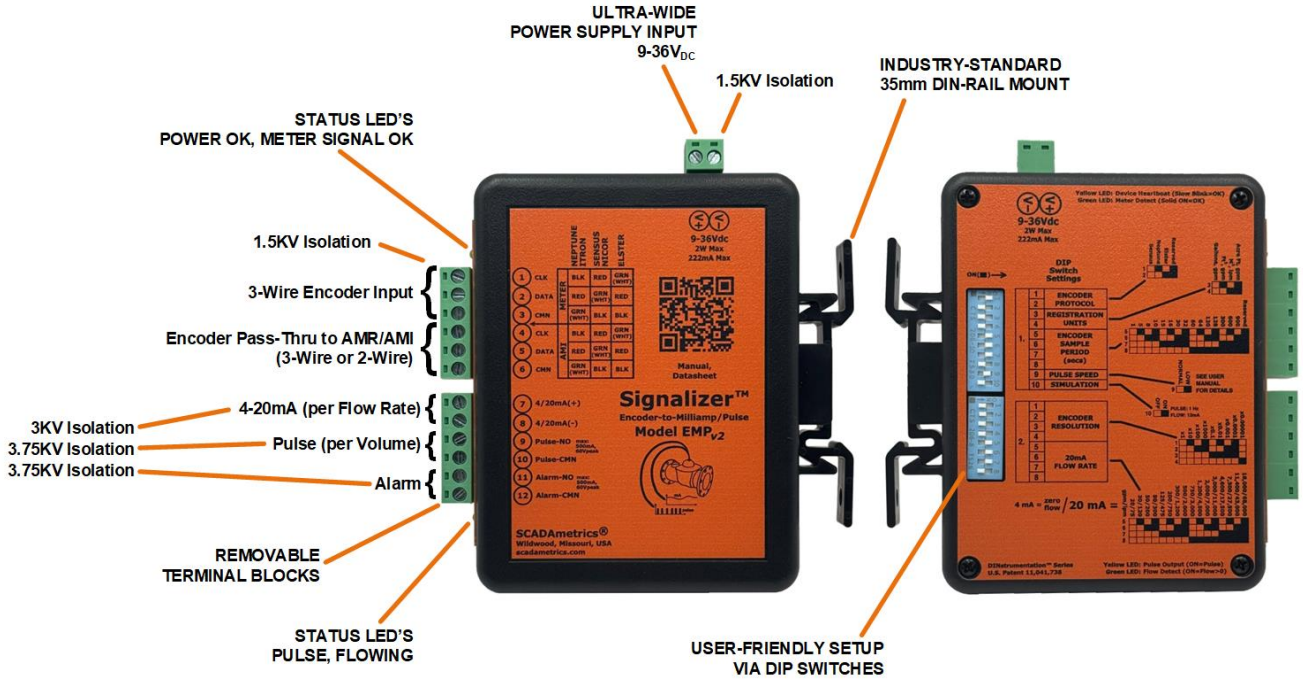
- 4-20mA Flow-Proportional Output (3KV Isolation).
- Dry-Contact, Volume-Proportional Output (3.75KV Isolation).
- Dry-Contact Alarm Output (3.75KV Isolation).
- Built-In Pass-Thru Port for Co-Connection to an AMI/AMR System – Works Even If Power Down!

- Compatible with All Late-Model, North American Encoder-Type Water Meters (Neptune 6,8,9-digit MACH-10/E-CODER/ProCoder/ProRead, Sensus 4,5,6,7,8,9-digit, Elster K-Frame Protocols).
- 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.
- Integral Common-Mode Rejection Choke

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



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}
EMI Suppression:	EN55032 Class B Chebyshev DC Power Filter, 3-Wire Common-Mode Rejection Choke for Encoder Signal
Neptune Protocol Support:	Yes, 8,9-Digit "MACH-10/ProCoder/E-CODER", and 6-Digit "ProRead" Protocols
Sensus Protocol Support:	Yes, Both Fixed and Variable Digit Sensus Protocols (4-9 digits)
Elster Protocol Support:	Yes, Auto-Fills Units and Decimal Shift, Based on Embedded Info within Elster K-Frame
AMI Pass-Thru Port Support:	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 Scalars:	x1 , x10 , x100 , x1,000 --- x0.1 , x0.01 , x0.001 , x0.0001 , x0.00001
Encoder Sample Period (s):	1, 5, 8, 10, 15, 16, 30, 32, 60, 64, 120, 128, 300, 600, 900, Reserved (User-Selectable)
Programming Method:	Integrated DIP Switches, 18-Poles
4-20mA Flow Range (gpm):	20,30,50,80,125,200,300,500,750,1200,2000,3000,4600,7300,11400,18000
4-20mA Flow Range (lpm):	75,120,200,300,475,750,1200,2000,3000,4500,7000,11000,17500,27500,43000,68000
4-20mA Resolution:	16-Bit DAC
4-20mA Isolation:	3000V_{RMS}
4-20mA Max Series Resistance:	500 Ω
4-20mA Signal Type:	Active. Therefore, <u>do not</u> add an external loop supply, or else damage to the unit will result!
Pulse Output Type:	Solid-State Dry-Contact, 1 Pulse-per-Encoder Resolution
Contact Closure Duration:	50% Duty Cycle or 1000ms – whichever is less
Alarm Output Type:	Solid-State Dry-Contact, Closes if Meter or Signalizer Fault
Pulse Resolution:	Normal-Speed Mode (All Encoders): Pulse Resolution = Encoder Resolution Low-Speed Mode (8-Digit Encoders): Pulse Resolution = Encoder Resolution / 10 Low-Speed Mode (9-Digit Encoders): Pulse Resolution = Encoder Resolution / 100
Closed-Contact Resistance:	0.4 ohm, typical
Closed-Contact Max Current:	500mA
Open-Contact Max Voltage:	60V
Pulse/Alarm Isolation:	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 –

Terminal	Function	Neptune Meter with Standard Cable & Itron ERT	Neptune Meter with Nicor Cable & Sensus, Kamstrup, Badger, Master Meter, Metron-Farnier, RG3, Mueller, Zenner	Elster
1	Meter Clock	Black	Red	White|Green
2	Meter Data	Red	Green|White	Red
3	Meter Cmn	Green | White	Black	Black
4	Utility AMI Clock	Black	Red	White|Green
5	Utility AMI Data	Red	Green|White	Red
6	Utility AMI Cmn	Green | White	Black	Black

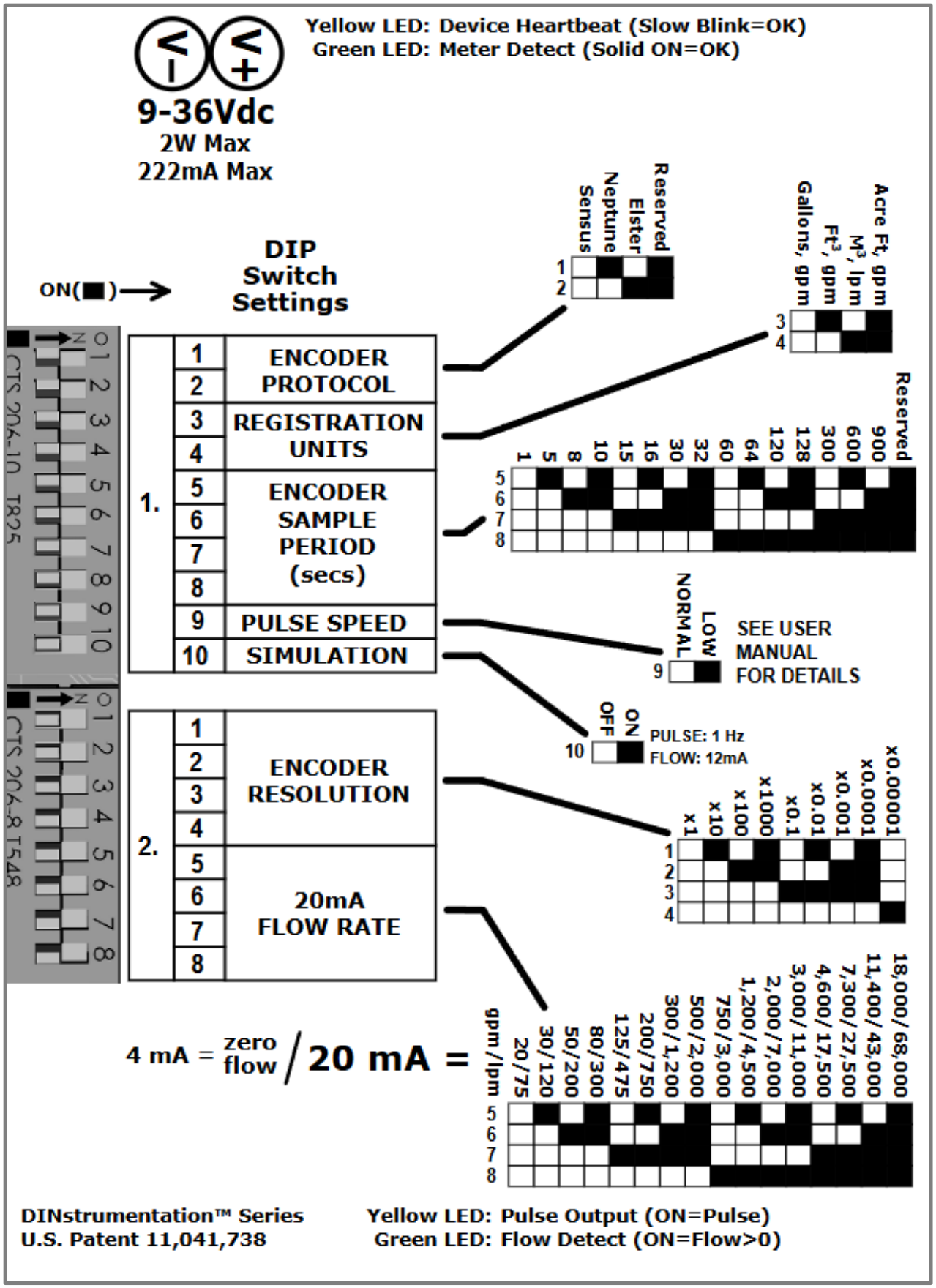
Wiring Notes:

1. Meter 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. Utility AMI/AMR 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).
3. Alternative color-coding: manufacturers occasionally substitute a WHITE wire for a GREEN wire.
4. If the recommended wiring has been attempted, and the display still reports "meter not detected", then re-try using each of the six possible wire color-coding combinations on terminals 1,2,3.

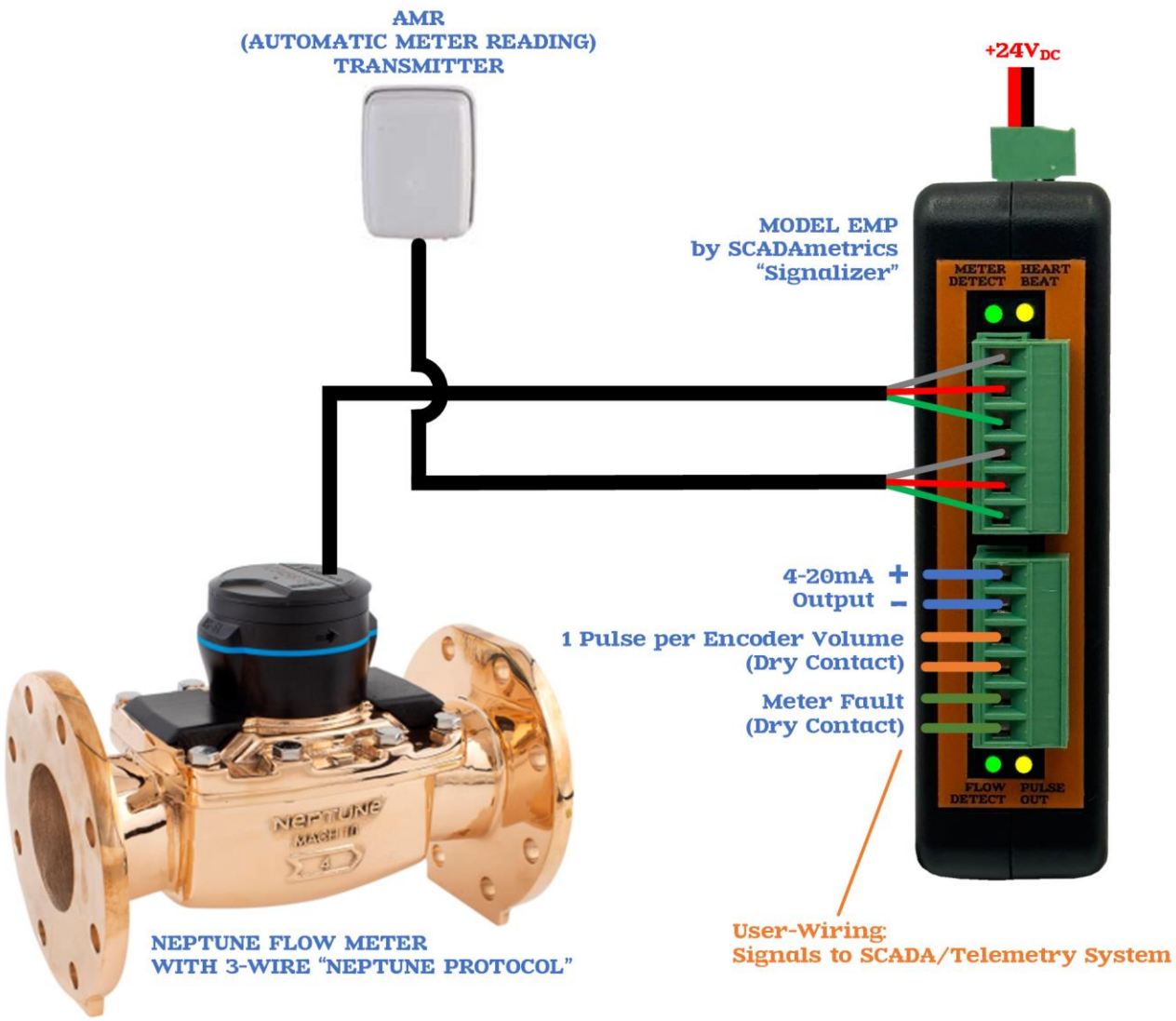
Signal Terminal Block Hookup –

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

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



QUICK-START GUIDE –



NOT R900i (INTEGRATED RADIO) VERSION!!
...MUST BE STANDALONE VERSION!!

WIRING FOR:

NEPTUNE MACH-10, PROCODER, E-CODER, & WATERFLUX 3070

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 must not 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 solid-state, 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.**

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.

- During bootup, if the meter is detected, the upper green 'Meter OK' LED will blink ON for each detected encoded digit (from 4 to 9 blinks).

- After bootup, the upper green 'Meter OK' LED should light up SOLID GREEN, signifying that the meter has been successfully detected. A fast green blink means "Meter Not Detected".

- The Lower Yellow LED will follow the Pulse Output (LED ON=Contact Closure).

- The Lower Green LED will light up SOLID GREEN during periods when Positive Flow is Detected.

NEPTUNE WATER METERS –
PERSONALITY SETTINGS FOR NEPTUNE WATER METERS.

Recommended DIP Switches 1.1 thru 2.4 for MACH-10:

Size	Gallon	Cubic Feet	Cubic Meters
5/8” 3/4" 1”	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4= DipSw.1.5=ON DipSw.1.6=ON DipSw.1.7= DipSw.1.8=ON DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2= DipSw.2.3=ON DipSw.2.4= Normal Speed Pulse: 1 Pulse / 0.1 Gal Low Speed Pulse: 1 Pulse / 1 Gal	DipSw.1.1=ON DipSw.1.2= DipSw.1.3=ON DipSw.1.4= DipSw.1.5=ON DipSw.1.6=ON DipSw.1.7= DipSw.1.8=ON DipSw.1.9= DipSw.1.10= DipSw.2.1=ON DipSw.2.2= DipSw.2.3=ON DipSw.2.4= Normal Speed Pulse: 1 Pulse / 0.01 FT^3 Low Speed Pulse: 1 Pulse / 0.1 FT^3	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4=ON DipSw.1.5=ON DipSw.1.6=ON DipSw.1.7= DipSw.1.8=ON DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2=ON DipSw.2.3=ON DipSw.2.4= Normal Speed Pulse: 1 Pulse / 0.001 M^3 Low Speed Pulse: 1 Pulse / 0.01 M^3
1.5” 2” 3” 4”	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4= DipSw.1.5=ON DipSw.1.6=ON DipSw.1.7= DipSw.1.8=ON DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2= DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 1 Gal Low Speed Pulse: 1 Pulse / 10 Gal	DipSw.1.1=ON DipSw.1.2= DipSw.1.3=ON DipSw.1.4= DipSw.1.5=ON DipSw.1.6=ON DipSw.1.7= DipSw.1.8=ON DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2= DipSw.2.3=ON DipSw.2.4= Normal Speed Pulse: 1 Pulse / 0.1 FT^3 Low Speed Pulse: 1 Pulse / 1 FT^3	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4=ON DipSw.1.5=ON DipSw.1.6=ON DipSw.1.7= DipSw.1.8=ON DipSw.1.9= DipSw.1.10= DipSw.2.1=ON DipSw.2.2= DipSw.2.3=ON DipSw.2.4= Normal Speed Pulse: 1 Pulse / 0.01 M^3 Low Speed Pulse: 1 Pulse / 0.1 M^3
6”-12”	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4= DipSw.1.5=ON DipSw.1.6=ON DipSw.1.7= DipSw.1.8=ON DipSw.1.9= DipSw.1.10= DipSw.2.1=ON DipSw.2.2= DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 10 Gal Low Speed Pulse: 1 Pulse / 100 Gal	DipSw.1.1=ON DipSw.1.2= DipSw.1.3=ON DipSw.1.4= DipSw.1.5=ON DipSw.1.6=ON DipSw.1.7= DipSw.1.8=ON DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2= DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 1 FT^3 Low Speed Pulse: 1 Pulse / 10 FT^3	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4=ON DipSw.1.5=ON DipSw.1.6=ON DipSw.1.7= DipSw.1.8=ON DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2= DipSw.2.3=ON DipSw.2.4= Normal Speed Pulse: 1 Pulse / 0.1 M^3 Low Speed Pulse: 1 Pulse / 1 M^3
16”	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4= DipSw.1.5=ON DipSw.1.6=ON DipSw.1.7= DipSw.1.8=ON DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2=ON DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 100 Gal Low Speed Pulse: 1 Pulse / 1000 Gal	DipSw.1=ON DipSw.2= DipSw.3=ON DipSw.4= DipSw.5=ON DipSw.6=ON DipSw.7= DipSw.8=ON DipSw.1.9= DipSw.1.10= DipSw.2.1=ON DipSw.2.2= DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 10 FT^3 Low Speed Pulse: 1 Pulse / 100 FT^3	DipSw.1=ON DipSw.2= DipSw.3= DipSw.4=ON DipSw.5=ON DipSw.6=ON DipSw.7= DipSw.8=ON DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2= DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 1 M^3 Low Speed Pulse: 1 Pulse / 10 M^3

MACH-10 Reaction Time

In order to preserve the battery life of the MACH-10, the sample period of the Signalizer should be set to 120+ seconds, resulting in a signal reaction delay of up to 120s for both the 4-20mA and pulse signals.

If a more “realtime” signal is required, then a mechanical meter with PROCODER or E-CODER register should be used.

NEPTUNE WATER METERS –
PERSONALITY SETTINGS FOR NEPTUNE WATER METERS.

Recommended DIP Switches 1.1 thru 2.4 for ProCoder, and E-CODER Registers:

Size	Gallon	Cubic Feet	Cubic Meters	
5/8” 3/4" 1”	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4= DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2= DipSw.2.3=ON DipSw.2.4= Normal Speed Pulse: 1 Pulse / 0.1 Gal Low Speed Pulse: 1 Pulse / 1 Gal	DipSw.1.1=ON DipSw.1.2= DipSw.1.3=ON DipSw.1.4= DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1=ON DipSw.2.2= DipSw.2.3=ON DipSw.2.4= Normal Speed Pulse: 1 Pulse / 0.01 FT^3 Low Speed Pulse: 1 Pulse / 0.1 FT^3	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4=ON DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2=ON DipSw.2.3=ON DipSw.2.4= Normal Speed Pulse: 1 Pulse / 0.001 M^3 Low Speed Pulse: 1 Pulse / 0.01 M^3	 PROCODER ECODER
1.5” 2” 3” 4”	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4= DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2= DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 1 Gal Low Speed Pulse: 1 Pulse / 10 Gal	DipSw.1.1=ON DipSw.1.2= DipSw.1.3=ON DipSw.1.4= DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2= DipSw.2.3=ON DipSw.2.4= Normal Speed Pulse: 1 Pulse / 0.1 FT^3 Low Speed Pulse: 1 Pulse / 1 FT^3	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4=ON DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1=ON DipSw.2.2= DipSw.2.3=ON DipSw.2.4= Normal Speed Pulse: 1 Pulse / 0.01 M^3 Low Speed Pulse: 1 Pulse / 0.1 M^3	Special Case! – For 1.5” T-10 with E-Coder… DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4=ON DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2=ON DipSw.2.3=ON DipSw.2.4= Normal Speed Pulse: 1 Pulse / 0.001 M^3 Low Speed Pulse: 1 Pulse / 0.01 M^3
6”-12”	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4= DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1=ON DipSw.2.2= DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 10 Gal Low Speed Pulse: 1 Pulse / 100 Gal	DipSw.1.1=ON DipSw.1.2= DipSw.1.3=ON DipSw.1.4= DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2= DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 1 FT^3 Low Speed Pulse: 1 Pulse / 10 FT^3	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4=ON DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2= DipSw.2.3=ON DipSw.2.4= Normal Speed Pulse: 1 Pulse / 0.1 M^3 Low Speed Pulse: 1 Pulse / 1 M^3	
16”	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4= DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2=ON DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 100 Gal Low Speed Pulse: 1 Pulse / 1000 Gal	DipSw.1.1=ON DipSw.1.2= DipSw.1.3=ON DipSw.1.4= DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1=ON DipSw.2.2= DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 10 FT^3 Low Speed Pulse: 1 Pulse / 100 FT^3	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4=ON DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2= DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 1 M^3 Low Speed Pulse: 1 Pulse / 10 M^3	

NEPTUNE WATER METERS –
PERSONALITY SETTINGS FOR NEPTUNE WATER METERS.

Recommended DIP Switches 1.1 thru 2.4 for WaterFlux 3070:

Size	Gallon	Cubic Feet	Cubic Meters
1”	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4= DipSw.1.5= DipSw.1.6=ON DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2= DipSw.2.3=ON DipSw.2.4= Normal Speed Pulse: 1 Pulse / 0.1 Gal Low Speed Pulse: 1 Pulse / 1 Gal	DipSw.1.1=ON DipSw.1.2= DipSw.1.3=ON DipSw.1.4= DipSw.1.5= DipSw.1.6=ON DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1=ON DipSw.2.2= DipSw.2.3=ON DipSw.2.4= Normal Speed Pulse: 1 Pulse / 0.01 FT^3 Low Speed Pulse: 1 Pulse / 0.1 FT^3	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4=ON DipSw.1.5= DipSw.1.6=ON DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2=ON DipSw.2.3=ON DipSw.2.4= Normal Speed Pulse: 1 Pulse / 0.001 M^3 Low Speed Pulse: 1 Pulse / 0.01 M^3
1.5” 2” 3” 4”	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4= DipSw.1.5= DipSw.1.6=ON DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2= DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 1 Gal Low Speed Pulse: 1 Pulse / 10 Gal	DipSw.1.1=ON DipSw.1.2= DipSw.1.3=ON DipSw.1.4= DipSw.1.5= DipSw.1.6=ON DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2= DipSw.2.3=ON DipSw.2.4= Normal Speed Pulse: 1 Pulse / 0.1 FT^3 Low Speed Pulse: 1 Pulse / 1 FT^3	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4=ON DipSw.1.5= DipSw.1.6=ON DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1=ON DipSw.2.2= DipSw.2.3=ON DipSw.2.4= Normal Speed Pulse: 1 Pulse / 0.01 M^3 Low Speed Pulse: 1 Pulse / 0.1 M^3
6”-12”	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4= DipSw.1.5= DipSw.1.6=ON DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1=ON DipSw.2.2= DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 10 Gal Low Speed Pulse: 1 Pulse / 100 Gal	DipSw.1.1=ON DipSw.1.2= DipSw.1.3=ON DipSw.1.4= DipSw.1.5= DipSw.1.6=ON DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2= DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 1 FT^3 Low Speed Pulse: 1 Pulse / 10 FT^3	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4=ON DipSw.1.5= DipSw.1.6=ON DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2= DipSw.2.3=ON DipSw.2.4= Normal Speed Pulse: 1 Pulse / 0.1 M^3 Low Speed Pulse: 1 Pulse / 1 M^3
16”-24”	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4= DipSw.1.5= DipSw.1.6=ON DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.9= DipSw.10=ON DipSw.11= DipSw.12= Normal Speed Pulse: 1 Pulse / 100 Gal Low Speed Pulse: 1 Pulse / 1000 Gal	DipSw.1.1=ON DipSw.1.2= DipSw.1.3=ON DipSw.1.4= DipSw.1.5= DipSw.1.6=ON DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.9=ON DipSw.10= DipSw.11= DipSw.12= Normal Speed Pulse: 1 Pulse / 10 FT^3 Low Speed Pulse: 1 Pulse / 100 FT^3	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4=ON DipSw.1.5= DipSw.1.6=ON DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.9= DipSw.10= DipSw.11= DipSw.12= Normal Speed Pulse: 1 Pulse / 1 M^3 Low Speed Pulse: 1 Pulse / 10 M^3

NEPTUNE WATER METERS –
PERSONALITY SETTINGS FOR NEPTUNE WATER METERS.

Recommended DIP Switches 1.1 thru 2.4 for ProRead Registers:

Size	Gallon	Cubic Feet	Cubic Meters
5/8″ 3/4" 1″	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4= DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1=ON DipSw.2.2= DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 10 Gal Low Speed Pulse: 1 Pulse / 100 Gal	DipSw.1.1=ON DipSw.1.2= DipSw.1.3=ON DipSw.1.4= DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2= DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 1 FT^3 Low Speed Pulse: 1 Pulse / 10 FT^3	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4=ON DipSw.1.5= DipSw.1.6=ON DipSw.1.7= DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2= DipSw.2.3=ON DipSw.2.4= Normal Speed Pulse: 1 Pulse / 0.1 M^3 Low Speed Pulse: 1 Pulse / 1 M^3
1.5″ 2″ 3″ 4″	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4= DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2=ON DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 100 Gal Low Speed Pulse: 1 Pulse / 1000 Gal	DipSw.1.1=ON DipSw.1.2= DipSw.1.3=ON DipSw.1.4= DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1=ON DipSw.2.2= DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 10 FT^3 Low Speed Pulse: 1 Pulse / 100 FT^3	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4=ON DipSw.1.5= DipSw.1.6=ON DipSw.1.7= DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2= DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 1 M^3 Low Speed Pulse: 1 Pulse / 10 M^3
6″-12″	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4= DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1=ON DipSw.2.2=ON DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 1000 Gal Low Speed Pulse: 1 Pulse / 10,000 Gal	DipSw.1.1=ON DipSw.1.2= DipSw.1.3=ON DipSw.1.4= DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2=ON DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 100 FT^3 Low Speed Pulse: 1 Pulse / 1000 FT^3	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4=ON DipSw.1.5= DipSw.1.6=ON DipSw.1.7= DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1=ON DipSw.2.2= DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 10 M^3 Low Speed Pulse: 1 Pulse / 100 M^3
16″	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4= DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= SPECIAL-CALL DipSw.2.2= SPECIAL-CALL DipSw.2.3= SPECIAL-CALL DipSw.2.4= SPECIAL-CALL Normal Speed Pulse: 1 Pulse / 10,000 Gal Low Speed Pulse: 1 Pulse / 100,000 Gal	DipSw.1.1=ON DipSw.1.2= DipSw.1.3=ON DipSw.1.4= DipSw.1.5=ON DipSw.1.6= DipSw.1.7=ON DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1=ON DipSw.2.2=ON DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 1000 FT^3 Low Speed Pulse: 1 Pulse / 10,000 FT^3	DipSw.1.1=ON DipSw.1.2= DipSw.1.3= DipSw.1.4=ON DipSw.1.5= DipSw.1.6=ON DipSw.1.7= DipSw.1.8= DipSw.1.9= DipSw.1.10= DipSw.2.1= DipSw.2.2=ON DipSw.2.3= DipSw.2.4= Normal Speed Pulse: 1 Pulse / 100 M^3 Low Speed Pulse: 1 Pulse / 1,000 M^3

PROREAD

4-20mA Not Available

ProRead registers feature relatively coarse, 6-digit totalizer resolution, as opposed to fine 8-digit totalizer resolution with the ProCoder/ ECoder, and therefore do NOT support the Signalizer's 4-20 milliamp output function.

Low-Resolution Pulse

The least significant (6th) digit of the ProRead register only transmits as a ZERO (0) or FIVE (5), and Therefore, the pulse output of the Signalizer (when connected to ProRead registers) will always be transmitted in groups of five pulses.

Field-Upgradeable

A ProRead Register may be easily field-upgraded to a ProCoder Register. Please contact SCADAmetrics or your local Neptune representative.

NEPTUNE WATER METERS –
PERSONALITY SETTINGS FOR NEPTUNE WATER METERS (CONT).

Recommended DIP Switches 2.5 thru 2.8 for MACH-10, ProCoder, E-CODER, and WaterFlux 3070 Registers:

The following Flow Span settings are *suggested*, and may need to be adjusted, based on actual maximum flow conditions:

Size	Gallon , Cubic Feet , Cubic Meters
5/8" MACH-10, T10 20 gpm 75 lpm	DipSw.2.5= DipSw.2.6= DipSw.2.7= DipSw.2.8=
3/4" MACH-10, T10 30 gpm 120 lpm	DipSw.2.5=ON DipSw.2.6= DipSw.2.7= DipSw.2.8=
1" MACH-10, T10 50 gpm 200 lpm	DipSw.2.5= DipSw.2.6=ON DipSw.2.7= DipSw.2.8=
1.5" MACH-10, T10 125 gpm 475 lpm	DipSw.2.5= DipSw.2.6= DipSw.2.7=ON DipSw.2.8=
2" MACH-10, T10, 1.5-2" HPT 200 gpm 750 lpm	DipSw.2.5=ON DipSw.2.6= DipSw.2.7=ON DipSw.2.8=
3" MACH-10, HPT 500 gpm 2000 lpm	DipSw.2.5=ON DipSw.2.6=ON DipSw.2.7=ON DipSw.2.8=
4" MACH-10, HPT 1200 gpm 4500 lpm	DipSw.2.5=ON DipSw.2.6= DipSw.2.7= DipSw.2.8=ON
6" MACH-10, HPT 3000 gpm 11000 lpm	DipSw.2.5=ON DipSw.2.6=ON DipSw.2.7= DipSw.2.8=ON
8" MACH-10, HPT 4600 gpm 17500 lpm	DipSw.2.5= DipSw.2.6= DipSw.2.7=ON DipSw.2.8=ON
10" MACH-10, HPT 7300 gpm 27500 lpm	DipSw.2.5=ON DipSw.2.6= DipSw.2.7=ON DipSw.2.8=ON
12" MACH-10, HPT 11400 gpm 43000 lpm	DipSw.2.5= DipSw.2.6=ON DipSw.2.7=ON DipSw.2.8=ON
16" MACH-10, HPT 18000 gpm 68000 lpm	DipSw.2.5=ON DipSw.2.6=ON DipSw.2.7=ON DipSw.2.8=ON

FAST-REACTION BATCHING METER APPLICATIONS –

(a) Fast-Reaction Batch Control Meter Applications require ultra-fast pulse output reaction time: ~1 sec.

CAUTION! – Please ensure that the connected encoder-type flow meter can tolerate ultra-short sample periods. (i.e. Make sure there are no water meter register battery issues!)

Examples of Neptune Meter Registers that do not contain a battery, or otherwise can tolerate ultra-short sample periods:

- **Neptune PROCODER**
- **Neptune ECODER**
- **Neptune PROREAD**

Fast Reaction Time DIP Switch Settings:

[1.5 , 1.6 , 1.7 , 1.8] = [OFF , OFF , OFF , OFF]