



The Signalizer™

Model EMP - US Patent No. 11,041,738



Building or Factory Automation Controls



AWWA C707-05 COMPLIANT

2 YEAR WARRANTY

The Versatile 4-20 Milliamp and Pulse Signal Source for Neptune⁽¹⁾ MACH-10, ProCoder, and E-CODER 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!

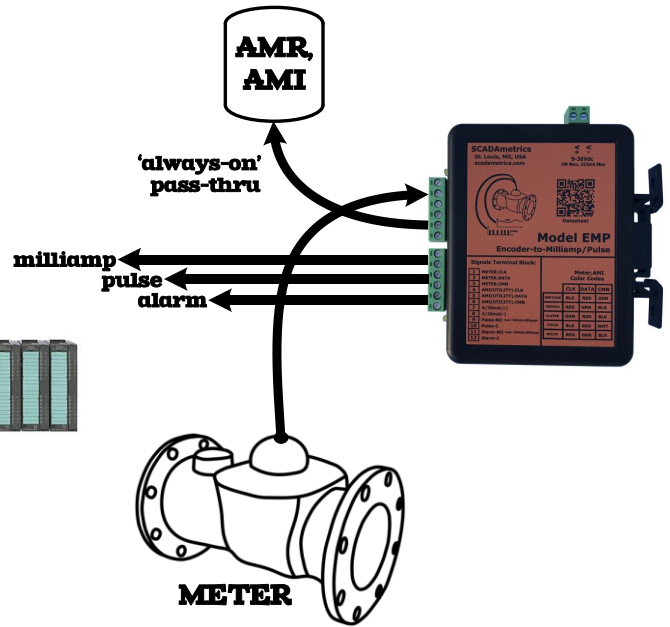
The Signalizer utilizes the popular encoder signal from the water meter to generate both a 4-20mA rate-of-flow signal¹ and a dry-contact pulse-per-volume signal. ...And because **The Signalizer** is outfitted with an integral pass-thru port, it can co-exist with an AMI/AMR system⁽²⁾. Even if power is removed, the pass-thru port is always functional – ensuring continuous connectivity to the AMR/AMI system!

The Signalizer is compatible with the 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!

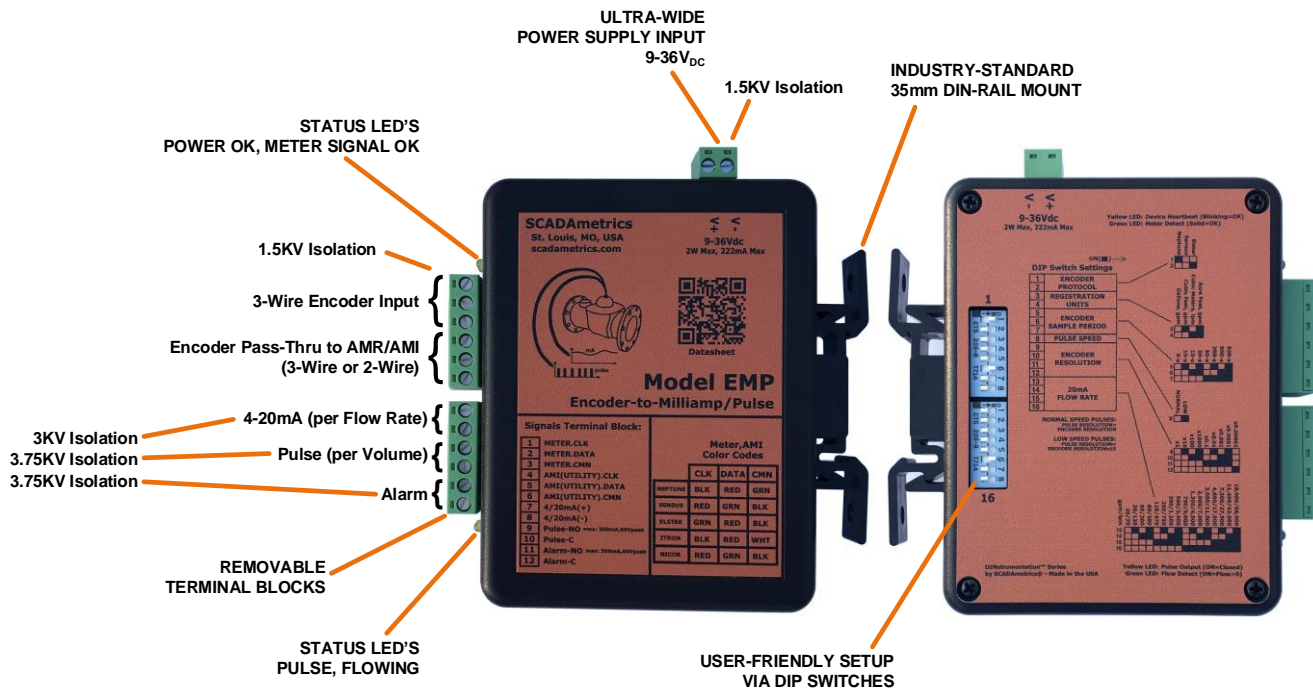
⁽³⁾**MACH-10 Reaction Time** – In order to preserve the battery life of the MACH-10, the sample period of the Signalizer should be set to 300+ seconds, resulting in a signal reaction delay of up to 300s for both the 4-20mA and pulse signals. If a more “realtime” signal is required, then a mechanical 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 MACH-10, PROCODER, and E-CODER 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!



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: 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): 5, 10, 15, 30, 60, 300, 600, 900 (User-Selectable)
 Programming Method: Integrated DIP Switches, 16-Poles

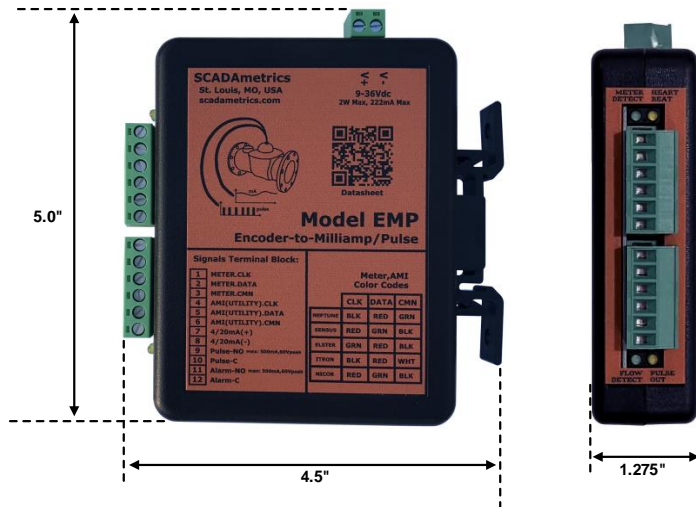
4-20mA Flow Range (gpm): 20,30,50,80,125,200,300,500,750,1200,2000,3000,4600,7300,11400,18000
 4-20mA Flow Range (lpm): 75,120,200,300,475,750,1200,2000,3000,4500,7000,11000,17500,27500,43000,68000
 4-20mA Resolution: 16-Bit DAC
 4-20mA Isolation: 3000V_{RMS}
 4-20mA Max Series Resistance: 500 Ω
 4-20mA Signal Type: Active. Therefore, do not 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: Pulse Resolution = Encoder Resolution
 Low-Speed Mode: Pulse Resolution = Encoder Resolution / 10
 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.scadmetrics.com for details)

Engineering Dimensions (Inches) -



Meter Terminal Block Hookup -

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

AMR/AMI Terminal Block Hookup -

| Term. | Function | Neptune MIU with Standard Cable | Neptune (or other) MIU with Nicor Cable | Neptune (or other) MIU with Itron ERT Cable | Sensus, Badger, Mueller, Master-Meter, Metron-Farnier, Zenner, RG3, Kamstrup MIU | Elster AMCO MIU |
|-------|------------|---------------------------------|---|---|--|-----------------|
| 4 | AMI Clock | Black | Red | Black | Red | White Green |
| 5 | AMI Data | Red | Green White | Red | Green White | Red |
| 6 | AMI Ground | Green | Black | White Shield | 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).

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) -



9-36Vdc
2W Max, 222mA Max

Yellow LED: Device Heartbeat (Blinking=OK)
Green LED: Meter Detect (Solid=OK)

Simulation Mode

| | | |
|---|---------|--|
| 1 | Elster | |
| 2 | Sensus | |
| | Neptune | |

ON(■) →

DIP Switch Settings

1

| | |
|----|-----------------------|
| 1 | ENCODER PROTOCOL |
| 2 | |
| 3 | REGISTRATION UNITS |
| 4 | |
| 5 | ENCODER SAMPLE PERIOD |
| 6 | |
| 7 | |
| 8 | PULSE SPEED |
| 9 | ENCODER RESOLUTION |
| 10 | |
| 11 | |
| 12 | |
| 13 | 20mA FLOW RATE |
| 14 | |
| 15 | |
| 16 | |

| | | |
|---|-----------------------|--|
| 1 | Acre Ft, gpm | |
| 2 | M ³ , lpm | |
| 3 | Ft ³ , gpm | |
| 4 | Gallons, gpm | |

| | | |
|---|-------|--|
| 5 | 900-s | |
| 6 | 600-s | |
| 7 | 300-s | |
| | 60-s | |
| | 30-s | |
| | 15-s | |
| | 10-s | |
| | 5-s | |

| | | |
|---|--------|--|
| 8 | NORMAL | |
| | LOW | |

| | | |
|----|----------|--|
| 9 | X0.00001 | |
| 10 | X0.0001 | |
| 11 | X0.001 | |
| 12 | X0.01 | |
| | X0.1 | |
| | X100 | |
| | X1000 | |
| | X10 | |
| | X1 | |

NORMAL SPEED PULSES:
PULSE RESOLUTION= ENCODER RESOLUTION

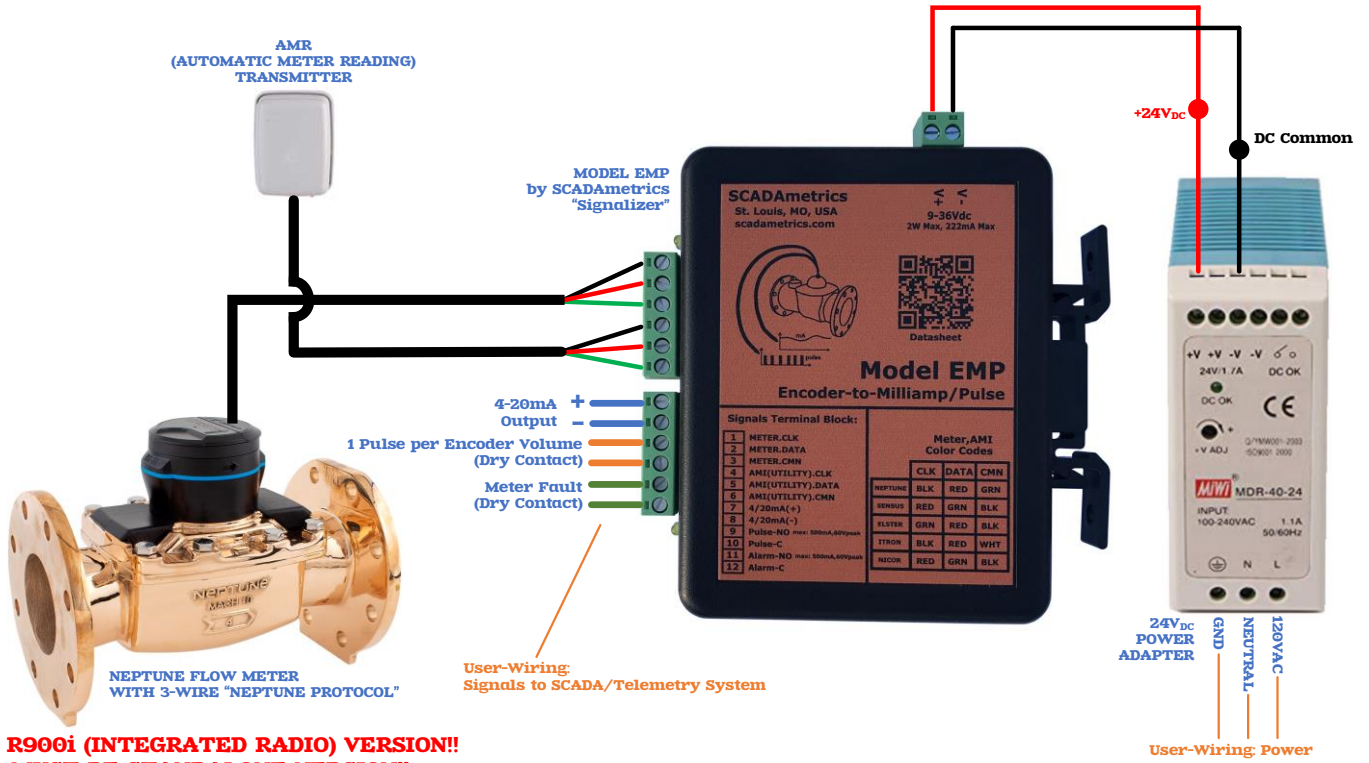
LOW SPEED PULSES:
PULSE RESOLUTION= ENCODER RESOLUTIONx10

SIMULATION MODE:
PULSE OUTPUT: 1 Hz
FLOW SIGNAL OUTPUT: 12mA

| | | |
|----|---------------|--|
| 13 | 18,000/68,000 | |
| 14 | 11,400/43,000 | |
| 15 | 7,300/27,500 | |
| 16 | 4,600/17,500 | |
| | 3,000/11,000 | |
| | 2,000/7,000 | |
| | 1,200/4,500 | |
| | 750/3,000 | |
| | 500/2,000 | |
| | 300/1,200 | |
| | 200/750 | |
| | 125/475 | |
| | 80/300 | |
| | 50/200 | |
| | 30/120 | |
| | 20/75 | |

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QUICK-START GUIDE -



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

WIRING FOR: NEPTUNE MACH-10, PROCODER, E-CODER, & WATERFLUX 3070 Fig1

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 'Heartbeat' 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).
- 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 1-12, Settings for **MACH-10**:

| Size | Gallon | Cubic Feet | Cubic Meters |
|------------------|---|--|---|
| 5/8", 3/4", 1" | DipSw.1=ON DipSw.2= DipSw.3= DipSw.4= DipSw.5=ON DipSw.6= DipSw.7=ON DipSw.8= DipSw.9= DipSw.10= DipSw.11=ON DipSw.12= Normal Speed Pulse: 1 Pulse / 0.1 Gal Low Speed Pulse: 1 Pulse / 1 Gal | DipSw.1=ON DipSw.2= DipSw.3=ON DipSw.4= DipSw.5=ON DipSw.6= DipSw.7=ON DipSw.8= DipSw.9=ON DipSw.10= DipSw.11=ON DipSw.12= Normal Speed Pulse: 1 Pulse / 0.1 FT ³ Low Speed Pulse: 1 Pulse / 0.1 FT ³ | DipSw.1=ON DipSw.2= DipSw.3= DipSw.4=ON DipSw.5=ON DipSw.6= DipSw.7=ON DipSw.8= DipSw.9= DipSw.10=ON DipSw.11=ON DipSw.12= 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=ON DipSw.2= DipSw.3= DipSw.4= DipSw.5=ON DipSw.6= DipSw.7=ON DipSw.8= DipSw.9= DipSw.10= DipSw.11= DipSw.12= Normal Speed Pulse: 1 Pulse / 1 Gal Low Speed Pulse: 1 Pulse / 10 Gal | DipSw.1=ON DipSw.2= DipSw.3=ON DipSw.4= DipSw.5=ON DipSw.6= DipSw.7=ON DipSw.8= DipSw.9= DipSw.10= DipSw.11=ON DipSw.12= Normal Speed Pulse: 1 Pulse / 0.1 FT ³ Low Speed Pulse: 1 Pulse / 1 FT ³ | DipSw.1=ON DipSw.2= DipSw.3= DipSw.4=ON DipSw.5=ON DipSw.6= DipSw.7=ON DipSw.8= DipSw.9=ON DipSw.10= DipSw.11=ON DipSw.12= Normal Speed Pulse: 1 Pulse / 0.1 M ³ Low Speed Pulse: 1 Pulse / 0.1 M ³ |
| 6"-12" | DipSw.1=ON DipSw.2= DipSw.3= DipSw.4= DipSw.5=ON DipSw.6= DipSw.7=ON DipSw.8= DipSw.9=ON DipSw.10= DipSw.11= DipSw.12= Normal Speed Pulse: 1 Pulse / 10 Gal Low Speed Pulse: 1 Pulse / 100 Gal | DipSw.1=ON DipSw.2= DipSw.3=ON DipSw.4= DipSw.5=ON DipSw.6= DipSw.7=ON DipSw.8= DipSw.9= DipSw.10= DipSw.11= DipSw.12= Normal Speed Pulse: 1 Pulse / 1 FT ³ Low Speed Pulse: 1 Pulse / 10 FT ³ | DipSw.1=ON DipSw.2= DipSw.3= DipSw.4=ON DipSw.5=ON DipSw.6= DipSw.7=ON DipSw.8= DipSw.9= DipSw.10= DipSw.11=ON DipSw.12= Normal Speed Pulse: 1 Pulse / 0.1 M ³ Low Speed Pulse: 1 Pulse / 1 M ³ |
| 16" | DipSw.1=ON DipSw.2= DipSw.3= DipSw.4= DipSw.5=ON DipSw.6= DipSw.7=ON DipSw.8= 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=ON DipSw.2= DipSw.3=ON DipSw.4= DipSw.5=ON DipSw.6= DipSw.7=ON DipSw.8= 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=ON DipSw.2= DipSw.3= DipSw.4=ON DipSw.5=ON DipSw.6= DipSw.7=ON DipSw.8= DipSw.9= DipSw.10= DipSw.11= DipSw.12= Normal Speed Pulse: 1 Pulse / 1 M ³ Low Speed Pulse: 1 Pulse / 10 M ³ |



MACH 10


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 300+ seconds, resulting in a signal reaction delay of up to 300s 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 1-12 for **ProCoder**, and **E-CODER** Registers:

| Size | Gallon | Cubic Feet | Cubic Meters | |
|------------------|---|--|---|---|
| 5/8", 3/4", 1" | DipSw.1=ON DipSw.2= DipSw.3= DipSw.4= DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= DipSw.9= DipSw.10= DipSw.11=ON DipSw.12= Normal Speed Pulse: 1 Pulse / 0.1 Gal Low Speed Pulse: 1 Pulse / 1 Gal | DipSw.1=ON DipSw.2= DipSw.3=ON DipSw.4= DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= DipSw.9=ON DipSw.10= DipSw.11=ON DipSw.12= Normal Speed Pulse: 1 Pulse / 0.1 FT ³ Low Speed Pulse: 1 Pulse / 0.1 FT ³ | DipSw.1=ON DipSw.2= DipSw.3= DipSw.4=ON DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= DipSw.9= DipSw.10=ON DipSw.11=ON DipSw.12= Normal Speed Pulse: 1 Pulse / 0.001 M ³ Low Speed Pulse: 1 Pulse / 0.01 M ³ |  <p style="text-align: center;">PROCODER</p> <p style="text-align: right;">ECODER</p> |
| 1.5", 2", 3", 4" | DipSw.1=ON DipSw.2= DipSw.3= DipSw.4= DipSw.5= DipSw.6= ON DipSw.7= DipSw.8= DipSw.9= DipSw.10= DipSw.11= DipSw.12= Normal Speed Pulse: 1 Pulse / 1 Gal Low Speed Pulse: 1 Pulse / 10 Gal | DipSw.1=ON DipSw.2= DipSw.3=ON DipSw.4= DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= DipSw.9= DipSw.10= DipSw.11=ON DipSw.12= Normal Speed Pulse: 1 Pulse / 0.1 FT ³ Low Speed Pulse: 1 Pulse / 1 FT ³ | DipSw.1=ON DipSw.2= DipSw.3= DipSw.4=ON DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= DipSw.9=ON DipSw.10= DipSw.11=ON DipSw.12= 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=ON DipSw.2= DipSw.3= DipSw.4=ON DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= DipSw.9= DipSw.10=ON DipSw.11=ON DipSw.12= Normal Speed Pulse: 1 Pulse / 0.001 M ³ Low Speed Pulse: 1 Pulse / 0.01 M ³ |
| 6"-12" | DipSw.1=ON DipSw.2= DipSw.3= DipSw.4= DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= DipSw.9=ON DipSw.10= DipSw.11= DipSw.12= Normal Speed Pulse: 1 Pulse / 10 Gal Low Speed Pulse: 1 Pulse / 100 Gal | DipSw.1=ON DipSw.2= DipSw.3=ON DipSw.4= DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= DipSw.9= DipSw.10= DipSw.11= DipSw.12= Normal Speed Pulse: 1 Pulse / 1 FT ³ Low Speed Pulse: 1 Pulse / 10 FT ³ | DipSw.1=ON DipSw.2= DipSw.3= DipSw.4=ON DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= DipSw.9= DipSw.10= DipSw.11=ON DipSw.12= Normal Speed Pulse: 1 Pulse / 0.1 M ³ Low Speed Pulse: 1 Pulse / 1 M ³ | |
| 16" | DipSw.1=ON DipSw.2= DipSw.3= DipSw.4= DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= 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=ON DipSw.2= DipSw.3=ON DipSw.4= DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= 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=ON DipSw.2= DipSw.3= DipSw.4=ON DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= 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 1-12, Settings for **WaterFlux 3070**:

| Size | Gallon | Cubic Feet | Cubic Meters |
|------------------|---|---|---|
| 1" | DipSw.1=ON DipSw.2=ON DipSw.3=ON DipSw.4=ON DipSw.5=ON DipSw.6=ON DipSw.7=ON DipSw.8=ON DipSw.9=ON DipSw.10=ON DipSw.11=ON DipSw.12=ON Normal Speed Pulse: 1 Pulse / 0.1 Gal Low Speed Pulse: 1 Pulse / 1 Gal | DipSw.1=ON DipSw.2=ON DipSw.3=ON DipSw.4=ON DipSw.5=ON DipSw.6=ON DipSw.7=ON DipSw.8=ON DipSw.9=ON DipSw.10=ON DipSw.11=ON DipSw.12=ON Normal Speed Pulse: 1 Pulse / 0.01 FT ³ Low Speed Pulse: 1 Pulse / 0.1 FT ³ | DipSw.1=ON DipSw.2=ON DipSw.3=ON DipSw.4=ON DipSw.5=ON DipSw.6=ON DipSw.7=ON DipSw.8=ON DipSw.9=ON DipSw.10=ON DipSw.11=ON DipSw.12=ON 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=ON DipSw.2=ON DipSw.3=ON DipSw.4=ON DipSw.5=ON DipSw.6=ON DipSw.7=ON DipSw.8=ON DipSw.9=ON DipSw.10=ON DipSw.11=ON DipSw.12=ON Normal Speed Pulse: 1 Pulse / 1 Gal Low Speed Pulse: 1 Pulse / 10 Gal | DipSw.1=ON DipSw.2=ON DipSw.3=ON DipSw.4=ON DipSw.5=ON DipSw.6=ON DipSw.7=ON DipSw.8=ON DipSw.9=ON DipSw.10=ON DipSw.11=ON DipSw.12=ON Normal Speed Pulse: 1 Pulse / 0.1 FT ³ Low Speed Pulse: 1 Pulse / 1 FT ³ | DipSw.1=ON DipSw.2=ON DipSw.3=ON DipSw.4=ON DipSw.5=ON DipSw.6=ON DipSw.7=ON DipSw.8=ON DipSw.9=ON DipSw.10=ON DipSw.11=ON DipSw.12=ON Normal Speed Pulse: 1 Pulse / 0.01 M ³ Low Speed Pulse: 1 Pulse / 0.1 M ³ |
| 6"-12" | DipSw.1=ON DipSw.2=ON DipSw.3=ON DipSw.4=ON DipSw.5=ON DipSw.6=ON DipSw.7=ON DipSw.8=ON DipSw.9=ON DipSw.10=ON DipSw.11=ON DipSw.12=ON Normal Speed Pulse: 1 Pulse / 10 Gal Low Speed Pulse: 1 Pulse / 100 Gal | DipSw.1=ON DipSw.2=ON DipSw.3=ON DipSw.4=ON DipSw.5=ON DipSw.6=ON DipSw.7=ON DipSw.8=ON DipSw.9=ON DipSw.10=ON DipSw.11=ON DipSw.12=ON Normal Speed Pulse: 1 Pulse / 1 FT ³ Low Speed Pulse: 1 Pulse / 10 FT ³ | DipSw.1=ON DipSw.2=ON DipSw.3=ON DipSw.4=ON DipSw.5=ON DipSw.6=ON DipSw.7=ON DipSw.8=ON DipSw.9=ON DipSw.10=ON DipSw.11=ON DipSw.12=ON Normal Speed Pulse: 1 Pulse / 0.1 M ³ Low Speed Pulse: 1 Pulse / 1 M ³ |
| 16"-24" | DipSw.1=ON DipSw.2=ON DipSw.3=ON DipSw.4=ON DipSw.5=ON DipSw.6=ON DipSw.7=ON DipSw.8=ON DipSw.9=ON DipSw.10=ON DipSw.11=ON DipSw.12=ON Normal Speed Pulse: 1 Pulse / 100 Gal Low Speed Pulse: 1 Pulse / 1000 Gal | DipSw.1=ON DipSw.2=ON DipSw.3=ON DipSw.4=ON DipSw.5=ON DipSw.6=ON DipSw.7=ON DipSw.8=ON DipSw.9=ON DipSw.10=ON DipSw.11=ON DipSw.12=ON Normal Speed Pulse: 1 Pulse / 10 FT ³ Low Speed Pulse: 1 Pulse / 100 FT ³ | DipSw.1=ON DipSw.2=ON DipSw.3=ON DipSw.4=ON DipSw.5=ON DipSw.6=ON DipSw.7=ON DipSw.8=ON DipSw.9=ON DipSw.10=ON DipSw.11=ON DipSw.12=ON 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 1-12 for **ProRead** Registers:

| Size | Gallon | Cubic Feet | Cubic Meters |
|------------------|--|--|--|
| 5/8", 3/4", 1" | DipSw.1=ON DipSw.2= DipSw.3= DipSw.4= DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= DipSw.9=ON DipSw.10= DipSw.11= DipSw.12= Normal Speed Pulse: 1 Pulse / 10 Gal Low Speed Pulse: 1 Pulse / 100 Gal | DipSw.1=ON DipSw.2= DipSw.3=ON DipSw.4= DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= DipSw.9= DipSw.10= DipSw.11= DipSw.12= Normal Speed Pulse: 1 Pulse / 1 FT ³ Low Speed Pulse: 1 Pulse / 10 FT ³ | DipSw.1=ON DipSw.2= DipSw.3= DipSw.4=ON DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= DipSw.9= DipSw.10= DipSw.11=ON DipSw.12= Normal Speed Pulse: 1 Pulse / 0.1 M ³ Low Speed Pulse: 1 Pulse / 1 M ³ |
| 1.5", 2", 3", 4" | DipSw.1=ON DipSw.2= DipSw.3= DipSw.4= DipSw.5= DipSw.6= ON DipSw.7= DipSw.8= 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=ON DipSw.2= DipSw.3=ON DipSw.4= DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= 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=ON DipSw.2= DipSw.3= DipSw.4=ON DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= DipSw.9= DipSw.10= DipSw.11= DipSw.12= Normal Speed Pulse: 1 Pulse / 1 M ³ Low Speed Pulse: 1 Pulse / 10 M ³ |
| 6"-12" | DipSw.1=ON DipSw.2= DipSw.3= DipSw.4= DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= DipSw.9=ON DipSw.10=ON DipSw.11= DipSw.12= Normal Speed Pulse: 1 Pulse / 1000 Gal Low Speed Pulse: 1 Pulse / 10,000 Gal | DipSw.1=ON DipSw.2= DipSw.3=ON DipSw.4= DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= DipSw.9= DipSw.10=ON DipSw.11= DipSw.12= Normal Speed Pulse: 1 Pulse / 100 FT ³ Low Speed Pulse: 1 Pulse / 1000 FT ³ | DipSw.1=ON DipSw.2= DipSw.3= DipSw.4=ON DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= DipSw.9=ON DipSw.10= DipSw.11= DipSw.12= Normal Speed Pulse: 1 Pulse / 10 M ³ Low Speed Pulse: 1 Pulse / 100 M ³ |
| 16" | DipSw.1=ON DipSw.2= DipSw.3= DipSw.4= DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= DipSw.9= SPECIAL-CALL DipSw.10=SPECIAL-CALL DipSw.11=SPECIAL-CALL DipSw.12=SPECIAL-CALL Normal Speed Pulse: 1 Pulse / 10,000 Gal Low Speed Pulse: 1 Pulse / 100,000 Gal | DipSw.1=ON DipSw.2= DipSw.3=ON DipSw.4= DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= DipSw.9=ON DipSw.10=ON DipSw.11= DipSw.12= Normal Speed Pulse: 1 Pulse / 1000 FT ³ Low Speed Pulse: 1 Pulse / 10,000 FT ³ | DipSw.1=ON DipSw.2= DipSw.3= DipSw.4=ON DipSw.5= DipSw.6=ON DipSw.7= DipSw.8= DipSw.9= DipSw.10=ON DipSw.11= DipSw.12= 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 13-16 for **MACH-10**, **ProCoder**, **E-CODER**, and **WaterFlux 3070** Registers:

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

| Size | Gallon , Cubic Feet , Cubic Meters |
|---|--|
| 5/8" MACH-10, T10 20 gpm 75 lpm | DipSw.13= DipSw.14= DipSw.15= DipSw.16= |
| 3/4" MACH-10, T10 30 gpm 120 lpm | DipSw.13=ON DipSw.14= DipSw.15= DipSw.16= |
| 1" MACH-10, T10 50 gpm 200 lpm | DipSw.13= DipSw.14=ON DipSw.15= DipSw.16= |
| 1.5" MACH-10, T10 125 gpm 475 lpm | DipSw.13= DipSw.14= DipSw.15=ON DipSw.16= |
| 2" MACH-10, T10, 1.5-2" HPT 200 gpm 750 lpm | DipSw.13=ON DipSw.14= DipSw.15=ON DipSw.16= |
| 3" MACH-10, HPT 500 gpm 2000 lpm | DipSw.13=ON DipSw.14=ON DipSw.15=ON DipSw.16= |
| 4" MACH-10, HPT 1200 gpm 4500 lpm | DipSw.13=ON DipSw.14= DipSw.15= DipSw.16=ON |
| 6" MACH-10, HPT 3000 gpm 11000 lpm | DipSw.13=ON DipSw.14=ON DipSw.15= DipSw.16=ON |
| 8" MACH-10, HPT 4600 gpm 17500 lpm | DipSw.13= DipSw.14= DipSw.15=ON DipSw.16=ON |
| 10" MACH-10, HPT 7300 gpm 27500 lpm | DipSw.13=ON DipSw.14= DipSw.15=ON DipSw.16=ON |
| 12" MACH-10, HPT 11400 gpm 43000 lpm | DipSw.13= DipSw.14=ON DipSw.15=ON DipSw.16=ON |
| 16" MACH-10, HPT 18000 gpm 68000 lpm | DipSw.13=ON DipSw.14=ON DipSw.15=ON DipSw.16=ON |

NON-STANDARD SAMPLING TIMES -

• FAST-REACTION BATCHING METERS

- (a) Fast-Reaction Batching Control Meters require ultra-fast reaction times (1, 2, or 3 seconds). Please ensure that the connected encoder-type flow meter can tolerate ultra-short sample periods (i.e. battery issues).

When the Internal Jumper⁽¹⁾ is installed onto the Signalizer Factory Header as illustrated below, then the interrogation sample timings are adjusted accordingly:

| Signalizer Sample Period Setting (sec) DIP Switch Settings | Non-Standard Sample Period (sec) | |
|---|----------------------------------|-------------------------------------|
| 5 | 1 | Use for Fast Batch Control |
| 10 | 2 | |
| 15 | 3 | |
| 30 | 32 | Alternate Sample Periods |
| 60 | 64 | |
| 300 | 128 (OK for MACH-10) | |
| 600 | 640 (OK for MACH-10) | |
| 900 | 960 (OK for MACH-10) | |

- (1) Requires Setting of "Non-Standard Sampling Mode" Activation Jumper.
User Must Open Device Case, and Set Shunt Jumper on Circuit Board Utility Header:

