



Innov8-VN Register

Technical Reference

The innov8-VN is an electronic water meter register with an embedded cellular modem. This document provides details on the configuration, operation and installation of the device.



*Innov8-VN with
integral antenna*



*Innov8-VN with
external antenna*

Models

All innov8-VN registers are fully configurable and adaptable to many common water meters. The only model variations are for hardware configuration:

- Innov8-VN Register with integral antenna
- Innov8-VN Register with external antenna – 4-ft, 6-ft or 12-ft lengths
- Innov8-VN Register with 3-wire AMR Output
- Innov8-VN Register with Switch Closure Output

Installation

For installation, the innov8-VN will attach to the water meter with an outer housing and in some cases adapter rings. The user will need to specify the type of water meter to ensure the proper hardware is included.

- Metron Spectrum and Enduro water meters
- Sensus™ PMM water meters
- Sensus™ SRII water meters
- Neptune™ water meters
- Badger™ water meters
- Elster™ /Zenner™ water meters

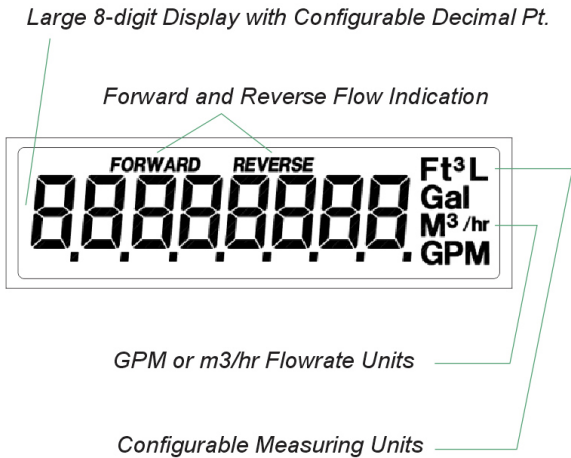


Contact Metron for attachments for other meters.

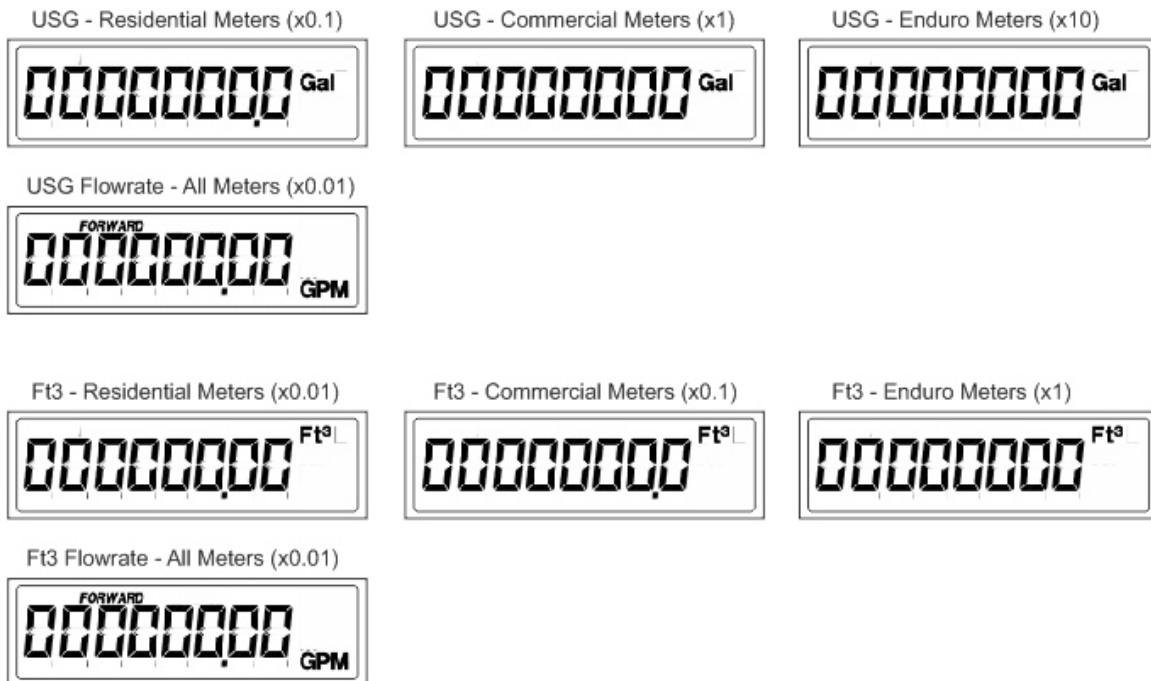


LCD Configuration

The format of the innov8-VN's LCD display is shown below.



The following diagram shows the default display configuration for residential, commercial and industrial meters.





Configuration Parameters

Configuration of the innov8-VN will typically be performed using the Tablet App Communicator software. This software will run on any Windows™ XP, 7 or 8 laptop or tablet. This software will require an IR-bridge device from T2 which provides the infrared communication to the innov8-VN.

The configuration screen for the innov8-VN register will only show the applicable parameters for this register:

innov8 VN Configuration for ID:							
ID	Register Read	Tx Scaling	Log Interval	Day	Month	Year	
1000002	555.0	1	5 min	2	10	14	
Meter Type	Meter Model	Units	Meter Size	Hour	Minute		
SJ	Metron	Gal	5/8"	12	2		57
Firmware Version	HWVer	# Retry	Batt V	Code	Timeout	Offset	Con Time
0.58.R2.E1.S1.V0.C0	2.07	0	3685	0	75	1498	21
HU Days	HU Trip Lvl	Zero Use	Dec Pos	First Digit			
5 Days	114 gpm	1 Days	1	5			
Avg. Temp	Min. Temp	Max. Temp	IPINIT	DNSR	IPOPEN		
70	70	81	3	0	0		
Active Functions: <input type="checkbox"/> Back Flow <input type="checkbox"/> High Use <input type="checkbox"/> Leak Detect <input type="checkbox"/> Zero Use							
innov8 VN							
Index Ratio	Pulse Weight	Tx Digits	Rollers				
-0.042	1000	7	6				

GET [Green Light] SET [Green Light] Preview SET EXIT

On the Configuration screen, editable parameters are shown in black while read-only parameters are greyed-out.

Meter Configuration

The meter type, model and size are important *reference* fields for the innov8-VN register. These parameters allow the remote verification of the register's configuration.

- Meter Type: SJ (single-jet), MJ (multi-jet), Disc (Displacement), Turb (turbine), Comp (Compound), Other
- Meter Model: Metron, Badger, Sensus, Neptune, Elster, Mueller, MasterMeter, Other
- Meter Size: 5/8", 5/8x3/4", 3/4", 1", 1.5", 2", 3", 4", 6", 8", 10", 12"
- Units: Gallons or Ft3

The index ratio is the factor which calibrates the innov8-VN to the meter. It is critical to have this factor configured correctly for the innov8-VN to track consumption accurately.

- Index Ratio: Set to match meter model/type/size. Contact Metron for more information
- Tx Scaling: Output units that will be transmitted



LCD Configuration

The LCD configuration is also critical for data accuracy. The incorrect First Digit Position or Decimal Position can cause scaling problems on data resulting in inaccurate billing reads. The innov8-VN register maintains a large reading index number internally and these parameters provide the “window” for display and transmission purposes.

- First Digit Position: 3, 4, 5, 6, 7
- Decimal Position: 0, 1, 2, 3

These parameters should match the defaults for units and meter size. Metron can provide reference sheets for different configurations (i.e. very high resolution) upon request.

Outputs

The innov8-VN can optionally have cabled outputs. One is a 3-wire AMR output and another is a switch closure output. Contact Metron for more information on outputs.

- 3-Wire AMR: Rollers (4, 5, 6, 7, 8)
 - Rollers equates to the number of register dials from left (most significant)
- Switch Closure: Pulse weight (0.01 to 1000)
 - Pulse weight will be limited based on units and LCD configuration

Data Functions

The innov8-VN register has four water consumption data functions: Leak detection, High Usage detection, Zero Usage detection and Backflow detection. Each of these functions can be active or de-active.

- Leak Detect (no configuration parameters)
 - A leak flag is set if consumption is seen in every 5-minute log interval throughout the day. The flag is reset if a period of zero-usage is detected.
- High Usage (Trip level and # of days)
 - A high usage function looks for a certain flowrate which occurs over a number of times per week. If the trip level is exceeded more than the set number of days, the high usage flag is set. If the condition is not seen the next week, the flag is reset.
- Zero Usage (# of days)
 - The zero usage function looks for no consumption for a set number of days. If no consumption is measured over the set number of days, the zero usage flag is set. If any consumption is measured, the flag is reset.
- Backflow (no configuration parameters)
 - The backflow function looks for any 5-minute log interval which has a negative value. If this condition exists, a flag is set. If the condition is removed for a period of 30 days, the flag is reset.



Communications

Communication parameters for the cellular modem are not typically exposed to customers. If any communication parameters need to be adjusted, Metron personnel will provide instructions to the user.

Diagnostics

There are multiple diagnostic fields shown on the configuration screen. These parameters will only be used by a customer during potential technical support calls.

- Date/Time: The unit's internal time
- HW Version: The unit's hardware version
- FW Version: The unit's firmware version
- Batt V: The unit's battery voltage
- # Retry: An unused field set aside for potential future use
- Code: Function code
- Timeout: Internal timeout variable
- Offset: Broadcast Offset
- Con Time: Last connection time
- IP Factors: These are internal timing parameters
- Avg Temp: Previous day's average temperature
- Min Temp: Previous day's minimum temperature
- Max Temp: Previous day's maximum temperature