Innov8-VNr Remote

Technical Reference

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

Innov8-VNr with integral antenna

Models

All innov8-VNr remotes are fully configurable and adaptable to many common water meter encoded registers. The only model variations are for hardware configuration:

- Innov8-VNr Remote with integral antenna
- Innov8-VNr Remote with external antenna – 4-ft, 6-ft or 12-ft lengths

Innov8VNr remotes for switch closure inputs are a unique model:

- Innov8-VNr Remote with Switch Closure Input

Installation

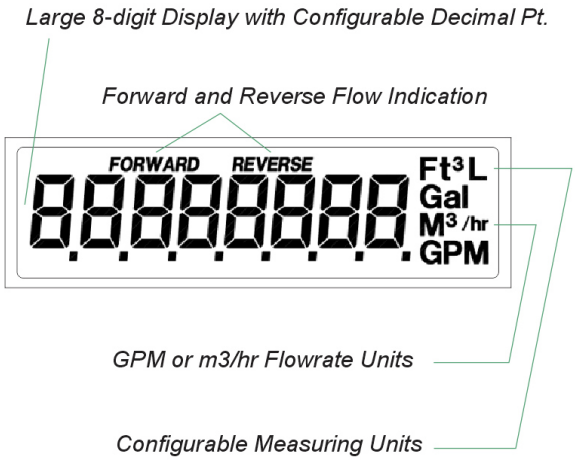
For installation, the innov8-VNr can be mounted in a variety of methods. The connection to the meter register will be via a 3-wire cable (waterproof connectors are available). The user will need to specify the type of water meter to ensure the proper hardware is included.

- Metron Spectrum and Enduro encoded registers
- Sensus™ ECR-type Registers
- Neptune™ ProRead, Auto and E-Coder registers
- Badger™ ADE Registers
- Mueller (Hersey) encoded registers
- Switch Closure (magmeters)

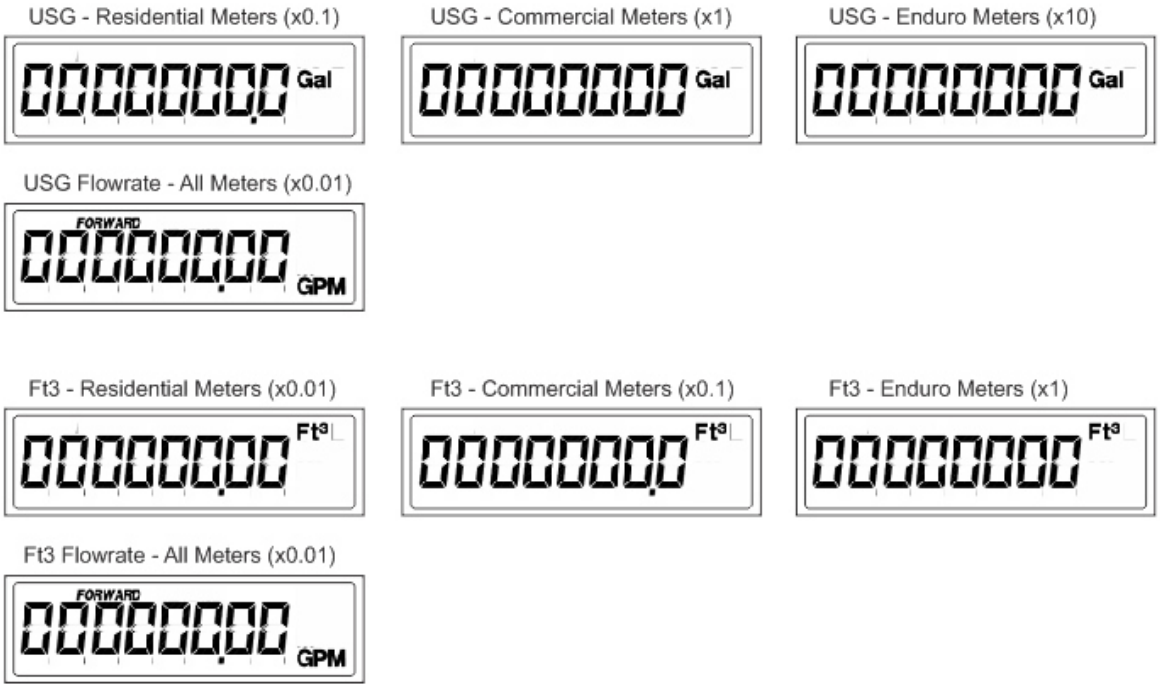
Contact Metron for attachments for other meters.

LCD Configuration

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



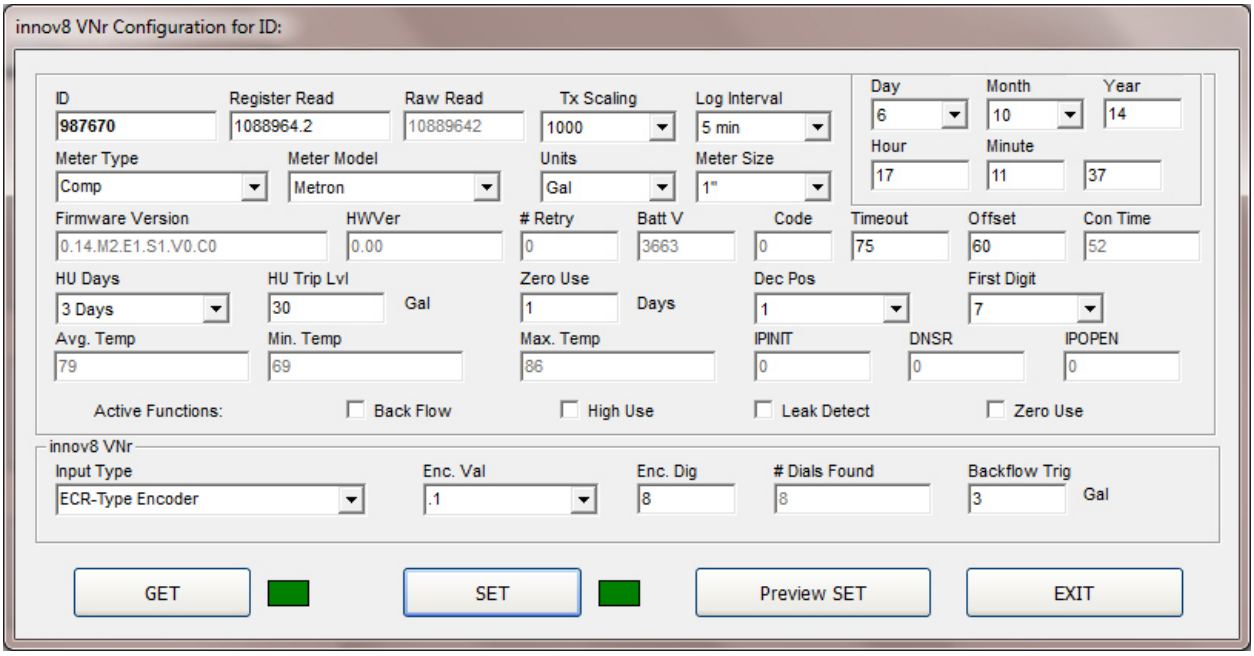
The following diagram shows the default display configuration for residential, commercial and industrial meters.



Configuration Parameters

Configuration of the innov8-VNr 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-VNr.

The configuration screen for the innov8-VNr remote will only show the applicable parameters for this remote:



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 remote. These parameters allow the remote verification of the remote'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 following parameters are used to ensure the query of the meter register is performed correctly and scaled correctly.

For encoded-type registers:

- Input Type: Designates the type of encoded register
- Encoder Value: Indicates the lowest digit of the register data
- Encoder Digits: Indicates the number of digits in the register data
- Tx Scaling: Output units that will be transmitted

For switch-closure -type registers:

- Input Type: Designates "switch" as the type of register
- Pulse Value: Indicates the value, or weight, of each switch closure

LCD Configuration

For the innov8-VNR, the LCD will match the data on the attached register (i.e. the encoder value). The First Digit Position is not used, but the Decimal Position is used to match the position shown on the attached register.

- Decimal Position: 0, 1, 2, 3

Data Functions

The innov8-VN remote 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. The Trip Level must be at least equal to or greater than the encoder value.
- 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 (Trigger)
  - The backflow function looks for any 5-minute log interval which has a negative value greater than the Trigger value. If this condition exists, a flag is set. If the condition is removed for a period of 30 days, the flag is reset. The Trigger value must be at least equal to or greater than the encoder value.

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