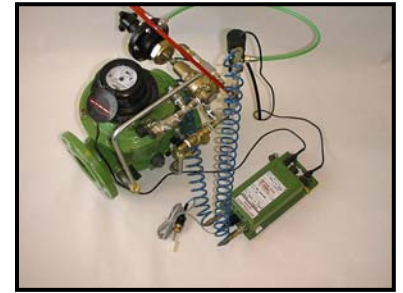# *Sentinel Plus* PRV Controller

## INTRODUCTION

*Sentinel PLUS is Radcom's more versatile electronic controller for Pressure Reducing Valves (PRV) with Flow, 2 input Pressure logging and integral Standard Telephone Line Telemetry options.*

*Sentinal PLUS can be setup to change the pressure from High to Low or visa versa, at separate pre-determined times for each day of the week. Alternatively this Time based control can be overriden using the Flow signal input. When water demand is higher than expected for the time of night, the pressure can be increased to supply additional water to fire hydrants etc.*

*Sentinel Plus is completely waterproof, submersible and battery powered and will require no maintenance for at least five years.*

## TYPICAL APPLICATIONS

### Time Based PRV Control
Sentinel PLUS is ideal for controlling a PRV to reduce pressure at night, thereby minimizing leakage and reducing the risk of pipe bursts during low usage periods. A Flow meter is not essential for this time based control technique.

### Flow Based PRV Control
Sentinel PLUS can be used with a Flow input which can be used separately, or to override the time based control when unexpected demands are detected by the Flow meter.

### Data Logging with Alarms and Telemetry
Sentinel PLUS can log both up stream and down stream pressures in addition to flow, (similar to 3 input MultiLog). Standard Telephone Line Telemetry can be used for alarms or to change the Solenoid state from the office.
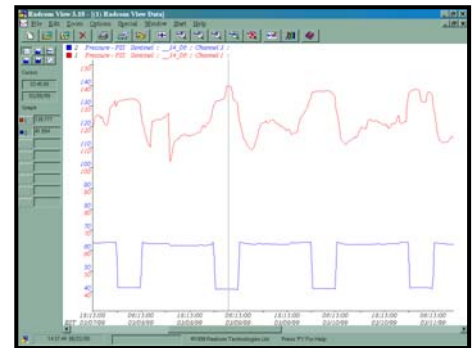
## ADVANCED DESIGN

Sentinel PLUS has one output channel for controlling a latching type pilot solenoid valve or electrical relay. It also has one digital Flow input and two analogue input integral pressure sensors.

The latching solenoid valve is normally connected to a hydraulic circuit, which in turn will control the main PRV valve, between two mechanically preset pressures. The High and Low pressure states can therefore be controlled by the Sentinel.

The Hydraulic circuit is designed to avoid the risk of the main PRV valve from closing completely, or permitting excessive pressure. Therefore the overall control system offers significantly improved intelligent "Fail safe" features than other PRV controllers on the market.

Sentinel Plus has the option for integral Standard Telephone Line Telemetry offering full monitoring and control parameter changes without leaving the office.

*Typical RadLog display showing up stream and down stream pressure data from a Time based PRV system.*

All of Radcom's Data Loggers and controllers are compatible with Radlog for Windows™, the industry-standard for data trending, reporting, analysis and archiving. Radlog software has links to GIS systems, if applicable, for simplified data access and a mapped representation of alarms.

# *Sentinel Plus PRV Controller* TECHNICAL SPECIFICATION

| | | |
|---|---|---|
| **Input/Outputs** | **Digital input** | 1x Uni or bi-directional pulse. |
| | | Up to 128 pulses per second. Count or Event Logging modes |
| | **Analogue inputs** | Internal Pressure Transducer<br>0-20 bar / 0-200 metres head / 0-300 psig, accuracy 0.25% |
| | | External Pressure Transducer (volt) or Transmitter (mA)<br>0-20 bar / 0-200 metres head / 0-300 psig, accuracy 0.1% |
| | | 4-20mA from isolated sensor, or 0-1v, 1-5v, or 0-100mVolt. |
| | **Solenoid Output** | 1x Latching Solenoid output , Solenoid 12 volt rated |
| | | 3 wire output: Common plus one to latch solenoid, other to release |
| | | Up to 20 solenoid firings per day, then automatically applies error default, to minimize the risk of flattening the battery unnecessarily |
| **Logging Features** | **Memory** | Primary recording 48,720 readings. (Cyclic or Block)<br>(memory expandable to 245,280 readings on request) |
| | | Secondary recording 6,144 readings. |
| | **Frequency** | 1 – 59 seconds, 1 – 59 minutes, 1 – 24 hours<br>settings independent for primary and secondary channel. |
| | **Alarms** | 16 Alarms per logger. Each with 16 character comment field.<br>Can auto dial up to 16 telephone numbers, 1 per alarm |
| | **Logger ID** | Up to 8 alphanumeric characters – can be programmed with GIS number. Also readable factory set serial number in firmware. |
| | **Site ID** | Up to 127 alphanumeric characters. |
| | **Clock** | On board 24 hour real time clock with date facility. |
| **Controlling Features** | **Summer/Winter** | Clock is programmable for seasonal time changes (if applicable) |
| | **Time Based Control** | Up to 32 On or Off times programmable for the following groups:-<br>7 individual days per week, Week Days, Weekend, Every Day. |
| | **Flow Based Control** | Flow based control , or Flow override option |
| | **Fail Safe** | Default Fail Safe can be configured to "Set" or "Release" the latching solenoid upon error (e.g. faulty sensor / No flow) |
| **Communications** | **Serial** | RS232 by MIL connector for connection to a PDA, laptop/ PC or GSM telemetry unit. Programmable up to 19,200 Baud. |
| | **Internal modem** | 2,400 Baud Standard Telephone Line internal modem (Optional) |
| | **GSM (option)** | 9,600 Baud 2-way GSM Cellular modem. (Optional RadNet) |
| **Physical** | **Dimensions** | 195H x120W x70D mm (7.7"H x4.7"W x2.8"D) +ext solenoid driver box)<br>250H x175W x90D mm (9.9"H x6.9"W x3.6"D) Sentinel PLUS GSM |
| | **Construction** | Die-cast aluminum enclosure, powder coat spray painted |
| | **Weight** | 1.6 Kg (3.5 lb) |
| | **Operating temp** | -20 to +70°C (-5 to +160°F) |
| | **Ingress protection** | IP68 submersible |
| | **Power** | Lithium-ion cell operational for 5 years under normal operating conditions. Warranted for continuous operation of up to five years. Data recoverable at factory with Low battery condition |

*Due to our policy of continuous product development Radcom reserves the right to change specifications without notice.*

| R | D | C | 7 | 2 | | | L | / | i/p 1 | i/p 2 | i/p 3 | / | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

1= Portable
2= PSTN modem
6= GSM modem

1= 1 input
2= 2 inputs
3= 3 inputs

1= digital pulse input
2= 0-1 volt input
3= external pressure
5= 4-20mA
6= internal pressure
7= status

Blank = no GSM
RCI = GSM, call during time window
RCIP = pager wakeup, call any time