

# SiteVu

## CO/CEV/RT/CPE

### Remote Monitoring System



# ***About Noran Tel***

- Located in Regina Canada
- Established in 1985
- Leading supplier of fuse panels/Mini-BFD's, CO Remote Powering Monitoring Systems
- Solutions grew out of customer needs for better ways to manage and deploy DC power
- Pioneered fuse panels with polarity insensitive circuitry and auto voltage recognition
- Acquired by Westell in January 2007

# *SiteVu Remote Monitoring System*

- Provides Qwest a very powerful solution to remotely monitor CO's, CEV's, RT's and CPE
  - Environmental Disposition:
    - Air Flow, humidity, door alarms, temperature, smoke alarms, etc.
  - Equipment Status Disposition:
    - Power Plant's voltage, current, battery temperature, fuel level, generator status, etc.
- Integrates into legacy monitoring systems

# *SiteVu Remote Operations*

- **SiteVu** will monitor the battery discharge performance to predict long-term reliability of the battery string and store all test results (available April 08)
- **SiteVu** will allow you to start/stop your diesel engines remotely – No need to send personal
- **SiteVu** will provide IP access to legacy equipment that has RS232 interfaces

# SiteVu Features

- Detailed information can be viewed remotely
- Built-in Terminal Server functionality (RS232)
- Compatible with Industry Standard Network Element Managers (SNMP)
  - Remotely upgradeable
- Front access design
- Temperature Hardened Design for Outdoor Cabinets, RT, and CEV's
- NEBS certification scheduled Q1 of 08

# SiteVu Benefits

- Cost effective upgrade of existing power plants to be remotely monitored and controlled
- Cut costs by reducing personal to run monthly plant tests such as cycling diesels and checking fuel levels
- Document quality of the discharge rate of battery during power outages which will aid in preventing network outages

# SiteVu Remote Monitoring System

## Inputs

- W 8 **Analog Inputs** (isolated with 0-125mV, 0-5V, 0-60V ranges)
- W 4 Virtual Analog Inputs
- W 32 **Digital Inputs** (isolated with two reference points)
- W 4 Virtual Digital Inputs

## Output

- W 2 **Digital Outputs** (Standard 1 amp Form C Relays)

## Communication

- W Communication done via **Ethernet** (10 BaseT)
- W **SNMP Trap Reporting** (2 destination addresses)
- W TABS/TABSoIP protocol

# SiteVu Remote Monitoring System

## Ports

- W 4 **Pass-Through Ports** (access to multiple serial ports)
- W Front Access Connections
- W E/W **pluggable spring-clamp terminal block**
- W **Mountings**
- W **Universal Brackets** with either 19", 23" rack mount or wall mount
- W When mounted in a rack the unit can be flush mounted or have either a 3 ½" or 5 ½" offset
- W When mounted to the wall the brackets provide a pivot of 45° from wall to permit easier access

# SiteVu Remote Monitoring System

## ▮ Access

### W TFTP Functionality

- ❑ Upload and download remote unit configuration
- ❑ Download Security and Event Logs
- ❑ Remote firmware upgradeable

### W Adjustable isolated auxiliary power supply

- ❑ 7.5VDC to 24VDC @ 15W

# SiteVu Remote Monitoring System

## Power

- W Requires a voltage between +/-20 VDC to +/-60 VDC referenced to GND. The connection is internally fused with an auto-re-settable 1 Amp fuse.
- W Typical SiteVu remote Consumption = 1.5 W
- W Max SiteVu remote Consumption = 3.0 W
- W Auxiliary Power Supply Consumption
- W Varies depending on equipment attached to auxiliary power supply

## Auxiliary Power Supply

### Fully isolated adjustable power supply

### Supplies 7.5VDC to 24VDC @ 15 W



# SiteVu Remote Monitoring System

## ■ Communication

### W 10BaseT Ethernet interface

- ❑ Uses SNMP v1 for trap communication and SNMP manager polling
- ❑ Uses TCP/IP for TABS server polling communication
- ❑ Supports ICMP message Echo Reply and Receive

### W External RS-232 ports

- ❑ Can be configured for use with serial TABS server polling
- ❑ Fully configurable standard baud rates from 1200 to 57600
- ❑ Fully configurable frame options with data bits, stop bits, and parity settings

# SiteVu Remote Monitoring System

## ■ Firmware Features

- W Remote Firmware Upgradeable*
- W Up to 5 users-definable security users & 50 user-definable IP addresses for the access control list*
- W Fully configurable via Telnet and/or Local Service Port*
- W SNMP alarm reporting via TABS over IP or using a Pass-Through port*
- W Exporting event log files using TFTP*
- W Saving and uploading configuration files via TFTP*

# Summary

- **SiteVu** Remote Monitoring System allows Qwest the capabilities required to monitor CO's, CEV's, RT's and CPE
- **SiteVu** will allow you to start/stop your diesel engines remotely – No need to send personal
- **SiteVu** will provide IP access to legacy equipment that has RS232 interfaces
- Complete visibility to remote site environmental and equipment status
- Cost effective upgrade of existing power plants to be remotely monitored and controlled
- Cut cost by reducing personal to run monthly plant test such as cycling diesel and checking fuel levels
- Compatible with Industry Standard Network Element Managers (SNMP)

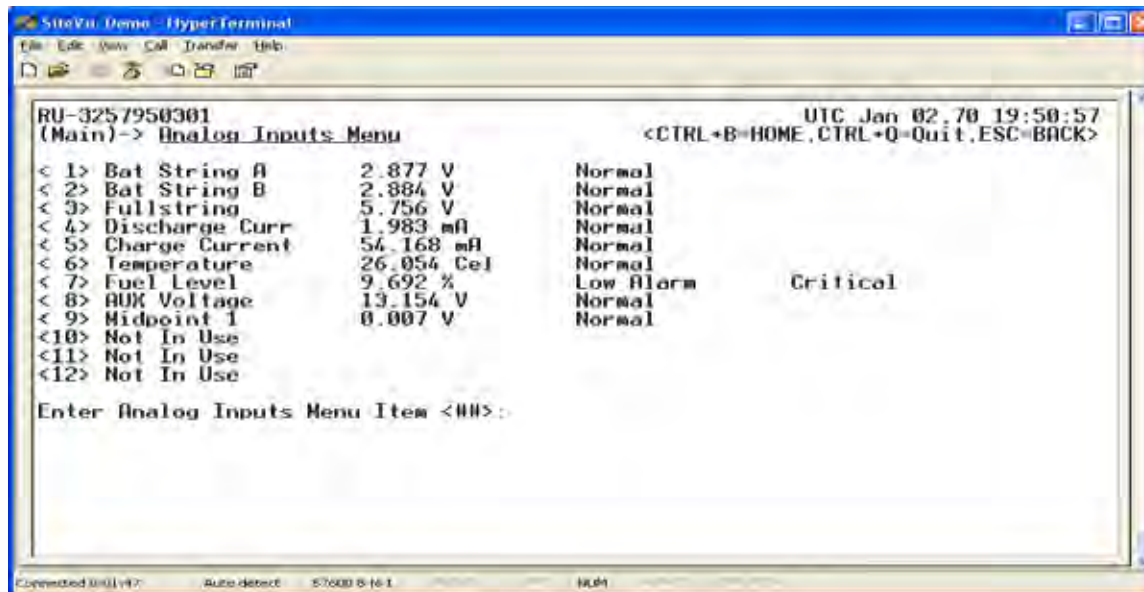
# SiteVu

## Operations Overview

# SiteVu Remote Monitoring System

## Analog Inputs

- ▀ The unit accepts up to 8 direct inputs for analog readings
- ▀ 4 virtual alarm configurations where the user has access to the values of the existing inputs that they can manipulate to create 4 additional alarm conditions.
- ▀ The SiteVu has the same functionality as a standard high resolution [Multimeter](#).



```
SiteVu Demo - HyperTerminal
File Edit View Call Transfer Help
[Icons]
RU-3257950301                               UTC Jan 02, 20 19:50:57
(Main)-> Analog Inputs Menu                  <CTRL+B=HOME, CTRL+Q=Quit, ESC=BACK>

< 1> Bat String A           2.877 V           Normal
< 2> Bat String B           2.884 V           Normal
< 3> Fullstring              5.756 V           Normal
< 4> Discharge Curr         1.983 mA          Normal
< 5> Charge Current         54.168 mA         Normal
< 6> Temperature            26.054 Cel        Normal
< 7> Fuel Level              9.692 %           Low Alarm         Critical
< 8> AUX Voltage            13.154 V          Normal
< 9> Midpoint 1             0.007 V           Normal
<10> Not In Use
<11> Not In Use
<12> Not In Use

Enter Analog Inputs Menu Item <##>:

```

[Menu](#)

[Sensor examples](#)



# SiteVu Remote Monitoring System

## Digital Input

- The unit has 32 inputs that the user can connect to industry standard contact sensors,
- 4 virtual alarm configurations where the user can create a custom (virtual) alarm by using algebraic or logic formulas

```
SiteVu Demo - HyperTerminal
File Edit View Call Transfer Help
[Icons]
(Main)-> Digital Inputs Menu <CTRL-B=HOME,CTRL-Q=Quit,ESC=BACK>
< 1> Rectifier 1 NORMAL <17> Input 17 OFF
< 2> Recl 2 NORMAL <18> Input 18 OFF
< 3> Recl 3 NORMAL <19> Input 19 OFF
< 4> Door Alarm open door <20> Input 20 OFF
< 5> Major Alarm NORMAL <21> Input 21 OFF
< 6> Critical Alarm NORMAL <22> Input 22 OFF
< 7> Input 7 OFF <23> Input 23 OFF
< 8> Input 8 OFF <24> Input 24 OFF
< 9> Input 9 OFF <25> Input 25 OFF
<10> Input 10 OFF <26> Input 26 OFF
<11> Input 11 OFF <27> Input 27 OFF
<12> Input 12 OFF <28> Input 28 OFF
<13> Input 13 OFF <29> Input 29 OFF
<14> Input 14 OFF <30> Input 30 OFF
<15> Input 15 OFF <31> Input 31 OFF
<16> Input 16 OFF <32> Input 32 OFF

<33> Rect Critical NORMAL <35> Virtual 3 OFF
<34> Rect Major NORMAL <36> Virtual 4 OFF
<37> View DI condition names

Enter Digital Inputs Menu Item <##>: _
Connected 01:07:22 Auto detect 57600 8-N-1 N/A
```

[Menu](#)

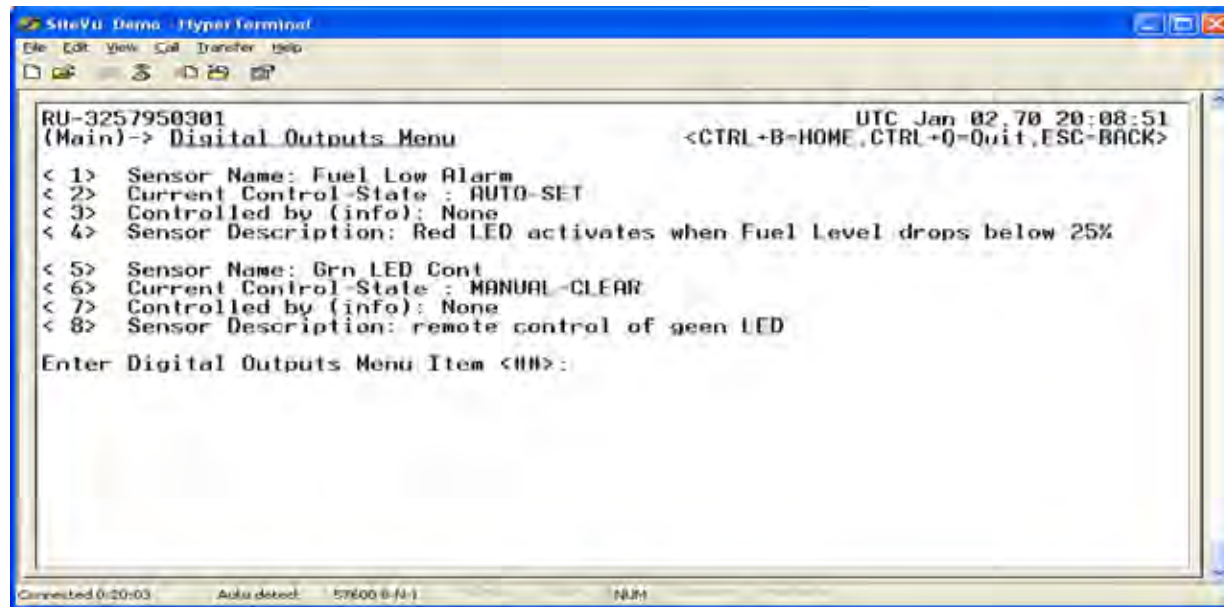
[Sample Sensors](#)



# SiteVu Remote Monitoring System

## Digital Output

- The outputs can be assigned to any sensor connected to SiteVu and have it activate automatically on an event occurrence
- The unit has 2 output relays that the user can control remotely

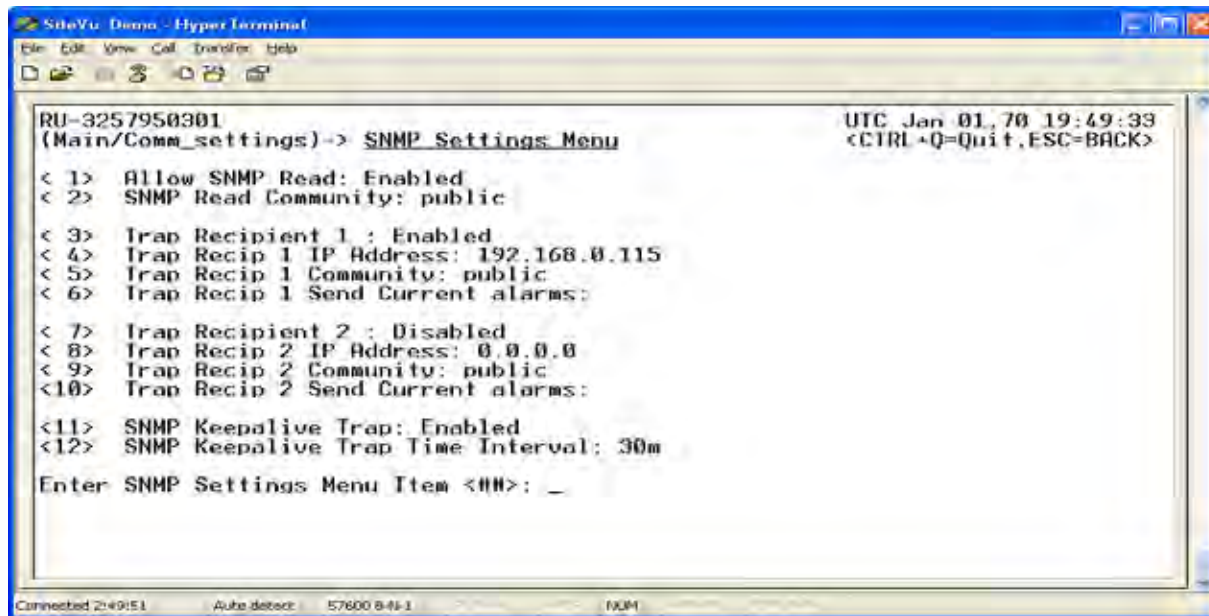


```
SiteVu Demo - HyperTerminal
File Edit View Call Transfer Help
[Icons]
RU-3257950301
(Main)-> Digital Outputs Menu
UTC Jan 02 70 20:08:51
<CTRL-B-HOME, CTRL-Q-Quit, ESC-BACK>
< 1> Sensor Name: Fuel Low Alarm
< 2> Current Control State : AUTO-SET
< 3> Controlled by (info): None
< 4> Sensor Description: Red LED activates when Fuel Level drops below 25%
< 5> Sensor Name: Grn LED Cont
< 6> Current Control State : MANUAL-CLEAR
< 7> Controlled by (info): None
< 8> Sensor Description: remote control of green LED
Enter Digital Outputs Menu Item <##>:
Connected 0:20:03 Auto detect: 57600 8-N-1 N/A
```

# SiteVu Remote Monitoring System

## SNMP Settings

- SiteVu has the capability to send the SNMP trap to 2 destinations
- One will always go to the NOC
- The second one could go to the Areas Network Manager.
- SiteVu currently utilizes SNMP Version 1.



```
SiteVu Demo - Hyper Terminal
File Edit View Call Transfer Help
RU-3257950301
(Main/Comm_settings)-> SNMP Settings Menu
UTC Jan 01, 70 19:49:33
<CTRL+Q=Quit,ESC=BACK>

< 1> Allow SNMP Read: Enabled
< 2> SNMP Read Community: public

< 3> Trap Recipient 1 : Enabled
< 4> Trap Recip 1 IP Address: 192.168.0.115
< 5> Trap Recip 1 Community: public
< 6> Trap Recip 1 Send Current alarms:

< 7> Trap Recipient 2 : Disabled
< 8> Trap Recip 2 IP Address: 0.0.0.0
< 9> Trap Recip 2 Community: public
<10> Trap Recip 2 Send Current alarms:

<11> SNMP Keepalive Trap: Enabled
<12> SNMP Keepalive Trap Time Interval: 30m

Enter SNMP Settings Menu Item <###>: _

Connected 2:49:51 Auto detect: 57600 8-4-1 NCM
```

# SiteVu Remote Monitoring System SNMP Manager GUI Example

[Menu](#)

The screenshot displays the SiteVu Remote Monitoring System GUI for a 'Burn in Chamber'. The interface is divided into several panels:

- TempFicor:** A line graph showing temperature over time, with a red horizontal line at approximately 185.5.
- Voltage:** A line graph showing voltage over time, with a red horizontal line at approximately 12.5.
- Shooter:** A table listing various sensors and their status.
 

dcIndexEntryId	dcSensorName	dcAlarmType	dcCondition	dcSensorDesc
1	DC Power Cont.	0 (Warn)	Null	Null
2	Heat LDC	0 (Warn)	Null	Null
3	Input 1	0 (Disabled)	OFF	Null
4	Input 2	0 (Disabled)	OFF	Null
5	Input 3	0 (Disabled)	OFF	Null
6	Input 4	0 (Disabled)	OFF	Null
7	Input 5	0 (Disabled)	OFF	Null
8	Input 6	0 (Disabled)	OFF	Null
9	Input 7	0 (Disabled)	OFF	Null
10	Input 8	0 (Disabled)	OFF	Null
11	Input 9	0 (Disabled)	OFF	Null
12	Input 10	0 (Disabled)	OFF	Null
13	Input 11	0 (Disabled)	OFF	Null
14	Input 12	0 (Disabled)	OFF	Null
15	Input 13	0 (Disabled)	OFF	Null
16	Input 14	0 (Disabled)	OFF	Null
17	Input 15	0 (Disabled)	OFF	Null
18	Input 16	2 (Alarm)	ALARM	Null
19	Input 17	1 (Normal)	NORMAL	Null
20	Input 18	2 (Alarm)	ALARM	Null
21	Input 19	0 (Disabled)	OFF	Null
22	Input 20	0 (Disabled)	OFF	Null
23	Input 21	0 (Disabled)	OFF	Null
24	Input 22	0 (Disabled)	OFF	Null
- Log Entries:** A table listing log entries with columns for logIndexEntryId, logSensorName, logAlarmType, logAlarmNumber, logSeverity, logEventDT, logAlarmSeverity, and logAlarmValue.
 

logIndexEntryId	logSensorName	logAlarmType	logAlarmNumber	logSeverity	logEventDT	logAlarmSeverity	logAlarmValue
2	Input 16	1 (Digital)	18	Null	No line recorded	1 (Alarm)	4 (Critical)
3	Input 16	1 (Digital)	16	Null	No line recorded	1 (Alarm)	2 (Major)
4	DC Power	1 (Digital)	1	Null	No line recorded	1 (Alarm)	0 (Info)
- Event Log:** A table listing event messages with columns for IP address, DeviceName, EventType, EventMessage, and OccurTime.
 

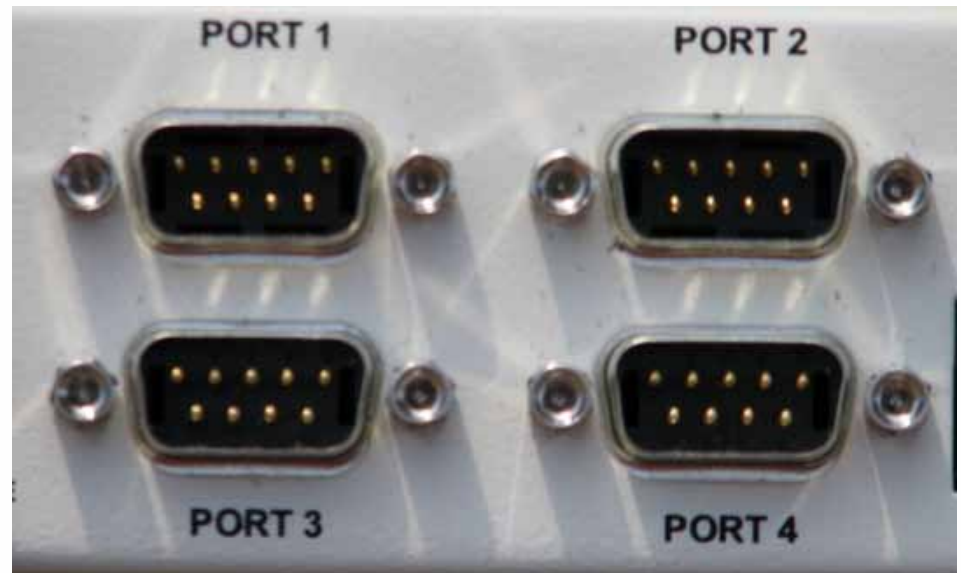
IP address	DeviceName	EventType	EventMessage	OccurTime
192.168.0.19	Burn in Chamber	Trap	Trap received from enterprise-portal	Fri Nov 30 2007 12:37
192.168.0.19	Burn in Chamber	Trap	Trap received from enterprise-portal	Fri Nov 30 2007 12:32
192.168.0.19	Burn in Chamber	Trap	Trap received from enterprise-portal	Fri Nov 30 2007 12:29
192.168.0.19	Burn in Chamber	Trap	Trap received from enterprise-portal	Fri Nov 30 2007 12:22
192.168.0.19	Burn in Chamber	Trap	Trap received from enterprise-portal	Fri Nov 30 2007 12:17
192.168.0.19	Burn in Chamber	Trap	Trap received from enterprise-portal	Fri Nov 30 2007 12:12
192.168.0.19	Burn in Chamber	Trap	Trap received from enterprise-portal	Fri Nov 30 2007 12:07
192.168.0.19	Burn in Chamber	Trap	Trap received from enterprise-portal	Fri Nov 30 2007 12:03
192.168.0.19	Burn in Chamber	Trap	Trap received from enterprise-portal	Fri Nov 30 2007 11:57
192.168.0.19	Burn in Chamber	Trap	Trap received from enterprise-portal	Fri Nov 30 2007 11:52
192.168.0.19	Burn in Chamber	Trap	Trap received from enterprise-portal	Fri Nov 30 2007 11:47
192.168.0.19	Burn in Chamber	Status	Device resumed responding	Fri Nov 30 2007 11:42
192.168.0.19	Burn in Chamber	Trap	Trap received from enterprise-portal	Fri Nov 30 2007 11:42
- Gauge:** A circular gauge showing a value of 19, with a scale from 0 to 100.
- Shooter Table:** A table listing various sensors and their status.
 

dcIndexEntryId	dcSensorName	dcAlarmType	dcReadingUnit	dcReadingMin	dcReadingMax
1	DC Voltage	1 (Normal)	52.104 V	52.04	1000
2	Current	0 (Disabled)	0.946 A	946	1000
3	Temperature	1 (Normal)	16.525 Cel	16525	1000
4	Celling temp	0 (Disabled)	19.960 Cel	19960	1000
5	Floor Temp	0 (Disabled)	13.857 Cel	13857	1000
6	Panel Temp	0 (Disabled)	12.521 Cel	12521	1000
7	Analog 7	0 (Disabled)	0.000 V	0	1000
8	Analog 8	0 (Disabled)	0.000 V	0	1000
9	Midpoint 1	0 (Disabled)	0.000 V	0	1000
10	Midpoint 2	0 (Disabled)	-27.000 Cel	-27000	1000
11	Midpoint 3	0 (Disabled)	-27.000 Cel	-27000	1000
12	Midpoint 4	0 (Disabled)	0.000 V	0	1000

# SiteVu Remote Monitoring System

## Pass Through Ports

- SiteVu has the capability to provide the customer access to legacy equipment on the site (maximum 4).
- The user would log into the SiteVu, as normal, but chose the pass through feature and pick the port that is connected to the equipment at the site via a RS232 cable.
- It supports simple ASCII commands only. Existing customers use it to connect to service port cards, MUX E/W a VT100 terminal.



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# SiteVu Remote Monitoring System

## Pluggable Terminal Blocks

- The Terminal block is equipped with spring loaded connections that will accept up to 16 gauge wire
- No need for connectorized cables
- This type of block allows easy installation of sensors without the need for cross-connect blocks.
- This permits the unit to be installed into a smaller footprint.



# SiteVu Remote Monitoring System

## Pluggable Terminal Blocks

- The pluggable terminal blocks provides a quick swap-out feature.
- This will allow you to replace SiteVu Remote Monitoring unit there will be no need to re-wire the system



Terminal block shown with wired portion unplugged

# SiteVu Remote Monitoring System

## Universal Rack Mounting Brackets

- Universal brackets can be used with 19" or 23" equipment racks
- Brackets can be mounted flush to the rack or installed with either a 3½" or 5½" offset from face of equipment rack



# SiteVu Remote Monitoring System

## Universal Mounting Brackets

- | Unique wall mount brackets permit the SiteVu unit to be installed tight to the wall and when the installer needs access they can loosen 2 wing nuts and pull the unit to a 45 ° angle for easier access.
- | Once the installer is finished with their work they can return the unit back to its flush position.



# SiteVu Remote Monitoring System Multi-Meter

- Anything you can read with a multi-meter can be done remotely using the SiteVu



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# SiteVu Remote Monitoring System

## Analog Sensor Examples

- | SiteVu can become the smart supervisory panel for legacy power plants.
- | Eliminating the need to upgrade a power plant to provide remote visibility .



# SiteVu Remote Monitoring System

## Analog Sensor Examples

- | SiteVu can monitor the temperature of the site as well as the temperature of the DC batteries located in the site.
- | Users can decide what they consider an allowable difference and only alarm on readings that exceed it.
  
- | Using the virtual alarms you can perform a “midpoint voltage test” where you compare the voltage of half the string to the other half.
- | If everything is fine then the two readings will be almost identical, however if you have a problem in the string the readings will be different.



# SiteVu Remote Monitoring System

## Auxiliary Power Supply

- | SiteVu is equipped with an auxiliary power supply that can be adjusted to provide a dc voltage that ranges from 7.5 to 24 volts.
- | It was originally designed to convert the DC plant voltage located in the site, typically 24 or 48 Vdc, to a voltage needed to power the ADSL modem.
- | The customer was using the modem as the communication port to extend the Ethernet to the site.
- | Although originally design for that application it can be used to power any DC equipment that utilizes the supplied voltages. The supply is limited to 15 Watts.



A close-up of the 'Auxiliary Output (VDC)' display on the power supply. It shows a grid of 12 output voltage values arranged in four columns and three rows.

Auxiliary Output (VDC)			
0: 7.5	4: 12	8: 16.4	C: 20.9
1: 8.6	5: 13.1	9: 17.5	D: 22
2: 9.7	6: 14.1	A: 18.6	E: 23
3: 10.8	7: 15.2	B: 19.7	F: 24.1

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# SiteVu Remote Monitoring System

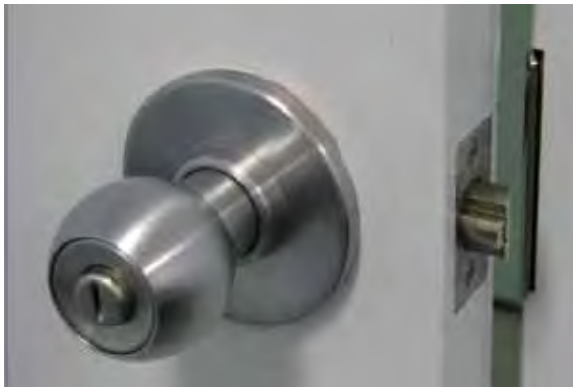
## TFTP (Trivial File Transfer Protocol)

- Trivial File Transfer Protocol (TFTP) is a very simple file transfer protocol, with the functionality of a very basic form of FTP; it was first defined in 1980.
- Since it is so simple, it is easy to implement in a very small amount of memory — an important consideration at that time. TFTP was therefore useful for booting computers such as routers which did not have any data storage devices. It is still used to transfer small files between hosts on a network, such as when a remote X Window System terminal or any other thin client boots from a network host or server.
- TFTP is based in part on the earlier protocol EFTP, which was part of the PUP protocol suite. In the early days of work on the TCP/IP protocol suite, TFTP was often the first protocol implemented on a new host type, because it was so simple

# SiteVu Remote Monitoring System

## Digital Sensor examples

- SiteVu's 32 inputs can be connected to any contact closure activated by any number of sensors readily available in the market place.
- You have the option of activating on a ground extension (typically used) however if the customer wants to extend DC voltage it is an option as well.



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