



VS.Net SCADA

The Adaptable & User Friendly SCADA System with Customized Solutions

VALQUEST SYSTEMS INC.

System Overview & Single Line Diagram Screens

The VS.Net SCADA System is specifically designed for use by Medium Electric Utilities, 100K meters or customers. It incorporates many special features to make the system easy to use and maintain.

VS.Net Features

Master Station

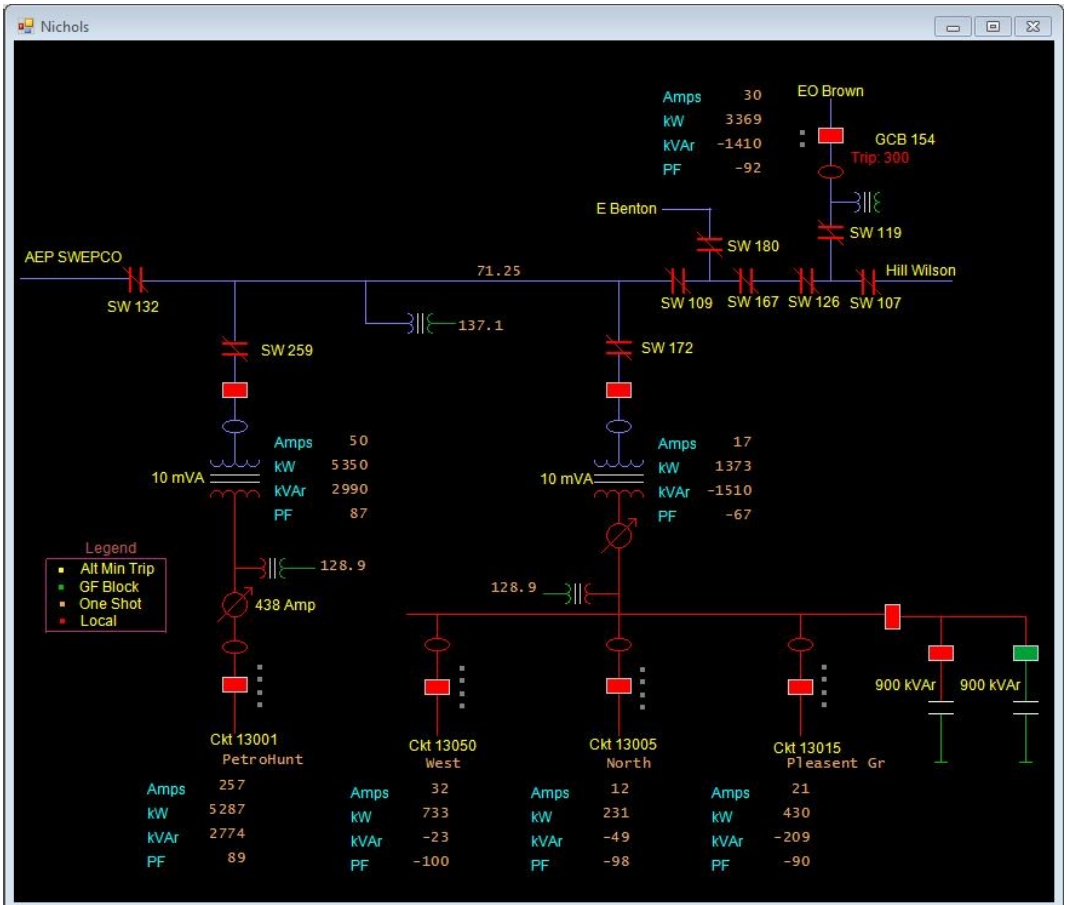
- PC Based
- Cad & Database Tools
- Multiple Communication Paths
- Personalized Design By Operators
- Stand-alone or Redundant Fail-over
- Remote Workstations
- Unattended Operation Using Pagers, Email & Remote PC's

Substation RTU's

- Equipment Control
- Status Monitoring
- Detailed Transducerless Metering
- IED Communications
- Modular Design
- Programming & Checkout Tools For Laptops
- Security Monitoring

Historical Reporting

- Report Design by Operators
- Sortable Event Log
- Tabular & Graphical Meter Data
- Exportable Spreadsheets
- Trend Reports
- Load Factor Studies



With the ever increasing focus on distribution efficiency and power quality, VS.Net provides a cost effective solution for system analysis, timely response, equipment control and trend recording.

New Alarms						
Bit	Priority	Date	Time	RTU	Device	Condition
41	2	4/22/2013	2:27:15 PM	Williamson-Zie	Golden Recloser	Supervisory is on local
65	2	4/22/2013	4:08:52 AM	Crow Tap	Ckt Sw	Supervisory is on remote
65	2	4/22/2013	4:08:30 AM	Crow Tap	Ckt Sw	Supervisory is on local

Acknowledged Alarms						
Bit	Priority	Date	Time	RTU	Device	Condition
65	2	4/21/2013	10:25:13 AM	Crow Tap	Ckt Sw	Supervisory is on remote
65	2	4/21/2013	10:24:55 AM	Crow Tap	Ckt Sw	Supervisory is on local
64	4	4/19/2013	11:49:48 PM	Hill-Wilson	Voltage Reg	Regulator Differential is OK
64	4	4/19/2013	11:49:04 AM	Hill-Wilson	Voltage Reg	Regulator Differential Alarm
20	2	4/19/2013	9:43:54 AM	Scroggins Tap	Bkr #151 to Jar-Will	Supervisory is on remote
1	10	4/19/2013	9:43:48 AM	Scroggins Tap	Bkr #151 to Jar-Will	is OPEN
30	2	4/19/2013	9:37:04 AM	Scroggins Tap	Bkr #151 to Jar-Will	Local Sw. Reclosing is normal
1	9	4/19/2013	9:36:47 AM	Scroggins Tap	Bkr #151 to Jar-Will	is closed
30	2	4/19/2013	9:36:47 AM	Scroggins Tap	Bkr #151 to Jar-Will	Local Sw. Reclosing is blocked

Typical Master Station Screen

Overview

	kW	kVAr	Tag	Status
Hill Wilson	864	28	0	North Recloser Evt
D O Aldridge	949	180	0	OK
Scroggins Tap North (Bkr 114)	150	-157	0	Bkr #114 to Aldridge Sts
Morris Chapel	1292	-575	0	OK
Jarred Williamson	1253	-214	0	69 kV Breaker NRc
Scroggins Tap South (Bkr 151)	150	-162	0	OK
Yantis	2616	-747	0	OK
E O Brown	0	0	0	Off Line
Sandfield Tap	3216	-1453	0	OK
Nichols-Petro Hunt	6737	1579	0	Pleasant Gr Evt
E Benton	2054	-123	0	OK
Quitman	5214	-652	0	OK
V B Shaw	2233	-78	0	OK
Quitman Tap	24399	-2888	0	OK
Cathay	1344	-584	0	OK
Williamson-Ziegler	1586	-255	0	Golden Recloser L/R
Pilgrim's Rest Tap	2930	-838	0	OK
Mt. Vernon	1748	537	0	OK
Merrill-Carby	891	-142	0	OK
Winnboro M.P.	421	143	0	OK
JW Weems	2110	-148	0	OK
Tunnell-Carpenter	2347	-1108	0	OK
Puckett-Ray	2274	153	1	OK
Faulk-Dobbs	1278	-1096	1	OK
69kV System Total	35737	-4869		
Clyde Brady	2142	-589	0	OK
Pecan Hills	590	253	0	OK
Garden Valley	3984	-1213	0	OK
Kennedy-Sullivan	1149	-118	0	OK
Crow Tap & Distribution	9990	-5556	0	OK
Burgess	1518	218	0	OK
Henry Edgar	852	-292	0	OK
Ben Wheeler	1314	-442	0	OK
Burgess Tap	3831	-3891	0	OK
138kV System Total	13821	-9457		
Grand Total (exclusive of NET)	50464	-14320	2	
Quitman Microwave				OK
Coke Microwave				OK
Shaw Tap				OK
North Emory Tap	364	-397	0	OK
Lake Fork	0	0	0	OK
Sand Springs	878	115	0	OK

Nichols

Petro Hunt Detail

	3 Ph	A	B	C
Voltage	128.3	129.2	128.5	129.2
Current	251	234	258	260
kW	5133	1600	1764	1789
kVAr	2737	954	919	965
kVA	5817	1814	1989	2015
PF	88	88	89	88
Angle	28	28	28	29

Tags

Control Name	Point	Tag	Message	Date	Time
PetroHunt	0			10/08/12	08:08:39
Vient	1			08/27/12	04:41:24
North	2			07/03/12	07:40:50
Pleasant Gr	3			01/01/06	03:00:40
69 kV OCB	4			07/16/12	08:56:58
Petro Hunt CS	5			06/21/12	07:37:29
Nichols CS	6			08/10/11	11:04:41
Downline 1	7		change out d.e. pole	04/16/13	08:36:05
Downline 2	8			09/26/12	04:40:46
Cap Bank 1	9			09/26/12	04:40:48
Cap Bank 2	10			08/06/12	08:13:37

Control Panel

Nichols - PetroHunt

Close Open OK

Rcl Enab 1 Shot * Cancel

AMT Off AMT On

G/T Enab G/T Bk. Exit

Message

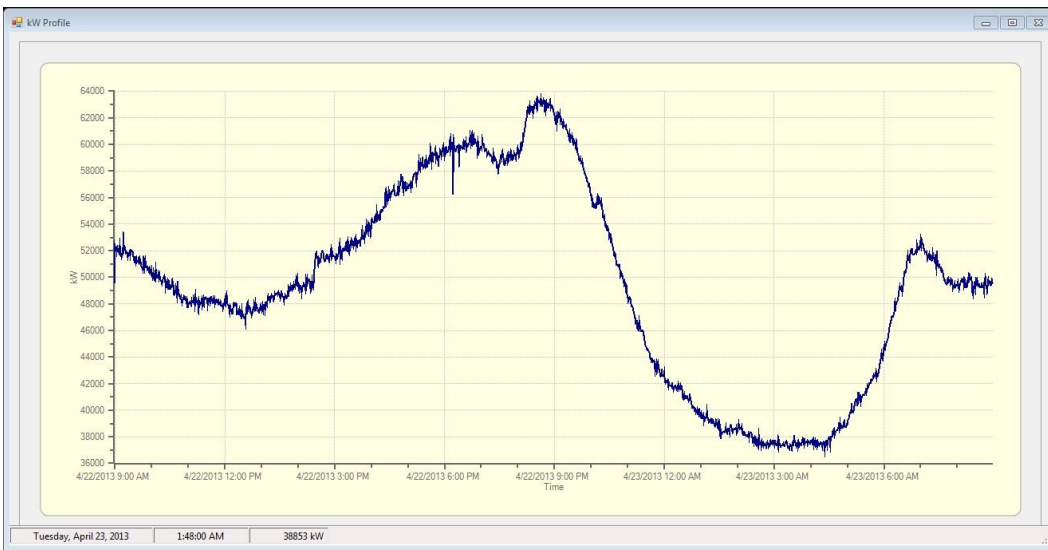
OK 159 | John Hamrick Logged On : At 192.168.1.32 | 9:10 AM

The VS.Net Master Station runs on standard PC compatible computers with Microsoft Windows Operating System. It has all the features necessary for monitoring and control of the distribution and/or transmission system.

Because most personnel are already familiar with the Windows environment, they inherently have a head start in learning to operate the SCADA System.

Tabular displays and single line diagrams are constructed by utility personnel using CAD and database tools designed by Valquest Systems, Inc. These tools are included as part of the SCADA System software.

Security ID's and passwords ensure that only authorized persons are able to operate equipment or modify system parameters.



Valquest provides consulting, training and on-site technical services such as wiring and checkout to assist the client with planning and installation of the Master Station and RTUs.

With the ever increasing focus on distribution efficiency and power quality, VS.Net provides a cost effective solution for system analysis, timely response, equipment control and trend recording.

RTU

The VQ-9 Remote Terminal Unit (RTU) connects to substation equipment in a unique way that makes it easy to install. Measurement of electrical quantities is done through connection to existing PT's and CT's.

No transducers are used.

Modular three phase CT and PT circuit boards monitor the secondary's of substation voltage and current transformers. These boards transfer the waveforms to the RTU for digital signal analysis.

This is called Transducerless Technology. Valquest's chief engineer pioneered this technology in 1983.

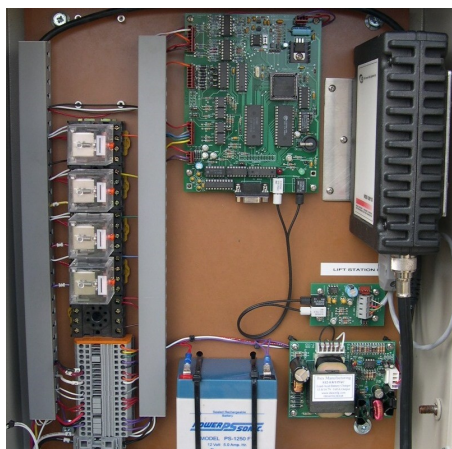
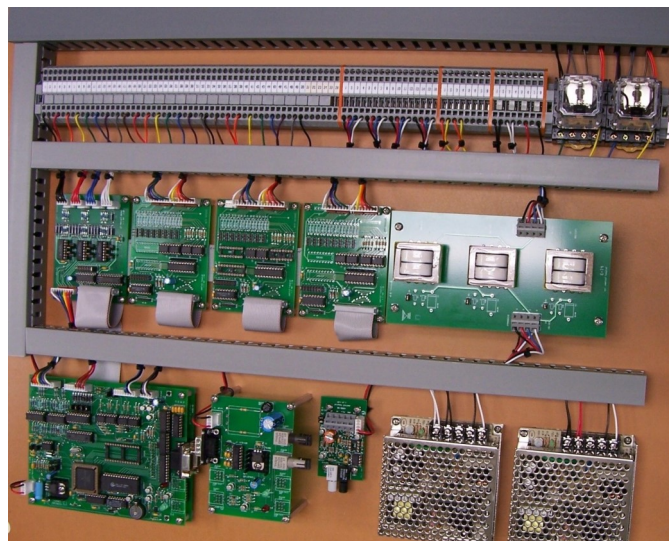
Transducerless Technology allows the Master Station to display any electrical parameter (single phase or 3 phase composite) from any measurement point. These parameters include:

- Voltage
- Current
- Neutral Current
- kW
- kVAr
- kVA
- Power Factor
- Phase Angle

On any given feeder or meter point, this would amount to 29 different values. These can be seen in the detail view in the Master Station screen on the first page.

Transducerless Technology provides many benefits when compared to using transducers:

- Considerably less expensive
- Requires less space
- Uses less power
- Less burden on CT's and PT's
- Considerable improvement in safety
- Provides much more data
- More reliable
- More accurate
- Uses fewer RTU components
- Acquires more harmonic information
- Does not require annual calibration



VS.Net Specifications

Master Station

Computer	PC Compatible
Processor	2GHz or Faster
Memory	8 GB
Program Installation and Backup	DVD Writer
Monitor	2X 22 inch Flat Screen 1600 X 1200 Pixel Resolution or better
Audible Alarm	Speakers
Maximum Number of RTU's	255
kW Accuracy	0.5%
kVAr Accuracy	0.5%
Power Factor Accuracy	0.5%

RTU

Power Source	120 VAC, 125 VDC, 48 VDC, 24 VDC, 12 VDC
Power Requirements	25 Watts Max
Power Supply Capacity	Capable of Supporting RTU and Radio as Needed
Operating Temperature Range	-40 F to 165 F
Humidity (Non-Condensing)	95%
Cabinet Size	Custom
Cabinet Type	NEMA 4
Maximum 3 Phase CT Points	60
Maximum 3 Phase PT Points	24
Maximum Digital Status Points	256
Maximum Pulse Inputs	8
Maximum Momentary Relay Pairs	256
Maximum Latching Relays	256
Maximum IED Interfaces	24
Communication Baud Rates	1200,2400,4800, 9600, 19200, 38400
Communications Media	Radio, Fiber Optics, Cell Modem, TCP/IP Network
Inherent Communication Isolation	Fiber Optics
Voltage Accuracy	0.2%
Current Accuracy	0.5 %
Phase Angle Accuracy	+/- 0.5 Degree

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