Cypress Envirosystems Overview

www.CypressEnviroSystems.com

CYPRESS ENVIROSYSTEMS™

V5.5

Agenda

- Who is Cypress Envirosystems?
- What problem are we solving?
- What is our solution?
- Product overviews
  - How we save energy and improve productivity
  - How does it compare vs. alternatives
- Cypress Envirosystems Wireless Infrastructure
- Who are our existing customers?

Who is Cypress Envirosystems?

- Mission:
  - Save energy, improve productivity for older plants and buildings.
  - Use technologies which minimize disruption, downtime, retraining of staff.
  - Target payback of less than 18 months.
- Subsidiary of Cypress Semiconductor
- Sister company of SunPower

The Opportunity

Silicon Valley Technology Today

- Wireless
- Image capture + sensors
- Intelligent Processing
- Large memory
- Programmable
- ALMOST FREE!

Typical Legacy Plant or Building

- Pneumatic
- Analog 4-20mA wires
- Manual gauges
- COSTS HUNDREDS $$

Apply leading edge wireless, non-invasive instrumentation technologies to legacy sites!!

What Problem Are We Solving?

Pneumatic Thermostats

Dial Gauges

Steam Traps

Need to save energy & improve uptime, but hindered by outdated facility?

Standalone Transducers, LED/LCD Displays

-80C Freezers

Uninterruptible Power Supplies

Manual Instrumentation, Not Programmable, No Diagnostics…
Equals: Wasted Energy, Higher Downtime, More Labor Required

Saving Energy in Older Buildings/Plants

- **Need to save energy and improve productivity?**
- **But facing challenges in older site such as:**
  - Pneumatic thermostats that have no zone or night setback control, and require lots of manual attention?
  - Steam traps that leak costly steam without your knowledge?
  - Manual gauges and transducers which you spend valuable skilled labor to monitor?
  - Uninterruptible Power Supplies which fail when they are really needed?
  - Critical freezers that fail without notice, degrading contents?
  - Trouble justifying new technology because payback is too long, disruption to operations too high?

We Enable Older Facilities To Save Energy And Improve Productivity

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What is our Solution?

WIRELESS PNEUMATIC THERMOSTAT
"Go from Pneumatic to DDC in minutes"

WIRELESS GAUGE READER
"Remotely Read Gauges in minutes"

WIRELESS STEAM TRAP MONITOR
"Avoid Expensive Steam Leaks"

BLUE BOX HUB/RECEIVER

WIRELESS TRANSDUCER READER
"Remotely Read Transducers – No Wires"

WIRELESS FREEZER MONITOR
"Predicts and Avoids Costly Freezer Failure"

WIRELESS BATTERY MONITOR
"Automates UPS Health Check"

Non-invasive, easy retrofit, energy and labor savings, payback in less than 18 months

Wireless Pneumatic Thermostat Overview

Wireless Pneumatic Thermostat (WPT)

EXISTING LEGACY STAT

DDC in 20 Minutes!

CYPRESS ENVIROSYSTEMS
WIRELESS PNEUMATIC THERMOSTAT

- Manual Setpoint Control
- No Remote Readings
- No Diagnostics
- Manual Calibration Required
- Cannot support Demand Response strategies

- Remote Wireless Setpoint Control
- Remote Monitoring of Temperature & Pressure
- Pager/Cell Notification of Excursions
- Automatic Self-calibration
- Programmable Temperature Setbacks
- Occupancy Override
- Enables Demand Response strategies
- BACnet Interface to BMS
- Compatible With Existing Johnson, Honeywell, Siemens, Robertshaw
- More than 2 years battery life

Get the benefits of Direct Digital Control (DDC) in less than 20 minutes

WPT – Reducing Energy Use & Improving Productivity

Savings Type	*Typical Reduction per 1200 sq-ft Zone*	*Annual Savings per 1,200 sq-ft zone*	*Comments*
Reduced Energy Cost			
Improved Calibration	1% to 5%	$17 to $83	Typical pneumatic thermostat is out of calibration in under 6 months
Programmable Zone Control, Night Setback	5% to 15%	$83 to $248	2% per every degree F of setback general rule
Lower Tariffs - Demand Response	0% to 3%	$0 to $50	Utility Demand Response program for electricity
Reduced Maintenance Labor			
Fewer tenant complaints/calls	0.0 man-hrs to 1.0 man-hrs	$0 to $85	Average 0 to 2 calls per year per thermostat
Reduce Calibration work	0.1 man-hrs to 0.5 man-hrs	$9 to $43	Average 20 minutes for calibration per year per thermostat
Reduce Troubleshooting	0.1 man-hrs to 0.2 man-hrs	$9 to $17	Average 10 minutes for troubleshooting per year per thermostat
Lower Tenant Related Costs			
Better occupancy overide cost recovery		$5 to $50	Enable tenant zone override with automatic tracking
Improvement in lease retention rate	5% to 10%	$60 to $120	Happier tenants (tenant turnover cost $10 per sq-ft)
TOTAL		**$175 to $700**	

Source: US Energy Information Administration (2003 - 2007), ASHRAE, Cypress Envirosystems customer surveys

Annual savings of up to $700 per year per Thermostat – typical payback in less than 18 months

How Does This Compare with Alternatives?

BENEFITS

- Retrofit in minutes
- No disruption of tenants
- Can implement zone-by-zone (vs. all at once)
- No running wires
- No PLC's, Controllers, I/O cards
- No drawings and approvals
- No replacing actuators
- Works with existing Building Automation Systems
- Minimal retraining of staff

COMPARISON WITH DDC

	Wireless Pneumatic Thermostat	Direct Digital Control Retrofit
Thermostat	$370	$75
Controllers, Actuators, I/O	$30	$750
Install/Wiring Labor	$100	$1,000
Drawings, Reviews	$0	$200
Tenant Disruption	$0	$300
Total Cost (per point)	$500	$2,325

Note: Estimates for typical 100 zone system

About 80% Lower Cost than DDC, and 80 Times Faster to Install

BACnet Compatibility Testing

VENDOR	BAS	TEST PARTNER	LOCATION
ALERTON	BACtalk	Syserco	Fremont, CA
AUTOMATEDLOGIC CORPORATION	ALC	ACCO Engineered Systems	San Leandro, CA
Honeywell	Excel, Tridium	Honeywell Corp.	Golden Valley, MN Wixom, MI
Johnson Controls	Metasys	RSD-Total Control JCI Sensor Products	San Jose, CA Milwaukee, WI
SIEMENS	Apogee	Siemens Building Technologies	Hayward, CA
t.a.c by Schneider Electric	Andover Continuum	EMCOR Integrated Solutions	Pleasanton, CA
TRANE	Trane Tracer Summit BCU	Trane	Calgary, Alberta - Canada
Delta CONTROLS	ORCA	Cypress Semiconductor	San Jose, CA

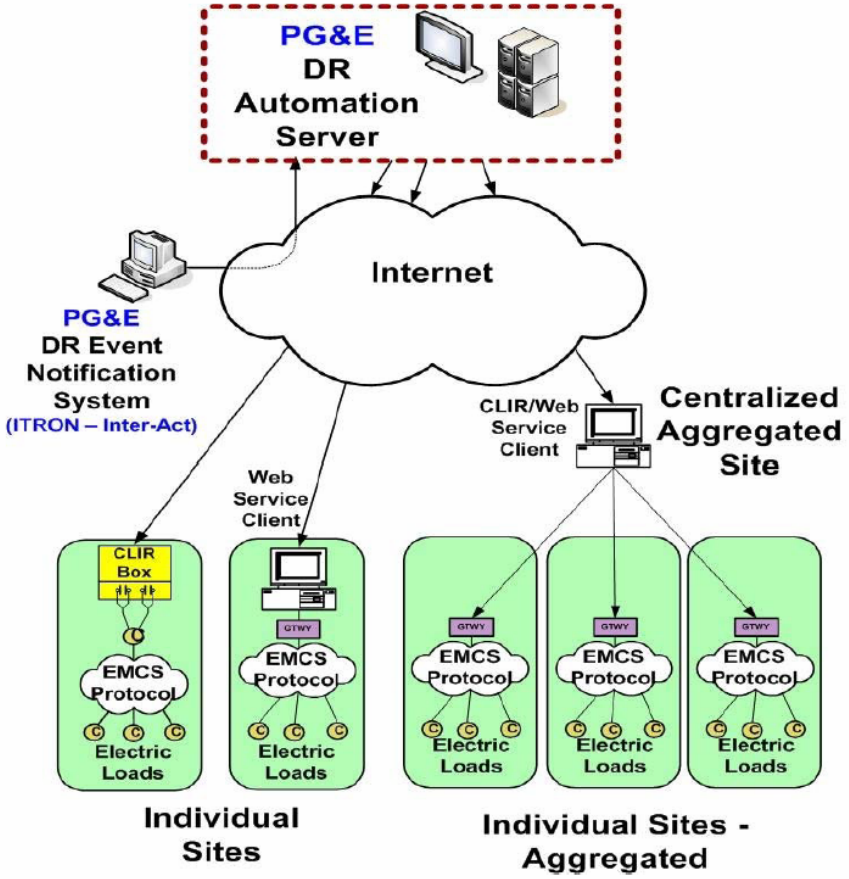
Utility Demand Response Integration

- Communications link technology developed by Lawrence Berkeley National Labs.

- PG&E Technical Incentive:
  - $200/kW for equipment and installation
  - $40/kW for participant incentive
  - $60/kW for Technical Coordinator

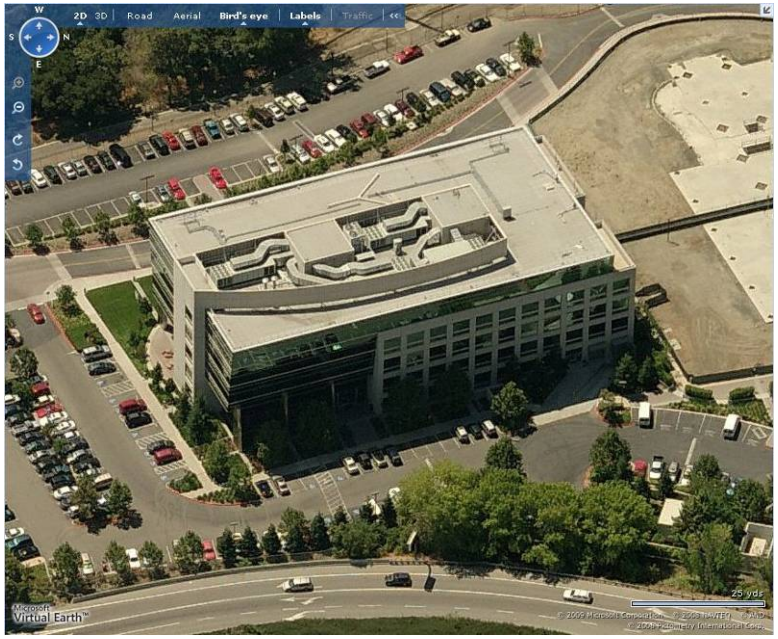
- Funding approved by PUC

- Average power switched by one WPT => 2kW to 5kW. Up to 100% of cost eligible for rebate!



Compatibility Testing Completed with Lawrence Berkeley National Labs

Enabling Smart Grid – Auto Demand Response



- County of Santa Clara, Social Services Administration
- 2 Buildings, each 5 story, built 2000
- Total 300,000 sq-ft
- 350 Pneumatic Thermostats, non-communicating
- Estimated Demand Response load shed: 200kW
- Would like to participate in PG&E Auto-DR program, but challenging with pneumatic thermostats

15 Minute Replacement of Thermostat

80% Lower Cost, 5% of the Time vs. Conventional DDC

Santa Clara County Government Project

	Cypress Envirosystems Wireless Pneumatic Thermostats Retrofit	Conventional Direct Digital Control Retrofit
Installed Price	350 x $500 = $175,000	350 x $2,500 = $875,000
Time Required	8 days	6 months
Disruption to Operations	Minimal	Significant
Potential Exposure to Toxic Substances in Walls	None	Unknown
Paid for by PG&E Auto DR Incentive	100% covered	31% covered

"Installation took only eight days and was one of the easiest, fast and most cost effective energy efficiency improvements we have ever made in our buildings"
- Jeff Draper, Manager of Building Operations

Regulation Drivers in California

- **Default Critical Peak Pricing**
  - Starting May 1st, 2010, virtually all commercial office building customers will move to a default electricity pricing rate called Critical Peak Pricing www.pge.com/mybusiness/energysavingsrebates/demandresponse/cpp/
  - This rate structure provides for discounted rates when no CPP events are called. However, on CPP event days, higher "critical peak" energy charges will be assessed for usage between noon and 6pm.
  - Customers are notified by PG&E by 3pm the day prior to the critical event.
  - Customers with Auto-Demand Response enabled buildings (e.g. communicating thermostats, lighting etc.) can automatically reduce usage using these high rate periods to avoid high charges.
- **Assembly Bill 1103 – Building Energy Efficiency Disclosure**
  - Starting January 1, 2010, all commercial building lease transactions must disclose the energy efficiency history and Energy Star rating of the facility. More efficient buildings will be able to attract premium tenants, and potentially command a rental premium.

Source: California Public Utilities Commission Decision, July 31st, 2008 (see page 21 and Attachment B)
http://docs.cpuc.ca.gov/word_pdf/FINAL_DECISION/85984.pdf

LEED Credits

LEED for Existing Buildings: Operations & Maintenance
Registered Project Checklist

			Energy & Atmosphere, continued			
			Existing Building Commissioning			
			Credit 2.1	**Investigation and Analysis**	✓	2
			Credit 2.2	**Implementation**	✓	2
			Credit 2.3	**Ongoing Commissioning**	✓	2
			Performance Measurement			
			Credit 3.1	**Building Automation System**	✓	1
			Credit 3.2-3.3	**System Level Metering**		1 to 2
				Credit 3.2 40% Metered		1
				Credit 3.3 80% Metered		2

Wireless Steam Trap Monitor Overview

Wireless Steam Trap Monitor (WSTM)

Leaking Traps Waste Energy

Typical Steam Trap

CYPRESS ENVIROSYSTEMS WIRELESS STEAM TRAP MONITOR

- Necessary part of the steam distribution system, usually hundreds of units per site
- 15-20% average failure rate; leaks steam
- Failed traps lose $5,000 per year (1/8” orifice)
- Manual inspection typically done annually – labor intensive, do not catch problems in timely manner
- Solution: Wireless steam trap monitor detects faults and alarms on error, avoiding expensive leak loss
- Non-invasive installation: no breaking seals, wireless, integrates with BMS
- Battery life of 3 years at typical sample rates
- IP65/NEMA 4 rated for outdoor use
- 18 months payback on investment

Save Energy and Time Locating Faulty Steam Traps

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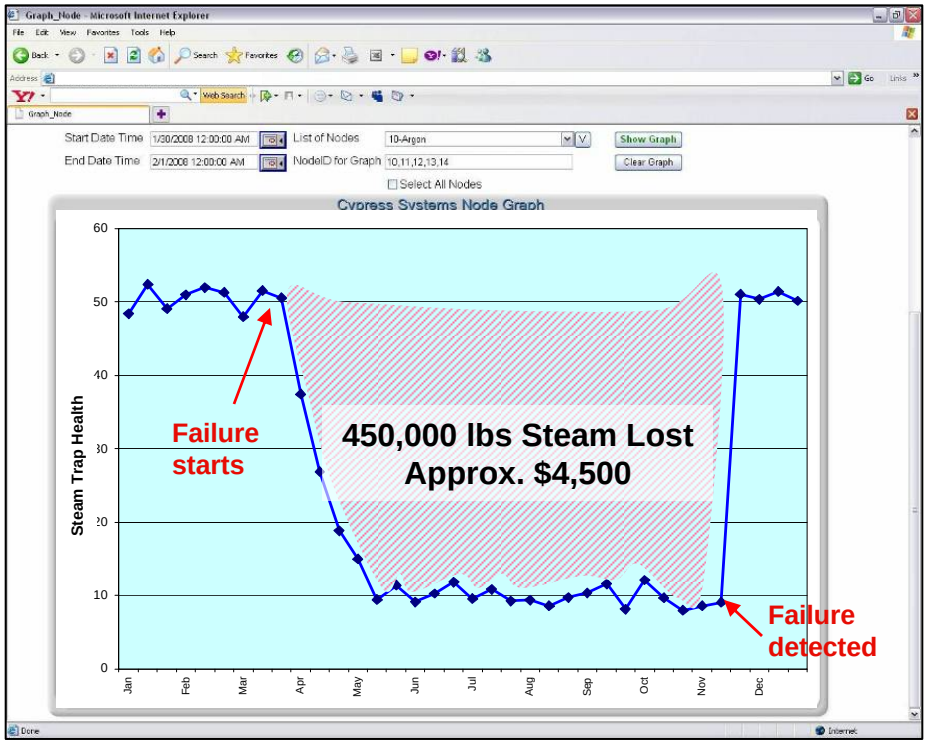
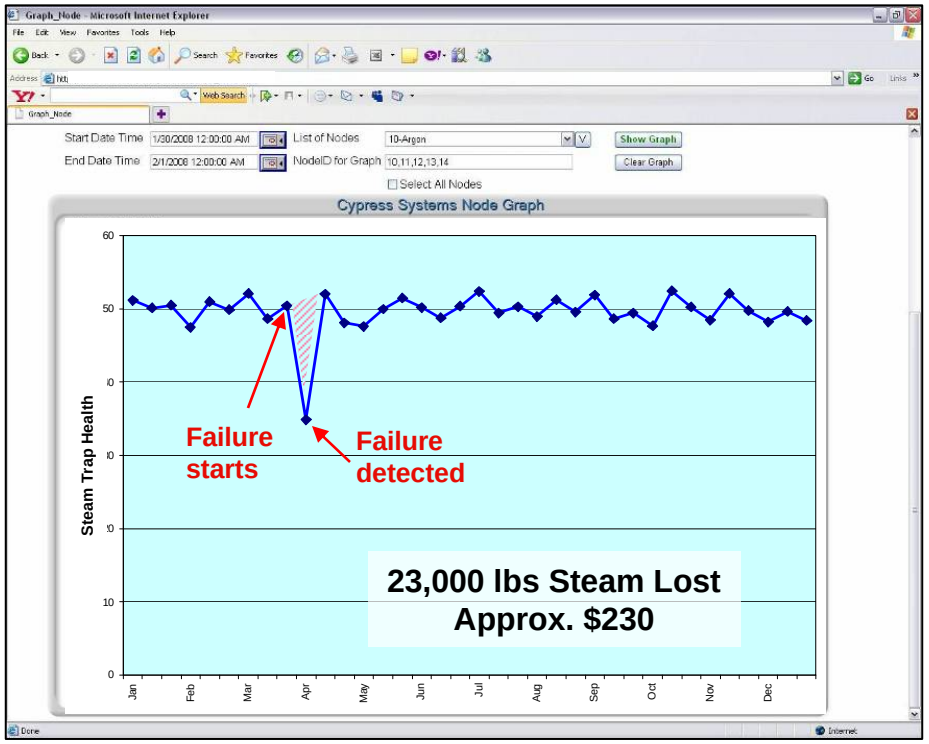
How Steam Trap Monitoring Saves Energy

Without Steam Trap Monitoring



With Steam Trap Monitoring



Typical savings for 1/8” orifice steam trap

Timely Detection and Correction of Trap Failures Avoids Prolonged Costly Steam Leaks

WSTM – Reducing Energy Use & Improving Productivity

TYPICAL STEAM TRAP LEAKAGE

- Most sites perform manual steam trap inspections once per year
- On average, 15-20% of steam traps are “failed open” at a given time
- A “failed open” steam trap (1/8” dia pipe) wastes $5,000 of steam per year

WSTM REDUCING LEAKAGE

- WSTM would detect failures and avoid prolonged leakage year round, without need for manual inspections
- For a 200 steam trap site, WSTM would save about $75,000 to $100,000 per year
- WSTM has a 12-18 month payback

Saves $75,000 to $100,000 Annually for a 200 Steam Trap Site

Wireless Gauge Reader & Wireless Transducer Reader Overview

Wireless Gauge Reader (WGR)

- Non-invasive, clamp-on to existing gauges in minutes
- Enables remote wireless monitoring of gauge
- No downtime
- No leak check
- No audit/requalification (e.g. FDA, OSHA)
- No running wires
- No drawings and approvals
- Minimal retraining of staff
- No new enterprise software
- Battery life of 3 years at typical sample rates
- IP65/NEMA 4 rated for outdoor use
- Optional OPC or BACnet interface to existing building or plant automation system

Non-Intrusive Reader Mounts On Top of Existing Gauge in Minutes…
Enables Alarming, Trending, Historization for
Process/Asset Monitoring and Troubleshooting

Monitoring of Legacy Air Handlers

Typical Air Handler Units

Wireless Magnehelic Reader
Monitors Filters and Airflow

- Most older Air Handler Units (AHU's) are not monitored/automated
- Labor intensive to detect problems, check filters
- Proper air flow is the critical parameter - but can only be seen via manual dial gauges (e.g. Magnehelics)
- Solution: Wireless Magnehelic Reader clamps on in minutes and transmits reading wirelessly to BMS/BAS
- No downtime, no wiring, no leak checks
- Alarm notification for filter changeout, low air flow
- Condition-based maintenance, not schedule-based

Wireless Readers
Mounts Over Existing Gauges

Enables Monitoring of Legacy Air Handlers for 70% Less Than Traditional Transducers

Wireless Transducer Reader (WTR)

- Enables wireless remote monitoring of virtually any analog transducer or instrument with the following outputs: 4-20mA, 0-5V, or 0-10V, RS-232, RS-485, thermocouple, thermistor
- Non-disruptive – no need to change out transducers, break pressure seals, or run wires
- Compatible with most existing flow meters, current meters, particle counters, thermocouples, weigh scales etc.
- Enables data logging to enable trend analysis, notification, or statistical process control
- Optional Class 1 Div 2 and IP65/NEMA 4 enclosures available
- Battery life of 3 yrs under typical sampling rates
- Optional OPC or BACnet interface to existing building or plant automation system

Non-Intrusive Reader Connects to Existing Transducers in Minutes… Enables Alarming, Trending, Historization for Process/Asset Monitoring and Troubleshooting

WGR/WTR – Reducing Energy Use & Improving Productivity

Energy Savings
- Compressed Air – ramp down compressor
- Exhaust/Venting – ramp down fans, variable speed fans
- Low cost audits for current, steam/water pressure, temp, flow

Reduce labor and consumable costs
- Gas Cylinder monitoring (regulator gauges, e.g. cal gases)
- Domestic water supply

Improved Equipment Uptime via Monitoring
- Filter changeouts (measure delta P)
- Pumps, compressors, fans (measure delta P)
- Air handlers, chillers, scrubbers

Reduced troubleshooting cost
- Fast non-invasive data gathering/logging/alarming

Safety/Compliance
- Avoid manual reading at difficult to reach or hazardous locations
- Monitor exhaust/venting (e.g. Magnehelic gauge)

Better yield/quality
- Upgrade older process units with no data outputs
- Data for statistical process control, or feed to advanced control models

How Does This Compare with Alternatives?

BENEFITS

- Non-invasive, clamp-on
- No downtime
- No leak check
- No audit/requalification (e.g. FDA, OSHA)
- No running wires
- No drawings and approvals
- Minimal retraining of staff
- No new enterprise software

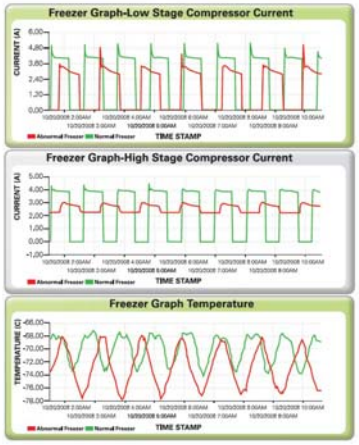
Comparison with Alternatives

	Wireless Gauge Reader	Wired Transducer
Transducer/Sensor	$1,200	$300
Install/Wiring Labor	$50	$1,500
Drawings, Reviews	$0	$500
Code Compliance	$0	$1,000
I/O Panel/Termination	$0	$300
Process Downtime	$0	$1,000
Total Cost (per point)	$1,250	$4,600

About 65% Lower Cost Compared with Alternative Solutions

Wireless Freezer Monitor Overview

Wireless Freezer Monitor (WFM)



- Monitors health of -80C freezers holding critical material or samples
- Provides early warning of freezer failure
- Measures critical parameters including high-stage and low-state compressor current, door open/close status, and internal temperature
- Retrofit installation on existing freezers
- No running wires – battery life of 3 years
- Includes user interface for history trending, alarming, cell phone notification
- No new software to install – simple web browser interface enables multi-user visibility
- Optional connectivity to existing building or plant automation systems via OPC or BACnet

Wireless Health Monitoring of Existing Freezers for Predictive Maintenance. Early Detection Enables Proactive Measures to Avoid Content/Sample Degradation

Wireless Battery Monitor Overview

Wireless Battery Monitor (WBM)

- Monitors health of Uninterruptible Power Supply batteries to ensure availability
- Replaces time-consuming manual validation using error prone handheld tools
- Provides early warning of potential battery failure
- Measures critical parameters including Internal Resistance, Voltage, and Temperature
- Simple and fast installation – small package mounts to top of each battery and wirelessly sends data
- Includes user interface for history trending, alarming, cell phone notification
- No new software to install – simple web browser interface enables multi-user visibility
- Optional connectivity to existing building or plant automation systems via OPC or BACnet

Non-Intrusive Reading Mounts On Top of Existing Batteries in Minutes…
Enables Alarming, Trending, Historization for Predictive Maintenance and Improved Uptime

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Key Components

Cypress Envirosystems Field Devices

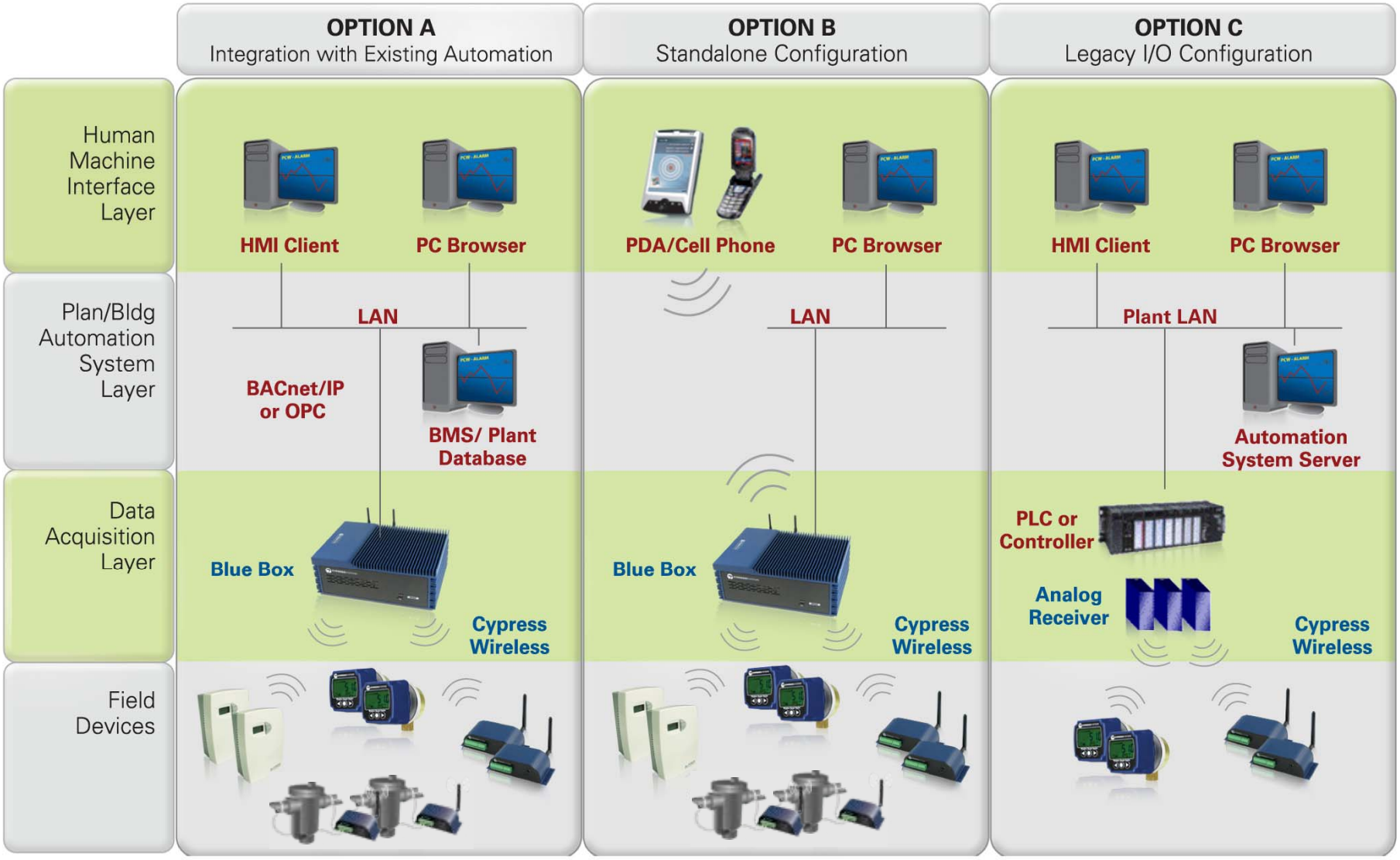
Repeaters *(Battery or Line Powered)*

WPT Server

Blue Box Receiver/Server

Configuration Tool

Wireless System Architecture Options



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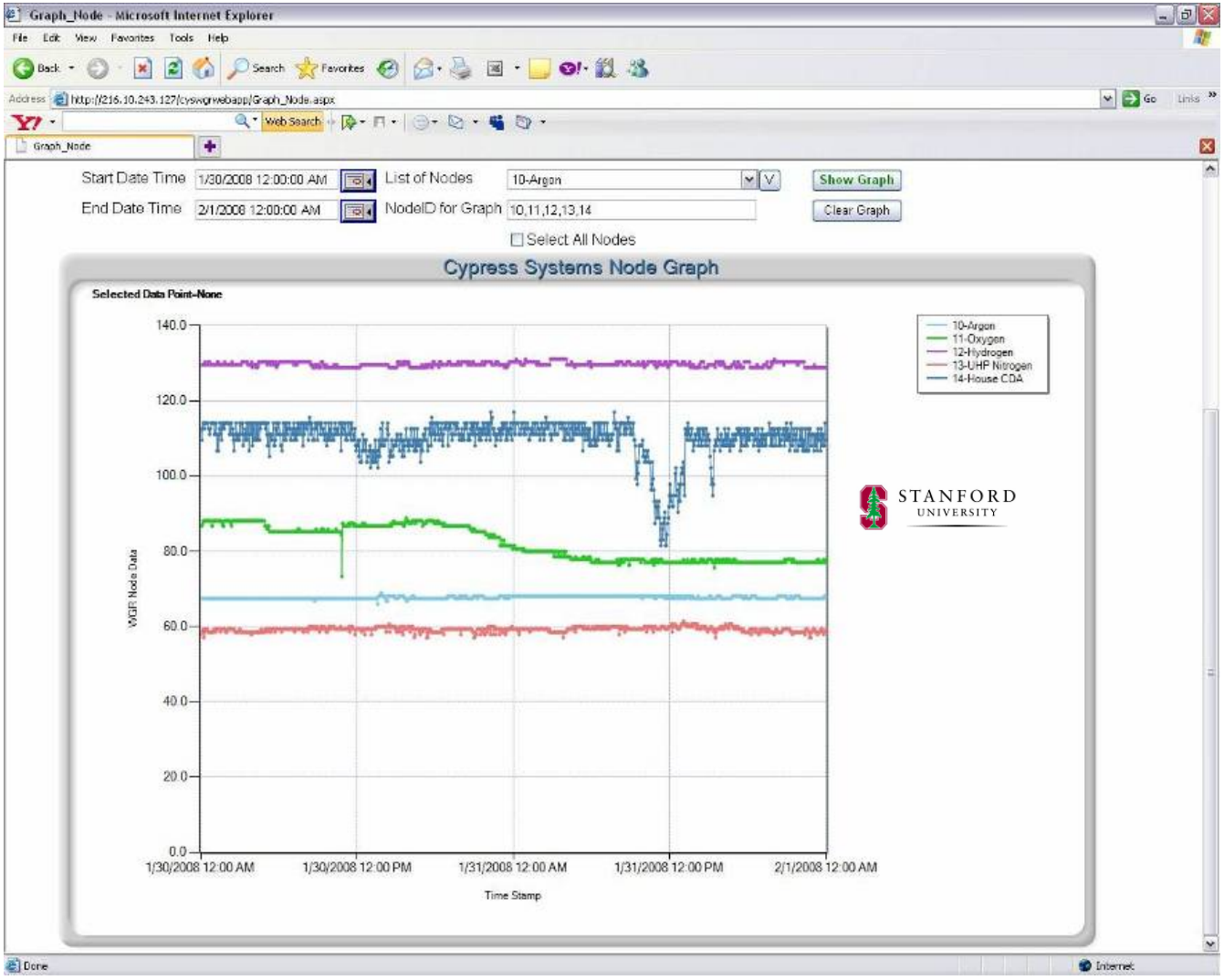
Built-in “Zero-Footprint” Web-Based HMI



Web Interface Allows History Trending, Graphs, Alarming/Notification, Remote Commands

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Selected Customers

Customer Feedback

"In the first two weeks of using the WGR, we were able to detect and develop corrective measures for a potentially costly issue that we never suspected" *Mike Long, Control System Supervisor, Tri-State Generation and Transmission*

"This is a no-brainer way to save money" *Dan Hutcheson – CEO, VLSI Research*

"Micrel saves time, money and effort. We are very happy with our purchase."
Guy Gandenberger – VP Global Operations, Micrel

"We've already discovered a major problem we would have never seen without your equipment" *- Rick Pasquini, Operations Manager, Linear Technology*

"~70% less cost than adding hard wired devices" - *Zach Rhyne, Utilities Specialist, Genentech Inc.*

"Almost certainly the most compelling argument in favour of the Cypress solution compared with possible alternatives is cost" *– Andrew Bond, Industrial Automation Insider*

"The impact of dynamically reading many of these hidden gauges, previously thought too difficult, has uncovered significant cost, resource savings & yield improvement opportunities." *– Dick Deininger, Taylor Deininger Partners Inc.*

"Workforce reductions are motivating organizations to increasingly adopt online Plant Asset Management (PAM) solutions. Using the Cypress Wireless Gauge Reader allows real-time distribution of critical asset information to PAM systems enabling the workforce to take proactive action." *– Wil Chen, ARC Advisory Group*

"This is the coolest thing I have seen in the past couple of years"
Walt Boyes – Editor-in-Chief, Control Magazine

"This is a big step toward wireless sensor network implementations in manufacturing"
Gary Mintchell – Editor in Chief, AutomationWorld

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APPENDIX

WGR AND WTR APPLICATION NOTES AND CASE STUDIES

$ Savings Applications to Date

FAB OWNERS ASSOCIATION

			APPLICATIONS												
			Process Tools, Clean Area						Pump Chases, Facilities						
			CMP	Diffusion	CVD	Venting/ Exhaust	Mains/ Laterals Supply	Com- pressed Air	Process Chilled Water	Burn Boxes	DI Water Filter	Gas Cylinders	Boilers	Pumps	HVAC Chillers AH, Water Soft
COST	Materials	Process Gases, Consumables					$$$		$		$	$$$			
		Energy, Water, Utilities				$	$		$		$				
		Scrap	$$$	$$$	$$$			$$$		$$$					
	Labor	Planned Maintenance				$$$			$$$		$$$	$$$	$$$	$$$	$$$
		Trouble-shooting	$	$	$	$	$	$	$		$	$	$	$	$
		Rework, Recovery					$								
	Equipment	Parts													
		Breakdown Replacement							$		$				
	Down Time	Loss of Production	$	$	$		$	$	$$$	$$$	$$$	$	$	$	$

Energy Audits: Reduce Time and Cost to Perform

Customer Challenge:

Many customers have energy savings targets, but lack baseline data.

To obtain a baseline, they must approve drawings changes, install transmitters and potentially disrupt their process... before even 1 Watt of savings!

WGR Solution:

The WGR is quick & non-invasive to install to log temp, flow rates, pressures for steam, hot water, chilled water, air flow.

Takes minutes to install, and may be removed or reused after audit.

WGR installation takes minutes and cost 70% less than transmitters... and may be removed and reused at other locations

Reduce Energy Consumption

Customer Challenge:

Compressors, pumps and fans often run at settings beyond what is needed e.g. 125psi for Compressed Dry Air instead of 85psi, wasting >20% energy.

Operators lack monitoring so they don't reduce pressure – avoid risk of process upset.

Installing transducers is very time-consuming & disruptive for multiple air branches and can introduce leaks.

WGR Solution:

Typically manual gauges are already installed throughout CDA systems or coolant loop systems.

WGR's can monitor and alarm pressure/flow to ensure process integrity and reduce energy use.

App note available:
"Compressed Dry Air System Energy Savings"

Savings on 500hp Compressed Air System can be up to $100K per year, with a 8 month payback.

Improve Asset Health and Uptime

Customer Challenge:

Older equipment such as packaged heat exchangers, boilers, chillers, air dryers, hydraulic conveyors, water filters, HEPA filters, etc. often have little or no electronic monitoring outputs.

Adding new transducers require modifying the equipment package and may impact existing service/ warranty agreements.

WGR Solution:

Typically manual gauges are already installed on older packaged equipment.

The WGR can monitor, trend and alarm parameters for early fault detection and corrective action.

Case Studies Available:
"Facilities Monitoring"

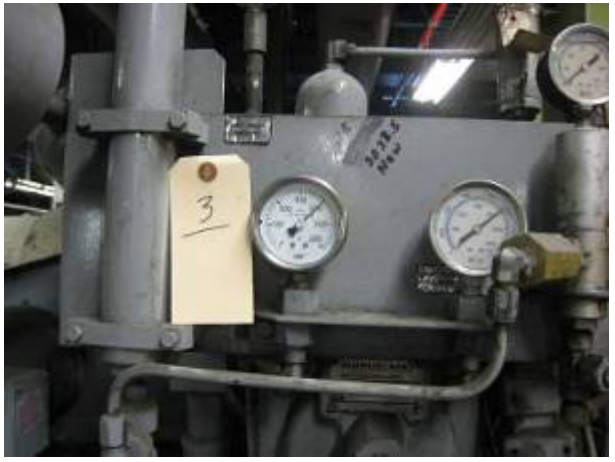
"Tri-State Power Asset Health Monitoring"

"In the first two weeks of using the WGR, we were able to detect and develop corrective measures for a potentially costly issue that we never suspected" – Mike Long, Control System Supervisor, Tri-State Generation and Transmission

Tri-State Power: Craig Station, Colorado

1.5 GW Coal Fired Plant

Hydraulic system for conveyors



Hydrogen Dryer Tower Pressure

Tri-State Pilot Project Summary

Plant Sponsor: Mike Long, Tri-State Power

- Gauges Monitored for Pilot Project
- Flight conveyor hydraulic fluid pressure and temp – 2 points
- Generator breaker compressor discharge pressure – 2 points
- Hydrogen Dryer Tower Pressure – 6 points

Bill of Materials

- 10 Wireless Gauge Readers
- 5 Repeaters
- 1 Receiver/Server

Results

- Within first 2 weeks, data collected identified key asset not performing as planned, corrective measures put in place
- If not detected, problem would lead to shorter life and earlier replacement of expensive capital equipment

Improve Yield/Consistency: Six-Sigma Programs

Customer Challenge:

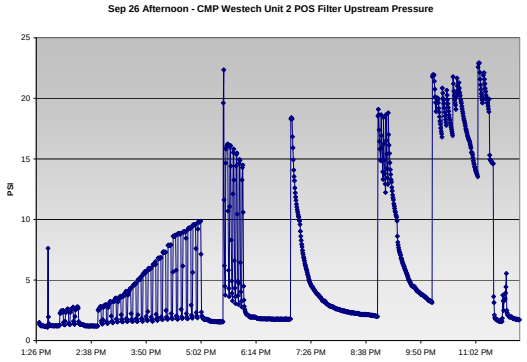
Companies implementing Six-Sigma identify variables, measure them, and keep them within statistical control limits to improve consistency/yield.

But many variables may not be monitored e.g. pressure of city supply water, switching frequency of air dryers etc. To implement statistical methods, much data needs to be collected, but budget is often limited.

WGR Solution:

The WGR makes it easy to gather data cost effectively with no disruption for use in Statistical Process Control models and/or Advanced Control Models.

Non-invasive WGR lets customer monitor variety of data to see which are statistically significant, without costly permanent installation.



"~70% less cost than adding hard wired devices" - Zach Rhyne, Utilities Specialist, Genentech Inc.

Reduce Consumables Usage

Customer Challenge:

Gas cylinders (e.g. cal gases), water filters, HEPA filters are often replaced at scheduled intervals rather than actual usage.

This results in more frequent changes than required, or results in downtime when not replaced in a timely manner.

Installing transducers may introduce leaks and require safety inspection.

WGR Solution:

Gas Cylinder regulators gauges, Magnehelic air flow gauges (for HEPA filters) are great examples of data which can be read and trended to optimize consumables use.

Reduces consumables cost, avoids downtime, and optimizes skilled labor.

Case Studies Available:
"Micrel Gas Management Savings"

We saved $215K per year on our 280 Gas Cylinders, a seven month payback.
– Ron Farry, Operations Manager, Micrel Inc.

Perform Faster Troubleshooting

Customer Challenge:

When excursions occur, technicians inspect many gauges and equipment in the hope of finding the source of the problem...but the relevant data was often not captured and is not available.

Often, data from different subsystems or equipment needs to be compared and time-indexed to identify the root cause.

WGR Solution:

The WGR may be permanently or temporarily installed to log data, and notify on excursions.

The time-indexed historical record helps reduce troubleshooting time and confidence.

Minimize Troubleshooting Labor and Downtime with Non-Invasive Data Logging of Historical Data

Enhance Safety, Reduce Incidents

Customer Challenge:

Many facilities perform manual rounds to inspect equipment and log gauge readings.

Some gauges are in awkward locations or may pose safety risks - high up on column, near heat sources, under floor etc.

Accurately reading gauges “face-on” (without parallax) are sometimes difficult or impossible.

WGR Solution:

Wherever there is a gauge in a hard-to-access location that needs to be read, the WGR is a fast and low cost candidate to do the job.

Reduce likelihood of safety incidents due to reading gauges in hard-to-access locations.

“I’m not getting more engineers, so I need to have them working smarter…using the WGR”
- Pat Ireland, Operations Manager, Novellus Inc.