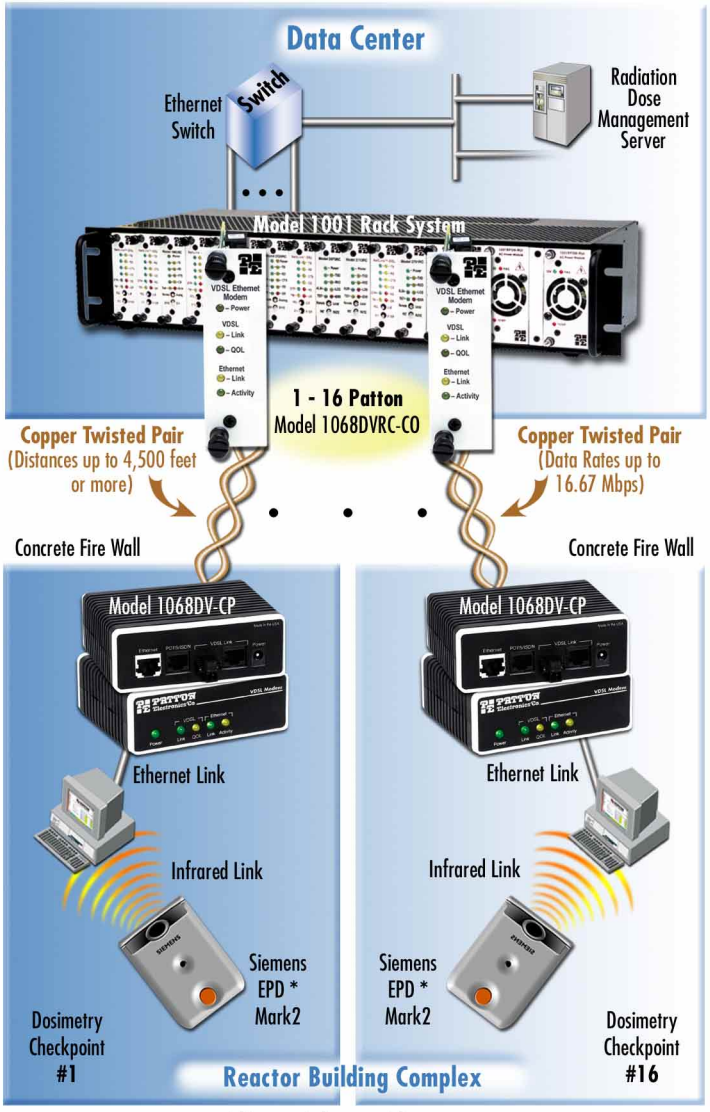
PATTON Electronics Co.

Ethernet Extension

REALITY CHECK

application solutions for your world

Exelon Nuclear
Limerick Generating Station
Limerick, PA



* Electronic Personal Dosemeter

Exelon Saves $1 Million with Patton's VDSL Modem Solution

Nuclear Power is an essential part of America's energy supply, yet also means exposure to potentially dangerous radiation for the people who maintain the generation plants. Exelon Nuclear's Limerick Generating Station in Montgomery County Pennsylvania is one such plant. Jeffery Dean, Instrument Physicist, runs Limerick's dosimetry system, which monitors the cumulative radiation dose for each worker. In the nuclear power industry, dose-management is not optional. When Jeff learned his old dosimetry equipment was going obsolete, he wasted no time finding its replacement. But, having selected Siemens' state-of-the-art Mark 2 Dose-Management System, Jeff faced a bigger problem. . .

Minutes Count. For Jeff, expediting operations is critical. When the plant goes down for maintenance, every minute means lost revenues. At its bustling peak, 850 workers must check dosemeters in and out each day, so efficiency pivots on key dosimetry checkpoints located *inside* the reactor-building complex.

"Definitely a solution. When we're offline it's like a million bucks a day so this system directly impacts our operations. Without Patton we couldn't have put the system in."

Jeff Dean, Instrument Physicist
Exelon Nuclear

Rock and a Hard Place. The old system used short-haul modems to transmit dosimetry data over copper twisted pairs. The copper wiring, installed when the plant was built, is part and parcel of the concrete infrastructure. The data must travel from the reactor-building complex to the data center---several thousand feet. But the new system runs over Ethernet, and Ethernet's 328-foot distance limitation for copper would fall short. Pulling fiber cables to critical checkpoints inside the reactor, dry well, and fuel floor areas would require penetrating, resealing, and re-testing multiple concrete fire walls. The estimated cost --- $1 million --- was out of the question. Yet living with an obsolete dosimetry system was not an option either. Caught between a rock and a hard place, Jeff wondered," What am I going to do?"

Ethernet Extension - Key Benefits for Industry

- ✔ **Cut System Installation Costs**
  Avoid Expensive Upgrades from Installed Copper Cable
- ✔ **Break the Distance Barrier**
  Reach Far beyond Ethernet's 300-Foot Limit
- ✔ **Leverage Legacy Investment**
  Run Ethernet Links over Existing UTP Infrastructure
- ✔ **Variable Rate Feature Maximizes Network Resources**
  Achieve Fastest Reliable rate for Each Segment
- ✔ **Flexible Deployment**
  Works Anywhere You Can Tap a Twisted Pair
- ✔ **Easy to Install & Configure**
  Plug It. Set It. Forget It.

Leveraging Legacy

While talking about the new Electronic Personal Dosemeters (EPDs), Jeff mentioned his networking problem to Siemens' engineer David Pilcher, who suggested Jeff contact Patton. So Jeff contacted Patton's product manager Johnnie Grant, who introduced him to Patton's Model 1068 variable rate VDSL modems. Much to his relief, Jeff's problem was solved. Using 16 pairs of Patton's VDSL modems, delivering data rates up to 16.67 Mbps, and extending Ethernet links up to 4,500 feet over single twisted pairs, Jeff was able to install his new Dose Management System leveraging the plant's legacy copper infrastructure.

Flexible Reliability

Given varying distances and noise environments for the plant's copper lines, the Model 1068's variable rate feature allowed Jeff to adjust VDSL line rates to achieve peak reliability on each link, while meeting or exceeding his high-speed data transmission requirements. On one particularly noisy line, Patton delivered a stable, reliable connection by configuring the link at the Model 1068's lowest supported asymmetrical rate of 4.17/1.56 Mbps. Says Jeff, "It's been running continuously for six months [since November 8, 2002] without any problems."

"Patton's 1068 rack cards offered the clean-looking, space-efficient installation we needed. Patton provided a reliable, economical solution for our data-flow needs."

Jeff Dean, Instrument Physicist
Exelon Nuclear

Jeff Dean with his Patton Rack

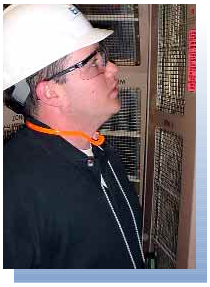
Why Patton?

Space-Saving Rack. "I did look at other companies," Jeff said. "But they didn't have the rack-mount stuff. I really wanted a clean rack that would fit in our computer cabinets -- rather than a couple shelves full of DSL modems."

"The flexibility of the solution…and being able to just plug it in and it's up and running. The installation was cake."

Most Helpful. "I'm not one to flatter, but John was like, really good." This is not my field of expertise–networking and DSL modems. When I would call for questions he really was most helpful."

Patience & Timing. "After my research I never bothered getting prices from other companies. John was more than patient explaining the stuff to me, so we just went that way. Plus I really wanted to get the rack. And I got everything on time for what I needed."



Patton's Johnnie Grant Gets Tested at Limerick

Encore Performance.

Now that the Limerick system is tried and true, Exelon plans to install a similar Patton solution at their Peach Bottom Atomic Power Station in York County, PA.

The Numbers

Infrastructure Replacement (Estimated):

Engineering: (Penetrate, Reseal & Test Fire Barriers)	$550,000.00
Cable Installation: (Install Ethernet Cables, Conduits & Scaffolding)	$350,000.00
Materials:	$100,000.00
Total	**$1,000,000.00**

Patton VDSL Ethernet Extension Solution:

Model 1068DV-CP (16 @ $420.00)	$6720.00
Model 1068DVRC-CO (16 @ $410.00)	$6560.00
Model 1001R-16P/UI Rack with 90-260 VAC Power Supply	$1000.00
Total	**$14,280.00**

Summary

Infrastructure Replacement:	**$1,000,000.00**
Patton Solution:	**($14,280.00)**
NET SAVINGS:	**$985,720.00**

More Patton Ethernet Extension Solutions

COPPER

Model 2168 16.6mbps/1.4 km
Model 2158 12.5mbps/1.2 km
Model 2156 2.3mbps/9.4 km
Model 2155 144 kbps/8 km
Model 2157 4.6mbps/9.4 km

FIBER

Model 1171 10mbps/2 km
Model 1170 100mbps/2 km

About Patton

Patton Electronics Company is a US manufacturer and marketer of data communications products, including IP Telephony (VoIP) gateway and routers, Remote Access Products (V.92, V.90, K56Flex, V.34+, and ISDN dial-in), Last Mile/Local Loop Access Products (T1, E1, and xDSL modems, DACS, NTUs and CSU/DSUs), Multi-Service Access Products (Voice, Intranet, Extranet, and Frame Relay access), and Connectivity Products (interface converters, short range modems, multiplexers, and data line surge protectors). Patton Electronics is an ISO 9001 certified and BABT approved manufacturer. Patton products are CE marked.

PATTON Electronics Co.

Extending, Converting & Converging

For more information or to request a free datacom catalog, please contact:

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