SIXNET®
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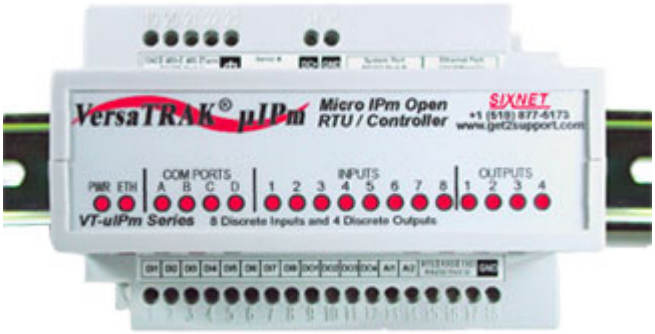
Micro-VersaTRAK µIPm™

An Installation-ready Interface for Real-time Plant Floor Data



The Micro-IPm is the programmable and expandable SiteTRAK™ that everyone has been looking for.

Inside this Compact RTU

- Industrial PowerPC (true 32 bit data bus)
- 16 MB of fast dynamic memory
- 16 MB of flash disk
- 10/100 Auto-detecting real time Ethernet
- Up to four flexible real-time serial ports
- Up to 14 on-board discrete & analog I/O
- Expandable with SIXNET I/O modules
- Embedded Linux open source software
- 100% VersaTRAK RTU compatible
- Powerful Windows software tools
- Industrially rugged operation: -40 to 70°C

- **Plant floor interface for:**
  - Real-time inventory management
  - Remote process monitoring
  - HVAC & energy management
  - Environmental monitoring
  - Low cost OEM applications
- **Ideal for ID tag applications** – Serial ports link to code readers
- **Datalogging and Timestamping** – Trending, alarm logging, & transaction recording
- **Stand Alone Control of Remote Sites** – IEC 61131 ISaGRAF and also C++ programming via open source Linux
- **Limitless Multi-user Connectivity** – Telephone, Internet, and wireless telemetry, 10/100 Ethernet plus up to 4 com ports
- **Embedded LINUX Open Source Software** – Add applications, I/O drivers & much more
- **An OEM's Dream Platform** – Pre-certified - Just add your application

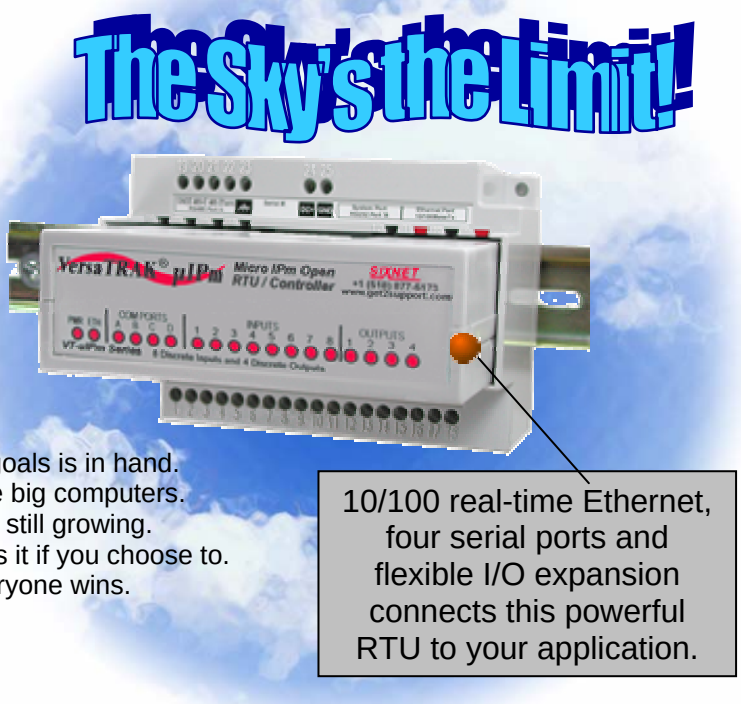
Use this powerful industrial module as an applications-ready Remote Terminal Unit (RTU) or as an open platform for your own LINUX based application.

Certified to Perform:

ISO9001 Certified
Class 1, Div II & Cenelec Zone 2
Marine & Offshore
European Community
UL508 for Safety

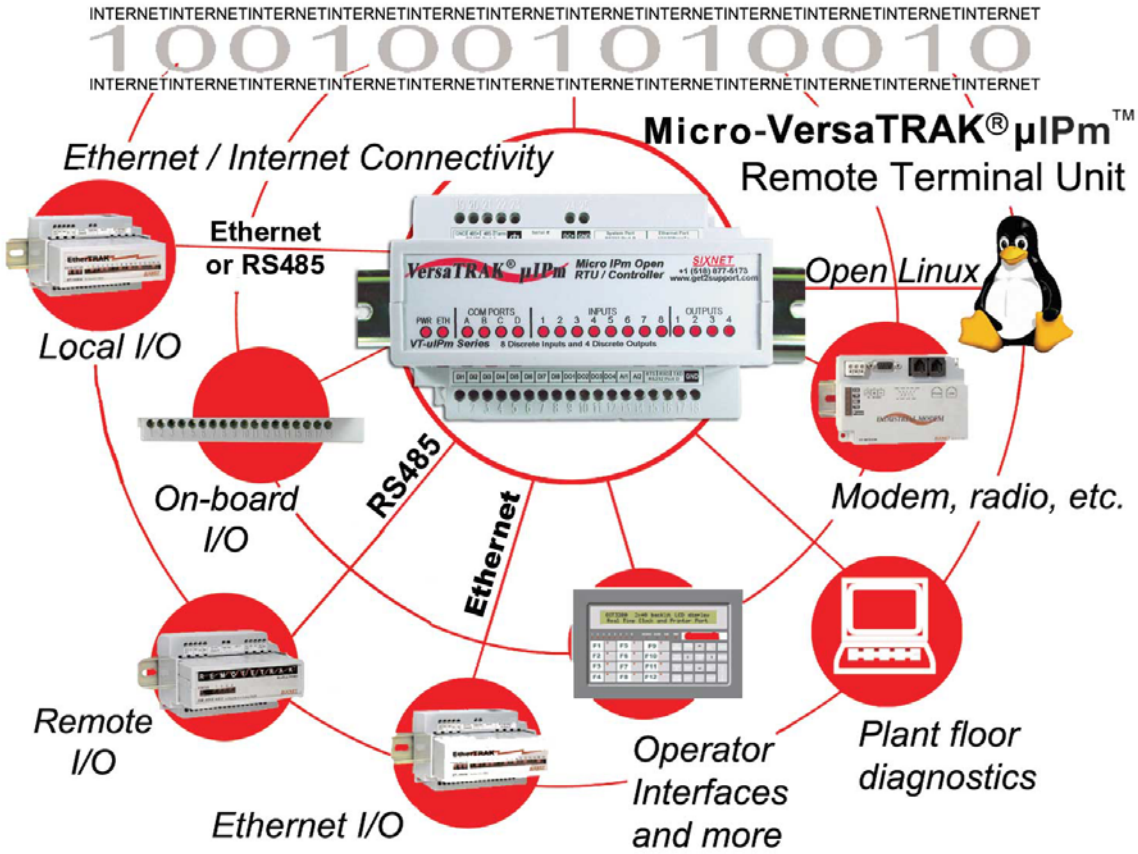
Benefits of LINUX open source software

High performance without compromise.
Wide open for complete flexibility.
Advanced development tools.
Complete documentation.
Available source code.
100% Internet enabled.
An OEMs dream platform.
Do anything, save money.
Instant Products to Market.
All this power at your fingertips.
Open source reduces technical risks.
Insure the long life of your systems.
µIPm is still a user-friendly VersaTRAK.
Supplied with powerful Windows software tools.
If you have special needs – the means to achieve your goals is in hand.
LINUX is open UNIX – the operating system found in the big computers.
UNIX has been around for 30 years, and its popularity is still growing.
The LINUX software is invisible to the user – only access it if you choose to.
When thousands of developers pool their resources everyone wins.



10/100 real-time Ethernet, four serial ports and flexible I/O expansion connects this powerful RTU to your application.

Five Ports Offer Limitless Connectivity!



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Micro-IPm Performance Specs

General	Industrial PowerPC (32 bit data bus)
Operating System	Embedded open-source LINUX
Dynamic memory (RAM)	16 Mbytes for program execution, dynamic variables, dynamic file system, etc.
Program memory (Flash)	16 Mbytes for Linux OS, program storage and file system
Retained memory (RAM)	512K (battery-backed) for datalogging and retained variables
Real-time clock	Battery-backed for time stamping and other operations
Local I/O (on-board)	12 or 14 (see ordering info.)
I/O Expansion (up to 256)	RS485 or Ethernet
Datalogging support	Yes - SIXNET Sixlog with easy to use configuration tools (no programming required)
IEC 61131 programming	Yes - SIXNET ISaGRAF for ladder logic, SFC, flow charting and more (6 languages supported)
High Level C programming	Yes - LINUX open source with FREE development tools for Windows and Linux platforms
Ethernet Port	10/100BaseTx (auto-detecting)
Connection	RJ45 (auto-mdi/mdix-crossover)
Protocols	TCP/IP, ARP, UDP, ICNP, DHCP, Modbus/TCP, SIXNET, and optionally PPP, DNP3 and more…
Serial Ports	Up to 115,200 baud
RS485 Port A	Screws (485+, 485-, GND) (2-wire half-duplex)
RS232 Port B	RJ45 (TD, RD, CTS, RTS, CD, DTR,DSR, GND)
RS232 Port C	Screws (TD, RD, RTS, GND)
RS232 Port D (optional)	Screws (TD, RD, GND) – In place of the two analog inputs
Protocols	Master & slave modes; SIXNET & Modbus RTU/ASCII; Others available as LINUX applications
Environmental	DIN rail or flat panel mount (no accessories needed)
Input power	10-30 VDC
Input current	100 mA @ 24 VDC (typical)
Temperature	-40 to 70°C (-40 to 85°C storage)
Humidity	5% to 95% RH (non-condensing)
Flammability	UL 94V-0 materials
Electrical Safety	UL 508, CSA C22.2/14; EN610101; (IEC1010)
EMI emissions	FCC part 15, ICES-003, Class A; EN55022; EN61326-1
EMC immunity	EN61326-1 (EN61000-4-2,3,4,6)
Surge withstand	IEEE-472 (ANSI C37.90)
Vibration	IEC68-2-6
Hazardous locations	UL 1604 / CSA C22.2/213 (Class 1, Div 2, Groups A,B,C,D); Cenelec EN50021 (Zone 2); ATEX
Marine & Offshore	Tested by DNV (Det Norske Veritas) to meet DNV No.2.4
Discrete Inputs	8 channels – sourcing or sinking (jumper/software selectable)
Guaranteed ON voltage	9 VDC (Note: The threshold is factory adjustable to turn on at a lower voltage – contact SIXNET)
Maximum voltage	30 VDC
Guaranteed OFF voltage	5.0 VDC & 1.5 mA DC
Input resistance & current	10K Ohms and 3 mA @ 24 VDC
Filtered ON/OFF delay	25 mS (20 Hz max. counting) – for contact bounce filtering
Fast ON/OFF delay	4 mS (100 Hz max. counting)
Count rate	See above (10 KHz on channel 1 only)
Counter modes	Pulse, rate and run time
Poll time (all channels)	5 mS to 20 mS – configuration dependent
Discrete Outputs	4 channels – sourcing 10-30 VDC
Min. & max. output load	1 mA to 1 Amp sourcing per channel
Max. OFF state leakage	0.05 mA
Inrush current	5 Amps (100 mS surge)
Typical ON characteristics	0.3 Ohms resistance and 0.3 VDC voltage drop @ 1A
Poll time (all channels)	5 mS to 20 mS – configuration dependent
Analog Inputs	2 channels – current or voltage selectable
Full scale range	4-20 mA or 0-5 VDC (jumper selectable)
A/D and input resolution	16 bits (0.003%); 2 uA (current range) or 0.5 mV (voltage range)
Full scale accuracy	+/-0.1% (@20°C) (factory calibration)
Span & offset temp. coeff.	+/-50 ppm per degree C
Input impedance	100 Ohm (current range), 80 K ohm (voltage)
Current protection	Self-resetting fuses (for 4-20 mA range)
DMRR	66 dB at 50/60 Hz (differential mode rejection)
Fastest update time	50 mS (both channels) – configurable for longer integration times for better noise filtering

Specifications are subject to change. Consult factory for latest information.

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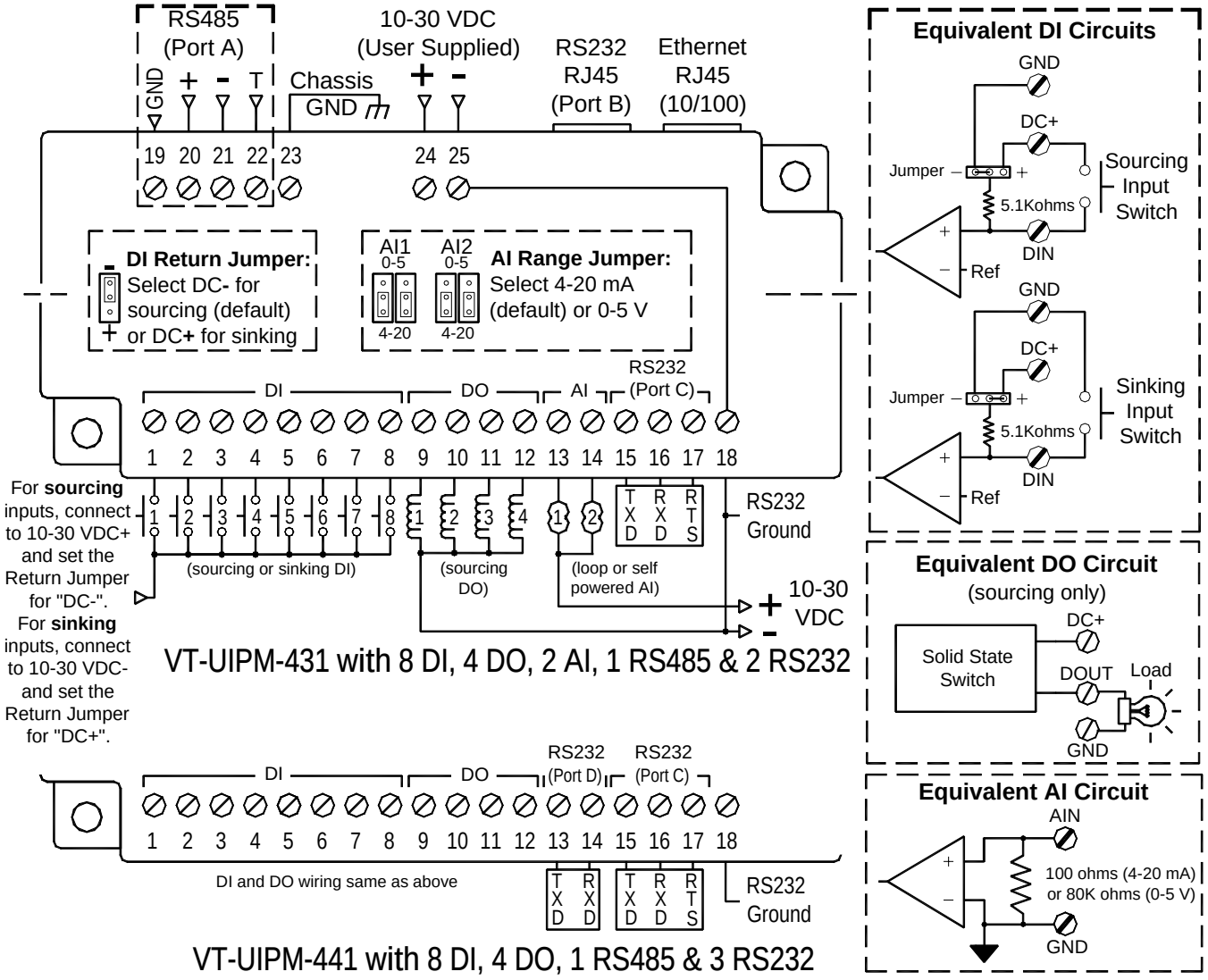
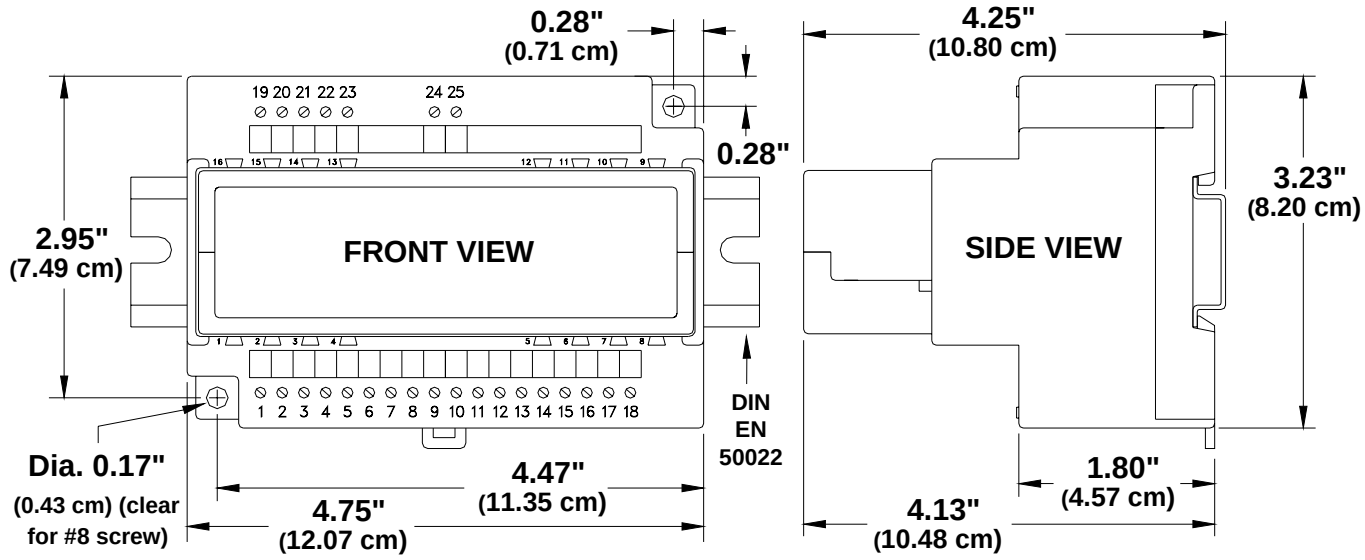
Micro-IPm – Wiring Diagram



Micro-IPm – Mechanical Dimensions



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Advanced I/O Features and Capabilities

Discrete I/O Features

➔ Sinking or Sourcing Discrete Inputs

All eight discrete inputs can be sourcing (ON when positive voltage is applied). All eight discrete inputs may also be configured as sinking inputs (switch closures to ground). There is a selection jumper in the module's base that is easily accessed by unplugging the logic module and opening the hinged door. You must also make a similar selection in the I/O Tool Kit software. The module performs a check to verify that the hardware and software selections match.

➔ Adjustable Threshold Voltage on the Discrete Inputs

All eight discrete inputs may be modified to transition at a threshold voltage lower than the factory setting. This is accomplished by simply soldering an extra resistor into the base. Refer to the user manual for details.

➔ Sourcing Discrete Outputs and Watchdog Output

All four discrete outputs are sourcing (positive voltage outputed when ON) with the standard 10-30V range. The first discrete output can be configured to be a watchdog output. This system performance monitor will be ON if the output circuitry, CPU operation and internal communications are functioning normally.

➔ High Speed and Special Counter Inputs

All eight discrete inputs can be configured as counters with a flexible choice of modes. These counters report their values in corresponding 16-bit analog input registers. Options for fast (5 mS) or slow (25 mS for contact bounce filtering) response providing a maximum count rate of 100 Hz or 20 Hz counting, respectively. The 1st channel is a high speed counter and can count up to 10 KHz. Available counter modes are pulse, rate and run-time.

Analog I/O Features

➔ Self-resetting Analog Input Protection

Each 4-20 mA input channel has a 100 ohm, high precision (0.1 percent) shunt across its input to develop a 2 volt signal when a full scale 20 mA input is applied. These shunts are located in the module's base, giving you the advantage of maintaining a continuous circuit even if the logic module is removed from the base. If excessive voltage is applied to an input, a self-resetting fuse will open to prevent the shunt from overheating.

➔ Open Loop Detection on Analog Inputs

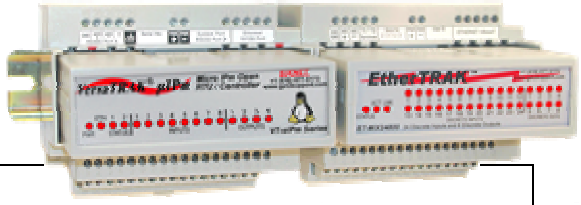
This module can detect and report an open instrumentation loop on its analog inputs. By allowing the module to report a negative value if the current falls below 4 mA, low limit logic in your DCS, PLC, RTU or computer can signal the loss of current. To enable this feature, select the "Go Negative Below 4 mA" software setting for each channel.

➔ Reading Voltage Analog Inputs

For each analog input a jumper may be moved to convert the channel from 4-20 mA to 0-5 V. Then voltage operation must be configured in the I/O Tool Kit by selecting the appropriate range for the corresponding input.

Flexible I/O Expansion

Add EtherTRAK or RemoteTRAK I/O modules to either the Ethernet or RS485 port on a Micro-IPm for a total of up to 256 I/O points.



Ordering Information

Model	Description	DI	DO	AI	RS232	RS485	Ethernet
VT-UIPM-431-H	Module with wiring base	8	4	2	2	1	10/100
VT-UIPM-441-H	Module with wiring base	8	4	0	3	1	10/100
Accessories *							
Ethernet or RS485 I/O	EtherTRAK or RemoteTRAK I/O modules for expansion						
VT-MODEM-1	Industrial telephone modem - rated for world-wide use						
RM-PS-024-01F	Universal 24 VDC power supply - 1 Amp						
SXTOOLS-#	I/O Tool Kit software for configuration, diagnostics, datalogging, & more						
ST-1131-256	ISaGRAF Workbench - IEC 61131 programming tools for 256 I/O						
PAK####-##	Complete Packaged System - designed, built, tested, and ready to install						
* See separate SIXNET Ordering Guide for details on the accessories.							

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Micro-IPm Applications

Chemical Delivery Systems

Improve the effectiveness of your Chemical Delivery Systems. Control concentrations, monitor usage, create reports, and reorder automatically. SIXNET can provide you with a customized solution to meet your customer's exact demands.

Tag ID Systems

Micro-IPm is the ideal plant floor interface for bar code and tag ID systems. These programmable RTUs store database tables, perform local control functions and connect to host systems.

Energy Management Systems

Record energy usage, monitor peak demand and perform load-shedding functions. DNP3 support records and reports time stamped events. Flexible programmability easily accommodates special requirements.

The Micro-IPm is a Programmable SiteTRAK

The Micro-IPm is ideal for all those SiteTRAK applications requiring datalogging and alarm detection at remote sites but need some programming or more I/O expansion.

Environmental Management

VersaTRAK IPm systems are an idyllic way to effectively meet EPA and other regulations for continuous monitoring systems while minimizing costs. SIXNET makes it easy for you to collect your emissions data into your management software.

IPm is an OEM Solution

SIXNET will gladly private label or manufacture IPm units to your exact requirements. The VersaTRAK IPm CPU is available to OEMs who need an industrially hardened platform for new product designs or to web enable existing products. For more details check out http://www.linux4oems.com

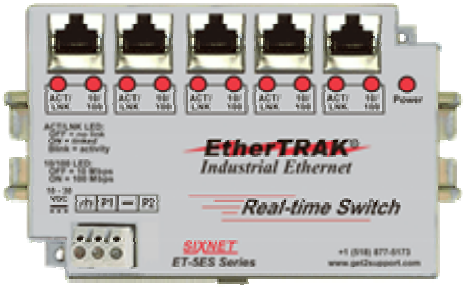
SIXNET Industrial Solutions

SIXNET delivers a broad line of "Industrial Strength" products for process control, SCADA, and remote site management, including:

Industrial Phone Modems

Modular Ethernet I/O and RS485 I/O

Real-time Ethernet Switches



Request Your FREE Product CD at http://www.sixnetio.com

Contact your SIXNET Applications Engineer Today!

For the latest information, check out http://www.SIXNETio.com

Micro-IPm Datasheet - Rev 12-Jan-07

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