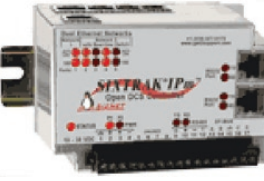






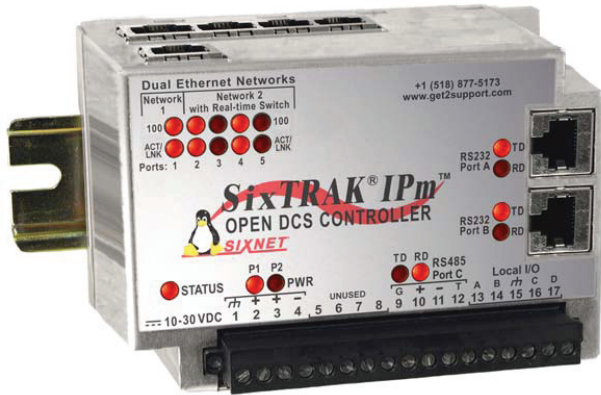


CPU		I/O antal	
<p>SixTRAK IPm Open Controller</p>		<p>640 interne og 50.000+ eksterne</p>	<p>Den ultimative DCS process-controller med fleksibel kommunikation, flere samtidige programmuligheder og Linux platform.</p>
<p>VersaTRAK IPm Open RTU</p>		<p>640 interne og 50.000+ eksterne</p>	<p>Den første åbne RTU, rig på ISaGRAF og Linux løsninger. Ethernet, 4 serielle porte, forberedt for internet. Op til 1000 lokale I/O'er</p>
<p>SixTRAK I/O Controller/ RTU</p>		<p>640 interne og 50.000+ eksterne</p>	<p>En programmerbar RTU for mindre krævende opgaver. 100% IPm kompatibel.</p>
<p>Mini-Versa TRAK mIPm Open RTU  Micro-Versa TRAK</p>		<p>26 interne I/O udvidelse muligheder  14 interne I/O udvidelse muligheder</p>	<p>En åben RTU for små opgav-udvidelse muligheder 26/14 interne I/O, 4 serielle porte Ethernet, Sixlog. ISaGRAF samt Linux platform.</p>
<p>RemoteLog Pre-configured RTU/Datalogger</p>		<p>11 interne I/O udvidelse muligheder</p>	<p>Fjernovervågning , RTU og datalogger.</p>
<p>RemoteTRAK Low Cost RTU</p>		<p>16 interne I/O udvidelse muligheder</p>	<p>Kombinerer I/O modul med RS232 / RS485 Interface</p>
<p>Redundant Ether- net I/O Gateway</p>			<p>Kan blandt andet bruges som sikkerhedsenhed for kritiske systemer</p>
<p>Software  Plant floor – grafisk layout  ISaGRAF – TEC 61131-3</p>			<p>Instruktion i brugen af Programmeringssprog samt I/O disponering.</p>



# SixTRAK® IPm™

The Ultimate Process Controller with the Power of Open LINUX Software



## Inside This Compact DCS

Industrial PowerPC (true 32 bit data bus)

Up to 64 Megabytes of fast dynamic memory

Up to 128 Megabytes of Flash disk

5 Ethernet ports and dual (redundant) networks

Three flexible and fully featured serial ports

Up to 640 local I/O channels

Up to 50,000 distributed I/O

Embedded LINUX open source software

100% SixTRAK Gateway compatible

SIXNET "I/O for Windows" software tools

Ratings for Zone 2, UL, CSA, CE & DNV

Industrially rugged operation: -40 to 70°C

- **Process Control, SCADA, & DCS**  
A modular and scalable automation solution
- **Your Choice of Open Programming**  
IEC 61131 open and high level C++ programming
- **Limitless Multi-user Connectivity**  
Telephone, Internet, and wireless telemetry
- **Dual Ethernet Networks**  
Two unique IP addresses for redundant networking
- **Advanced Industrial Capabilities**  
Redundancy, datalogging, peer to peer links
- **True Open System Design**  
Ethernet TCP, Modbus, LINUX, OPC, and more
- **Small to Large Applications**  
Scalable from 1 to 1,000+ stations
- **Unlimited I/O Expansion**  
Grow from a few points to more than 50,000
- **Embedded LINUX Open Source Software**  
Web servers, custom com drivers & much more
- **An OEM's Dream Platform**  
Add your own LINUX applications

Use this powerful industrial module as an applications-ready process controller or as an open platform for your own LINUX based application.



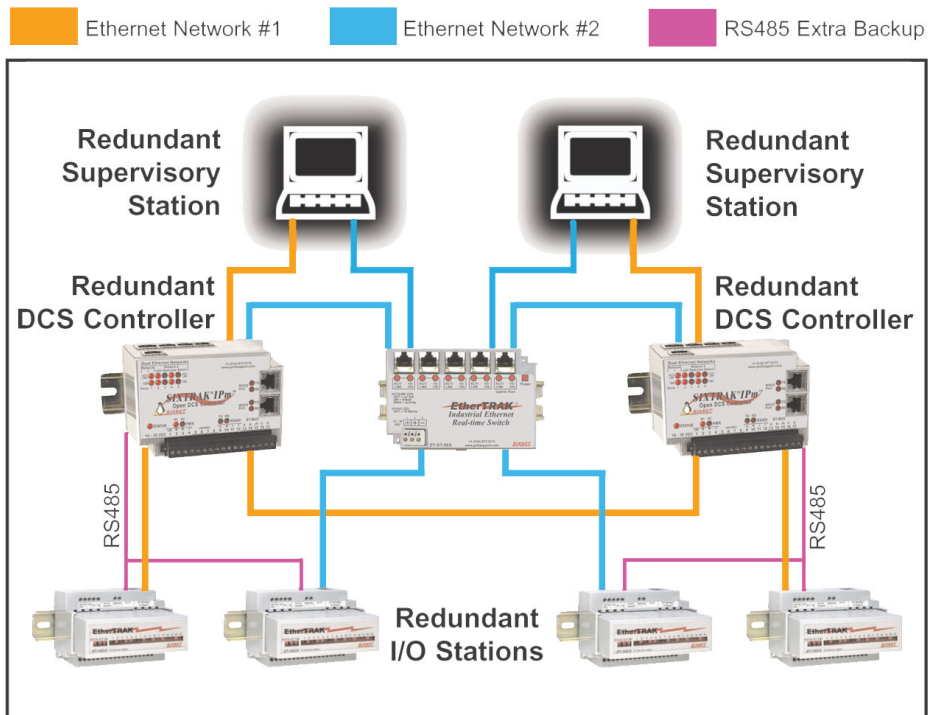
**Benefits of LINUX open source software**

- 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.
- Supplied with "I/O for 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.
- Create Internet servers with high level tools (Microsoft FrontPage, etc.).
- The LINUX software is invisible to the user – only access it if you choose to.
- When thousands of developers pool their resources everyone wins.

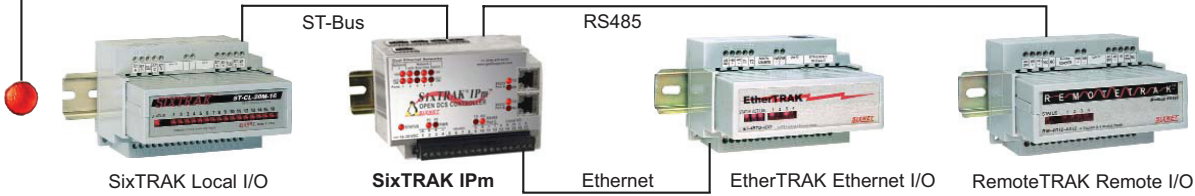
*The Sky's the Limit!*

Five Ethernet ports (twin networks), three serial ports, and limitless I/O expansion connect this powerful DCS to your application.

**Modular DCS Solutions with Full Redundancy**



## SixTRAK IPm is just one modular component of your Scalable Control System



### Limitless Connectivity

SixTRAK IPm has nine ports –

- 1 10/100 Ethernet port (Network 1) with unique MAC address and settable IP address.
- 2 3 4 5 Four 10/100 Ethernet ports (Network 2) linked via internal real-time Ethernet switch. Second MAC address and settable IP address.
- 6 7 Two universal RS232 ports with support for telephone and wireless communications.
- 8 RS485 port for RemoteTRAK I/O, Modbus I/O and more.
- 9 ST-Bus for up to 640 SixTRAK local I/O.

### Ordering Information


SixTRAK IPm	Static RAM	Dyn. RAM	Flash
ST-IPM-1350	512K	16 MB	16 MB
ST-IPM-2350	2 MB	16 MB	16 MB
ST-IPM-6350	2 MB	64 MB	128 MB
Accessories			
Local I/O	See SixTRAK ordering guide		
Ethernet I/O	See EtherTRAK ordering guide		
RS485 I/O	See RemoteTRAK ordering guide		
VT-MODEM-1	Industrial telephone modem		
RM-PS-024-01F	Universal 24 VDC power supply		
SXTOOLS-# *	I/O Tool Kit software for configuration, diagnostics, datalogging, and more		
ST-1131-### *	ISaGRAF Workbench IEC 61131 programming tools		
PAK####-### *	Complete Packaged System		

\* See separate SIXNET Ordering Guide for details.

### Performance Specifications

General	Industrial PowerPC (32 bit data bus)
Operating system	Embedded LINUX
Dynamic memory (RAM)	16+ Megabytes - 32bit, 0 wait states
Program memory (Flash)	16+ Megabytes
Datalogging memory (RAM)	512K or 2 MB (battery-backed)
Maximum local I/O	640
Maximum distributed I/O	50,000+ (application dependent)
Datalogging support	Yes – SIXNET Sixlog
IEC 61131 programming	Yes – SIXNET ISaGRAF
High Level C programming	Yes – LINUX open software
Ethernet Ports (All)	10/100BaseTx (auto-detecting)
Connection	RJ45 (auto-crossover)
Protocols	TCP/IP, ARP, UDP, ICNP, DHCP, Modbus/TCP, SIXNET, and more
Independent networks	2 w/ unique MAC and IP addresses
Network port 1	1 shielded RJ45 connector
Network port 2	4 shielded RJ45 connectors (linked via integrated Ethernet switch)
Serial Ports	Up to 115,200 baud
RS232 Port A	RJ45 (TD, RD, CTS, RTS, CD, DTR, DSR, GND)
RS232 Port B	RJ45 (TD, RD, CTS, RTS, CD, DTR, DSR, GND)
RS485 Port C	Screws (485+, 485-, GND) (2-wire half-duplex)
Protocols (master or slave)	SIXNET & Modbus RTU/ASCII; Many others available in LINUX
Flow Control	Hardware, software, half/full-duplex modem
Environmental	DIN rail or flat panel mount
Input power	10-30 VDC
Input current	150 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; EN61010-1 (IEC1010); <b>CE</b>
EMI emissions	FCC part 15, ICES-003, Class A; EN55022; EN61326-1; <b>CE</b>
EMC immunity	EN61326-1 (EN61000-4-2,3,4,6); <b>CE</b>
Surge withstand	IEEE-472 (ANSI C37.90)
Vibration	IEC68-2-6
Hazardous locations (Class 1, Div 2, Groups A,B,C,D)	UL 1604, CSA C22.2/213, Cenelec EN50021 Zone 2
Marine & Offshore	DNV (Det Norske Veritas)

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



## Scalable Control System Applications

### **Process Control**

The SixTRAK IPm has powerful programming tools and many advanced features for building “Scalable” process control systems.

### **Distributed Control Systems (DCS)**

The SixTRAK IPm is a perfect addition to any DCS. With its flexible connectivity (9 ports standard), vast I/O expansion (50,000+ per station), and a powerful open software (LINUX and IEC 61131), it can handle even the largest systems with ease.

### **SCADA Systems**

The sky is the limit when you link IPm into your SCADA systems. SIXNET makes it easy to seamlessly integrate your choice of software with SIXNET solutions to create the ideal system.

### **Environmental Management**

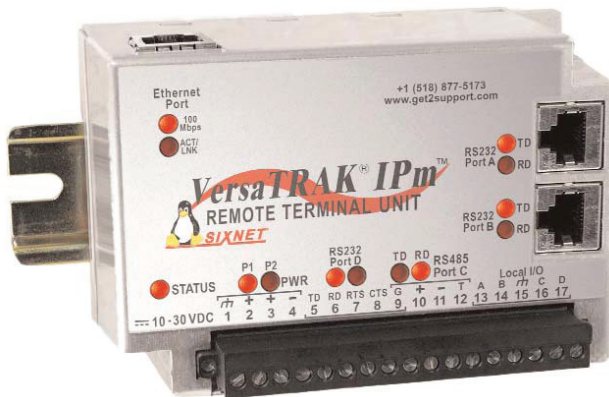
IPm systems are an idyllic way to effectively meet EPA and other regulations for continuous monitoring systems while minimizing costs. SIXNET makes it easy for you to collect your emissions data into your management software.

### **Chemical Delivery Systems**

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

# VersaTRAK® IPm™

The Ultimate RTU with the Power of Completely Open LINUX Software



## Inside This Compact RTU

Industrial PowerPC (true 32 bit data bus)

16 Megabytes of fast dynamic memory

16 Megabytes of Flash disk

10/100 Auto-detecting real-time Ethernet

Four flexible and fully featured serial ports

Up to 640 local I/O channels

50,000 or more distributed I/O

Embedded LINUX open source software

100% VersaTRAK RTU compatible

SIXNET "I/O for Windows" software tools

Ratings for Zone 2, UL, CSA, CE & DNV

Industrially rugged operation: -40 to 70°C

- **Datalogging and Timestamping**  
Trending, alarm logging, & sequence of events
- **Stand Alone Control of Remote Sites**  
IEC 61131 PLCopen & high level C++ programming
- **Limitless Multi-user Connectivity**  
Telephone, Internet, and wireless telemetry
- **Advanced Communication Capabilities**  
Report on exception, store & forward, peer to peer
- **True Open System Design**  
Ethernet TCP, Modbus, LINUX, OPC & more
- **Small to Large Applications**  
Scalable from 1 to 1,000+ stations
- **Unlimited I/O Expansion**  
Grow from a few points to more than 50,000
- **Master Terminal Unit / Concentrator**  
Collect data from unlimited remote stations
- **Embedded LINUX Open Source Software**  
Web servers, custom com drivers & much more
- **An OEM's Dream Platform**  
Add your own LINUX applications

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



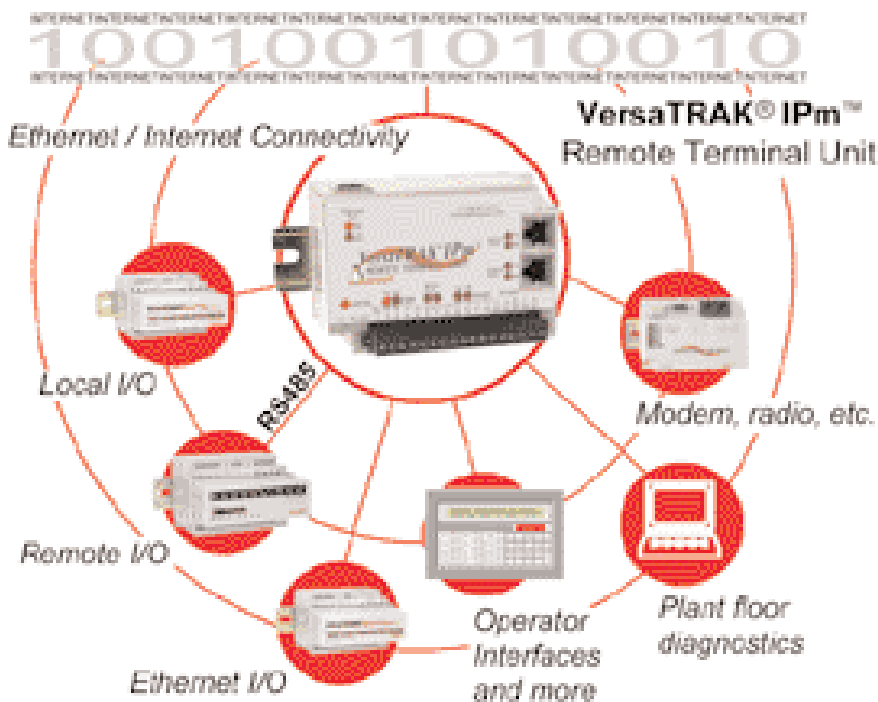
**Benefits of LINUX open source software**

- High performance without compromise.
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- When thousands of developers pool their resources everyone wins.

*The Sky's the Limit!*

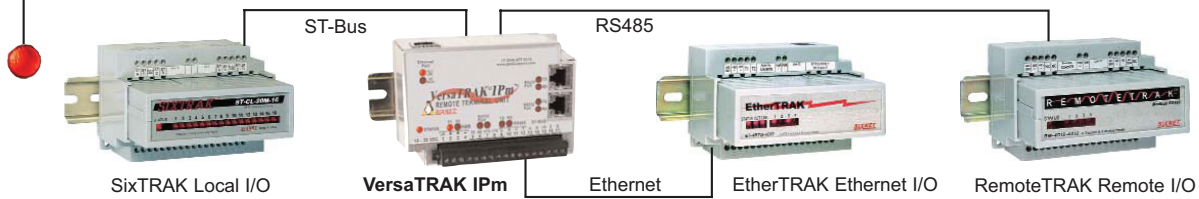
10/100 real-time Ethernet, four serial ports and limitless I/O expansion connect this powerful RTU to your application.

**Six ports offer limitless connectivity!**





## VersaTRAK IPm is just one modular component of your Scalable Control System



## Flexible I/O Choices

SIXNET offers more than 50 local, RS485 and Ethernet I/O modules that connect to a VersaTRAK IPm.



### SIXNET "Process Quality" I/O

- 16 bit instrumentation inputs
- 4-20mA, voltage, thermocouples, & RTDs
- AC & DC discrete I/O
- Hot swap capability

Go to [www.sixnetio.com](http://www.sixnetio.com) for details

## Ordering Information


VersaTRAK IPm	Static RAM	Dyn. RAM	Flash
VT-IPM-1410	512K	16 MB	16 MB
VT-IPM-2410	2 MB	16 MB	16 MB
Accessories			
ST-MIX-####	Combo I/O module		
Local I/O	See SixTRAK ordering guide		
Ethernet I/O	See EtherTRAK ordering guide		
RS485 I/O	See RemoteTRAK ordering guide		
VT-MODEM-1	Industrial telephone modem		
RM-PS-024-01F	Universal 24 VDC power supply		
SXTOOLS-# *	I/O Tool Kit software for configuration, diagnostics, datalogging, and more		
ST-1131-### *	ISaGRAF Workbench IEC 61131 programming tools		
PAK#####-## *	Complete Packaged System		

\* See separate SIXNET Ordering Guide for details.

## Performance Specifications

<b>General</b>	Industrial PowerPC (32 bit data bus)
Operating system	Embedded LINUX
Dynamic memory (RAM)	16 Megabytes – 32bit, 0 wait states
Program memory (Flash)	16 Megabytes
Datalogging memory (RAM)	512K or 2 MB (battery-backed)
Maximum local I/O	640
Maximum distributed I/O	50,000+ (application dependent)
Datalogging support	Yes – SIXNET Sixlog
IEC 61131 programming	Yes – SIXNET ISaGRAF
High Level C programming	Yes – LINUX open software
<b>Ethernet Port</b>	10/100BaseTx (auto-detecting)
Connection	RJ45 (auto-crossover)
Protocols	TCP/IP, ARP, UDP, ICMP, DHCP, Modbus/TCP, SIXNET, and more
<b>Serial Ports</b>	Up to 115,200 baud
RS232 Port A	RJ45 (TD, RD, CTS, RTS, CD, DTR, DSR, GND)
RS232 Port B	RJ45 (TD, RD, CTS, RTS, CD, DTR, DSR, GND)
RS485 Port C	Screws (485+, 485-, GND) (2-wire half-duplex)
RS232 Port D	Screws (TD, RD, CTS, RTS, GND)
Protocols (master & slave)	SIXNET & Modbus RTU/ASCII; Many others available in LINUX
Flow Control	Hardware, software, RTS-party (for radios and RS485)
<b>Environmental</b>	DIN rail or flat panel mount
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; EN61010-1 (IEC1010); <b>CE</b>
EML emissions	FCC part 15, ICES-003, Class A; EN55022; EN61326-1; <b>CE</b>
EMC immunity	EN61326-1 (EN61000-4-2,3,4,6); <b>CE</b>
Surge withstand	IEEE-472 (ANSI C37.90)
Vibration	IEC68-2-6
Hazardous locations (Class 1, Div 2, Groups A,B,C,D)	UL 1604, CSA C22.2/213, Cenelec EN50021 Zone 2
Marine & Offshore	DNV (Det Norske Veritas)

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



## VersaTRAK IPm Applications

### **Water Treatment**

SIXNET has been providing leading edge water treatment control and monitoring solutions for many years. The VersaTRAK IPm brings these systems into the 21st century with state of the art technology.

### **SCADA Systems**

The sky is the limit when you link the VersaTRAK IPm into your SCADA systems. SIXNET makes it easy to seamlessly integrate your choice of software with SIXNET solutions to create the ideal system.

### **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.

### **Chemical Delivery Systems**

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

### **Process Control**

The VersaTRAK IPm has powerful programming tools and many advanced features for building "Scalable" process control systems.

# I/O Controller

Industrial I/O Controller for Ethernet I/O, RS485 I/O, or Modbus I/O



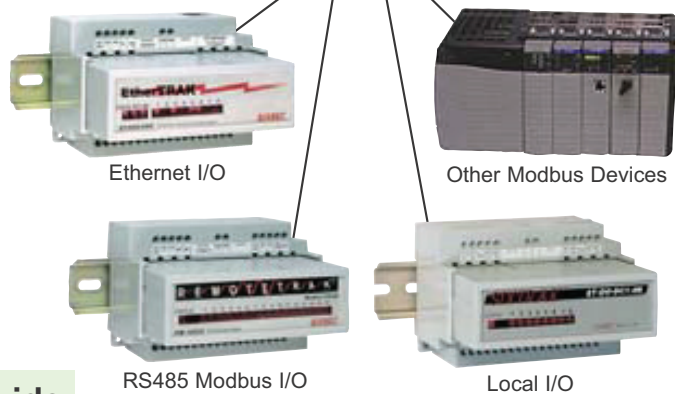
- **Process Control, SCADA, and RTU functionality**  
IEC 61131-3 programming with all five languages supported  
Datalogging and peer-to-peer I/O transfers
- **Ethernet, RS232, RS485, and local I/O expansion**  
Supports more than 40 **SIXNET** I/O module types  
Interface to other vendor's Modbus I/O
- **Flexible communications**  
Supports Open Modbus/TCP, ASCII, and RTU  
Supports telephone, wireless and other links
- **Compact DIN-rail industrial package**  
Zone 2, UL, CSA, CE, and DNV rated  
-30 to +70°C operating temperature range

## Industrial I/O Controller for **SIXNET** and Modbus Systems

The SixTRAK I/O Controller (ST-GT-1210) can run an ISaGRAF IEC 61131-3 program, perform datalogging, and interface to thousands of I/O, all in real-time. Select this unit when you need a reliable way to control or monitor Ethernet, RS485, or local I/O, and then connect to a supervisory computer. It is perfectly suited for most control and data acquisition applications where some PLC-style programming is required.

This one I/O controller replaces most of **SIXNET**'s legacy programmable SixTRAK I/O gateways (part numbers ST-GT-xxx-##P).

### Control I/O from



## SIXNET I/O controller selection guide

Product	Description	Maximum Memory	LINUX Enabled	ISaGRAF Programs	Data-logging	Total Ports	232 Ports	485 Ports	Ethernet Ports
ET-GT-ST-2	I/O Concentrator	128K	—	—	—	3	1	1	1
ST-GT-xxx-##P	Legacy I/O Gateway *	2M	—	1	Yes	2	1	1	1
<b>ST-GT-1210</b>	<b>I/O Controller</b>	<b>512K &amp; 16M</b>	<b>OEM Only</b>	<b>1</b>	<b>Yes</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>1</b>
ST-IPM-####	Open Controller	2M & 16M+	Yes	4	Yes	3	1	1	1

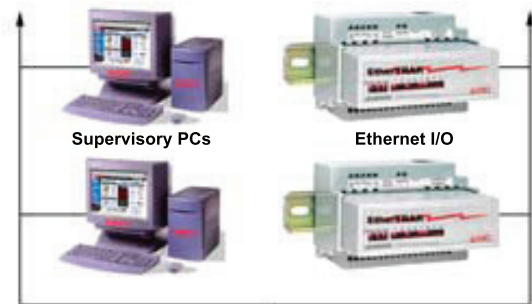
\* Note: The ST-GT-1210 replaces the legacy SixTRAK programmable I/O gateways (ST-GT-xxx-##P).

## Performance Specifications

<b>General</b>	32-bit CPU
Memory for programming	16 Meg Flash and 16 Meg dynamic RAM
Memory for datalogging	512K battery-backed static RAM
I/O registers	Up to 50,000
Configuration & diagnostics	<i>SIXNET</i> I/O Tool Kit software
Datalogging support	Yes – <i>SIXNET</i> Sixlog
IEC 61131 programming	Yes – <i>SIXNET</i> ISaGRAF
<b>SixTRAK I/O (ST-BUS) port</b>	Up to 20 modules (640 I/O)
SixTRAK I/O specs.	See individual data sheets
ST-BUS specs.	See user manual for details
<b>Ethernet port</b>	10/100BaseTx auto-sensing
Connection	RJ45 (TD,RD,CTS,RTS,CD,DTR,DSR,GND)
Isolation	1200 VRMS 1 minute
Protocols	Modbus and <i>SIXNET</i> over TCP or UDP
<b>Serial ports</b>	Up to 115,200 baud
RS232 port	RJ45 (TD,RD,CTS,RTS,CD,DTR,DSR,GND)
RS485 port	Screws (485+, 485-, GND) 2-wire half-duplex
RS485 network	Up to 32 (full-load) stations
RS485 distance	Up to 0.5 miles (1 Km)
Flow control	Hardware, software, half/full-duplex modem
Protocols	Modbus RTU, Modbus ASCII, and <i>SIXNET</i>
Modes	Master, slave, and passthru
<b>Environmental</b>	DIN rail or flat panel mount
Power	10-30 VDC; 3 watts typ. (less modules)
Temperature	-30 to +70°C (-40 to +85°C storage)
Humidity	5% to 95% RH (non-condensing)
Electrical Safety	UL 508, CSA C22.2/14; EN61010-1;
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 (Class 1, Div 2, Groups A,B,C,D)	Cenelec EN50021 Zone 2
Marine & Offshore	DNV (Det Norske Veritas)

## Ordering Information

ST-GT-1210	SixTRAK I/O Controller
<b>Note:</b> Replaces legacy programmable SixTRAK Gateways (ST-GT-xxx-##P).	
<b>Accessories</b>	
Local I/O modules	See SixTRAK ordering guide
Ethernet I/O modules	See EtherTRAK ordering guide
RS485 I/O modules	See RemoteTRAK ordering guide
VT-MODEM-1WW	Industrial telephone modem for remote access
RM-PS-024-01F	Universal AC/DC to 24 VDC power supply
SXTOOLS-# *	<i>SIXNET</i> I/O Tool Kit software for configuration and diagnostics (Level 1 is free)
PAK####-### *	Complete Packaged System – ready for installation
<b>*Note:</b> See separate <i>SIXNET</i> ordering guide for details.	

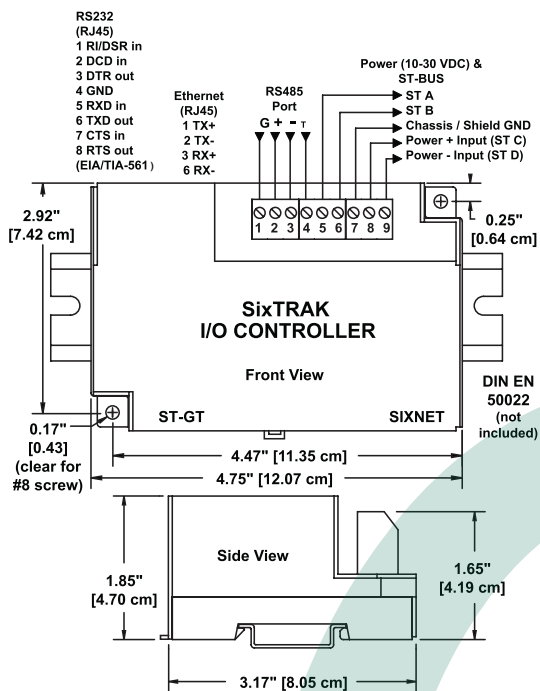
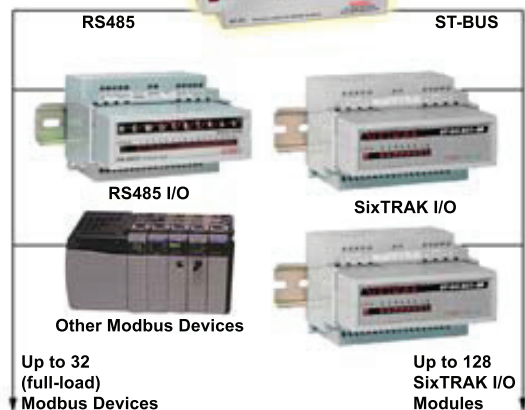


Supervisory PCs  
Ethernet I/O

Ethernet Network

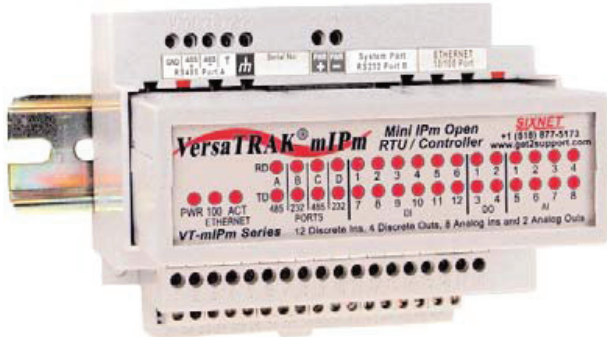
RS232 to laptop, radio, modem, Modbus device and more

SixTRAK I/O Controller



# Mini-VersaTRAK® mIPm™

The Ultimate Truly Open RTU - Complete with 26 On-board I/O



## Inside This Compact RTU

Industrial PowerPC (true 32 bit data bus)

16 Megabytes of fast dynamic memory

16 Megabytes of Flash disk

10/100 Auto-detecting real-time Ethernet

Four flexible real-time serial ports

26 on-board discrete & analog I/O

Expandable with SIXNET I/O Modules

Embedded LINUX open source software

100% VersaTRAK RTU compatible

SIXNET "I/O for Windows" software tools

Ratings for Zone 2, UL, CSA, CE & DNV

Industrially rugged operation: -40 to 70°C

- **Modular Hot-Swap RTU**  
Pluggable DIN Rail Module
- **Datalogging and Timestamping**  
Trending, alarm logging, & sequence of events
- **Stand Alone Control of Remote Sites**  
IEC 61131 ISaGRAF & high level C++ programming
- **Limitless Multi-user Connectivity**  
Telephone, Internet, and wireless telemetry  
10/100 Ethernet plus up to 4 com ports
- **Advanced Communication Capabilities**  
Report on exception, store & forward, peer to peer
- **True Open System Design**  
Ethernet TCP, Modbus, LINUX, OPC & more
- **Small to Large Applications**  
Scalable from 1 to 1,000+ stations
- **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.



Benefits of LINUX open source software

- High performance without compromise.
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**Instant Products to Market.**

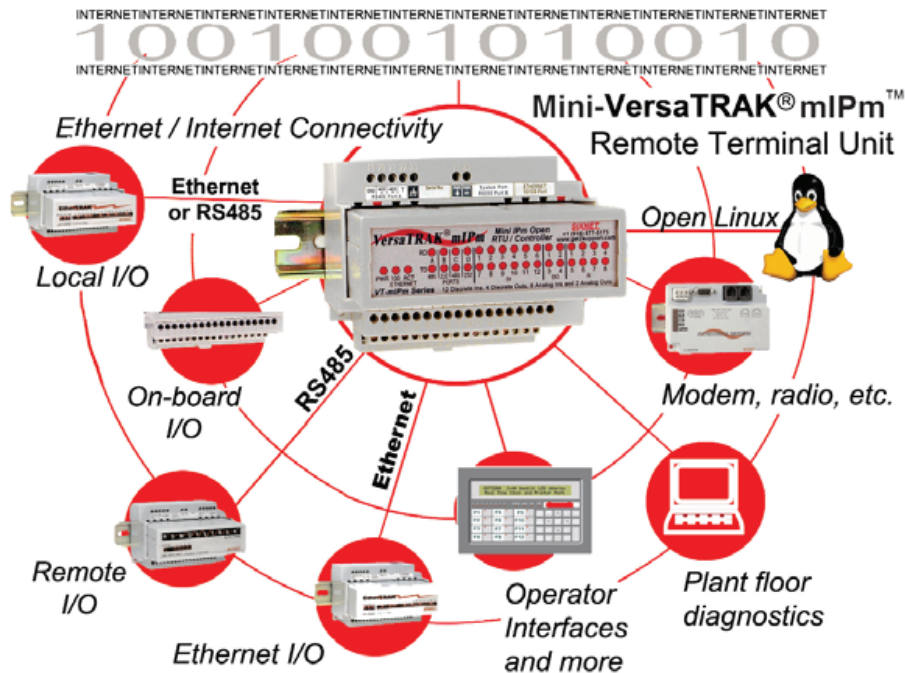
- All this power at your fingertips.
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 UNIX has been around for 30 years, and its popularity is still growing.  
 The LINUX software is invisible to the user – only access it if you choose to.  
 When thousands of developers pool their resources everyone wins.

The Sky's the Limit!

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

Five ports offer limitless connectivity!



## Mini-IPm is the Ideal OEM Product Platform

The Mini-IPm is a product-ready platform. Bring your product to market by simply adding your existing ISaGRAF application or use the open-source Linux development Tools. SIXNET will put your name on the mIPm faceplate and your special product is ready for market in record time!

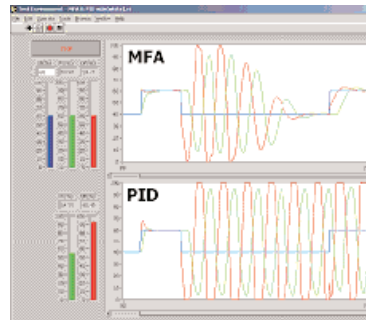


### Integrators Turn Solutions into Products

Industrial Automation in Western Australia has many years experience in water treatment and wireless solutions. They have incorporated this "know how" into their Waterman Irrigation Controller. Water delivery is conveniently controlled from SMS text messages sent from a mobile phone. You too can have this product success. Take the "Quick Tour" to creating your own IPm-based products at [www.Linux4oems.com](http://www.Linux4oems.com).

### CyboSoft Delivers Advanced Control Solutions

CyboSoft has embedded their Model-Free Adaptive (MFA) control software inside IPm. Now, any IPm user can effectively control tough loops such as nonlinear, pH, and large dead-time processes. "CyboCon IPm" is fully integrated with the existing suite of SIXNET features with direct interface to ISaGRAF, Sixlog datalogging, and all I/O drivers through standard I/O registers. CyboCon IPm is available from CyboSoft or an authorized distributor. Details at: [www.cybosoft.com](http://www.cybosoft.com)



When MFA (top) and PID (bottom) start from the same oscillating control condition, PID will continue to oscillate while MFA will quickly adapt to an excellent control condition.

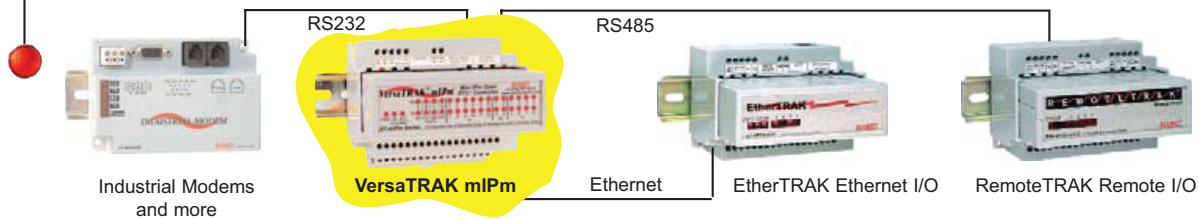


### Partnerships That Build Upon Success

Edison Automation has elevated their partnership with SIXNET to a new level. The Edison Automation name on mIPm controllers tells their customers that Edison's special "know how" is included inside this enhanced mIPm RTU. Edison proudly connects standard SIXNET I/O modules to expand their systems. Their customers are pleased that they benefit from Edison's fine service added to SIXNET's robust automation products.



## VersaTRAK mIPm is just one modular component of your Scalable Control System



## Performance Specifications

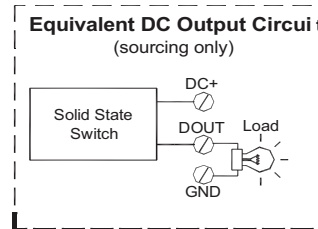
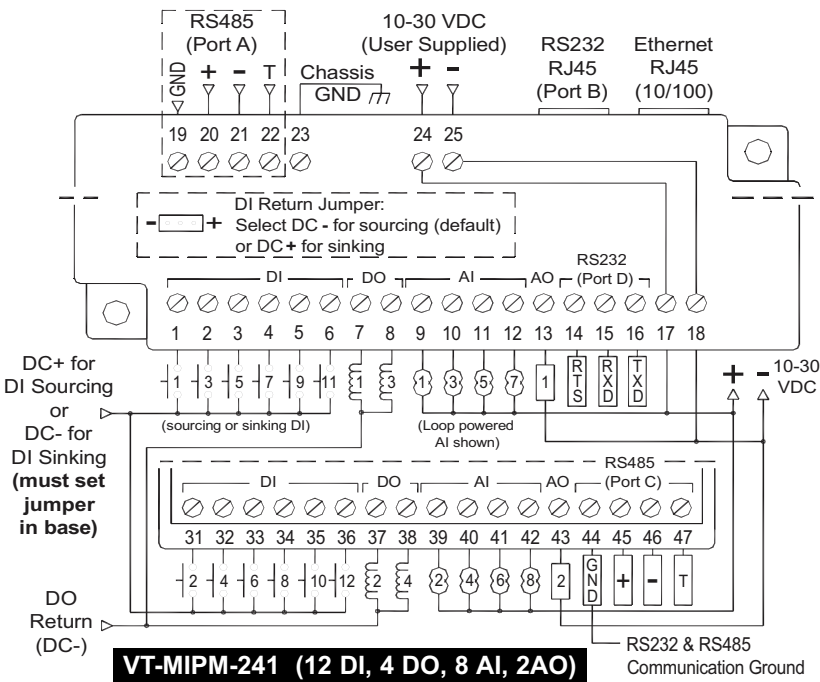
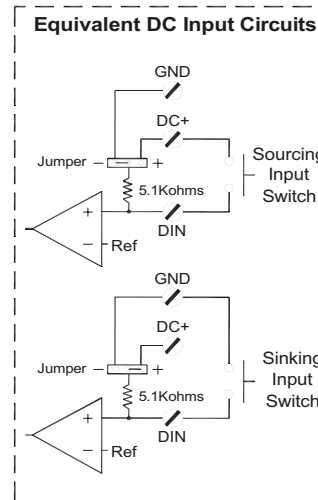
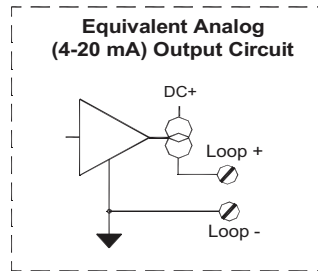
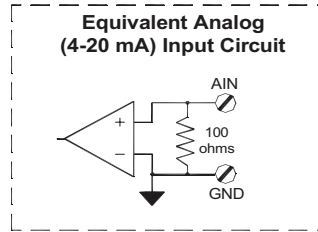
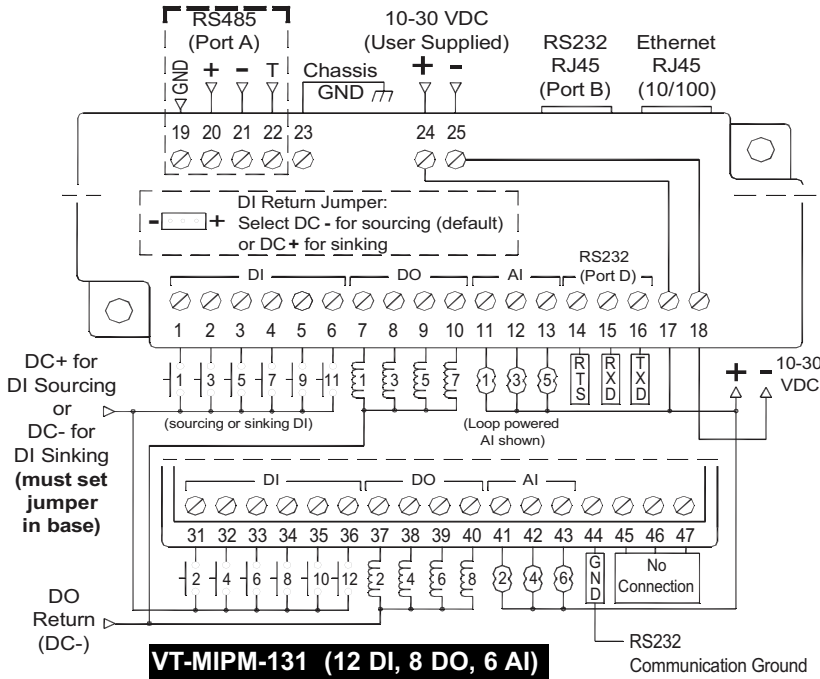
<b>General</b>	Industrial PowerPC (32 bit data bus)
Operating System	Embedded Linux
Dynamic memory (RAM)	16 Mbytes - 32bit, 0 wait states
Program memory (Flash)	16 Mbytes
Retained memory (RAM)	512K (battery-backed)
Local I/O (on-board)	26 (see ordering info.)
I/O Expansion (up to 256)	RS485 or Ethernet
Datalogging support	Yes - SIXNET Sixlog
IEC 61131 programming	Yes - SIXNET ISaGRAF
High Level C programming	Yes - LINUX open source
<b>Ethernet Port</b>	10/100BaseTx (auto-detecting)
Connection	RJ45 (auto-crossover)
Protocols	TCP/IP, ARP, UDP, ICNP, DHCP, Modbus/TCP, SIXNET, and more
<b>Serial Ports</b>	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)
RS485 Port C (optional)	Screws (485+, 485-, GND) (2-wire half-duplex)
RS232 Port D	Screws (TD, RD, RTS, GND)
Protocols (master & slave)	SIXNET & Modbus RTU/ASCII; Many others available in LINUX
Flow Control	Hardware, software, RTS-party (for radios and RS485)
<b>Environmental</b>	DIN rail or flat panel mount
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 (Class 1, Div 2, Groups A,B,C,D)	UL 1604, CSA C22.2/213, Cenelec EN50021 Zone 2
Marine & Offshore	DNV (Det Norske Veritas)

<b>Discrete inputs</b>	12 channels (sinking or sourcing)
Guaranteed ON voltage	9 VDC
Maximum voltage	30 VDC
Guaranteed OFF voltage & current	5.0 VDC & 1.5 mA DC
Input resistance	10K Ohms
Input current @ 24 VDC	3 mA
Filtered ON/OFF delay	25 mS (20 Hz max. counting)
Fast ON/OFF delay	4 mS (100 Hz max. counting)
Count rate (channels 1 thru 8 only)	See above (10 KHz on channel 1)
<b>Discrete Outputs</b>	4 or 8 channels (10-30 VDC)
Maximum output per channel	1 Amp
Maximum output per module	8 Amps
Max. OFF state leakage	0.05 mA
Minimum load	1 mA
Inrush current	5 Amps (100 mS surge)
Typical ON resistance	0.3 Ohms
Typical ON voltage (@1A)	0.3 VDC
<b>Analog Inputs</b>	6 or 8 channels (4-20 mA)
A/D resolution	16 bits (0.003%)
Full scale accuracy	+/-0.1% (@20°C)
Span and offset temp. coef.	+/-50 ppm per degree C
Input impedance	100 Ohm
Current protection	Self-resetting fuses
DMRR (differential mode rejection)	66 dB at 50/60 Hz
<b>Analog Outputs</b>	up to 2 channels (4-20 mA)
D/A resolution	16 bits (less than 1µA)
Full scale accuracy (@20°C)	+/- 0.02%
Span and offset temp. coef.	+/- 50 ppm per °C typical
Max. output settling time	5 mS (to .05%)
Load resistance range (@ +24 VDC supply)	0-750 Ohms
Short circuit protection	Current limiting

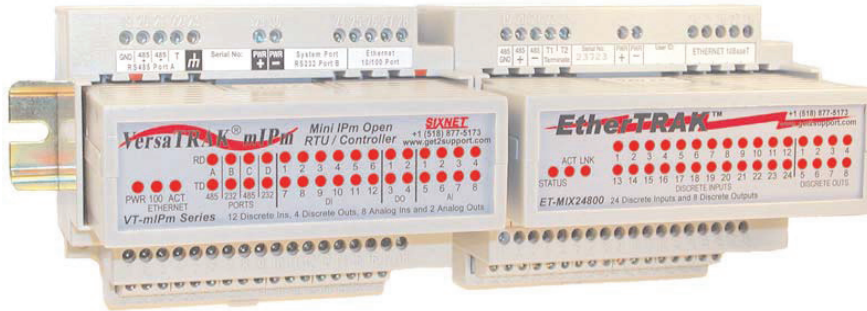
Specifications are subject to change. Consult factory for latest information



Mini-VersaTRAK mIPm - Wiring

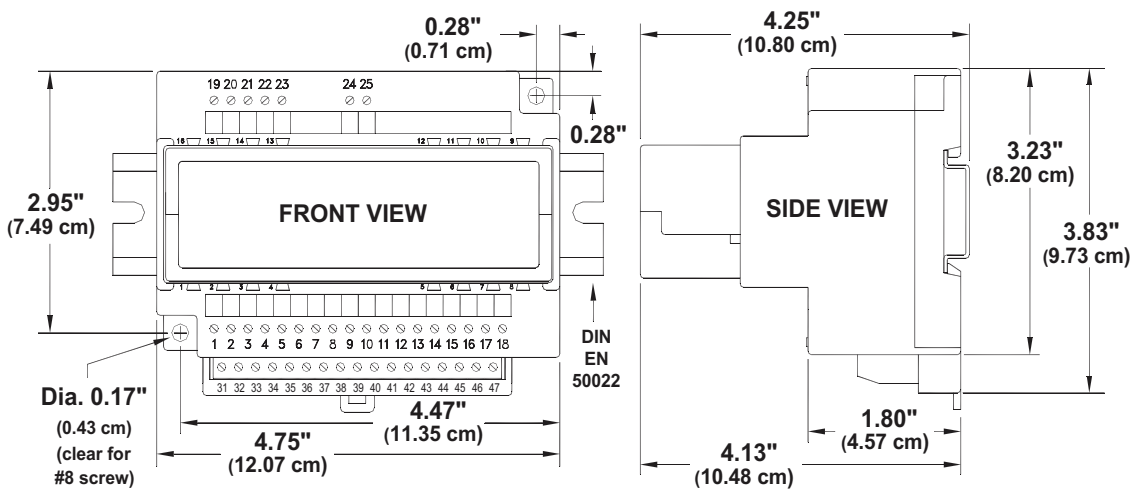


Flexible I/O Expansion




Add an EtherTRAK double density I/O module to either the Ethernet or RS485 port on a Mini-VersaTRAK mIPm for a total of 58 I/O points.

Mini-VersaTRAK mIPm - Mechanical Dimensions



Ordering Information

Model	DI	DO	AI	AO	RS232	RS485	Ethernet
VT-MIPM-131-D	12	8	6	0	2	1	10/100
VT-MIPM-241-D	12	4	8	2	2	2	10/100
Accessories *							
Ethernet I/O	EtherTRAK Ethernet I/O modules for expansion						
RS485 I/O	RemoteTRAK RS485 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, and more						
ST-1131-###	ISaGRAF Workbench - IEC 61131 programming tools						
PAK####-##	Complete Packaged System - designed, built, tested, and ready to install						
* See separate SIXNET Ordering Guide for details on the accessories.							



## VersaTRAK mIPm Applications



### Water Treatment

SIXNET has been providing leading edge water treatment control and monitoring solutions for many years. The VersaTRAK IPm brings these systems into the 21st century with state of the art technology.

### SCADA Systems

The sky is the limit when you link the VersaTRAK IPm into your SCADA systems. SIXNET makes it easy to seamlessly integrate your choice of software with SIXNET solutions to create the ideal system.

### 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.

### Chemical Delivery Systems

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

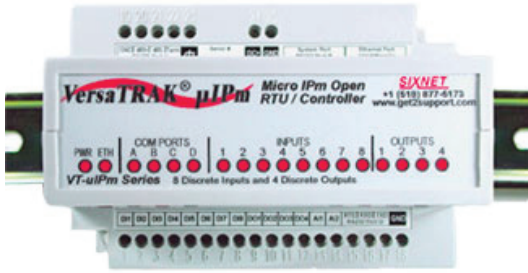
### Process Control

The VersaTRAK IPm has powerful programming tools and many advanced features for building "Scalable" process control systems.



# Micro-VersaTRAK $\mu$ IPm™

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 – expand to 128MB

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

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 &  
Conelec Zone 2



Marine &  
Offshore



European  
Community

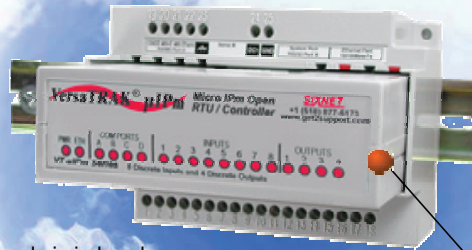


UL508  
for Safety

## Benefits of LINUX open source software

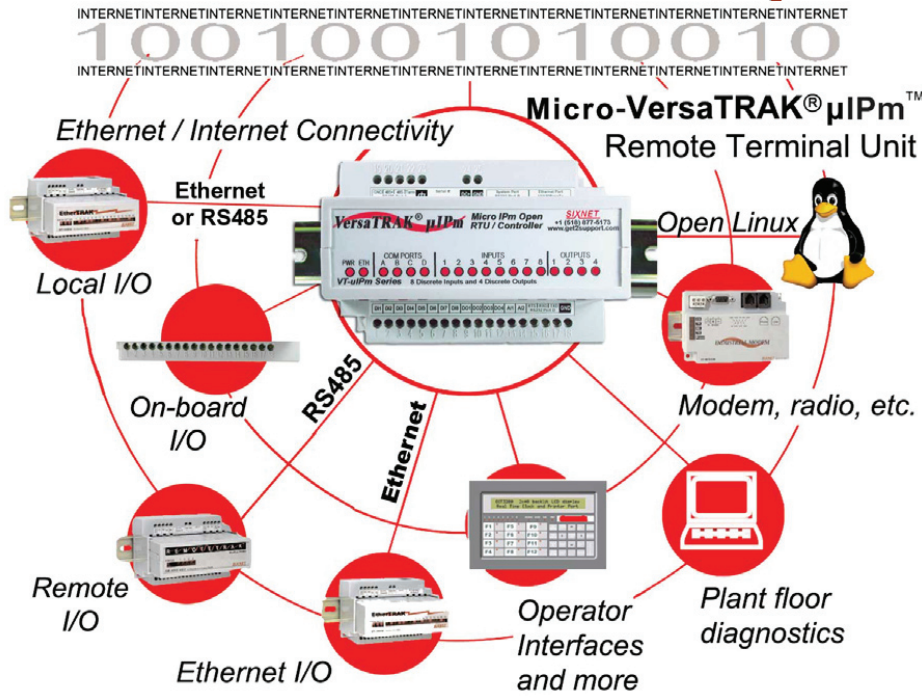
- High performance without compromise.
- Wide open for complete flexibility.
- Advanced development tools.
- Complete documentation.
- Available source code.
- 100% Internet enabled.
- An OEMs dream platform.
- Do anything, save money.
- Instant Products to Market.
- All this power at your fingertips.
- Open source reduces technical risks.
- Insure the long life of your systems.
- uIPm 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.

# The Sky's the Limit!



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!

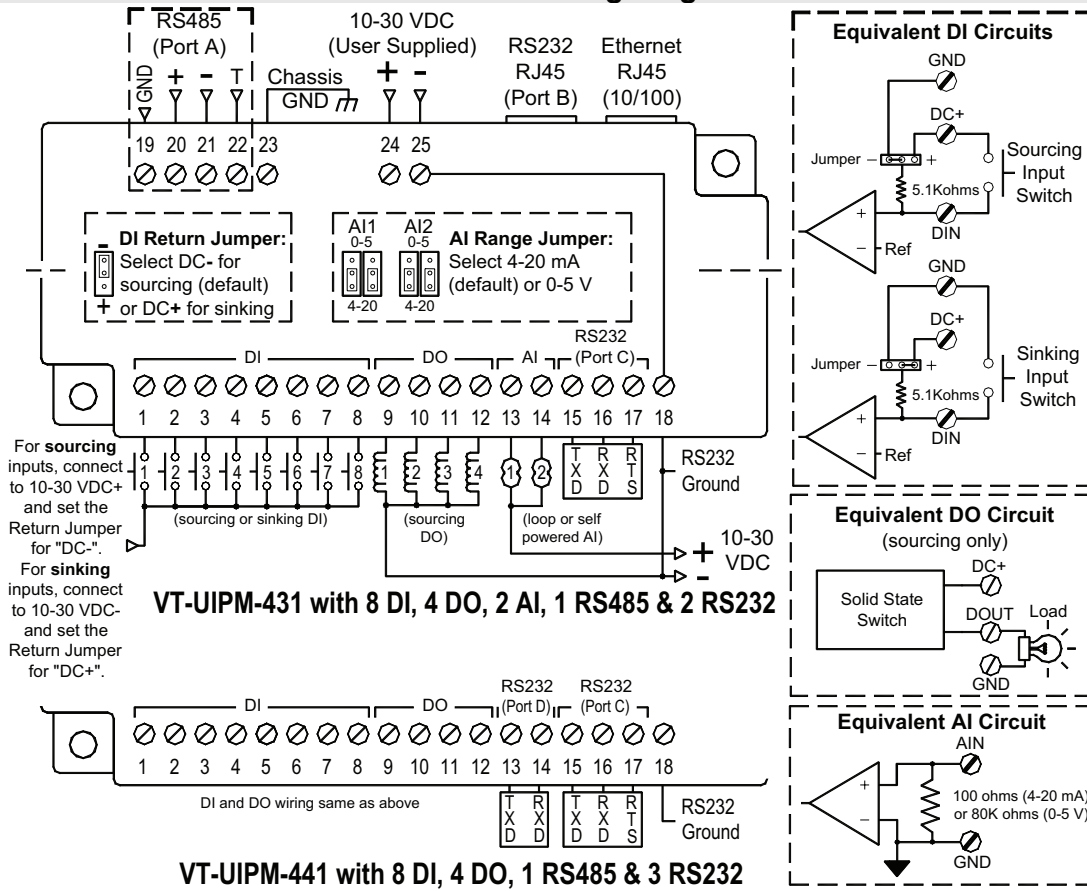


## Micro-IPm Performance Specs

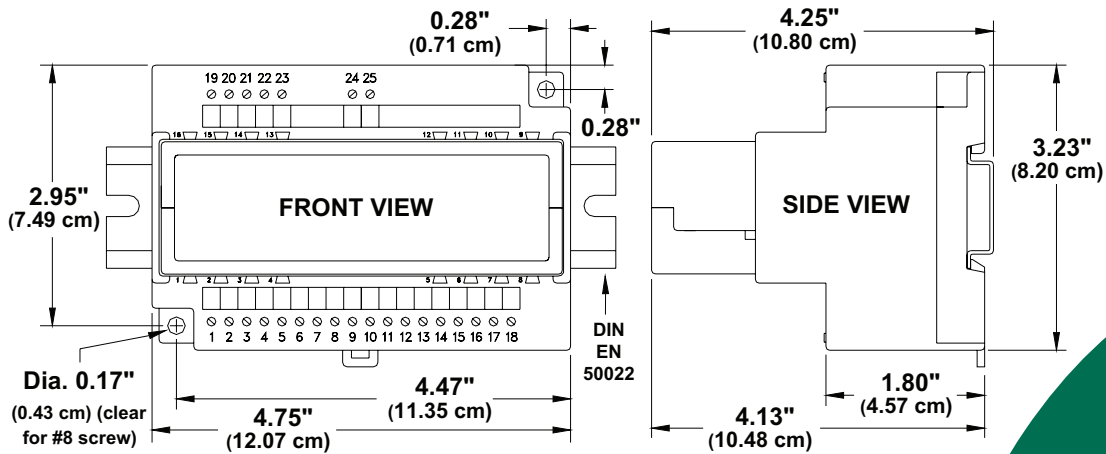
<b>General</b>	Industrial PowerPC (32 bit data bus)
Operating System	Embedded open-source LINUX
Dynamic memory (RAM)	16 Mbytes for program execution, dynamic variables, dynamic file system, etc.
Program memory (Flash)	16 Mbytes for Linux OS, program storage and file system
Retained memory (RAM)	512K (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
<b>Ethernet Port</b>	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...
<b>Serial Ports</b>	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
<b>Environmental</b>	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
<b>Discrete Inputs</b>	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
<b>Discrete Outputs</b>	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
<b>Analog Inputs</b>	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.

### Micro-IPm – Wiring Diagram



### Micro-IPm – Mechanical Dimensions





**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 1<sup>st</sup> 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**

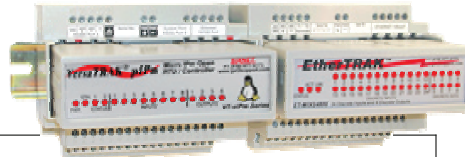
This module can detect and report an open instrumentation loop on its analog inputs. By allowing the module to report a negative value if the current falls below 4 mA, low limit logic in your DCS, PLC, RTU or computer can signal the loss of current. To enable this feature, select the "Go Negative Below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

## 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.

### 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

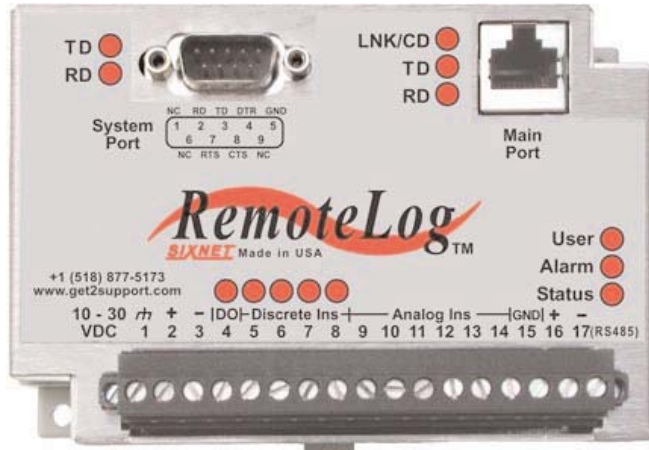


#### Real-time Ethernet Switches



# RemoteLog™ RTU and Datalogger

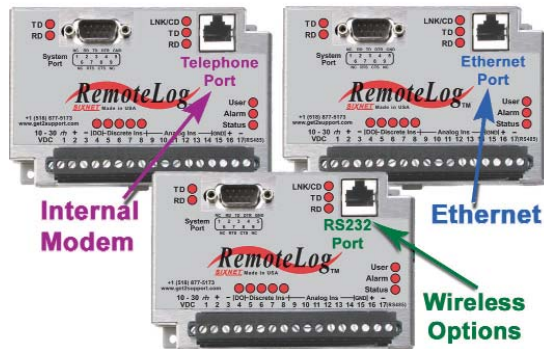
The plant floor interface for real-time database systems



- **Real-time Internet Databases**  
*(E-business distributed data systems)*
- **Vendor Managed Inventory**  
*(Detect shortages and track usage)*
- **Remote Process Monitoring**  
*(Alarm reporting and datalogging)*
- **HVAC and Energy Management**  
*(Demand factor and usage analysis)*
- **Environmental Monitoring**  
*(Data collection and reporting)*

## Three models to choose from!

Three RemoteLog models give you a flexible choice of communications. See page 3.



## A Powerful Solution for Remote Site Management

### RemoteLog™ completes your new strategy to better utilize information...

...to make fast, cost-effective decisions that give you a competitive edge. RemoteLog is the plant floor “front-end” that brings real-time data from distributed industrial locations into your central information server. RemoteLog is an innovative combination of RTU (Remote Terminal Unit), datalogger, real-time database client, and telemetry interface in a compact installation-ready package.

### RemoteLog is a Powerful RTU

SIXNET has been a major Remote Terminal Unit supplier for the past twenty years. All of this experience is designed into our 21st century RTU.

Flexible communications, rugged industrial I/O interfaces, alarm reporting, and numerous other field-proven features are packed into this powerful RTU & Datalogger.

### RemoteLog is a Datalogger

RemoteLog is configurable with optional SIXNET Sixlog software to gather time-stamped historical data into protected Flash memory and upload it into your central database in universal ASCII format.

Data can be pre-scaled into engineering units and identified with meaningful tag names to simplify your data management and save you valuable time.

### RemoteLog is Internet and Intranet Ready

Poll each RemoteLog using its IP address or phone number; it can also be a client to your central server or database.

RemoteLog contains an internal firewall for secure operation as a low-cost Internet client.

RemoteLog can “Report on Exception” to reduce polling traffic and report transactions and events in real-time.

### RemoteLog Open Communication Options

Some locations are Ethernet / Internet wired, some are not.

Sometimes phone lines are available and sometimes a wireless link is the only answer.

RemoteLog provides the open choice of communications that is necessary for a successful distributed data management strategy.

### RemoteLog is Plug-and-Play Profitable

Quickly configured with an easy-to-use Windows wizard, RemoteLog can be installed in minutes. No programming is required and field training requirements are greatly reduced. RemoteLog turns time savings into cost savings. The “cookie cutter” installation capabilities of RemoteLog will delight your operations planners.

**Need a low power RTU or remote datalogger?  
See page 3.**

#### + Dial Out Upon Alarm

High or low level or discrete state  
Send user-defined ASCII messages  
Use an internal or external modem

#### + Time-Stamped Datalog Files

1 Megabyte of Flash memory  
Battery-backed real-time clock  
Simple ASCII data file format

#### + Report Real-time I/O Status

6 analog inputs (4-20 mA, 10 bit)  
4 discrete inputs (10-30 VDC)  
1 battery-backed discrete output  
Expandable with one RemoteTRAK I/O  
Modbus or other protocol

#### + Internal Telephone Modem

Full featured SIXNET VT-MODEM-1WW  
PC and Windows compatible  
Certified for worldwide use

#### + Ethernet TCP/IP

Internet / Intranet ready  
Ideal for broadband systems  
Windows and SCADA ready

#### + Firewall Protected Client

Let the Internet carry your data  
Easiest way to access your server  
Internal firewall for full protection

#### + One or Two RS232 Ports

Supports external modem or radio  
I/O slave port for a SCADA system  
Laptop PC port for field service

#### + Easy Installation and Setup

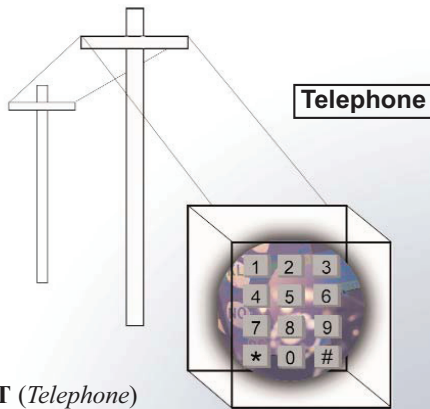
Runs on 10-30 VDC power or batteries  
DIN rail or flat panel mounting  
Removable terminals for easy service

#### + Rugged Environmental Specifications

Full -30° to +70°C operation  
Zone 2 (Cl. 1 Div. II) hazardous locations  
Marine and offshore certified by DNV  
UL, CSA, CE – 100% global-ready

## RemoteLog Communications For Every Application

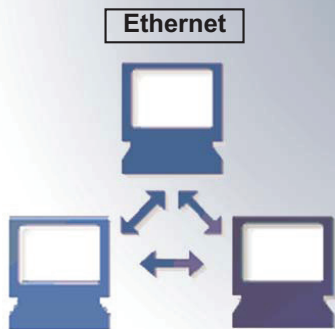
Some locations are Ethernet/Internet-wired, some are not. Sometimes phone lines are available and sometimes a wireless link is the only answer. In all likelihood, your system will contain a combination of communication links suited to the conditions at each client site. RemoteLog offers a flexible choice of communications; simply select the right options for each location.



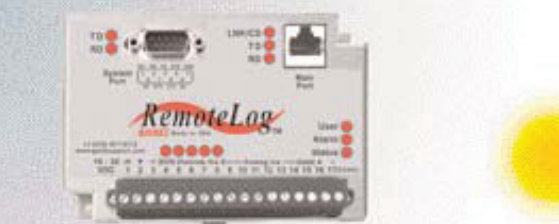
The **-T (Telephone)** version has an internal (self-contained) SIXNET world-wide Industrial Modem. Both dial-in (“Auto-answer”) and dial-out (“Report on Exception”) modes are fully supported.



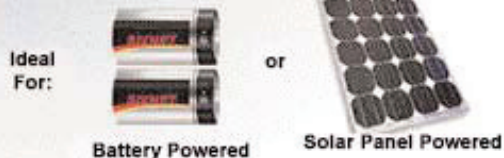
The **-S (Serial)** version provides a wireless-ready serial port that plugs into the external modem of your choice. Wireless GSM, cellular, spread-spectrum, and most other wireless communication standards are supported.



The **-E (Ethernet)** version directly connects to your on-site Ethernet network. RemoteLog can be a master or slave node on any Ethernet SCADA network; or it can report to the central network server as a client.



### Low Power Option



The **-SL** version provides RemoteLog functionality while consuming less than 200 milliwatts of power. This low power RTU is ideal for battery or solar powered monitoring sites. Connect to your choice of external modem.

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

## RemoteLog Applications

### **RemoteLog Reports Electric Power Demand**

The electric power industry is adopting RemoteLog as the ideal way to monitor power demand at remote customer sites. Such monitoring is frequently used as a means to offer incentives designed to reduce the burden on the power grid during periods of peak usage. This low cost RTU counts pulses generated by the existing power meters and logs the accumulated power usage in time-stamped data records which are reported in real-time or "near real-time" to the utilities' central data server.

Utilities using RemoteLog embrace the unique SIXNET concept of reporting data over the Internet. This low-cost interface eliminates the monetary and logistics problems of connecting to a large number of remote client sites. Each RemoteLog, acting as an Internet client, reports transactions to the central server as simple Internet (TCP/IP) data packets. The utilities no longer need to maintain "modem farms", and the responsibility of maintaining an inexpensive Internet connection is readily accepted by customers who are eager to benefit from energy conservation programs.

Of course it is also possible to poll the RemoteLog stations or have them report on exception through any number of classical means (telephone, wireless, etc.) as either a master or slave on a distributed SCADA network. In addition to counting meter pulses, some utilities offer value-added data services to their customers using the analog inputs that are standard on every RemoteLog. As a fully-featured datalogger, RemoteLog can be configured to store weeks of data in permanent Flash memory.



*Read power demand in real-time over the internet*

### **RemoteLog Tracks and Reports Chemical Usage**



*Automate your Vendor Managed Inventory System*

Chemical companies often distinguish their product offerings from the competition by providing value-added services to customers. RemoteLogs are used to monitor chemical usage and important process variables which help their customers realize more value from the chemicals they buy. The optional datalogging features of RemoteLog record operating conditions which forms the basis for valuable reports and analysis provided to the customer. Alarm detection in the RemoteLog signals unfavorable conditions before serious problems occur making it unnecessary to have personnel visit the site on a regular basis.

RemoteLog also monitors customer tank levels and will automatically reorder chemical inventory when needed. This vendor managed inventory function gives chemical companies yet another way to add value for their customers while again reducing operating expenses by eliminating expensive site visits to check inventory. At the same time lower delivery costs are realized as a result of the improved logistics.

Currently, much attention is being placed on direct Internet connections and wireless interfaces to sites that are difficult to reach using conventional communications means. SIXNET addresses this by offering a diverse range of communications options with the RemoteLog which simplifies the logistics for the major chemical companies that use SIXNET RTUs.

## RemoteLog Applications

### **RemoteLog Replaces Chart Recorders Functions as a modern low cost remote datalogger**

Install RemoteLog dataloggers on the plant floor to replace your obsolete chart recorders and manual record keeping systems with a reliable and automated system. RemoteLog logs process variables (analog values), machine states (discrete inputs) and counter values in time stamped records, safely stored in Flash memory. Eliminate the frequent visits to the plant floor to collect the data by connecting the RemoteLogs to an Ethernet network. Sixlog data server software running on a Windows computer collects the time stamped data records and archives them in files that are organized by location and date. (More details on this easy-to-use software are given below.)



**Put an end to the manual labor of data collection!**

RemoteLog protects your data by retaining a backup file in its Flash memory. Should you lose your communications link or if the archiving computer goes offline, data can be retrieved later from the RemoteLog memory. Sixlog data is stored in standard database format which opens a world of possibilities for data sharing to make your processes more effective and save you time.

RemoteLog also has a built in alarm detection and reporting capability that can alert you to out of tolerance or fault conditions as soon as they occur. In more advanced applications, RemoteLog can report real-time results to a SCADA system through industry standard Modbus messaging.

### **Data Server Software Interfaces to Your Database**

Gather the plant floor data collected by distributed RemoteLog stations and archive it in a Windows-based computer or load it directly into your central database. Sixlog data server software receives time stamped data transactions from RemoteLog and VersaTRAK RTUs through the Internet, an in-plant Ethernet network, or a modem, and passes it to your data storage system. There are two common ways to use this versatile software:

For data archiving systems, log files are automatically created to store the historical data. Organized by location and date, you can easily view the data with Microsoft Excel or any other software that can read a text file. This simple and low cost solution will replace your legacy chart recorders with a modern computer solution.

This server software will also format the received data for upload to your central database. Data is stored until your system, acting as the master, retrieves it. The source code for the server interface is supplied, to give you full control over the interface. If you are using an operating system other than Windows, or if you have special requirements, this open-source interface can be easily ported to meet your requirements. Contact SIXNET for more information.

## **RemoteLog Automates Remote Building Monitoring**

It's important to know that your building automation systems are running smoothly, but it is costly and difficult to have someone on-site all the time. RemoteLog will monitor key performance indicators for you and report status and alarm conditions to your central monitoring facility. In effect, RemoteLog is a tireless 24 hour-a-day watchman. RemoteLog is ideal for watching HVAC systems, monitoring the health of critical equipment, overseeing security, and a multitude of other tasks.



*Let RemoteLog be your watchman --24/7*

Broadband networks are bringing Internet-connected Ethernet directly to homes, offices and industrial complexes. Ethernet-enabled RemoteLogs are connected directly to a building's existing network as Internet clients. These pseudo-web browsers deliver real-time information to the central server with zero marginal communication cost. Because they are acting as clients, RemoteLogs use local or "borrowed" IP addresses; sparing the expense of attaining static IP addresses for each location. And as clients, RemoteLog data easily passes through firewall protection hardware.

Building automation applications for RemoteLog are springing up everywhere. Apartment complex (multi-family residences) buildings, remote wireless telephone repeaters, greenhouses and other agricultural applications, pumping stations, and security systems are just a few of the places that RemoteLog can save you money and give you real-time information flow.

## **RemoteLog Prevents Expensive Compressor or Pump Failures**

RemoteLog makes it possible to avoid expensive compressor or pump failure with effective preventive maintenance. By enabling you to monitor their operation remotely, the expense for frequent on-site inspections is eliminated.

4-20 mA signals representing operating parameters and switch closures (indicating machine status) will directly connect to RemoteLog. All process variables are logged in time-stamped historical trend files. Critical temperatures are measured by thermocouples, which are connected to a SIXNET RM-8INS-U instrumentation input module. That module is connected to the I/O expansion port on the RemoteLog.



*Predict failures before they occur.*

RemoteLog automatically checks for preset alarm conditions. Additional datalog records are stored for each alarm condition which creates a traceable sequence of events or "first out" trace of the original cause of failure. Any or all of the alarm conditions can trigger a "report by exception" to alert you to the abnormal operating conditions, enabling you to take action before expensive damage and the resulting down-time can occur.

Of course, the full spectrum of RemoteLog communications options make it possible to monitor all your compressors, no matter where they may be located. Telephone, wireless, and Ethernet connections may be used at each location, as the situation requires. RemoteLog compressor monitors are cost effective tools for the owners and operators of compressors and large pumps of any kind.



## RemoteLog - The "Client" Advantage

RemoteLog can be either a server or a client in your system. The choice is yours. As a client, RemoteLog becomes a master, initiating communications. This mode, often referred to as "Report on Exception", offers many advantages:

### Easing customer security concerns

RemoteLog contains an internal firewall that blocks ALL outside attempts at access. A client initiates data transfers and thereby eliminates the need for external sources to access data that resides on your customer's network. (Most facilities will not grant network access to third parties.)

### Easy path through a firewall

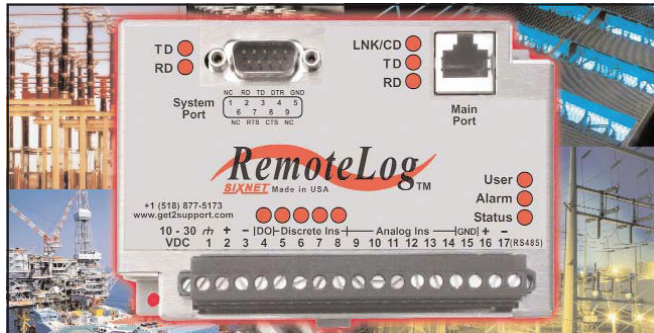
RemoteLog, acting as an Internet client, can initiate data transactions as if it were a web browser. Data transactions from RemoteLog clients easily pass through the firewall protecting your customer's network because it is initiated from within by a known source.

### Reduced operating cost

By connecting distributed RemoteLog through the Internet you greatly reduce or completely eliminate the cost per data transaction. No longer will you have to own your own communications infrastructure and bear the high costs of installation and maintenance associated with dedicated communications links.

### Quick response to alarms

RemoteLog clients will report transactions or events as they occur on a real-time or "near real-time" basis. This "report on exception" operation reduces communications traffic and the long latency experienced on traditional polled systems. The larger your system gets, the greater the benefits of distributed client architecture.



## RemoteLog Reports Time Stamped Transactions to Your Database

RemoteLog can optionally record events (alarm conditions), time interval data (such as power demand intervals), and historical data in its datalog memory. These time stamped records can be easily uploaded to your database as transactions or as data records.

Acting as a database client, RemoteLog initiates the conversation and sends your database simple messages that contain the time stamped transactions. All that is required at the server is a simple interface to receive the information and save the transactions as records in your database. The format of these transactions is described in the technical documentation on the SIXNET CD and at SIXNETio.com.

This direct client /server connection eliminates the need for otherwise unnecessary middleware. (Yes, your database or server can connect directly to RemoteLog RTUs without expensive SCADA software in-between!)

If your server is Internet-enabled, transactions from RemoteLog clients can arrive directly over the Internet. There is no need for you to maintain and pay for a communications infrastructure. Using modem banks as your central facility with all the headaches associated with keeping them running reliably are gone forever!

*Ask GreenMatic about Sixlog Data Server software to interface to your central database.*

## Performance Specifications

<b>Analog Inputs</b>	6 (4-20 mA) - Expand with RemoteTRAK (*see Note 1)
Input resolution	0.1% (10 bits)
Input protection	Self-resetting fuses
<b>Discrete Inputs</b>	4 (10-30 VDC or switch closure) (*see Note 1)
Counting range	16 or 32 bits (to over 2 billion counts)
Max count rate	50 KHz (input 1 only) 200 Hz (any input)
<b>Discrete Output</b>	1 (closure to ground)
Maximum load	0.25 Amps at 30 VDC
Output functions	Report alarms or user-controlled output
<b>Internal Modem (-T option)</b>	100% PC modem and Windows compatible
Maximum data rate	33.6 kbps (v.34)
Compatibility	V.34, V.32 bis, V.32, V.22, V.22A/B, V.23, V.21, Bell 212A
Data compression	V.42 bis MNP 5
Error correction	V.42 MNP 2-4
Command compatibility	All standard AT and S register commands
Ringer equivalent, line jack	0.3, RJ11 connector
Telecom certifications	FCC part 68, CS03-8 (CSA), CTR21 (98/482/EC), ACA TS 001-1997, ACA TS 002-1997)
<b>Ethernet Port (-E option)</b>	10BaseT (100% IEEE 802.3 compliant)
Protocols	TCP/IP, ARP, UDP, ICMP, DHCP, Modbus
<b>RS232 Serial Port (-S option)</b>	All standard rates up to 57,600 baud
Connections (standard RJ45)	TD, RD, CTS, RTS, CD, DTR, RI, GND
Supported protocols	Modbus ASCII and RTU, SIXNET Universal
<b>Extra Serial Ports (All Models)</b>	For setup or a local computer and expansion
RS232	DB9 female (standard PC connector)
RS485	For one RemoteTRAK module only
<b>Internal Flash Memory</b>	1 Megabyte (consult factory for more)
Datalogging storage	40,000 records (all I/O)
Time of day clock	Run for 30 days without external power
Firmware upgrades	Reloadable to support future features
<b>General Characteristics</b>	DIN rail or flat panel mount
Input power	10-30 VDC
Input current	8 mA (-SL option in power saver mode) 25 mA @24 VDC (-S and -E option) 30 mA @24 VDC (-T with modem in standby) 70 mA @24 VDC (-T with modem active)
Mounting footprint	4.75" (12 cm) x 3.17" (8 cm)
Operating temperature	-30° 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; EN61010-1 (IEC1010), IEC 950: 1991, AS/NZS3260-1993
EMI emissions	FCC part 15, ICES-003, Class A; EN55022; AS/NZS3548-1995
EMC immunity	EN50082-1 (IEC801-2, 3, 4)
Surge withstand	IEEE-472 (ANSI C37.90)
Vibration	IEC68-2-6
Hazardous locations	UL 1604, CSA C22.2/213-M1987, (Class 1, Div 2, Groups A, B, C, D), Cenelec EN50021 (Ex nA II T4) Zone 2

**Note 1:** A RS485 port lets you expand RemoteLog using any one RemoteTRAK or EtherTRAK I/O module to a total of 22 analog or 20 discrete inputs.

## RemoteLog Packaged Systems

Designed, built, tested and ready for installation.



This PAK1210-FG RemoteLog Packaged System may be ordered as a standard product. As always, they are ready for installation at your distributed sites.

## Ordering Information

All RemoteLog models include four discrete and six 4-20 mA analog inputs, one output, 1 Meg of Flash Memory, a choice of remote communications and an extra serial port for on-site connection.

Part Number	Description
SR-4160-1T-1	Includes Industrial Telephone Modem
SR-4160-1E-1	Includes Industrial 10 Mbps Ethernet Port
SR-4160-1S-1	Includes Serial port for an external modem
SR-4160-1SL-1	Low power RemoteLog for an external modem
SXTOOLS-3	Level 3 I/O Tool Kit with datalogging utilities
RM-PS-024-01F	24 volt power supply for RemoteLog
PAK1210-FG	Installation-ready Packaged System

# RemoteTRAK<sup>®</sup> RTU

Combination I/O module with a RS232 / RS485 Interface

## Select a RM-RTU-8440 when . . .

. . . you need I/O in any of the following situations

- Low power RTU for small sites
- I/O with a RS232 connection
- Modbus RS485 combination I/O
- Expansion for EtherTRAK I/O
- Supports radio packeting and phone link



Performance Specifications	
<b>Discrete inputs</b>	<b>8 channels</b>
Voltage range	10-30 VDC
Guaranteed ON voltage	9 VDC
Maximum voltage	30 VDC
Guaranteed OFF voltage & current	5.0 VDC & 1.5 mA DC
Input resistance	10K Ohms
Input current @ 24 VDC	3 mA
Filtered ON/OFF delay	25 mS (20 Hz max. counting)
Fast ON/OFF delay	4 mS (100 Hz max. counting)
Counters functions (all 8 inputs)	Pulse accumulation (count up) Pulse rate (pulses per sec. or min.) Running time (in sec. or minutes)
Count Rate	100 Hz. (or 20 Hz. when filtered) 10 KHz on channels 1 and 2
<b>Discrete Outputs</b>	<b>4 channels</b>
Voltage range	10-30 VDC
Maximum output per channel	1 Amp
Maximum output per module	8 Amps
Max. OFF state leakage	0.05 mA
Minimum load	1 mA
Inrush current (100 mS surge)	5 Amps
Typical ON resistance	0.2 Ohms
Typical ON voltage (@1A)	0.2 VDC
<b>Analog Inputs</b>	<b>4 channels</b>
Standard range	4-20 mA
A/D resolution	16 bits (0.003%)
Full scale accuracy	+/-0.1% (@20°C)
Span and offset temp. coefficient	+/-50 ppm per degree C
Input impedance	100 Ohm
Current protection	Self-resetting fuses
DMRR (differential mode rejection)	66 dB at 50/60 Hz


Ordering Information	
<b>RM-RTU-8440-F</b>	Module and wiring base pair
RM-RTU-8440-M	Replacement module only
RM-RTU-8440-FB	Replacement base only
VT-MODEM-1WW	Industrial modem

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

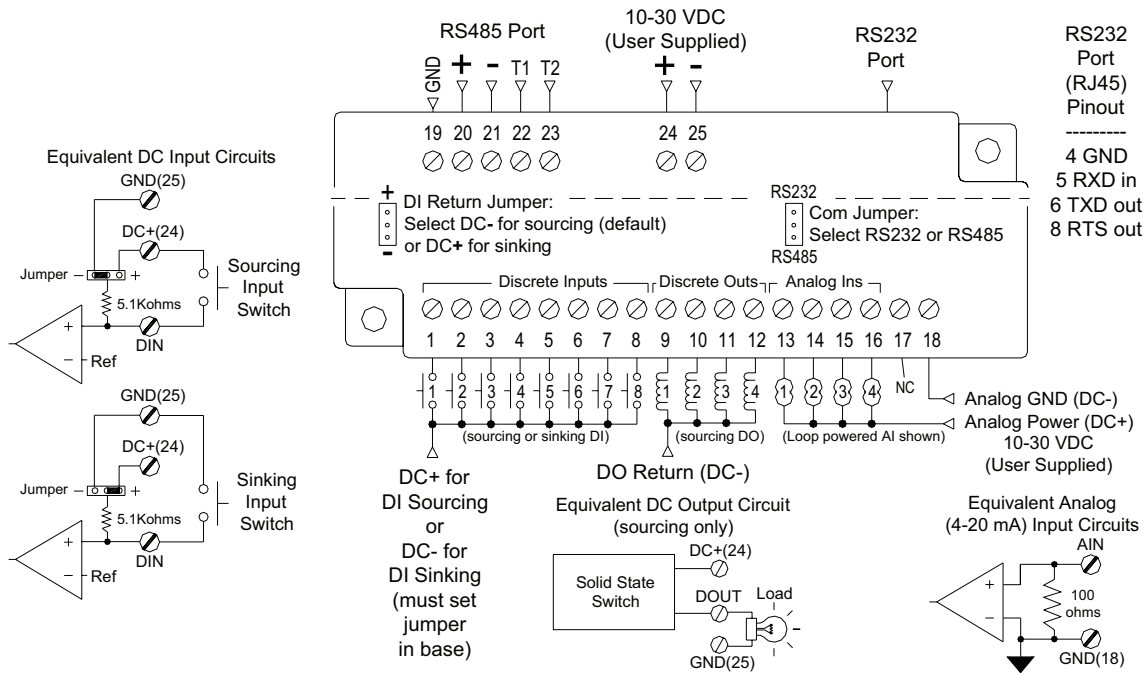
All SIXNET I/O modules have these great features:

- DIN rail or direct panel mounting
- Rugged Lexan<sup>™</sup> packaging
- Hot swappable modules (auto-reconfigure)
- Certified to perform:

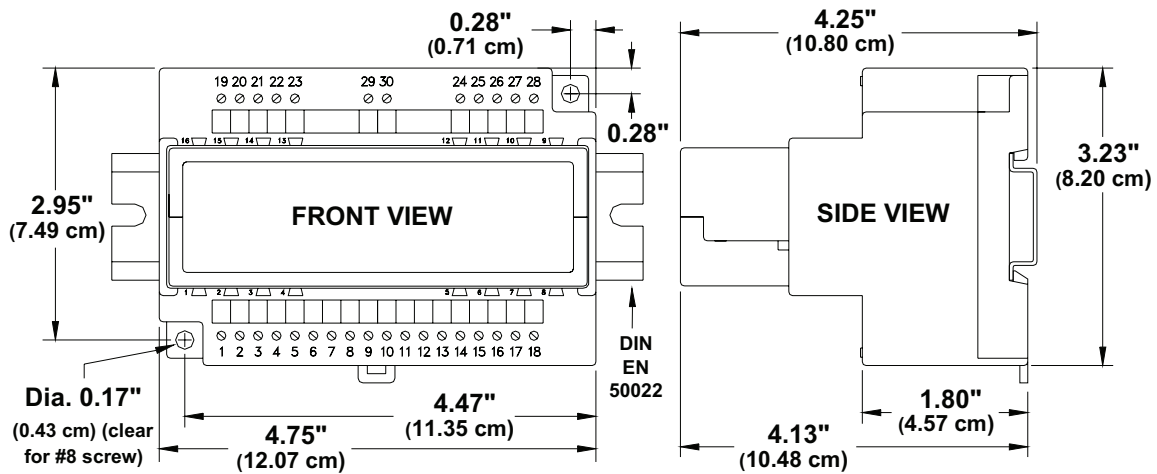


Serial Communications	RS485 or RS232 (selectable)
Protocols supported	Modbus ASCII & RTU, SIXNET
RS485	2 wire with optional line termination
RS232	TD, RD, and RTS (key a modem to transmit)
Supported baud rates	2400, 9600, 19200, 38400, 57600
Factory default	9600 baud, no parity, 8 data bits, SIXNET protocol
<b>Environmental</b>	<b>DIN rail or panel mounting</b>
Input voltage	10-30 VDC
Input power	500 mW typical
Operating temp. range	-40 to +70°C
Storage temperature range	-40 to +85°C
Humidity (non-condensing)	5 to 95% RH
Vibration	IEC68-2-6
Electrical safety	 UL508, CSA C22.2/14; EN61010 FCC part 15, ICES-003, EN55022 EN50082-1, EN61326-1
EMI emissions	
EMC immunity	
Surge withstand	IEEE-472
Hazardous locations (Class 1, Div 2 and Zone 2)	UL1604, CSA C22.2/213, EN50021, EEx nA II T4 X
Marine/offshore locations	Det Norske Veritas (DNV) No. 2.4 (Class A & B)

## RM-RTU-8440-F Power, Com and I/O Wiring

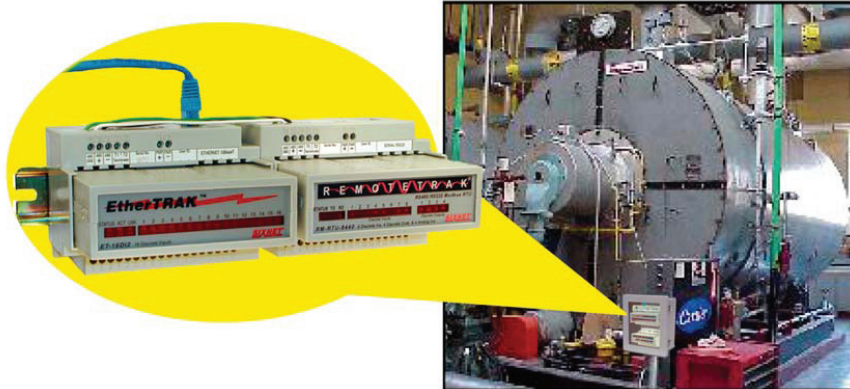
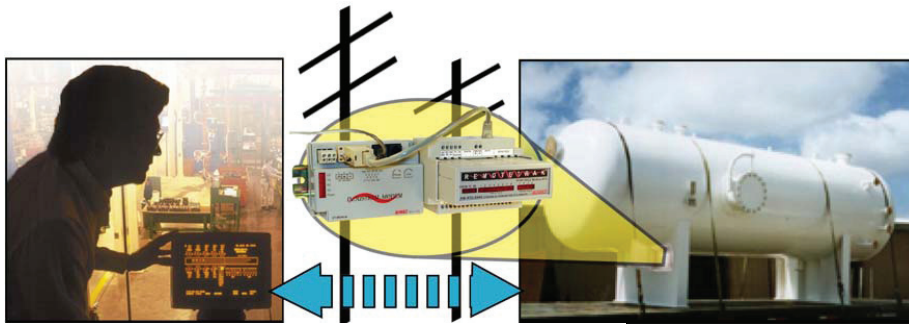


## RM-RTU-8440-F Mechanical Dimensions



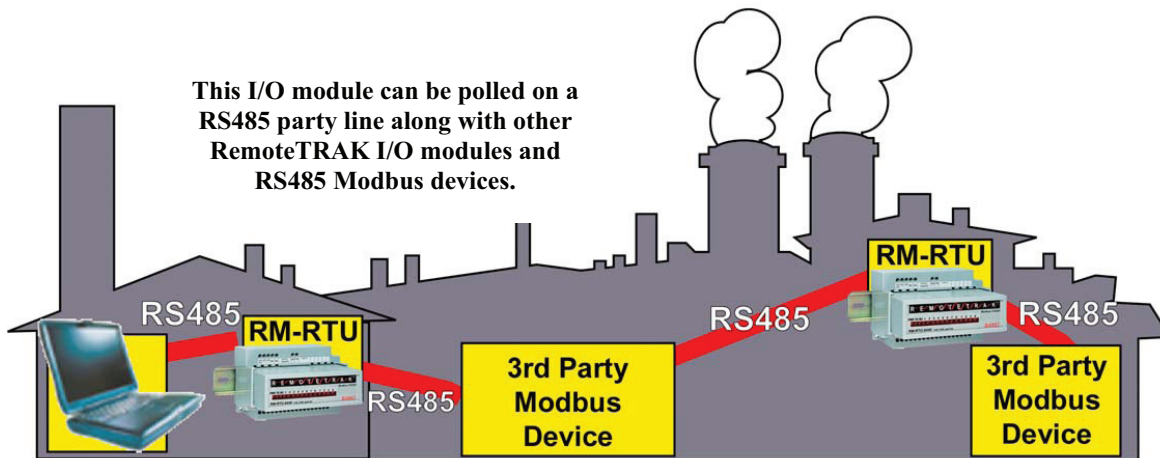
Applications Suggestions:

Poll this low power RTU with an industrial modem (such as SIXNET's VT-MODEM) or radio using SIXNET or Modbus protocol.



Expand the number of channels on an EtherTRAK (Ethernet) node with this combination I/O module.

This I/O module can be polled on a RS485 party line along with other RemoteTRAK I/O modules and RS485 Modbus devices.





# Redundant Ethernet I/O Gateway

Advanced I/O Interface with Dual Ethernet Ports

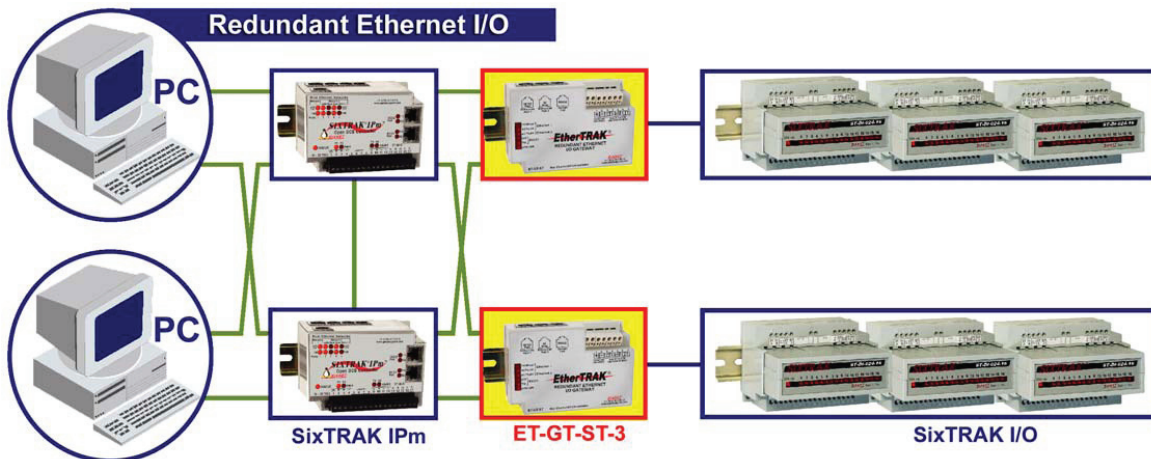


- **Redundant Ethernet Ports**  
 2 unique IP addresses for redundant networking  
 Provides a backup communications path
- **Flexible I/O Expansion**  
 Interface to thousands of I/O  
 Choose from over 20 SixTRAK I/O modules  
 Also polls EtherTRAK I/O modules
- **Powerful Communications**  
 Supports Open Modbus/TCP, ASCII, & RTU  
 Master, Slave, and Passthru functionality
- **Easy to Use Configuration Software**  
 Configure with flexible SIXNET tools  
 Absolutely no programming required
- **Compact DIN-rail industrial package**  
 Zone 2, UL, CSA, CE, and DNV rated  
 -40 to +70°C operating temperature range

## Redundant Ethernet I/O Gateway

The EtherTRAK Redundant Ethernet I/O Gateway (ET-GT-ST-3) provides a redundant Ethernet interface for distributed I/O clusters. Use this advanced gateway to ensure fault-tolerant I/O updates in your critical systems.

**Never lose control again due to a simple cable failure!**

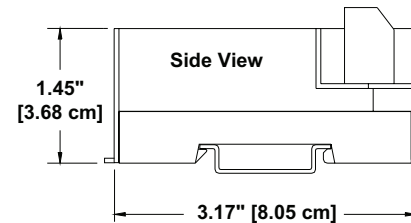
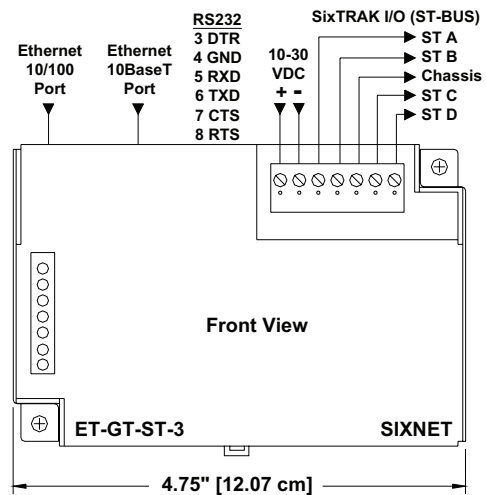


Each SixTRAK IPm DCS Controller also has 2 independent Ethernet ports and an internal industrial Ethernet switch. Loss of any one DCS controller or Ethernet link is not critical.

Performance Specifications	
<b>General</b>	Redundant Ethernet I/O gateway
Maximum I/O registers	2,048 each of analog, floats, & longs; 8,000 each of discrete inputs & outputs
Configuration & diagnostics	SIXNET I/O Tool Kit software
<b>SixTRAK I/O port (ST-BUS)</b>	Up to 20 modules (any mix)
SixTRAK I/O channels	Up to 640
SixTRAK I/O specs.	See individual data sheets
ST-BUS specs.	See user manual for details
<b>Redundant Ethernet</b>	2 ports with independent IP addresses
Ethernet port 1	RJ45, 10/100BaseTx auto-detect
Ethernet port 2	RJ45, 10BaseT at 10Mbps
Auto-mdi/mdix crossover	Yes on both ports
Isolation	1500 Vrms 1 minute
Protocols	Modbus and SIXNET over TCP or UDP
<b>Serial port</b>	RS232 (with RJ45 interface)
Speed	Up to 38,400 baud
Signals	TD, RD, CTS, RTS, DTR, GND
Flow control	Hard, soft, & half/full-duplex modem
Protocols	Modbus RTU, Modbus ASCII, <b>SIXNET</b>
Modes	Master, slave, and passthru
<b>Environmental</b>	DIN rail or flat panel mount
Input voltage	10-30 VDC (18-30 VDC when used with certain SixTRAK I/O modules)
Input power (typical)	3 watts (less I/O modules)
Operating temperature	-40 to 70°C
Storage temperature	-40 to 85°C
Humidity	5% to 95% RH (non-condensing)
Electrical Safety	UL 508, CSA C22.2/14; EN61010-1 (IEC1010)
EMI emissions	FCC part 15, ICES-003; EN55022; EN61326-1
EMC immunity	EN61326-1 (EN61000-4-2,3,4,6)
Vibration	IEC68-2-6
Hazardous locations (Class 1, Div 2.; Zone 2)	UL 1604, CSA C22.2/213; Cenelec EN50021, EEx nA II T4 X
Marine & Offshore	DNV (Det Norske Veritas)

Ordering Information	
<b>ET-GT-ST-3</b>	Redundant Ethernet I/O Gateway
<b>Accessories</b>	
Local I/O modules	
Ethernet I/O modules	
Industrial Ethernet switches	
Industrial telephone modems	
RM-PS-024-01F	AC/DC to 24 VDC power supply, 1 A
SXTOOLS-#	I/O Tool Kit software for configuration and diagnostics (Level 1 is free)
PAK####-###	Complete Packaged System – Designed, built, and ready for installation

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



### Accessories:



**Ethernet & Local I/O Modules**

**Industrial Ethernet Switches**



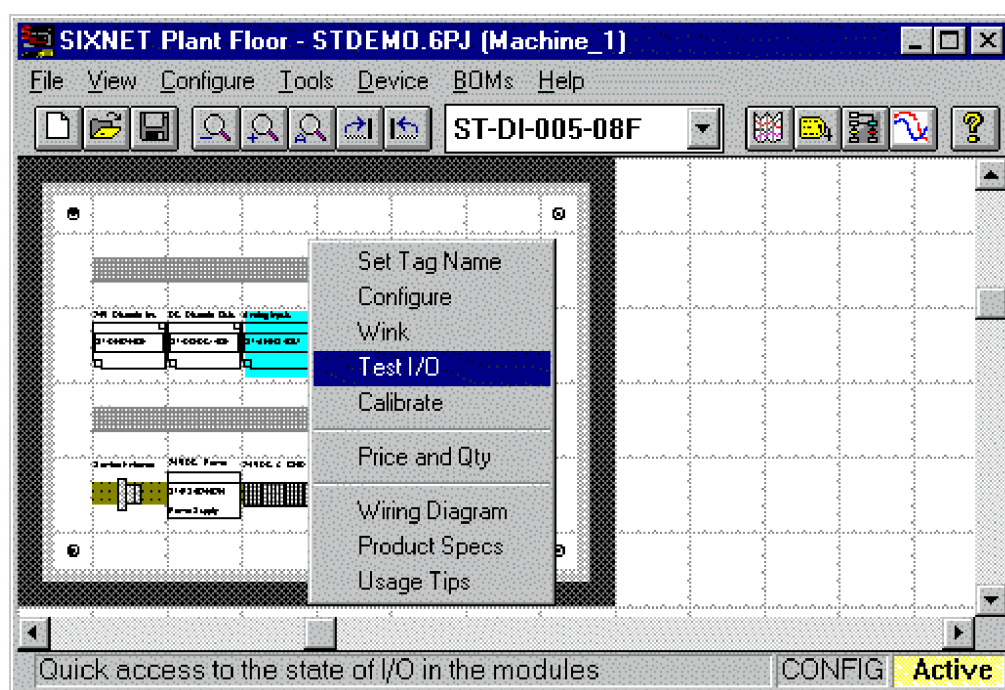
**Industrial Telephone Modems**



## Vælg Plant Floor når...

...du skal designe systemer, konfigurere I/O kabinetter eller udføre diagnostik på anlægget. En styklister bliver dannet for at gøre et evt. indkøb nemt.

SIXNET Plant Floor software er kraftig og værktøj som er nem at bruge for at konfigurere og vedligeholde Six-TRAK systemer. Når man åbner Plant Floor bliver man præsenteret for et billede med I/O modulerne. Derefter skal man blot klikke med musen for at konfigurere valg eller vedligeholdelses funktioner.



...indenfor SIX TRAK og versatil TRAK design og kan danne styklister.

- System set-up og vedligeholdelse med en nem at bruge Windows brugerflade.
- Identifier I/O med meningsfulde navne som du selv vælger.
- Kan øjeblikkeligt kalibrer analoge kanaler med digital præcision
- Kalibreringen er tidsstemplet og logged som ISO 9000 som kan eftersporet i ASCII filer
- Plant Floor deler filer med Control Room og andre Windows programmer så man ikke taste data to gange.

skal ind-

## Structured Text Programming

- Højt sprogniveau
- Minder om Pascal
- Ideel for komplekse matematiske eller anden programmeringer

```

(* this programs scans for the wanted sequence *)
(* the sequence is expressed in the 'command' input message *)
(* the message is read from the left to the right *)
(* steps of the sequence are represented by digits *)
(* digits may be separated by other characters such as commas *)

(* do not execute this program if array is not ready *)
if not (Array_exist) then return; end_if;

(* scan the input only when the GetSeq input rises up *)
if not (redge (GetSeq, Edge_GetSeq)) then return; end_if;

(* signal: the sequence is changed *)
ResetOrder := TRUE;

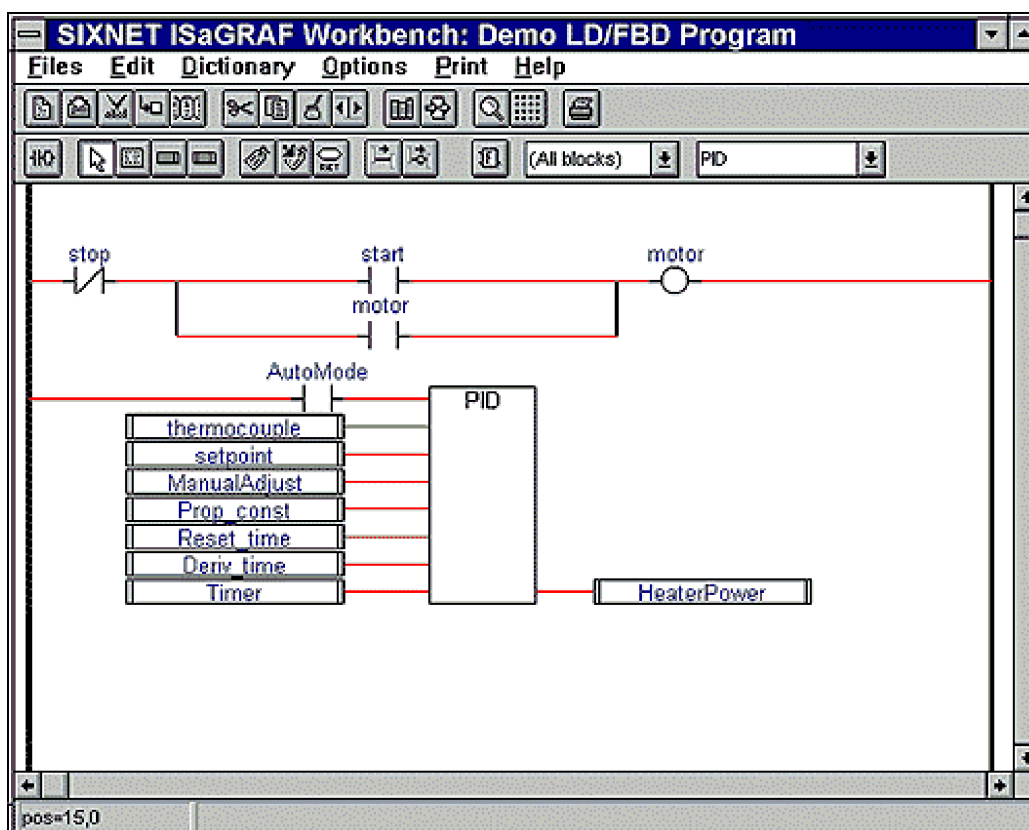
(* search for digits in the input message *)
nbchr := mlen (command);
NbSeq := 0;
for chr := 1 to nbchr do
  code := ascii (command, chr);
  (* allowed numbers = ['1' .. '5'] - Ascii codes = [49 .. 53] *)
  if (nbseq < MAX_SEQ) & (code >= 49) & (code <= 53) then
    rc := ArWrite (ARIDT, NbSeq, code-48);
    NbSeq := NbSeq + 1;
  end_if;
end_for;

```

:=	TRUE
FALSE	AND
OR	XOR
RETURN	IF
THEN	ELSE
ELSEIF	END_IF
CASE	END_CASE

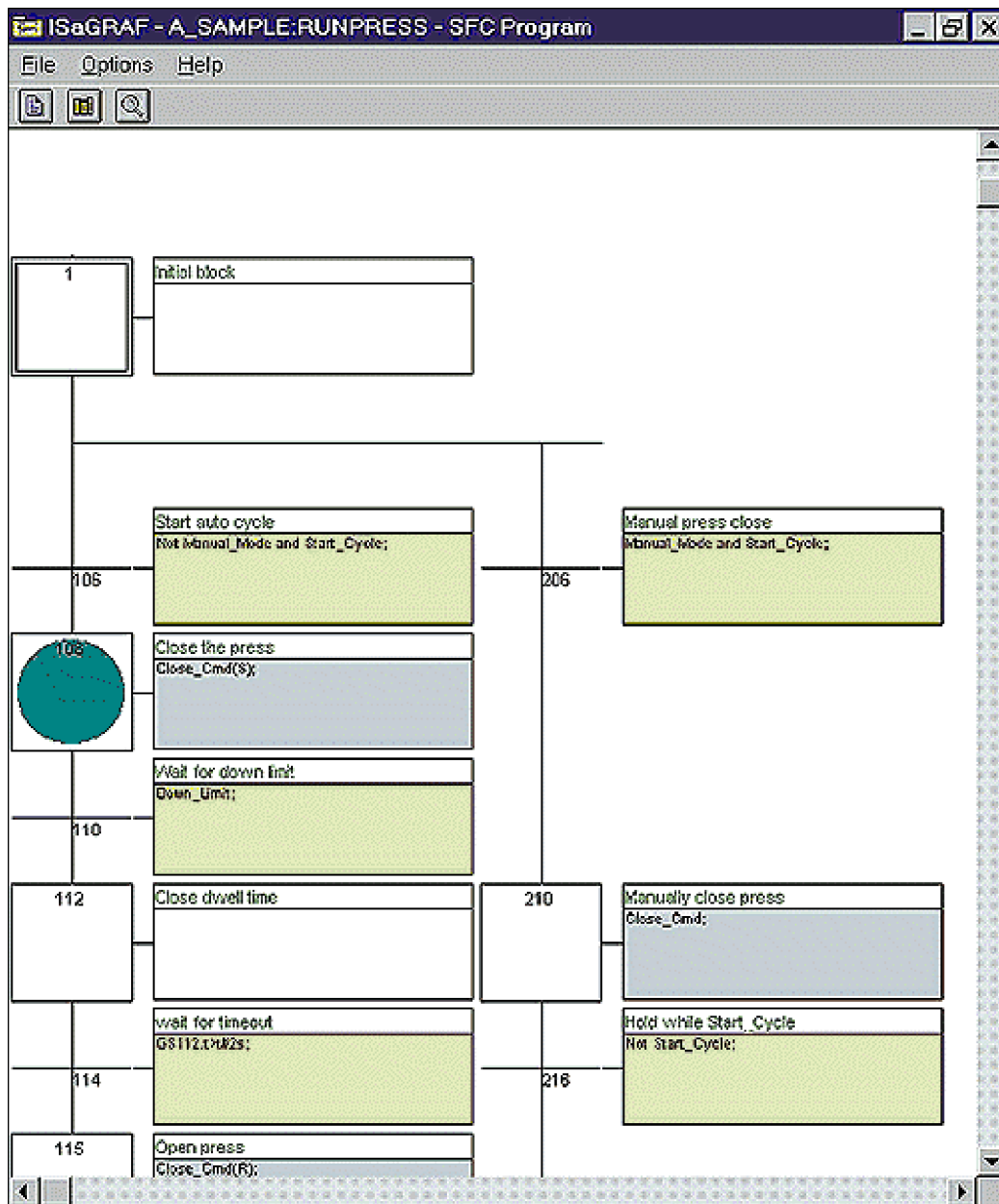
## Function Block Diagram Programming

- Nyttigt bibliotek af funktionsblokke.
- Kan nemt kombineres med Ladder Logic
- Kan danne brugerdefinerede blokke.
- Ideel for Process Control



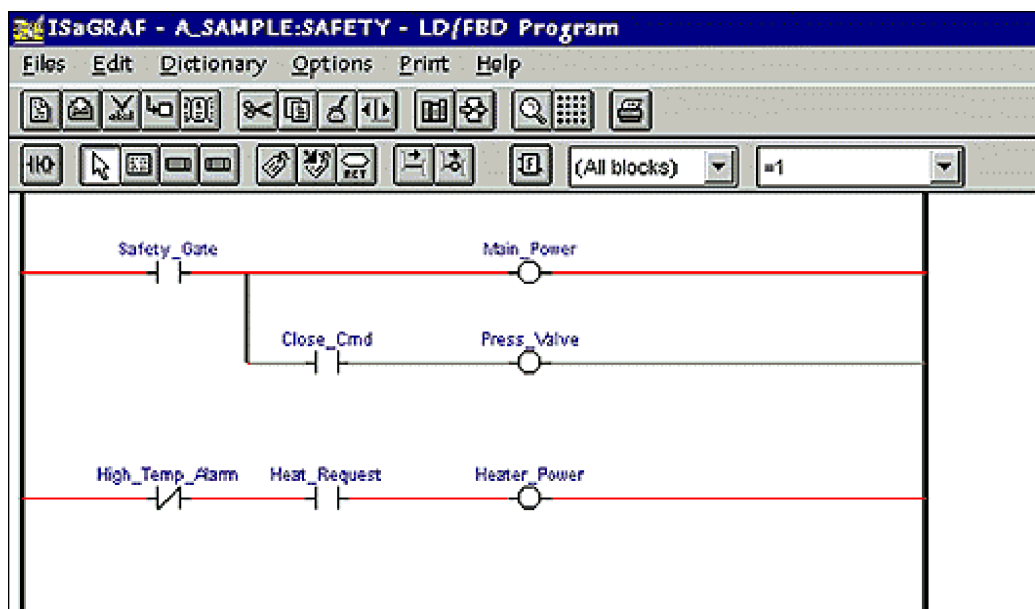
## Sequential Function Chart Programming

- Nemt at følge flow
- Baseret på Telemecanique Grafcet
- Ideel for parti eller serie processer og organisering af store projekter



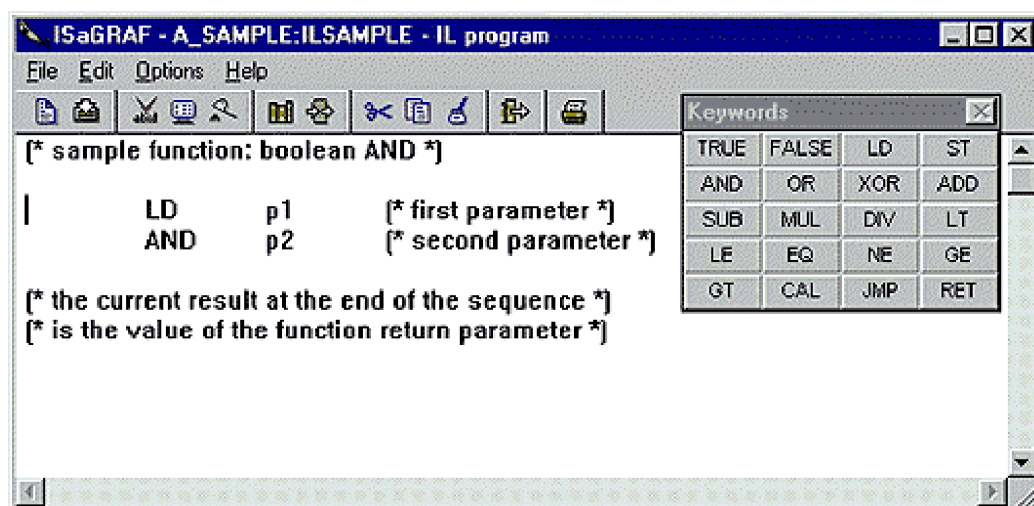
## Ladder Logic Programming

- Meget kendt
- Nemme regler
- Ideel for maskinkontrol



## Instruction List Programming

- Alternativ til Ladder Logic
- Minder om Siemens S5
- Ideel for Siemens PLC brugere



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## Indledning

Denne manual er som navnet siger, kun en introduktion til SIXNET programmeringsværktøj .

Manualen er konstrueret som en hjælp for hurtigt at kunne få overblik over programfunktioner og muligheder.

For uddybning af de enkelte emner henvises til den indbyggede hjælp, der kan hentes frem når det ønskes.

Hjælpefunktionen er desuden konstrueret, så der automatisk bliver slået op på det aktuelle emne/problem.

Et internationalt samarbejde mellem forskellige producenter har resulteret i en teknologi, der er blevet døbt SCS – Skalerbart Control System. Dette muliggør integration, ekspansion og kontrol af en automatisk styret proces, baseret på en fælles database.

SCS systemet er opbygget på en enkelt database igennem hele udviklingsfasen, fra hardware konfigurationen til billed konstruktionen i SCADA, den grafiske overflade.

SCS – Scalable Control System består af 3 del programmer:

- SIXNET I/O for Windows er et hardware og software system, der kombinerer PLC'ens driftsikkerhed med fordelene fra WINDOWS og SCS systemet
- IsaGRAF er PLC programmerings værktøjet, der anvendes til at programmere SIXNET PLC'en med.
- CITECT grafisk overvågningssoftware giver et komplet system af WINDOWS baseret overvågning og kontrolværktøjer, der let integreres i SCS.

Hele systemet er 100% WINDOWS baseret og yder fuld åbenhed imod andre WINDOWS baserede systemer.



## Introduktion til Plant Floor.

I Plant Floor opbygges PLC konfigurationen, her vælges CPU type, modul typer, strømforsyning m.m.

Her konfigureres netværks type og adresser.

Følgende er en kort gennemgang af et projekts opbygning:

- Åben Plant Floor fra SIXNET program menu. (Maksimer vinduet)

Plant Floor indeholder øverst en menu med alle tilgængelige værktøjer.

Herunder er ligeledes en bruger defineret menu, der indeholder de mest anvendte værktøjer, startende fra venstre mod højre:

- Åben nyt projekt
- Åben eksisterende projekt
- Gem aktuelt projekt
- Zoom ud
- Zoom ind
- Vis alt
- Roter højre (aktiverede modul drejes 900 til højre)
- Roter venstre (aktiverede modul drejes 900 til venstre)
- Rulle menu med alle tilgængelige moduler
- Control room I/O map – oversigt over disponible I/O'er digitale som analoge
- I/O tag dictionary – viser alle definerede signaler med navn og beskrivelse.
- IsaGRAF programmerings software
- SIXlog – definerer af data, der skal logges
- SIXdial – Opsætning af modem forbindelse
- Remote I/O Utility – definerer af decentrale.
- Hjælp.

Til alle funktioner kan der hentes yderligere indformation fra hjælp funktionen – marker emnet og tryk på spørgsmåltegnet – herefter kommer der en forklaring på det aktuelle emne.

### Opret Projekt:

- Gem projektet
- Aktiver File menuen
- Tryk Save As
- Indtast Projekt name: – maks. 8 karakterer.

Projektet bliver gemt under det valgte navn. Alle projektdata er gemt i denne FIL, dvs. ved backup er det kun den aktuelle FIL, der skal gemmes.

- Vælg placering af projektet, ændres placeringen ikke gemmes projektet under SIXTRAK – projekt files.

Herefter kommer en lille menu frem – Set Configuration name - hvor det er muligt at indtaste projektdata:

- Configuration – F.eks. Pumpestyring 01
- Description – F.eks. Styring af 2 pumper med tryksonde
- Afslut med OK

Herefter bliver projektets navn og beskrivelse vist i øverste menu bjælke:  
SIXNET Plant Floor – MANUAL01.6PJ (Pumpestyring 01)

### Konstruktion af projekt med Gateway CPU:

Nu kan konstruktionen af projektet starte:

- Placer "Pilen" hvor CPU'en ønskes placeret, f.eks venstre nederste hjørne.
- Højreklik med musen.

Nu kommer en lille menu frem med alle de muligheder der er:

- Vælg Gateway

Gateway Selection menuen åbner, her defineres CPU'en med hensyn til kommunikations porte, type og hukommelse.

- Vælg ETHERNET / Programmable / 1 Megabyte
- Tryk OK

Næste menu giver mulighed for at dobbelt klikke på et felt, for indsættelse af strømforsyning, hvis der ikke ønskes strømforsyning klikkes på – Do not include this option.

- Dobbelt klik på feltet ved siden af Gatewayen.

Næste menu giver mulighed for placering af et modem.

- Tryk på - Do not include this option.

## Konfigurering af Gateway.

Nu er der placeret en CPU og en strømforsyning. Herefter skal CPU'en konfigureres.

- Højreklik på Gateway'en

Følgende menu giver mulighed for følgende:

- Ændre Modul navn
- Konfigurere modulet
- Slette modulet
- Indstille klokken i CPU'en
- Se pris og antal
- Monterings diagram
- Produkt specifikationer
- Anvendelses tip

- Vælg Configure

Næste menu viser CPU opsætningen

- Gateway type – type nummer ( ST-GT-ETH-44P )
- Firmware Version – CPU'en interne program version
- Gateway Tag name – Her bliver tidligere indtastede configurations tekst vist – Pumpestyring 01
- Station Number – skal være et unikt nummer dvs. ingen stationer må have det samme nummer.
- Communications loss – overvågning af kommunikation på netværk
- Heartbeat loss – overvågning af program eksekvering.
- Main Port Setup – Opsætning af kommunikationsport f.eks til Ethernet.
- PF Port Setup – Opsætning af programmerings port
- Resources – CPU kapacitet
- Define actions – Anvendes til at definere kommunikation imellem CPU og remote I/O
- Adress Map – Oversigt over tilkoblede moduler og signaler
- Scan options – mulighed for at definere scan procedure.
- Vælg Main port setup.
- Fjern "flueben" i automatically Assign IP Address
- Indtast ledig IP adresse – de 3 første felter skal være som på eksisterende netværk men det sidste skal være et unikt nummer.
- Indtast evt. Ethernet Security
- Tryk OK

## Konfigurering af strømforsyning.

Herefter skal Strømforsyningen have et navn. Samme procedure anvendes.

- Højreklik på modulet
- Vælg Set Tag Name
- Skriv 240VAC/24VDC ( maks 20 karakterer )
- Tryk OK

Indsæt I/O moduler.

Nu skal der sættes nogle moduler på:

- Højreklik på anden felt over CPU'en
- Vælg Discrete Inputs ST-DI-024-16H

Ønskes flere moduler af samme type - dobbelt klik på næste felt, ønskede antal indsættes på samme måde.

- Højreklik på anden felt over det digitale modul
- Vælg Discrete Outputs ST-DO-DC2-16H

Ønskes flere moduler af samme type - dobbelt klik på næste felt, ønskede antal indsættes på samme måde.

- Højreklik på feltet til højre for det digitale input modul
- Vælg Analog Inputs ST-AI-INS-08U

Ønskes flere moduler af samme type - dobbelt klik på næste felt, ønskede antal indsættes på samme måde.

- Højreklik på feltet til højre for det digitale output modul
- Vælg Analog outputs ST-AO-20M-04F

Ønskes flere moduler af samme type - dobbelt klik på næste felt, ønskede antal indsættes på samme måde.

Uønskede moduler kan fjernes ved at:

- Højreklik på modulet
- Vælg Delete
- Kvikter med Yes eller No for at annullere.

Nu skulle der gerne være 4 moduler, 2 digitale og 2 analoge.

## Konfigurering af Digitalt Input modul.

Herefter skal modulene konfigureres.

- Højreklik på Discrete Inputs ST-DI-024-16H
- Configure
- Indtast Module Tag name: f.eks. DI001
- Tryk channels

Her indtastes I/O Tag Navnet, hvert signal skal have et unikt navn og helst med en logisk opbygning f.eks. ST2-VENT-TH01:

- ST2 : Bygningskode, placering
- VENT : Anlægskode
- TH01 : Termostat nummer 1

Tag navnet kan indtastet manuelt eller ved at anvende AutoName.

- Vælg Autoname

I menuen Autoname I/O Registers kan indtastes et 2 delt tagname:

- Indtast i Base Name, første felt: ST2-VENT-SW
- Indtast i Base Name, andet felt: -DI

Herefter skulle der gerne stå: ST2-VENT-SW ## -DI

- Starting Sequence number – Første nummer der anvendes – Indtast "1"
- Number of registers to name – antal registre der skal navn gives – i dette tilfælde 16 Input – Indtast 16.
- Tryk OK

Herefter er alle tags blevet autonummereret – læg mærke til at INPUT register adressen automatisk bliver skrevet.

Indsæt OFF og ON status tekst.

- Skriv i "OFF" feltet Fejl
- Skriv i "On" feltet OK
- Marker feltet under teksten FEJL
- Tryk Copy Prior

Teksten kopieres automatisk til de øvrige felter. Tekst kan selvfølgelig også indtastes manuelt.

- Vælg OK
- Vælg OK

## Konfigurering af Digitalt Output modul.

Samme procedure anvendes på næste modul.

- Højreklik på Discrete Outputs ST-DO-DC2-16H
- Configure
- Indtast Module Tag name: f.eks. DO001
- Tryk channels
  
- Vælg Autoname
  
- Indtast i Base Name, første felt: ST2-VENT-M
- Indtast i Base Name, andet felt: -DO
  
- Starting Sequence number – Første nummer der anvendes – Indtast "1"
- Number of registers to name – antal registre der skal navn gives – i dette tilfælde 16 Output – Indtast 16.
- Tryk OK
  
- Skriv i "OFF" feltet STOPPET
- Skriv i "On" feltet DRIFT
- Marker feltet under teksten STOPPET
- Tryk Copy Prior
  
- Vælg OK
- Vælg OK

Her kan ligeledes vælges nogle overvågningsfunktioner:

- Assign Watchdog Output – Sætter det første Output på modulet "ON" når kommunikationen til CPU'en er OK
- Freeze Output If Com Lost – Holder Output i aktuel stilling ved kommunikations svigt
- Retain Values on Power loss – Holder aktuel stilling ved strømsvigt

Disse funktioner anvendes til at overvåge modulerne og samtidig sikre anlægget ved fejl funktion.

## Konfigurering af Analogt Input modul.

Samme procedure anvendes på næste modul.

- Højreklik på Analog Input ST-AI-INS-08U
- Configure
- Indtast Module Tag name: f.eks. AI001
- Tryk channels
  
- Vælg Autoname
  
- Indtast i Base Name, første felt: ST2-VENT-TH
- Indtast i Base Name, andet felt: -AI
  
- Starting Sequence number – Første nummer der anvendes – Indtast "1"
- Number of registers to name – antal registre der skal navn gives – i dette tilfælde 8 Analoge Input – Indtast 8
- Tryk OK

I Analoge moduler har man herefter muligheden for at definere den aflæste værdi og skalere denne.

Signalet bliver aflæst som en "RAW" værdi 0-32767 og bliver skaleret til 0-100 0C.  
Actual MIN/MAX sprænges over herefter skrives:

- Scaled MIN "0"
- Scaled MAX "100"
- DEC "1" – pladser efter kommaet
- Marker feltet under teksten "100"
- Tryk Copy Prior
- Vælg OK

- Vælg Ranges

Her kan signalerne defineres individuelt med hensyn til I/O Tag Name men vigtigere Full Scale Ranges: 4-20 mA, +/- 10V m.m. herudover kan der detekteres på signal tilstanden f.eks værdier der ændrer polaritet eller går under defineret værdi f.eks 4 mA

- Vælg OK

I menuen - Analog Input Configuration - kan endvidere defineres:

- Averating – dvs. gennemsnitsberegning af de sidste 4 måle-værdier, for at forhindre flimrende signaler
- Filtering – Scan tid / aflæsnings hyppighed
  
- Vælg 50 Hz
- Vælg OK



## Konfigurering af Analogt Output modul.

Samme procedure anvendes på næste modul.

- Højreklik på Analog Input ST-AO-20M-04F
- Configure
- Indtast Module Tag name: f.eks. AO001
- Tryk channels
  
- Vælg Autoname
  
- Indtast i Base Name, første felt: ST2-VENT-V
- Indtast i Base Name, andet felt: -AO
  
- Starting Sequence number – Første nummer der anvendes – Indtast "1"
- Number of registers to name – antal registre der skal navn gives – i dette tilfælde 4 Analoge Output – Indtast 4
- Tryk OK

I Analoge moduler har man herefter muligheden for at definere den aflæste værdi og skalere denne.

Signalet bliver aflæst som en "RAW" værdi 0-32767 og bliver skaleret til 0-100 %  
Actual MIN/MAX sprænges over herefter skrives:

- Scaled MIN "0"
- Scaled MAX "100"
- DEC "0" – pladser efter kommaet
- Marker feltet under teksten "100"
- Tryk Copy Prior
- Vælg OK
  
- Vælg OK

Her kan ligeledes vælges nogle overvågningsfunktioner, som i Digital outPut modulet.

## Download af projekt i PLC

Nu er projektet konstrueret, alle signaler er konfigureret og klar til at blive lagt ned i PLC'en.  
Opsætning af programmerings port

Først skal kommunikationen sættes rigtigt op. Første gang en CPU skal "loades" med program skal det ske via den serielle PF port.

Gør følgende:

- Vælg device i menu bjælken øverst i skærbilledet
- Vælg Com Port – er normalt forvalgt i nye projekter
- Vælg setup

Meuen der kommer frem giver mulighed for at vælge nogle forskellige kommunikationsformer

- Single Gateway / RTU – Punkt til punkt kommunikation f.eks fra PLC til PC.
- Network Mode – Netværks tilslutning
- Passthru Mode – Fører signalet fra den ene port og direkte videre gennem den anden uden at påvirke aktuelle PLC.

Under settings kan port konfigurationen indstilles.

- Vælg Single Gateway / RTU
- Tryk OK

## Download af program

- Vælg Operations i menu bjælken øverst i skærbilledet

Her kan vælges flere ting der har operativ indflydelse på applikationen.

- Link – skal anvendes når projektet er loaded ned i PLC'en, modulerne i projektet på PC'en skal linkes sammen med modulerne i tavleopbygningen.
  - Load – Ligger Plant Floor opsætningen ned i PLC'en
  - Load All – Giver mulighed for at ligge både Plant Floor opsætningen og IsaGRAF programmeringen ned i PLC'en
  - Load Options – 3 afkrydsning muligheder i forbindelse med download af program
  - Verify – Sammenligning af program på PLC og PC
  - Read Back – læsning af program i PLC
  - File Operations – Fil håndtering i PLC'en, giver mulighed for at ligge filer ned i PLC'en eller at hente dem op.
  - Test I/O – Giver mulighed for at teste de enkelte signaler
  - Set The Clock – Indstilling af uret i PLC'en
- Vælg Operations i menu bjælken øverst i skærbilledet

## NB. Advanced Operations

Advanced Operations er sidste punkt i menuen Operation, dette punkt indeholder nogle specielle værktøjer.

- Assign Resources – giver et overblik over PLC'ens kapacitet
- Reset PF Port – Denne funktion skal anvendes hvis det ikke er muligt at kommunikere med PLC'en over programmerings porten.  
Programmeringsporten bliver resat til default indstillingen uden at påvirke programmet i PLC'en.  
Denne situation kan forekomme hvis PF porten er blevet sat op som en MODBUS port og der tilkoples en PC med en seriel port konfiguration.
- Clear Configuration – Sletter program og opsætning i PLC'en – kvitter for download af default konfiguration
- Upgrade Firmware – Opgraderer firmworen i PLC'en, kan forekomme hvor SIXNET releasen er nyere end PLC programmet.

- Vælg Load

Herefter lægges programmet ned i PLC'en. Efter endt Download skal modulerne "Linkes", det foregår som følger:

Link modulerne

- Vælg Operations i menu bjælken øverst i skærbilledet
- Vælg Link

Herefter kommer en lille menu frem, der indeholder alle de moduler der er monteret i tavlen, herefter skal modulerne fra menuen sættes sammen med modulerne i projektet på PC'en.

- Vælg et modul fra listen – når modulet vælges, blinker en lille lampe på det monterede modul i tavlen.
- Marker det modul på skærmen, der modsvarer modulet i tavlen.
- Fortsæt denne procedure med alle moduler
- Vælg Apply når alle moduler er "Linket"

Nu er Projektet på PC'en lagt ned i PLC'en og er blevet linket sammen.

Test af modulerne

Det næste er at få testet modulerne af.

- Højreklik på Discrete Inputs ST-DI-024-16H
- Vælg Wink – Led på modulet blinker

Yderligere test af de enkelte signaler kan foretages med funktionen – Test I/O – i samme menu.

## Tegning af ledningskanaler, klemmer m.m.

### Klemrækker

- Højre Klik på feltet til venstre for strømforsyningen
- Vælg Other Items

I menuen kan vælges Din skinner, terminaler, kanaler m.m.

- Vælg DIN Terminals – DIN skinne med terminaler
- Dobbelt Klik herefter på alle de felter hvor der skal være en DIN skinne med terminaler

DIN skinnen kan roteres ved at anvende - Pil højre/venstre rotate – i menuen lige over tegnefladen – teksten Rotate the selected I/O module to the left/right – kommer frem

- Højre Klik på feltet til venstre for Analog Input
- Vælg Other Items
- Vælg DIN Rail – DIN skinne uden terminaler
- Dobbelt Klik herefter på alle de felter hvor der skal være en DIN skinne

Tips! Ved indsættelse flere skinner kan det svare sig at placere alle dem der vender den rigtige vej først og herefter rotere symbolet og placere resten.

## Ledningskanaler

- Højre Klik på feltet over Digitalt Output
- Vælg Other Items

NB! Billedet kan zoomes ind og ud ved at anvende forstørrelses glasset i menuen over tegnefladen.

- Vælg Straight Duct – Lige kanal stykke
- Dobbelt Klik herefter på alle de felter hvor der skal være en vandret ledningskanal
- Dobbelt Klik på feltet til højre for Digital Output
- Klik herefter på Pil højre/venstre rotate – i menuen lige over tegnefladen – teksten Rotate the selected I/O module to the left/right – kommer frem
- Dobbelt Klik herefter på alle felter der skal have en lodret ledningskanal NB! Klik ikke de steder hvor flere kanaler mødes
- Højre Klik på øverste venstre hjørne
- Vælg Other items
- Vælg L Wire Duct
- Dobbelt Klik herefter på alle felter der skal have en vinkel
- Marker hjørnerne der vender forkert og anvend herefter Pil højre/venstre rotate – i menuen lige over tegnefladen
- Højre Klik en af felterne med 3 kanal ender
- Vælg Other Items
- Vælg 3 Way Duct
- Dobbelt Klik herefter på alle felter der skal have en 3 way Duct
- Marker og roter

Tips! Ved indsættelse af f.eks. 3 Way Duct kan det svare sig at placere alle dem der vender den rigtige vej først og herefter rotere symbolet og placere resten.

## Tavlesider

- Højre Klik på nederste venstre hjørne

NB! Billedet kan zoomes ind og ud ved at anvende forstørrelses glasset i menuen over tegnefladen.

- Vælg Other items
- Vælg Cabinet Corner
- Dobbelt Klik herefter på alle felter der skal have en vinkel
- Marker hjørnerne der vender forkert og anvend herefter Pil højre/venstre rotate – i menuen lige over tegnefladen
- Højre Klik på feltet under ledningskanalen
- Vælg Other Items
- Vælg Cabinet Wall – Kabinet side
- Dobbelt Klik herefter på øvrige felter under lednings kanalen
- Dobbelt Klik på feltet over ledningskanalen
- Klik herefter på Pil højre/venstre rotate – i menuen lige over tegnefladen – teksten Rotate the selected I/O module to the left/right – kommer frem
- Dobbelt Klik herefter på øvrige felter over lednings kanalen
- Dobbelt Klik / Roter – samme procedure på øvrige felter.

Nu er modulerne blevet monteret i et færdigt tavle layout.

NB! Færdige tavler kan bestilles hos SIXNET med moduler og fortrådning

## I/O Map SIXNET database

Næste Skridt er etablering af et I/O Map / Database.

- Vælg Ikonet til Højre for rullemenuen lige over tegnefladen ( ligner et kort )

I menuen skal indtastes et I/O Map Name – det er muligt at have flere I/O Maps i samme projekt. Herefter skal vælges om der skal hentes informationer fra:

- RemoteTRAK eller EtherTRAK moduler
- SIXTRAK eller VersaTRAK moduler

Feltet skal kun afkrydses hvis modulet findes.

I/O map Name

- Skriv – I/Omap01
- Vælg – Load SIXTRAK eller VersaTRAK moduler
- Tryk OK

Autoload options

Næste menu er konfigurering af I/Omap opstarts procedure og kommunikation.

Autoload genererer automatisk database filen, gemmes under aktuelle projekt fil.

- Include DDE Server – Dynamic Data Exchange protokol for kommunikation imellem Windows programmer
- Run an IsaGRAF Program – tilknytning af specifikt PLC program
- Include OPC server –
- Vælg – Include OPC Server
- Vælg- Ethernet
- Vælg – Run I/O Map Now
- Kvikter OK for gemning af I/Omap
- Kvikter OK for definerig af device kommunikation setup



### Control Room Iomap

Nu åbner Control Room Iomap vinduet, her kan kommunikationen imellem SIXNET applikationerne og øvrige programmer defineres.

Alle moduler i projektet vises her.

#### Start af Iomap

For at starte dataudvekslingen eller opdatere I/omap tryk på den lille mand i menu bjælken eller anvend funktionen Power Switch fra punktet Control menu bjælken.

- Vælg Set Power Switch
- Vælg Current Iomap

## Triks og Tips

Kan ikke komme i forbindelse med PLC'en

- Reset PF Port – Denne funktion skal anvendes hvis det ikke er muligt at kommunikere med PLC'en over programmeringsporten.

Programmeringsporten bliver resat til default indstillingen uden at påvirke programmet i PLC'en.

Denne situation kan forekomme hvis PF porten er blevet sat op som en MODBUS port og der tilkoples en PC med en seriel port konfiguration.

Kan ikke ligge programmet ned i PLC'en

- Upgrade Firmware – Opgraderer firmwaren i PLC'en, kan forekomme hvor SIXNET releasen er nyere end PLC programmet.

Kan ikke komme i forbindelse med moduler

Moduleerne er ikke Linket korrekt, se Punktet – Link Modulerne  
Wink testen får ikke det rigtige modul til at blinke

Moduleerne er ikke Linket korrekt, se Punktet – Link Modulerne

# SIXNET ISaGRAF Open

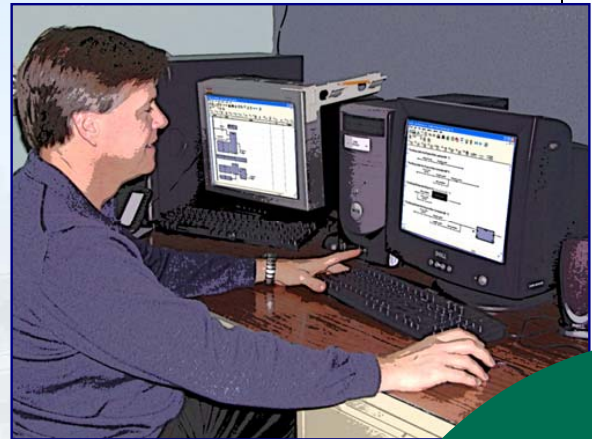
## *Truly Open Application Development Tools and Runtime Software*

ISaGRAF® is the industry standard for open automation software development. SIXNET has taken ISaGRAF to a new level by fully integrating the latest ISaGRAF technology into the easy-to-use SIXNET applications tools to significantly reduce your development time.



### Highlights of SIXNET ISaGRAF Open

- **Fully supports all five IEC 61131-3 programming languages**  
Ladder logic, function blocks, sequential function charts, structured text, and instruction lists – the familiar tools you have always used to program PLCs and process controllers.
- **Saves time and makes your job easier**  
Customers have reported a 30% savings in applications development time over previously used software solutions.
- **Ideal for large distributed projects**  
The SIXNET ISaGRAF SCS runtime (**S**calable **C**ontrol **S**ystems) links multiple controllers into one seamlessly integrated and fully synchronous process. ISaGRAF SCS turns IPm controllers into a high end and truly open modern DCS solution.
- **Ideal for small projects**  
The SIXNET ISaGRAF RTU runtime is a full suite of 61131-3 applications development tools and is included in every IPm RTU at no cost to you!
- **One solution for all projects**  
The same ISaGRAF Open tools are used to develop ISaGRAF RTU and ISaGRAF SCS applications – the same tools for both small and large projects – eliminating the learning curve and the burden of supporting different tools. One easy-to-use tool kit for all projects.
- **State-of-the-art Windows Tools**  
ISaGRAF Open is 32-bit software optimized for Windows XP and beyond.
- **The perfect upgrade path**  
SIXNET continues to fulfill our promise of 100% forward compatibility. Existing ISaGRAF v3 programs will run transparently in the upgraded ISaGRAF RTU runtime. A conversion utility is provided at no cost to upgrade ISaGRAF RTU programs into ISaGRAF SCS distributed systems.
- **The deal of a lifetime**  
SIXNET will provide an ISaGRAF Open Workbench key to any existing SIXNET ISaGRAF key holder with a 50% credit, regardless of their age. We are committed to making your job easier – forever!



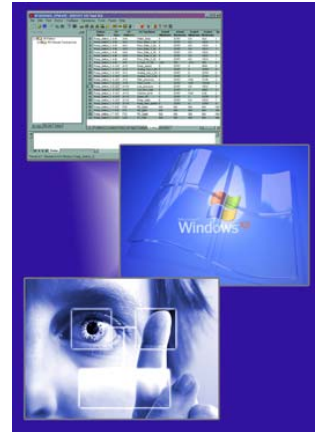
# ISaGRAF Open Workbench – Making your Job Easier

## Key Workbench Features

The same Workbench tools can be used to develop and maintain both the ISaGRAF-RTU and ISaGRAF-SCS runtime programs. You have only one set of intuitive Windows Tools for all of your control projects! A conversion utility is supplied to migrate your legacy ISaGRAF-v3 programs into these upgraded time saving tools.

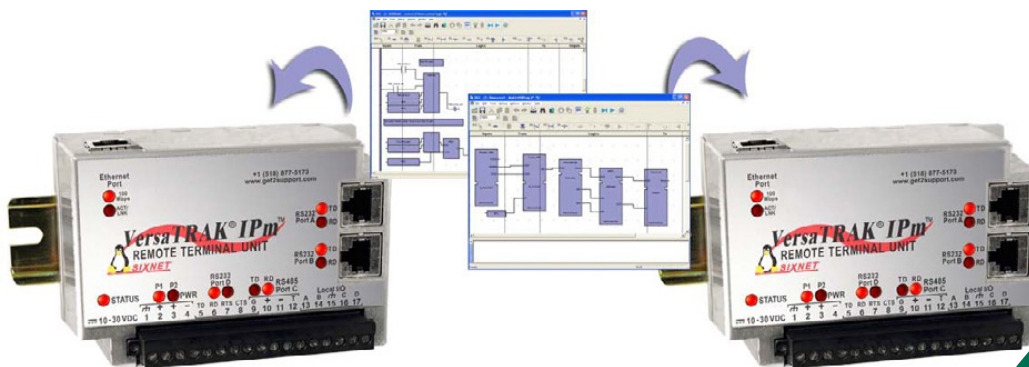
### For both RTU and SCS Runtimes

- ISaGRAF Open Workbench is seamlessly integrated into the SIXNET Tool Kit  
*Saves up to 30% of your application development time !!*
- Optimized to take advantage of Windows XP and beyond
- 32 bit look and feel – intuitive Windows software
- New editors to make your job easier and faster
- New features to give you creative control and flexibility
- Dynamic Tag Sharing – Tags configured in I/O Tool Kit are automatically loaded into the Workbench – saving you time  
(The selective tag export capability is of course still available.)
- Continues to fully support all five IEC 61131-3 languages
- Upgrade existing ISaGRAF v3.x projects with ease
- All SIXNET-supplied features including the extensive function block libraries
- Easy-to-use Graphical Interface
- Drag-and-Drop programs between controllers
- Online Program Modification
- Password Protected Version Control
- Automatic Documentation Generator



### For SCS Runtime

- Multiple Programs in a Single Controller
- Fully supports IEC61499 DCS Function Block programming
- Multi-developer Environment – a must for big projects
- Advanced Step-by-Step Debugging Support





### SIXNET ISaGRAF RTU Runtime

#### Installed at No Cost!

- ISaGRAF-RTU is factory installed in every IPm RTU and process controller at no additional cost. Saves you time and, of course, money!



#### 100% Upward Compatible

- ISaGRAF-RTU is 100% upward compatible with the field proven ISaGRAF v3 previously installed in every SixTRAK controller and VersaTRAK RTU including all IPm products
- 100% compatible with all existing Workbench versions
- Existing ISaGRAF v3 programs run transparently in the ISaGRAF RTU runtime
- *SIXNET perpetual compatibility at its finest!* Growth without obsolescence!

#### Other ISaGRAF RTU Benefits

- Ideal solution for stand-alone RTU applications
- Perfect for process control applications
- World standard IEC 61131-3 compliant
- Supplied with a rich suite of SIXNET function blocks (SPC calculations, enhanced PID, datalogging, starting C programs, external event triggers, modem control, ...)
- Completely integrated into the IPm RTU and process controller hardware for optimized performance and functionality
- Seamlessly runs with third party Linux scripts and C programs for wide open flexibility



### SIXNET ISaGRAF SCS Runtime

The SCS Runtime is based on ISaGRAF v5 and enhanced by SIXNET, transforming your IPm controllers into a powerful DCS solution!

#### True Distributed Control

- Supports full suite of IEC 61311-3 tools
- Includes **IEC 61499** standard for process control function blocks
- Runs multiple controller (distributed) applications, whether your network is small or large
- Manages peer-to-peer process communications
- Automatically regulates and synchronizes interactions between controllers to provide truly robust system execution

#### Upward Compatible and Scalable

- 100% upward compatible with ISaGRAF RTU
- Maintains SIXNET's rich tradition of providing truly open, Scalable Control Systems (SCS)
- Start small and scale upward quickly and easily. Scalability is a hallmark of SIXNET's value to you.
- Continued support for SIXNET-supplied function blocks – Growth without obsolescence!

#### Advanced Features

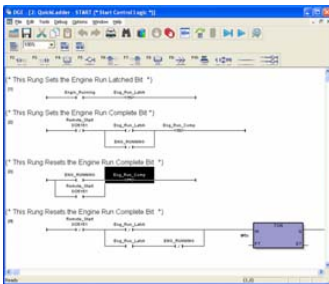
- Added features save you programming time and simplify ongoing maintenance
- Run multiple ISaGRAF programs (or "projects") in one IPm controller
- Supports 128 character program names
- Support 64 character tag names allowing you to assign functionally organized tag names and follow conventions
- User-defined cycle time – on-line or off-line – to optimize system performance

## IEC 61131-3 and IEC 61499 Languages

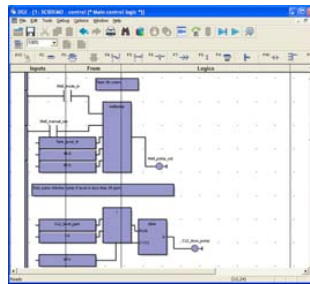
SIXNET's ISaGRAF Open Workbench is the world's first automation software to be compliant with both IEC 61131-3 and IEC 61499 industrial standards. This leading-edge software is comprised of a powerful set of new features that promise to change the way you build your control systems.

### IEC 61131-3 – PLC Programming Standards

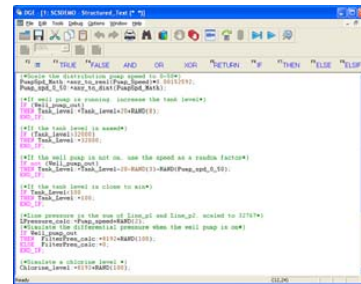
ISaGRAF Open Workbench is your complete tool kit for creating IEC 61131-3 programs. Its Windows interface will guide you through development of your project. Use the Workbench Simulator to test your program before startup. Then use the Workbench to dynamically view ISaGRAF programs as they run in real time and make changes on-the-fly.



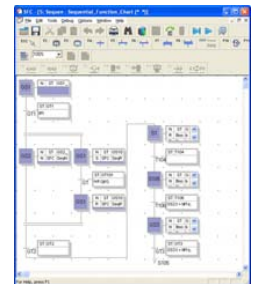
**Quick ladder editor for fast machine logic.**



**Quick ladder editor for fast machine logic**



**Function blocks mix with ladder logic for process control**

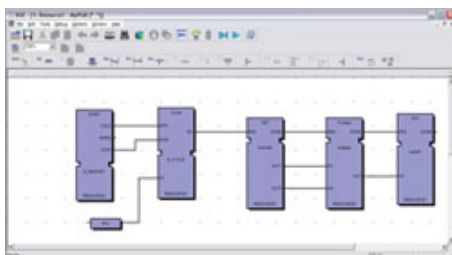


**Statement programming for powerful computer performance**

### IEC 61499 – Function Blocks for Distributed Control

Developed by the International Electrotechnical Commission, the IEC 61499 presents guidelines for the use of function blocks in distributed control systems. It gives the ability to see the overall behavior of your control system. This emerging standard provides a number of remarkable benefits including:

- Regulation of control decision flow for an interacting distributed control system
- Consistency of data
- A means to ensure synchronous operation between devices
- Elimination of the need to have separate synchronization schemes
- Easy development and maintenance of robust control systems



The IEC 61499 function block diagrams provide a high-level management tool over a control system.

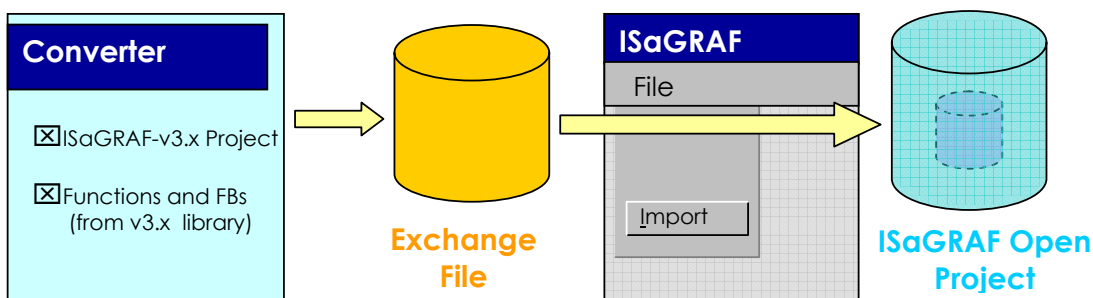
## Create you own Libraries!

Libraries are special projects which you define that support functions and function blocks for reuse throughout ISaGRAF projects. Libraries also enable you to modularize projects and to isolate functions and function blocks so that these can be validated separately.

- Saves you time and money!
- Simplifies project implementation.

## Application Migration Tool

- Converts ISaGRAF 3.x projects to an ISaGRAF Open Workbench project
- Reports possible non-compatible features (tstart, tstop...)
- Creates one exchange file for easy importation (into the Workbench)



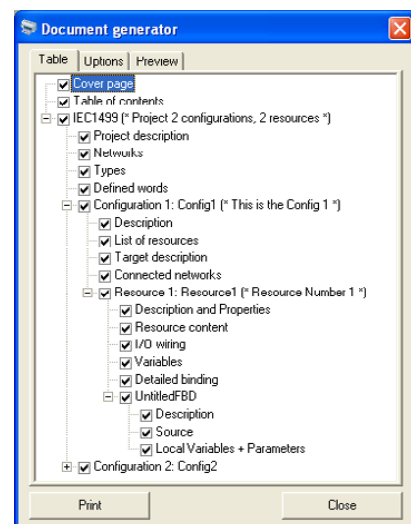
## New and Improved Documentation

- Online accessible documentation from application interface
- Multiple tools to access the 'Help' documentation
  - Table of Contents
  - Index
  - Search Engine
- IEC 61499 Tutorial
- Miscellaneous tech notes
- Getting Started (pdf)

## Let the Project Document Generator Do the Work!

You can print or save to file the complete or partial documentation for the current project from within the Document Generator.

You can access the Document Generator from the hardware architecture view, link architecture view, dictionary view, or any of the language editors.



## Ordering Information

### SIXNET ISaGRAF Open Workbench Licenses

For **Single Controller** applications (Supports development of any ISaGRAF-RTU or ISaGRAF-SCS application running in a single controller. Of course, applications can be developed in any number of IPms as independent single controller applications.)

SX-1131- <b>S</b> -32	Limited to 32 externally referenced I/O
SX-1131- <b>S</b> -256	Limited to 256 externally referenced I/O
SX-1131- <b>S</b> -1K	Limited to 1024 externally referenced I/O
SX-1131- <b>S</b> -BIG	Unlimited number of externally referenced I/O

For **Multiple Controller / Distributed** applications (For advanced or larger applications that will be partitioned into more than one synchronized controller – true distributed control – or be developed by multiple developers simultaneously)

SX-1131- <b>M</b> -1K	Limited to 1024 externally referenced I/O
SX-1131- <b>M</b> -BIG	Unlimited number of externally referenced I/O

**Note:** Any physical or virtual I/O point that can be accessed from outside of the ISaGRAF program will add to the total point count. Any I/O point that is not referenced in the program does not add to the count. Internal variables (not accessible from outside the program) defined within ISaGRAF are not counted.

### ISaGRAF Runtime Licenses

<b>SX-1131-RTU-RT</b>	ISaGRAF-RTU runtime – Pre-installed and fully licensed in all IPm products for <b>Single controller</b> applications. No separate license is required.
<b>SX-1131-SCS-RT</b>	ISaGRAF-SCS runtime – Required for Distributed <b>Multiple controller</b> applications or any application that will benefit from the ISaGRAF-SCS features.

**Special!!**

### Workbench Upgrade Program

SIXNET has a special offer to encourage all SIXNET users to benefit from the many performance enhancements and time saving features of the new IPm Workbench. SIXNET will offer a 50% credit off the price of all IPm Workbench licenses with the trade-in of existing Workbench-IPm keys. This offer is valid regardless of the age of your Workbench-v3 license.

**This offer is valid only until December 19, 2008.**