



DATASHEET

# EtherTRAK<sup>®</sup>-2 Ethernet I/O Module Industrial Automation



### PRODUCT HIGHLIGHTS

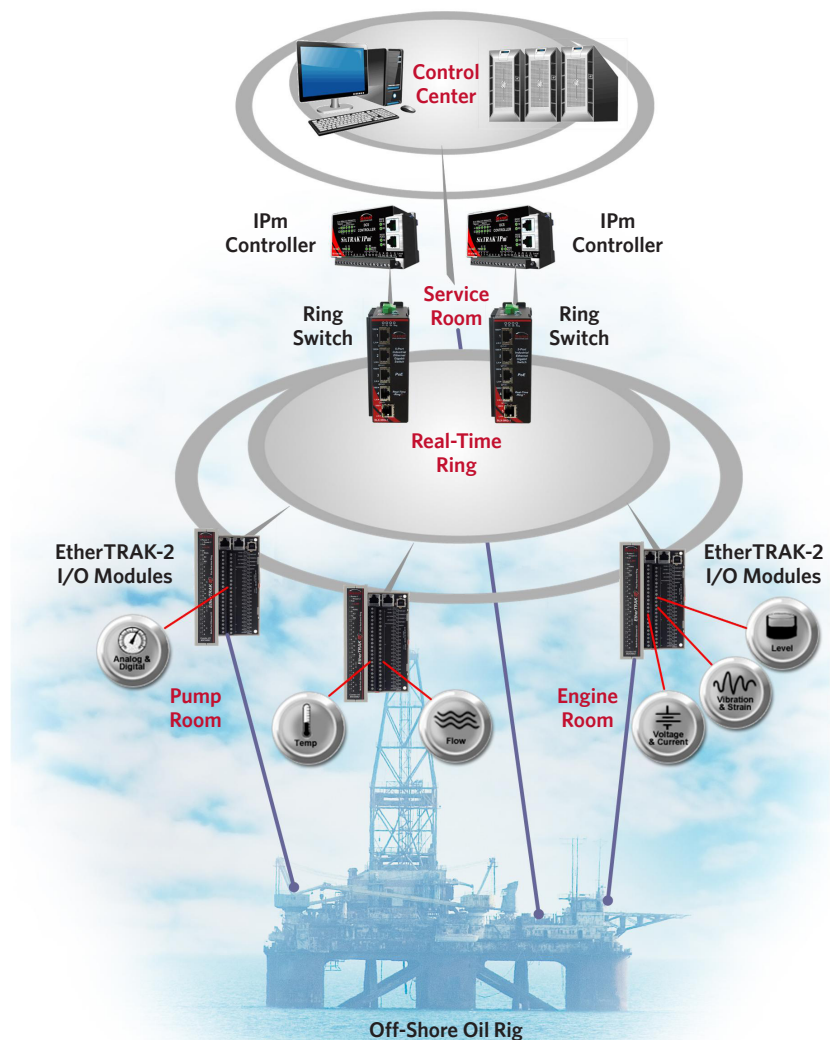
- Flexible mix of I/O channels support all instrumentation needs
- Real-Time Ring™ for fast redundancy
- Dual independent Ethernet ports enable flexible networking
- Built-in security proactively blocks unwanted access
- Extensive health diagnostics and reporting reduce downtime
- Standard Modbus protocols provide universal compatibility
- Rugged design supports extreme temperatures and hazardous locations

### APPLICATIONS

- Oil & Gas
- Power & Energy
  - Transmission
  - Distribution
- Transportation
- Mining
- Maritime
- Water/Wastewater

Sixnet's EtherTRAK<sup>®</sup>-2 Ethernet I/O modules provide a simple and secure way to reliably monitor remote sites located in harsh environments. Offering the lowest cost per I/O point and rugged environmental ratings, EtherTRAK-2 modules are ideal for both control rooms and extreme locations across industries that include oil & gas, power & energy, transportation, mining, maritime and water/wastewater.

Our compact DIN-rail modules support open-standard protocols to provide flexible communication options for existing or newly installed Ethernet networks. By seamlessly replacing external devices such as switches, data concentrators and protocol converters, EtherTRAK-2 modules transcend simple I/O capabilities to cost-effectively streamline systems and improve reliability.



# EtherTRAK-2 Ethernet I/O Module

## Industrial Automation

### INDUSTRIAL AUTOMATION

Sixnet's rugged RTUs and I/O provide a simple yet powerful means to reliably monitor and control remote sites around the clock in the harshest environments. Our compact automation systems can start small and grow as needs increase without requiring hardware replacement. Virtually unlimited scalability means organizations have fewer restrictions on the number of remote sites or devices that are supported. "Best of both worlds" programming combines Windows ease of use with the future-proof security of an embedded Linux OS.

### FEATURES & BENEFITS

#### High-Performance, Flexible I/O

- Provides high-speed functionality
- Lowers overall cost per I/O point
  - Flexible mix of up to 34 I/O supports DI, DO, AI, AO, temperature (RTD and thermocouples)
  - High resolution 16-bit analog or high-speed 10-bit analog
  - Fast I/O polling of up to 1mS
  - Advanced counter functions with 32-bit reporting
  - Time proportioned outputs simplify high-speed pulse rate functions

#### Built-In Security

- Prevents unwanted intrusion
- Guards against unauthorized users
  - User-assigned permissions
  - Firewall protection

#### Flexible, Redundant Networking

- Simplifies connectivity by replacing Ethernet switches
- Ensures reliability without additional cost
  - Real-Time Ring switch mode for fast redundancy
  - Switch elimination mode enables daisy-chaining
  - Dual independent Ethernet ports
  - Ethernet, RS-485 and USB connections
  - Optional Power over Ethernet (PoE)
  - Embedded data concentrator

#### Configuration Maintenance & Monitoring

- Delivers cross-platform configuration
- Offers easy-to-use software tools
  - Configuration and monitoring via standard web browser
  - On-board storage for project documentation
  - Project-based software tools
  - User-based history tracks changes
  - Per-channel calibration
  - Configuration archiving
  - Module hot-swap capabilities

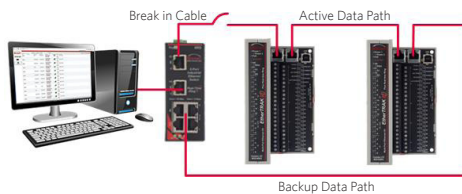
#### Rugged, Compact Design

- Supports harsh environments
- Delivers proven reliability
  - Industrial -40 to 75°C operating range
  - UL/CSA (CUL), FCC and CE rated
  - Hazardous locations rated for Class I, Div 2 (Zone 2) areas
  - Vibration resistant IEC68-2-6
  - Self-resetting fuses protect I/O

#### Watchdog Monitoring & Reporting

- Provides health reports of various module functions
- Reduces maintenance downtime
  - CPU health
  - Dual-power status
  - Communication activity
  - PoE status
  - Port link status

### NETWORKING OPTIONS

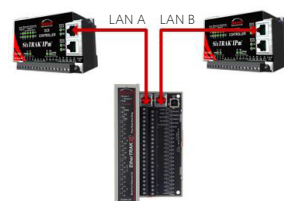


#### Real-Time Ring Switch Mode

Create redundant Ethernet reliability without additional cost

#### Switch Elimination Mode

Daisy-chain modules without external switches to save money and simplify connectivity



#### Two Networks Mode

Each Ethernet port has a unique MAC and IP address for connection to two independent physical networks

## SPECIFICATIONS

### General I/O Performance

- Power supply voltage: 10-30 VDC
- Input current requirement: 75 mA @ 24 VDC typical with no loads
- PoE power (EB modules only): 10 watts at 60°C for user loads
- De-rate: up to 5 watts at 75°C
- I/O: 512 discrete inputs and outputs plus 256 analog input and output registers
- Unique station addresses: 16,000+ (Sixnet or 247 Modbus)

### Ethernet Performance

- Ethernet ports: 10/100BaseTx (auto-detecting)
- Connection: RJ45 (auto-crossover)
- Isolation: 1500 volts RMS 1 minute (60 Hz.)
- Message response time: <1 mS per message
- Diagnostic LEDs: solid indicates link, blinking indicates activity
- Protocol support: TCP/IP, ARP, UDP, ICMP, DHCP, HTTP, Modbus UDP/TCP slave mode, Modbus UDP master mode, Sixnet UDR UDP/TCP slave mode, Sixnet UDR UDP master mode
- Real-Time Ring: 5ms per hop recovery time
- Independent networks: 1 or 2 with unique MAC and IP address

### Serial Ports

- RS-485 port: screw terminals (485+, 485-, GND; 2-wire half-duplex, not isolated)
- RS-485 networking: up to 32 (full load) stations
- RS-485 distance: up to 0.5 miles (baud-rate dependent)
- Baud rates: from 300 to 57,600 baud
- Protocols: TCP/IP, ARP, UDP, ICMP, DHCP, HTTP, Modbus UDP/TCP slave mode, Modbus UDP master mode, Sixnet UDR UDP/TCP slave mode, Sixnet UDR UDP master mode
- Protocols: master and slave; Sixnet and Modbus RTU/ASCII
- Diagnostic LEDs: transmit (TD) and receive (RD)

### Analog Output Channels

- Analog output range: 4-20 mA
- D/A resolution: 16 bits (less than 1 uA)
- Full scale accuracy: +/-0.02% (at 20°C)
- Span and offset temperature: +/- 50 ppm per °C
- Load resistance (@ 24 V): 0-750 Ohms
- Current: limiting short circuit protection
- Refer to user manual for additional specifications

### Analog Input Channels

- Input range: 4-20mA, 0-10VDC, RTD, thermocouple and 250mV
- A/D resolution: 16 bits (0.003%); 10 bits (1mS fast option)
- Input impedance (resistance): 100 ohms or 200 Kohms
- Fuses: self-resetting short circuit protection (4-20 mA inputs)
- DMRR (differential mode): 66 db at 50/60 Hz
- Update time: from 880 mS to 1 mS (depending configuration)
- Temperature accuracy: typical uncalibrated +/-0.5°C
- RTD type: 100 Ohm platinum
- RTD alpha: 0.00385 or 0.00392
- RTD connections: 2 or 3-wire
- RTD input range: -200 to 850°C
- Refer to user manual for additional specifications

### Discrete Input Channels

- Voltage range: 10-30 VDC or 60-140 VAC
- Input isolation: 150 volts (16 channel modules only)
- Input resistance: 10 Kohms
- Slow response (software configurable): 25 mS (20 Hz. maximum counting rate)
- Fastest response (software configurable): 1 mS (400 Hz. maximum counting rate)
- Special fast counting rate: up to 50 KHz on channels 1 and 2
- Count up: pulse timing and pulse rate 16 or 32-bit reporting
- Refer to user manual for additional specifications

### Discrete Output Channels

- Output voltage range: 10-30 VDC or 10-30VDC/AC
- Maximum output power: up to 1A per channel
- Short circuit protection: self-reset fuses (trip above 1.5 Amp)
- Input isolation: 150 volts (16 channel modules only)
- All channels scan rate: 1 mS
- Refer to user manual for additional specifications

### Web Interface

- Secure web access with password protection for multiple users
- 1 simultaneous user
- 750K memory for user pages (more with special order)

### Environmental

- Operating temperature: -40 to 75°C (-40 to 85°C storage)
- Humidity: 5 to 95% RH (non-condensing; optional conformal coating)
- Flammability: UL 94V-0 materials
- Vibration: IEC68-2-6

### Standards Compliance

- Electrical safety : UL 508, CSA C22.2/14; EN61010-1 (IEC1010); CE
- EMI emissions: FCC part 15, ICES-003, Class A; EN55022; EN61326-1; CE
- EMC immunity : EN61326-1 (EN61000-4-2,3,4,6); CE
- Hazardous locations: Class 1, Div 2, Groups A, B, C, D; UL 1604; CSA C22.2/213; Cenelec EN50021 Zone 2
- Marine and offshore: tested and/or verified to meet various standards such as DNV No. 2.4, Lloyds and ABS

### Physical

- Mounting: DIN rail (EN50022), direct to panel or flat panel
- Packaging: impact resistant Lexan® polycarbonate
- Dimensions (module and base): 5.5"L x 3.5"W x 5.1"H (14cm x 8.9cm x 13cm)

### Warranty

- 2 years on design and manufacturing defects

*All specifications are subject to change. Contact Sixnet to learn more.*

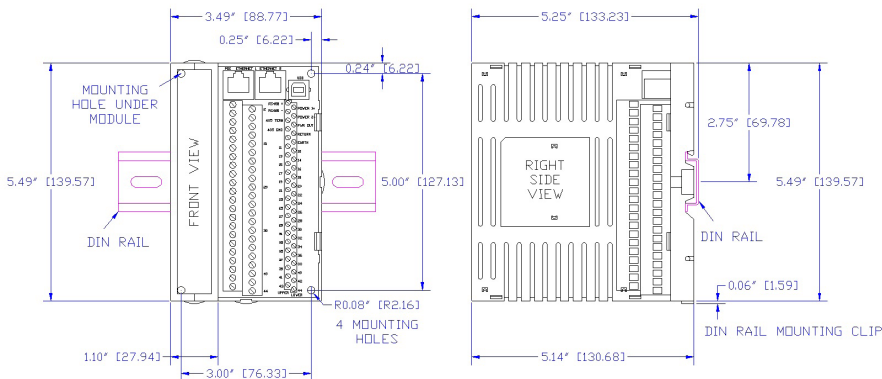
# EtherTRAK-2 Ethernet I/O Module

## Industrial Automation

### ORDER GUIDE

PART NUMBER	DI	DO	AI	AO	DESCRIPTION
E2 or EB-MIX24880-D	24	8	8		32 channel combination I/O with 1 isolated input counter
E2 or EB-MIX24882-D	24	8	8	2	34 channel combination I/O with 2 analog outputs
E2 or EB-32DI24-D	32				32 discrete inputs (10-30 VDC) including 16 multifunction counters
E2 or EB-16DI24-D	16				16 individually isolated discrete inputs (10-30 VDC) with counters
E2 or EB-16DIAC-D	16				16 individually isolated discrete inputs (120 VAC nominal; 10-30 VDC) with counters
E2 or EB-32DO24-D		32			32 discrete outputs (10-30 VDC) 0.5 Amp each, 8 Amps total
E2 or EB-16DO24-D		16			16 individually isolated discrete outputs (10-30VDC) 1 Amp outputs, 16 Amps total
E2 or EB-16DORLY		16			16 individually isolated discrete outputs (10-30VDC/VAC relay) 1 Amp outputs, 16 Amps total
E2 or EB-32AI20M-D			32		32 analog inputs (4-20 mA) with 16-bit accuracy
E2 or EB-32AI10V-D			32		32 analog inputs (0-10VDC)
E2 or EB-16AI20M-D			16		16 analog inputs (4-20 mA)
E2 or EB-8AO20M-D				8	8 analog outputs (4-20 mA)
E2 or EB-16AI-8AO-D			16	8	24 channel combination, 16 analog inputs (4-20 mA) and 8 analog outputs (4-20 mA)
E2 or EB-16ISOTC-D			16TC		16 individually isolated analog inputs (thermocouple and +/- 250 mV) with J, K, E, R, T, C, N, S
E2 or EB-8ISOTC-D			8TC		8 individually isolated analog inputs (thermocouple and +/- 250 mV) with J, K, E, R, T, C, N, S
E2 or EB-16ISO20M-D			16		16 individually isolated analog inputs (4-20 mA)
E2 or EB-10RTD-D			10RTD		10 analog inputs (100 Ohm platinum RTD), range is -200 to 850°C

### MECHANICAL DRAWING



### ABOUT SIXNET

Celebrating 35 years in operation, Sixnet provides innovative machine-to-machine (M2M) connectivity to industrial customers and markets worldwide. Sixnet's flexible solutions enable organizations to cost-effectively increase business productivity. By integrating powerful enterprise-class networking with rugged reliability, Sixnet meets the standards of the most demanding industrial applications in industries such as power & energy, banking & retail, transportation, video & security, utilities, military, mobile data, maritime and more. Based in Ballston Lake, NY, the company has offices across North America, Asia and Europe.

For more information, visit [www.sixnet.com](http://www.sixnet.com), email [sales@sixnet.com](mailto:sales@sixnet.com) or call +1 518 877 5173



Sixnet, LLC Corporate Headquarters  
331 Ushers Road, Ballston Lake, NY 12019

T +1 518 877 5173 F +1 518 877 8346

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