Quasonix

Ethernet via Telemetry



Redefine the "Local" in Local Area Network

With the Quasonix Ethernet Via Telemetry (EVTM) system, your test article can be on your ground station LAN, just like any other computer or Ethernet appliance. Connect cameras, Voice over IP, computers, and more, with a variety of hardware configurations to meet your needs. Quasonix is... Reinventing Telemetry[™]

High Speed Ethernet Traffic Over Telemetry Links – Ethernet telemetry data rates up to 40 Mbps using standard Ethernet protocols.

Enables Ethernet Data Transmission for a Wide Variety of Applications – Multimedia streaming, data source selection, data source isolation and forwarding, source rate and coding control in reaction to channel impairments, network extension, Voice over IP (VoIP), COTS-based Ethernet products such as Industrial Control Sensor Devices and data recorders.

Supports all TCP/IP Packet Types – Streaming UDP packets, TCP connections, ICMP, and SNMP messages are all passed over the air. (Connection-oriented traffic requires a bidirectional link.)

Time Division Duplex (TDD) or Frequency Division Duplex (FDD) Operation – TDD bidirectional operation synchronizes EVTMs to a selected schedule master. The option to synchronize to an external common clock reference is also available. TDD switching modules can be added to extend existing FDD systems to single-frequency operation.

Optional COTS Devices Provide Tremendous Additional Capability – An industrial computer module between the data sources and the transmitter allows sophisticated control of the downlink traffic. Ethernet-enabled data recorders provide an interface for legacy sensors.

Flexible, Comprehensive Solutions – EVTM can be added to existing systems or tailored to specific needs.

Contact Quasonix for a live video demonstration of EVTM and consultation on the right solution for you.



Possible Applications for EVTM

Control of COTS Camera Parameters Through the Ethernet Uplink – Control video resolution, video compression, camera direction, and more.

Source Control/Selection – Devices can be optionally enabled, disabled, and controlled either directly for Ethernet devices or via an Ethernet-enabled controller for devices without an Ethernet interface.

Transmitter Power Cycling Controls – For power-sensitive application, the ground controller can send messages to an air Ethernet-enabled controller to power the transmitter only when downlink data is required.

Network Extension – Isolated networks can be bridged over any terrain.

Diagnostics and Health Monitoring – The same status and error messages that maintain the Internet are available for monitoring and administration of the telemetry network. The Ground controller can monitor for transmitted network messages indicating link and link loss. GPS location data can be easily inserted into the downlink network traffic. Alarm, fault, and status messages can be multiplexed into the downlink stream using standard protocols (such as ICMP).

Encryption – The same security and encryption protocols available on the Internet become available over the telemetry link.

Data Isolation and Forwarding – Source data can be partitioned by its network destination address, permitting the ground station to forward traffic only to the appropriate destination.



Packets appearing on the Quasonix transmitter's Ethernet port are available at the receiver's Ethernet port. To the end user, it's like having an Ethernet cable from the test article to the ground.

Advantages of EVTM over TmNS

EVTM	TmNS
Any band, any frequency	C-band only (designated center frequencies of 4900 MHz and 4922 MHz)
Any modulation in both directions	SOQPSK only
Any data rate in both directions	Same data rate in both directions, fixed at 13.3 Mbps
With or without LDPC - all six IRIG codes, or none	One code only (k=4096, r=2/3)
FDD and TDD operation	TDD operation only
Direct browser-based control of transmit scheduling	Complex MDL-based transmit slot scheduling script
Does not require GPS to synchronize	Requires GPS (can result in very slow synchronization)
Mix and match EVTM modules with existing transmitters and receivers	Requires equipment specific to TmNS

EVTM Configuration Options

Quasonix Airborne EVTM Encoder/Decoder + any transmitter – Add Ethernet capabilities to existing airborne systems.				
Quasonix Ethernet-Enabled TIMTER™ Transmitter* – Ethernet or serial data in the same transmitter.				
Quasonix Airborne EVTM Node Controller + Quasonix transmitter – Allows TDD and FDD plus supe system control.				
Quasonix Airborne EVTM Encoder/Decoder + any receiver — Add Ethernet capabilities to existing airborne systems.				
Quasonix Ethernet-Enabled Compact RDMS™ Receiver — Ethernet or serial data in the same receiver.				
Quasonix Airborne EVTM Node Controller + Quasonix Compact RDMS receiver – Allows TDD and FDD plus superior system control.				
Quasonix Airborne Ethernet-Enabled Modular Transceiver* – Allows unidirectional and bi-directional transmission and demodulation of encoded Ethernet data.				
Quasonix Ethernet-Enabled Rackmount Transmitter Platform* — Ethernet or serial data in the same transmitters (up to four per chassis).				
Quasonix 1U or 3U Rackmount RDMS Receiver — Ethernet or serial data in the same receiver.				
Quasonix 1U Rackmount EVTM Encoder/Decoder – Add Ethernet capabilities to existing ground systems. One or two channels with separate Ethernet connections. Each channel allows both uplink and downlink data. Compatible with all receivers and transmitters.				
Quasonix 3U Rackmount EVTM Transceiver – Fully functional ground-station receiver with separate Ethernet connections for remote control and payload data.				

* Minimum order quantities may apply

EVTM Encoder/Decoder

Airborne Encoder/Decoder

(Part Number QSX-EVTM-SED-AR-ET for RS-422, QSX-EVTM-SED-AT-ET for TTL)



Rackmount Encoder/Decoder (Part Number QSX-EVTM-1URX-1CH for 1 channel, QSX-EVTM-1URX for 2-channel)



Turn existing telemetry links into virtual Ethernet links. The Quasonix EVTM Encoder/Decoder – compatible with any transmitter or receiver – translates Ethernet packet data to serial streaming clock and data for input to transmitters. It also translates recovered serial clock and data from a telemetry receiver back to original Ethernet packets.

EVTM encoding and decoding is required at both ends of a link for operation. The Encoder/Decoder can support bidirectional data from a single piece of hardware.

Our EVTM Encoder/Decoders could not be simpler to operate. Connect them and power them on - that's it. No IP addressing or settings required. The telemetry transmit data rate is set by the encoder data buffer drain rate, and the receiver data rate is automatically set by the incoming clock from the telemetry receiver.

Airborne EVTM Encoder/Decoder Specifications

Electrical	
Input Voltage	10-32VDC
Physical	
Size	2" (W) x 3" (D) x 0.7" (H)
Weight	2.6 oz.
Power	1 W
Fastive and ended	
Environmentai	
Storage Temperature	-55° C to +100° C
Storage Temperature Operating Temperature	-55° C to +100° C -40° C to +85° C
Storage Temperature Operating Temperature Operating Humidity	-55° C to +100° C -40° C to +85° C 0-95% (non-condensing)
Storage Temperature Operating Temperature Operating Humidity Vibration	-55° C to +100° C -40° C to +85° C 0-95% (non-condensing) 20 G, 5 Hz to 2 kHz (all axes)
EnvironmentalStorage TemperatureOperating TemperatureOperating HumidityVibrationAcceleration	-55° C to +100° C -40° C to +85° C 0-95% (non-condensing) 20 G, 5 Hz to 2 kHz (all axes) 100 G (all axes)
EnvironmentalStorage TemperatureOperating TemperatureOperating HumidityVibrationAccelerationShock	-55° C to +100° C -40° C to +85° C 0-95% (non-condensing) 20 G, 5 Hz to 2 kHz (all axes) 100 G (all axes) 100 G pk, half-sine, 5 ms (all axes)



Airborne EVTM Encoder/Decoder Connectors



	Connector Number/Pin	Description		
Transmit +	J1/1	Positive leg of a differential pair, transmit data onto Ethernet network; pin 1 on a standard (T568A) RJ-45		
Receive +	J1/5	Positive leg of a differential pair, receive data from Ethernet network; pin 3 on a standard (T568A) RJ-45		
Transmit -	J1/6	Negative leg of a differential pair, transmit data onto Ethernet network; pin 2 on a standard (T568A) RJ-45		
Receive -	J1/9	Negative leg of a differential pair, receive data from Ethernet network; pin 6 on a standard (T568A) RJ-45		
Transmit Clock +	J2/1	Serial streaming synchronous clock from encoder to telemetry transmitter		
Transmit Data +	J2/2	Serial streaming data from encoder to telemetry transmitter		
System Clock +	J2/3	Encoder data buffer drain rate clock; signal sets telemetry transmitter data rate		
Power	J2/6	DC power into device +10-32 VDC		
Receive Data +	J2/10	Serial streaming data from telemetry receiver to decoder		
Receive Clock +	J2/11	Serial streaming synchronous clock from telemetry receiver to decoder		
Transmit Clock -	J2/12	Serial streaming synchronous clock from encoder to telemetry transmitter		
Transmit Data -	J2/13	Serial streaming data from encoder to telemetry transmitter		
System Clock -	J2/14	Encoder data buffer drain rate clock; signal sets telemetry transmitter data rate		
Ground	J2/16	DC power ground		
Ground	J2/17	DC power ground		
Receive Data -	J2/20	Serial streaming data from telemetry receiver to decoder		
Receive Clock -	J2/21	Serial streaming synchronous clock from telemetry receiver to decoder		
Color Legend	Male MDM-9*	Female MDM-21		

* Pre-assembled MDM-9 Male to RJ-45 (T568A) cables are available from Quasonix.

Rackmount EVTM Encoder/Decoder Specifications

Electrical					
Input Voltage	100-240 VDC 50-60 Hz				
Physical					
Size	18.95" (W) x 15.5" (D) x 1.72" (H)				
Weight	7.6 lbs.				
Power	8 W				
Environmental					
Storage Temperature	-20°C to +70°C				
Operating Temperature	ure 0°C to +50°C				
Operating Humidity	perating Humidity 0-95% (non-condensing)				

Rackmount EVTM Encoder/Decoder Connectors (Per Channel)



Connector	Description			
Ethernet	Ethernet format data from network to transmitter, and from receiver to network; Ethernet ports are NOT connected to each other internally			
J2/1	Serial streaming synchronous clock from encoder	r to telemetry transmitter		
J2/2	Serial streaming data from encoder to telemetry t	ransmitter		
J2/3	Encoder data buffer drain rate clock; signal sets te	elemetry transmitter data rate		
Clock to Transmitter	Serial streaming synchronous clock from encoder to telemetry transmitter			
Data to Transmitter	Serial streaming data from encoder to telemetry transmitter			
System Clock to Transmitter	Encoder data buffer drain rate clock; signal sets the telemetry transmitter data rate			
Clock from Receiver	Serial streaming synchronous clock from telemetry receiver to decoder			
Data from Receiver	Serial streaming data from telemetry receiver to decoder			
Color legend:	RJ-45 75 Ω BNC			

Airborne EVTM Node Controller



The EVTM Node Controller allows for TDD (Time-Division Duplex) or FDD (Frequency-Division Duplex) operation. Browser-based control and monitoring is available, when needed. Ethernet traffic flows, RF link DQM, and system status are graphically presented. Also available without an RF switch module for non-switched FDD or custom TDD switching applications.

Browser-Based User Interface with Integrated Transmitter and Receiver Control – Compact, easy-to-use control panel look and feel; capable of controlling and monitoring both local and remote devices

Local and Remote Link Statistics Monitoring – Monitoring of wireless transmit and receive packets from local or remote; low overhead remote statistics data embedded in transmit stream; configurable levels of statistics reporting **Built-In RF Link Packet Testing Capability** – Built-in wireless interface packet testing; control from local node controller browser user interface; provides test statistics for local and remote interface

Wired to Wireless Packet Traffic Management – Filter from the wireless transmit interface a set of Ethernet and/or IP packets that match packet rejection criteria; enable only a set of Ethernet and/or IP packets that match packet accept criteria; configure Multicast traffic streams to bridge from wired to wireless interface



EVTM Browser Interface

EVTM Node Controller Specifications

Electrical	
Input Voltage	10-32VDC
Physical	
Size	6" (W) × 3" (D) × 1" (H)
Weight	17.9 oz.
Power	10 W
Environmental	
Storage Temperature	-55° C to +100° C
Operating Temperature	-40° C to +70° C
Operating Humidity	0-95% (non-condensing)
Vibration	20 G, 5 Hz to 2 kHz (all axes)
Acceleration	100 G (all axes)
Shock	100 G pk, half-sine, 5 ms (all axes)



EVTM Node Controller Connectors

	MDM-21F	MDM-9M GMSM-15F	MDM-21M
	TO RECEIVER		TO TRANSMITTER
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	Ethernet	To Receiver	To Transmitter	Main
	Pin	Pin	Pin	Pin
TX+	1	-	-	-
RX+	5	-	-	-
TX-	6	-	-	-
RX-	9	-	-	-
Clock +	-	4	4	-
Data +	-	5	5	-
Clock -	-	15	15	-
Data -	-	16	16	-
RS-232 RXD	-	18	18	3
RS-232 TXD	-	8	8	1
RS-232 GND	-	6	6	-
Lock Detect	-	7	-	-
T/R to RX	-	14	-	-
T/R to TX	-	-	7	-
Ones Detect	-	17	17	-
CG +	-	-	3	-
CG -	-	-	14	-
T/R In +	-	-	-	4
T/R In -	-	-	-	5
T/R Out -	-	-	-	12
T/R Out -	-	-	-	13
IRIG-B	-	-	-	15
+28 VDC	-	1	1	7
+28 VDC	-	12	12	8
+28 VDC	-	-	-	9
GND	-	2	2	2
GND	-	3	13	6
GND	-	13	-	10
GND	-	-	-	14
Color legend:	Male MDM-9	Female MDM-21	Male MDM-21	Female GMSM-15

EVTM Node Controller Part Numbering



Band Selection (T/R Switch Module)

1415.0 ← Extended → 1585.0 2185.0 ← Extended → 2500.0 Extended → 5250.0							
	1435.0 ← Base → 1535.0			2200.0 ← Base → 2394.0		4400.0 ← Base → 5150.0	
	L			S		С	
Freq. Code							
С							
F							
L							
М							
S							

🗌 Frequency Gap

Standard (Base) Frequency Range

Extended Frequency Range

(available by selecting Extended Tuning = 1 in part number)



Rackmount EVTM Node Controller available in 2025. Contact Quasonix for details.

Configuration Examples





Quasonix

All Quasonix products are under U.S. Dept. of Commerce jurisdiction. Transmitters are categorized as EAR99, receivers and antennas as 5A991. ISO 9001:2015 Certified I Specifications subject to change without notice.

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