



# ESTeEM

SECURE WIRELESS NETWORKING



## 195C Narrowband

The ESTeem 195C Narrowband is the perfect radio solution designed for the rigors and security requirements of the Industrial and Public Safety applications when FCC licensed UHF frequencies (450-470 MHz) are needed for greater coverage in challenging terrains.

The ESTeem 195C provides Ethernet, Serial RS-232C, RS-422, RS485 and 4-Channel Sensor Interfaces in a single wireless device.

### Key Features

Programmable 450-470 MHz Frequency options – FCC Licensed Exclusive Use

Multiple Modes of Operation - Same device can be used for master, repeater and/or remote

Edge-to-Edge AES-128 Cybersecurity

Ethernet and serial interfaces

Simple configuration

15+ Mile range

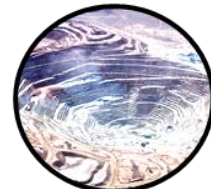
Built-in Full-Feature Spectrum Analyzer



Water/Wastewater



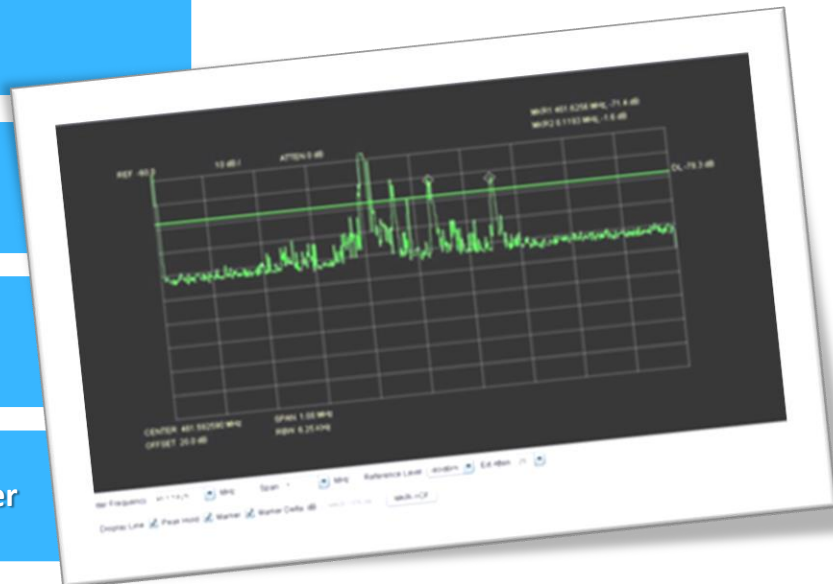
Oil & Gas



Mining



Power & Energy



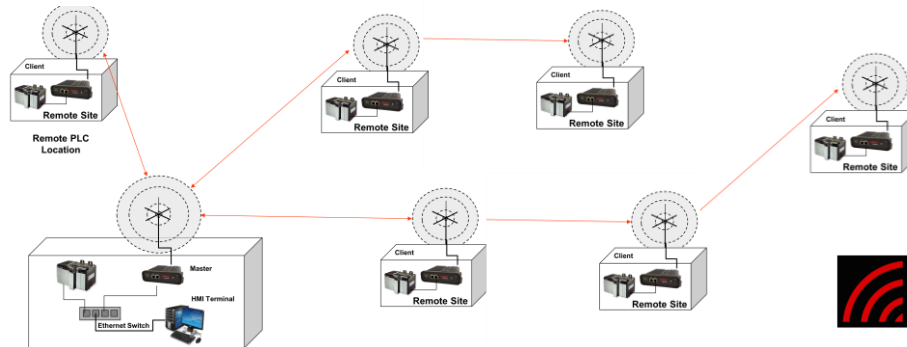
**ESTeem** Secure Wireless Networking

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## ESTeem 195C Specifications

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<b>Transmitter/Receiver</b>	
Frequency of Operation (Software Selectable)	440 to 470 MHz (6.25kHz / 12.5 kHz Channel Spacing)
Frequency Stability, -30C to +60C	+/- 2.5ppm
RF Data Rate Vs. Channel Spacing	(4.8Kbps @ 6.25kHz) and ( 12.5Kbps @ 12.5kHz)
Tx Output Power (Software Adjustable)	0.5 to 4 Watts
Tx Output Impedance	50 ohms
Rx Sensitivity	-110 dBm
Rx Adjacent Channel Rejection	> 55 dB
Modulation	4-Level GFSK
Forward Error Correction	TCM, Coding Rate 3/4
Data Error Detection	32-Bit Cyclic Redundancy Check
FCC ID (USA)/Industry Canada Type Acceptance	ENPESTEEM195C / 2163 192 195C
LED Indicators	Power (12V-Aux), Status Multi-Color LED (Tx, Rx, Rx-Valid, Rx-Error), RS-232 , RS-485, RS-422 Tx/Rx
<b>Data Packet Information</b>	
Radio Addressing	1-254 Total Units, Digi-repeating allows up to 3 repeaters between end-points
Data Packet Size	1-1500 Bytes
Serial Data Interface Buffer Size	8Kbytes Tx / 8Kbytes Rx
<b>Power Requirements</b>	
Receive / Without Ethernet Link	120 ma @ 12 VDC
Receive / With Ethernet Link	160 ma @ 12 VDC
Transmit @ 4 Watts RF Output	1540 ma @ 12 VDC
External DC Input Power	10.8 to 15 VDC
Ethernet Port (10/100)	RJ-45 Female
Serial Data Interfaces (RS-232, RS-422 & RS-485 selectable)	RJ-45 Female
Antenna Input/Output	TNC Female Connector
<b>Protocols</b>	
Serial Data Interface, Master PLC mode protocols supported repeater function	Allen Bradley DF1, Opto22, Modbus RTU/ASCII, and Transparent protocols
Ethernet Interface protocols supported for remote access via ARP proxy	ICMP Echo (ping), Modbus/TCP (Aux Voltage, 4-20mA readings, RSSI, MCU Core Temperature), Remote Configuration
Ethernet Interface protocols (direct access only)	Telnet, IP Configuration, Firmware upgrades
<b>Mechanical / Environmental</b>	
Temperature Range	-30° to +60° C
Humidity	95% Non-condensing
Dimensions	1.9 in. H x 6.7 in. W x 6.2 in. L
Weight	1.25 lbs.
Product Warranty	1 Year
<b>Options</b>	
Outdoor Pole Mount Kit	AA195PM
RJ-45 To DB9 Serial Adaptor	AA0621.1
RJ-45 To Terminal Block Adaptor	AA066
Antennas/Surge Protectors/Cables, etc.	Contact factory for various options (market@esteem.com or 509-735-9092)
Security	AES-128