

Go Beyond Normal Limits...™

**RITRON**  
WIRELESS SOLUTIONS

## New – Next Generation DTX-Ls Series Transceiver

A new embedded RF platform with enhanced performance and reliability.

### Features/Benefits:

- All electronic tuning (no mechanical adjustments)
- Same mechanical footprint and electrical interface as the current DTX-Ls (allows drop-in backwards compatibility)
- Available in 2 to 8 Watt UHF Models and 2 to 5 Watt VHF
- Supports voice or data applications
- Supports sub-audible signaling CTCSS or Digital Coded Squelch
- PC programmable via a Windows-based PC programmer
- All components placed on the top side of a single PCB for mechanical rigidity and increased protection against damage
- Solid internal ground plane for enhanced EMI shielding
- Surface acoustic wave (SAW) filter front-end for no-drift, adjustment-free filtering of interfering signals (DTX-445)
- Monolithic Gilbert cell mixer with internal negative feedback for improved RF intermodulation performance
- Ritron exclusive flex-divider PLL synthesizer allows for a wide loop bandwidth for fast transmit and receive attack times and minimal microphonics
- Audiophile-grade polypropylene capacitors in the PLL loop filter for further reduced microphonic susceptibility

### Plus These Established DTX Ls Features:

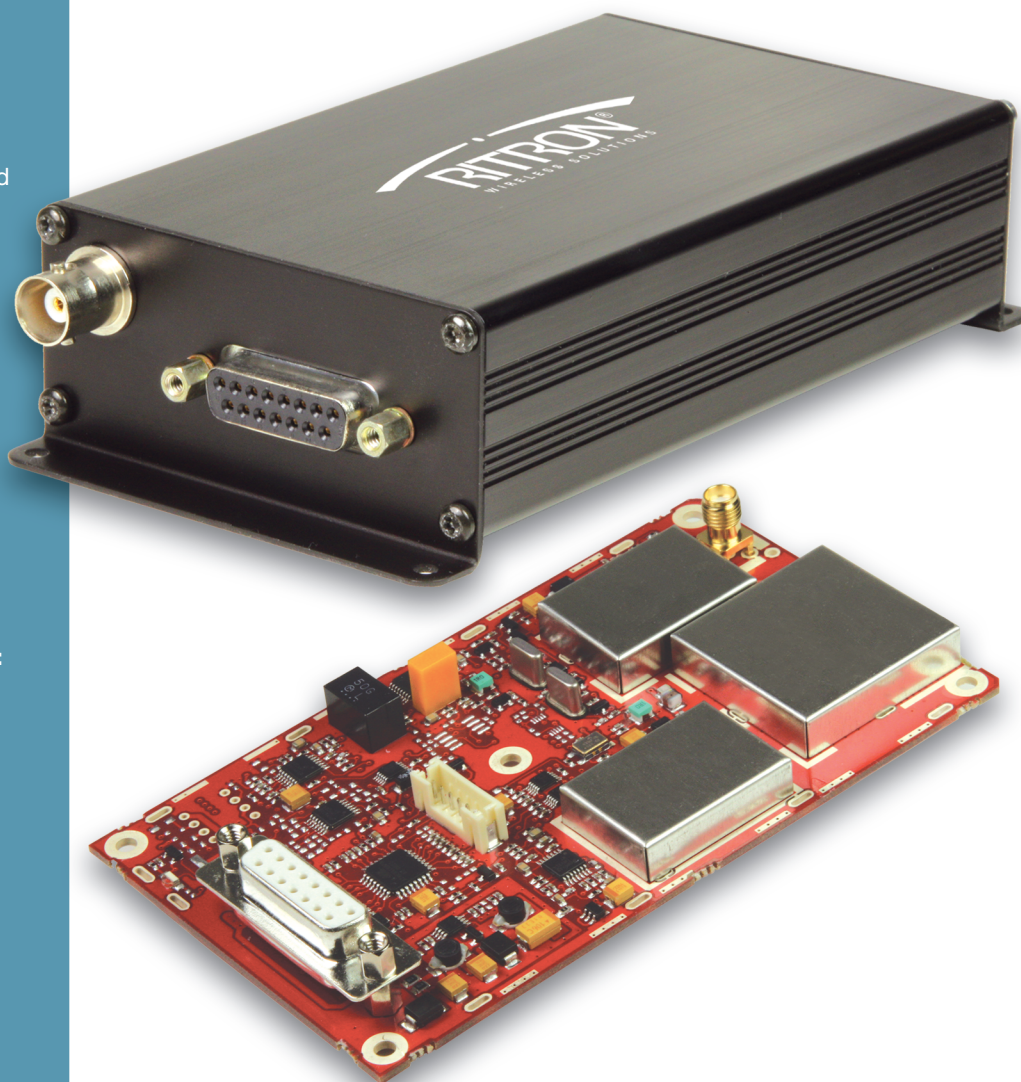
- Low standby current drain facilitates long battery life in battery powered applications
- High receiver sensitivity
- Single board design for high reliability
- Ritron's made in the USA design, manufacturing, and service expertise
- FCC Narrow Band Compliant and Industry Canada approved module (board only or with enclosure), allows for easier integration into OEM applications without regulatory concerns
- Various connector/module options allow for flexibility in OEM integration

- Narrow Band Compliant

- Ideal For OEM and Other Integrated Applications



DTX-445 and DTX-145



Reliable and Feature Rich.

## RF Transceivers, Radio Modems and Specialized Wireless Communication Equipment for OEM and Integrator Applications – Since 1977.

### GENERAL SPECIFICATIONS

	UHF DTX-445	VHF DTX-145
FCC ID:	AIERIT17-445	AIERIT17-145
Industry Canada ID:	1084A-RIT17445	1084A-RIT17145
FCC Rule Parts:	90	
Industry Canada Rule Parts:	RSS-119	
Frequency Range:	400.6 – 416.5†, 411 – 429†, or 450 – 470 MHz	136 to 162 MHz, 148-174MHz
RF Channels:	8 Independent TX/RX frequencies	
Synthesizer Step:	6.25kHz	2.5kHz
Channel Spacing:	12.5kHz	
Frequencies unusable:	TBD	
Frequency Stability:	+/- 1.5 PPM (-30° to +60° C)	+/- 2.5 PPM (-30° to +60° C)
Tone/Code Signaling:	CTCSS (Quiet Call) and DCS	
Power Supply:	9 to 17 VDC	
Dimensions & weight:	Board only version: 4.75" x 2.8" x .625" / 2.1 oz Encased version: 5.7"x 3"x 1.375" / 7.3 oz.	
Antenna Fitting:	BNC female with encased version. Other options available on board only version.	

† pending model

### RECEIVER

	25 kHz Wide band	12.5 kHz Narrow band	25 kHz Wide band	12.5 kHz Narrow band
Sensitivity (12 dB SINAD):	0.25 $\mu$ V	0.25 $\mu$ V	.25uV	.25uV
Adjacent channel:	-67 dB	-60 dB	-67dB	-60dB
Spurious rejection:	-70 dB	-70 dB	-65dB	-65dB
Image rejection:	-75 dB	-75 dB	-70dB	-70dB
Intermodulation:	-67 dB	-67 dB	-67dB	-67dB
FM hum and noise:	-43 dB	-37 dB	-43dB	-37dB
Conducted spurious:	-57 dBm	-57 dBm	-57dB	-57dB
Receiver attack time (TX to RX):	< 10 ms	< 10 ms	< 10 ms	< 10 ms
Noise squelch attack time:	< 15 ms	< 15 ms	< 15 ms	< 15 ms
(for 20 dB quieting)				
RSSI squelch attack time:	< 5 ms	< 5 ms	< 5 ms	< 5 ms
RSSI squelch sensitivity:	PC adjustable; factory set for -106 dBm			
Noise squelch sensitivity:	PC adjustable; factory set for -121 dBm			
AUX OUT frequency response:	12 - 2500 Hz @ +1 / -3 dB			
AUX OUT level range:	0 to 3 Volts peak-to-peak			
Audio Speaker Output:	>700 mW into 8 $\Omega$ , with less than 5 % THD ( 0 to 2.5 Vrms)			
Audio Speaker freq response:	de-emphasized 6 dB/octave from 400 to 2500 Hz			
Current Drain:	Receive Standby: 25 mA at 12.5 VDC			

### TRANSMITTER

Voice Emission Designator:	15K0F3E	10K0F3E	15K0F3E	10K0F3E
RF Power Output:	2.0 Watts @ 12.5 VDC < .9 A	8.0 Watts @ 12.5 VDC < 1.8 A	2.0 Watts @ 12.5 VDC < .9 A	5.0 Watts @ 12.5VDC < .9 A
	10.0 Watts @ 14 VDC < 1.8 A			

Transmitter Duty Cycle: With supply below 13.5 volts:  
8 W board only model - 100 % with added heat sink\*\* maintained at 25° C  
8 W encased model - 33 % with case end cap\*\*\* maintained at 25° C  
5 W encased model - 50 % with case end cap\*\*\* maintained at 25° C  
(with heat sink or case end cap above 25° C, degrades linearly to 0% at 60° C)

† pending model

\*\* a heatsink can be added to the board only versions using the two holes next to the RF PA shield.

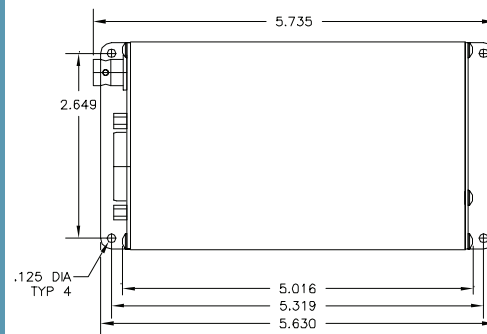
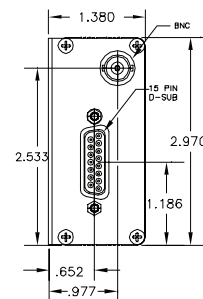
\*\*\* case end cap refers to aluminum extrusion end cap on opposite side from connectors.

### Data Emissions Designator for external modem:

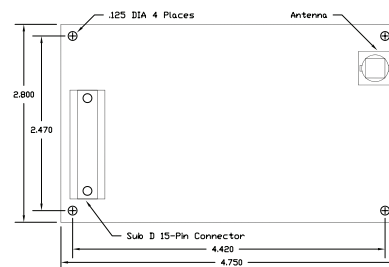
	9K8F1D		
Deviation:	+/- 5.00 kHz	+/- 2.50 kHz	+/- 5.00 kHz
Transmitter attack time:		< 10 ms	
FM Hum and Noise:	-45 dB	-40 dB	-45 dB
Audio Distortion:		< 5 %	
Spurious and Harmonics:	-25 dBm max		-20 dBm max
Aux In frequency response:	8 Hz to 2500 Hz @ +1 / -3 dB		
Aux In level range:	0.1 to 5 V peak-to-peak		
Microphone freq response:	pre-emphasized 6 dB/octave from 300 to 2500 Hz		
Microphone level:	25 mV rms for nominal +/- 3 kHz deviation on wideband channel		
Current Drain:	2.0 Watts @ 12.5 VDC < .9 A	8.0 Watts @ 12.5 VDC < 1.8 A	5.0 Watts @ 12.5VDC < 1.2 A
	10.0 Watts @ 14 VDC < 1.8 A		



### SINGLE BOARD TRANSCEIVER WITH HOUSING & MOUNTING FLANGES



### SINGLE BOARD TRANSCEIVER (Board Only)



### SUB D 15-PIN CONNECTOR

The DTX-445-145 is equipped with a 15-pin sub D connector with the following functions:

Pin #	Name	Description
1	CS0 Channel	Select low bit
2	CS1 Channel	Select mid bit
3	CS2 Channel	Select high bit
4	MIC IN	Microphone Input
5	H/L PWR	High/Low Power
6	SUPPLY	Power Supply Input
7	AUX IN	Auxiliary Input
8	AUX OUT	Auxiliary Output
9	PGN IN/OUT	Programming I/O
10	N/A	Not Used
11	RX MON	Monitor
12	Audio Out	Audio PA Output
13	DCD	Carrier Detect
14	PTT	Push-to-Talk
15	GND	Ground

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