

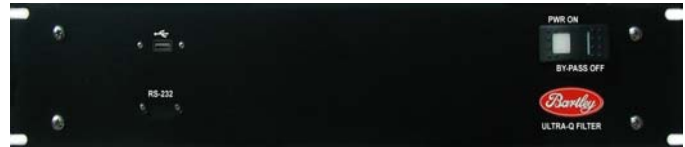
ULTRA-Q™ Active Bandpass Filter

“When Communication Is Critical You Can’t Afford Interference”

Features

- Eliminates Adjacent Channel Interference
- Entire Receiver Front End Solution: Includes Pre-Selector, Amplifier, and a Channelization Filtering Bank
- Field Programmable Using a PC with the User-Friendly Software Provided
- Low Noise Figure
- Available Bandwidths: 6.25 kHz, 12.5 kHz, 25 kHz, 30 kHz, 100 kHz, or 200 kHz (All Filter Bandwidths are Available at Any Band)
- 8-Pole Filter Response
- Customizable to Meet Specific Requirements

FRONT PANEL



REAR PANEL



Description

The ULTRA-Q is an active bandpass filter designed to solve interference problems by eliminating unwanted signals before they get to the receiver. The user can easily tune the ULTRA-Q to any desired receive frequency within the ULTRA-Q’s operating range by using the supplied software. A channel that was once plagued by interference and rendered useless can be made useful again with the ULTRA-Q filter. With wireless technology becoming more widely used, the issue of receiver interference is getting worse. Giving up a channel isn’t feasible, especially with today’s demands to keep the lines of communication open. Typical applications include Police, Fire, EMS, SCADA, and commercial two-way radio systems.

Electrical Specifications

Parameter ¹	Frequency	Min.	Typ.	Max.	Units
Gain	100 - 960 MHz	13	14	16	dB
Noise Figure	100 - 500 MHz		3.0	3.5	dB
	501 - 700 MHz		4.0	4.5	dB
	701 - 960 MHz		5.0	5.5	dB
Intermodulation Products ²	100 - 500 MHz			-100	dBm
Input Power for 1 dB Compression	100 - 960 MHz		-20		dBm
VSWR (I/O)	100 - 960 MHz		1.3:1	1.5:1	
Tuning Range	100 - 960 MHz		10	70	MHz
Receive Channel Accuracy	± 0.2 kHz				
Channel Ripple	± 1 dB max				

1. All measurements made in a 50 Ω system

2. Intermodulation product tone spacing = 500 kHz, Pin per tone = -40 dBm

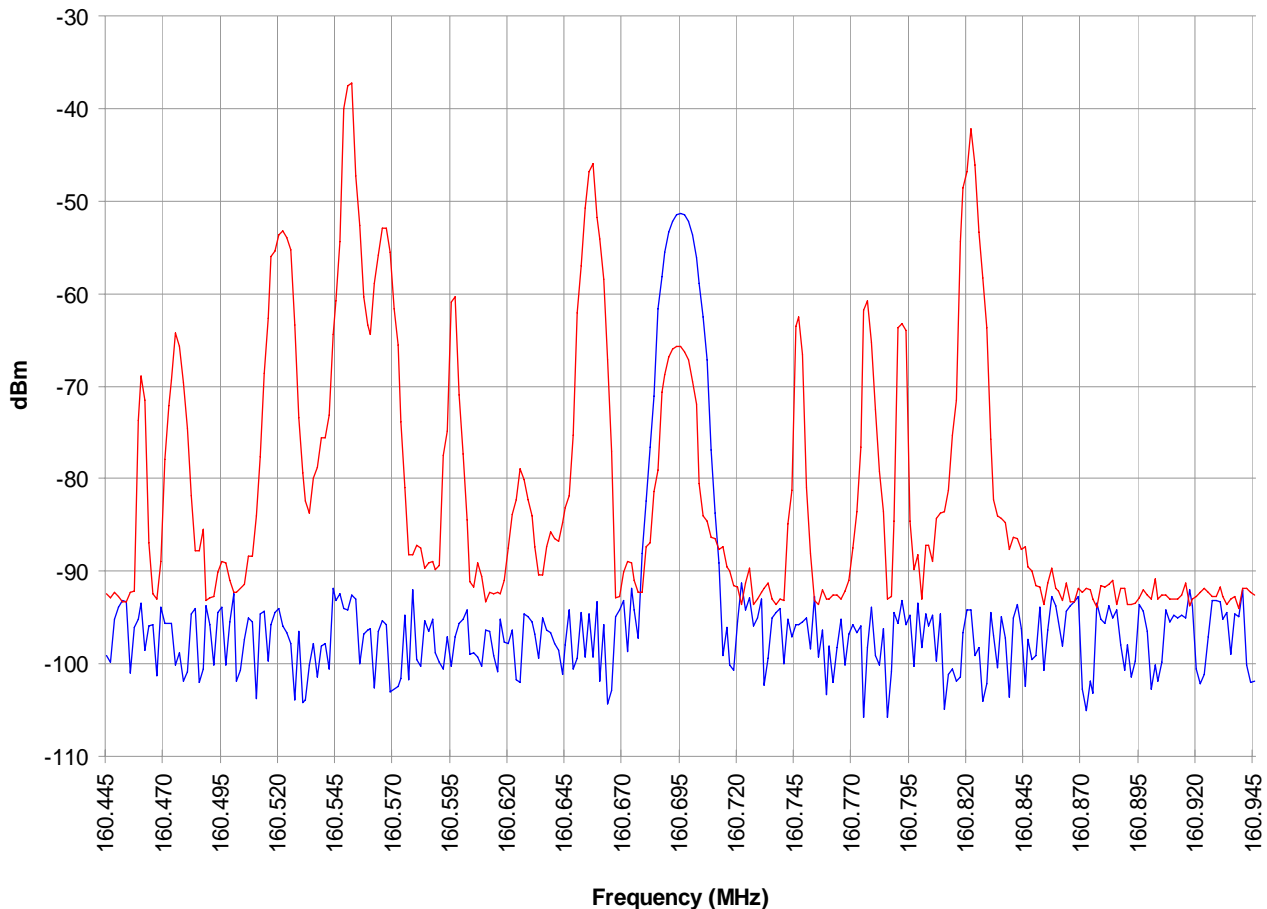


Electrical Specifications

Available Bandwidths	6.25 kHz, 12.5 kHz, 25 kHz, 30 kHz, 100 kHz, or 200 kHz
Bandwidth Tolerance	-25% to +5%
Tuning Step Size in Software	3.125 kHz at VHF/UHF Bands, 6.25 kHz at Above Bands (Step Size is Customizable)
Channel Configuration	1 Simplex Channel
I/O Impedance	50 Ω
I/O Connectors	Type N Female
Power Requirement	115V AC, 9 - 18V DC, or 18 - 75V DC (Both AC & DC Optional)
DC Current Consumption	0.72A @ 24V DC
Control Interface	RS-232 (USB Optional)
Weight	< 10 lbs
Size	19" Rack Mount, 2U, (19" x 11" x 3.5")
Operating Systems Supported	Windows 98 or Later

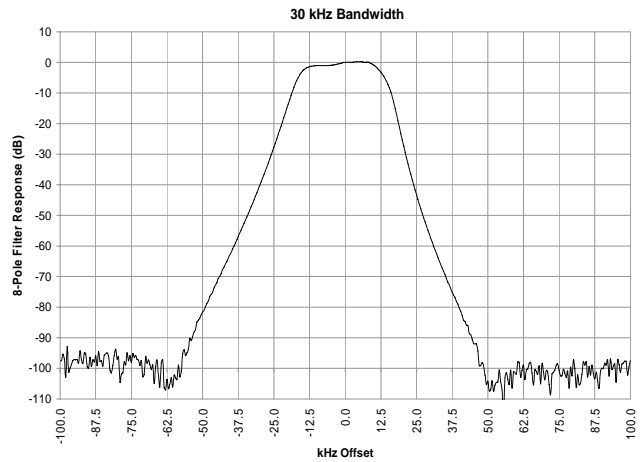
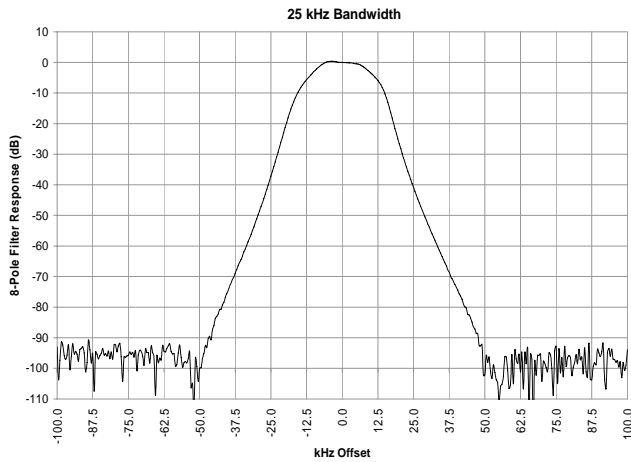
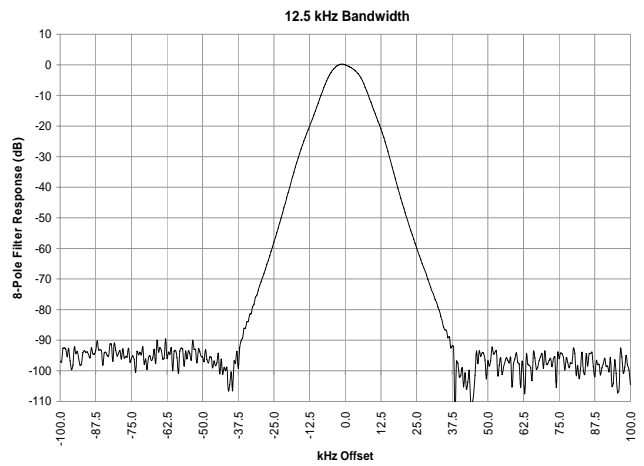
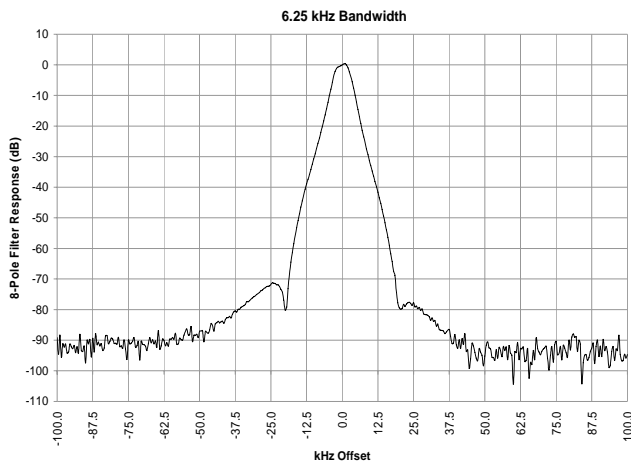
Performance Data

The red trace shows 500 kHz of VHF spectrum measured at a receiver site in a heavily populated metropolitan area. The blue trace shows the same spectrum measured after installation of the ULTRA-Q filter. The desired signal is amplified while interference is eliminated. The lines of communication are kept clear.



Filter Response Data - Normalized to 0 dB Gain

Note: All filter bandwidths are available at any band.



Interference Rejection Data

Filter Bandwidth	Adjacent Channel Rejection	Rejection 2 Channels Away
6.25 kHz	19 dB	41 dB
12.5 kHz	22 dB	60 dB
25 kHz	40 dB	101 dB
30 kHz	37 dB @ 25 kHz	92 dB @ 50 kHz

Options

A01	15 dB Output Attenuator (1 dB/Step)
A02	AGC (Automatic Gain Control)
B01	Electro-Mechanical Bypass Switch
U01	USB Interface
V02	Both AC & DC Power Supplies
M0X	Multiple Options Available

Absolute Maximum Ratings

Characteristic	Value
RF Input Power	+10 dBm
Operating Temperature	-20°C to +60°C
Storage Temperature	-40°C to +85°C

Note: Exceeding these parameters may cause permanent damage.

