Satellite Converter
Automatic Level Control (ALC) Filter Amplifier

WORK Microwave delivers as stand alone unit or optionally within downconverters application specific ALC Filter Amplifiers. The picture above shows a stand-alone unit.

The input of this unit can be connected to the IF output of the downconverter.

The picture below shows a block diagram of the application specific ALC Filter Amplifier. The signal is bandpass filtered on the input as well as on the output. Both bandpass filters are identical.

The pictures on the next page show typical amplitude frequency responses of such filters. The overall filter characteristic of the complete unit results from a series connection of the two identical filters, doubling all attenuation values in dB, which means that e.g. a

stop-band suppression of 50 dB for one filter results in a overall stop-band suppression for the complete unit of about 100 dB (for the same frequency point).

In between these filters a variable gain stage allows adjustment of the signal level. A small portion of the output signal level is coupled to an RMS detector.

A digitally implemented control algorithm using a microprocessor allows to select a specified output level and keeps the output level constant, even if the input signal varies within the allowed level range. The operational parameters of the ALC amplifier can be configured from the front panel processor as well as from remote. Also monitoring of the ALC amplifier is possible from the front panel processor as well as from remote. Besides the main ALC output an ALC Monitor Output is available on the rear panel.
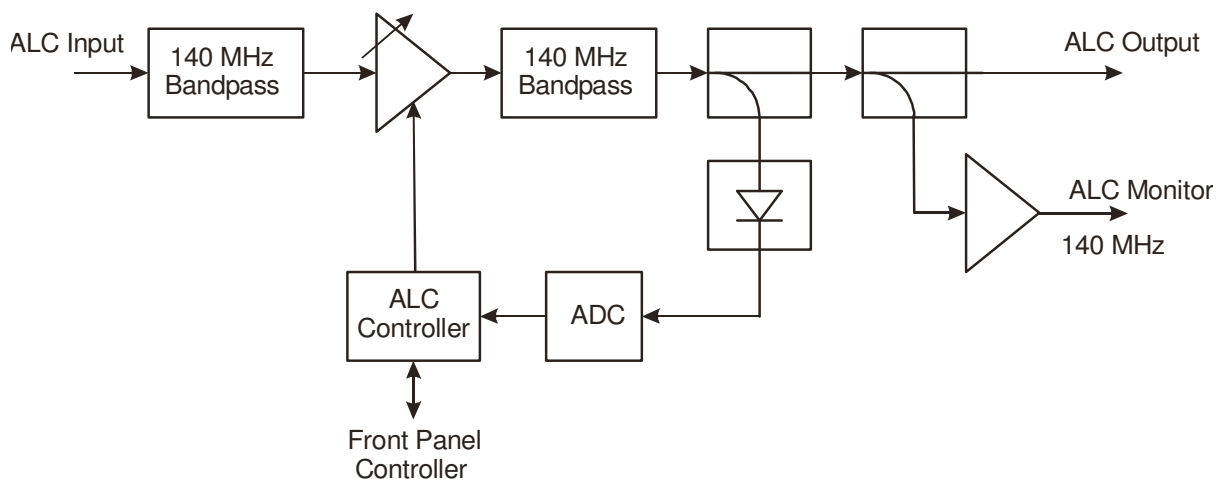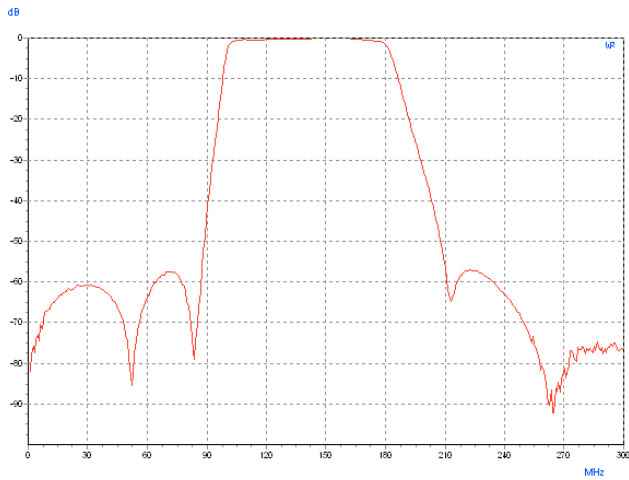
**Typical Amplitude-Frequency Response of
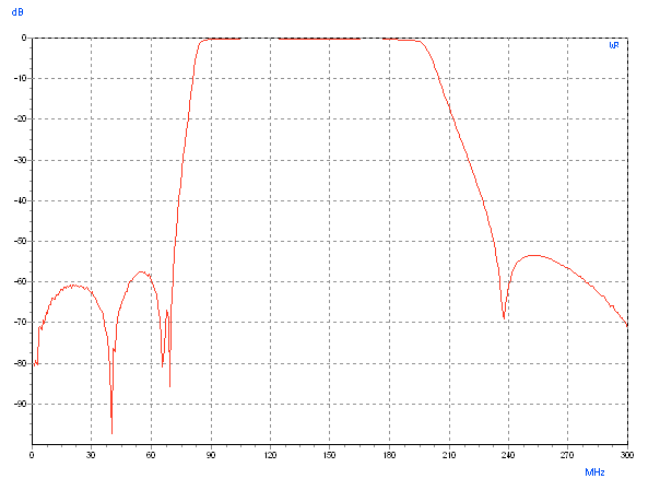one 140 MHz Bandpass Filter with 34 MHz
Bandwidth.**
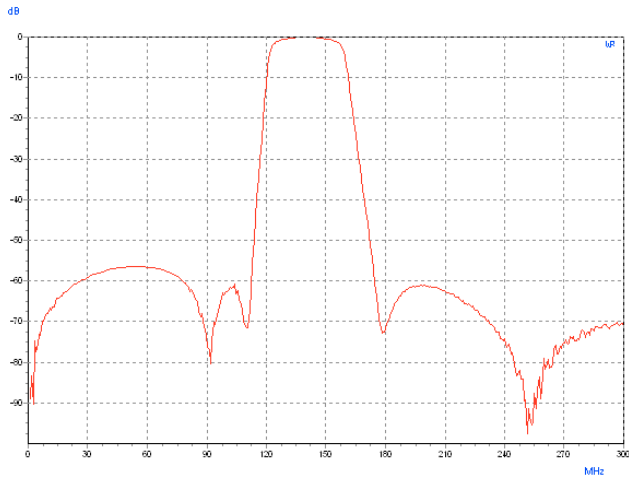
**Typical Amplitude-Frequency Response of
one 140 MHz Bandpass Filter with 54 MHz
Bandwidth.**
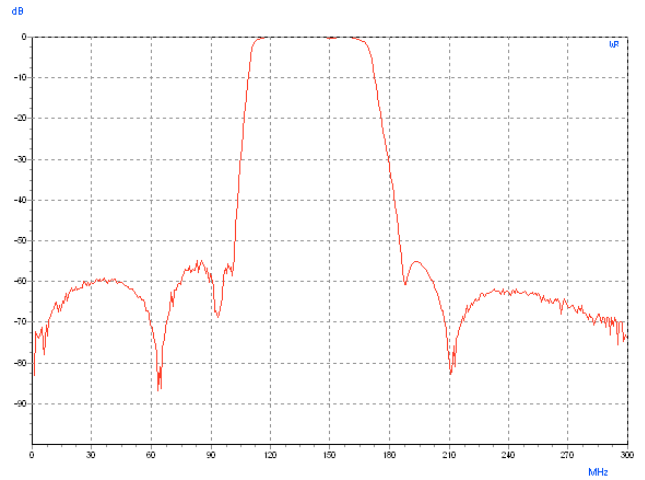
**Typical Amplitude-Frequency Response of
one 140 MHz Bandpass Filter with 75 MHz
Bandwidth.**

**Typical Amplitude-Frequency Response of
one 140 MHz Bandpass Filter with 110 MHz
Bandwidth.**

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IF Input:	Center Frequency: Frequency Range: Signal Level: Return Loss: Connector: Impedance:	140 MHz 80...200 MHz -50...-20 dBm > 18 dB (within filter passband bandwidth) SMA female 50 Ω
IF Output:	Center Frequency: Bandwidth: Signal Level: Return Loss: Connector: Impedance:	140 MHz 34 MHz or 54 MHz or 75 MHz or 110 MHz - 5 dBm.. +10 dBm (adjustable, 0.1 dB step size) > 18 dB (within filter passband bandwidth) SMA female 50 Ω
IF Monitor Output:	Signal similar to IF Output Signal Level: Return Loss: Connector: Impedance:	 20 dB lower than IF Output > 20 dB SMA female 50 Ω
Transfer Characteristics:	Gain: Group delay: Bandwidth: Frequency Range:	15...60 dB (automatically or manual adjustable, 0.1 dB step size) < 0.5 ns / 25 kHz within 54 MHz bandwidth 54 MHz (3 dB) 113...167 MHz (3 dB)
Interrmodulation (3rd Order):	< -55 dBc, (Pout: 2 x +4 dBm)	
ALC Control:	Fast attack for required gain adjustment > configurable value (0.1...5 dB) with configurable time constant up to 1000 s. Gradual adjustment for required gain adjustment < configurable value (0.1...5 dB) with configurable time constant up to 1000 s Control cycle approx. 100 ms. No interruption of the signal during adjustment.	
Monitoring and Control Interfaces:	Ethernet/IP (10 or 100 Mbit/s, auto sensing) RS232 or RS422/RS485 (Connectors DSUB09 female) (configurable)	
Alarm Interface (Stand Alone):	Two potential free contacts (DPDT, Connector DSUB09 female)	
Temperature Range:	-25°C to 60°C operating the LCD display is operational: -20°C to 60°C - 30°C to 80°C storage	
Relative Humidity:	< 95 % non condensing	
User Interface (Stand Alone):	LCD, 2 x 40 characters, 4 cursor keys, 4 function keys	
Power Supply:	85...264 V AC, 40...70 Hz	
Power Consumption:	max 16 VA / 8 W, typ. 12 VA / 5 W	
Mains Fuse:	3.15 A time-lag fuse	
Dimension and Weight (Stand Alone):	483 x 44 x 270 mm³, 1 RU (19") appr. 3.2 kg	

Specifications are subject to change

Order Information:	**ALC-[IF Frequency in MHz]-[Filter BW in MHz]**
	Examples:
	ALC-140-34
	ALC-140-54
	ALC-140-75
	ALC-140-110