

PRODUCT INFORMATION: Rev 1A, Issue Mar 2015, Revised May 2015

**Selective four band-segment repeater DR380-SPE is bi-directional digitally controlled amplifier with DSP-filtering that offers communication improvement in TETRA emergency and government systems.**

## KEY FEATURES

- High level +36dBm output
- Selectivity based on DSP-filtering
- Fully reconfigurable through software
- Four band-segments in DL/UL directions
- Bi-directional
- UL & DL gain is separately adjustable
- Automatic gain control
- Compact design for easy installation
- Small dimensions and light weight
- Status indicating LEDs
- Local and remote control
- Alarms
- Squelch mode

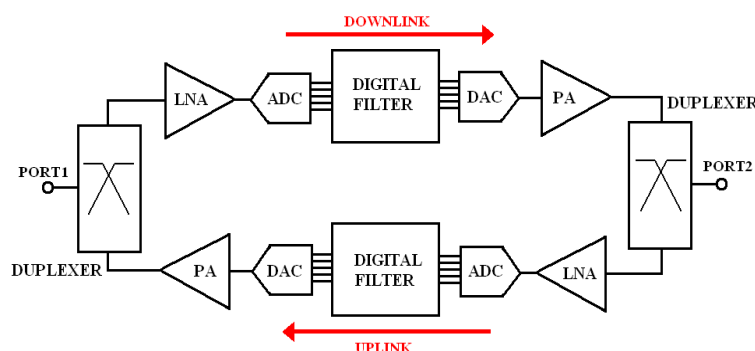


Figure 1: Repeater DR380-SPE simplified block diagram.

## APPLICATION AREAS

- Inside buildings
- Airports
- Underground stations

## PRODUCT DESCRIPTION

Selective DR380-SPE is based on digital signal processing approach thanks to what this repeater is very flexible in configuration on site. Four-segment digital filter can be reconfigured in custom desired way:

- **Adjustable bandwidth and center frequency of band-segment**
- Adjustable number of band-segments
- Adjustable gain of band-segment

DR380-SPE can be configured in both ways locally and remotely. Locally repeater can be adjusted using USB interfaces. Based on "2G/3G"-modem remote control can be used to reprogram DR380-SPE directly from office.

Generally TETRA repeaters are used in emergency services and government systems to provide signal coverage for areas with poor or no signal (e.g. blind spot). Rantelon Ltd came across the insufficient coverage within buildings, airports, tunnels, etc. Digital repeater DR380-SPE series can solve these problems by amplifying the available signal from an outdoor antenna into weak coverage area via built-in antenna or indoor delivery network with multiple antennas.

DR380-SPE is equipped with highly efficient switching power module. LEDs on the front panel indicate proper power supply, activity of automatic gain control circuits and activity of digital nodes.

## TECHNICAL SPECIFICATIONS

Parameter	Specification
Frequency range*	<b>Uplink: 380-385MHz &amp; Downlink: 390-395MHz</b>
Number of independent band-segments	Uplink: 1 up to 4 Downlink: 1 up to 4
Band-segment center frequencies	Adjustable through software within specified above frequency range with step 12.5kHz
Bandwidth	Selectivity mode 1: <b>25kHz-1MHz with step 25kHz</b> (adjustable through software) Selectivity mode 2: <b>1.1-5MHz with step 100kHz</b> (adjustable through software)
Max. gain	<b>85dB</b>
Manual gain adjust range	60dB totally: hardware input attenuator 30dB (step 0.5dB) DSP interstage attenuator for each band-segment 30dB (step 1dB)
Automatic gain control	>60dB
Separate timeslot based AGC for UPLINK	>60dB
Uplink timeslot activity detector "Squelch mode"	Uplink switching on or off (adjustable input level)
Downlink output power*	<b>+36dBm @ one carrier</b> +33dBm @ two carriers +30dBm @ four carriers (Maximum output power adjustable through software to lower value: +33dBm, +30dBm or 27dBm)
Uplink output power*	<b>+36dBm @ one carrier</b> +33dBm @ two carriers +30dBm @ four carriers (Maximum output power adjustable through software to lower value: +33dBm, +30dBm or 27dBm)
Noise figure	<b>4.7dB</b>
Group delay	<500ns
Input RF-range	-110...-15dBm
Spurious emission	According to ETSI standards TS 101 789-1
Supply voltage	AC: 230V, 50Hz
RF inputs	<b>N-Female, 50Ω</b>
Local control interface	USB

Parameter	Specification
Remote control interface	Options: a) by default "2G/3G"-modem module (TCP/IP) b) by special request Ethernet c) by special request any other custom interface (RS485, RS232, TETRA-modem, etc.)
Alarms	Active alarms via SMS or "polling"-system using OMS
Operating temperature range	-25 ... +55 °C
Power consumption	138W (full activity, including max. RF power)
Enclosure	IP54 case, 410x375x220mm, mounting on wall

\* Ask Rantelon for other parameters. See [www.rantelon.com](http://www.rantelon.com) for more information.  
 Rantelon reserves the right to change the specification without notice.

## ABSOLUTE MAXIMUM

Parameter	Specification
RF Input	+15dBm

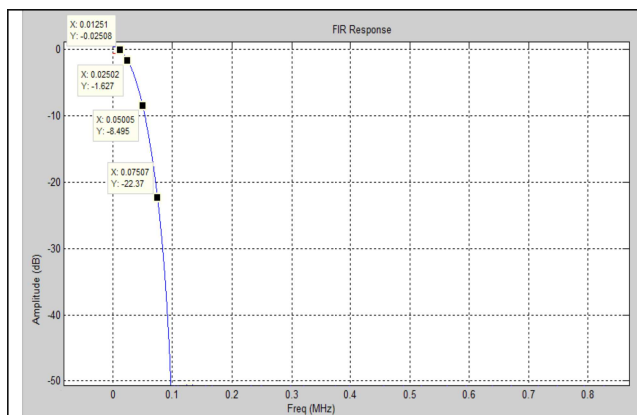


Figure 2: Selectivity mode 1 – 25kHz (half BW).

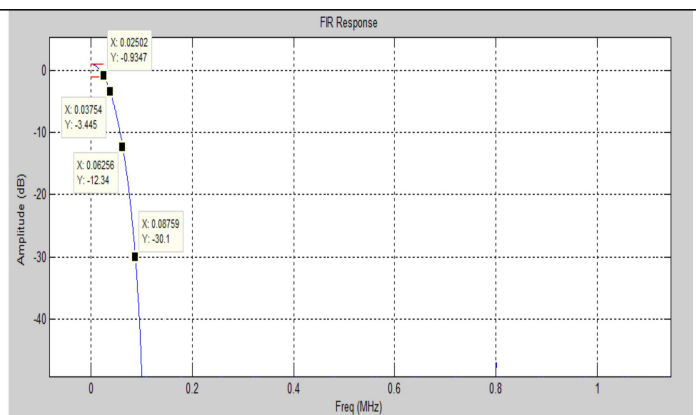


Figure 3: Selectivity mode 1 – 50kHz (half BW).

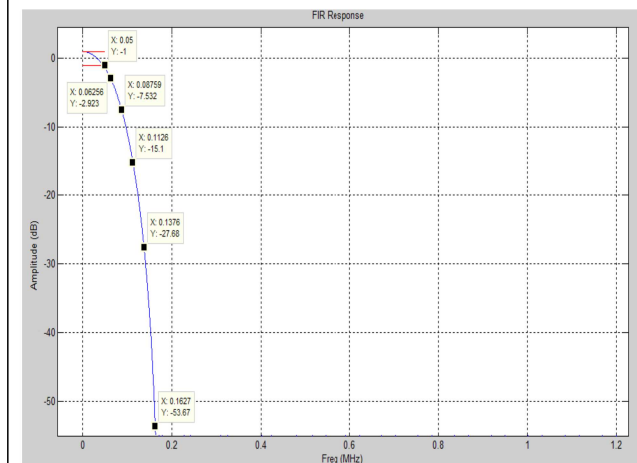


Figure 4: Selectivity mode 1 – 100kHz (half BW).

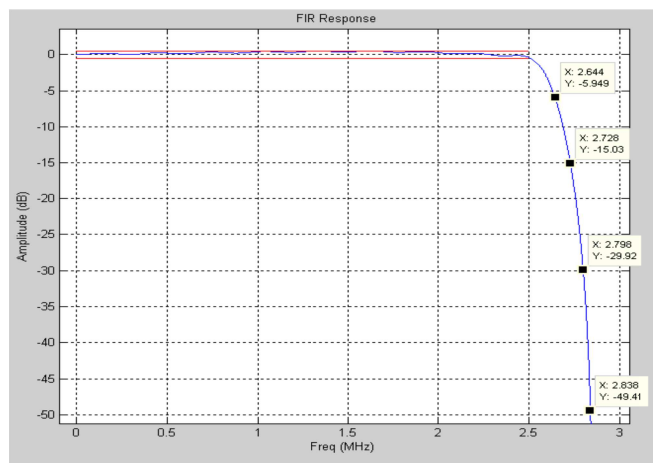
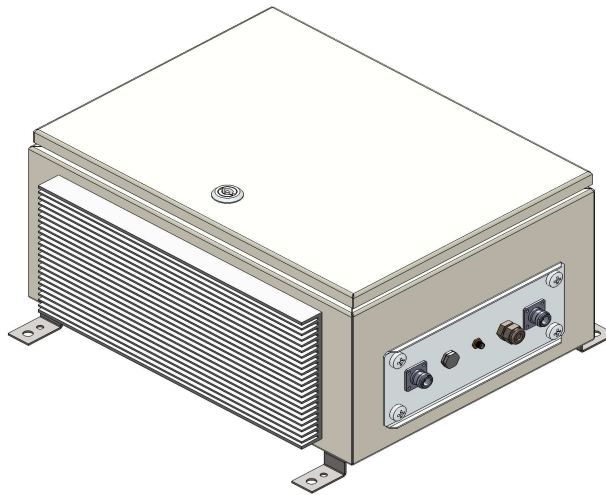
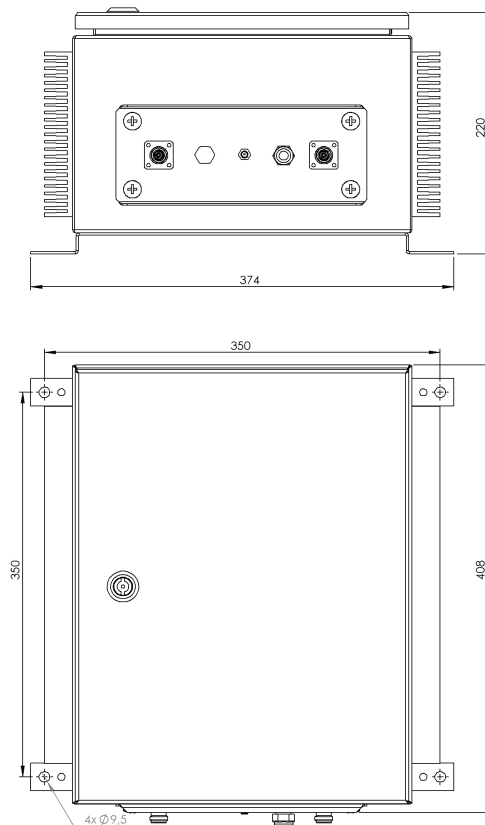


Figure 5: Selectivity mode 2 – 5MHz (half BW).



**Figure 6: DR380-SPE view, IP54 enclosure.**



**Figure 7: DR380-SPE dimensions, IP54 enclosure.**