



# Synthesized Vehicular Repeaters



**PYRAMID**  
COMMUNICATIONS

Since 1990

## Communicate with Confidence



# SVR 200 The Industry Standard

SINGLE CHANNEL

2 WATT COVERAGE

PRIORITY STRUCTURE



- ▲ Motorola PAC/RT Compatible
- ▲ "First Man Out" with Priority Sampling
- ▲ Synthesized Operation PC Programmable Frequencies and Tones
- ▲ LTR, EDACS and Motorola Trunking Compatible
- ▲ Factory Interface Cables for Most Popular Public Safety Radios
- ▲ Remote Channel Selector, Auxiliary Receiver, and In-Band Filtering Options

## SVR 200 Single Channel Synthesized Vehicular Repeater

The Pyramid Communications model **SVR-200** is a  $\mu$ P controlled, synthesized low power vehicle repeater. It is designed to **interface between a high power mobile radio and a low power handheld**. If the radio operator is out of the vehicle and the mobile radio is receiving a transmission, the SVR-200 will repeat the signal to the user's handheld. The user may also transmit back to the SVR-200 via their handheld, and the transmission will be repeated back to the base by the high power mobile radio, effectively **extending the range of the low power handheld** to that of the mobile radio. On-board logic control by the microprocessor ensures that only one vehicle will become active as the repeater, should several vehicles arrive at the same scene. The logic also **handles cases where the priority vehicle leaves** the scene, or another priority vehicle arrives from another scene.

The SVR-200 **remains the industry standard** in Public Safety Vehicular Repeaters with a complete line of accessories to ensure you get the most from your communications system. Factory interface cables for most popular public safety mobiles, **simplify installation** and **enhance reliability**. A complete line of filter products that **eliminate interference in crossband** and in-band applications. The RCS-200\* allows personnel to remotely change the mobile channel from a DTMF keypad on the portable allowing **seamless communications with the appropriate agencies**.

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# Specifications SVR 200



TRANSMITTER	VHF	UHF	700	800	900
Frequency Range	150–174 MHz	450–470 MHz 405–425 MHz <sup>Ⓞ</sup>	764–776 MHz 794–806 MHz <sup>Ⓞ</sup>	806–824 MHz 851–869 MHz	897–902 MHz <sup>Ⓞ</sup> 936–941 MHz
RF power out	250mW - 2W	250mW - 2W	100mW - 600mW	100mW - 600mW	100mW - 600mW
Spurious emissions	-50dBc	-52dBc	-45dBc	-45dBc	-45dBc
Frequency stability -30°~+60°C	±1.5 PPM	±1.5 PPM	±1.5 PPM	±1.5 PPM	±1.5 PPM
Modulation	11KOF3E/16KOF3E	11KOF3E/16KOF3E	11KOF3E	11KOF3E/16KOF3E	11KOF3E
Hum and noise	-40dB	-40dB	-40dB	-40dB	-40dB
Audio response (300-3kHz)	Flat or -6dB/octave	Flat or -6dB/octave	Flat or -6dB/octave	Flat or -6dB/octave	Flat or -6dB/octave
Audio distortion	<3%@60% deviation	<3%@60% deviation	<3%@60% deviation	<3%@60% deviation	<3%@60% deviation
Local mic sensitivity	300mV - 5VPP	300mV - 5VPP	300mV - 5VPP	300mV - 5VPP	300mV - 5VPP
FCC Type Acceptance	LRUSVR-200VB	LRUSVR-200UD	LRUSVR-200M	LRUSVR-200M	LRUSVR-200M
Industry Canada Approval	2390 195 458A	2390 212 113A	2390A-SVR200M	2390A-SVR200M	2390A-SVR200M

RECEIVER	VHF	UHF	700	800	900
Frequency Range	150–174 MHz	450–470 MHz 405–425 MHz <sup>Ⓞ</sup>	764–776 MHz 794–806 MHz <sup>Ⓞ</sup>	806–824 MHz 851–869 MHz	897–902 MHz <sup>Ⓞ</sup> 936–941 MHz
RF sensitivity	.35µV	.35µV	.35µV	.35µV	.35µV
Squelch sensitivity	.2µV to 2µV adjustable	.2µV to 2µV adjustable	.2µV to 2µV adjustable	.2µV to 2µV adjustable	.2µV to 2µV adjustable
Modulation acceptance	±3.75/±7.5kHz	±3.75/±7.5kHz	±3.75kHz	±3.75/±7.5kHz	±3.75kHz
Selectivity	72dB	60dB	50dB	50dB	50dB
Spurious/image rejection	70dB	60dB	60dB	60dB	60dB
IMD response	60dB	60dB	60dB	60dB	60dB
Frequency stability	1.5 PPM	1.5 PPM	1.5 PPM	1.5 PPM	1.5 PPM
Audio response (300-3kHz)	Flat or +6dB/octave	Flat or +6dB/octave	Flat or +6dB/octave	Flat or +6dB/octave	Flat or +6dB/octave
Audio output	0-5VPP AC coupled 600/2.2K	0-5VPP AC coupled 600/2.2K	0-5VPP AC coupled 600/2.2K	0-5VPP AC coupled 600/2.2K	0-5VPP AC coupled 600/2.2K
Local Rx audio	400 mW 8 Ohms@ <5% distortion	400 mW 8 Ohms@ <5% distortion	400 mW 8 Ohms@ <5% distortion	400 mW 8 Ohms@ <5% distortion	400 mW 8 Ohms@ <5% distortion



<sup>Ⓞ</sup> SPECIAL ORDER

## Power Requirements

DC Supply	13.6VDC negative ground ± 25%
Standby	170mA
Receive	250mA @ 400mW Rx Audio
Transmit	<1A @ rated output

Physical Dimensions	5.275"W x 6"L x 1.12"H
Weight	18 ounces
Case	One piece extruded aluminium

## Mil-Std-810D/E Ratings

501.2	Procedure II High Temp +60°C
502.3	Procedure II Low Temp -30°C
507.2	Procedure II Humidity
510.2	Procedure II Blowing Dust
514.3	Procedure I Category 8 Vibration, Ground Vehicle
516.3	Procedure I Shock

**"For years, security force personnel have had to endure the consequences of ineffective communications. Now we are able to constantly communicate in all previously identified dead spot areas."**

**– USAF Director of Security Forces**



# SVR 250 The Next Generation

MULTI CHANNEL

2 WATT COVERAGE

NEW ESP™ PRIORITY STRUCTURE

WIDE OR NARROW BAND

EMERGENCY SIGNALING



- ▲ SVR-200 Compatible
- ▲ 20 Channels
- ▲ 5 mS Priority Sampling
- ▲ Wide or Narrow Band Programmable Per Channel
- ▲ New ESP™ Multi Vehicle Format
- ▲ Optional Internal Auxiliary Receiver
- ▲ Emergency Signaling
- ▲ Factory Interface Cables for Most Popular Public Safety Radios

## SVR 250 Twenty-Channel Synthesized Vehicular Repeater

The SVR-250 is the **next generation analog vehicular repeater** from Pyramid Communications. Available in VHF, UHF, 700, 800 and 900 MHz.

Enhanced features include the **fastest priority sampling time in the industry at 5 mS**, and **emergency signalling** from portable to dispatch. PC programmable for up to **20 channels**, with **wideband/narrowband, CTCSS/DCS, emergency or dual tone on a per channel basis**.

The SVR-250 utilizes the new ESP™ priority structure that **resolves priority conflicts during repeater idle time** rather than at the critical start of a conversation. With ESP™, priority vehicles are assigned without user intervention to ensure **uninterrupted communications** when users exit their vehicles. ESP™ also ensures a quick recovery if two vehicles get in a priority mode at one scene.

The SVR-250 can **interface to analog or P25 digital mobile radios**, providing flexible inter-operability between systems that wouldn't normally be able to communicate with analog

portable radios on a scene. The SVR-250 can **also interface to conventional or trunking mobiles** and is **capable of operating with Lightsquared (formally SkyTerra) mobile satellite phones**.

In trunking mode, the SVR-250 ensures proper acquisition of the trunking channel and uses the **Smart Trunking Access™** mechanism of alerting the portable users of trunking status information.

SVR-250 is **fully compatible with existing SVR-200** vehicular repeaters to provide **seamless integration** while users expand their systems or upgrade to the new SVR-250 with ESP™ system.

Optional capabilities include **full duplex operation for extended coverage** between handhelds, and the ARS-250 auxiliary receiver for half duplex mobile systems that do not repeat car-to-car.

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# Specifications SVR 250 / SVR 252



TRANSMITTER	VHF	UHF	700	800	900
<b>Frequency Range</b>	<b>150–174 MHz</b>	<b>450–470 MHz</b> <b>405–425 MHz<sup>Ⓞ</sup></b>	<b>764–776 MHz</b> <b>794–806 MHz<sup>Ⓞ</sup></b>	<b>806–824 MHz</b> <b>851–869 MHz</b>	<b>897–902 MHz<sup>Ⓞ</sup></b> <b>936–941 MHz</b>
<b>RF power out</b>	250mW - 2W	250mW - 2W	100mW - 600mW	100mW - 600mW	100mW - 600mW
<b>Spurious emissions</b>	-50dBc	-52dBc	-45dBc	-45dBc	-45dBc
<b>Frequency stability -30°~+60°C</b>	±1.5 PPM	±1.5 PPM	±1.5 PPM	±1.5 PPM	±1.5 PPM
<b>Modulation</b>	11KOF3E/16KOF3E	11KOF3E/16KOF3E	11KOF3E	11KOF3E/16KOF3E	11KOF3E
<b>Hum and noise</b>	-40dB	-40dB	-40dB	-40dB	-40dB
<b>Audio response (300-3kHz)</b>	Flat or -6dB/octave	Flat or -6dB/octave	Flat or -6dB/octave	Flat or -6dB/octave	Flat or -6dB/octave
<b>Audio distortion</b>	<3%@60% deviation	<3%@60% deviation	<3%@60% deviation	<3%@60% deviation	<3%@60% deviation
<b>Local mic sensitivity</b>	300mV - 5VPP	300mV - 5VPP	300mV - 5VPP	300mV - 5VPP	300mV - 5VPP
<b>FCC Type Acceptance</b>	LRUSVR-200VB	LRUSVR-200UD	LRUSVR-200M	LRUSVR-200M	LRUSVR-200M
<b>Industry Canada Approval</b>	2390 195 458A	2390 212 113A	2390A-SVR200M	2390A-SVR200M	2390A-SVR200M

RECEIVER	VHF	UHF	700	800	900
<b>Frequency Range</b>	<b>150–174 MHz</b>	<b>450–470 MHz</b> <b>405–425 MHz<sup>Ⓞ</sup></b>	<b>764–776 MHz</b> <b>794–806 MHz<sup>Ⓞ</sup></b>	<b>806–824 MHz</b> <b>851–869 MHz</b>	<b>897–902 MHz<sup>Ⓞ</sup></b> <b>936–941 MHz</b>
<b>RF sensitivity</b>	.35μV	.35μV	.35μV	.35μV	.35μV
<b>Squelch sensitivity</b>	.2μV to 2μV adjustable	.2μV to 2μV adjustable	.2μV to 2μV adjustable	.2μV to 2μV adjustable	.2μV to 2μV adjustable
<b>Modulation acceptance</b>	±3.75/±7.5kHz	±3.75/±7.5kHz	±3.75kHz	±3.75/±7.5kHz	±3.75kHz
<b>Selectivity</b>	72dB	60dB	50dB	50dB	50dB
<b>Spurious/image rejection</b>	70dB	60dB	60dB	60dB	60dB
<b>IMD response</b>	60dB	60dB	60dB	60dB	60dB
<b>Frequency stability</b>	1.5 PPM	1.5 PPM	1.5 PPM	1.5 PPM	1.5 PPM
<b>Audio response (300-3kHz)</b>	Flat or +6dB/octave	Flat or +6dB/octave	Flat or +6dB/octave	Flat or +6dB/octave	Flat or +6dB/octave
<b>Audio output</b>	0-5VPP AC coupled 600/2.2K	0-5VPP AC coupled 600/2.2K	0-5VPP AC coupled 600/2.2K	0-5VPP AC coupled 600/2.2K	0-5VPP AC coupled 600/2.2K
<b>Local Rx Audio</b>	400 mW 8 Ohms@ <5% distortion	400 mW 8 Ohms@ <5% distortion	400 mW 8 Ohms@ <5% distortion	400 mW 8 Ohms@ <5% distortion	400 mW 8 Ohms@ <5% distortion



<sup>Ⓞ</sup> SPECIAL ORDER

## Power Requirements

<b>DC Supply</b>	13.6VDC negative ground ± 25%
<b>Standby</b>	170mA
<b>Receive</b>	250mA @ 400mW Rx Audio
<b>Transmit</b>	<1A @ rated output

<b>Physical</b>	
<b>Dimensions</b>	5.75" W x 10" L x 2.25" H
<b>Weight</b>	38 ounces
<b>Case</b>	One piece extruded aluminium

## Mil-Std-810D/E Ratings

501.2	Procedure II High Temp +60°C
502.3	Procedure II Low Temp -30°C
507.2	Procedure II Humidity
510.2	Procedure II Blowing Dust
514.3	Procedure I Category 8 Vibration, Ground Vehicle
516.3	Procedure I Shock



# SVR P250 P25 Compliant

MULTI CHANNEL

2 WATT COVERAGE

NEW ESP™ PRIORITY STRUCTURE

WIDE OR NARROW BAND

EMERGENCY SIGNALING

P25 PHASE 1 COMPLIANT

AES/DES ENCRYPTION



- ▲ **P25 Phase 1 Compliant**
- ▲ 20 Channels
- ▲ New ESP™ Multi Vehicle Format
- ▲ AES / DES Encryption
- ▲ Programmable P25 or Analog Per Channel
- ▲ SVR-200 and SVR-250 Compatible
- ▲ Wide or Narrow Band Programmable Per Channel
- ▲ Emergency Signaling
- ▲ Factory Interface Cables for Most Popular Public Safety Radios

## SVR P250 P25 Twenty-Channel Digital Vehicular Repeater

The SVR-P250 is the next generation vehicular repeater from Pyramid Communications that is fully compliant with the **APCO Project 25 Phase 1 Digital Common Air Interface (CAI)** protocol.

Advanced features include **secure communications** with P25 portable radios, **AES and DES encryption**, and **emergency signaling** from portable to dispatch. **PC programmable** for up to **20 channels**, with P25, wideband/narrowband, CTCSS/DCS, and emergency signaling on a per channel basis.

The SVR-P250 utilizes the new **ESP™ priority structure** that **resolves priority conflicts during repeater idle time** rather than at the critical start of a conversation. With ESP™, priority vehicles are assigned without user intervention to ensure **uninterrupted communications** when users exit their vehicles. ESP™ also ensures a quick recovery if two vehicles get in a priority mode at one scene.

The SVR-P250 is **both P25 and analog capable** and can interface to analog or P25 mobiles providing **flexible inter-operability between systems**

that wouldn't normally be able to communicate. The SVR-P250 will **interface to analog, digital, conventional or trunking mobiles** and is capable of operating with Lightsquared (formally SkyTerra) mobile satellite phones. In trunking mode, the SVR-P250 ensures proper acquisition of the trunking channel and uses the **Smart Trunking Access™** mechanism of alerting the portable users of trunking status information.

In analog mode, the SVR-P250 is **fully compatible with existing SVR-200 and SVR-250** vehicular repeaters to provide seamless integration while users upgrade their systems from analog to P25 digital.

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# Specifications SVR P250



## TRANSMITTER

	VHF	UHF	764-870
<b>Frequency Range</b>	<b>136-174 MHz</b>	<b>450-530 MHz</b>	<b>764-776 MHz + 850-870 MHz</b>
<b>RF power out</b>	0.5 - 2W	0.5 - 2W	0.25 - 1W
<b>Spurious emissions</b>	-70dBc	-70dBc	-70dBc
<b>Frequency stability -30°~+60°C</b>	±1.5PPM	±1.5PPM	±1.5PPM
<b>Modulation</b>	10K0F1D, 10K0F1E, 10K0F7D, 10K0F7E, 11K0F3E, 12K3F1D, 16K0F3E, 4K80F2D, 7K60F1D, 8K10F1D, 8K10F1E, 8K10F7D, 8K10F7E, 8K40F2D	10K0F1D, 10K0F1E, 10K0F7D, 10K0F7E, 11K0F3E, 12K3F1D, 16K0F3E, 4K80F2D, 7K60F1D, 8K10F1D, 8K10F1E, 8K10F7D, 8K10F7E, 8K40F2D	10K0F1D, 10K0F1E, 10K0F7D, 10K0F7E, 11K0F3E, 12K3F1D, 16K0F3E, 4K80F2D, 7K60F1D, 8K10F1D, 8K10F1E, 8K10F7D, 8K10F7E, 8K40F2D
<b>Hum and noise</b>			
25/30kHz	-43dB	-43dB	-40dB
12.5kHz	-38dB	-38dB	-33dB
<b>Audio response (300-3kHz)</b>	Flat or -6dB/octave	Flat or -6dB/octave	Flat or -6dB/octave
<b>Audio distortion</b>	<3% @ 1kHz 60% deviation	<3% @ 1kHz 60% deviation	<3% @ 1kHz 60% deviation
<b>Local mic sensitivity</b>	300mV - 5VPP	300mV - 5VPP	300mV - 5VPP
<b>FCC Type Acceptance</b>	LRUSVR-P250V	LRUSVR-P250U	LRUSVR-P250M
<b>Industry Canada Approval</b>	2390A-SVRP250V	2390A-SVRP250U	2390A-SVRP250M

## RECEIVER

	VHF	UHF	764-870
<b>Frequency Range</b>	<b>136-174 MHz</b>	<b>450-530 MHz</b>	<b>764-776 MHz + 850-870 MHz</b>
<b>Analog sensitivity</b>	0.28uV	0.28uV	0.28uV
<b>Digital sensitivity (5% BER)</b>	0.20uV	0.20uV	0.20uV
<b>Squelch sensitivity</b>	.2µV to 2µV adjustable	.2µV to 2µV adjustable	.2µV to 2µV adjustable
<b>Selectivity</b>			
25/30kHz channel	75dB	75dB	75dB
12.5kHz channel	65dB	65dB	65dB
<b>Spurious/image rejection</b>	75dB	75dB	75dB
<b>IMD response</b>	75dB	75dB	75dB
<b>Frequency stability</b>	±1.5PPM	±1.5PPM	±1.5PPM
<b>Audio response (300-3kHz)</b>	Flat or +6dB/octave	Flat or +6dB/octave	Flat or +6dB/octave
<b>Audio output</b>	0-5VPP AC coupled 600/2.2K	0-5VPP AC coupled 600/2.2K	0-5VPP AC coupled 600/2.2K
<b>Local Rx audio</b>	400 mW 8 Ohms@ <5% distortion	400 mW 8 Ohms@ <5% distortion	400 mW 8 Ohms@ <5% distortion



## Power Requirements

<b>DC Supply</b>	13.6VDC negative ground ± 25%
<b>Standby</b>	170mA
<b>Receive</b>	250mA @ 400mW Rx Audio
<b>Transmit</b>	<2A @ rated output

<b>Physical Dimensions</b>	5.75" W x 10" L x 2.25" H
<b>Weight</b>	38 ounces
<b>Case</b>	One piece extruded aluminium

Mil-Std-810D/E Ratings	
501.2	Procedure II High Temp +60°C
502.3	Procedure II Low Temp -30°C
507.2	Procedure II Humidity
510.2	Procedure II Blowing Dust
514.3	Procedure I Category 8 Vibration, Ground Vehicle
516.3	Procedure I Shock



# SVR 252 Full Duplex Repeater

FULL DUPLEX REPEATER

DEPLOYABLE OR FIXED CONFIGURATION

COST EFFECTIVE

- ▲ PC Programmable Full Duplex Repeater
- ▲ VHF/UHF/700/800/900 MHz
- ▲ CTCSS and DCS
- ▲ 2 Watt Transmit Power Output
- ▲ Optional Duplexer, Housing and Power Supply for Tactical Deployment



## SVR 252 Full Duplex Repeater (Shown with optional PS 252 and Duplexer)

The popular SVR-250 is now available in a **full duplex version** with many of the same features as the original. The SVR-252 is **PC programmable** on a per channel basis for frequency, tone/code, wide/narrow band operation and emergency operation. In addition, the SVR-252 is **full duplex**, which allows **extended coverage** from **portable to portable** as well as **portable to base** communications. Full duplex operation eliminates the "sampling" normally heard during base to portable transmissions.

The SVR-252 can be used as a **standalone repeater** in a command vehicle application to improve on-scene portable coverage. It is also available in a standard enclosure with a duplexer and DC power supply for **rapid deployment** in

emergency and interoperability applications. (As pictured: SVR-PS252)

When powered off of 110VAC, the Auxiliary DC terminals can be used as a **back-up battery input**, or used as a convenient **DC trickle charger/power** supply (Max current: 2 amps)

The SVR-252 can interface to analog or P25 digital mobile radios. The SVR-252 can also interface to conventional or trunking mobiles and is **capable of operating with Lightsquared (formally Skyterra) mobile satellite phones**. In trunking mode, the SVR-252 ensures proper acquisition of the trunking status information.

The SVR-PS252 is a rapid deployment, cost-effective solution for **on-scene portable to portable communications**.

For SVR 252 specifications, see [www.pyramidcomm.com/svr252.html](http://www.pyramidcomm.com/svr252.html)



Made in the USA



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