

Specification Sheet

STR 3000 **Pre-packaged Digital** **Base Radio Sub-System**



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The STR 3000 provides the transmit/receive operation within the ASTRO 25 sub-system.

Its components include 1 to 6 base radios, multicoupler(s), combiner, isolator and cabling in a single cabinet.

The STR 3000 is easily configured to meet your needs for improved productivity, flexibility and value.

ASTRO®25

The STR 3000 is compatible with Project 25 700 MHz and 800 MHz trunking systems.

COMPACT MODULAR DESIGN

The base radio incorporates a modular construction with separate modules for –48VDC Input Power Supply, Exciter, Power Amplifier, Receiver and Base Radio Controller. This simplifies repair by allowing modules to be removed and serviced without having to dismantle the entire cabinet. The base radios and Radio Frequency Distribution System (RFDS) are pre-packaged in a single cabinet and are integrated in the factory. This reduces overall time and effort by simplifying site planning and installation.

ADDED FLEXIBILITY

Several configurations are available. The STR 3000 supports a total of 6 base radios in a cabinet. Up to 24 base radios can be supported on one RX antenna and up to 12 base radios on one TX antenna. Each site can have five STR 3000 sub-systems for a total of 30 base radios in a site. Customers can add expansion racks and additional base radios for site expandability.

ADVANCED FEATURES

The Simulcast and Site Repeater Base Radios are FLASHport® capable. With FLASHport capability, customers can upgrade the Base Radio software utilizing the site software download utility provided by the Software Download manager. This procedure eliminates the need to upgrade each radio individually. The 700 MHz Conventional Base Radios are FLASHport capable as well. With FLASHport capability, customers can upgrade the Base Radio software utilizing the software download utility to a single station provided by the Software Download manager.

Operational and diagnostic site information can be accessed from a remote location.

The STR 3000 supports encrypted radio communications.



*Above: A six-channel
800 MHz STR 3000
sub-system*

800 MHz STR 3000 Specifications

GENERAL PERFORMANCE		
Supermodel Number	SQM02SUM0011A	
Number of Channels	1-6	
Number of Cabinets*	1	
Cabinet Height	43 RU, 83 in. (210 cm)	
Footprint* (W x D)	24 x 24 in. (60 x 60 cm)	
System Weight*	795 lbs (361 kg)	
Power Requirements	-48 VDC (43-60 VDC)	
Temperature Range**	0° to 50° C (+32° to 122° F)	
Power Consumption*	Typical 2700W	Maximum 3200W est.
Antenna Connectors		
Transmit	7/16 Female	
Receive	N-Female	

TRANSMITTER		
Frequency Range	851-869 MHz	
Average Power Output (6 Channel Cavity Combiner)		
150 kHz	8 W-24 W per carrier	
250 kHz	10 W-31 W per carrier	
Occupied Bandwidth	8.7 kHz	
RF Output Impedance	50 Ohm	
Frequency Stability	External Reference	
Modulation Fidelity	10% maximum error	
Spurious and Harmonic Emissions Attenuation	85 dB	
Symbol Rate Accuracy	10 PPM	
Emissions Designators	8K70D1W	

RECEIVER		
Frequency range	806-824 MHz	
Sensitivity Static Bit Error Rate (BER) 5%	-121 dBm***	
Intermodulation Rejection (Per TIA methods of measurement)	80 dB	
Adjacent Channel Rejection Digital Reference	60 dB	
Spurious and Image Response Rejection	100 dB****	
Preselector Bandwidth	18 MHz	
Bit Error Rate Floor	0.01%	
Signal Displacement Bandwidth	1 kHz	
Frequency Stability	External Reference Required	
Intermediate Frequency		
1st	73.35 MHz	
2nd	450 kHz	
RF Input Impedance	50 Ohm	

SIMULCAST BASE RADIO		
Dimensions	8.75 x 19 x 16.5 in. (222 x 483 x 419 mm)	
Weight	73 lbs (33 kg)	
Power Requirements	-48 VDC (41-60 VDC)	
Number of Frequencies	1	
Frequency Generation	Synthesized	
Digital Channel Spacing	12.5 kHz	
Mode of Operation	Duplex	
Digital Modulation		
Transmit	Linear Simulcast Modulation	
Receive	C4FM	
Antenna Connectors		
Transmit	SMA Female	
Receive	SMA Female	

RADIO FREQUENCY DISTRIBUTION SYSTEM (RFDS)

TRANSMITTER COMBINER		
Frequency Range	851-869 MHz	
Insertion Loss	Typical	Maximum
2 Port 150 kHz Cavity Transmitter Combiner	3.6 dB	4.1 dB
3 Port 150 kHz Cavity Transmitter Combiner	4.2 dB	4.7 dB
4 Port 150 kHz Cavity Transmitter Combiner	4.3 dB	4.8 dB
6 Port 150 kHz Cavity Transmitter Combiner	4.6 dB	5.1 dB
2 Port 250 kHz Cavity Transmitter Combiner	2.6 dB	3.1 dB
3 Port 250 kHz Cavity Transmitter Combiner	2.9 dB	3.4 dB
4 Port 250 kHz Cavity Transmitter Combiner	3.0 dB	3.5 dB
6 Port 250 kHz Cavity Transmitter Combiner	3.2 dB	3.7 dB
RF Connector Type		
Input	N-Female	
Output	7/16 Female	
Tx-Tx Isolation	14 dB	

RECEIVER MULTICOUPLER		
Frequency Range	806-824 MHz	
Noise Figure	Typical 3.5 dB	Maximum 4.9 dB
Gain	Typical 11 dB	Minimum 8 dB
3rd Order Input Intercept	Typical 14 dBm	Minimum 13 dBm
Output RF Connector Type	BNC Female	

* NOTE: The number of cabinets, footprint and system weights are stated for a 6 channel system including the RFDS without options. Some STR 3000 features require the use of additional equipment.

** This specification is not to Project 25 TSB102.caab standard.

*** With multicoupler installed.

**** 90 dB at ± 2.1 MHz

FCC TYPE ACCEPTANCE				
FCC Designation	Frequency Range	Type	Power Output	Type Acceptance Number
	851-869 MHz	Transmitter	100 watts	ABZ89FC5795
	806-824 MHz	Receiver	N/A	ABZ89FR5796

700 MHz STR 3000 Specifications

GENERAL PERFORMANCE		
Supermodel Number	SQM02SUM0011A	
Number of Channels	1-6	
Number of Cabinets*	1	
Cabinet Height	43 RU, 83 in. (210 cm)	
Footprint* (W x D)	24 x 24 in. (60 x 60 cm)	
System Weight*	795 lbs (361 kg)	
Power Requirements	-48 VDC (43-60 VDC)	
Temperature Range	-30° to +60° C (-22°F to 140°F)	
Power Consumption*	Typical	Maximum
	3180 W	3840 W est.
Antenna Connectors		
Transmit	7/16 Female	
Receive	N-Female	

TRANSMITTER	
Frequency Range	764-776 MHz
Average Power Output (6 Channel Cavity Combiner)	
150 kHz	8 W-24 W per carrier
250 kHz	10 W-31 W per carrier
Occupied Bandwidth	8.7 kHz
RF Output Impedance	50 Ohm
Frequency Stability	External Reference
Modulation Fidelity	10% maximum error
Spurious and Harmonic Emissions Attenuation	85 dB
Symbol Rate Accuracy	10 PPM
Emissions Designators	LSM: 8K70D1W C4FM: 8K70F1E

RECEIVER	
Frequency range	794-806 MHz
Sensitivity Static Bit Error Rate (BER) 5%	-121 dBm**
Intermodulation Rejection (Per TIA methods of measurement)	80 dB
Adjacent Channel Rejection Digital Reference	60 dB
Spurious and Image Response Rejection	100 dB***
Preselector Bandwidth	30 MHz
Bit Error Rate Floor	0.01%
Signal Displacement Bandwidth	1 kHz
Frequency Stability	External Reference Required
Intermediate Frequency	
1st	73.35 MHz
2nd	450 kHz
RF Input Impedance	50 Ohm

BASE RADIO	
Dimensions	8.75 x 19 x 16.5 in. (222 x 483 x 419 mm)
Weight	73 lbs (33 kg)
Power Requirements	-48 VDC (41-60 VDC)
Number of Frequencies	1
Frequency Generation	Synthesized
Digital Channel Spacing	12.5 kHz
Mode of Operation	Duplex
Digital Modulation	
Transmit	Linear Simulcast Modulation
Receive	C4FM or Linear Simulcast Modulation
Antenna Connectors	
Transmit	SMA Female
Receive	SMA Female

RADIO FREQUENCY DISTRIBUTION SYSTEM (RFDS)

TRANSMITTER COMBINER		
Frequency Range	764-776 MHz	
Insertion Loss	Typical	Maximum
2 port Cavity Combiner @ 150 kHz	2.9 dB	5.1 dB
2 port Cavity Combiner @ 250 kHz	2.5 dB	3.6 dB
4 port Cavity Combiner @ 150 kHz	3.5 dB	5.2 dB
4 port Cavity Combiner @ 250 kHz	3.2 dB	4.4 dB
6 port Cavity Combiner @ 150 kHz	4.2 dB	5.3 dB
6 port Cavity Combiner @ 250 kHz	3.5 dB	4.5 dB
RF Connector Type		
Input	N-Female	
Output	7/16 Female	
Tx-Tx Isolation	32 dB	

Notes: (1) on 700 MHz STR 3000 TX filter or diplexer is required. (0.6 dB I.L. max.)
(2) If a phasing harness is used, an additional loss of 0.9-1.2 dB should be added.

RECEIVER MULTICOUPLER		
Frequency Range	794-824 MHz	
Noise Figure	Typical	Maximum
	3.5 dB	4.9 dB
Gain	Typical	Minimum
	11 dB	8 dB
3rd Order Input Intercept	Typical	Minimum
	14 dBm	13 dBm
Output RF Connector Type	BNC Female	

* NOTE: The number of cabinets, footprint and system weights are stated for a 6 channel system including the RFDS without options. Some STR 3000 features require the use of additional equipment.

** With multicoupler installed.

*** 100 dB applies at greater than 1 MHz offset, 90 dB at ±2.1 MHz

FCC TYPE ACCEPTANCE				
FCC Designation	Frequency Range	Type	Power Output	Type Acceptance Number
	762-776 MHz	Transmitter	5-55 Watts*	ABZ89FC5805
	776-806 MHz	Receiver	N/A	ABZ89FR5806

* FCC Type Acceptance at the cabinet level



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