The R2625/R2670 APCO Project 25

Communication System Analyzers

MOTOROLA
intelligence everywhere™

GENERAL DYNAMICS
Decision Systems

Distributed by

MOTOROLA

The R2625 and R2670 were the first Communications System Analyzers to offer an APCO Project 25 test solution. These analyzers were first-to-market with new test protocols. Which is probably why these analyzers are first in the minds of most communications test experts.

The General Dynamics R2670

The General Dynamics R2670 FDMA Digital Communications System Analyzer allows customized configuration to include many different test capabilities in one convenient, durable, yet easy to handle package.

This high performance digital platform includes a tracking generator, high performance spectrum analyzer with markers, and programmable test setups. Advanced test options include:

SMARTNET/SmartZone™

This option tests Motorola compatible Type I, Type I EP II, and Type II trunked mobile and portable radio units under actual signaling conditions. A second RF synthesizer provides for simultaneous control and traffic channels, allowing the radio under test to be redirected to a traffic channel, simulating actual system functionality.

ASTRO™ Trunking

This feature includes all the capabilities of the SMART-NET/SmartZone option, with the added support for ASTRO trunked systems. Complete functionality for both IMBE and VSELP encoded traffic channels is included.

SECURENET™

This option provides voice mode system testing utilizing SECURENET-compatible modulation and demodulation with vocoding. Proper operation and system compatibility is assured by using actual encryption algorithms.

ASTRO Conventional

This option provides ASTRO compatible FDMA digital C4FM modulation and demodulation with vocoding and embedded data testing.

APCO Project 25

This option provides Project 25 compatible FDMA Digital C4FM modulation and demodulation with vocoding and embedded data testing. Bit Error Rate (BER) testing is supported with both a 1011 Hz test pattern and a (5% BER) calibration test pattern.

APCO Project 25 Trunking

Project 25 compatible FDMA Digital C4FM modulation and demodulation on trunked channels allows testing of radio registration process and the ability to receive call alert indication. These features also permit testing of such trunked radio capabilities as transition from control channel to traffic channel, radio-transmitted signal quality, and voice quality. Digital C4FM modulation of a 1011 Hz test pattern with simultaneous C4FM/LSM (Linear Simulcast Modulation) demodulation of voice assures compatibility with Motorola system release 6.0. The future addition of release 6.1, will be a software upgrade that can be performed in your shop with a PC.

Multiple Encryption Options

The R2670 provides support for most compatible encryption algorithms including, DES, DES-XL, DES-OFB, DVP-XL, DVI-XL, as well as the recently released AES. Voice and embedded data encode and decode testing can be done in the encrypted mode using either permanently stored test keys, or actual customer-selected keys which can be loaded into the unit using a compatible keyloader.

The General Dynamics R2625

The R2625 is a specially configured model that includes Project 25 diagnostic test capability as standard equipment. In its base configuration, the R2625 provides Project 25-compatible FDMA Digital C4FM modulation and demodulation, with vocoding and embedded data testing. Bit Error Rate (BER) testing is supported with both a 1011 Hz test pattern and a (5% BER) calibration test pattern.

To enhance the capabilities of the R2625, simply add any of the following optional features:

Tracking Generator

Diagnosis and adjustment of critical receiver front ends, IFs, helical filters, cavities, combiners and duplexers can be made in a few minutes quickly and easily with the flexibility of a tracking generator at your fingertips.

Cable Fault Testing

Cable fault testing is mandatory for site servicing where visual inspection is not practical, safe or effective in detecting hidden or cold-flow damage. The semi-automatic operation of the cable faultfinder replaces the need to use mathematical formulas and manual calculations, which maximizes on-site productivity.

High Performance Spectrum Analyzer with Markers

This option adds enhanced functions to the built-in spectrum analyzer. The added versatility includes additional dispersion selections – up to 10 MHz per division, freeze, peak hold, max hold, and averaging, plus dual markers for precision level and frequency measurements (both absolute and delta).

Programmable Test Set-ups

Readily store up to 15 of your most commonly used test configurations, including test conditions, measurement display formats, and levels, for one button setups. You can also assign custom names to each configuration for easy recall.

Project 25 Compatible Type III Encryption

The R2625 provides support for most Project 25 compatible encryption algorithms including; DES-XL, DES-OFB, DVP-XL, as well as the recently released AES. Voice and embedded data encode and decode testing can be done in the encrypted mode using either permanently stored test keys, or actual customer-selected keys which can be loaded into the unit using a compatible keyloader.

APCO Project 25 Trunking

This is the identical option as available on the R2670. It provides dynamic call testing of trunked radios, full duplex testing of repeaters (including LSM), as well as BER test support. The future support for system release 6.1 will require a quick and easy software update.

TOOLKIT Applications Now Available

TOOLKIT is an ever-expanding library of software applications that increase the functionality of the R2600 family of communication systems analyzers. Compatible with most windows PCs, the program communicates with the systems analyzer via its RS232 port. Initial 'tools' include a flash programming utility to keep your unit current with the latest firmware, and a screen capture utility to download color screenshots in the popular bitmap format.

Part of the Royal Family

Both the General Dynamics R2625 and R2670 are members of the legendary R2600 family of Communication Systems Analyzers.

Our family consists of 4 unique models, each tailored to its own set of specialized testing requirements:

- The R2600 is the product of choice for conventional two-way radio and base station service.
- The R2660 is the test solution for iDEN™ digital radio systems.
- The R2625 offers an economical Project 25 test solution.
- The R2670 is the expandable platform for digital, trunked and secure testing.

At home on the bench, yet rugged enough to withstand the rigors of the field, the General Dynamics R2600 Family of Communication System Analyzers is the preferred choice of radio servicers worldwide.

Model Nomenclature and Ordering Guide

Base Models: All units now include a High Stability Oscillator
R2625B   Standard Unit configured for Project 25 Test Capability
R2670B   Enhanced Standard Unit for ASTRO, Project 25, SMARTNET/SmartZone, and/or SECURENET test options

Options Matrix (Order as additional Line items with base Model)

Standard Options		Model Availability		
Description	*Part Number*	*R2625*	*R2670*	*Notes*
Tracking Generator	RLN5069	Optional	**Standard**	
Cable Fault	RLN4306	Optional	**Standard**	Includes RF Detector Probe and 'T'
Hi Performance Spectrum Analyzer with Markers	RLN4423	Optional	**Standard**	
Programmable Test Setup Memory	RLN4485	Optional	**Standard**	
IEEE 488.2 Remote Interface	RLN4329	Optional	Optional	
C-Message Filter with 600 ohm load	RLN4034	Optional	Optional	
CCITT Filter with 600 ohm load	RLN4361	Optional	Optional	
Phase Mod/Demod	RLN4484	Optional	Optional	
Full Band Duplex Offset	RLN5430	Optional	Optional	

Analog Trunking Options – Select Only One				
SMARTNET/SmartZone	RLN4498	NA	Optional	
SMARTNET/SmartZone with ASTRO trunking	RLN4497	NA	Optional	VSELP/IMBE Compatible

Diagnostic Test Options	Order CM701 plus desired transmission format(s) and applicable encryption			
Conventional Hardware Module	CM701	NA	Optional	

Transmission Formats – Select any combination				Must also include CM701
Securenet	CM711	NA	Optional	Requires Compatible Encryption Option
ASTRO	CM712	NA	Optional	VSELP Vocoder
Project 25	CM713	Standard	Optional	IMBE Vocoder
Project 25 Trunking	CM714	Optional	Optional	Support for 9600 Baud CC trunking

Encryption Options – Select Only One				
DES-OFB	CM702	Optional	Optional	Requires CM713
DES-OFB, DES, DES-XL, DVP, DVP-XL	CM704	NA	Optional	Requires CM711, CM712, or CM713
DVI-XL, DVP, DVP-XL	CM705	NA	Optional	Requires CM711, CM712, or CM713
DES-OFB, DES-XL, DVP-XL	CM706	Optional	Optional	Requires CM711, CM712, or CM713

Accessories Supplied – May also be ordered separately				
Oscilloscope Probe	RTL4011A	*	*	
BNC to N Adapter	5884300A98	*	*	
DC Power Connection Kit	RPX4097A	*	*	
Telescoping Antenna	RTA4000A	*	*	
Microphone	HMN1056D	*	*	
Signal Generator Termination (50 ohm)	5880386B73 *	*	*	
Operators Manual		*6880309J83	*6880309F17	
Power Cord	3080397A62	*	*	
Spare RF Fuses	GG6530277C002	*	*	
BNC RF 'T'	0982578B01		*	Required for cable fault testing
RF Detector Probe RLN4748A			*	Required for cable fault testing

Additional Accessories – Order Separately				
Battery Pack	RPN4000A			Affixes to back of unit
Canvas Carrying Case	1580357B77			Protects unit when used in the field
Hard sided transit case	A001			Shipping protection
Hard sided transit case w/wheels	A002			Shipping protection
Isolation transformer for baseband output	0180302E83			Isolate output signal from chassis ground
Isolation transformer for baseband input	0180302E82			Isolate input signal from chassis ground
RF Detector probe with 50 ohm termination	5880345B96			
Programmers Reference Manual	6880309E55			Includes RS232 and IEEE 488.2
Service Manual on CD	RLN5237A			

NA – Option Not Available
*Accessory Included with model

MOTOROLA