

MICRO-TEL & REACTION INSTRUMENTS



FEATURES

- Briefcase/Attache Case Package
- Frequency Range:
20 to 500 MHz (685B)
20 to 1300 MHz (685BX)
- Four IF Bandwidths
(10 kHz to 8 MHz)
- Computer Control
- Rugged Construction

DESCRIPTION

The Model 685B VHF Receiver (20 to 500 MHz) was developed in response to a unique customer packaging requirement to house a 685A VHF Receiver in a standard size briefcase while maintaining its functional and performance capabilities. Now, two briefcase receivers are available: the Model 685B, covering the range of 20 to 500 MHz, and the Model 685BX, covering the range of 20 to 1300 MHz. Features of both receivers include AM and FM detected video as well as audio outputs, and four user-selected IF Bandwidths (10 kHz - 8 MHz). Functions such as noise riding threshold/COR, AFC and AGC are also provided.

To maintain a versatile control system identical to the 685A, an RS-232 or IEEE-488 remote control interface is a standard feature of both the 685B and the 685BX receivers.

Either receiver is packaged in a standard commercial briefcase. All controls and connectors are located on a panel facing the operator so that the unit can be operated without having to remove it from the case.

SPECIFICATIONS

Frequency Range	
685 B	20-500 MHz
685BX	20-1300 MHz
Frequency Resolution	1 kHz
Detection Modes	AM, FM
Outputs	IF, Video, Audio, COR
Tuning Speed	
685B	10 ms, nominal
685BX	5 ms, nominal
Intermediate Frequency	21.4 MHz
RF Input Impedance	50 ohms
Input VSWR	
685B	2:1
685BX	2.5:1
Noise Figure	
20-500 MHz	8 dB, maximum
500-1300 MHz	11 dB, typical 14 dB, maximum
3rd Order Input Intercept Point	0 dBm
Image Rejection	
20 to 500 MHz	90 dB, minimum
500 to 1300 MHz	60 dB, minimum
IF Rejection (21.4 MHz)	90 dB
Phase Noise	
20-500 MHz	-90 dBc in 1 Hz bandwidth, 20 kHz from carrier
500-1300 MHz	-80 dBc in 1 Hz bandwidth, 20 kHz from carrier
Antenna Conducted LO	-85 dBm
Internal Spurs (Referred to Input)	-110 dBm, typical -100 dBm, maximum
Gain Control Range	
685B	AGC: 95 dB, MGC: 70 dB
685BX	AGC: 100 dB, minimum MGC: 90 dB, minimum
RF-IF Gain (Wideband Output)	23 dB, nominal
IF Bandwidths -User Specified (4 max.)	10, 20, 50, 100, 300, 500 kHz, 1, 2, 4, 6, 8 MHz (others available on special order)
Sensitivity	-95 dBm in 100 kHz IF BW
AM SNR: 10 dB nominal¹	
FM SNR: 17 dB nominal²	
IF Outputs	
Wideband Level	+23 dBm, nominal
Bandwidth	8 MHz

Narrowband Level	-20 dBm (AGC)
Bandwidth	In accordance with selected bandwidth
Video Outputs AM/FM	Selectable (single connector) - Standard Simultaneous (two connectors) - Optional
Level³ Bandwidth	2 Vp-p (50 ohms) dc to 1/2 IF BW
Audio Outputs Fixed Level	
Level³ 685B	1.7 Vrms (600 ohms)
685BX	0.7 Vrms (600 ohms)
Bandwidth	300 to 8000 Hz
Headphone Level	Front panel adjustable 0 to 0.6 Vrms (600 ohms), minimum
Bandwidth	300 to 4000 Hz
Carrier Operated Relay (COR)	TTL
RF Input Level	-20 dBm to -110 dBm
External Reference Level	0.7 Vrms
Frequency	1 MHz
Internal Frequency Accuracy	$\pm 1 \times 10^{-6}$
Microprocessor Type	8088
Memory	RAM-8 K EEPROM - 32 K Power-down backup
Connectors	
RF Input	Type N
Other RF and COR	BNC
Digital Control	IEEE-488 or RS-232 Communications (DE-15) Headphone Jack
Front Panel Audio	
Controls	Freq., BW, NRT, AFC, AM/FM, MGC/AGC, MAN/AUTO, Clear, Enter, Audio Volume, Tuning, Keypad, Power
Power	115/230 Vac, 47 to 420 Hz
685B	25 watts
685BX	50 watts
Temperature (Operating)	0° to 50° C
Style	Commercial briefcase/attache case package
Weight	
685B	20 lbs.
685BX	30 lbs.

¹ AM sensitivity measured with 50% AM at 1 kHz rate

² FM sensitivity measured with deviation equal to 30% of selected IF Bandwidth at a 1 kHz rate

³ Measured with maximum deviation in FM, and with 80% modulation in AM mode.

Specifications may vary depending upon options selected and are subject to change.

ORDERING INFORMATION

A standard Model 685B Receiver covers the 20 to 500 MHz frequency range and provides four IF bandwidths (customer specified), selectable AM or FM demodulation, manual control, IEEE-488 or RS-232 computer interface, a communications interface, external reference input and a narrowband IF output. Simultaneous AM/FM is optionally available.

A standard Model 685BX Receiver covers the 20 to 1300 MHz frequency range and provides four IF bandwidths (customer specified), selectable AM or FM demodulation, manual control, IEEE-488 or RS-232 computer interface, a communications interface, a narrowband IF output and external reference input. Simultaneous AM/FM is optionally available.

When ordering, please specify:

685B	VHF (Briefcase) Receiver (20-500 MHz)
685BX	VHF (Briefcase) Receiver (20-1300 MHz)
Option I20	RS-232 Interface (Not available with Option I30)
Option I30	IEEE-488 Interface (Not available with Option I20)
Option G03	Simultaneous AM/FM (Not available with COR)
Option B14	10 kHz IF Bandwidth
Option B24	20 kHz IF Bandwidth
Option B54	50 kHz IF Bandwidth
Option B15	100 kHz IF Bandwidth
Option B35	300 kHz IF Bandwidth
Option B55	500 kHz IF Bandwidth
Option B16	1 MHz IF Bandwidth
Option B26	2 MHz IF Bandwidth
Option B46	4 MHz IF Bandwidth
Option B66	6 MHz IF Bandwidth
Option B86	8 MHz IF Bandwidth

WARRANTY

All M/A-COM Government Products equipment is warranted for one year, except for damage caused by accident or misuse, provided the equipment is returned for repair to the plant in Hunt Valley, MD.



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