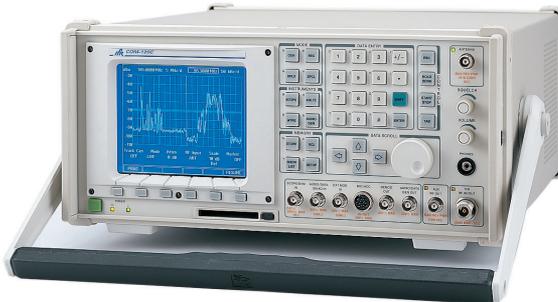


Wireless

COM-120C Communications Service Monitor

AEROFLEX
A passion for performance.



The new standard for 1 GHz Communication Service Monitors based on Aeroflex's highly successful line of Radio Test Sets

- New color display provides excellent viewing of test results in all light conditions
- New "Tone Remote" capability for remote control of isolated transmitter sites
- Split Screen digitized full scan spectrum analyzer to 1 GHz
- Digitized 50 kHz oscilloscope
- Optional AutoCell-NT automated cellular base station test software
- High speed EDACS data capture capabilities with radio and repeater simulators
- 50 user defined setups
- Full paging test for analog paging formats and advanced digital paging
- Standard tracking generator
- 200 W power measurement capability
- RS-232 control interface with optional IEEE-488 (GPIB)
- Fully programmable, several software selections are available

The COM-120C is the latest in a long line of industry standard RF communication service monitors for fast effective analog wireless testing, including high performance spectrum analysis, AMPS, Trunking and advanced paging test features.

New color display improves the concept

It is hard to improve on the industry's most popular service monitor, however our new color display does just that. With high resolution and improved visibility, the COM-120C provides high performance test features with even easier to read test results.

New "Tone Remote" feature

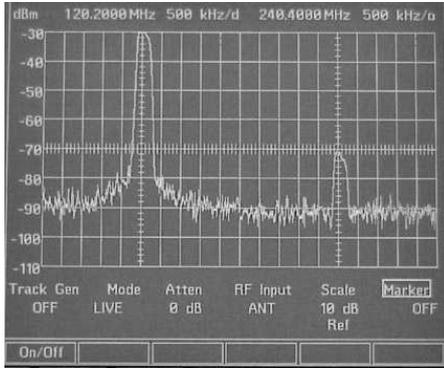
With the RCC Signaling option (OPT 9), the COM-120C performs remote signaling through a supplied 600 Ω matching transformer for use over control lines to the transmitter site. The user can define the frequency, level and the guard tone as well as the frequency, level and duration of the max tone (enable tone) and the function tone (command tone). This allows for remote testing of isolated transmitter sites, which can be difficult during adverse weather conditions.

Fast Effective Wireless Test Solutions

The COM-120 series is the industry recognized standard in Communication Service Monitors. A tough, portable monitor with a full performance spectrum analyzer and digital oscilloscope, the new COM-120C combines over 20 instruments into one unit, offering a cost effective alternative to higher cost test sets.

Unique Split Screen Spectrum Analyzer

The COM-120C offers a split screen dual display spectrum analyzer. This feature allows you to view two signals or the same signal in two different ranges simultaneously. In addition, the spectrum analyzer can be viewed along with the RF Generator or RF Receiver screens giving you full control over testing details at one glance.



Split screen spectrum analyzer gives you more flexibility.

RF Solutions

For RF testing professionals, the fully independent generator and receiver functions yield truer signal tracing, expanded analyzer capabilities and cross band duplex testing. In addition, the COM-120C boasts an impressive set of standard features:

- Digitized oscilloscope
- RF and Auxiliary RF Generator
- 2 μ V receiver sensitivity
- Frequency Selective RF Counter
- RF Frequency Error Meter
- FM Deviation Meter
- Φ M Deviation Meter
- Audio Frequency Counter
- Amplitude Modulation Meter
- RF Power Meter
- RF Level Meter
- Distortion Meter
- SINAD Meter with 0 - 55 dB range
- LIVE-REF and REF-LIVE on the Spectrum Analyzer and Oscilloscope, average, peak hold and min hold can be displayed independently.
- The FM and Φ M Deviation Meters allow toggling of the deviation meter from the standard mode to the \pm peak mode. The measurement shows the + and - peak deviation as two separate readings.

EDACS and LTR Testing

The EDACS™ option provides a comprehensive system test for both repeaters and terminals. The EDACS™ option also incorporates:

- High speed data capture which reads EDACS data as soon as the COM-120C's DSP decodes valid EDACS messages.
- Individual Call System All-Call decodes a dual message on the inbound control channel.
- Support for Narrow-band (900) MHz testing.
- User definable frequencies as channels.

- Expanded storage capability that allows users to store and recall up to 50 EDACS™ system test setups.

The ClearChannel LTR™ trunking option allows the COM-120C to be configured to simulate LTR repeater systems. The test set can perform system encode/decode functions as well as Home and Next repeater access procedures.

LTR TRUNKING REPEATER SIMULATOR			
Ch #	1	Band: 800 MHz	Extended Meas:
RECEIVE		GENERATE	
RF: 806.0125 MHz	Input: ANT	Atten: 30 dB	RF: 851.0125 MHz
IF: 15 kHz	Speaker: WIDE	Level: -40.0 dBm	Output: T/R
Area 1	In Use 21	Area 0	Goto 1
Home 0	Group 125	Home 1	Group 1
Free 27		Free 31	Status FREE
RF Level: ***** dBm	DATA		
RF Error Freq: 2.243 kHz	Mod Source: GEN1 OFF		
Deviation: \pm 7.96 kHz (V)			
AF Frequency: 1893 Hz			
Distortion: 83.1 %	Sinad:		
800 MHz	900 MHz	USER	DEC CLR
			RETURN

ClearChannel LTR™ Menu

Full Paging Support

The standard COM-120C performs encode/decode of 2-tone and sequential tone testing, as well as tone squelch, DCS and DTMF. The flexibility of the COM-120C is enhanced with optional analog/digital signaling. This feature allows you to test the following formats:

CCIR	EURO	DZVEI	NATEL
EEA	CCIRH	5/6 TONE	DDZVEI
ZVEI	EIA	CCIRH4	POCSAG

Analog Cellular Solutions

The COM-120C may be configured with an optional AMPS Mobile Station testing feature which is designed to verify proper operation of AMPS handsets and mobiles. Flexible testing includes both automatic and manual test functions.

AMPS Cellular Setup Parameters	
Control Channel	327
Voice Channel	300
Home/Roam Select	HOME
Mobile ID.	3165486263
Mobile Serial No.	26314782194
SAT Frequency	5970 Hz
Home/Area ID.	00163
Digital Color Code	2
Power Level Ref	3
SINAD Test Ref	12 dB C-MSG
Customer Information	
	PG DN
	RETURN

Analog AMPS Capabilities

Complex Testing Made Simple

Even with its impressive list of testing capabilities, the COM-120C retains the simplicity that has earned the respect of thousands of dedicated users. A modem capability turns the COM-120C into a remote controlled instrument. Tests can now be initiated remotely by simply plugging in a modem.

For more specialized testing, the COM-120C programmable test function may be used to create custom test applications. Using the COM-120C's TMAC programming language, complex tests can be reduced to simple "one-touch" test procedures.

With intuitive internal/external data file storage and retrieval system, complex testing is simple and efficient. This system allows users to create user-defined tests and customized results logs. It also gives you the flexibility to store data internally or download test results to a PC.

RS-232 or IEEE-488 (GPIB) Remote Testing Ability

Fully automated or remote testing abilities in a stand alone or multiple instrument environment can be realized with the standard RS-232 interface or with the IEEE-488 (Option 13) interface.

Power Tests from 2 mW to 200 W

The COM-120C provides low level measurements with high power protection for measuring off air signals as well as direct base station power measurements up to 200 W. The antenna input is protected to 10 W with a built in alarm to notify you if you are in an overload condition.

Software Options Simplify Testing

For those requiring automated test capability, several applications software packages are available:

EasyCom-B Applications Software (AC1022)

Simplifies routine performance testing of land mobile transceivers

AutoCell - NT (AC1037)

Provides automated testing and calibration of Northern Telecom, Novatel and GE analog cellular base stations

EasySpan II (AC1109W)

The newly updated EasySpan II can store, display and manipulate spectrum analyzer and tracking generator sweep information to a PC running windows.

All Aeroflex software can be uploaded using the PCMCIA memory card or through the RS-232 interface using a PC controller. The COM-120C is compatible with popular accessories from other manufacturers including the Optoelectronics Super Scout and the STI 9100 series mobile signal analysis and data acquisition system.

SPECIFICATION

RF SIGNAL GENERATOR

Frequency Range

250 kHz to 1 GHz

Resolution

100 Hz

Accuracy

Same as Master Oscillator

OUTPUT LEVEL

(T/R and AUX Connectors)

Range (T/R)

-130 to -20 dBm (Simplex mode)

-130 to -40 dBm (Duplex mode)

Range (AUX)

-130 to +13 dBm

Resolution

0.1 dB

Accuracy

± 2 dB (>-90.1 dBm, <400 MHz)

± 2.5 dB otherwise

VSWR

<1.15:1 (0.25 to \leq 100 MHz)

<1.23:1 (100 to \leq 400 MHz)

<1.38:1 (400 MHz to 1 GHz)

SPECTRAL PURITY

Residual FM

<20 Hz RMS (0.3 to 3 kHz BW)

Residual AM

<0.5% RMS (0.3 to 3 kHz BW)

Harmonics

<-26 dBc

Non-Harmonics

<-45 dBc (below 1 GHz)

<-40 dBc (above 1 GHz)

Input Protection

(T/R)

50 W CW continuous

100 W CW (90 sec - 3 min cycle)

150 W CW (30 sec - 3 min cycle)

200 W CW (15 sec - 3 min cycle)

FREQUENCY MODULATION

RF Frequency Range

250 kHz to 1 GHz

Deviation Range

100 Hz to 100 kHz

Deviation Resolution

10 Hz (0.01 to 2.55 kHz)

50 Hz (2.60 to 12.75 kHz)

100 Hz (12.8 to 25.5 kHz)

500 Hz (26.0 to 100.0 kHz)

Rate

10 Hz to 20 kHz (FSK rates up to 40 kbps)

Accuracy

$\pm 5\%$ + residual FM + resolution (1 kHz rate, GEN1, GEN2, EXT MOD)

$\pm 10\%$ + residual FM + resolution (DATA GEN)

$\pm 15\%$ + residual FM + resolution (DTMF GEN)

Distortion

$< 2\%$ (1 kHz sine wave, 10 kHz deviation, 0.3 to 3 kHz BW)

EXT MOD Sensitivity

2 kHz/Vpk $\pm 15\%$ (FM Narrow)

10 kHz/Vpk $\pm 15\%$ (FM Wide)

AMPLITUDE MODULATION

RF Frequency Range

250 kHz to 1 GHz

AM Depth Range

30% to 90%

Resolution

0.5 %

Rate

100 Hz to 10 kHz

Accuracy

$\pm 5\%$ + residual AM + resolution (1 kHz rate, RF Level < 0 dBm)

$\pm 15\%$ + residual AM + resolution (RF Level < 0 dBm)

Distortion

$< 2\%$ (30% to 90% modulation, 1 kHz rate, 0.3 to 3 kHz BW)

EXT MOD Sensitivity

5% to 15% per Vpk

PHASE MODULATION

RF Frequency Range

250 kHz to 1 GHz

Modulation Range

0.1 to 10 radians peak

Resolution

0.1 radian (2.6 to 10.0 rad)

0.01 radian (below 2.55 rad)

Rate

100 Hz to 6 kHz

Accuracy

$\pm 5\%$ + residual PM + resolution (1 kHz rate)

$\pm 15\%$ + residual PM + resolution (DTMF GEN)

EXT MOD Sensitivity

2 rad/Vpk $\pm 15\%$

AUDIO DATA GENERATORS

AF GENERATOR #1 and #2**Frequency Range**

5 Hz to 20 kHz (sine wave only)

5 Hz to 10 kHz (other wave shapes)

Frequency Resolution

0.1 Hz

Frequency Accuracy

Same as timebase ± 0.1 Hz

Output Range (High Level)

0.01 to 2.5 Vpk (into 150 Ω)

Output Resolution (High Level)

0.01 Vpk

Output Accuracy (High Level)

$\pm 3\%$ full range ± 5 mVpk (≤ 10 kHz, ≥ 0.03 Vpk)

$\pm 7\%$ full range ± 5 mVpk (> 10 kHz, ≥ 0.03 Vpk)

Output Range (Low Level)

1 to 250 mVpk (into 150 Ω)

Output Resolution (Low Level)

1 mV

Output Accuracy (Low Level)

$\pm 4\%$ full range ± 0.25 mVpk (≤ 10 kHz, 0.03 Vpk $<$ level, ≥ 1 mVpk)

$\pm 7\%$ full range ± 0.25 mVpk (> 10 kHz, 0.03 Vpk $<$ level, ≥ 1 mVpk)

THD

$< 0.7\%$ (1 kHz sine wave, 2.5 Vpk, 150 Ω load)

$< 1\%$ sine wave (all other frequencies/levels)

Wave Shapes

Sine, Ramp, Square, Triangle

DTMF GENERATOR

Output Range (High Level)

0.01 to 2.5 Vpk (into 150 Ω)

Output Resolution (High Level)

0.01 Vpk

Output Accuracy (High Level)

$\pm 10\%$ full range ± 5 mVpk (≥ 30 mV)

Output Range (Low Level)

0.1 to 25 mVpk (into 150 Ω)

Output Resolution (Low Level)

1 mVpk

Output Accuracy (Low Level)

$\pm 10\%$ full range ± 0.25 mVpk (1 to 30 mV)

Modes

Continuous, single shot

Digits

16 (0-9, *, #, A, B, C, D)

Mark/Space Timing

25 to 999 ms

Mark/Space Timing Resolution

1 ms

Mark/Space Timing Accuracy

$\pm 20\%$

RECEIVER

Range

250 kHz to 1 GHz

Resolution

100 Hz

Tunable Range

Tunable from 0 Hz to 1.0 GHz

(characteristics below 250 kHz are not specified)

Sensitivity

2 μ V (10 dB SINAD, >2 MHz, 1 kHz tone, 3.3 kHz deviation, 15 kHz IF BW, C-Message weighted filter, 10 kHz FM deviation meter range, 15° to 35°C <2.5 μ V otherwise)

Antenna Input Protection

10 W CW (5 sec with alarm)

Selectivity

300 kHz, 15 kHz, 30 kHz

Adjacent Channel Rejection

IF Bandwidth	Selectivity
(3 dB)	>30 dB Down
300 kHz	± 485 kHz
15 kHz	± 15 kHz

Demodulation Output (<50 Ω)

FM:	0.20 Vpk/kHz $\pm 10\%$ (10 kHz range)
	0.10 Vpk/kHz $\pm 10\%$ (20 kHz range)
	0.04 Vpk/kHz $\pm 10\%$ (50 kHz range)
	0.02 Vpk/kHz $\pm 10\%$ (100 kHz range)
AM:	1.13 ± 0.06 VRMS (80% modulation)
PM:	0.2 Vpk/rad $\pm 10\%$

SELECTIVE RF COUNTER

Frequency Range

250 kHz to 1 GHz (The received frequency must be within the IF band-pass of the COM-120C.)

Tunable Range

0 Hz to 1 GHz (Characteristics below 250 kHz are not specified.)

Resolution

1 Hz (10 sec gate time)

10 Hz (1 sec gate time)

Accuracy

Same as Master Oscillator ± 2 Hz

RF Level (Input Range)

0 to +53 dBm (T/R connector)

-60 to 0 dBm (ANT connector)

RF FREQUENCY ERROR

Meter Range

0 Hz to 100 kHz

Meter Accuracy

Same as Master Oscillator ± 2 counts

Meter Resolution

1 Hz (10 sec gate time)

10 Hz (1 sec gate time)

RF Frequency Range

250 kHz to 1 GHz (The received frequency must be within the IF band-pass of the COM-120C.)

RF Level

0 to +53 dBm (T/R connector)

-60 to 0 dBm (ANT connector)

AF FREQUENCY COUNTER

Frequency Range

10 Hz to 20 kHz

Accuracy

Same as Master Oscillator ± 1 count

Resolution

0.1 Hz (1 sec gate time, 10 to 500 Hz)

1 Hz (1 sec gate time, 500 Hz to 20 kHz)

0.1 Hz (10 sec gate time)

Input Signal Level

SCOPE/DMV Input: 90 mVp-p (50 mV range, any waveform)

AUDIO/DATA Input

450 mVp-p (any waveform)

FREQUENCY MODULATION METER

Ranges

2 kHz, 5 kHz, 10 kHz, 20 kHz, 50 kHz, 100 kHz full scale

Resolution

10 Hz (2, 5 and 10 kHz range)

100 Hz (20, 50 and 100 kHz ranges)

Accuracy

$\pm 5\%$ full scale ± 50 Hz ± 1 digit + source residual FM (300 kHz IF BW, 1 kHz tone, 5 kHz deviation, C-Message weighted filter)

Modulation Rate

0 to 20 kHz

Carrier Range

250 kHz to 1 GHz (The received frequency must be within the IF band-pass.)

Carrier Level

0 to +53 dBm (T/R connector)

-60 to 0 dBm (ANT connector)

Φ M METER

Ranges

1 rad, 2 rad, 5 rad, 10 rad peak full scale

Resolution

0.01 rad (1 and 2 radian scales)

0.1 rad (5 and 10 radian scales)

Accuracy

$\pm 5\%$ of full scale ± 0.1 rad ± 1 digit + source residual PM (300 kHz IF BW, 1.0 kHz tone, 1.0 rad deviation, C-Message weighted filter)

Modulation Rate

100 Hz to 6 kHz

Carrier Range

250 kHz to 1 GHz (The received frequency must be within the IF band-pass.)

Carrier Level

0 to +53 dBm (T/R connector)

-60 to 0 dBm (ANT connector)

AM MODULATION METER

Range

1% to 100%

Resolution

0.1%

Accuracy

$\pm 5\%$ of full scale ± 1 digit + source residual AM (300 kHz IF BW, 1 kHz tone, 50% AM depth, C-Message weighted filter)

Modulation Rate

50 Hz to 10 kHz

Carrier Range

250 kHz to 1 GHz (The received frequency must be within the IF band-pass of the COM-120C.)

Carrier Level

0 to +53 dBm (T/R connector)

-60 to 0 dBm (ANT connector)

AGC Attack Time

50 ms maximum

RF POWER METER

Meter Ranges

2 mW to 200 W in a 1-2-5 sequence

Resolution

1% of full scale or 0.1 mW (whichever is greater)

Accuracy

$\pm 10\% \pm 0.1$ mW ± 1 digit (>200 mW, 15° to 36°C)

$\pm 15\% \pm 0.1$ mW ± 1 digit (<200 mW below 15°C and above 35°C)

Frequency Range

1.5 MHz to 1 GHz

RF Level Range

2 mW to 200 W average power

Usable Level

0.2 mW to 200 W average power (characteristics below 2 mW not specified)

Operating Conditions

50 W CW continuous (50°C)

100 W CW (90 sec/3 min, 50°C)

150 W CW (30 sec/3 min, 50°C)

200 W CW (15 sec/3 min, 50°C)

VSWR

1.15:1 (0.25 to 100 MHz)

1.23:1 (100 to 400 MHz)

1.38:1 (400 MHz to 1 GHz)

Alarms

Audible and visual (if applied power exceeds 200 W in the 200 W range or the COM-120C's power termination assembly temperature exceeds 105°C)

RECEIVE LEVEL METER

Range

-101 to -30 dBm (15 kHz IF BW)

-80 to -30 dBm (300 kHz IF BW)

Accuracy

± 3 dB

Frequency Range

250 kHz to 1 GHz (The received frequency must be within the IF band-pass of the COM-120C.)

DISTORTION METER

Range

1% to 20%

Resolution

0.1%

Accuracy

$\pm 0.5\%$ distortion ± 1 digit (1% to 10%)

$\pm 2\%$ distortion ± 1 digit (>10% to 20%)

Signal Frequency

1 kHz sine wave

Signal Level

0.03 to 200 VRMS (SCOPE/DVM input)

0.15 to 15 VRMS (AUDIO/DATA IN)

SINAD METER

Range

3 to 30 dB

Resolution

0.1 dB

Accuracy ± 1 dB ± 1 digit (at 12 dB SINAD)**Signal Frequency**

1 kHz sine wave

Signal Level

0.03 to 200 VRMS (SCOPE/DVM input)

0.15 to 15 VRMS (AUDIO/DATA IN)

DIGITAL VOLTMETER

Ranges

50 mV to 200 V in a 1-2-5 sequence

Range (DC)

10 mV to 200 VDC (SCOPE/DVM input)

Range (AC)

10 mV to 200 VRMS (SCOPE/DVM input)

150 mV to 15 VRMS (AUDIO/DATA IN)

Resolution

3½ digit

Accuracy $\pm 5\%$ full scale ± 5 mV ± 1 digit (SCOPE/DVM input) $\pm 7\%$ full scale ± 5 mV ± 1 digit (AUDIO/DATA IN)**Frequency**

DC, 50 Hz to 20 kHz

Input Impedance1 M Ω , unbalanced (SCOPE/DVM/SINAD IN)100 k Ω , unbalanced (AUDIO/DATA IN)**OSCILLOSCOPE**

Bandwidth (3 dB)

50 kHz

VERTICAL**Ranges**

10 mV to 50 V/div (1-2-5 sequence)

Max Input

200 RMS

Accuracy

5% full scale

Resolution

1% full scale, 256 data points, 8 major divisions

Coupling

DC, AC and GND

HORIZONTAL**Ranges**100 μ s to 200 ms/div

(1-2-5 sequence)

Accuracy

1% full scale, 500 data points, 10 major divisions

Resolution

1% full scale

Input Impedance1 M Ω , unbalanced (nominal)**SPECTRUM ANALYZER**

Center Frequency

250 kHz to 1 GHz

Tunable Range

0 Hz to 1 GHz (characteristics below 250 kHz are not specified)

Resolution

100 Hz

FREQUENCY SPAN**Ranges**

1 kHz to 100 MHz/div

(1-2-5 sequence and zero span)

Accuracy $\pm 5\%$ of span width**Operational Modes**

Normal, Split Screen

Frequency Span Modes

Scan Width	RBW
100 MHz/div	3 MHz
50 MHz	3 MHz
20 MHz	3 MHz
10 MHz	3 MHz
5 MHz	300 kHz
2 MHz	300 kHz
1 MHz	300 kHz
500 kHz	30 kHz
200 kHz	30 kHz
100 kHz	30 kHz
50 kHz	30 kHz
20 kHz	3 kHz
10 kHz	3 kHz
5 kHz	3 kHz
2 kHz	300 Hz
1 kHz	300 Hz
0 kHz	30 kHz

LEVEL**Display**

Log, 2 and 10 dB/div

Vertical Resolution

1 dB

Dynamic Range

60 dB

Bandwidth Switching Error

<3 dB

Log Linearity

±2 dB (referenced to -40 dBm, 15° to 35°C)

±3 dB (referenced to -40 dBm, 0° to 15°C and 35° to 50°C)

Input Attenuator

0, 30 dB (ANT connector)

RS-232C**Operations Mode**

Off, PC (input/output)

Baud Rate

100, 150, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400

Stop Bits

1,2

Parity

Odd, Even, None

Handshake

None, Xon/Xoff, CTS/RTS

MASTER OSCILLATOR**TCXO****Frequency**

10 MHz

Uncertainty

±0.1 ppm

Temperature Stability

±0.2 ppm (0° to 50°C)

Ageing Rate

±0.5 ppm/year

POWER REQUIREMENTS**Line Voltage**

90 to 130 VAC (50 to 400 Hz)

180 to 265 VAC (50 to 60 Hz)

DC Input

12 to 30 Vdc

Power Consumption

AC 180 W maximum

AC 110 W typical

DC 150 W maximum

DC 90 W typical

GENERAL CHARACTERISTICS**Operating Temperatures**

0° to 50°C

Dimensions

400 mm W, 190 mm H, 429 mm D
15.75 in. W, 7.5 in. H, 16.875 in. D
(without bail handle and front panel cover)

440 mm W, 190 mm H, 537 mm D
17.32 in. W, 7.5 in. H, 21.125 in. D
(with bail handle and front panel cover)

Weight

17.3 kg (38.5 lbs.) (without options, lid, accessories)

VERSIONS AND ACCESSORIES

When ordering please quote the full ordering number information.

Ordering Numbers

Versions

120C-3-110	COM-120C Communications Service Monitor w/ Tracking Generator, 30 kHz IF Filter, 110V	AC1109U	EasySpan II - Windows update for existing AC1009W users
120C-3-220	COM-120C w/ Tracking Generator, 30 kHz IF Filter, 220V	AC1022	EasyCom-B Applications Software
120C-3T-110	COM-120C w/ Tracking Generator, 30 kHz IF Filter, 0.01 PM OCXO, 110V	AC1023	Applications Library
120C-3T-220	COM-120C w/ Tracking Generator, 30 kHz IF Filter, 0.01 PM OCXO, 220V	AC1025	EasySweep
120C-8-110	COM-120C w/ Tracking Generator, SSB Receive Filter, 110V	AC1061	NORTEL Autocell Cable Kit
120C-8-220	COM-120C w/ Tracking Generator, SSB Receive Filter, 220V	AC1201	Telescoping Antenna
120C-8T-110	COM-120C w/ Tracking Generator, SSB Receive, 0.01 PPM OCXO, 110V	AC2202	Rackmount Kit
120C-8T-220	COM-120C w/ Tracking Generator, SSB Receive, 0.01 PPM OCXO, 220V	AC4000	US Power Cord

Note: When ordering 120C either AC4000 or AC4005 must be specified.

Options

120OPT1	Internal Rechargeable Battery
120OPT7	Data Generator/BER Meter
120OPT9	RCC Signalling
120OPT11	Digital/Analog Signalling
120OPT13	IEEE-488
120OPT14	ClearChannel LTR™
120OPT15	AMPS Mobile Station Test (requires 120C-3 or 120C-3T)
120OPT16	EDACS
120OPT17	MPT-1327 Trunking
120OPT20	7.5 MHz IF Filter
120OPT21	Autocell-NT (requires 120C-3 or 120C-3T)

Accessories

AC0246	Application Guide
AC0301	COM-120C TMAC User's Manual
AC0600	Maintenance Manual
AC1109W	EasySpan II for Windows (Waveform Transfer Software)

AC1109U	EasySpan II - Windows update for existing AC1009W users
AC1022	EasyCom-B Applications Software
AC1023	Applications Library
AC1025	EasySweep
AC1061	NORTEL Autocell Cable Kit
AC1201	Telescoping Antenna
AC2202	Rackmount Kit
AC4000	US Power Cord
AC4005	European Power Cord
AC4105	Return Loss Bridge (1.3 GHz)
AC8645	Microphone
AC8735	Heavy Duty Ship Case with Tag-along Combo
AC9925	Soft-Padded Carrying Case
W120C/203	Warranty Extension 1 YR (Total Warranty 3 YRS)
W120C/204	Warranty Extension 2 YR (Total Warranty 4 YRS)
W120C/205	Warranty Extension 3 YR (Total Warranty 5 YRS)

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Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.