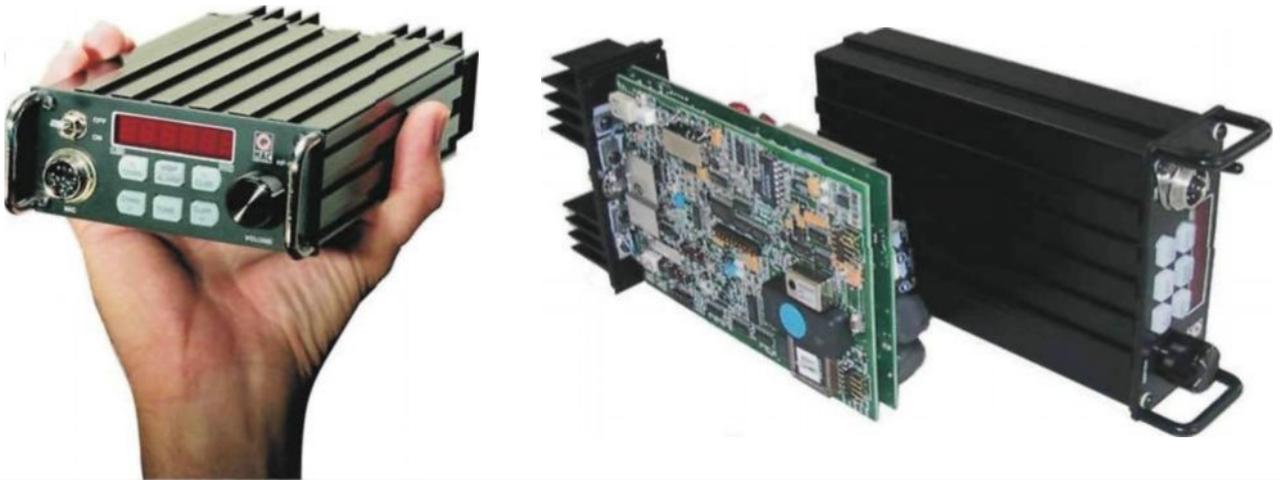




COMMERCIAL RADIO CATALOGUE



HF-90 HF Transceivers

- ▶ NVIS Loop Antenna
- ▶ Frequency Hopping
- ▶ Manpack Packages
- ▶ Mobile Packages
- ▶ Portable Packages
- ▶ Base Station Packages
- ▶ Antenna Systems

Version 8.0A
Effective July 2008



simple to use • reliable • compact • low cost

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1 CONFIGURING Q-MAC PACKAGES

Q-MAC encourages the use of this checklist to ensure end users consider all aspects of their application. This is especially relevant for field deployment where missing items will cause significant inconvenience.



2

PRODUCTS

2.1

HF-90 SSB HF TRANSCEIVER



50 Watts PEP

Frequency Hopping

Secure, Simple to Use and Versatile

The HF-90 is a rugged all-purpose HF SSB transceiver, designed for portable, mobile and fixed base station applications. It is an extremely compact and light weight unit, featuring only essential controls to ensure ease of operation.

The HF-90 has been designed with the field user in mind. Not only is it simple to operate, but it is also priced competitively to suit both commercial and military requirements. Furthermore, it is value-engineered to ensure low cost of ownership over the long term.

The transceiver has a quality, high specification design. It provides full frequency coverage from 2-30 MHz and has capacity for up to 255 programmed channels. The unit can operate at a selected power level of up to 50 Watt, whilst achieving low battery consumption. It is also extremely reliable due to the advanced SMD manufacturing process used and overall design efficiency.

The specifications of the HF-90 will enable reliable communications up to distances of 3000km depending on antenna. In addition, the transceiver incorporates superior signal handling capability which ensures excellent reception even in the most crowded radio environments. A military grade ECCM Frequency Hopping Option is available to provide secure communications

In short, this revolutionary new transceiver incorporates the very latest in RF design technology, making the HF-90 the most compact, versatile, high performance HF SSB transceiver available on the international market today.



Features.

- ECCM Frequency Hopping Option
- Simple Intuitive Operation
- Small Size
- Light Weight - Less than 1 kg
- 50 Watt PEP in Tactical Frequencies
- 255 Channels
- Selective Calling
- USB/LSB Operation
- 4 Minute MTTR
- 6000 Hour MTBF
- Low Cost

2.2

MANPACK PACKAGES

2.2.1 QM9009 HF-90 Manpack - Auto Tuner

*Pictured with Advanced Option
& Backpack Upgrade*

COMMUNICATE WHILE ON FOOT

The Q-MAC HF-90 Manpack is a portable, instant-deployment HF SSB radio communication system, incorporating the Q-MAC HF-90 transceiver. This package is designed for applications where the operator requires medium to long range communications whilst on foot. The HF-90 Manpack is compact, lightweight and comfortable to carry for long periods so is ideal where mobility is of paramount importance. The unit can be operated whilst carried on the user's back or when placed on the ground.

Q-MAC's HF-90 Manpack is ideal for a variety of applications including international aid projects; search and rescue operations; mineral exploration; forestry management; conservation and wildlife projects; as well as police and paramilitary applications.

Includes:

- HF-90 Transceiver with Field Programming, Selcall, Beacon, Scanning and Telcall.
- Speaker Microphone with DTMF Keypad and Advanced Software Option
- TA-99 Automatic Antenna Tuner (with coaxial & earth cables)
- Collapsible Whip Antenna (6-section), frequency range of 2-26MHz when used with TA-99
- Long Wire Antenna Kit, frequency range of 2-20MHz when used with TA-99
- Rechargeable SLA Battery (7 Ah), Power Cable and Battery Condition Monitor
- Canvas Backpack with Frame and Accessory Pocket
- 100-240V AC 12V Battery Charger to suit SLA Battery. Specify plug type
- Quick Reference Guide and Operator Manual



QM9013 MANPACK ORDERING INFORMATION

Stock Code	Description	Weight
QM9009	Framed Manpack - Olive drab canvas; Including battery	7.50 kg
QM9009b	Framed Manpack - Olive drab canvas; Not including battery	5.00 kg
QM9009BL	Framed Manpack - Blue canvas; Including battery	7.50 kg
QM9009bBL	Framed Manpack - Blue canvas; Not including battery	5.00 kg

Recommended Options/Upgrades

QM7005	End-fed Broadband Antenna	1.25 kg
QM7309	Tape Whip Antenna	0.20 kg
QM8024	DC Charger - For vehicle charging	0.30 kg

These options are the most commonly ordered options and recommended by Q-MAC to provide a comprehensive solution for most Manpack applications.

Frequency Hopping/Encryption Options

QM9061	Frequency Hopping Option	0.05 kg
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NOTE: The Frequency Hopping and Encryption options are subject to Australian Defence Export Controls and a signed End User Declaration must be provided.

Miscellaneous Options/Accessories

QM9057	Handset Upgrade to Military DTMF telephone handset	0.20 kg
QM8021	Solar Panel Charger - Fold up	1.30 kg
QM8035	Hand Crank Generator	2.70 kg
QM8011	Rechargeable 7Ah SLA Spare Battery for Spares	2.55 kg
QM9080	Field Data Terminal - Tactical messaging terminal (see 2.6.1 for more options)	1.00 kg
QM4051	CW Options & Telegraph Key	0.45 kg

Optional Manual Tuner Package – Replaces automatic antenna tuner with manual tuner.

QM9013 MANPACK ORDERING INFORMATION

Stock Code	Description	Weight
QM9013	Standard Manpack - Olive drab canvas; Including battery	7.50 kg
QM9013b	Standard Manpack - Olive drab canvas; Not including battery	4.95 kg
QM9013BL	Standard Manpack - Blue canvas; Including battery	7.50 kg
QM9013bBL	Standard Manpack - Blue canvas; Not including battery	4.95 kg

2.3

MOBILE (VEHICLE) PACKAGES

2.3.1 QM9025 ML-91 NVIS Roof Rack Antenna Vehicle Package (Fixed Transceiver)

IMPROVED PERFORMANCE FROM A VEHICLE INSTALLATION

The Q-MAC ML-91 Roof Rack Antenna Vehicle Package (fixed transceiver) is ideal for NVIS propagation or applications requiring constant coverage for distances of 0-1000km. The ML-91 Package provides significantly more gain than conventional whip antenna systems. The ML-91 is optimised for use in frequencies between 3.6-14MHz.



The Q-MAC ML-91 NVIS Roof Rack Antenna Vehicle Package (fixed) is ideal for humanitarian aid and relief agencies; border patrol; police; environmental conservation groups; search and rescue; and mining vehicles. The ML-91 outperforms whip systems in mountains and valleys where NVIS propagation is essential and very effective at overcoming the 'Skip Zone' common with whip antenna systems.

Includes:

- HF-90 Transceiver with DTMF microphone and DC power cable and transceiver installation kit complete with mounting cradle & external mount speaker with audio mute facility for QM9025
- Field Programming, Selcall, Beacon, Scanning and Telcall.
- ML-91 Auto-tune Antenna system with cables and connectors
- ML-91 installation kit including roof-rack mounting hardware

Specify standard 12V system or 24V modification (QM7602) at time of order.

ML-91 NVIS ROOF RACK/TRANSCEIVER PACKAGE ORDERING INFORMATION

Stock Code	Description	Weight
QM9025	ML-91 Fixed Transceiver Package - Standard size 1.8m(L) x 1.25m(W)	105.00 kg
QM9025b	ML-91 Fixed Transceiver Package - Compact size 1.5m(L) x 1.25m(W)	95.00 kg

NOTE: The QM9025 package includes one mounting kit in the price.
Please order a suitable roof rack mounting option from the table below.

ML-91 NVIS Roof Rack Mounting Options Ordering Information

QM3100	Roof Rack Mounting Hardware - Gutter mount	0.00 kg
QM3101	Roof Rack Mounting Hardware - Existing mounting track	0.00 kg
QM3102	Roof Rack Mounting Hardware - Concealed gutter door jam	0.00 kg
QM3103	Roof Rack Mounting Hardware - Track installation and mounting feet	0.00 kg

Frequency Hopping/Encryption Options

QM9061	Frequency Hopping Option	0.05 kg
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NOTE: The Frequency Hopping and Encryption options are subject to Australian Defence Export Controls and a signed End User Declaration must be provided..

Miscellaneous Options/Accessories

QM7602	ML-91/ML-91 Modification from 12 Volt version to 24 Volt version Handset Upgrade to military DTMF telephone	0.00 kg
QM9057	handset	0.20 kg

Due to receive characteristics of the ML-91 loop antenna, there is limited frequency range compatibility with the Frequency Hopping Option. The Q-MAC Electronics Pty Ltd ML-91 Vehicle Roof Rack Magnetic Loop Antenna System is protected in design by Australian Patent No 2001100423.

3.3.2 QM9015 HF-90 Vehicle Package (Whip Antenna)

CONVENTIONAL HF VEHICLE INSTALLATION

The Q-MAC HF-90 Vehicle Package is a HF SSB radio communication system designed for long-range mobile applications. The small footprint of the HF-90 transceiver makes it ideal for dashboard mounting, simplifying installation by eliminating the requirement to mount a separate control head or run control cabling to a remote control head.

Q-MAC's HF-90 Vehicle Package with whip antenna is ideal for humanitarian agencies; border patrol; police; environmental conservation groups; search and rescue operations; and mining vehicles.

Includes:

- HF-90 Transceiver (with DTMF microphone and DC power cable)
- Field Programming, Selcall, Beacon, Scanning and Telcall.
- Vehicle installation Kit, Mounting Cradle & External Mount Speaker (with audio mute facility)
- TA-90 Auto-Tune Antenna System
- TA-90 Mounting Hardware

Compatible with HF-90 Frequency Hopping Option/Upgrades in Frequency Range approximately 4-20 MHz.

Specify standard 12V package or 24V modification (QM7601) at time of order.



QM9015 VEHICLE PACKAGE ORDERING INFORMATION

Stock Code	Description	Weight
QM9015	HF Vehicle Transceiver Package	9.55 kg

Recommended Options/Upgrades

QM4027	Upgrades to Standard Speaker to DSP Noise Reduction External Loudspeaker	0.00 kg
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These options are the most commonly ordered options and recommended by Q-MAC to provide a comprehensive solution for most Vehicle applications.

Frequency Hopping/Encryption Options

QM9061	Frequency Hopping Option - Also requires an Advanced Option (see 2.10)	0.05 kg
NOTE:	The Frequency Hopping and Encryption options are subject to Australian Defence Export Controls and a signed End User Declaration must be provided.	

Miscellaneous Options/Accessories/Spares

QM9057	Handset Upgrade to military DTMF telephone handset	0.20 kg
QM9061	Frequency Hopping Option - Also requires an Advanced Option (see 2.10)	0.05 kg
QM9080	Field Data Terminal - Tactical messaging terminal (see 2.6.1. for more options)	1.00 kg
QM7601	TA-90 Modification from 12 Volt version to 24 Volt	0.00 kg
QM4051	CW Options & Telegraph Key	0.45 kg

2.4

PORTABLE PACKAGES

2.4.1 QM9023 HF-90 MiniPack

A HF RADIO SYSTEM IN A SMALL PORTABLE PACKAGE

The Q-MAC HF-90 MiniPack is the world's smallest high-power (50W) portable HF SSB radio communications system. The entire package, comprising transceiver, microphone, broadband antenna system and battery system, is contained within a rugged Pelican® Case. When closed, the package is fully waterproof (submersible) and is easily carried by hand, on the back of a motorcycle, on a boat, or even by pack animal.

Q-MAC's HF-90 Minipack Package is ideal for a variety of applications including international aid projects; mineral exploration; search and rescue; conservation and wildlife; forestry management; and remote area 4WD use. Its small size also makes it useful for covert operations.

Includes:

- HF-90 Transceiver
- Field Programming, Selcall, Beacon, Scanning and Telcall.
- Speaker Microphone with DTMF Keys
- MiniPack Broadband Antenna
- AC Mains Charger - Specify plug type (see section 2.14.10.1)
- MiniPack Rechargeable SLA Battery (4 Ah) with Power Cable
- Pelican® 1200 Case



QM9023 MINIPACK PACKAGE ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>	<u>Weight</u>
QM9023	Standard MiniPack Package - Pelican hard case; Including battery	3.65 kg

Recommended Options/Upgrades

QM8024	DC Charger - For vehicle charging	0.30 kg
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These options are the most commonly ordered options and recommended by Q-MAC to provide a comprehensive solution for most Portable applications.

Frequency Hopping/Encryption Options

QM9061	Frequency Hopping Option	0.05 kg
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NOTE: The Frequency Hopping and Encryption options are subject to Australian Defence Export Controls and a signed End User Declaration must be provided.

Miscellaneous Options/Accessories

QM9057	Handset Upgrade to military DTMF telephone handset	0.20 kg
QM8021	Solar Panel Charger - Fold up	1.30 kg
QM8035	Hand Crank Generator	2.70 kg
QM8004	MiniPack Rechargeable Battery	1.20 kg
QM9080	Field Data Terminal - Tactical messaging terminal (see 2.6.1 for more options)	1.00 kg
QM4051	CW Options & Telegraph Key	0.45 kg

2.4.2 QM9012 HF-90 Portable Package

A HF RADIO SYSTEM IN A COMPACT PORTABLE PACKAGE

Description:

The Q-MAC HF-90 Portable Package is designed for applications where the operator requires reliable long distance communications in a compact portable base format. It is simple to use and fully self contained, incorporating its own rechargeable battery system and a simple roll-out antenna for rapid deployment.

Applications:

The Q-MAC HF-90 Portable Package is ideal for a variety of applications including international aid projects; mineral exploration; search and rescue operations; conservation and wildlife applications; forestry management; and remote area 4WD use.

Includes:

- HF-90 Transceiver (with DTMF microphone)
- Field Programming, Selcall, Beacon, Scanning and Telcall.
- Portable Broadband Antenna (STD version) and Deployment Accessories
- Rechargeable Battery (7 Ah), Power Cable and Battery Condition Monitor
- AC Mains Charger - Specify plug type (see section 2.14.10.1)
- Hard Carry Case with Built-In Speaker and Audio Mute Facility



QM9012 PORTABLE PACKAGE ORDERING INFORMATION

Stock Code	Description	Weight
QM9012	Standard Portable Package - Grey hard case; Including battery	8.10 kg
QM9012b	Standard Portable Package - Grey hard case; Not including battery	5.55 kg

Recommended Options/Upgrades

QM8024	DC Charger - For Vehicle Charging	0.30 kg
QM4027	Upgrades to Standard Speaker to DSP Noise Reduction External Loudspeaker	0.00 kg

These options are the most commonly ordered options and recommended by Q-MAC to provide a comprehensive solution for most Portable applications.

Frequency Hopping/Encryption Options

QM9061	Frequency Hopping Option - Also requires an Advanced Option (see 2.10)	0.05 kg
NOTE:	The Frequency Hopping and Encryption options are subject to Australian Defence Export Controls and a signed End User Declaration must be provided.	

Miscellaneous Options/Accessories

QM9057	Handset Upgrade to military DTMF telephone handset	0.20 kg
QM9061	Frequency Hopping Option - Also requires an Advanced Option (see 2.10)	0.05 kg
QM8021	Solar Panel Charger - Fold up	1.30 kg
QM8035	Hand Crank Generator	2.70 kg
QM8011	Rechargeable 7Ah SLA Spare Battery	2.55 kg
QM9080	Field Data Terminal - Tactical messaging terminal (see 2.6.1 for more options)	1.00 kg
QM4051	CW Options & Telegraph Key	0.45 kg

2.4.3 QM9027 HF-90 1st Responders Communication Pack

A HF RADIO SYSTEM FOR 1st RESPONDERS

The Q-MAC HF-90 1st Responders Communication Pack is designed for applications in disaster relief where a scoping team is sent immediately following a disaster. The pack is designed to be accepted as on-board luggage on most commercial airline carriers. The pack has essential equipment to set up a Manpack and a base station. It is simple to use and fully self contained, incorporating AC, DC and Solar charging systems.

Applications:

The Q-MAC HF-90 1st Responders Pack is ideal for a variety of applications including international aid projects; search and rescue; conservation and wildlife operations; forestry management; and remote area use where flexibility and mobility is required.

Includes:

- 1 x Standalone HF-90 Transceivers (with DTMF microphone) and Field Programming, Selcall, Beacon, Scanning and Telcall.
- 1 x Complete QM9009 Manpack
- 2 x Rechargeable Batteries (7 Ah), Power Cable and Battery Condition Monitor
- 1 x Fold Up Solar Panel Battery Charger
- 2 x DC Step Up Battery Charger
- 1 x AC Mains Charger 110-240V
- 1 x AC Multi Plug International Adaptor
- 3 x Portable End-Fed Broadband Antenna
- 1 x External Loudspeaker with Voice Squelch
- 1 x Battery Condition Monitor
- 1 x Hard Pelican Flight Case



QM9021 PORTABLE PACKAGE ORDERING INFORMATION

Stock Code	Description	Weight
QM9027	1 st Responders Communication Pack	30.00 kg
Frequency Hopping/Encryption Options		
QM9061	Frequency Hopping Option - Also requires an Advanced Option (see 2.10)	0.05 kg
NOTE:	The Frequency Hopping and Encryption options are subject to Australian Defence Export Controls and a signed End User Declaration must be provided.	
Miscellaneous Options/Accessories		
QM9057	Advanced Option 7 - Software and military DTMF telephone handset	0.20 kg
QM8035	Hand Crank Generator	2.70 kg
QM9080	Field Data Terminal - Tactical messaging terminal (see 2.6.1. for more options)	1.00 kg
QM4051	CW Options & Telegraph Key	0.45 kg

2.5

BASE STATION PACKAGES

2.5.1 QM9020 HF-90 Integrated Base Station

AN INTEGRATED HF-90 TRANSCEIVER BASE STATION

The Q-MAC HF-90 Integrated Base Station is ideal for fixed base and rapid deployment of a field base station. The main components, including transceiver, standby battery and power supply, are all contained in an integrated housing.

The Q-MAC HF-90 Base Station Package is ideal for regional offices, temporary base stations and logistics applications in remote areas where power disruption is expected.

Includes:

- HF-90 Transceiver
- Fist Microphone including DTMF Keypad
- Field Programming, Selcall, Beacon, Scanning and Telcall.
- Panel Mounted Speaker (with audio mute facility)
- AC Mains Power Supply Unit (with battery backup facility)
- Rechargeable Battery (7 Ah)
- Fixed Broadband Dipole Antenna - multi wire (QM7002)
- Halyard Kit
- Lightning Surge Arrestor Kit



QM9020 BASE STATION PACKAGE ORDERING INFORMATION

Stock Code	Description	Weight
QM9020	Integrated Base Station	42.00 kg
NOTE:	Please also order an IEC mains cable to suit your region. Refer to section 2.14.10.2 for details. One cable is included in the package price.	0.05 kg

Recommended Options/Upgrades

QM4026	Upgrades to Standard Speaker to DSP Noise Reduction Loudspeaker	0.00 kg
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These options are the most commonly ordered options and recommended by Q-MAC to provide a comprehensive solution for most Base Station applications.

Frequency Hopping/Encryption Options

QM9061	Frequency Hopping Option - Also requires an Advanced Option (see 2.10)	0.05 kg
NOTE:	The Frequency Hopping and Encryption options are subject to Australian Defence Export Controls and a signed End User Declaration must be provided.	

Miscellaneous Options/Accessories

QM9057	Handset Upgrade to military DTMF telephone handset	0.20 kg
QM8011	Rechargeable 7Ah SLA Spare Battery - Internal Back Up Battery Replacement	2.55 kg
QM9080	Field Data Terminal - Tactical messaging terminal (see 2.6.1. for more options)	1.00 kg
QM4051	CW Options & Telegraph Key	0.45 kg

2.5.2 QM9024 HF-90 High Powered 500W Base Station Package

A FIXED HF-90 TRANSCEIVER WITH THE 500W OUTPUT POWER

The Q-MAC HF-90 500W Base Station Package is designed for strategic communications in fixed base station use. It includes a HF-90 transceiver coupled with solid state, 500 Watt amplifier and power supply, all contained in a versatile 19" equipment rack with casters.

The Q-MAC HF-90 500W Base Station Package is ideal for national and regional headquarters; embassies; as well as military and border patrol applications. With the HF-90 Frequency Hopping Option, secure HF networks can be implemented.

Includes:

- HF-90 Transceiver with Field Programming, Selcall, Beacon, Scanning and Telcall.
- 19" 10RU Equipment Rack & Hardware
- Panel Mounted Speakers (with audio mute facility)
- AC Mains Power Converter Unit 70A/ 16V DC
- 500W Amplifier with Fan Kit
- Desktop Pedestal DTMF Microphone
- Headphones
- 3 Wire Centre-Fed Broadband Dipole Antenna (QM7003)
- 50m RG213 Coax Cable
- Halyard Kit
- Lightning Surge Arrestor Kit



QM9024 BASE STATION PACKAGE ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>	<u>Weight</u>
QM9024	500W High Power Base Station	65.00 kg
NOTE:	Please also order an IEC mains cable to suit your region. Refer to section 2.14.10.2 for details. One cable is included in the package price.	0.05 kg
Recommended Options/Upgrades		
QM4026	Upgrade to DSP Noise Reduction Loudspeaker	0.00 kg
These options are the most commonly ordered options and recommended by Q-MAC to provide a comprehensive solution for most Base Station applications.		
Frequency Hopping/Encryption Options		
QM9061	Frequency Hopping Option - Also requires an Advanced Option (see 2.10)	0.05 kg
NOTE:	The Frequency Hopping and Encryption options are subject to Australian Defence Export Controls and a signed End User Declaration must be provided.	
Miscellaneous Options/Accessories		
QM9080	Field Data Terminal - Tactical messaging terminal (see 2.6.1. for more options)	1.00 kg
QM4051	CW Options & Telegraph Key	0.45 kg

2.6

DATA PRODUCTS

2.6.1 QM9080 Field Data Terminal

A DATA UNIT FOR SIMPLE MESSAGING WITHOUT A PC

Description:

The Field Data Terminal (FDT) is a hand held device that provides error free transmission of text based messages by the HF-90. The FDT is ideal for tactical applications where text based messaging is required in a simple, easy to use format. The FDT is light weight, self contained and does not require a PC or radio modem. The FDT can be optioned with a GPS receiver to send and receive co-ordinates. The FDT can also be upgraded to encrypt messages to military standards.



Compatibility:

QM9080 FDT is compatible with all HF-90 packages.

Includes:

- Field Data Terminal
- Carry Pouch
- Connection Cable to HF-90
- Quick Reference Card
- Mag Light Torch, 1 x 9V Battery and 2 x AA Batteries for night operations

QM9080 FIELD DATA TERMINAL ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>	<u>Weight</u>
QM9080	Field Data Terminal	1.00 kg
Miscellaneous Options/Upgrades		
QM9080C	Cryptographic Option - For securing message with a key	0.01 kg
QM9080G	GPS Option - Includes GPS receiver and software	0.50 kg
NOTE:	The Cryptographic Option is subject to Australian Defence Export Controls and a signed End User Declaration must be provided for supply of this option.	

2.7

DISASTER RESPONSE PACKAGE

2.7.1 QM9022 HF-90 Disaster Response Package

A MULTIPLE APPLICATION SOLUTION

The Q-MAC HF-90 Disaster Response Package (DRP) is a transportable "all in one" package incorporating three Q-MAC HF-90 transceivers. Along with the 3 x HF-90's, the package contains a variety of antennas; power supplies; charger systems; carry packs and cases; and mounting accessories. Using the DRP, the operator has the choice of setting up either a Manpack, Portable, Vehicle or Base Station system in a network.

Applications:

The Q-MAC HF-90 Disaster Response Package is ideal for humanitarian, emergency service and peace keeping organisations which need to cater for unpredictable conditions.

Includes:

- 3x HF-90 Transceiver with Field Programming, Selcall, Beacon, Scanning and Telcall. (incl. DTMF microphone)
- TM-90 Manual Tuner (with coaxial & earth cables)
- Long Wire Antenna Kit
- Collapsible Whip Antenna (6-section)
- Extender Coil Section
- Collapsible Whip Antenna (2-section)
- Portable Broadband Antenna
- TA-90 Tuner (with mounting kit)
- Vehicle Whip Antenna (split configuration)
- 2 x SLA Rechargeable Battery (7 Ah)
- 1 x Battery Condition Monitor
- 2 x DC Power Cable (Manpack/Portable use)
- 2 x DC Power Cable (Vehicle/Base Station use)
- AC Mains Power Supply Unit
- DC Step-Up Battery Charging Device
- AC Mains Charger (2A)
- Fold-Up Solar Panel Charger
- AC Multi-Adaptor (Australian, European, UK & US plugs)
- Hard Carry Case
- Canvas Backpack (with support stakes)
- Vehicle Installation Kit
- DTMF Speaker Microphone (spare)
- Q-MAC Aluminium Road Case (with combination lock)

Additional transceivers and/or accessories can be added as required.

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>	<u>Weight</u>
QM9022	Disaster Response Package - Includes three HF-90 transceivers	50.00 kg

Frequency Hopping/Encryption Options

QM9061	Frequency Hopping Option (One required per radio)	0.05 kg
NOTE:	The Frequency Hopping and Encryption options are subject to Australian Defence Export Controls and a signed End User Declaration must be provided.	

Miscellaneous Options/Accessories

QM9057	Handset Upgrade to military DTMF telephone handset	0.20 kg
QM4051	CW Options & Telegraph Key	0.45 kg



2.8

HF-90 TRANSCEIVER STANDALONE & OPTIONS

2.8.1 QM9001 HF-90 Transceiver

SPARE TRANSCEIVER TO MAKE UP ADDITIONAL PACKAGES

Includes:

- 2-30 MHz Frequency Coverage
- 50 Watt PEP Power Output
- 12V - 24V Operating Voltage
- 255 Programmable Channels
- USB/LSB Function
- Tune Function
- Clarifier
- Rx Signal Strength Indicator
- Erase Facility
- 6 Digit LED Display
- Speaker Microphone with DTMF and Field Programming, Selcall, Beacon, Scanning and Telcall.
- HF-90 Operation & Installation Guide



ORDERING INFORMATION

Stock Code	Description	Weight
QM9001	Standard HF-90 - Includes QM5001 DC power cable to suit vehicle or kit base station applications	2.05 kg
QM9001b	Standard HF-90 - Includes QM5002 DC power cable to suit portable and manpack applications	1.55 kg

Software/Handset Options

QM9057	Handset Upgrade to military DTMF telephone handset	0.20 kg
QM9058	Handset Upgrade to DTMF desktop pedestal microphone	0.20 kg

Frequency Hopping/Encryption Options

QM9061	Frequency Hopping Option - Also requires an Advanced Option (see 2.10)	0.05 kg
NOTE:	The Frequency Hopping and Encryption options are subject to Australian Defence Export Controls and a signed End User Declaration must be provided.	

Miscellaneous Options/Accessories

QM9090	Custom Option - HF-90 power reduction to 20 Watts	0.01 kg
QM9091	Custom Option - HF-90 3kHz filter option for data transmission	0.01 kg
QM4051	CW Options & Telegraph Key	0.45 kg

2.9

HF-90 FREQUENCY HOPPING OPTIONS

2.9.1 QM9061 HF-90 Frequency Hopping Option (Factory Fitted)

MILITARY STANDARD PROTECTION AGAINST INTERCEPT AND JAMMING

Includes:

- 5 or 10 Hops per second
- 256 kHz Bandwidth (1 kHz spacing)
- Synchronization Time of 25 seconds (average)
- Pseudo-Random Hopping Sequence
- HF-90 Frequency Hopping User Guide



ORDERING INFORMATION

Weight

Frequency Hopping Option QM 9061 - Factory fitted upgrade	0.05 kg
Frequency Hopping Option QM 9062 - Field upgrade; Includes firmware and extraction tool required to upgrade a HF-90 with serial number >3500	0.15 kg

NOTE: The Frequency Hopping Option is subject to Australian Defence Export Controls and a signed End User Declaration must be provided.

2.10 ADVANCED OPTIONS - UPGRADES

Upgrade options only.

To purchase handsets as stand alone items for spare parts, please refer to the separate section on Handsets, (see 2.14 Other Parts & Accessories).

2.10.1 QM9057 Handset Upgrade

UPGRADE TO DTMF MIL-STD TELEPHONE HANDSET

Description:

Replaces standard microphone with a DTMF military standard telephone handset with a commercial connector (QM4015).

Compatibility:

Advanced Option 7 is suited to all commercial QM90xx HF-90 packages.



ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM9057	Handset Upgrade to military DTMF telephone handset upgrade

Weight
0.20 kg

2.10.2 QM9058 Pedestal Mic Upgrade

UPGRADE TO DTMF DESKTOP MICROPHONE

Description:

Replaces standard microphone with a DTMF Desktop gooseneck microphone with commercial connector (QM4006).

Compatibility:

Advanced Option 8 is suited to QM9018, QM9020 and QM9024 HF-90 packages.



ORDERING INFORMATION

Stock Code Description

QM9058 DTMF desktop pedestal microphone upgrade

Weight
0.20 kg

2.10.3 HF-90 Package Options Matrix

USE THIS TABLE TO CLARIFY WHICH ADVANCED OPTIONS CAN BE ADDED TO Q-MAC'S HF-90 PACKAGES

Package Part Number and Description	Handset Upgrade #
QM9012 Portable Package	7
QM9013 Manpack Package	7
QM9015 Vehicle Package (Whip Antenna)	7
QM9018 Base Station Package	7, 8
QM9020 Integrated Base Station	7, 8
QM9022 Disaster Response Package	(dependent on configuration)
QM9023 MiniPack	7, 8
QM9024 High Powered 500 Watt Base Station Package	7
QM9025 ML-91 NVIS Roof Rack Antenna Vehicle Package (fixed)	

Although Advanced Options 7 may be used in all packages noted above, under typical operating conditions they are not normally used with packages that include external speakers.

2.11 ANTENNA SYSTEMS

2.11.1 NVIS Roof Rack Antenna Systems

2.11.1.1 QM7126 ML-91 Auto-Tuning Antenna System (Rack and Tuner) for HF-90 50W System and 3rd Part transceivers from Codan™, Barrett Communications™ and Icom™.

INNOVATIVE VEHICLE HF COMMUNICATION SOLUTION

Description:

The Q-MAC ML-91 Roof Rack Antenna Package is ideal for NVIS propagation or applications requiring constant coverage for distances of 0-1000km. The ML-91 Package provides significantly more gain than conventional whip antenna systems. The ML-91 is optimised for use in frequencies between 3.6-14MHz.

The Q-MAC ML-91 NVIS Roof Rack Antenna Package is ideal for humanitarian aid and relief agencies; border patrol; police; environmental conservation groups; search and rescue operations; and mining vehicles. The ML-91 outperforms whip systems in mountains and valleys where NVIS propagation is essential. The ML-91 is also very effective at overcoming the 'Skip Zone' common with whip antenna systems.

Includes:

Roof Rack fully-automatic antenna tuner, complete with rack mounting bracket, cables and ML-91 Tuner. Allows efficient operation between 3.6-14MHz. *Specify standard 12V system or 24V modification (QM7602) at time of order.*

Compatibility:

- Suitable for use with the Q-MAC HF-90 transceiver (*not included*)
- Suitable for use with most Codan™, Barrett Communications™ and Icom™ transceivers (*not included*) (*Other transceivers available on application*)
- Limited frequency range compatibility with Frequency Hopping Option

ORDERING INFORMATION

Stock Code	Description	Weight
QM7126-002	ML-91 Auto-tuning Antenna System Standard Size 1.8m(L) x 1.25m(W) – 12V DC Q-MAC, Codan, Barrett and Icom Transceivers Only	
QM7126-001	ML-91 Auto-tuning Antenna System Short Size 1.5m(L) x 1.25m(W) - 12V DC Q-MAC, Codan, Barrett and Icom Transceivers Only	105.00 kg
QM7126-004	ML-91 Auto-tuning Antenna System Standard Size 1.8m(L) x 1.25m(W) - 24V DC Racal Transceiver Only	90.00 kg
QM7126-003	ML-91 Auto-tuning Antenna System Short Size 1.5m(L) x 1.25m(W) - 24V DC Racal Transceiver Only	105.00 kg
NOTE:	The QM7126-xxx includes a mounting kit and control cable in the package. Please specify a Mounting Option and Control Cable when ordering from the tables below.	90.00 kg
		0.00 kg

ML-91 NVIS Roof Rack Control Cable Options Ordering Information

QM5114	ML-91 to Barrett Transceiver Control Cable	
QM5113	ML-91 to Codan Transceiver Control Cable	
QM5115	ML-91 to Icom Transceiver Control Cable	0.00 kg
QM5157M-6.0M	Cable PL-259 to BNC for Codan, Icom and Barrett Transceivers	0.00 kg
		0.00 kg

ML-91 NVIS Roof Rack Mounting Options Ordering Information

QM3100	Roof Rack Mounting Hardware - Gutter mount	
QM3101	Roof Rack Mounting Hardware - Existing mounting track	
QM3102	Roof Rack Mounting Hardware - Concealed gutter door jam	0.00 kg
QM3103	Roof Rack Mounting Hardware - Track installation and mounting feet	0.00 kg
		0.00 kg

ML-91 NVIS Roof Rack Spare Parts

QM5078	ML-91 DC Feed Adaptor Cable - Cable to connect old version HF-90s (without DC feed on antenna socket) to current model ML-91	0.30 kg
95312	ML-91 Replacement Antenna Element - Replacement for damaged folding antenna element	5.00 kg
QM5059	ML-91 Replacement Cable ATU to Ground - Replacement cable to connect automatic antenna tuning unit to ground connection point	1.00 kg
QM5062	ML-91 Replacement High Voltage Cable - Replacement cable to connect automatic antenna tuning unit to antenna	1.00 kg
QM5076	ML-91 Replacement Cable ATU to Feed Box - Replacement cable to connect automatic antenna tuning unit to RF/DC feed box	1.00 kg
95319	ML-91 Wind Deflector Replacement Part	10.00 kg
QM7125-001	ML-91 Automatic Antenna Tuner Unit Only 12V - As supplied with QM7126-002/1	4.50 kg
QM7125-002	ML-91 Automatic Antenna Tuner Unit Only 24V - As supplied with QM7126-004/3	4.50 kg
QM7123	ML-91 Antenna Feed Box Only - As supplied with QM7126 ML-91 NVIS antenna system	1.50 kg



2.11.2 Vehicle Whip Antenna Systems

2.11.2.1 QM7112 TA-90 Auto-Tune Antenna System

Description:

Compact, fully-automatic antenna tuner in robust metal housing. Designed specifically for use with the Q-MAC HF-90 Transceiver, allowing it to deliver maximum power to a range of short whip or wire antennas. Allows efficient operation between 2-20 MHz. As supplied with the HF-90 Vehicle Package.

Compatibility:

Compatible with HF-90 Frequency Hopping Option/Upgrades in the frequency range approximately 4 to 20 MHz.

Includes:

- Die-Cast Metal Housing
- Heavy-Duty Mounting Bracket
- Pair of 45mm C-clamps
- Pair of 50mm C-clamps
- Cables
- Continuously Loaded Fibreglass Whip Antenna (1/2" BSW base)

Specify standard 12V system or 24V modification (QM7601) at time of order.



QM7112 TA-90 AUTO TUNE ANTENNA SYSTEM ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>	<u>Weight</u>
QM7112	TA-90 Tuner system - Complete with antenna and mounting brackets	5.50 kg
Spares and Accessories Ordering Information		
QM7121	TA-90 Tuner (12V Version) - Supplied complete with mounting bracket assembly; As supplied with the TA-90 auto-tune antenna system	2.40 kg
QM7121a	TA-90 Tuner (24V Version) - Supplied complete with mounting bracket assembly; As supplied with the TA-90 auto-tune antenna system	2.40 kg
QM5021	HF-90 to TA-90 Coaxial Cable	0.25 kg
QM5053	High Voltage Antenna Feed Cable - Translucent high voltage cable (500mm), lugs and convoluted split tubing; As supplied with the TA-90 Mounting Kit	0.05 kg
QM5043	TA-90 Power Cable - Supplied complete with lugs and plastic connectors for fitting to HF-90 Transceiver power cable (QM5001); As supplied with the TA-90 Mounting Kit	0.25 kg
QM6071	TA-90 Mounting Kit - Includes all items as supplied with TA-90 Auto-tune Antenna System minus the TA-90 Tuner and Continuously Loaded Whip Antenna (above)	2.45 kg
QM7601	TA-90 Modification from 12 Volt version to 24 Volt version - Used with QM9015	0.00 kg
QM7131	Continuously Loaded Whip Antenna - Rugged fibreglass construction with 1/2" BSW base; As supplied with the TA-90 Auto-tune Antenna System	0.65 kg
QM7133	Continuously Loaded Whip Antenna (Split Configuration) - Rugged fibreglass construction with 1/2" BSW base; Comprises two separate parts that screw together for easy storage; Designed for use with the TA-90 Tuner; As supplied with the HF-90 Disaster Response Package	0.80 kg
QM7136	Antenna Base Assembly - High voltage insulator base (150 mm); As supplied with the TA-90 Mounting Kit	0.65 kg
QM7137	C-Clamps 60mm - To fix TA-90 Mounting Plate to larger diameter bull-bar	0.30 kg
QM7801	Heavy Duty Antenna Base and Spring - Suits manual-tap whip antennas; Stainless steel construction	1.50 kg
QM7810	Antenna Spring - Spring only, As supplied in the TA-90 Mounting Kit	1.35 kg

The TA-90 (12V & 24V) is partially compatible with HF-90 Frequency Hopping Option/Upgrades from approximately 4 to 20 MHz.

2.11.3 Portable/Manpack Antenna Systems

2.11.3.1 QM2001 TM-90 Manual Tuner

Description:

Single-control tuner, incorporating LED tuning indicators. Supplied with coaxial and earth leads. As supplied with the HF-90 Manpack Package.

Compatibility:

The TM-90 suits collapsible whip, tape and long wire antennas.



ORDERING INFORMATION

Stock Code	Description
QM2001	TM-90 Manual Tuner

Weight
0.90 kg

2.11.3.2 QM2101 TA-99 Automatic Tuner

Description:

Automatic antenna tuning unit, incorporating LED tuning indicator. Supplied with spare coaxial cable.

Compatibility:

The TA-99 suits collapsible whip, tape and long wire antennas. Suitable for the HF-90 Manpack Package. Not suitable for the Portable Package.



ORDERING INFORMATION

Stock Code	Description
QM2101	TA-99 Automatic Tuner

Weight
0.90 kg

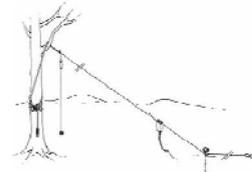
2.11.3.3 QM7005 Portable Broadband Antenna (Standard Version)

Description:

End-fed broadband antenna, 2-30 MHz, 50 Watt rating, made from insulated wire (for easy handling), incorporating counterpoise and earth-clip, complete with 5m RG-58 coaxial cable with connectors, throw cords and earth stake. The antenna is supplied on a shuttle for easy deployment and storage.

Compatibility:

As supplied standard with the HF-90 Portable Package. Available as an option for the Manpack Package.



ORDERING INFORMATION

Stock Code	Description
QM7005	Portable Broadband Antenna - Standard version

Weight
1.25 kg

2.11.3.4 QM7020 MiniPack Broadband Antenna - Spares Kit

Description:

The QM7020 MiniPack Broadband Antenna Spares Kit is not a complete independent antenna system. It requires the matching transformer box and coaxial connection, supplied as part of the mounting bracket within the HF-90 MiniPack.

Includes:

- End-fed Broadband Antenna, 2-30 MHz, 100 Watt rating, made from light-gauge insulated wire, supplied on slim-line reel
- Miniature Counterpoise with Earth Clip
- Earth Stake



ORDERING INFORMATION

Stock Code	Description
QM7020	MiniPack Broadband Antenna - Spares kit

Weight
0.20 kg

2.11.3.5 QM7301 Collapsible Whip Antenna (6-Section)

Description:

High efficiency collapsible six section whip antenna (3m). As supplied with the HF-90 Manpack. The collapsed length of the antenna is 500mm.

Frequency Coverage:

With TM-90 Manual Tuner: 3.6-10MHz
With TA-99 Automatic Tuner: 2-26MHz
With TA-99 & Frequency Hopping: 4-26MHz

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM7301	Collapsible Whip Antenna (6-section)



Weight
0.30g

2.11.3.6 QM7302 Collapsible Whip Antenna (2-Section)

Description:

Collapsible two section whip antenna (1m), complete with flexible goose neck. The collapsed length of the antenna is 495mm.

Frequency Coverage:

With TM-90 Manual Tuner: 4-12.9 MHz
Automatic Tuner: 3.5-26MHz

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM7302	Collapsible Whip Antenna (2-section)



Weight
0.20 kg

2.11.3.7 QM7303 Collapsible Whip Antenna (8-Section)

Description:

High efficiency collapsible eight-section whip antenna (3m). The collapsed length is 390mm.

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM7303	Collapsible Whip Antenna (8-section)



Weight
0.30 kg

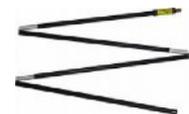
2.11.3.8 QM7304 Collapsible Whip Antenna (4-section)

Description:

Collapsible four section whip antenna (1m), complete with flexible goose neck. The collapsed length is 335mm.

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM7304	Collapsible Whip Antenna (4-section)



Weight
0.20 kg

2.11.3.9 QM7305 Tape Whip Antenna

Description:

Flexible tape whip antenna (1m) complete with flexible goose neck. Suitable for use in jungle and forestry areas.

Frequency Coverage:

With TM-90 Manual Tuner: 4-12.9 MHz
Automatic Tuner: 3.5-26MHz

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM7305	Tape Whip Antenna (1m)



Weight
0.20 kg

2.11.3.10 QM7310 Long Wire Antenna Kit

Description:

Suitable for use with the TM-90 Manual Tuner and TA-99 Automatic Tuner as a rapid-use antenna system. As supplied with the HF-90 Manpack.

Frequency Coverage:

With TM-90 Manual Tuner: 2.5-10 MHz; With TA-99 Automatic Tuner: 2-20 MHz

Includes:

- Long Wire Antenna (7m)
- Counterpoise (5m)
- Long Wire Antenna Adaptor (fits TM-90 and TA-99 tuners)
- Throw Rope



ORDERING INFORMATION

Stock Code	Description
QM7310	Long Wire Antenna Kit

Weight
0.45 kg

2.11.4 Base Station Antenna Systems

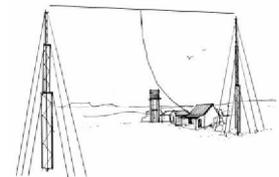
2.11.4.1 QM7001 Fixed Broadband Dipole Antenna - Single Wire

Description:

Single wire centre-fed broadband dipole, 2-30 MHz, 130 Watt Data, 250 Watt Voice, PEP rating, stainless steel construction, complete with 30 metres RG-58 coaxial cable with connectors. Simple installation.

Includes:

Includes Halyard Kit. *Not supplied with installation accessories such as poles/masts.*



ORDERING INFORMATION

Stock Code	Description
QM7001	Fixed Broadband Dipole Antenna - Single wire

Weight
3.00 kg

2.11.4.2 QM7022 Mast Kit for Broadband Dipole Antenna

Description:

Mast kit to suit portable use of single wire broadband dipole antenna.

Includes:

Comes with canvas bag. *Not supplied with installation accessories such as poles/masts.*

ORDERING INFORMATION

Stock Code	Description
QM7022	Mast Kit for Broadband Dipole Antenna

Weight
13.00 kg

2.11.4.3 QM7002 Fixed Broadband Dipole Antenna - Multi Wire

Description:

3-wire centre-fed broadband dipole, 2-30 MHz, 130 Watt Data, 250 Watt Voice rating, stainless steel construction with fibreglass spreaders complete with 30 metres RG-58 coaxial cable with connectors. As supplied with the HF-90 Base Station Package.

Includes:

Includes parts and instructions to mount in horizontal or inverted V configurations. Includes Halyard Kit. *Not supplied with installation accessories such as poles/masts.*



ORDERING INFORMATION

Stock Code	Description
QM7002	Fixed Broadband Dipole Antenna - Multi wire

Weight
12.00 kg

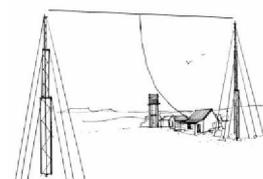
2.11.4.4 QM7003 Fixed Broadband Dipole Antenna - Multi Wire High Power

Description:

3-wire centre-fed broadband dipole, 2-30 MHz, 500 Watt Data, 1000 Watt Voice rating, stainless steel construction with fibreglass spreaders complete with 30 metres RG-58 coaxial cable with connectors. As supplied with the HF-90 High Power Base Station Package.

Includes:

Includes parts and instructions to mount in horizontal or inverted V configurations. Includes Halyard Kit. *Not supplied with installation accessories such as poles/masts.*



ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM7003	Fixed Broadband Dipole Antenna - Multi wire high power

Weight
18.00 kg

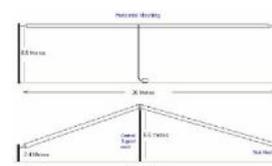
2.11.4.5 QM7004 Fixed Terminated Folded Dipole Broadband Antenna

Description:

Folded Dipole Broadband Antenna 5-18 MHz, 100 Watt Data, 150 Watt Voice rating, stainless steel construction with UV resistant spreaders complete with 30 metres RG-58 coaxial cable with connectors.

Includes:

Includes parts and instructions to mount in horizontal or inverted V configurations. Includes Halyard Kit. *Not supplied with installation accessories such as poles/masts.*



ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM7004	Fixed Terminated Folded Dipole Broadband Antenna

Weight
6.00 kg

2.11.4.6 QM7023 Lightning Surge Arrestor Kit

Description:

Ideal for protecting fixed 50Watt Base Station installations. As supplied in the HF-90 Base Station packages.

Includes:

- 1 x Surge Arrestor
- 1 x Earthing Rod, Cable Clamp and Earthing Strap
- 1 x 5m Coaxial Cable

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM7023	Lightning Surge Arrestor Kit

Weight
10.00 kg

2.11.4.7 QM7024 Lightning Surge Arrestor Kit - High Power Base

Description:

Ideal for protecting fixed 500Watt Base Station installations. As supplied in the high power Base Station packages.

Includes:

- 1 x Surge Arrestor
- 1 x Earthing Rod, Cable Clamp and Earthing Strap
- 1 x 5m Coaxial Cable

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM7024	Lightning Surge Arrestor Kit - High power base

Weight
10.00 kg

2.11.4.8 QM7021 Halyard Kit

Description:

Ideal for installing the QM7001, QM7002 and QM7003 Fixed Dipole Broadband Antennas. Included in QM7001, QM7002 and QM7003.

Includes:

- 2 x 30m UV-Stable Rope (6mm)
- 2 x Stainless Steel Pulleys
- 2 x Stainless Steel D Shackles

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM7021	Halyard Kit

Weight
0.60 kg

2.12 POWER SUPPLIES, CHARGERS & ACCESSORIES

2.12.1 QM8011 Rechargeable SLA Battery (7 Ah)

Description:

12V (nominal), 7 Ah, SLA gel battery. Classified as non-hazardous for freight purposes. As supplied with most HF-90 Manpack and Portable packages.



ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM8011	Rechargeable SLA Battery (7 Ah)

Weight
2.55 kg

2.12.2 QM8022 AC Mains Charger (2.2A)

Description:

Compact desktop unit to suit Q-MAC SLA Rechargeable Batteries - 115/230 Volt AC input, 12 Volt DC nominal, 2.2 Amp limited current, complete with charging status LED indicators and appropriate connector. Suits all HF-90 Manpack, MiniPack and Portable packages. Specify plug type.



Weight

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>	<u>Weight</u>
QM8022	AC Mains Charger (2.2A)	0.70 kg
NOTE:	Please also order an Figure 8 mains cable to suit your region. Refer to section 2.14.10.1. for details. One cable is included in the price of the QM8022	0.05 kg

2.12.3 QM8024 DC Step-Up Battery Charger

Description:

Suits Q-MAC SLA Rechargeable Batteries - Steps up battery voltage to 14.5 Volt for charging via a vehicle cigarette lighter socket. Complete with mating connector for HF-90 Manpack, Portable and MiniPack packages.



ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM8024	DC Step-Up Battery Charger

Weight
0.30 kg

2.12.4 QM8004 MiniPack Rechargeable Battery (4 Ah)

Description:

12V, 4 Ah (2 x 2 Ah batteries in parallel), sealed lead acid gel battery. Classified as non-hazardous for freight purposes. Supplied in custom packaging for ready connection to HF-90 Transceiver complete with DC power cable and connector for charging devices. As supplied with the HF-90 MiniPack.

Note: Price includes battery only (not items as pictured).

ORDERING INFORMATION

Stock Code	Description
QM8004	MiniPack Rechargeable Battery (4 Ah)



Weight
1.20 kg

2.12.5 QM8021 Fold-Up Solar Panel Charger

Description:

Suits Q-MAC SLA Rechargeable Batteries - 10.8 Watt rated power, complete with extension cable and appropriate connectors. The unit comprises five panels, which fold into a compact canvas pouch.

ORDERING INFORMATION

Stock Code	Description
QM8021	Fold-Up Solar Panel Charger



Weight
1.30 kg

2.12.6 QM8035 Hand Crank Generator (With Mounts)

Description:

Suits Q-MAC SLA Rechargeable Batteries - Output voltage between 13.8-16.2V, output current between 1.15-1.35A (assumes 60 RPM and 12 Ohm resistive load). Lightweight, yet built from high impact material to meet military standard 810.

Includes:

- Hand Crank Generator
- Canvas Bag
- Tripod
- Tree Mount (with strap)

ORDERING INFORMATION

Stock Code	Description
QM8035	Hand Crank Generator - With mounts



Weight
2.70 kg

2.13 CARRY PACKS & CASES

2.13.1 QM6001 Canvas Backpack - Standard

Description:

Custom designed backpack made from water resistant canvas, with fully padded and reinforced compartments to house the HF-90 and its accessories. Incorporates two stainless steel support stakes. As supplied with the HF-90 Manpack and HF-90 Portable packages.

Dimensions:

545H x 275W x 160D mm

ORDERING INFORMATION

Stock Code	Description
QM6001	Standard Backpack - Olive drab canvas



Weight
1.50 kg

2.13.2 QM6003 Canvas Backpack - Frame

Description:

Custom designed modular backpack supplied on a rugged frame. Made from water resistant canvas, with fully padded and reinforced compartments to house the HF-90 and its accessories. Modular format allows flexibility with respect to the configuration.

Dimensions:

510H x 400W x 300D mm (including frame and waist support)

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM6003	Frame Backpack - Olive drab canvas
QM6003B	Frame Backpack - Blue canvas



Weight

2.80 kg

2.80 kg

2.13.3 QM6014 Hard Carry Case

Description:

Custom designed weatherproof hard carry case with reinforced interiors. Extremely rugged and floatable. Incorporates speaker with audio mute facility mounted internally (under the lid) and earth lead (to TM-90 Tuner). As supplied with the HF-90 Portable Package.

Standard colour is grey. Other colours are available on request with a minimum order quantity of 50.

Dimensions:

320H x 275W x 205D mm

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM6014	Hard Carry Case



Weight

2.70 kg

2.13.4 QM6015 Rugged MiniPack Case

Description:

Extremely rugged and fully-waterproof (submersible) case. As supplied with the HF-90 MiniPack.

Dimensions:

Inside: 240H x 185W x 110D mm 273H

Outside: x 247W x 127D mm

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM6015	MiniPack Case - Black
QM6015Y	MiniPack Case - Yellow



Weight

0.80 kg

0.80 kg

2.13.5 QM6020 Aluminium Road Case

Description:

Custom designed weatherproof aluminium road case complete with compartments to house the HF-90 transceiver along with its many accessories. Supplied with a combination lock. As supplied with the HF-90 Disaster Response Package.

Dimensions:

280H x 680W x 780D mm

ORDERING INFORMATION

Stock Code	Description
QM6020	Aluminium Road Case



Weight
20.00 kg

2.14 OTHER PARTS & ACCESSORIES

2.14.1 Installation Accessories

2.14.1.1 QM6052 HF-90 Vehicle Installation Kit

Includes:

- Mounting Cradle
- External Mount Speaker with Audio Mute Facility
- Coaxial Cable (RG-58) with Connectors (4.5m)
- HRC Fuse (20 Amp) and Holder
- Battery Lugs (heavy duty), Cable Ties, Microphone Clip, Grommets and Self-Amalgamating Tape

As supplied with the HF-90 Vehicle Package.

Note:

DC power cable (QM5001) is not included with the HF-90 Vehicle Installation Kit. It is supplied together with the HF-90 Transceiver (QM9001) or on its own.



ORDERING INFORMATION

Stock Code	Description
QM6052	HF-90 Vehicle Installation Kit

Weight
1.30 kg

2.14.1.2 QM6061 Mounting Cradle

Description:

Mounting cradle suitable for vehicle and base station applications. As supplied with the HF-90 Vehicle Installation Kit and the HF-90 Base Station Package.

ORDERING INFORMATION

Stock Code	Description
QM6061	Mounting Cradle



Weight
0.35 kg

2.14.2 Audio Accessories

2.14.2.1 QM4041 Headphones (Commercial Grade)

Description:

Commercial grade headsets incorporating 6.25 mm jack plug. Suits CW option and telegraph key.

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
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Weight

QM4041

Headphones - Commercial grade

0.20 kg

2.14.2.2 QM4042 Headphones (Industrial Grade)

Description:

Ruggedised, industrial grade headsets incorporating 6.25 mm jack plug. Suits CW option and telegraph key.



ORDERING INFORMATION

Stock Code	Description
QM4042	Headphones - Industrial grade

Weight
0.45 kg

2.14.2.3 QM4021 External Mount Speaker (with Audio Mute)

Description:

Speaker incorporating audio mute facility for fixed channel operation.



ORDERING INFORMATION

Stock Code	Description
QM4021	External Mount Speaker - With audio mute

Weight
0.45 kg

2.14.2.4 QM4024 External Mount Speaker (with DSP Noise Reduction)

Description:

Noise eliminating speaker incorporating Digital Signal Processing (DSP) technology to remove unwanted background noise from speech. Fully adaptive noise cancelling. Plug and go - No adjustments necessary.



ORDERING INFORMATION

Stock Code	Description
QM4024	External Mount Speaker - With DSP noise reduction

Weight
0.45 kg

2.14.2.5 QM4051 CW Options & Telegraph Ke

Description:

External CW option housed in a compact die-cast metal box with telegraph key mounted on top. Incorporates a 6.25 mm mono jack for connection of suitable headphones. Supplied with 1.5m lead.



ORDERING INFORMATION

Stock Code	Description
QM4051	CW Options & Telegraph Key

Weight
0.45 kg

2.14.3 Fist Microphones

2.14.3.1 QM4002 DTMF Microphone

Description:

For use with Advanced Model HF-90. Requires external speaker. Suited to Vehicle, Portable and Base Station packages.



ORDERING INFORMATION

Stock Code	Description
QM4002	DTMF Microphone

Weight
0.25 kg

2.14.3.2 QM4003 DTMF Microphone with Built-in Speaker

Description:

For use with Advanced Model HF-90. Suited to Manpack and MiniPack packages.



Weight
0.25 kg

ORDERING INFORMATION

Stock Code	Description
QM4003	DTMF Microphone with Built-in Speaker

2.14.3.3 QM4004 DTMF Scrambler Microphone

Description:

Microphone incorporating variable split-band frequency inversion voice scrambler and built in speaker. 16 codes selectable. For use with Advanced Model HF-90 radios.



Weight
0.25 kg

ORDERING INFORMATION

Stock Code	Description
QM4004	DTMF Scrambler Microphone

2.14.4 Pedestal Microphones

2.14.4.1 QM4006 DTMF Pedestal Microphone (Commercial)

Description:

Commercial grade, DTMF pedestal microphone for use with Advanced Model HF-90. Suited to Base Station packages.



Weight
1.00 kg

ORDERING INFORMATION

Stock Code	Description
QM4006	DTMF Pedestal Microphone - Commercial

2.14.5 Telephone Handsets

2.14.5.1 QM4012 Non-DTMF Handset (Military Grade)

Description:

Industry standard, military grade, non-DTMF telephone handset with commercial connector. For use with the Standard Model HF-90.



Weight
0.45 kg

ORDERING INFORMATION

Stock Code	Description
QM4012	Non-DTMF Handset - Military grade

2.14.5.2 QM4015 DTMF Handset (Military Grade)

Description:

Industry standard, military grade telephone handset with commercial connector and DTMF keys for use with advanced software features such as Selcall, Beacon Call, Frequency Hopping and Front Panel Programming. For use with the Advanced Model HF-90.

ORDERING INFORMATION

Stock Code	Description
QM4015	DTMF Handset - Military grade



Weight
0.45 kg

2.14.6 DC Power Cables

2.14.6.1 QM5001 HF-90 → Misc Power Source Cable (4.5m)

Description:

4-pole power connector at one end complete with connector for external speaker on flying lead, bare ended at the other end. As supplied with the HF-90 Vehicle Package and HF-90 Kit Base Station Package.

ORDERING INFORMATION

Stock Code	Description
QM5001	HF-90 → Miscellaneous Power Source Cable (4.5m)



Weight
0.65 kg

2.14.6.2 QM5002 HF-90 → Portable Battery Cable (0.6m)

Description:

4-pole power connector at one end complete with connector for external speaker on flying lead, spade connectors at the other end and with connector for charging devices on flying lead. Incorporates in-line fuse. As supplied with the HF-90 Manpack Package and HF-90 Portable Package.

ORDERING INFORMATION

Stock Code	Description
QM5002 HF-90	→ Portable Battery Cable (0.6m)



Weight
0.10 kg

2.14.6.3 QM5003 HF-90 → Miscellaneous Power Source

Description:

4-pole power connector at one end complete with connector for external speaker on flying lead, crocodile clips at the other end. Not fused.

ORDERING INFORMATION

Stock Code	Description
QM5003	HF-90 → Vehicle Battery Cable (3.0m)

Weight
0.50 kg

2.14.7 Coaxial Cables (RG-58)

2.14.7.1 QM5021 HF-90 → Vehicle Antenna Cable (4.5m)

Description:

BNC connector fitted at one end, nothing fitted at the other end. PL259 plug supplied loose. As supplied with Vehicle Installation Kit.

ORDERING INFORMATION

Stock Code	Description
QM5021	HF-90 → Vehicle Antenna Cable (4.5m)

Weight
0.25 kg

2.14.7.2 QM5022 HF-90 → Base Station Antenna Cable (30m)

Description:

BNC connector fitted at one end, PL259 plug fitted to the other end. As supplied with base station antennas.

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>	<u>Weight</u>
QM5022 HF-90 → Base Station Antenna Cable (30m)		1.50 kg

2.14.7.3 QM5041 HF-90 → TM-90 Cable (250mm)

Description:

BNC connector fitted at both ends. As supplied with the HF-90 Manpack.

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>	<u>Weight</u>
QM5041	HF-90 → TM-90 Cable (250mm)	0.15 kg

2.14.7.4 QM5064 HF-90 → TA-99 Cable (120mm)

Description:

BNC connector fitted at both ends. As supplied with the HF-90 Manpack.

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>	<u>Weight</u>
QM5064	HF-90 → TA-99 Cable (120mm)	0.1 kg

2.14.8 Other Cables

2.14.8.1 QM5051 Programming Cable (with Adaptor)

Description:

Programming Cable to connect the HF-90 with a computer serial port. Supplied with DB25 connector and adaptor for DB9 connector. For use with the HF-90M Programming Package (QM1001/QM1002).

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>	<u>Weight</u>
QM5051	Programming Cable - With adaptor	0.20 kg

2.14.9 Miscellaneous Items

2.14.9.1 QM8051 SLA Battery Condition Monitor

Description:

Monitors battery charge level of Sealed Lead Acid (SLA) batteries via a series of LED indicators. As supplied with the HF-90 Manpack and HF-90 Portable packages.



ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>	<u>Weight</u>
QM8051 SLA Battery Condition Monitor		0.10 kg

2.14.9.2 QM3001 PL259 → BNC Adaptor

Description:
Converts PL259 Plug to BNC Plug.



ORDERING INFORMATION

Stock Code	Description
QM3001	PL259 → BNC Adaptor

Weight
0.05 kg

2.14.9.3 QM9501 Fan Option (Modular)

Description:
Fan fitting to the rear of the HF-90. Suited to continuous duty base station applications, such as data transmission with the QM9082 and QM9080. As supplied in the QM9082 Email and Chat Data Package



ORDERING INFORMATION

Stock Code	Description
QM9501	Fan Option - Modular

Weight
0.10 kg

2.14.10 Mains Cables

2.14.10.1 Figure 8 Sockets & Cables

Mains outlets vary across the globe. Summarised below are the most common mains plugs and the Q-MAC part number for ordering.

Mains End	Type A: Continental Europe	Type B: United Kingdom	Type C: Australia, New Zealand, Argentina	Type D: North America	Type E: India, South Africa
Equipment End					
*	Order Code: QM5087 (0.05 kg)	Order Code: QM5082 (0.05 kg)	Order Code: QM5081 (0.05 kg)	Order Code: QM5083 (0.05 kg)	Order Code: QM5118 (0.05 kg)
Figure 8 socket					

2.14.10.2 IEC Sockets & Cables

Mains outlets vary across the globe. Summarised below are the most common mains plugs and the Q-MAC part number for ordering.

Mains End	Type A: Continental Europe	Type B: United Kingdom	Type C: Australia, New Zealand, Argentina	Type D: North America	Type E: India, South Africa
Equipment End					
	Order Code: QM5085 (0.05 kg)	Order Code: QM5086 (0.05 kg)	Order Code: QM5084 (0.05 kg)	Order Code: QM5119 (0.05 kg)	Order Code: QM5120 (0.05 kg)

2.15 DEALER SUPPORT PRODUCTS

2.15.1 Programming Software

2.15.1.1 QM1002 HF-90 Programming Package

Description:

IBM compatible software package (Windows Operating System) allows programming of the following functions:

Standard Model HF-90:

- Channel/Frequency Programming
- USB/LSB Mode Toggle Enable/Disable
- Power Output Setting
- Auto-Tune Enable/Disable

Advanced Model HF-90:

- Field Programming Enable
- Selcall ID Number
- Selcall and Scanning on Specific Channels/Frequencies

Includes:

- Programming Cable
- Quick Reference Guide: HF-90 Programming Package

Note:

Package is provided on CD as standard. This programming software is for use on radios with Export version firmware (HF-90E or HF-90H) and firmware version 301 or greater. It is not compatible with earlier firmware versions. If used on earlier versions of firmware, it may render the HF-90 inoperable.

ORDERING INFORMATION

Stock Code	Description	Weight
QM1001	HF-90 Programming Package - Australian version	0.05 kg
QM1002	HF-90 Programming Package - International version	0.05 kg

2.15.2 Product Documentation

2.15.2.1 QM1021 HF-90/M Technical Manual

Description:

Detailed manual outlining product specifications, software, maintenance, fault finding and testing.

Note:

Authorised Q-MAC Dealers receive one HF-90/M Technical Manual at no charge with their first purchase of a HF-90 or HF-90M Transceiver. Extra copies must be purchased if required.



ORDERING INFORMATION

Stock Code	Description	Weight
QM1021	HF-90/M Technical Manual	0.35 kg

2.15.3 Replacement Modules

2.15.3.1 96000 HF-90 Front Panel Module

Description:

HF-90 front panel module, including front panel PCB.



ORDERING INFORMATION

Stock Code	Description	Weight
96000	HF-90 Front Panel Module	0.15 kg

2.15.3.2 96002 HF-90 PASW Module

Description:

Power amplifier and switch mode power supply module, complete with heatsink assembly.



ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
96002	HF-90 PASW Module

Weight
0.40 kg

2.15.3.3 96003 HF-90 RXMP Module

Description:

Receiver and microprocessor module.



ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
96003	HF-90 RXMP Module

Weight
0.15 kg

2.15.4 Test Devices

2.15.4.1 QM4085 HF Test Indicator Unit

Description:

Tests HF-90/M radios and provides indications of RF Output Power Present, DC Power on Coax Present and Tune Interrupt Signal Present. Incorporates a dummy load and signal source. Suitable for testing commercial HF-90 or military HF-90M transceivers.



ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM4085	HF Test Indicator Unit

Weight
1.00 kg

2.15.4.2 QM4082 Antenna Current Meter

Description:

Meter for measuring antenna current in a whip antenna system. For use where the antenna coaxial cable carries DC voltage to drive an automatic antenna tuner. This device provides an effective method of determining the performance of antenna systems incorporating antenna tuners that require DC on the coaxial cable e.g. TA-99, TM-90.



ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM4082	Antenna Current Meter

Weight
2.00 kg

2.15.4.3 QM4084 DC Blocking Filter

Description:

In line BNC to BNC DC Blocking Filter used when testing HF-90 with DC enabled on coax.



ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM4084	DC Blocking Filter

Weight
0.30 kg

2.15.4.4 QM4072 Asymmetric T Piece

Description:

Asymmetric T Piece with a RF monitor point. Used for bench testing the HF-90 in line with antenna. Allows monitoring of output wave form on oscilloscope.

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM4072	Asymmetric T Piece



Weight
0.30 kg

2.15.4.5 QM4075 50 Ohm RF Dummy Load

Description:

50 Ohm Dummy Load with QM3001 BNC-PL259 UHF adaptor.

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM4075	50 Ohm RF Dummy Load



Weight
1.00 kg

2.15.4.6 QM4071 Breakout Test Box

Description:

Breakout unit with Audio In, Audio Out and External PTT. Useful for bench testing HF-90s.

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM4071	Breakout Test Box



Weight
0.30 kg

2.15.4.7 QM4081 Voice Enunciator Box

Description:

Device to automatically key and modulate a HF-90 transceiver.

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM4081	Voice Enunciator Box



Weight
1.00 kg

2.15.4.8 QM4083 Field Service Tool/Pocket Knife

Description:

Convenient pocket tool suitable for the field assembly and disassembly of HF-90s.

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM4083	Field Service Tool



Weight
0.30 kg

2.15.5 HF-90 Overhaul Service

2.15.5.1 QM9099 HF-90 Overhaul Service

Includes:

- New front panel keys
- New rotary encoder
- New power switch
- New microphone socket
- New knob and handles
- Thorough clean
- Microprocessor firmware update (to the latest version compatible with the hardware version installed)



Electronic design change updates (to the latest version compatible with the hardware version installed)
Re-test
Repair damaged/suspect components
Re-alignment
Labour charges
Extend warranty for 12 months

Note:

The extended warranty will only apply if the unit has not suffered water damage. The HF-90 Overhaul Service *does not apply* to radios that have suffered severe irreparable damage and require complete module replacement.

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>	<u>Weight</u>
QM9099	HF-90 Overhaul Service	2.00 kg

2.15.6 Spares Kits

2.15.6.1 QM1044 Spares Kit (Component Level TA-90)

Description:

Recommended spares for the maintenance of up to 50 TA-90 ATUs for a service period of 2 to 3 years. Also includes HF-90 Vehicle Power Cable, Coax, HV and Ground Cables. Q-MAC recommends that 5 complete TA-90 units are kept as spares in addition to these component spares (*not included*).

ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>	<u>Weight</u>
QM1044	Spares Kit - Component level TA-90	15.00 kg

2.15.6.2 QM1045 Spares Kit (Component Level TA-99)

Description:

Recommended spares for the maintenance of up to 50 TA-99 ATUs for a service period of 2 to 3 years. Q-MAC recommends that 5 complete TA-99 units are kept as spares in addition to these component spares (*not included*).



ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>	<u>Weight</u>
QM1045	Spares Kit - Component level TA-99	5.00 kg

2.15.6.3 QM1046 Spares Kit (Component Level HF-90)

Description:

Recommended spares for the maintenance of up to 50 HF-90 transceivers for a service period of 2 to 3 years. Q-MAC recommends that 5 complete HF-90 units are kept as spares in addition to these component spares (*not included*).



ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM1046	Spares Kit - Component level HF-90

Weight
10.00 kg

2.15.6.4 QM1048 Spares Kit (Component Level ML-91 ATU)

Description:

Recommended spares for the maintenance of up to 50 ML-91 Automatic Antenna Tuners for a service period of 2 to 3 years. Q-MAC recommends that 5 complete ML-91 ATUs are kept as spares in addition to these component spares (*not included*). *This spares package does not include roof rack or antenna element spares.*



ORDERING INFORMATION

<u>Stock Code</u>	<u>Description</u>
QM1048	Spares Kit - Component level ML-91 ATU

Weight
15.00 kg