



MOTOROLA
intelligence everywhere™



*INTRODUCING THE COMMERCIAL SERIES
PORTABLE RADIOS – CP140, CP160 AND CP180*



*VALUE AND VERSATILITY
IN A CLASSIC DESIGN*



Benefiting from a 75 year history in the business of communication, Motorola welcomes you to the future of two-way radio with the Commercial Series. Comprising three new portable radios to match the needs of workteams that need to keep in touch wherever they are, the family also includes four mobile radios for powerful in-vehicle or fixed site communication.



Keep the lines of communication open with the Motorola Commercial Series

EASY-TO-USE

Using the robust Commercial Series is second nature thanks to the tough and textured buttons, chunky rotary channel and on/off volume knobs. In addition, each radio features two programmable buttons (four for CP160 and CP180) that can give immediate access to the most often used features, making communication even simpler.

However noisy the operating environment, a tri-colour LED indicates the radios' operation status.

TARGETED COMMUNICATIONS

With 16, 32 or 64 communication channels, depending upon model, use the Commercial Series to liaise with the whole team, a single workgroup or an individual when a more complicated or sensitive issue occurs.

At the touch of a button the 'repeater talkaround' function allows users to stay in touch should the radio repeater for the area stop working or when users work beyond its range. This is particularly useful when the electricity supply can be unreliable – often when communication is needed most.

Avoid disturbing colleagues by using the 'monitor' function. This allows a channel to be checked for an ongoing conversation before transmission.

QUALITY & RELIABILITY

Designed and built to the gruelling American standard MIL Spec 810F and exceeding the exacting IP54 standard for environmental protection, all Commercial Series radios

BUDGET CONSCIOUS

Not only does the Commercial Series offer a fantastic range of features in a classic and ergonomically-designed package, but users of existing Motorola P-Series, Alpha Series and GP300 radios can re-use many of their existing audio accessories, saving time



have also passed the Motorola Accelerated Life Test which replicates five years of hard use in the field.

Motorola's voice compression technology, called X-Pand™, offers users excellent audio quality at the touch of a button. And when it would be inappropriate or potentially dangerous for users to speak loudly into their radio, the 'whisper' feature means that even the quietest message is received clearly.

Should a radio be dropped, the new battery safety lock keeps the battery attached to the radio and the user in contact with the team.

and money. Thanks to the Commercial Series' enhanced reliability, maintenance costs are negligible.

All radios are supplied with a standard capacity NiMH battery, rapid desktop charger with power supply unit, belt clip and antenna.

KEEPING IN TOUCH

The high/low power setting allows users to extend battery life to up to 13 hours* from a single battery charge with the included NiMH battery. A battery life of up to 19

hours* can be achieved with the optional high capacity Li Ion battery. Switch the radio to the 'low power' setting when users are in close proximity as the reduced range requires less power.

Avoid missed messages thanks to 'Escalart™'. When activated, the incoming call alert gradually increases in volume until the call is answered. In addition, the built-in 'scan' and 'priority scan' functions

All radios can receive telephone calls when supported by an interface. The CP160 and CP180 have the additional capability to make outgoing telephone calls, ideal for liaison with desk-based colleagues, customers and suppliers.

CUSTOMISABLE

As you would expect from Motorola, the CP140, CP160 and CP180 are supported by a wide range of energy, audio and carry



Which radio is right for me?

| Feature | CP140 | CP160 | CP180 |
|-----------------------------|-------|---------|-------|
| Channels | 16 | 32 | 64 |
| Programmable Buttons | 2 | 4 | 4 |
| Quick Access Features | 4 | 8 | 8 |
| Option Board Capable | ● | ● | ● |
| Make Telephone Calls* | ○ | ● | ● |
| Receive Telephone Calls* | ● | ● | ● |
| Tricolour LED | ● | ● | ● |
| Keypad | ○ | Limited | ● |
| Keypad Lock | ○ | ● | ● |
| Contact List | ○ | ● | ● |
| Speed Dials | ○ | ○ | ● |
| Backlit 8 Character Display | ○ | ● | ● |

*Requires additional interface

that search channels for activity make sure the user gets important messages.

*Based on 5:5:90 (transmit: receive:standby) duty cycle.

COMMUNICATION FLEXIBILITY

The Motorola CP140, CP160 and CP180 are all PROIS option board capable. This means that the radios' features can be expanded by fitting option boards designed by third party Motorola Authorised Application Partners inside the radio. Features include basic encryption, trunking and data applications.

accessories, changing the radios into solutions based upon the requirements of individual users.

And when used with a Motorola VOX-compatible headset, an audio accessory unlocks the power of voice-activated communication, leaving the user's hands free to work on the job in hand.

OTHER FEATURES

- Busy Channel Lockout
- Nuisance Channel Delete
- Receive-only Channel
- Variable Time-out Timer

CP140

With 16 communication channels, the CP140 is the perfect choice for those working for smaller organisations that need to keep in touch with their colleagues and supervisors economically. Users can change to a side channel to discuss more complicated issues one-to-one.

CP160

For supervisors who need to keep in touch with a number of workteams and management, the 32 channel CP160 features an eight character backlit starburst display with ten simple-to-understand icons. Up/down scrolling buttons make accessing menus and contacting teams or individuals even easier. The user knows who is calling from the 'channel alias' shown on the display.

CP180

The choice of management and those working for larger organisations, the CP180 has 64 communication channels for maximum flexibility and an eight character backlit starburst display with ten simple-to-understand icons. The full keypad allows instantaneous one-to-one private line calls or group calls and facilitates access to the menu and contact list that acts like an address book. The user knows who is calling from the 'channel alias' shown on the display. The keypad can be configured to allow immediate speed dial-style access to the most often called individuals and groups. A keypad lock prevents accidental radio knocks making calls and changing settings, thus keeping the user in contact.



BDN6720 – Flexible Ear Receiver



RMN4053 – Hard Hat Mount Headset with Passive Ear Defenders (Grey)

Find your way around the CP180

breakdown... all of these occurrences can be better managed if the team is all fully informed. Motorola provides the tools to do just that with the Commercial Series portable radios.

SECURITY

A key business across the fast changing and unpredictable world, the security industry has long realised the importance of radio communication. Be it simple back-to-back one-to-one or one-to-many communication across a larger area, the Motorola Commercial Series portable radios keep guards in touch with each other and with base. Accessories help keep hands free without restricting movement, and the easy fasten battery clip stops the battery and radio becoming separated after a fall or knock during a patrol.

LOCAL GOVERNMENT/ MUNICIPALITY

Town centre management, road and open space maintenance and support services for a town's inhabitants... the demands upon municipal service providers are expanding all the time. To get the myriad jobs done on time and on budget requires a communication tool that is as flexible as the user. This is where the Motorola Commercial Series portable radios come into their own.

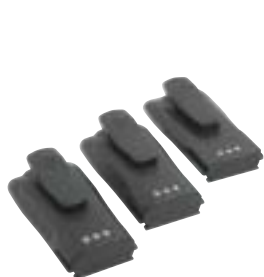
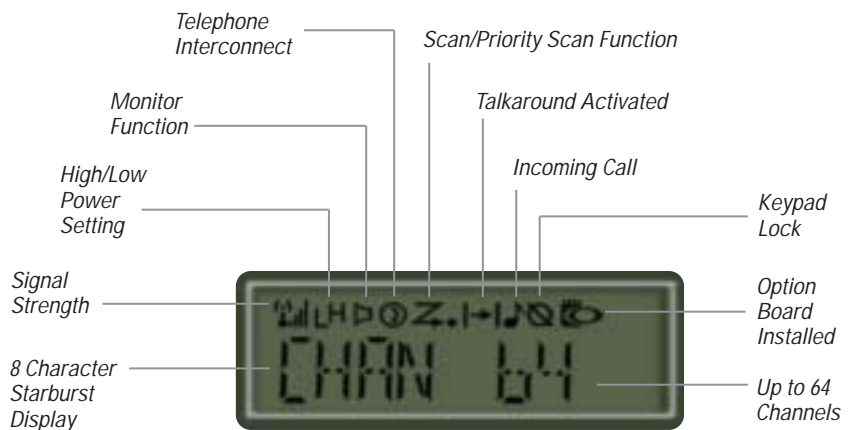
Designed around the requirements of customers who require an economical solution with a practical feature set, the Motorola Commercial Series portable radios are particularly suitable for organisations in the following markets:

AGRICULTURE

Whether it is time to sow, harvest, feed livestock or repair a perimeter fence, the Motorola Commercial Series portable radios are perfectly suited to the demands of small to medium-sized land holdings where workers need to keep in contact over extended geographic areas.

WAREHOUSING & MANUFACTURING

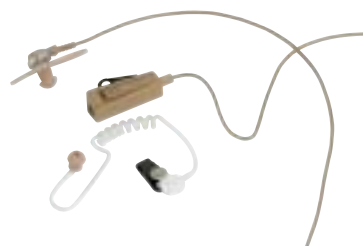
A delayed collection or delivery, an urgent job causes reprioritisation, a production or packing line



Li Ion, NiCd and NiMH Batteries



HLN9701 – Nylon Carry Case with Belt Loop



HMN9754 – 2 Wire Earpiece with Microphone & PTT Combined (Beige), NTN8371 – Standard Acoustic Tube



BDN6646 – Voiceducer with PTT and Standard Earpiece

ACCESSORIES

All radios are supplied with a standard capacity NiMH battery, a rapid desktop charger with power supply unit, belt clip and antenna.



Batteries

| | |
|----------|---------------------------------------|
| NNTN4496 | Standard Capacity NiCd Battery |
| NNTN4497 | High Capacity Li Ion Battery |
| NNTN4851 | Standard Capacity NiMH Battery |
| NNTN4970 | Slim Standard Capacity Li Ion Battery |
| NNTN4852 | Standard Capacity FM NiMH Battery |

Chargers

| | |
|----------|---|
| WPLN4138 | Rapid Desktop Charger, US plug, 110V |
| WPLN4139 | Rapid Desktop Charger, Euro plug, 230V |
| WPLN4140 | Rapid Desktop Charger, UK plug, 230V |
| WPLN4161 | Rapid Multi Unit Charger, US plug, 110V |
| WPLN4162 | Rapid Multi Unit Charger, Euro plug, 230V |
| WPLN4163 | Rapid Multi Unit Charger, UK plug, 230V |

Carry

| | |
|---------|--|
| NTN5243 | Shoulder Carry Strap |
| HLN9701 | Nylon Carry Case with Belt Loop |
| RLN4815 | Universal RadioPack |
| HLN9985 | Waterproof Bag |
| RLN5383 | CP140 Leather Carry Case with Belt Loop |
| RLN5384 | CP140 Leather Carry Case with 6 cm Swivel Belt Loop |
| RLN5385 | CP140 Leather Carry Case with 7.5 cm Swivel Belt Loop |
| RLN5640 | CP160 Hard Leather Carry Case with Belt Loop |
| RLN5641 | CP160 Hard Leather Carry Case with 6 cm Swivel Belt Loop |
| RLN5642 | CP160 Hard Leather Carry Case with 7.5 cm Swivel Belt Loop |
| RLN5496 | CP180 Leather Carry Case with Belt Loop |
| RLN5497 | CP180 Hard Leather Carry Case with 6 cm Swivel Belt Loop |
| RLN5498 | CP180 Hard Leather Carry Case with 7.5 cm Swivel Belt Loop |

Audio

| | |
|------------|--|
| MDPMLN4444 | MAG ONE Flexible Earset with Inline PTT/VOX Switch |
| PMMN4001 | MAG ONE Earset with Flexible Boom Microphone |
| PMLN4294 | Earbud with Combined Microphone & PTT |
| HMN9030 | Remote Speaker Microphone |
| RLN4904 | Mic Jacket for HMN9030 Remote Speaker Microphone |
| HMN9727 | 1 Wire Earpiece (Beige) |
| RLN4894 | 1 Wire Earpiece (Black) |
| HLN9132 | 1 Wire Earbud (Black) |
| HMN9752 | 1 Wire Earpiece with Volume Control (Beige) |
| HMN9754 | 2 Wire Earpiece with Microphone & PTT Combined (Beige) |
| RLN4895 | 2 Wire Earpiece with Microphone & PTT Combined (Black) |
| HMN9036 | 2 Wire Earbud with Microphone & PTT Combined (Black) |
| NTN8371 | Standard Acoustic Tube |
| NTN8370 | High Noise Acoustic Tube |
| RLN5198 | 2 Wire Earpiece and Acoustic Tube with Combined Microphone & PTT (Black) |
| BDN6720 | Flexible Ear Receiver |
| HMN9013 | Lightweight Headset |
| RMN4016 | Lightweight Headset with Inline PTT |
| RLN5411 | Lightweight Behind-the-Head Wire Headset with PTT |
| RLN5238 | Medium Weight Stadium-Style Headset with PTT |
| HMN9021 | Medium Weight Over-the-Head Headset |
| HMN9022 | Medium Weight Behind-the-Head Headset |
| BDN6647 | Medium Weight Single Speaker Headset |
| BDN6648 | Heavy Duty Headset with Noise Cancelling Microphone |
| RMN5015 | Heavy Duty Racing Headset (requires RKN4090 Headset Adapter Cable) |
| RMN4053 | Hard Hat Mount Headset with Passive Ear Defenders (Grey) (Requires RKN4094 Inline PTT Adapter) |
| RMN4051 | Hard Hat Mount Headset with Passive Ear Defenders (Black) (Requires RKN4094 Inline PTT Adapter) |
| RMN4055 | Heavy Duty Over-the-Head Headset with Passive Ear Defenders (Red) |
| BDN6706 | Voiceducer with PTT/VOX Switch and Standard Earpiece |
| BDN6646 | Voiceducer with PTT and Standard Earpiece |
| 0180300E83 | Voiceducer Body PTT |



RMN5015 – Heavy Duty Racing Headset (requires RKN4090 Headset Adapter Cable)

HMN9030 – Remote Speaker Microphone

RLN5238 – Medium Weight Stadium-Style Headset with PTT

MDPMLN4444 – MAG ONE Flexible Earset with Inline PTT/VOX Switch

MODEL NUMBERS

| Name | Model Number | Signalling | Channels | Frequency | Power |
|-------|----------------|------------|----------|------------------|-------|
| CP140 | MDH65KDC9AA2_N | MDC/PL | 16 | VHF2 146-174 MHz | 1-5 W |
| CP140 | MDH65QDC9AA2_N | MDC/PL | 16 | UHF1 403-440 MHz | 1-4 W |
| CP140 | MDH65RDC9AA2_N | MDC/PL | 16 | UHF2 438-470 MHz | 1-4 W |
| CP140 | MDH65SDC9AA2_N | MDC/PL | 16 | UHF3 465-495 MHz | 1-4 W |
| CP160 | MDH65KDF9AA3_N | MDC/PL | 32 | VHF2 146-174 MHz | 1-5 W |
| CP160 | MDH65QDF9AA3_N | MDC/PL | 32 | UHF1 403-440 MHz | 1-4 W |
| CP160 | MDH65RDF9AA3_N | MDC/PL | 32 | UHF2 438-470 MHz | 1-4 W |
| CP160 | MDH65SDF9AA3_N | MDC/PL | 32 | UHF3 465-495 MHz | 1-4 W |
| CP180 | MDH65KDH9AA4_N | MDC/PL | 64 | VHF2 146-174 MHz | 1-5 W |
| CP180 | MDH65QDH9AA4_N | MDC/PL | 64 | UHF1 403-440 MHz | 1-4 W |
| CP180 | MDH65RDH9AA4_N | MDC/PL | 64 | UHF2 438-470 MHz | 1-4 W |
| CP180 | MDH65SDH9AA4_N | MDC/PL | 64 | UHF3 465-495 MHz | 1-4 W |



Accelerated Life Testing

Stringent Motorola Accelerated Life Testing simulates five years of hard use in real life and includes testing resistance to extreme temperatures (see above), shock, vibration, dust and humidity.

IP54 for dust and water intrusion. Tested for resistance to dust and spray water from all directions.

TECHNICAL SPECIFICATIONS

| General | VHF | UHF1 | UHF2 | UHF3 |
|--|--|---------------|---------------------|---------------------|
| Frequency | 146 - 174 MHz | 403 - 440 MHz | 438 - 470 MHz | 465 - 495 MHz |
| Channel Capacity | 16 Channels (CP140) | | 32 Channels (CP160) | 64 Channels (CP180) |
| Power Supply | 7.5 Volts ± 20% | | | |
| Dimensions (H x W x D) | 130.5 x 62 x 42mm (with Slim Li Ion Battery) | | | |
| Weight (with Slim Li Ion Battery) | 377g (CP140) | | 397g (CP160/180) | |
| Average Battery Life at Room Temperature (5:5:90 duty cycle) | 1 W | 5 W | 1 W | 4 W |
| Standard Capacity NiCd Battery | 10 Hrs | 8 Hrs | 10 Hrs | 8 Hrs |
| Standard Capacity FM NiMH Battery | 11 Hrs | 9 Hrs | 11 Hrs | 9 Hrs |
| Standard Capacity NiMH Battery | 13 Hrs | 10 Hrs | 13 Hrs | 10 Hrs |
| Slim Li Ion Battery | 17 Hrs | 12 Hrs | 17 Hrs | 12 Hrs |
| High Capacity Li Ion Battery | 19 Hrs | 14 Hrs | 19 Hrs | 14 Hrs |

| Receiver | VHF | | UHF1 | | UHF2 | | UHF3 | |
|--------------------------------------|-------------------|-----------|----------|-----------|----------|-----------|----------|-----------|
| | 12.5 kHz | 20/25 kHz | 12.5 kHz | 20/25 kHz | 12.5 kHz | 20/25 kHz | 12.5 kHz | 20/25 kHz |
| Sensitivity (12 dB EIA SINAD) | 0.25 µV (Typical) | | | | | | | |
| Adjacent Channel Selectivity | -60 dB | -70 dB | -60 dB | -70 dB | -60 dB | -70 dB | -60 dB | -70 dB |
| Intermodulation | -70 dB | | | | | | | |
| Frequency Stability (-30°C to +60°C) | 0.00025% | | | | | | | |
| Spurious Rejection | -70 dB | | | | | | | |
| Audio Output @ < 5% Distortion | 500 mW | | | | | | | |

| Transmitter | VHF | | UHF1 | UHF2 | UHF3 |
|--|-------------------|------|--------------------------|------|------|
| | Low | High | Low | High | High |
| RF Output: NiMH @ 7.5V | 1 W | 5 W | 1 W | 4 W | |
| Channel Spacing | 12.5/20/25 kHz | | | | |
| Frequency Stability (-30°C to +60°C) | 0.00025% | | | | |
| Spurs/Harmonics | -36 dBm < 1 GHz | | -30 dBm > 1 GHz to 4 GHz | | |
| Audio Response (from 6 dB/oct. Pre-emphasis, 300 to 3000 Hz) | +1, -3 dB | | | | |
| Audio Distortion @ 1000 Hz, 60% Rated Max. Dev. | <3% | | | | |
| FM Noise | -40 dB (12.5 kHz) | | -45 dB (25 kHz) | | |

All specifications are subject to change without notice.

For more information contact your local Motorola authorised two-way radio dealer:



CP1X0.FB.RE (12/03)



MOTOROLA

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| Portable MIL Standard 810F | | |
|----------------------------|---------|------------|
| Applicable MIL-STD | Methods | Procedures |
| Low Pressure | 500.4 | 1 |
| High Temperature | 501.4 | 1,2 |
| Low Temperature | 502.4 | 1,2 |
| Temperature Shock | 503.4 | 1 |
| Solar Radiation | 505.4 | 1 |
| Rain | 506.4 | 1 |
| Humidity | 507.4 | 3 |
| Salt Fog | 509.4 | 1 |
| Dust | 510.4 | 1 |
| Vibration | 514.5 | 1 |
| Shock | 516.5 | 1 |

ENVIRONMENTAL STANDARDS & SPECIFICATIONS

| | |
|--|---------------|
| Operating Temperature | -30 to +60 °C |
| Storage Temperature | -40 to +85 °C |
| Thermal Shock | -40 to +80 °C |
| Dust & Water Intrusion | IP54 |
| ISO 9001 Standard - Compliance with ISO 9001, an international quality system assurance on design, development, production, installation and servicing of a product. | |