



PROFESSIONAL

AUSTRALIAN ENGINEERED AND MANUFACTURED

# CM60 SERIES MOBILES

ANALOGUE WITH P25 UPGRADE PATH



# ANALOGUE RADIO CONFIGURATIONS

GME has built a reputation for technical innovation and customer service within the Australasian professional radio market. The combination of new technologies with decades of GME research and development enables GME products to deliver the ultimate in reliability, flexibility and cost-effective solutions for present and future communication requirements.

Designed, engineered and manufactured in Australia to meet the toughest conditions, the CM60 Series provides a robust solution ideal for both the large systems integrator with an extensive network of mobiles, portables and repeaters, or the small operator with a single site.

## KEY FEATURES

### Legacy Replacement

Replaces the TX3620 and TX3820 Series and offers matched installation configurations and mounting hardware using the existing GME unique slide and lock mechanism.

### Selcall

Allows individual radios to be called on a shared channel without the other radios being disturbed. Group Selcall allows more than one radio to be called with a preprogrammed Selcall code.

### Voting

Receive Signal Strength Indication (RSSI) voting allows a radio to always lock onto the strongest receive channel.

### Talk Around

Enables the radio to talk directly to another radio when both parties are using a repeater channel without going through the repeater itself. This may be necessary when the repeater is out of range, but both radios are still within range of each other.

### CTCSS

Continuous Tone-Coded Squelch System (CTCSS) or Digital Coded Squelch (DCS) is a quietening system that allows a group of radios to talk to each other without hearing other users on the same channel.

### DTMF

Allows a mobile or portable radio to send and receive Dual Tone Multiple Frequency (DTMF) tones for selective calling or making and receiving phone calls via dedicated PABX interface hardware.

### MDC1200 Compatible

Digital signalling offering programmable functions including GPS.



IP67 Fist Microphone  
MP600B



Local Control Model

Duress Alarm



Base Unit for Extended and Remote Models



# ANALOGUE WITH P25 UPGRADE PATH

The CM60 Series is available with a powerful 25 watt transmitter in all frequency bands. It is also available with a dedicated low power 5 watt transmitter in the 400-480 MHz and 450-520 MHz frequency bands.

All models are compliant with AS/NZS 4295 (LMR) with both UHF models compliant with AS/NZS 4365 (CB).

All P25 variants are CAP (Compliance Assessment Program) compliant and conform to the P25 TIA-102 Class A Standards for interoperability.

## Analogue to Digital Upgrade Path

Migrate at your own pace and future-proof your communications system. An upgrade path to P25 conventional or trunked operations is available with the purchase of a software license key.

## Advanced User Interface Controller

The User Interface Control (UIC) model is available in black (UIC600B) or high-visibility green (UIC600G) and provides unique user features.

Including:

- OLED screen to provide high-visibility characters, which can be easily seen from all angles and in any lighting conditions
- Full keypad with additional programmable buttons
- Powerful 2 watt front facing speaker and heavy-duty curly cord with 2m stretch, allows operation while standing adjacent to the vehicle
- Dynamic rear bollard and mounting cradle enables user functions to be activated by the hang-up action

## Zone/Channels

With more than a 1,000 P25 channels available in up to 50 zones, the CM60 Series allows true flexibility with channel selection and allocation.

## Compact Radio Chassis

The small form factor CM60 Series allows for greater flexibility for installation into confined areas.

## Emergency

Duress alarms are programmable on all radio configurations.

## Interoperability

Meets APCO P25 Standards for CAP and TIA-102 Class A compliance.



## Data Applications

The CM60 Series is also available as dedicated P25 data-ready transceivers. These can be immediately deployed into data, telemetry and Supervisory Control and Data Acquisition (SCADA) applications using an AT terminal interface. Utilising the software security suite, all payloads can be transmitted over-the-air in a fully end-to-end encrypted environment.

The Data Terminal provides robust industrial communications for a wide range of applications including irrigation control, environmental monitoring, security management and weather data reporting.

A direct RS232 serial interface supports a variety of RTU/PLC data logger connections for clear or Data Encryption Standard (DES) 56 bit or Advanced Encryption Standard (AES) 256 bit encrypted data transfer over phase one P25 conventional or trunked networks.

A compact, fully integrated RF transceiver and data modem, the CM60 Series is designed to deliver reliable communications in the harshest of environments.

## Key Features

### IP Data Over P25

Support for SNDPCP allows TCP/IP data to be routed over your trunked network to the terminals peripheral interface. This enables integration with IP-based short data applications such as Message Queuing Telemetry Transport (MQTT).

### Transparent Data Interface

The CM60 Series transparent byte interface supports various protocols including IEC 60870-5, DNP3, MODBUS and PACBUS\*\*.



Data, Telemetry and SCADA Models

## CM60 Product Range

Local Control with Fist Microphone



Project Extended Control with High Visibility Green Control Head



Standard Extended Control with Black Control Head



Remote Control with Control Head and Fist Microphone



Base Unit Only - No Controller



\* PakBus is a proprietary communications protocol developed by Campbell Scientific, Inc.

# ADVANCED P25 TERMINALS



## Voice Applications

The CM60 Series is P25 phase one mixed mode compliant offering local, extended or remote control configurations. It is compatible with legacy analogue networks and signalling features with an upgrade path for P25 conventional and trunked networks. The radios can also be license upgraded for DES-56 / AES-256 encryption.

### KEY FEATURES

#### Interoperability

The complete range meets APCO P25 Standards for CAP and TIA-102 Class A compliance, offering an open standard for interoperability with all manufacturers in the P25 protocol.

#### Digital Sound

The advanced digitisation offered by the voice codecs used in CM60, provides clarity in audio especially in P25 phase one where voice recognition is important.

#### Guaranteed Signals

GME with the support of infrastructure partners can tailor a network solution that can guarantee fade margins to provide reliable communications.

#### Fast Vote Scan

RSSI with fast vote scan will ensure CM60 will always lock on to the strongest base station or repeater signal in a radio network.

#### Encryption

CM60 Series offers high level DES and AES encryption to provide complete privacy for users on a conventional or trunked network.

#### Mobile Microphones

User Interface Controller

#### Talk Around

Similar to analogue radios, CM60 can be enabled for talk around in P25 conventional mode. This would ensure peer-to-peer communications especially if the repeater is out of range.

#### P25 Propagation

P25 phase one offers similar radio wave propagation as analogue, therefore reducing the demand on network infrastructure compared to TDMA networks.

#### Application Programming Interface (API)

CM60 offers open source API's for third party integrators to create customised solutions.

#### Automatic Vehicle Location (AVL)

Leveraging on partner technologies, CM60 can offer AVL and crash roll over. This means in the event of an accident, CM60 will report the location of the incident to the network.



Fist Microphone  
**MP600B**



Black Control Head  
**UIC600B**



High Visibility Green Control Head  
**UIC600G**



# SPECIFICATIONS:

General	
RF Compliance	AS/NZS 4295   AS/NZS 4365 (UHF Models)   TIA-102 Class A   TIA-603   IC RSS-119   FCC PARTS 15, 22, 74, 90   90.210
Frequency Band	VHF 136 to 174 MHz   UHF-L 400 to 480 MHz   UHF 450 to 520 MHz (380 - 400 MHz*)
Number of Channels	Standard 2,000 (1,072 for P25)
Number of Zones	50
Channel Spacing	12.5 kHz
Channel Steps	12.5 kHz, 6.25 kHz, 5 kHz, 2.5 kHz
Frequency Stability	±1.5ppm for -20°C to 60°C
Modulation	FM, C4FM
Antenna Impedance	50Ω
Antenna Connector	BNC
Supply Voltage	13.8V negative earth
Operating Voltage Range	10.8V to 15.6V
Reverse Polarity Protection	Diode
Over Voltage Protection	18V crowbar
Fuse	2 x 10A blade type in-line fuse
Current Consumption (Voice)	RX muted 220 mA   RX full audio 1A   TX 6A (25W)
Current Consumption (Data Telemetry)	VHF/UHF RX 150 mA
Mechanical	
Dimensions	28.9 mm (H) x 127 mm (W) x 162.8 mm (D)
Weight of Chassis	620g
MIL Spec	810 C, D, E and G
Temperature Range	-20° C to 60° C

Transmitter	
Power Output	25W, 10W, 5W, 1W selectable per channel
Transmit Duty Cycle	4:1 for 25W output
Modulation Type	C4FM, FM, DC coupled, DSP audio processing
Deviation Limiting	5 kHz, 2.5 kHz at +20 dB AF limiting
TX Audio Frequency Response	+6 dB/octave, +1 dB/-3 dB, 300 Hz to 3 kHz
AF Distortion	3% below limiting
TX Audio Residual Noise and Hum	-40 dB
Spurious Emissions	-36 dBm
Adjacent Channel Power	-60 dBc
Receiver	
Circuit Type	Double Conversion Superheterodyne, DC coupled, DSP audio processing
IF Frequencies	21.4 MHz (VHF)   38.85 MHz (UHF)   450 kHz
Analog Sensitivity	-121 dBm for 12 dB SINAD unweighted
Digital Sensitivity	-121 dBm C4FM for 5% BER
Adjacent Channel Selectivity	60 dB
Spurious Rejection	80 dB
Intermodulation Rejection	75 dB
Blocking	100 dB
RF Switching Bandwidth	VHF 38 MHz   UHF 70 MHz   UHF-L 77 MHz
Conducted Spurious Emissions	-80 dBm
Audio	
RX Audio Frequency Response	+6 dB/octave, +1 dB/-3 dB, 300 Hz to 3 kHz
RX Audio Residual Noise and Hum	-40 dB
Audio Rated Power - Internal Speaker	3W (RMS)
Audio Rated Power - External Speaker	3W (RMS) into 4Ω
Audio Rated Power - UIC600	2W (RMS) into 8Ω

## Voice Model Configurations

LOCAL CONTROL with MP600B Fist Microphone				
CM60-V25L	CM60-UL25L	CM60-U25L	CM60-UL5L	CM60-U5L
PROJECT EXTENDED CONTROL with Hi-Vis Green UIC Control Head				
CM60-V25P	CM60-UL25P	CM60-U25P	CM60-UL5P	CM60-U5P
STANDARD EXTENDED CONTROL with Black UIC Control Head				
CM60-V25S	CM60-UL25S	CM60-U25S	CM60-UL5S	CM60-U5S
REMOTE CONTROL with RH006 Remote Head and MP600B Fist Microphone				
CM60-V25R	CM60-UL25R	CM60-U25R	CM60-UL5R	CM60-U5R
BASE UNIT ONLY - NO CONTROLLER				
CM60-V25B	CM60-UL25B	CM60-U25B	CM60-UL5B	CM60-U5B
DATA, TELEMETRY AND SCADA MODELS				
CM60-V25D	CM60-UL25D	CM60-U25D	CM60-UL5D	CM60-U5D

\* 380 - 400 MHz band may be available on special order. Please contact GME for availability.

New products submitted for FCC certification after January 1, 2011 are restricted from being granted certification at 25 kHz for United States – State & Local Markets only.

CM60 Series radios are restricted to 12.5 kHz operation only and does NOT support 25 kHz in the VHF.

Specifications are subject to change without notice.

They are issued as a guide only and shall not form part of any contract without the express written authorisation of GME.



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