



# ***Motorola Professional Series ATEX Radios***

The choice for professionals in hazardous environments -  
GP340 EX, GP380 EX, GP580 EX and GP680 EX



# THE CHOICE FOR PROFESSIONALS IN HAZARDOUS ENVIRONMENTS

Whether on an oil rig, in a gas installation or another potentially explosive environment, safe and reliable communications are paramount. That is why Motorola has brought together three key elements: its 75 year expertise in communications; its wide experience of producing two-way radios for use in hazardous environments; and its proven Professional Series two-way radio platform.

Motorola's ATEX-approved Professional Series Portable Radios give team members instant access to one or many colleagues at the touch of a button, without compromising safety, and allow constant contact should a critical situation need resolving.



## **QUALITY & RELIABILITY**

Renowned for their durability, Motorola Professional Series Portable Radios offer unrivalled crystal clear audio quality by activating either Motorola's X-Pand™ technology or 'Low Level Expansion.' This reduces noise usually heard during conversational pauses. When discretion is key, the 'whisper' function means that even the quietest message can be transmitted and understood.

Robust and reliable, all radios have passed Motorola's rigorous Accelerated Life Test which simulates five years of hard use in the field, and are IP64 compliant for use in environments where dust ingress can leave other radios standing. In addition, the Motorola Professional Series Portable Radios are designed and built to exceed the 11 applicable tests of the exacting standard MIL Spec 810F; the quality hallmark of the US military.

## **SAFETY**

The visible blue colour of the ATEX radios is the official ATEX colour recognised by professional users. The blue colour increases safety for user with mixed fleet of ATEX and non-ATEX radios. The dedicated blue ATEX colour will help ensure that users bring only ATEX approved radios into potentially explosive environments.

Press the highly visible orange Emergency Button to initiate the organisation's defined emergency communications procedure. Providing even greater safety for employees in hazardous environments, Motorola provides a new ATEX-approved mandown option board for the GP340, GP380 and GP680 ATEX radios. This factory-fitted option board automatically summons assistance when the radio falls over or remains motionless for a predetermined time period.

Additional safety features include a specially- designed battery connection that prevents non-ATEX approved batteries from being fitted to the radios. The lockable accessory connector plug features a tamper-proof screw to control the use of accessories.

## **PRODUCTIVITY**

Avoid missed calls as the Channel Scan function allows activity on different communications channels to be monitored and answered. When working offsite or close to other users, 'Talkaround' lets users communicate without using the system or dispatcher.

## **CUSTOMISABLE**

The GP340 EX, GP380 EX, GP580 EX and GP680 EX are supported by a range of ATEX-approved audio accessories including, headsets and remote speaker microphones tailored to the requirements of today's radio users.



### GP340 EX & GP380 EX

Users of PL/5-Tone signalling radios can upgrade or add to their fleet with the Popular GP340 EX or the Versatile GP380 EX.

With 16 communication channels, the GP340 EX is the simple two-way radio solution for professionals who need to stay in contact. Its **streamlined features** allow users to concentrate on the job with help only a button press away. When the user is unavailable to receive calls, the Call Forward function means that the message gets through to a colleague who can help. An audible low battery alert helps users **sidestep radio downtime**.

To protect users further, both radios feature a built-in 'Lone Worker' tool. Should a user not respond to a regular warning signal then **Emergency Signalling** is activated, as defined by the organisation.

The 255-channel GP380 EX is designed for more sophisticated users who require the **added functionality** of a full keypad and need to communicate with a larger number of users and groups.

In addition to the features of the GP340 EX, GP380 EX users benefit from the **ease-of-use** afforded by a 14-character 7-language alpha-numeric display containing a battery gauge. The contact list function means that callers can be quickly and easily identified and prioritised. In addition, predefined text messages can be sent between GP380 EX users to communicate meaningful messages when it is inconvenient or inappropriate to send a voice message.

### GP580 EX

For users of StartSite, SmartZone and SmartNet systems, the Versatile GP580 EX provides organisations with the combined power of a trunked radio system and a Motorola Professional Series radio suitable for use in a potentially hazardous environment.

The RSSI roaming feature extends communications beyond the reach of a single trunked site for **seamless communication**. When moving between trunked sites, the radio will switch to the strongest available signal.

**Communication security** is key and Selective Radio Inhibit allows a radio to be blocked remotely should it be lost or stolen, and unblocked upon retrieval. The Remote Monitor Function lets authorised individuals listen to voice traffic should a security issue be identified.

**Manage Emergencies** with the integrated emergency alarm that gives priority access to defined talkgroups and identifies the radio user who requires assistance. Emergency calls can be directed to specific talkgroups, sites or announcement groups.

The alpha-numeric and iconic display allows **easy access** to the intuitive menu, talkgroup identities, phone book and contact list. Along with a battery gauge icon, these are all features that make using the GP580 EX easy.

### GP680 EX

Organisations with MPT1327/MPT1343 systems can harness the power of an ATEX-approved Motorola Professional Series Portable Radio with the Versatile GP680 EX.

GP680 EX users benefit from the **ease-of-use** afforded by a 14-character 9-language alpha-numeric display containing a battery gauge and signal strength indicator.

The contact list function makes calls easy and allows inbound callers to be quickly and easily identified and prioritised. In addition, predefined text messages can be sent between GP680 EX users to communicate meaningful messages when it is inconvenient or inappropriate to use voice.

**Avoid radio downtime** thanks to Dynamic Regrouping for over-the-air reconfiguration of the radio plus download of group names.





# ATEX (Atmospheres Explosibles) Directive 94/9/EC



This is the European Union directive to which all two-way radios must adhere if used in potentially explosive environments. This addition to Motorola Professional Series ATEX Portable Radios are approved to ATEX Protection Classes II 2 G Ex ib IIC T4, I 2D Ex tD A21 IP6x ib D21 T110°C, I M2 EEX ib I and IECEx as interpreted in the following tables.

## ATEX GAS PROTECTION:

|    |   |   |    |    |     |    |  |
|----|---|---|----|----|-----|----|--|
| II | 2 | G | Ex | ib | IIC | T4 |  |
|    |   |   |    |    |     |    | T4 = Device surface temperature will not exceed 135°C                          |
|    |   |   |    |    |     |    | IIC = Protection in the most explosive gas environment (hydrogen)              |
|    |   |   |    |    |     |    | ib = Type of intrinsic safety protection - one countable fault                 |
|    |   |   |    |    |     |    | Ex = Explosion-proof equipment, certified to European ATEX Directive and IECEx |
|    |   |   |    |    |     |    | G = Gas  |
|    |   |   |    |    |     |    | 2 = High Protection, category 2 for Zone 1 and 2                               |
|    |   |   |    |    |     |    | II = Group II 'other' environments, (chemical industries, refineries, etc.)    |

Class T4 automatically covers classes T3, T2 and T1. Gas Group IIC includes Gas Groups IIA and IIB

## ATEX DUST PROTECTION:

|    |    |    |    |     |      |    |     |        |  |
|----|----|----|----|-----|------|----|-----|--------|--|
| II | 2D | Ex | tD | A21 | IP6x | ib | D21 | T110°C |  |
|    |    |    |    |     |      |    |     |        | Maximum enclosure surface temperature                                      |
|    |    |    |    |     |      |    |     |        | Dust Zone 21   |
|    |    |    |    |     |      |    |     |        | Max peak RF power is < 2W  |
|    |    |    |    |     |      |    |     |        | IP Protection level for dust: IP6x   |
|    |    |    |    |     |      |    |     |        | Enclosure certified for dust Zone 21 by IP rating                          |
|    |    |    |    |     |      |    |     |        | Dust Protection by enclosure   |
|    |    |    |    |     |      |    |     |        | Explosion-proof equipment, certified to European ATEX Directive and IECEx  |
|    |    |    |    |     |      |    |     |        | 2 = High protection, Category 2 equipment for Zone 21 and 22. D = Dust     |
|    |    |    |    |     |      |    |     |        | II = Group II, other environments, (chemical industries, refineries, etc.) |

## ATEX MINING PROTECTION:

|   |    |    |    |   |  |
|---|----|----|----|---|--|
| I | M2 | EX | ib | I |  |
|   |    |    |    |   | Explosion Group, I = Methane   |
|   |    |    |    |   | ib = Type of intrinsic safety protection - One countable fault   |
|   |    |    |    |   | Ex = Explosion-proof equipment   |
|   |    |    |    |   | M2 = Category, equipment is intended for use in underground parts of mines as well as surface installation of such mines likely to be endangered by firedamp and/or combustible dust |
|   |    |    |    |   | I = Group I  |

## WHICH RADIO IS RIGHT FOR ME?

\*Requires additional interface

| Feature                      | GP340 EX  | GP380 EX  | GP580 EX         | GP680 EX         |
|------------------------------|-----------|-----------|------------------|------------------|
| Channels                     | 16        | 255       | System dependent | System dependent |
| Signalling                   | PL/5-Tone | PL/5-Tone | SmartZone        | MPT1327          |
| Menu Languages               | -         | 7         | 1                | 9                |
| Programmable buttons         | 3         | 3         | 3                | 3                |
| Keypad                       | -         | ■         | ■                | ■                |
| Contact List                 | -         | ■         | ■                | ■                |
| Speed Dials                  | -         | ■         | ■                | ■                |
| Backlit 14 character display | -         | ■         | ■                | ■                |
| Option Board Capable         | ■         | ■         | -                | ■                |
| Mandown Option Available     | ■         | ■         | -                | ■                |
| Lone Worker Function         | ■         | ■         | -                | -                |
| Make Telephone calls*        | -         | ■         | ■                | ■                |
| Receive Telephone calls*     | ■         | ■         | ■                | ■                |
| Status Messaging             | -         | ■         | ■                | ■                |
| Dynamic Regrouping           | -         | -         | ■                | ■                |

## MODEL NUMBERS

| Name     | Model Number       | Signalling | Channels         | Channel Spacing | Frequency       | Power | Factory Fitted Option Boards |
|----------|--------------------|------------|------------------|-----------------|-----------------|-------|------------------------------|
| GP340 EX | MDH25RCC4AN3BEA    | PL/5-Tone  | 16               | 12.5kHz         | UHF 403-470 MHz | 1W    | -                            |
| GP340 EX | MDH25RCC6AN3BEA    | PL/5-Tone  | 16               | 20/25kHz        | UHF 403-470 MHz | 1W    | -                            |
| GP340 EX | MDH25KCC4AN3BEA    | PL/5-Tone  | 16               | 12.5kHz         | VHF 136-174 MHz | 1W    | -                            |
| GP340 EX | MDH25KCC6AN3BEA    | PL/5-Tone  | 16               | 20/25kHz        | VHF 136-174 MHz | 1W    | -                            |
| GP340 EX | MDH25RCC4AN3BEASP1 | PL/5-Tone  | 16               | 12.5kHz         | UHF 403-470 MHz | 1W    | Mandown                      |
| GP340 EX | MDH25RCC6AN3BEASP1 | PL/5-Tone  | 16               | 20/25kHz        | UHF 403-470 MHz | 1W    | Mandown                      |
| GP340 EX | MDH25KCC4AN3BEASP1 | PL/5-Tone  | 16               | 12.5kHz         | VHF 136-174 MHz | 1W    | Mandown                      |
| GP340 EX | MDH25KCC6AN3BEASP1 | PL/5-Tone  | 16               | 20/25kHz        | VHF 136-174 MHz | 1W    | Mandown                      |
| GP380 EX | MDH25RCH4AN6BEA    | PL/5-Tone  | 255              | 12.5kHz         | UHF 403-470 MHz | 1W    | -                            |
| GP380 EX | MDH25RCH6AN6BEA    | PL/5-Tone  | 255              | 20/25kHz        | UHF 403-470 MHz | 1W    | -                            |
| GP380 EX | MDH25KCH4AN6BEA    | PL/5-Tone  | 255              | 12.5kHz         | VHF 136-174 MHz | 1W    | -                            |
| GP380 EX | MDH25KCH6AN6BEA    | PL/5-Tone  | 255              | 20/25kHz        | VHF 136-174 MHz | 1W    | -                            |
| GP380 EX | MDH25RCH4AN6BEASP1 | PL/5-Tone  | 255              | 12.5kHz         | UHF 403-470 MHz | 1W    | Mandown                      |
| GP380 EX | MDH25RCH6AN6BEASP1 | PL/5-Tone  | 255              | 20/25kHz        | UHF 403-470 MHz | 1W    | Mandown                      |
| GP380 EX | MDH25KCH4AN6BEASP1 | PL/5-Tone  | 255              | 12.5kHz         | VHF 136-174 MHz | 1W    | Mandown                      |
| GP380 EX | MDH25KCH6AN6BEASP1 | PL/5-Tone  | 255              | 20/25kHz        | VHF 136-174 MHz | 1W    | Mandown                      |
| GP580 EX | MDH25RCH4GC6BEA    | SmartZone  | System Dependent | 12.5kHz         | UHF 403-470 MHz | 1W    | -                            |
| GP580 EX | MDH25RCH6GC6BEA    | SmartZone  | System Dependent | 20/25kHz        | UHF 403-470 MHz | 1W    | -                            |
| GP580 EX | MDH25KCH4GC6BEA    | SmartZone  | System Dependent | 12.5kHz         | VHF 136-174 MHz | 1W    | -                            |
| GP580 EX | MDH25KCH6GC6BEA    | SmartZone  | System Dependent | 20/25kHz        | VHF 136-174 MHz | 1W    | -                            |
| GP680 EX | MDH25RCH4CK6BEA    | MPT1327    | System Dependent | 12.5kHz         | UHF 403-470 MHz | 1W    | -                            |
| GP680 EX | MDH25RCH6CK6BEA    | MPT1327    | System Dependent | 20/25kHz        | UHF 403-470 MHz | 1W    | -                            |
| GP680 EX | MDH25KCH4CK6BEA    | MPT1327    | System Dependent | 12.5kHz         | VHF 136-174 MHz | 1W    | -                            |
| GP680 EX | MDH25KCH6CK6BEA    | MPT1327    | System Dependent | 20/25kHz        | VHF 136-174 MHz | 1W    | -                            |
| GP680 EX | MDH25RCH4CK6BEASP1 | MPT1327    | System Dependent | 12.5kHz         | UHF 403-470 MHz | 1W    | Mandown                      |
| GP680 EX | MDH25RCH6CK6BEASP1 | MPT1327    | System Dependent | 20/25kHz        | UHF 403-470 MHz | 1W    | Mandown                      |
| GP680 EX | MDH25KCH4CK6BEASP1 | MPT1327    | System Dependent | 12.5kHz         | VHF 136-174 MHz | 1W    | Mandown                      |
| GP680 EX | MDH25KCH6CK6BEASP1 | MPT1327    | System Dependent | 20/25kHz        | VHF 136-174 MHz | 1W    | Mandown                      |

## ACCESSORIES All radios are supplied with a high capacity Li ion battery, accessory cover plate and antenna

| DESCRIPTION   | PART NUMBER | DESCRIPTION                         | PART NUMBER           |
|---|-------------|-------------------------------------|-----------------------|
| Carry Cases   |             | Antennas                            |                       |
| Soft Leather Case for GP340 EX                                      | GMLN1113    | Whip, 430-520MHz <sup>1</sup>       | PMAE4016 <sup>1</sup> |
| Soft Leather Case for GP380 EX, GP580 EX and GP680 EX               | GMLN1112    | VHF, 14cm, 136-155 MHz <sup>1</sup> | PMAD4042 <sup>1</sup> |
| Heavy Duty Leather Case for GP340 EX                                | GMLN1111    | VHF, 14cm, 136-155 MHz <sup>1</sup> | PMAD4049 <sup>1</sup> |
| Heavy Duty Leather Case for GP380 EX, GP580 EX and GP680 EX         | GMLN1110    | UHF, 403-520MHz                     | NAE6483               |
| ATEX Chest Pack   | MDHLN6602   | UHF, 9cm Helical, 430-470MHz        | NAE6522               |
| ATEX Radio Pack   | MDRLN4815   | UHF, 9cm, 403-433MHz                | PMAE4002              |
| ATEX Audio Accessories (for direct connection into radio)           |             | UHF, 9cm Helical, 430-470MHz        | PMAE4003              |
| Remote Speaker Microphone   | GMMN1111    | VHF, 9cm, 136-155MHz                | PMAD4012              |
| ATEX Over the Head Heavy Duty Headset                               | PMLN5151    | VHF, 9cm, 155-174MHz                | PMAD4013              |
| ATEX Behind the Head Heavy Duty Headset                             | PMLN5152    | VHF, 14cm, 136-155MHz               | PMAD4014              |
| ATEX Over the Head Lightweight Headset                              | PMLN5153    | VHF, 14cm, 155-174MHz               | PMAD4015              |
| ATEX Behind the Head Lightweight Headset                            | PMLN5154    | VHF, 14cm, 150-161MHz               | PMAD4023              |
| ATEX Throat Microphone with 80mm PTT                                | PMMN4055    | VHF, 9cm, 150-161MHz                | PMAD4025              |
| ATEX Skull Microphone with 80mm PTT                                 | PMMN4056    |                                     |                       |
| ATEX Battery  |             |                                     |                       |
| High Capacity Li Ion Battery  | NNTN5510CR  |                                     |                       |
| Chargers (ATEX Exempt)  |             |                                     |                       |
| 120V Impres Display Multi Unit Charger (US Plug) (not CE compliant) | WPLN4204    |                                     |                       |
| 120V Impres Multi Unit Charger (US Plug) (not CE compliant)         | WPLN4205    |                                     |                       |
| 120V Single Unit Rapid Charger                                      | MDHTN3000   |                                     |                       |
| 230V Single Unit Rapid Charger Euro Plug                            | MDHTN3001   |                                     |                       |
| 230V Single Unit Rapid Charger UK Plug                              | MDHTN3002   |                                     |                       |
| IMPRES™ SUC UK  | WPLN4183    |                                     |                       |
| IMPRES™ SUC Euro  | WPLN4184    |                                     |                       |
| IMPRES™ MUC (Non-display) UK  | WPLN4188    |                                     |                       |
| IMPRES™ MUC (Non-display) Euro                                      | WPLN4189    |                                     |                       |
| IMPRES™ MUC (Display) UK  | WPLN4193    |                                     |                       |
| IMPRES™ MUC (Display) Euro  | WPLN4194    |                                     |                       |

<sup>1</sup>certified for ATEX category 2G, 2D and M2 / IECEx group II gas, dust and group I. Remaining antennas are not certified to ATEX dust specifications. I certified for ATEX category 2G, 2D and M2 / IECEx group II gas, dust and group I. Remaining antennas are not certified to ATEX dust specifications.



## Technical Specifications

|   |  |                  |
|---|--|------------------|
| Channel Capacity  | GP340 EX   | 16               |
|   | GP380 EX   | 255              |
|   | GP580 EX   | System dependent |
|   | GP680 EX   | System dependent |
| Power Supply  | 7.5V rechargeable battery  |                  |
| Dimensions H x W x D (mm) with Li Ion battery                                   | 148 x 60 x 39 (at base)  |                  |
| Weight (grams)  |  |                  |
| With Li Ion battery, soft leather carry case, accessory cover plate and antenna | GP340 EX   | 562              |
|   | GP380 EX   | 570              |
|   | GP580 EX   | 570              |
|   | GP680 EX   | 570              |
| Average Battery Life @5:5:90 cycle With Li-Ion battery                          | 11 hours   |                  |
| Sealing   | Withstands rain testing per: MIL STD 810F and IP64 (IEC 529)                                 |                  |
| Shock and Vibration   | Protection provided via impact resistant housing exceeding MIL STD 810F and TIA/EIA 603      |                  |
| Dust and Humidity   | Protection provided via environment resistant housing exceeding MIL STD 810F and TIA/EIA 603 |                  |

## Environmental Specifications and Standards

|                          |                |
|--------------------------|----------------|
| Operating Temperature:   | -20°C to +60°C |
| Storage Temperature:     | -40°C to +85°C |
| Humidity                 | Per MIL-STD    |
| Water and Dust Intrusion | IP64, MIL-STD  |

Radios meet all applicable regulatory requirements:

ATEX EC Directive: 94/9/EC:

- Applicable Standards: EN 60079-0:2006, EN 60079-11:2007, EN 61241-0:2006, EN 61241-1:2004, EN 60529:1992, IECEx: IEC 60079-11:2006, IEC 60079-0:2004, IEC 61241-0:2004, IEC 60529:1991

R&TTE Directive: 99/5/EC:

- Applicable Standards: EN300 086-2, EN300 113-2, EN301 489-01, EN301 489-05, EN 60950-1, EN300 219-2

### Receiver

|                              |   |
|------------------------------|---|
| Frequencies - Full Bandsplit | VHF: 136-174 MHz<br>UHF: 403-470 MHz              |
| Channel Spacing              | 12.5 or 20/25 kHz                                 |
| Sensitivity (@20dB SINAD) EN | 0.50 µV typical                                   |
| Intermodulation EN           | 65 dB   |
| Adjacent Channel Selectivity | 60 dB @ 12.5 kHz, 70 dB @ 20/25 kHz               |
| Spurious Response Rejection  | 70 dB   |
| Rated Audio                  | 0.5 W   |
| Audio Distortion @ 0.5W      | 3% typical  |
| Conducted Spurious Emissions | -57 dBm < 1 GHz<br>-47 dBm > 1 GHz<br>EN300 086-2 |

### Transmitter

|   |  |
|---|--|
| Frequencies - Full Bandsplit                    | VHF: 136-174 MHz<br>UHF: 403-470 MHz             |
| Channel Spacing                                 | 12.5 or 20/25 kHz                                |
| Frequency Stability (-20°C to +50°C, +25°C Ref) | +/-2.5 ppm                                       |
| Power   | VHF: 136-174 MHz 1W<br>UHF: 403-470 MHz 1W       |
| Modulation Limiting                             | +/-2.5@12.5 kHz, +/-4.0@20 kHz,<br>+/-5.0@25 kHz |
| Conducted/Radiated Emission                     | -36 dBm < 1 GHz<br>-30 dBm > 1 GHz               |
| Adjacent Channel Power                          | -60 dB @ 12.5 kHz<br>-70 dB @ 20/25 kHz          |
| Audio Distortion                                | 3% typical                                       |

### Portable Military Standards 810E

| Applicable MIL-STD | 810F    |            |
|--------------------|---------|------------|
|                    | Methods | Procedures |
| Low Pressure       | 500.3   | 2          |
| High Temperature   | 501.3   | 1,2        |
| Low Temperature    | 502.3   | 1,2        |
| Temperature Shock  | 503.3   | 1          |
| Solar Radiation    | 505.3   | 1          |
| Rain               | 506.3   | 1,2        |
| Humidity           | 507.3   | 2,3        |
| Salt Fog           | 509.3   | 1          |
| Dust               | 510.3   | 1          |
| Vibration          | 514.4   | 1          |
| Shock              | 516.4   | 1,4        |

All specifications are subject to change without notice and are issued for guidance purposes only. Specifications at 25°C unless stated otherwise.



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