MTP8000Ex series

Intrinsically safe TETRA portable radios

MOTOROLA SOLUTIONS

MTP8000Ex series

Power and performance
designed for extreme environments

The MTP8000Ex Series intrinsically safe TETRA radios have been engineered to address workers' needs and offer reliable radio communications in hazardous environments.

Motorola Solutions has more than 20 years of experience in providing intrinsically safe two-way radios. We have used this knowledge and experience to develop the rugged MTP8000Ex Series intrinsically safe TETRA radios, giving workers the ability to work safely. The radios have powerful audio, great coverage, long battery life, and advanced ergonomics for ease of use.

→ **Designed for the mission**

The MTP8000Ex Series intrinsically safe TETRA radios have been specifically designed for end-users who need to work in hazardous environments with potentially explosive gases, chemical vapours, flammable liquids or combustible dust.

MTP8500Ex
(simple keypad)

MTP8550Ex
(full keypad)

Specifications

General

Dimensions	Height: 145mm, Width: 57mm, Depth: 40mm (with battery)
Weight	441g (MTP8550Ex SIM with battery, with antenna) 442g (MTP8500Ex SIM with battery, with antenna)
Battery options	1250mAh IMPRES Li-ion Battery
Audio output power at maximum volume	1.2W Integrated audio howling suppression

TETRA services

RF	
Frequency bands	350-470 MHz, 800 MHz
Transmitter RF power	Class 3L, Class 4
Receiver class	A and B
Receiver static sensitivity	-116dBm (min); -118dBm (typical)
Receiver dynamic sensitivity	-107 dBm (min); -109 dBm (typical)

VOICE	
Full duplex	Full duplex TMO private, PABX, PSTN, emergency
Half duplex	Half duplex TMO private, group, emergency Half duplex DMO private, group, emergency
Emergency call (User customisable)	• Tactical emergency group call to attached talkgroup • Non-tactical emergency group call to dedicated talkgroup • Individual emergency call to predefined party (half/full duplex) • Hot mic emergency - hands free in moments that matter • Smart TMO / DMO selection for emergency call set up - ensure call gets through • Emergency status message sent to dispatch console
Other voice functions	• Inter-MNI, gateway, repeater • PTT double push • Preemptive priority calls • Adaptive audio control

DATA	
Short Data	• Status messaging in TMO and DMO • SDS messaging in TMO and DMO, including concatenated messaging • Short Data applications • Radio messaging system (RMS) • Callout (simple, full, E2EE)
Packet Data	Single and multi slot packet data service
TNP1	Simultaneous operation of Packet Data and Short Data Services over a common Peripheral Equipment Interface (PEI)
AT commands	ETSI and enhanced AT commands (including voice control)

DMO REPEATER	
DMO repeater mode features and functions	• DMO repeater type 1A for efficient single channel operation • Repeats DMO voice and tone signalling on selected talkgroup • Repeats SDS and Status messaging on selected talkgroup • Transmission of Repeater Presence Signal • Emergency Call (Pre-emptive Priority Call)

TETRA services continued

SECURITY	
Air Interface Encryption Authentication	Infrastructure initiated and made mutual by radio terminal
Air Interface Encryption algorithm options	TEA 1, TEA 2, TEA 3
Air Interface Encryption Protocols - security classes	Security class 1, 2, 3 and 3G support
End-to-End Encryption (E2EE) options	• AES128 or AES256 for voice and short data with OTAK supported through optional Hardware Security Module (HSM), FIPS 140-2 level 3 validated • Optional SIM based encryption including BSI
Other security features	• OTAR/DMO SCK • Temporary Disable (Stun) • Permanent Disable (ETSI or V2-Customer Restore)
DMO repeater mode features and functions	• DMO repeater type 1A for efficient single channel operation • Repeats DMO voice and tone signalling on selected talkgroup • Repeats SDS and Status messaging on selected talkgroup • Transmission of Repeater Presence Signal • Emergency Call (Pre-emptive Priority Call)

Connectivity

BLUETOOTH	
Bluetooth versions supported	Bluetooth 2.1 + EDR, Bluetooth 4.0, Bluetooth Smart (BTLE)
Bluetooth security	• Bluetooth 2.1 includes mandatory encryption with secure simple pairing (SSP), easier pairing and preventing sniffing / hacking • Bluetooth 4.0 supports Security Manager (SM) services with AES encryption
Bluetooth audio profiles	• Head Set Profile (HSP) • Fast PTT with Motorola Solutions accessories
Bluetooth data services	• Serial port profile • Dial up networking profile • Discovery mode • Generic access profile • Object push profile • Generic attributes profile (GATT) • Heart rate profile • Battery service profile • Devices info profile

Location services

SATELLITE/OUTDOOR NAVIGATION SERVICE	
Constellations supported	GPS / BeiDou / GLONASS
Antenna	Integrated internal antenna
Simultaneous satellites	12
GNSS tracking sensitivity, dBm	• GPS: -162 (guaranteed); -163 (typical) • BDS (BeiDou): -154 (guaranteed); -155 (typical) • GLONASS: -154 (guaranteed); -155 (typical)
Accuracy, 3D	< 5 metre (50% probable) @ -130 dBm
Protocols	ETSI LIP and Motorola Solutions LRRP

User interface

Display	• Dual displays: large front mounted display with scalable fonts for readability, top mounted display for easy interaction when worn on belt • Colour transflective front display, 240x320 pixel screen with 262K colours - viewable in bright sunlight • Colour transflective top display, 200x112 pixel screen with 262K colours - viewable in bright sunlight • Flip screen, large/x-large text and icon options (front display only) • Configurable smart backlight to optimise power use • Universal time display • Multiple display languages (user selectable) • Screen saver GIF image and text
Controls	Large multi-function knob for volume and talkgroup control
Keypad	• User configurable One-Touch Buttons (OTB) and keys, extensive list of functions • Keypad options: MTP8000Ex (simple keypad model) / MTP8550Ex (full keypad model) • Multiple keypad languages • Keypad lock
Menu	• Customisable to user needs • Menu shortcuts
Talkgroup management	User friendly, flexible, fast and efficient interface
Talkgroups	• TMO folders: up to 256, TMO talkgroups: up to 10000 • DMO folders: up to 128, DMO talkgroups: up to 2000
Favourite talkgroup folders	3
Scan lists	40 lists of up to 20 groups
Country/network code list	100
Contacts management	Rapid search
Contacts	1000 contacts with 6 numbers per contact, (maximum 2000 unique numbers)
Dialling methods	Dialling Direct, Scroll, Speed, One touch button/key, AlphaNumeric search, call history redial
Text message list	• Up to 200 Entries (short messages) • At least 20 Entries for Outbox (long messages)[1] • At least 10 Entries for Inbox (long messages)[1]
Status list	400 pre-defined messages assignable to one touch buttons
Other features	• Fall alert (man down) sensor • Enhanced T-bar grip for confident handling • Unique nameplate for simple identification of radio • Large 360° signal / status indicator for high visibility

Environmental specifications

Operating temperature[2] °C	• ATEX/IECEx certified : -20 to +55 • Ordinary Locations: -30 to +60
Storage temperature[2] °C	-40 to +85
Humidity (condensation and high), temperature change, low and high temperature	ETS 300-019-1-7 class 7.3E
Shock (bumps and shock), drop (free fall and drop and topple) and vibration (random and sine)	ETS 300-019 1-7 class 5M3
Dust and water ingress protection	IP64, IP65, IP66 & IP67 per IEC-60079-0:2017 and IEC-60529

[1] Long messages of up to 1000 characters
[2] Temperatures listed are for radio specifications with LMR only. Please check battery specifications for more detail on battery operating temperature. Batteries should be charged at 0 to +45 °C and stored at +20 to +30 °C. For more information visit motorolasolutions.com/batterycare

US Military standard matrix

APPLICABLE MIL-STD									
MIL-STD 810C		MIL-STD 810D		MIL-STD 810E		MIL-STD810F		MIL-STD810G	
METHOD	PROC/CAT	METHOD	PROC/CAT	METHOD	PROC/CAT	METHOD	PROC/CAT	METHOD	PROC/CAT
Low pressure 500.1	I	500.2	II	500.3	II	500.4	II	500.6	II
High temperature 501.1	I, II	501.2	I/A1, II/A1	501.3	I/A1, II/A1	501.4	I/Hot, II/Hot	501.6	I/A1, II/A1
Low temperature 502.1	-	502.2	I, II	502.3	I, II	502.4	I, II	502.6	I, II
Temperature shock 503.1	-	503.2	A1/C3	503.3	A1/C3	503.4	I	503.6	I-C
Solar radiation 505.1	II	505.2	I/A1	505.3	I/A1	505.4	I/A1	505.6	I/A1
Rain 506.1	I, II	506.2	I, II	506.3	I, II	506.4	I, III	506.6	I, III
Humidity 507.1	II	507.2	II	507.3	II	507.4	-	507.6	II/Aggravated
Salt fog 509.1	I	509.2	I	509.3	I	509.4	-	509.6	-
Blowing dust and sand 510.1	I	510.2	I, II	510.3	I, II	510.4	I, II	510.6	I, II
Vibration 514.2	VIII/CatF, XI	514.3	I/Cat10, II/Cat3	514.4	I/Cat10, II/Cat3	514.5	I/Cat24, II/Cat5	514.7	I/Cat24, II/Cat5
Shock 516.2	I, II, V	516.3	I, IV, VI	516.4	I, IV, VI	516.5	I, IV, VI	516.7	I, IV, VI

Hazard specifications

Specifications	GAS		DUST		MINING	
	IECEx SPECIFICATIONS IEC 60079-0:2017 IEC 60079-11:2011	ATEX SPECIFICATIONS EN IEC 60079-0:2018 EN60079-11:2012	IECEx SPECIFICATIONS IEC 60079-0:2017 IEC60079-11:2011	ATEX SPECIFICATIONS EN IEC 60079-0:2018 EN60079-11:2012	IECEx SPECIFICATIONS IEC 60079-0:2017 IEC60079-11:2011	ATEX SPECIFICATIONS EN IEC 60079-0:2018 EN60079-11:2012
Surface industries (equipment group)	N/A	II	N/A	II	N/A	I
Equipment category	N/A	2	N/A	2	N/A	M2
Environment	N/A	G	N/A	D	N/A	N/A
Explosion protection	Ex	Ex	Ex	Ex	Ex	Ex
Protection concept intrinsic safety	ib (Zone 1 and 2)	ib (Zone 1 and 2)	ib (Zone 21 and 22)	ib (Zone 21 and 22)	ib (Category M2)	ib (Category M2)
Hazardous location groups	IIC	IIC	IIIC	IIIC	I	I
Temperature classification	T4	T4	T90°C	T90°C	N/A	N/A
Equipment protection level	Gb (Zone 1 and 2)	Gb (Zone 1 and 2)	Db (Zone 21 and 22)	Db (Zone 21 and 22)	Mb	Mb
Ambient temperature range	-20 °C +55 °C	-20 °C +55 °C	-20 °C +55 °C	-20 °C +55 °C	-20 °C +55 °C	-20 °C +55 °C
Dust and water ingress protection	IP64 / IP65 / IP66 / IP67	IP64 / IP65 / IP66 / IP67	IP64 / IP65 / IP66 / IP67	IP64 / IP65 / IP66 / IP67	IP64 / IP65 / IP66 / IP67	IP64 / IP65 / IP66 / IP67

Device management solutions

Supports Integrated Terminal Management (iTM)
and Customer Programming Software (CPS).

Recommended services

Services for TETRA radios
www.motorolasolutions.com/deviceservices

Device management solutions

For a complete list of MTP8000Ex series
accessories, please visit:
motorolasolutions.com/tetradeviceaccessories

To learn more, visit: www.motorolasolutions.com/mtp8000ex

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