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User Manual

TPD-8000 Series

TPD-8124 (VHF)
TPD-8424 (UHF)

EXPERIENCE
A NEW BEGINNING

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Before operating the radio, please read the User Manual carefully.

The functions and specifications in the User Manual are subject to change without notice for improvement of the radios performance.

1. Features

The TPD-8000 Digital Radio was developed with the user in mind to provide a compact and rugged design with features to fit multiple types of jobs. The following are the main features of the TPD-8000 Series.

- Digital (Tier II - TDMA) or Analog Mode
- 512 Channel Capacity; 16 Zones with 32 Channels per zone (1 zone = Max 32 Channels)
- Mixed Channel Operation; Analog reception in Digital mode
- RF Power Output - Maximum 3 watts
- Choice of Case Color - Black, Blue, or Orange
- High Capacity 2,200 mAh Li-Ion Battery
- Text Messaging with Inbox and Outbox. Up to 10 Predefined Messages.
- Secure Communications - Encryption mode 16 bit
- USB Charge through Desk Top Charger or Direct through Radio
- Lone Worker Mode
- Multiple Scan Modes
- VOX (Voice Operated Transmit)
- Busy Channel Lock (BCL) / Busy Channel Lock Override (BCLO)
- Time-Out Timer (TOT)
- Emergency / Siren
- Built in Flash Lamp
- Etiquette (Vibration) function
- Voice recording and playback
- Six Squelch Levels (Analog mode)
- Remote Radio Stun / Revive
- 1 Watt Audio Output
- Locking Audio Accessory Connector
- 3 Lines Mono LCD Display (Numeric or Alphanumeric)
- Die Cast Aluminum Frame

2. Specifications

TPD-8124 (VHF)

General

Frequency Range	136~174 MHz
Frequency Stability	±1.0 ppm (-30 to +60°C)
Programmable Channels	512; 16 Zones with 32 Channels per Zone
Channel Spacing	25/20/12.5 kHz (Analog); 12.5 kHz/2 Time Slots 6.25 kHz (Digital)
Digital Protocol	Tier II (ETSI TS 102 361)
Dimensions (H/W/D)	3.89″ x 2″ x .82″ (99mm x 51mm x 21mm)
Weight (with Battery)	5.86 oz. (160g)
Operating Voltage/Power Source	DC +3.7V; 2,200 mAh Li-Ion Battery
Current Drain (maximum)	Receive mode, rated audio out - 320 mA (Audio Max) Transmit mode - 1,800mA Standby mode - 100mA

Receiver

Sensitivity	0.25 μV 12 dB (BER 1%)
Squelch Sensitivity	0.22 μV 10dB SINAD
Selectivity	>65dB (12.5KHz); 70dB (20/25 kHz)
Spurious and Harmonic Rejection	70dB
FM Hum and Noise	40dB (12.5KHz)
Audio Output Power	1 Watt 8-ohm load
Audio Distortion	<3% at rated output
Audio Response	+1, -3 dB from 6dB per octave de-emphasis characteristic from 300~3000Hz

Transmitter

RF Power Output	3 Watt; 2 Watt Analog
Spurious and Harmonic	70dB
FM Hum and Noise	40dB (12.5KHz)
Audio Distortion	3% maximum with 1KHz modulation
Audio Frequency Response	+1, -3dB from 6dB per octave pre-emphasis Characteristic from 300 ~ 3000Hz
Digital Vocoder	AMBE3000 with AMBE+2 Voice Compression Algorithm

TPD-8424 (UHF)

General

Frequency Ranges	380~420 MHz; 410~450 MHz; 440~470 MHz
Frequency Stability	± 1.0 ppm (-30 to +60°C)
Programmable Channels	512; 16 Zones with 32 Channels per Zone
Channel Spacing	25/20/12.5 kHz (Analog); 12.5 kHz/2 Time Slots 6.25 kHz (Digital)
Digital Protocol	Tier II (ETSI TS 102 361)
Dimensions (H/W/D)	3.89″ x 2″ x .82″ (99mm x 51mm x 21mm)
Weight (with Battery)	5.86 oz. (160g)
Operating Voltage/Power Source	DC +3.7V; 2,200 mAh Li-Ion Battery
Current Drain (maximum)	Receive mode, rated audio out - 320 mA (Audio Max)
	Transmit mode - 1,800mA
	Standby mode - 100mA

Receiver

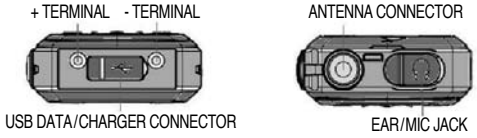
Sensitivity	0.25 μV 12 dB (BER 1%)
Squelch Sensitivity	0.22 μV 10dB SINAD
Selectivity	>65dB (12.5KHz); 70dB (20/25 kHz)
Spurious and Harmonic Rejection	70dB
FM Hum and Noise	40dB (12.5KHz)
Audio Output Power	1 Watt 8-ohm load
Audio Distortion	<3% at rated output
Audio Response	+1, -3 dB from 6dB per octave de-emphasis characteristic
	from 300~3000Hz

Transmitter

RF Power Output	3 Watt; 2 Watt Analog
Spurious and Harmonic	70dB
FM Hum and Noise	40dB (12.5KHz)
Audio Distortion	3% maximum with 1KHz modulation
Audio Frequency Response	+1, -3dB from 6dB per octave pre-emphasis Characteristic
	from 300 ~ 3000Hz
Digital Vocoder	AMBE3000 with AMBE+2 Voice Compression Algorithm

3. Controls & LCD Display

Controls



Package Contents

Radio

Battery

Desk Top Charger

Adapter & USB cable

Belt clip

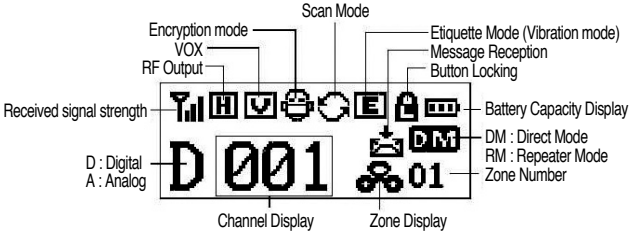
Antenna Basic / Optional

User Manual

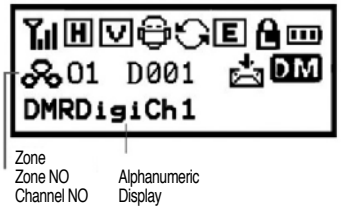
Button & LED Operations

Button & LED	Operation Description
Power ON/OFF	Press and hold the power button for 3 seconds to power ON. Press and hold the power button for 3 seconds during use to power OFF. When powered ON short press returns to main screen.
PTT Button	Press PTT to place radio into transmission mode and release for receive mode. It is recommended to hold the radio 2″ to 4″ away while speaking into the microphone. TX/RX Status LED will illuminate RED when transmitting and GREEN when receiving.
Volume Button +/-	Press +/- to either increase or decrease the volume. If in the menu screen, it moves through different functions (Left & Right).
Channel Button ▲▼	Press ▲▼to change channel. If in the menu screen, it moves through different functions (Up & Down).
Menu/ Enter Button	Press to enter the Menu. Additional presses indicate functions to choose from in the menu.
Return Button	Press the button to return to previous item in menu. Additional presses keep returning to previous menu item.
P1, P2, P3 Button	Press of the buttons allow the enable and disable of programmed functions. Optional short press and long press are available. Default long press of each button is as follows: - P1 is to enable or disable the lock function. - P2 is to turn Flash Lamp On / Off - P3 is to turn Etiquette (Vibrate) On / Off
Contact Button	Press the button to enter the contact list programmed into the radio. Press the ▲▼to move through the list of contacts.
TX/RX Status / Low Battery LED	TX/RX Status LED will illuminate RED when transmitting and GREEN when receiving. If the LED blinks GREEN, the frequency is the same but the color code does not match. Low Battery: LED blinks RED with ″beep″ sound.

LCD Display Icons



Numeric display



Alpha numeric display (Message)

4. Installation and Removal

Antenna Installation and Removal

To install the antenna, insert the antenna into antenna connector and screw the antenna clockwise.
To remove the antenna, screw the antenna counter clockwise.

Caution

1. Do not over tighten the antenna as it may cause damage to the radio.
2. NEVER HOLD by the antenna when carrying the transceiver.
3. Transmitting without an antenna may damage the transceiver.

Battery Installation and Removal

Remove the back cover using the slot located at the top of the cover to separate from the frame as shown in Figure 1.

Removal of the battery is accomplished by pushing up the battery and then removing at the bottom. Installation is accomplished by inserting the top of the battery in and then placing the bottom into the radio as shown in Figure 2.

Install the back cover by inserting the tabs into the bottom of the frame and compress from the bottom to the top until the case snaps completely into place. See Figure 3.

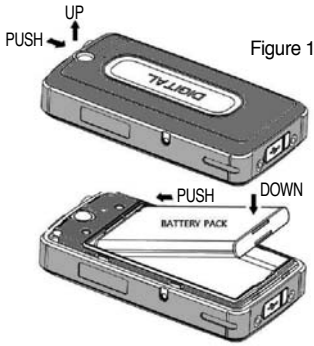


Figure 1: Back cover removal

Figure 2: Battery installation and removal

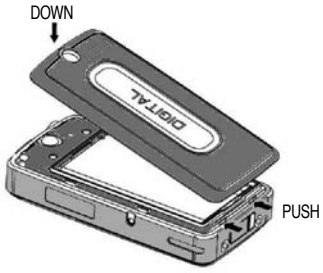


Figure 3: Rear cover installation

Belt Clip Installation and Removal

Align the belt clip with the designated side slot and screw hole in frame. Tighten the screw as shown in Figure 4. Conversely, loosen the screw to remove the belt clip.

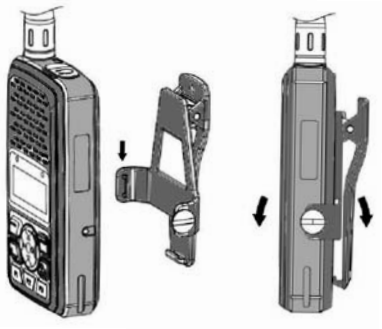


Figure 4: Belt clip installation and removal

External Audio Accessory Jack

Open the accessory cover and align the accessory connector with the accessory jack. Push down and turn clockwise to lock the accessory into the jack.

To remove the accessory, push down and turn counter clockwise: See Figure 5.

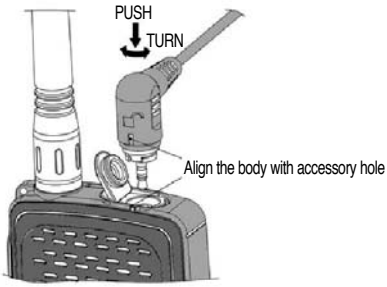


Figure 5: External accessory connection

5. Charging the Battery

Charging Direct into Radio - Open the flap to expose the USB Data/Charging Connector located on the bottom of the radio and connect the micro USB charging adaptor. See Figure 6. Connect the USB into a PC or applicable USB converter.

Charging with Desktop Charger - Inset the micro USB into the charger base. See Figure 7. Insert the radio into the charger base. Connect the USB into a PC or applicable USB converter.

The charger LED located on the face of the radio will illuminate RED indicating the unit is charging. When charging is completed, the LED will illuminate GREEN.

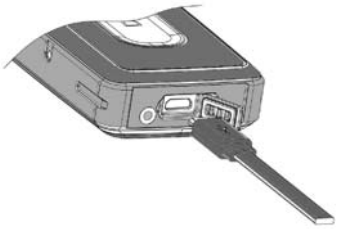


Figure 6: Charging USB direct into radio

Figure 7: Charging with Desktop Charger

Charge the battery before initial use of the radio for best performance.

IMPORTANT - If charging the battery while it is installed on the radio, it is recommended to turn off the radio. However, the battery will charge while the radio is on.

Caution

The use or charging of a battery other than the factory designated battery may cause damage and void the warranty to the battery, charger, and/or radio.

6. Radio Operation

MENU Functions

To enter the menu tree as displayed in Figure 8, press the menu/enter button. Press the Volume - / Left button or Volume + / Right button to move to the desired menu selection. All functions are available in Digital Mode. In Analog Mode, the functions available are Scan, Zone, Setting, and Radio Info.

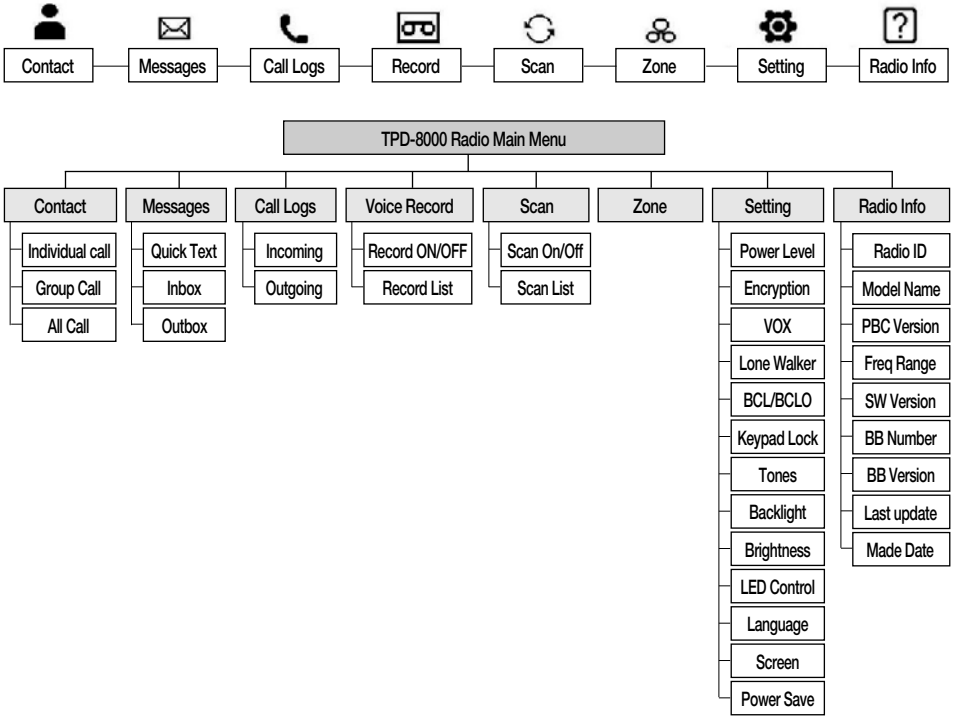


Figure 8: TPD-8000 Series Menu Tree

Certain settings for the eight (8) functions from the menu are enabled and disabled through the programming of the radio via the Programming Software (PS). Contact your Authorized Dealer for information.

☞ Note - If the menu is not operated for at least 25 seconds after launch, the radio will revert to standby mode.

1. Contact List (Digital Mode Only)

The Contact List provides a list of individuals, groups or all calls of which you can make a direct call. The lists of contacts are set within the radio by the PS. To initiate a call, select the Contacts section from the menu (or press the contact button for direct access), press the menu/enter button to see the list of contacts, press the ▼ ▲ keys to the desired contact and press the PTT button to initiate the call. The radio will revert to the original contact/channel after a preset time as set by the PS. When you enter in the contact menu, the applicable icon will be shown indicating the type of call.

ICON

- : Individual Contact List
- : Group Contact List
- : All Contact List

2. Messages (Digital Mode only)

The Message section offers the ability to perform one of the three functions.

Quick Text - The ability to send from a choice of 10 preset messages with up to 40 characters per message. The preset messages are set by the PS.

Inbox - Stores up to 10 received text messages; when the received messages exceed 10, the oldset message is cleared and the newest incoming message is registered. When a new message arrives, the contents will be displayed on the LCD screen. When you choose messages stored in the list, you can view the received messages and the caller ID that initiated the call.

Outbox - Stores up to 10 outgoing text messages; when the outgoing messages exceed 10, the oldset message is cleared and the newest sent message is registered. When you choose messages stored in the list, you can view the sent messages and the caller ID to whom they were sent.

To obtain access, select the Messages section from the menu, press the menu/enter button to enter into Messages and use the ▼ ▲ keys to highlight one of the three choices:

a) Quick Text

Select Quick Text from the message menu by pressing the menu/enter button to view the registered message(s).

Using the ▼ ▲ keys, select the message you want to send, and press the menu/enter button to see the contents of the message. Press the menu/enter button again to view the list of contacts, and using the ▼ ▲ keys, select the contact for the message to be sent. Press the menu/enter button and the message will be sent to the contact(s). An acknowledgement will be shown on the display of either “Sent Success” or “Sent Fail”. If the message is failed, check to make sure that the user receiving the message has their unit powered on.

b) Inbox

Text messages are shown initially on the screen. If you are in another mode or miss the message, the message icon ✉ will be displayed indicating a new message(s) has arrived. Select inbox from the message menu by pressing the menu/enter button to view the registered message(s). Using the ▼ ▲ keys, select the message you want to view, and press the menu/enter button to see the contents of the messages. Messages that have yet to be viewed will be indicated with a downward arrow inside the envelope; after a message is viewed the arrow will no longer be shown.

If you want to delete messages from the Inbox, select #2 Delete All from within the Inbox menu by pressing the menu/enter button, the question to Delete All will appear with the word "Yes?" Press the menu/enter button to delete all messages. If you choose not to delete the messages, press the return button to exit out.

c) Outbox

Select Outbox from the message menu by pressing the menu/enter button to view the outgoing message(s). Using the ▼ ▲ keys, select the message you want to view. At this point, you can resend the message. Press the menu/enter button to view the contents of the message. Using the ▼ ▲ keys, select the message you want to send, and press the menu /enter button to see the contents of the message. Press the menu/enter button again to view the list of contacts, and using the ▼ ▲ keys, select the contact for the message to be sent. Press the menu/enter button and the message will be sent to the contact(s). An acknowledgement will be shown on the display of either "Sent Success" or "Sent Fail". If the message is failed, check to make sure that the user receiving the message has their unit powered on.

To delete messages from the Outbox, select #2 Delete All from within the Outbox menu by pressing the menu/enter button, the question to Delete All will appear with the word "Yes?" Press the menu/enter button to delete all messages. If you choose not to delete the messages, press the return button to exit out.

☞ Note - When sending and receiving text messages, turn off the power saving mode.

3. Call Logs (Digital Mode Only)

The function allows the viewing of incoming and outgoing calls from individuals only. The call log contents are managed in the same manner as in the inbox/outbox of the messages section (reference #2 Messages).

4. Call Recording (Digital Mode Only)

This function is used to record the content of outgoing and incoming calls in digital mode only. There are 3 choices of Settings, Lists, and Delete All. Up to 63 conversations/recordings can be stored with each recording limited to 150 seconds. When the recordings exceed 63, the oldest message is cleared and the newest incoming message is registered.

Settings - This section allows the capability to turn the recording capability on or off.

Lists - This section allows the viewing of the recorded messages and to play back each message. To play back a message, use the ▼ ▲keys to the desired message and press the menu/enter button to play the recording.

Delete All - This function provides the capability to delete stored recordings. To delete recordings, select Delete All from within the Voice Recording menu by pressing the menu/enter button, the question to Delete All will appear with the word "Yes?" Press the menu/enter button to delete all recordings. If you choose not to delete the recordings, press the return button to exit out.

5. Scan

This function provides the ability to turn scan on/off and review the scan list as programmed into the radio via the PS. The ability to scan digital and analog channels are available. Contact your Authorized Dealer for further information.

6. Zone

Up to 16 zones (with up to 32 channels per zone) can be programmed into the radio via the PS. To select the desired zone, press the ▼ ▲keys and press the menu/enter button to accept the zone. Contact your Authorized Dealer for further information.

7. Settings

This function allows the change to the settings of Power Level, Squelch Level, Voice Operated Transmit (VOX). Lone Worker, Busy Channel Lock (BCL)/Busy Channel Lock Out (BCLO). Keypad Lock, Tones, Backlight, Brightness, LED Control, Language, Screen, and Power Save.

a. Power Level

This function sets the power transmitting level at high or low. The setting of low power improves battery life, but diminishes talk range.

b. Squelch Level (Analog Only)

This function allows the ability to change the squelch levels of Open,1,2,3,4, or Tight.

c. VOX

VOX function allows transmitting without using the PTT button.
VOX sensitivity level is adjusted from 1 to 5 with 5 being the most sensitive.

d. Lone Worker (Digital Mode Only)

This function can inform others about your safety within the time set in the menu. Contact your Authorized Dealer for further information.

e. BCL/BCLO

This function prevents interference when the channel is busy.
-Digital Mode Only
BCL On: If the current channel is busy, the transmission is prohibited.

- Analog Mode
  BCL On & BCLO Off: If the current channel is busy, transmitting is prohibited.
  BCL On & BCLO On: Transmitting occurs when it matches the received tone.

f. Keypad Lock

This function locks the keypad to prohibit the accidental press of keys and buttons. When the keypad lock is enabled, all keys/buttons are locked except the PTT button, the emergency button, and power ON / OFF button. If any of these buttons are pushed, the keypad lock will enable again after 25 seconds from the pressing of the last button. Press the P1 key for 2 seconds to temporarily unlock the keypad for 25 seconds.

g. Tones

This function enables or disables the tones associated with key and button presses. Additional tone settings can be set via the PS. Contact your Authorized Dealer for futher information.

h. Backlight

This function allows the backlight of the LCD to be turned ON/OFF and timed. The duration for the timed section is set via the PS. Contact your Authorized Dealer for futher information.

i. Brightness

This function is to adjust the contrast/brightness of the LCD from low to high.

j. LED Control

This function is to set the enable or disable the radio status LED. The LED status can be set via the PS.

k. Language

This function is to select the language (English or Korean) for the menus.

l. Screen Setting

This function allows the ability to change between Screen 1 for Numeric or Screen 2 for Alphanumeric. The information displayed is set via the PS. Contact your Authorized Dealer for futher information.

m. Power Saving Mode

This function allows the radio to enter a power saving mode to extend battery usage time. Off is full power, 1/1 is 50% on/50% off; 1/2 is 33% on/67% off; 1/4 is 25% on/75% off.
Note: When sending and receiving text messages, turn off the power saving mode.

Additional features that can only be set and initiated through the PS.

Voice Encryption (Digital Mode Only)

This is a feature to encrypt the incoming and outgoing voice. Voice Encryption function can only be performed through digital channels. The setting of voice encryption codes is set via the PS. Contact your Authorized Dealer for futher information.

7. For Safe Operation

• FCC RF EXPOSURE COMPLIANCE REQUIREMENTS FOR OCCUPATIONAL USE ONLY

The Federal Communications Commission (FCC), with its action in General Docket 93-62, November 7, 1997, has adopted a safety standard for human exposure to Radio Frequency (RF) electromagnetic energy emitted by FCC regulated equipment. Proper operation of this radio will result in user exposure far below the Occupational Safety and Health Act (OSHA) and Federal Communications Commission limits.

- **DO NOT** transmit for more than 50% of total radio use time (50% duty cycle). Transmitting more than 50% of the time can cause FCC RF exposure compliance requirements to be exceeded.
- This radio is NOT approved for use by the general population in an uncontrolled environment. This radio is restricted to occupational use, work related operations only where radio operator must have the knowledge to control the user's exposure conditions for satisfying the higher exposure limit allowed for occupational use.
- When transmitting, hold the radio in a vertical position with its microphone 1 inches (2.5 cm) away from your mouth.
- The radio is transmitting when the red LED on the front of the radio is illuminated. You can cause the radio to transmit by pressing the PTT bar on the radio.
- These are required operating configurations for meeting FCC RF exposure compliance. Failure to observe these restrictions mean violation.

FCC Notice

This device complies with part 15, 90 of the FCC rules. Operation is subject to the following two conditions: (1) This devices may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

8. Warranty Statement

Maxon America Inc. offers to the original end user:

Three (3) Year Limited Warranty on TPD-8000 Series Radios (separate warranty period on accessories).
One (1) Year Limited Warranty on Accessories (includes, but not limited to, batteries, antennas, belt clips, chargers, audio accessories, nylon cases, leather cases, etc.) .

Maxon warrants each new radio product manufactured or supplied by it to be free from defects in material and workmanship under normal use and service for the time period stated, provided that the user has complied with the requirements stated herein. The warranty period begins on the date of purchase from an Authorized Dealer. This warranty is not assignable or transferable. This warranty is void if the product serial number is altered, defaced or removed. Maxon is not responsible for any equipment that is attached to or used in conjunction with our products.

During the warranty period, if the product fails to function under normal use, because of manufacturing defects or workmanship, it should be returned to the Authorized Dealer from which it was purchased. The Authorized Dealer will repair the product or return the product for repair to Maxon or its Authorized Repair Depot. The user is responsible for the removal of the product from a vehicle or any equipment attached to it, or other site of its use; transportation of the product to the Authorized Dealer; for the return of the repaired or replacement product to the site of its use and for the reinstallation of the product.

Maxon shall have no obligation to make repairs or replacement of product which results from normal wear and tear, or is necessitated by catastrophe, fault, or negligence of the user, improper or unauthorized alterations or repairs to the product, incorrect wiring, use for which it was not designed or by causes external to the product. Maxon's sole obligation shall be to replace or repair the product covered by the warranty. Replacement is done at Maxon's discretion and may consist of a similar or higher featured product. Repair may include the replacement of parts with functionally equivalent new or reconditioned parts. All replaced parts and accessories are warranted for the balance of the original time period. All parts and accessories that are replaced become the property of Maxon America Inc.

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