



Kydera®

PROFESSIONAL DIGITAL TWO-WAY RADIO



Thank you for your interest in our products. This manual will help you to master the operation and use of the DR-320. This manual should be read and studied to ensure that the user understands the operation of the DR-320. Please read the Safety Information Manual before use.

This manual applies to the model, DR-320 series digital handheld.

TO THE USER

Thank you for purchasing this digital / analogue two-way radio designed and manufactured by the Fujian New Century Communications Co., Ltd. This product is designed and developed according to EU standards and advanced international technologies. The radio has an ergonomic design and a comprehensive set of functions to deliver an advanced communication solution. It will bring you a whole new operation and digital communication experience, improve your work efficiency, and provide reliable communications.

Our products are tested to strict and rigorous test procedures using advanced test instruments and equipment to internationally recognized standards.

This manual should be read and studied to ensure that the user understands the operation of the DR-320. Please read the Safety Information Manual before use.

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USER NOTICES

SAFETY:

The user should be aware of and understand the general hazards in operating a two-way radio transceiver. We cannot guarantee the safety and operation of our transceiver with aftermarket accessories unless they have been tested and sold by us.

Our transceiver should be maintained and serviced by a qualified two-way radio dealer and their technical staff. Failure to do so may violate our warranty.

WARNING:

No two-way radio transceiver including ours shall be operated including powered on in hazardous areas such as explosive

atmospheres including Inflammable gas, dust particles, metallic powders, grain dust, etc. This shall include confined spaces where these hazards exist, in areas where blasting or blasting products are in use or stored, and while fueling at refueling centers. In any of these conditions or where hazards exist, the transceiver shall be powered off.

PRECAUTIONS

Observe the following precautions to prevent fire, personal injury and transceiver damage.

- Do not modify or attempt to adjust this transceiver for any reason.
- Do not expose the transceiver to direct sunlight for long periods , nor place it close to a heat source.
- Do not place the transceiver in a dusty, humid or wet area, nor place on unstable surface.
- If an abnormal odor or smoke is detected coming from the transceiver, switch OFF immediately and remove the battery pack from the transceiver. Contact your dealer.


How to use this user manual


This manual introduces the basic operation of Kydera compatible

DMR / Analogue handheld transceiver.

Your dealer or system administrator may have already peraset the features of this radio based on your operational requirements. Please consult with your dealer or system administrator about the details.

The icons below are used for distinguishing between analogue and digital features.

 This icon indicates the function is only available in Analogue mode

 This icon indicates the function is only available in Digital mode

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Packing list

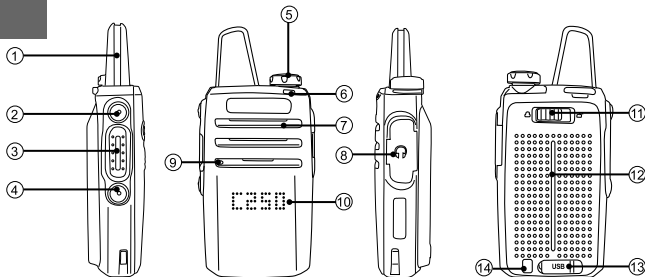
The following items are contained in the gift box. If any item is missing or damaged, please contact your dealer.

Item Name	Quantity (pc)	Item Name	Quantity (pc)
Radio unit	1	Belt clip	1
Battery pack	1	Hand strap	1
Adaptor	1	User manual	1
Type C USB cable	1	Charger(Optional)	1

 **Note:**


After purchase, please check the items and quantity in the box to ensure everything is correct.

Radio Controls
























Parts description









No.	Part Name	No.	Part Name	No.	Part Name	No.	Part Name
①	Antenna	⑤	PWR. Switch / Back key / ENC encoder	⑨	Microphone	⑬	USB charging port
②	Volume + (short press)	⑥	LED indicator	⑩	LED screen	⑭	LED charging indicator
	[PF1] key (Long press)						
③	PTT key	⑦	Speaker	⑪	Battery push latch		
④	Volume- (Short press)	⑧	SP/MIC connector	⑫	Battery pack		
	[PF2] key [Long press]						

 **Note:** For convenient use, there are programmable [PF] keys






Status Icons

LED Status Icon	Description
	The prompt is in the process of starting the radio power supply.
	The dynamic icon gradually extends to the left and right, indicating that the radio power has been turned on.
	The dynamic icon gradually shrinks towards the midpoint, indicating that the radio power has been turned off.
	The icon shows on LED screen when adjusting volume level ※. Short press [Volume +] key, the more bars, the higher volume output. Short press [Volume -] key, the less bars, the lower volume output.
	RX: ※. "  " shows on left, refers the current receiving signal is digital signal. ※. "  " shows on right, refers to the current signal strength. The more bars, the stronger signal received. TX: ※. "  " shows on left, refers to currently in digital mode. ※. "  " shows on right, refers to on high power emission state.

LED Status Icon	Description
	RX: ※. "  " shows on left, refers the current receiving signal is digital signal. ※. "  " shows on right, refers to the current signal strength. The less bars, the weaker signal received. TX: ※. "  " shows on left, refers to currently in digital mode. ※. "  " shows on right, refers to currently on low power emission state.
	RX: ※. "  " shows on left, refers the current receiving signal is analogue signal. ※. "  " shows on right, refers to the current signal strength. The more bars, the stronger signal received. TX: ※. "  " shows on left, refers to currently in analogue mode. ※. "  " shows on right, refers to on high power emission state.
	When the icon is displayed on the LED screen, it means the current battery is low and needs to be charged.
	When the volume output is set to be silent, it will be displayed on the LED screen.

LED Status Icon	Description
	<p>RX:</p> <p>※. "  " shows on left, refers the current receiving signal is analogue signal.</p> <p>※. "  " shows on right, refers to the current signal strength. The more bars, the weaker signal received.</p> <p>TX:</p> <p>※. "  " shows on left, refers to currently in analogue mode.</p> <p>※. "  " shows on right, refers to on low power emission state.</p>
	It refers to the current operation channel no.
	When an menu operation or parameter is set or saved, it will be displayed on LED screen.
	When an menu operation or parameter is fail to set or save, it will be displayed on LED screen.


LED Indicators

LED indicator	Radio Status
 Green	Analogue transmitting
 Blue	Digital transmitting
 Flashing Green	Analogue receiving
 Flashing Blue	Digital receiving
 Fast Flashing Green and Blue	Scanning

Preparation for operating the terminal

Install the battery pack

Align the two tabs on the bottom of the battery with the corresponding two grooves on radio, press the battery and the back of the radio together, and then manually push the battery latch left to lock.

 **Note:** To remove the battery, turn off the radio , then slide the battery latch right to unlock and then take out it.

Install the audio accessories

1. Open the dust cover of the accessory interface.
2. Insert the audio accessory plug into the accessory connector.

Charge the battery pack



 **Note:**

- Please charge the battery pack with the designated charger.
- Please refer to the charging safety information before charging to obtain the necessary battery safety information.

When the radio is used for the first time without charging, there may be a low battery alert. Please turn it off and charge before use.

Charge the battery with following steps below:

1. Plug the Type C connector of the power cable DC5V/1A into the USB charging jack on the back of the battery.
2. Plug the power supply into a power outlet
3. The LED charging indicator at the bottom of the battery indicates the charging status.









Charger LED Indicators	Current Status
 Red	Charging
 Green	Fully charged

Programmable Keys

- Short Press: press and release quickly (programmable range is from 50ms-750ms).
- Long Press: press and hold for programmed time length (programmable range is from 500ms-5000ms), and then release.

Programmable Functions

If desired, the following terminal features can be preset for programmable keys:





Type	Features	Description
	Radio Revive	Revive a target radio that has been remotely disabled
	Radio Detection	Determine if targeted radio is active
	Radio Kill	Disable targeted radio remotely
	Remote Monitor	Covert activation of targeted radios transmitter without local indicators.
	Encryption On/Off	Turn on/off encryption
	Emergency On/Off	Initiate an emergency alarm mode or call based on programmed preset.
	Monitor	Press this key to turn on or off the the receiver squelch circuit. Receiving weak analogue signals from the air.
	Permanent Monitor	Always monitor the selected channel until disabled.
	Zone Switch	Changes from selected Zone to new Zone
	Scan On/Off	Turn scanning on/off
	Scan Mode	Switch between SE, TO, and CO mode.
	VOX On/Off	Switch between VOX On and Off.
	High /Low Power	Switch transmit power between high and low power
	Squelch level	Switch between 1~9 level.
	Repeater /Talk Around	Switch between Repeater and Talk Around Mode
	Info query	Query the current channel information and the current battery level etc.

Type	Features	Description
	Shortcut key 1	Press the shortcut key to send the preset target call or function.
	Shortcut key 2	Press the shortcut key to send the preset target call or function.
	Shortcut key 3	Press the shortcut key to send the preset target call or function.
	Prompt tone ON/OFF	Turn ON or OFF prompt tone (including voice prompt).
	Menu	Access to menu list.

Keys usage and ENC knob operation

Type	Status	Operations	Description	
Side key [PF1]	Standby	Short press	To increase volume output.	
		Long press(3S)	Function works based on programmed preset.	
Side key [PF2]	Standby	Short press	To decrease volume output.	
		Long press(3S)	Function works based on programmed preset.	
[ENC] Knob	Menu	Short press	Back to previous menu	
		Power ON/OFF	Long press(3S)	To turn on or off the radio power.
	Standby	Rotate		Rotate the channel number clockwise and select the channel number up.
				Rotate the channel number counterclockwise and select the channel number downward.
	In Menu mode	Rotate		Rotate the menu number clockwise to select menu items or set parameters upward.
				Rotate the menu number counterclockwise to select menu items or set parameters.

Basic operations

[ENC] knob operation	Operation instruction
	Long press over 3s to power on the radio.
	Long press over 3s to power off the radio.
	In the menu mode, short press it to back to previous menu.
	When the [ENC] encoder knob is rotated clockwise or counterclockwise in standby or working mode, select the current working channel number.

PTT call

To ensure an optimal transmission, hold the radio in a vertical position at one top two inches (2.5 to 5.0 centimeters) away from the mouth.

Digital channel call

Digital calls are made as a group call, private call or All Call based

on the programming of the radio. An individual channel may be preset to one of these calling functions.

Analogue mode initiating and receiving calls (no signaling)

You can initiate calls to users on the current analogue channel by holding down the [PTT] key. When released the key, you could wait for receiving signals from other radios.

Access menus and operations

You can access the main menu and sub-menu options of the radio through the following steps, as well as functions such as setting or browsing the parameters and configuration etc.

Procedures:

When the radio is in standby;

1. Press programmable key [MENU] to access to menu. (Based on the programming preset "Long press" or "Short press".
2. Rotate [ENC] knob to a desired setting "Main menu", then press [MENU] key to access sub-menu.
3. Rotate [ENC] knob to select desired value.

4. After selection, Long press [MENU] key for confirmation and then back to previous menu.

OR

Press [BACK] key to exit menu mode, and LED screen will back to standby mode.

Note:

※. [MENU] key is a programmable key, the operation should based on the programming preset "Long press or Short press".

Menu items list

The menu options supported by the radio are shown in the following table. Please refer to the instruction for the "PTT call" of private call, group call and analogue channel call. Other functions require access to the menu for configuration or implementation. [PF] definable key is the function shortcut key, and the specific function is preset by the programming software.

No.	Main menu	Optional items and setting range.	Description	Default
M01	POW	HI/LO	Power setting	HI
M02	ZONE	Z_01~16	Current working zone	1
M03	VOX	OFF/1/2/3-12	VOX ON or OFF, and VOX level options	OFF
M04	SCMO	TO/CO/SE	Scan mode options(analogue)	CO
M05	SCAN	OFF/ON	Scan ON or OFF (Digital /analogue set)	OFF
M06	DISP	ON/AUTO	LED display mode	ON
M07	B-LV	Current battery strength	Query the current battery strength	
M08	TOT	OFF/20S~500S	Time out timer for transmission	30S
M09	PW-S	OFF/1:1/1:2/1:4	Power save mode ON or OFF.	1:4
M10	TONE	PROF/KEY	Prompt tone ON or OFF, and key tone volume level options and OFF.	ON
M11	RST	YES/ON	Resume to factory default?	YES?
M12	REC	OFF/RX/TX/T&R	Record ON or OFF, and choose the Record type (RX/TX/RX+TX)	OFF
M13	PLAY	Number of recording entries	Playback the recording entries.	
M14	DEL	ALL?	Delete all recording or select delete item by item?	ALL?
M15	TS	OFF/TS_1/TS_2	Select the local working time slot.	OFF
M16	TRC1	TS_1/TS_2	Select the relay time slot.	TS_1
M17	TRC2	RC/TALK	Repeater or talk around mode	RC
M18	E-LV	OF/LO/M/HI/HH	Voice encryption level options or OFF.	OFF
M19	CC	C_01~16	Query the color code of the current working channel.	C_01
M20	DTMF	OFF/ON	DTMF tone ON or OFF	ON
M21	SQL	ON/1,2,3~9	Squelch level options or OFF	4
M22	BUSY	OFF/ON	Busy channel lockout ON of OFF	ON
M23	N/W	N/W	Wide or Narrow ban options	N
M24	D/QT	RX/TX/T&R	Signaling and type options	OFF

Main functions description

Classification	Function	Description
Public Functions	Zone	A zone is a group of channels. The radio supports 16 zones and contains up to 4000 channels.
	Power	The power level is for transmission power level of the current channel, which can be set to high or low power.
	Scan	When radio scans a signal on a channel, it will stay on the channel to listen, so as to understand the current activity status of the relevant team members.
	Emergent alarm	Emergency alarm has the highest priority.
	Vox	The radio transmits when voice is detected by the microphone
	Busy channel lockout	Busy channel lockout prohibits transmission and prevents interference to other users when the radio is receiving traffic.

Classification	Function	Description
Public Functions	TOT	When a transmission times out, the terminal will automatically terminate the transmission and issue a warning sound.
	Power saving	Power saving is a preprogrammed function based on time that places radio into a sleep-wake mode to conserve the battery.
Digital functions	Private call	One-to-one call.
	Group call	One-to-many call.
	All call	All call is a call to all contacts on the current channel.
	Talk around	Talk around allows communications on the repeaters output frequency.
	TDMA direct mode	TDMA direct mode is used to divide a direct channel (simplex) into two time slots to allow efficient channel usage. Multiple parties may share the channel without interference depending on slot setting.
	DTMF	If DTMF activated, when you press PTT, the local radio and receiving radio will be heard a preset DTMF tone first before talk.

Classification	Function	Description
Analogue functions	Analogue channel call	An analogue call is a call on an analogue channel.
	Squelch ON	This setting exhibits an open squelch condition where both traffic and noise can pass to the speaker.
	Squelch level	Squelch level allows the manual setting of the squelch from 1 to 9. This controls at what point that audio can be sent to the speaker. The default value is 4. The lower the set value, the more chance of noise and weak signals being heard.
	Monitor	Monitor allows the user to open the receiver squelch manually to listen to on-channel signals.
	CTCSS / DCS	CTCSS / DCS are analogue signaling methods used in transmit and receive. They are typically set to the same value for transmit and receive. Only signals that match the pre-programmed values will pass to the speaker.

General guide for fault handling

Malfunction	Analysis of causes	Handling method
Radio fails to power on	Battery is installed incorrectly	Re-install battery
	Battery power lower than preset value	Please change or charge battery.
	Bad battery contacts or contacts in dirty.	Check and clear the battery contacts.
Receive signal decreases, is unclear or is interrupted.	Battery power gets lower.	Please change or charge battery.
	Volume control at low value.	Adjust the volume to be higher.
	Frequency is incorrect.	Please check to use right frequency.
	Speaker is blocked or damaged.	Try to clear the outer speaker or contact your dealer.
	Using the radio under poor working environment or electromagnetic interference	Change working environment or shift antenna direction.
Unable to communicate with group members	The current working channel frequency or signaling value is different.	Change channel or reset signaling and frequency to be same as the group members
	The setting of Digital or Analogue channel is incorrect.	Reprogram the current digital or analogue channel.
	Out of range of group members	Move back within range

General guide for fault handling

Malfunction	Analysis of causes	Handling method
Noise or unrelated communications on current channel	Co-channel user interference	Change frequency or channel.
	Channel not programmed with correct signaling	Reprogram radio to correct signaling or change signaling to prevent interference.
Weak voice traffic with noise during communications	The communication distance is too great	Reduce range between users.
	Signals are blocked during to environment such as buildings and terrain.	Reduce range between users or move to unimpeded line of sight.
Weak voice traffic with noise during communications	Strong local environmental interference.	Move away from interference source.
Failure to obtain GPS position (Optional)	Radio lacks optional GPS feature or satellite view blocked by environment.	Add GPS feature; move to open site with clear view of sky.



Note:

If the above methods fail to solve your problem, or you confront different malfunctions, please contact your local dealer or appointed maintenance station.

Maintenance and Clean

To ensure the best performance and prolong working life, please acquaint yourself with the following for maintenance and cleaning.

Maintenance

- © Please do not scratch or puncture the device with hard or sharp object.
- © Please do not place the device in an environment which can corrode electronic circuits or under direct solar radiation.
- © Please do not carry the device by its antenna or headset.
- © Please make sure the SP-MIC plug is covered when not in use.

Clean

- © Please clean your device regularly by using a dry clean cloth or soft brush to wipe the dust on the surface and on the charger contacts;
- © The keypads, control knob and housing of the device may be dirty from use. Please use nonwoven wipes to clean them. Do not use chemicals to clean it such as detergent, alcohol, spray

or petroleum products, on the device surface or printed labels. Chemicals can damage the housing, display and remove the printing on the labels. Before power on the radio, please make sure the device is dry completely.

Standard accessories



Power Supply



Type C charging cable



Li-pol Battery



Belt clip



Tie



Charger(Optional)

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