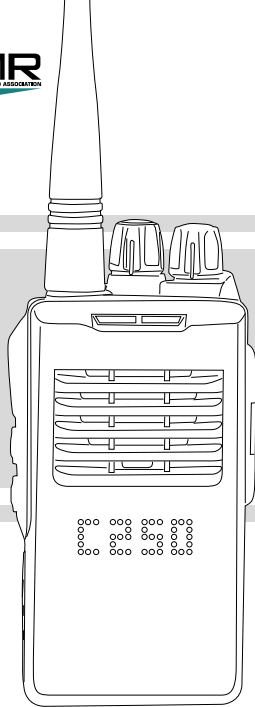




Digital FM Transceiver



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

This manual applies to the model,
Smart Pro-Digital

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 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

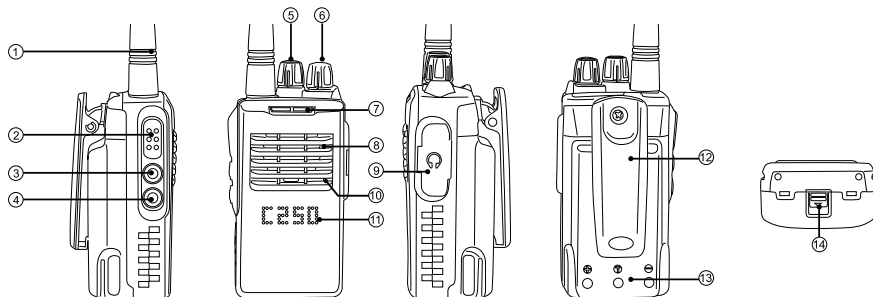
The following items are contained in the gift box. If any item is missing or damaged, please contact your dealer.

Item Name	Quantity (pc)	Item Name	Quantity (pc)
Radio unit	1	Antenna	1
Battery pack	1	Belt clip	1
Charger	1	Hand strap	1
Power supply	1	User manual	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	Channel selector	⑨	SP/MIC connector	⑬	Battery pack
②	PTT key	⑥	Power switch /Volume control	⑩	MIC	⑭	Battery latch
③	Side Key (PF1)	⑦	LED indicator	⑪	LED display		
④	Side Key (PF2)	⑧	Speaker	⑫	Belt clip		

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






Status Icons

LED Status Icon	Description
	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.
	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.
	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.
	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 Status Icons	Description
 	<p>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 weaker signal received.</p> <p>TX: ※. "  " shows on left, refers to currently in analogue mode. ※. "  " shows on right, refers to on low power emission state.</p>

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 antenna

 Do not hold the antenna with your hand, as this will reduce the radio performance.

1. Screw the threaded end of the antenna into the top antenna port on the main unit.

2. Tighten the antenna clockwise.

Install the battery pack

Press the battery pack firmly while pushing it in the forward direction until a "click" sound is heard.

Note:

To remove the battery, turn off the radio, push the bottom battery button down, and then remove the battery in the backward direction.

Install the belt clip

1. Use a screwdriver to remove the belt clip screw from back housing of the main unit.
2. Align the belt clip mounting holes with the threaded holes on the main unit, insert screws, and tighten the screws to hold the belt clip.

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

Please follow the below steps to charge:

1. Plug the power supply connector into the jack on the back of the charger.
2. Plug the charger power supply into a power outlet.
3. Install the battery or the radio with the battery into the charger.
4. Observe the charging LED indicators to know the current 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

Type	Features	Description
	Info query	Query the current channel information and the current battery level etc.
	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	Function works based on programmed preset.
		Long press(3S)	Function works based on programmed preset.
Side key [PF2]	Standby	Short press	Function works based on programmed preset.
		Long press(3S)	Function works based on programmed preset.
[ENC] Knob	Standby	Rotate	Decrease / Increase to select channel / frequency and other parameters
	In Menu mode	Rotate	Decrease / Increase to select menu and other parameters

Basic operations

Icon	Operation instruction
	Turn ON: turn the [Power/Volume] knob clockwise until you hear "click"
	Turn OFF: turn the [Power/Volume] knob counterclockwise until you hear a click
	After power ON, rotate the [Power / Volume] knob to increase or decrease the volume
	※ After power ON, rotate [Power / Volume] knob to select your desired channel or frequency.

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 [MENU] 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.
	Emergency 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.
	Antenna gets loose or antenna frequency is incorrect.	Power off radio, and re-install antenna, or change antenna with 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.



Vertel Digital Private Limited

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FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. Verification of harmful interference by this equipment to radio or television reception can be determined by turning it off and then on. The user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna. Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a different circuit to that of the receiver's outlet.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Note: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

IC Statement

The device has been tested and complies with SAR limits, users can obtain Canadian information on RF exposure and compliance.

Après examen de l'équipement aux normes de conformité aux limites DAS et/ou aux limites d'intensité de champ RF, les utilisateurs peuvent sur l'exposition aux radiofréquences et la conformité and compliance d'acquiescer les informations correspondantes.

SAR tests are conducted using standard operating positions accepted by FCC/ISED with the device transmitting at its highest certified power level in all tested frequency bands, although the SAR is determined at the highest certified power level, the actual SAR level of the device while operating can be well below the maximum value. Before a new model is available for sale to the public, it must be tested and certified to the FCC/ISED that it does not exceed the exposure limit established by the FCC/ISED. Tests for each product are performed in positions and locations as required by the FCC/ISED.

For body worn operation, this device has been tested and meets the FCC/ISED RF exposure guidelines when used with an accessory designated for this product or when used with an accessory that contains no metal.

To maintain compliance with FCC/ISED RF exposure guidelines hold the transmitter and antenna at least 1 inch (2.5 centimeters) from your face and speak in a normal voice, with the antenna pointed up and away from the face.

The equipment complies with FCC/ISED radiation exposure limits set forth for Occupational / Controlled Exposure environment. In order to comply with the FCC/ISED RF exposure requirement, the antenna installation must comply with following:

Users must be fully aware of the hazards of the exposure and able to exercise control over their RF exposure to qualify for the higher exposure limits.

Your wireless hand-held portable transceiver contains a low power transmitter. This product sends out radio frequency (RF) signals when the Push-to-Talk (PTT) button is pressed.

The device is authorized to operate at a duty factor not to exceed 50%.

Les tests SAR sont effectués dans des positions de fonctionnement standard acceptées par la FCC/ISED, l'appareil transmettant à son niveau de puissance certifié le plus élevé dans toutes les bandes de fréquences testées. Bien que le SAR soit déterminé au niveau de puissance certifié le plus élevé, le niveau SAR réel de l'appareil pendant son fonctionnement peut être bien inférieur à la valeur maximale. Avant qu'un nouveau modèle ne soit disponible à la vente au public, il doit être testé et certifié par la FCC/ISED pour ne pas dépasser la limite d'exposition établie par la FCC/ISED. Les tests de chaque produit sont effectués dans des positions et des emplacements tels que requis par la FCC/ISED.

Pour un fonctionnement porté sur le corps, cet appareil a été testé et répond aux directives d'exposition RF de la FCC/ISED lorsqu'il est utilisé avec un accessoire désigné pour ce produit ou lorsqu'il est utilisé avec un accessoire qui ne contient pas de métal.

Pour maintenir la conformité avec les directives d'exposition RF de la FCC/ISED, maintenez l'émetteur et l'antenne à au moins 2,5 cm (1 pouce) de votre visage et parlez d'une voix normale, avec l'antenne pointée vers le haut et éloignée du visage.

L'équipement est conforme aux limites d'exposition aux rayonnements FCC/ISED définies pour l'environnement d'exposition professionnelle/contrôlée. Afin de se conformer aux exigences d'exposition RF FCC/ISED, l'installation de l'antenne doit être conforme aux conditions suivantes : Les utilisateurs doivent être pleinement conscients des dangers de l'exposition et être en mesure d'exercer un contrôle sur leur exposition RF pour être admissibles aux limites d'exposition plus élevées.

Votre émetteur-récepteur portable sans fil contient un émetteur de faible puissance. Ce produit envoie des signaux de radiofréquence (RF) lorsque le bouton Push-to-Talk (PTT) est enfoncé.

L'appareil est autorisé à fonctionner à un facteur de service ne dépassant pas 50 %.

Antenna model: Smart Pro-Digital, The antenna gain is as follows:

Antenna Type	Antenna Gain
Helical	0 dBi