

OPERATIONMANUAL

BCS-1



If you have any question, please contact us by the information below:

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BCS-1 Multi Function Borehole inspection camera system










BCS-1 Multi Function Borehole inspection camera system is widely used in marine exploration, underwater operation, underwater dam inspection, underwater scientific test, underwater monitoring, underwater survey, water well maintenance, hydropower station, industrial observation, pile foundation inspection, diving exploration, underwater cave exploration, marine rescue and salvage, military application, etc.

It is integrated the functions of borehole photographing, video recording and text input. It can be used to obtain borehole dynamic video and 10 high-definition photos simultaneously, and it also have 8 times digital magnification function. It is used low power embedded dual core processor, with high-definition camera and stored in the U disk directly. Easy operation and performance stably

I、Attention

1. Please read carefully before use the machine
2. Please handle it gently. do not force or pressure it. Please stop use of probe when it dropped off, or have visible signs of damage, or are leaking.
3. It is not warranty if user disassemble it or do the man-made damage 4. When clean the instrument, please use the soft cloth and a mild detergent. do not use gasoline, alcohol, bananas, water and other solvents. Do not let any liquid get inside the machine.
5. Please do not run the machine if no people operation, especial for the winch. Please turn off monitor and unplug all connectors after finish test. 6. Sometimes there will be some technology updates. But please refer to the real machine

For your safety, Please be sure to observe the following

Warning	
 Damage and socket is loose, to avoid electric shock, short circuit, fire	 Do not disassembly or repair the products by user self, may cause electric shock or other damage
 Please use a separate electrical outlet, if used with other appliances may cause accidents	 When pulling the power plug, Please take the handheld part, do not pull the power cord with high strength
 Prohibiting wet hands to pull out, plug wire	 Unplug from the power outlet when not in use
 Monitor prohibit watering	 Please use our power wire. Do not use the power wire in other machine
 Special Note: Protect the cable In the transport, storage and operation, If cable damage, the water will be input cable, and will damage all the system	

II、 Host interface, accessories and instructions

1、 The machine Equipped Accessories



Host



Connection wire (3pieces)



Power line



Aviation plugs



O ring



U disk



Winch



Holder



Rotary Camera



Fuse



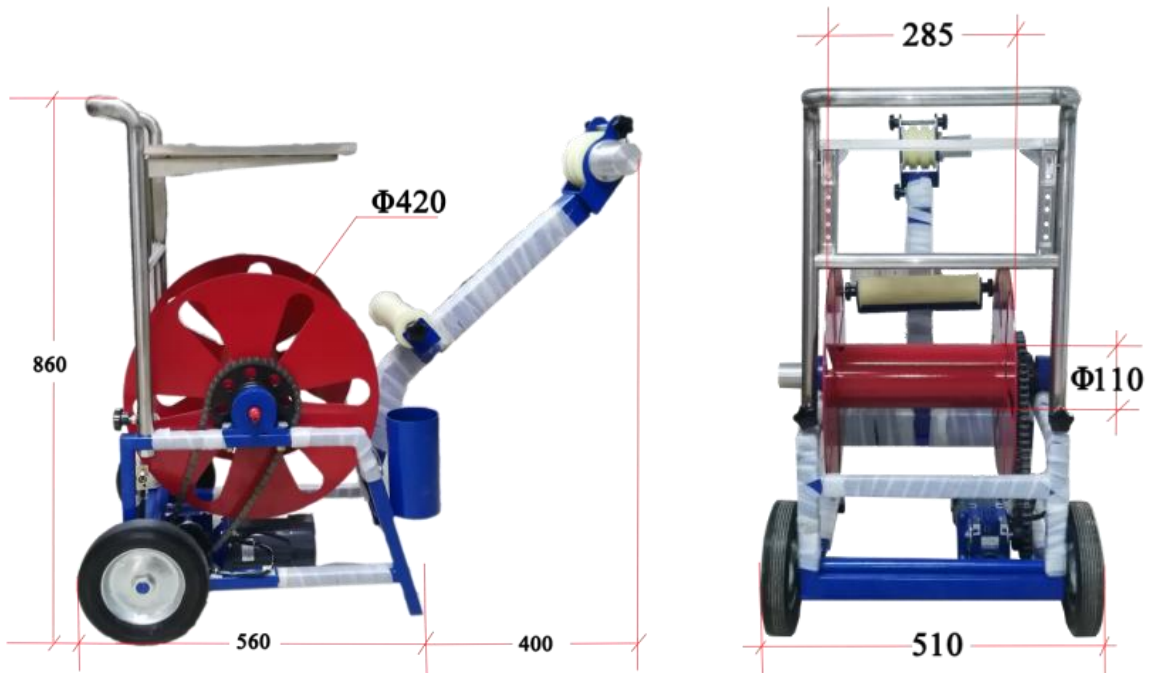
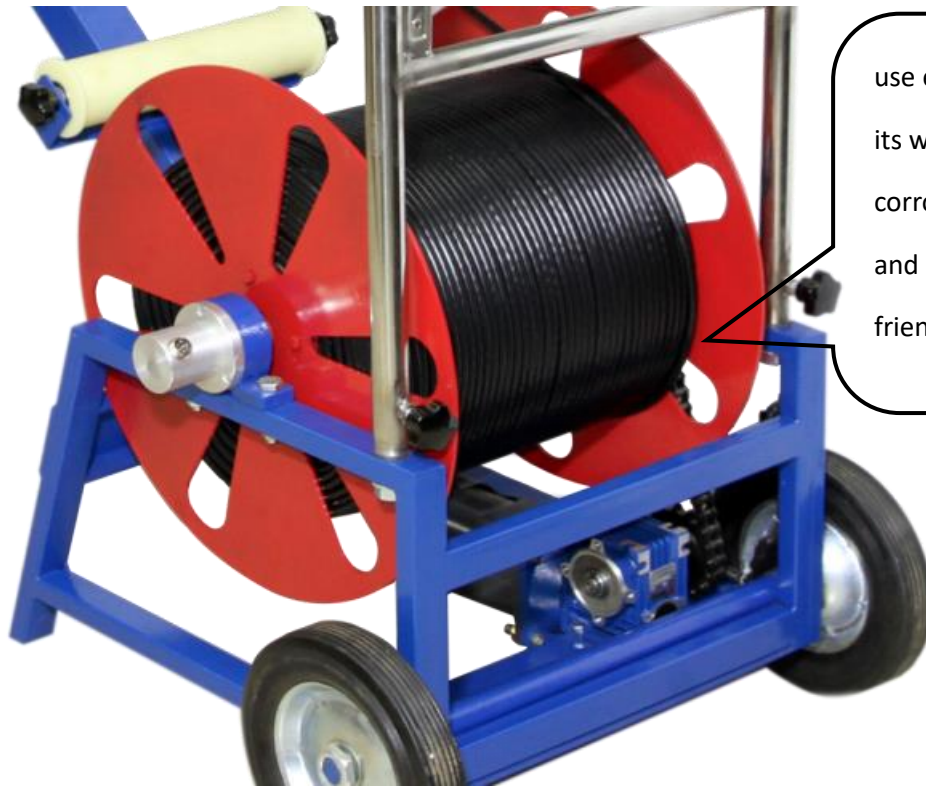
- ⊙ Box with ABS / PP alloy material
- ⊙ Waterproof, anti-collision, dust
- ⊙ Box cover with high-quality O-ring, waterproof and durable
- ⊙ Equipped with gas balance valve to adjust the gas balance inside the box
- ⊙ Stainless steel hardware is more stable when opening and closing the box with hinges
- ⊙ Dimension 430X350X150mm 2.6kg

Lock for Safety



- ⊙ Imaging chip: 1/3 "color CCD, sensitivity 0.1Lux;
- Lens: can be manually fine-tuning focus; lens level 360 degrees, overlooking 180 degrees rotation, free control, can stay anywhere; (control method see page 13)
- ⊙ Stainless steel shell, beautiful appearance, strong anti-corrosion ability

- ⊙ Lighting unit: front LED patch light beads, brightness adjustable with 8 grade
- ⊙ Camer diameter 75mm
- ⊙ Pressure more than 15Mpa

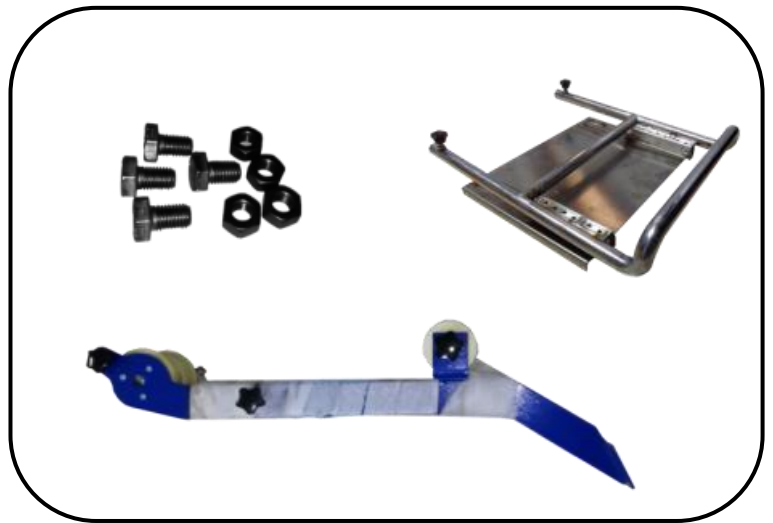


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1. Imaging chip: 1/3" color CCD, sensitivity 0.1Lux;
 2. Display: LCD, 12 inches, resolution 1024*768;
 3. Lens: Manually fine-tune the focus; the lens is 360 degrees horizontally, tilted 180 degrees to rotate, freely controlled, and can stay in any position;
 4. Illumination unit: front LED patch lamp beads, the brightness of the light source is adjustable in 8 levels;
 5. Measurable depth: 0-9999m dedicated counter, the specific depth depends on the cable length;
 6. Storage unit: U disk;
 7. Probe: Panorama/rotation can be replaced at will, $\Phi 40\text{-}\Phi 120\text{mm}$;
 8. Working voltage: AC 220V50Hz;
 9. The tensile strength of the cable is: 250KG;
 10. The maximum pressure of the probe is not less than 15Mpa;

2、 Pulley & Holder Installation



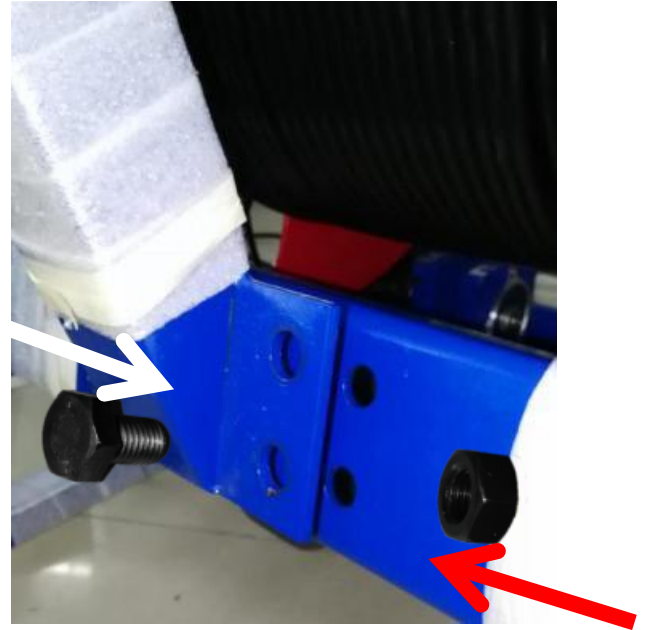
The winch after assembled



Disassemble the pulleys and brackets for packing and transportation



① Aligning 4 Hole



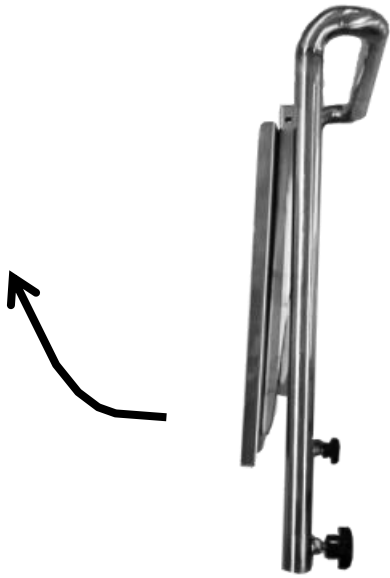
② Insert bolts



③ Tighten bolts



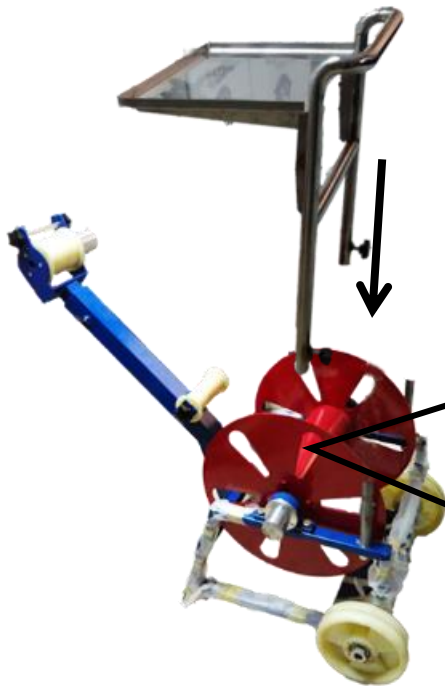
④ Finish Installation



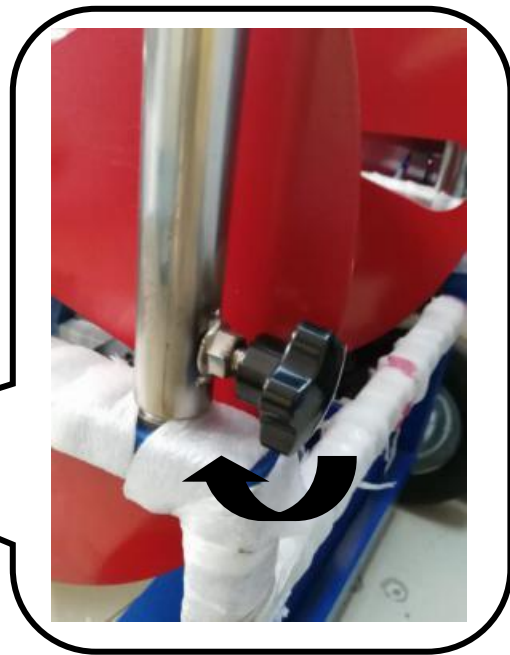
⑤ Oper holder



⑥ Fix holder



⑦ Insert holder to the winch



⑧ Tighten bolts

3、Cable Installation



Loosen screws



Put Cable



Tighten bolts



Loosen bolt and put into cable



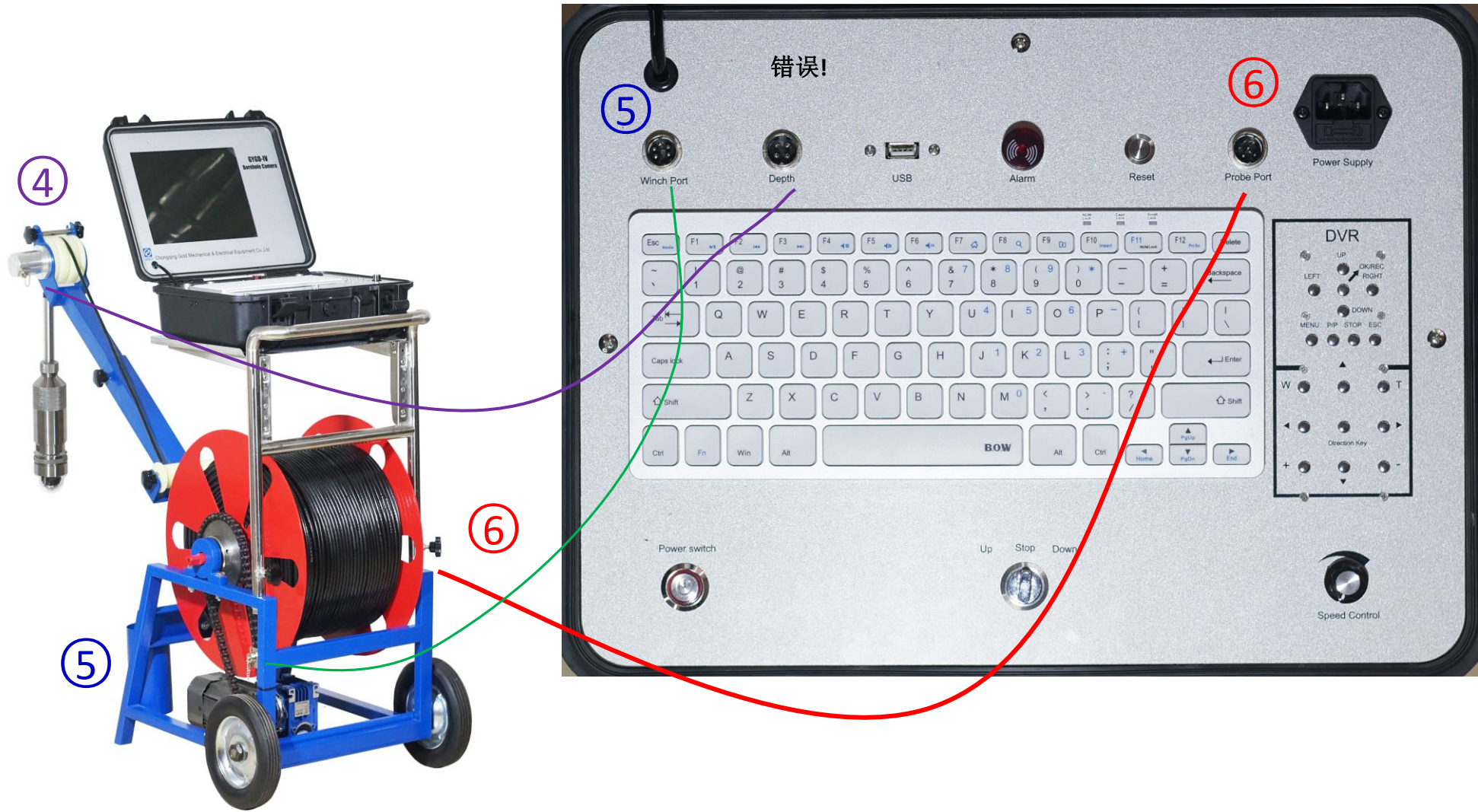
Fix Bolt



Main operation panel



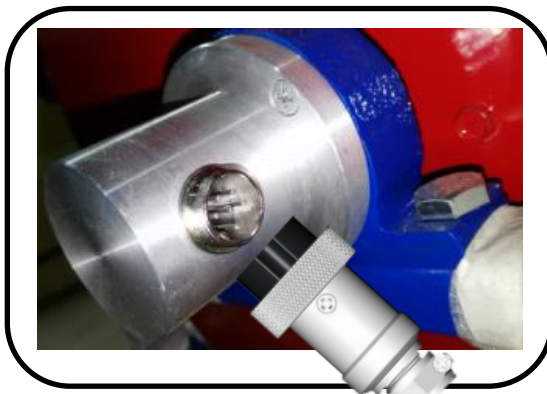
4、Cable connection



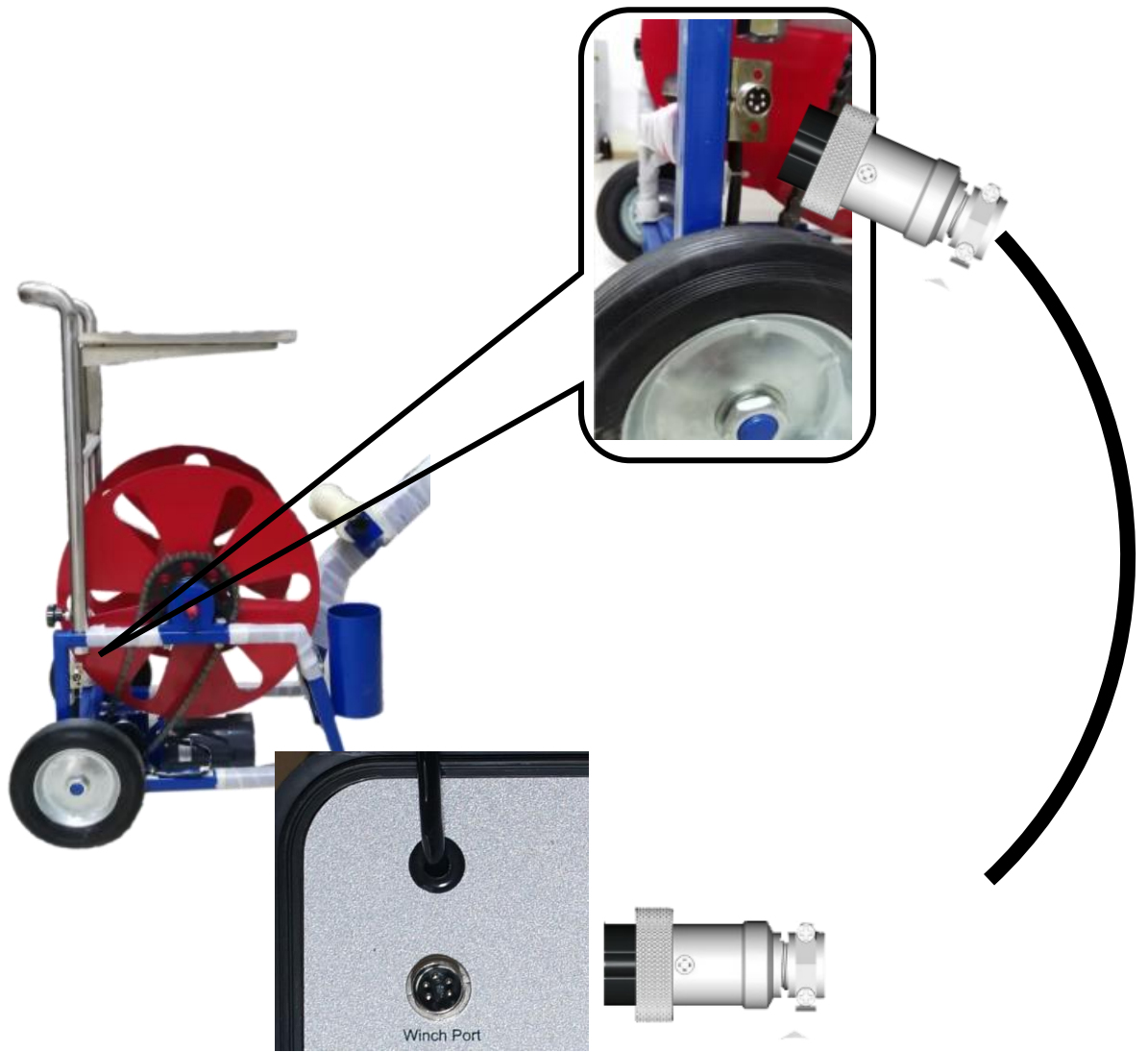
Connection diagram



① 4pin cable for connection



② Use 6 pin cable for connection



③ Use 5 Pin cable for connection

III、 Operation interface

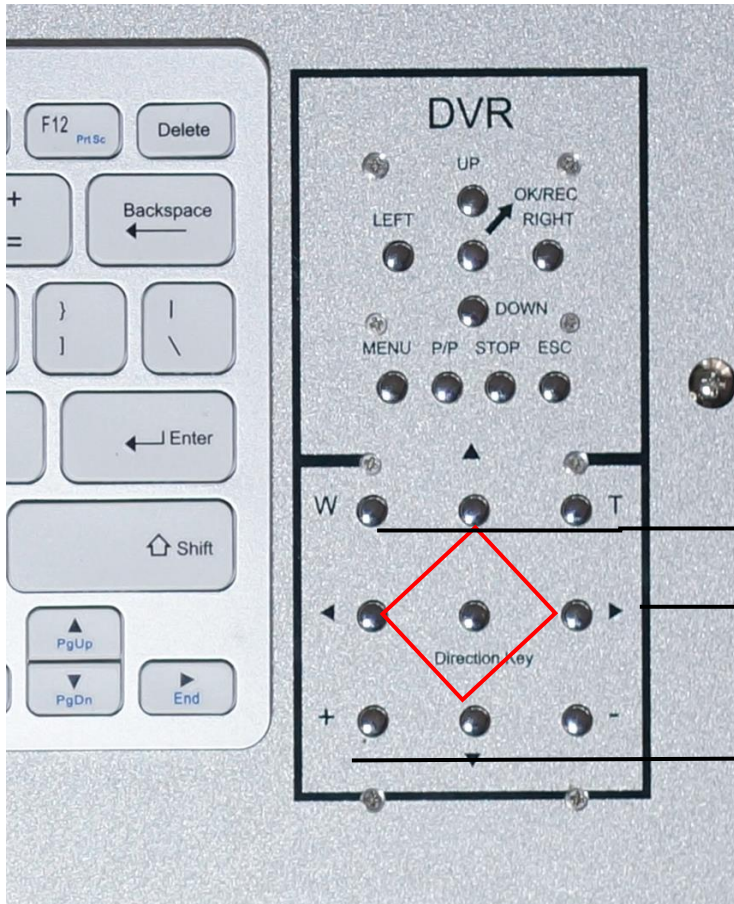
5 pin cable 4 pin cable U disk Probe fault alarm Reset 6 pin cable Power outlet



Power Switch

Winch direction control

Winch speed control



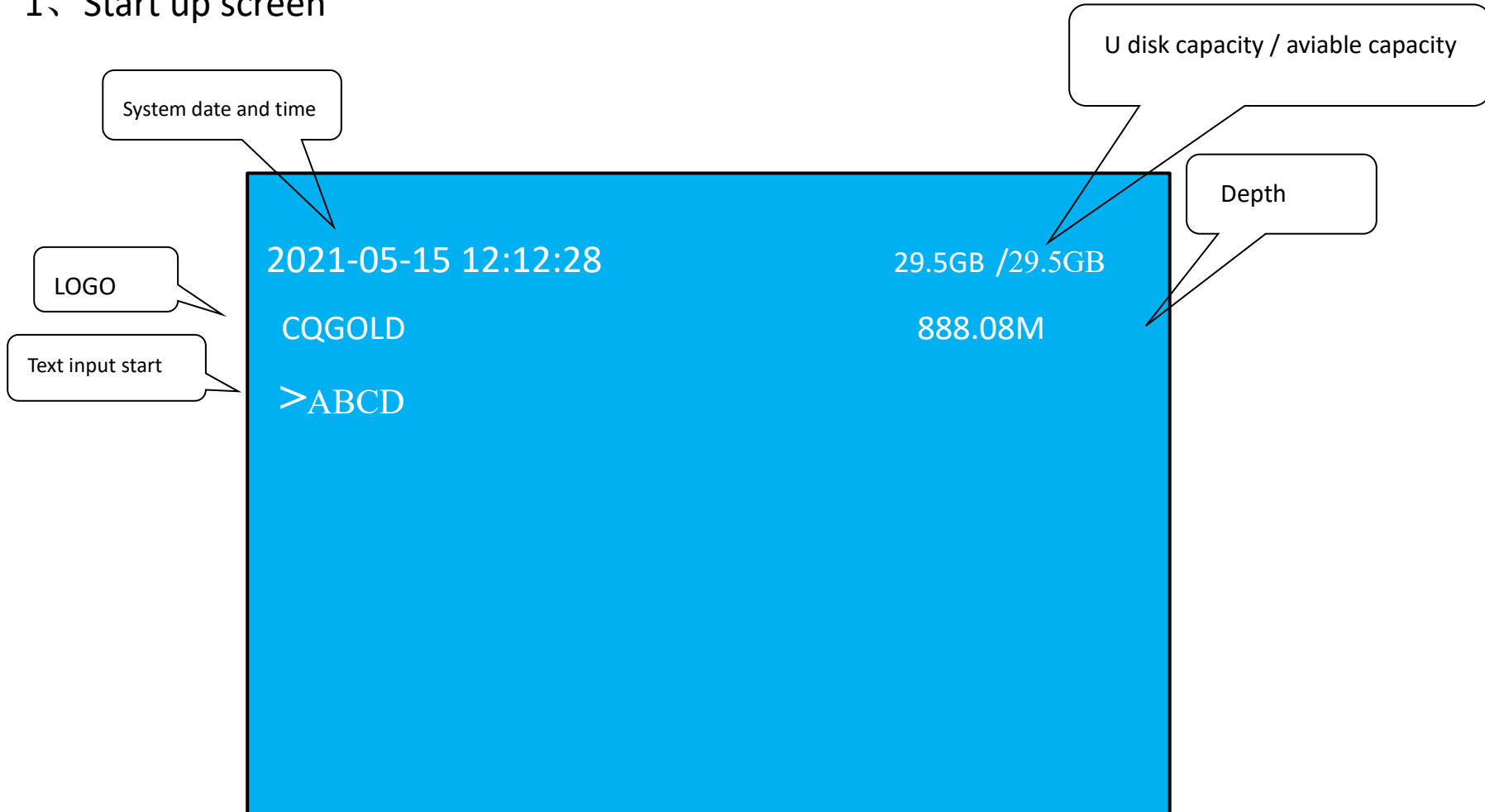
→ Camera focus far/near button

→ Camera rotate buttons
Note: 4 buttons cannot work at the same time

→ LED light brightness

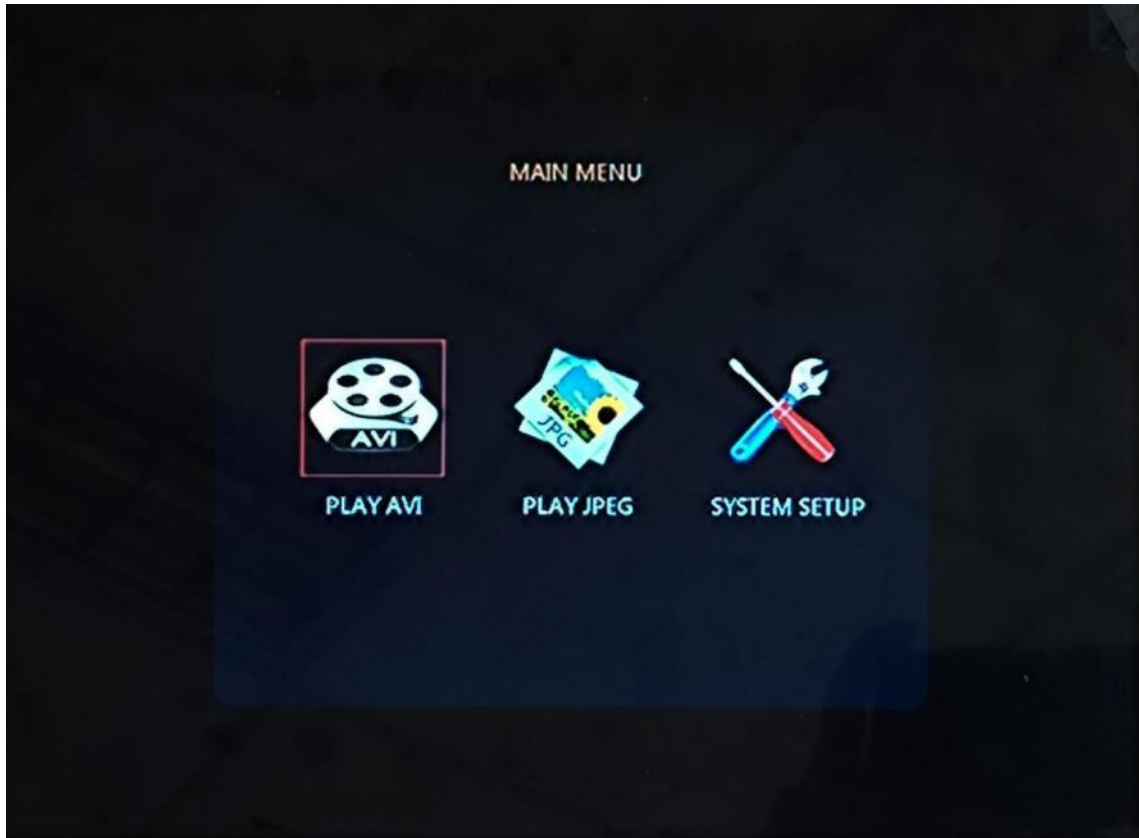
Button	Function	Description
UP	up/zoom in	8 times digital zoom function for image magnification without entering the menu page
DOWN	down/zoom out	zoom out function after zooming in the image without entering the menu page
LEFT	Turn left	Page turning function after entering the menu
RIGHT	Turn right	Page turning function after entering the menu
OK/REC	Confirmation/Recording	In the standby state, it is to start recording, and after entering the menu, it is the confirmation button.
MENU	Main Menu	Main Menu
P/P	Take a photo	Camera function, you can still take pictures even though you are making a video.
STOP	Stop recording	After the recording is turned on, it is to stop the recording.
ESC	Back	Exit the menu

1、 Start up screen



2、 Main Menu

Click MENU to enter the following interface, all data acquisition and imaging of this machine will be processed automatically. There is no place for too many users to set up. Operate with caution!



(Video playback): used to play back recorded video files

(Photo playback): Play back the captured photos

(System Settings): Set parameters (see the following chapters for details)

3、 Second level menu



- 1、 Language settings
 - English
 - Chinese

- 2、 Time and date 2021/05/08 08: 20: 30

- 3、 Date format
 - Y M D
 - D M Y
 - M D Y

- 4、 Output resolution
 - 1024*768
 - 800*600 Usually choose
 - 1920*1080

- 5、 Video quality
 - Very good
 - Good
 - Normal

When the storage space of the U disk is limited, it can be set to “general” to reduce the video volume and extend the recording time.

6、 Perimeter setting (mm) → 72

7、 Disk setting → Formating

8、 System upgrade ED Aug 6 2019

9、 Restore default settings

Synchronous wheel circumference setting: mainly used for depth counting, this number setting can be adjusted if there is an error in the display data. The setting method is to pull out the 10m cable first, make the start mark, the start point number is 0, and the corresponding reset on the main control box, pull out the cable slowly until the end of 10 meters, and see if the data displayed on the main control box is 10 meters. If it shows 11 meters, please reduce the circumference of the synchronous wheel. If it shows 9 meters, increase the circumference of the synchronous wheel. Each increase or decrease is 1 digit. Need to pull several times to make the data more accurate.

IV、 Safety operation rules for electric winches

1. The electric winch should be installed on a flat, solid ground with good visibility. If the ground is slippery, it needs to be anchored to ensure that the winch is in firm contact with the ground. There will be no backlash when the probe is raised and lowered in the well.
2. The center line of the guide pulley of the electric winch should be vertical and overlap the vertical center line of the wellhead. If a wellhead pulley is added to the wellhead, the distance between the electric winch and the wellhead pulley is generally not more than 10M.
3. Before the operation, check whether the cable is damaged, confirm whether the hoisting direction of the winch is consistent with the direction required for the operation, The wellhead pulley rotates flexibly in both forward and reverse

directions,

The speed control switch needs to return to the initial position before it can be turned on.

4. Put your left hand on the power button after booting(When there is an emergency, you can quickly press the shutdown button), Slowly turn the speed control switch knob with the right hand, the winch starts smoothly. When shutting down, the speed control switch knob needs to return to the initial position.
5. When the probe is extended into the wellhead, the lowering and retracting speed should not be too fast, should not exceed 3 meters per minute. Prevent cables from tangling each other.
6. Depth count reset method: start the winch to slowly pull out the probe and put it into the wellhead. If the depth data displayed on the display is not 0 at this time, you can press the "reset" button at the top of the display to clear the display length.
7. The cables must be arranged neatly on the drum, and at least five turns must be kept during the operation. No one is allowed to cross the electric winch cable during the operation.
8. The operators are strictly not allowed to leave their posts without authorization during the rotation of the winch. The left hand should be placed next to the start button, and the right hand should not leave the winch speed control switch knob.
9. If there is a sudden power failure during the operation, the shutdown button should be pressed immediately, and the speed control switch knob should return to the initial position.

Note: Already Finish Connector before leave factory. Do not disassembly in case water coming in camera.

How to connect probe with winch

Please prepare all accessories and two tube clamps (600-75 tube clamp and 350-50 tube clamp). Keep no impurities in probe interface thread



Smearing high pressure vacuum grease with fingers



Need smeared evenly in interface



Take O-rings evenly to the joints





Please connect with interfaces(Please must connect well for a small hole in the middle of the probe)



When inserted O-ring position , please note that the two sides must be closely fit O-ring then finally tighten the nut



please note that the two sides must be closely fit O-ring then finally tighten the nut

