Maxprobe User Manual
Version 2.0

Focusing on the Future

Scanprobe Techniques Limited

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Introduction

The Scanprobe Techniques Limited Maxprobe range are designed as CCTV pipeline survey and inspection systems, suitable for use in non-hazardous locations, designed to survey and inspect pipelines ranging from 50mm to 300mm (2” to 12”) in most common residential, commercial, and industrial areas.

Included in the Maxprobe range are:

- The Maxprobe System fitted with 60m pushrod.
- The Maxprobe XL system fitted with 100m pushrod.
- The Maxprobe 120 system fitted with 120m pushrod.
- The Maxprobe Lite system fitted with 40m pushrod.

The Maxprobe range is not suitable for use in mines susceptible to firedamp, nor in hazardous areas with explosive dust or gas atmospheres, due to the explosive hazards associated with these locations. If there is a potential to encounter explosive conditions during the planned survey or inspection, equipment designed for ATEX operations should be used. Please contact Scanprobe Techniques Ltd, or one of their authorised agents, for further information on products that are suitably certified for ATEX use.

Symbols

Throughout this document, symbols have been used to highlight points to note.

⚠ **Warning:**

This symbol highlights risks where death or injury may occur.

⚠ **Caution:**

This symbol highlights risks where damage to property or to the Maxprobe System could occur.

Note:

This icon is used highlight areas with special requirements.

Maintenance:

This symbol highlights maintenance and cleaning instructions.

About This Manual

This User Manual provides instructions and important information which must be adhered to when using the Maxprobe pipeline inspection system.

⚠ **Warning:**

When operating the Maxprobe System, it is essential that you thoroughly read and understand this user manual first. It contains important information and warnings that help to avoid hazards, increase the reliability, and extend the life of the system and its components. Follow all the instructions carefully and observe all warnings to avoid putting yourself or other users of the system at risk and to prevent damage to the system.

Basic user instructions and maintenance tasks are covered within this User Manual. Basic operation and functionality of the Maxprobe System while surveying or inspecting pipelines is also included in this document, to provide instruction on the correct way to set-up, operate, and maintain all aspects of the Maxprobe System.

Keep this document in a safe place for future reference.

Safety Instructions

This chapter illustrates the safety requirements that should always be adhered to when operating or maintaining any product purchased from Scanprobe Techniques Limited or one of their authorised agents. Please take the time to read and understand all the instructions within this document.

⚠ **Warning: Risk of Explosion**

Explosive atmospheres can be caused by flammable gases, mists, or vapours or by combustible dusts. Pipelines containing potentially explosive atmospheres should only be surveyed using appropriately certified equipment and by operators trained in the techniques necessary to safely survey such pipelines. To undertake pipeline surveys in potentially explosive atmospheres, contact Scanprobe Techniques Ltd to discuss alternative equipment designed for such environments.

⚠ **Warning: Risk of Environmental Contamination**

Contamination of drinking water sources by sewage can occur when wastewater inspection systems are used in freshwater pipelines. Never use an inspection system alternately between wastewater and freshwater surveys, as cleaning your inspection system is not sufficient to sanitise the equipment. Always use a dedicated freshwater inspection system to survey freshwater pipelines.

⚠ **Warning: Risk of Infection**

Workers whose activities bring them into contact with sewage and sewage products are at risk of contracting a work-related illness. Most illnesses are relatively mild cases of gastroenteritis, but potentially fatal diseases, such as leptospirosis (Weil's disease) and hepatitis have been reported to HSE. Before undertaking any form of work where there is a risk of contact with sewage and sewage products, make sure you understand the risks to health and the ways you can pick up infections, use safe systems of work and wear appropriate protective equipment. Further information can be obtained the Employment Medical Advisory Service at any HSE area office within the UK, or through the HSE website at www.hse.gov.uk.

⚠ **Warning: Risk of Electric Shock**

When using electrical equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury.

⚠ **Warning: Risk of Damage to Eyes and Eyesight:**

The Maxprobe System features bright LED illumination on the camera head which may cause damage to the eyes or to eyesight when illuminated. Do not look directly at them or point them at other people's eyes when illuminated.

⚠ **Warning: Risk of Injury**

The fully kitted Maxprobe systems range from 32kg to 58kg. Observe safe lifting procedures when lifting or moving any components of this system and use two-person lifts where appropriate.

⚠ **Warning: Risk of Injury**

Take care when lifting inspection chamber covers. Breaking the seal and lifting can put a lot of strain on the body and lead to back injuries.

⚠ **Warning: Risk of Injury**

Follow any site-specific safety requirements and be vigilant for open inspection chambers as these can be trip and fall hazards.

⚠ **Warning: Confined Spaces**

A confined space is one which is both enclosed, or largely enclosed, and which also has a reasonably foreseeable risk to workers of fire, explosion, loss of consciousness, asphyxiation, or drowning. Drainage workers frequently encounter confined spaces, and may be exposed to hazardous gases, fumes, or vapours, which can result in serious poisoning or asphyxiation. Before entering any confined space, you must ensure that the atmosphere is safe to enter and you have emergency arrangements in place, including letting someone know that you are okay and you have not been overcome by fumes, and what they need to do in an emergency.

⚠ **Warning: Risk of Electric Shock**

While this equipment is designed for outdoor use, the user is responsible for ensuring the plugs and sockets are dry and clean when connecting the CCU to an external power source to prevent the risk of an electric shock.

⚠ **Warning: Risk of Electric Shock**

The system should only be operated under battery power. Do not use the Maxprobe System when it is connected to an external power source.

Battery Safety Precautions

The battery is positioned securely within the Maxprobe CCU case. This provides the battery with significant protection from adverse conditions, so the battery will not pose a hazard to operators or co-workers during normal use. Do not tamper with the case or battery. In the unlikely event that the battery is exposed (for example, through severe damage to the CCU case), please read the following safety precautions carefully:

⚠ **Warning: Risk of Damage to the Eyes**

In the event that the battery leaks and the fluid gets into one’s eye, do not rub the eye. Rinse well with water and immediately seek medical care. If left untreated the battery fluid could cause damage to the eye.

⚠ **Warning: Explosion or Fire Risk**

Do not discharge the battery using any device except for the specified device. When the battery is used in devices aside from the specified device it may damage the performance of the battery or reduce its life expectancy, and if the device causes an abnormal current to flow, it may cause the battery to become hot, explode, or ignite and cause serious injury.

⚠ **Warning: Explosion or Fire Risk**

Misusing the battery may cause the battery to get hot, explode, or ignite and cause serious injury. Do not place or dispose of the battery in fire or subject to direct heat, such as on or near fires, stoves, microwave ovens, high-pressure containers, or on induction cookware or other high-temperature locations. Do not place the battery in direct sunshine or use or store the battery inside vehicles in hot weather. Doing so may cause the battery to generate heat, explode, or ignite. Using the battery in this manner may also result in a loss of performance and a shortened life expectancy.

⚠ **Warning: Explosion or Fire Risk**

Do not short-circuit the positive terminal and the negative terminal of the battery to each other with any metal object (such as wire). This can also occur accidentally, so do not carry or store the batteries together with necklaces, hairpins, screws, nails, or other metal objects.

⚠ **Warning: Explosion or Fire Risk**

Do not pierce the battery, strike the battery with a hammer, step on the battery, dismantle, modify, or otherwise subject the battery to strong impacts or shocks.

⚠ **Warning: Explosion or Fire Risk**

Do not expose the battery to water or salt water, or allow the battery to get wet.

⚠ **Warning: Explosion or Fire Risk While Charging**

Only use the charging equipment supplied with your Maxprobe system, or an approved replacement obtained through Scanprobe Techniques Limited or an authorised representative to charge your Maxprobe system. Do not attach the batteries directly to a power supply plug or to a vehicle power supply. Do not overcharge the battery, as doing so may cause the battery to become hot, explode, or ignite.

⚠ **Caution: Risk of Fire**

Immediately discontinue use of the Maxprobe system if, while using, charging, or storing the battery, the battery emits an unusual smell, feels hot, changes colour, changes shape, or appears abnormal in any other way. Contact Scanprobe or your authorised representative if any of these problems are observed.

⚠ **Caution: Risk of Damage to the Battery**

Do not attempt to operate, store, or charge the system outside the recommended temperature specifications. Exposing the battery to temperatures above 60ºC may activate safety systems and cause a permanent battery failure, while exposing the battery to temperatures below -20°C may freeze the electrolyte, also leading to permanent battery failure.

General Safety Precautions

Always stay vigilant while operating the Maxprobe System and remain aware of your surroundings. Use the correct personal protective equipment, tools, warning signs and barriers to ensure your own safety, and that of other people nearby.

To reduce the risk of injury or damage to the Maxprobe System, all operators and maintenance personnel must read and understand the user manual before operating the system, changing accessories, or performing maintenance on this camera equipment.

Inspect the Maxprobe System for any damage or degradation before and after use and undertake any necessary cleaning and maintenance promptly. Do not use this equipment without the appropriate training and experience. Always follow the instructions included in this manual, and always have this manual available for reference when using the equipment.

Be aware of cross contamination and risk of infection. Contamination of drinking water sources by sewage can occur when wastewater inspection systems are used in freshwater pipelines. Cleaning an inspection system will not sufficiently decontaminate a system used in a wastewater pipeline to use in a freshwater pipeline. Never use an inspection system alternately between wastewater and freshwater surveys. Always use a separate unit dedicated for that environment.

Intended Use

The Maxprobe System is designed as a CCTV pipeline survey and inspection system and is suitable for use in non-hazardous locations to survey 50mm to 300mm (2” to 12”) pipelines and sewers up to 120 metres in length using a full-colour video camera fitted to the end of a pushrod. The Maxprobe System is controlled using a Maxprobe Camera Control Unit (CCU) and is fitted with a 44mm Maxprobe camera head. Any other use deviating from or exceeding this purpose is deemed as misuse. In the event of misuse, the manufacturer declines any responsibility and shall not be held liable for any warranty or other claim whatsoever.

⚠ **Warning:**

The Maxprobe System is not designed for use in mines susceptible to firedamp, nor in hazardous areas with explosive gas or dust atmospheres. Surveys or inspections where these hazards are present are prohibited.

⚠ **Warning:**

Operators should remain aware of their surroundings and any other sources of danger while undertaking CCTV inspections or surveys, such as plant or heavy construction equipment movements, exposed electrical installations, exposed earthworks, excavations, etc.

About Your Maxprobe System

The Maxprobe System is designed to be used by suitably trained and experienced operators from a surface location outside the pipeline, with the camera head and pushrod being the only components to enter the pipeline under inspection. A complete Maxprobe system consists of a Maxprobe Camera Control Unit (CCU), a Maxprobe Coiler fitted with a Maxprobe pushrod, and a Maxprobe Camera:

- The Maxprobe coiler consists of between 40 metres to 120 meters of flexible pushrod (depending on the system purchased) with a robust outer jacket and a camera head designed to visually inspect and survey 50mm to 300mm (2” to 12”) pipelines. The coiler has been designed for use on exposed outdoor locations and has a protection rating of IP56, meaning it can cope with heavy rain and a wash down afterwards. It is not protected against dust ingress and powerful water jets, so the use of a pressure washer may damage the coiler.
- The camera head is sealed and rated to IP68, allowing the camera to be submerged in liquid up to 5m deep, allowing use in flooded pipelines, drains and culverts.
- When opened, the Maxprobe CCU is showerproof (rated to IP54), but in persistent heavy rain it is advisable to set up in shelter to minimise the risk of water ingress. The Maxprobe CCU allows operators to view and record pipeline inspection images and video, measure and document findings to an inbuilt storage device, overlay text via the integral keyboard, and to compile inspection reports onsite using the inbuilt reporting software. All data can be exported via USB or and SD card, or to a mobile device using Wi-Fi or Ethernet interfaces.

Operating Temperatures

Operating Temperature: -20°C to +60°C

Charging Temperature: +10°C to +45°C

⚠ **Caution:**

Do not attempt to operate or charge the Maxprobe CCU outside the recommended temperature specifications, as this may damage the battery. Exposing the battery to temperatures below -20°C or above 60°C may damage the battery or activate the battery's safety systems, causing a permanent battery failure.

Prior to Use

Before using the Maxprobe System, the operator is responsible for ensuring that the system is safe and suitable for use, and that the work is effectively planned and being undertaken in an appropriate manner:

- The operator is responsible for ensuring that risk assessments have been undertaken for the site under survey.
- The operator is responsible for ensuring that method statements, or work instructions, have been produced for all work activities being undertaken.
- The operator is responsible for ensuring that the inspection system is suitable for the works planned.
- The operator is responsible for ensuring they are suitably trained and experienced for the works being undertaken, including any additional training that may be needed for site specific hazards (such as enclosed space entry, or working at heights).
- The operator is responsible for ensuring they are familiar with this user manual, and that this user manual is always available, should they need to reference it.
- The appropriate coiler is available for the work planned, and the coiler is fitted with an appropriate length of pushrod.
- The CCU has adequate charge to complete the planned work; a fully charged battery should power the system for approximately 8 hours. The CCU will take approximately 4 hours to fully charge from low battery charge. The mains power adaptor supplied with the unit is not intended for use in outdoor environments. Do not attempt to charge or operate the unit from the mains supply outdoors.
- If required, the camera trolley is available, clean, and fitted with the correct wheels.

Before each use, the operator should undertake a visual inspection on the system to check:

- All connectors are clean and undamaged, checking that all pins are present and unbent.
- All connectors are fitted securely.
- All cables are present and undamaged.
- The camera is fitted with an appropriate skid.
- The pushrod is serviceable.
- The CCU is clean, dry, and charged appropriately.
- The camera, coiler, CCU, and any accessories are clean and in a serviceable condition.
- All rubber bungs and sealing flaps are fitted and secured.

Maxprobe System Overview

Design and Application

The Maxprobe Pushrod system consists of the following components:

1. Maxprobe Camera Control Unit (CCU)
2. Maxprobe Coiler
3. Pushrod
4. 44mm Camera head

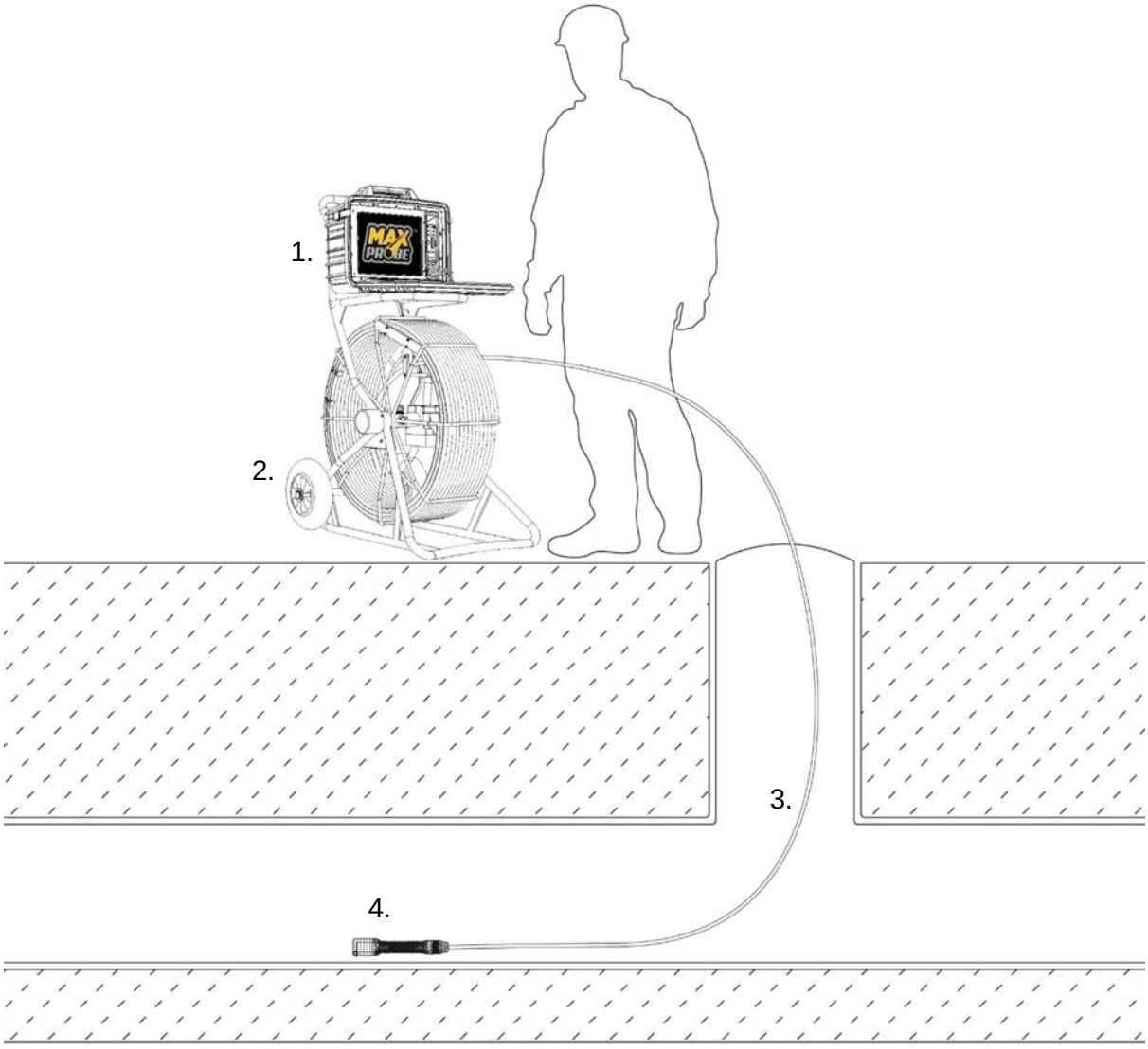


Figure 1: Full Maxprobe System

Maxprobe Camera Control Unit

The Maxprobe CCU is a ruggedised, weatherproof data entry workstation specifically designed to enable a user to record, detail, and report a pipeline inspection survey while on site. The case is manufactured from high-grade polycarbonate to provide a strong, tough and impact resistant outer case (see Figure 2). The lid has two heavy-duty hinges and is secured closed by two metal draw latches. When closed, the lid is sealed with a neoprene seal, providing the box with almost complete weatherproofing (rated to IP56).

Figure 2: Maxprobe Camera Control Unit Outer Case

⚠ **Caution: Risk of Damage**

Check to make sure there are no external devices remaining plugged into the front connectors, and that there are no objects on the keyboard, before closing the keyboard. Closing the lid while devices remain plugged in may damage the device, keyboard, and the front connectors. Objects on the keyboard may damage the screen, or keyboard, or cause damage to the CCU seals.

When opened, the lid hinges open to 90°, allowing access to the workstation keypad. This is a showerproof elastomer keypad, connected to the main body of the Maxprobe CCU by a coiled wire (see Figure 3). When opened, the Maxprobe CCU is showerproof (rated to IP54), but in persistent heavy rain it is advisable to set up in shelter to minimise the risk of water ingress. When the survey is finished, wipe the rubber keypad dry and leave the lid open in a warm environment to allow any condensation to evaporate.

Figure 3: Maxprobe Camera Control Unit Opened

⚠ **Caution: Risk of Damage**

Do not force the opened lid passed the 90° position. While the Maxprobe CCU is a rugged construction, applying excessive force to the opened lid (for example, by leaning on the opened lid or placing heavy objects on the keypad) may damage the hinges and prevent the box from properly sealing when closed. This may allow water to get into the Maxprobe CCU and reduce the service life of this product.

The screen displays the feed from the camera and a series of status icons. To the right of the screen is a silicone rubber flap covering two USB sockets, a 3.5mm headphone socket and a 3.5mm microphone socket (see Figure 4). These four sockets are not weatherproof, so avoid using these sockets in heavy rain. When these are not in use, ensure the silicone flap is securely fitted to prevent water ingress.

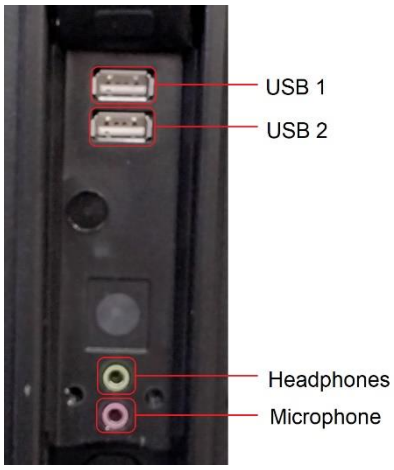


Figure 4: CCU Front Connectors

The serial number and product details of the Maxprobe CCU can be found on the reverse of the control box enclosure (see Figure 5). The connectors are found below the product label. These connectors are weatherproofed and rated to IP56, but when not in use, the rubber transit covers should be fitted to minimise the chance of dirt and water ingress.

Figure 5: Maxprobe Camera Control Unit Rear

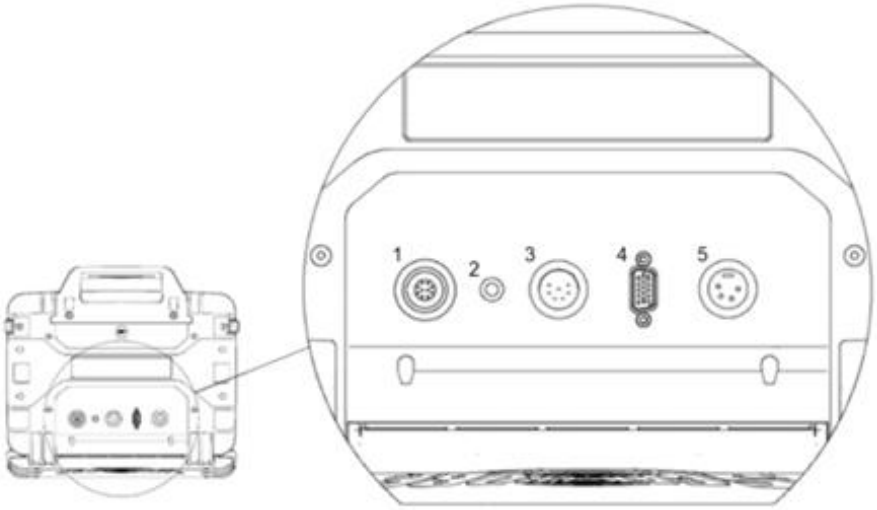
Maxprobe Keypad layout

Figure 6: Maxprobe Keyboard Layout

Power ON/OFF	Settings
mina	Sonde ON/OFF (CANbus Functionality Only)
Wincan	Wi-Fi Shortcut
Free Text	Lights Off
Text Font	Lights Down
Text Size	Lights Up
Meterage Placement	Snapshot
File Manager	Meterage Counter Reset

Maxprobe CCU Connectors

The Maxprobe CCU has been designed to connect to all Scanprobe Techniques Limited pipeline inspection systems. On the rear of the CCU there will be three or four connectors, depending on whether the CCU is CANbus compliant (ATEX) or not (see Figure 7). If the CCU is CANbus compliant, connector 1 will be present, otherwise this will be absent. Connector 4 is the video out; this is currently HDMI, but older revisions of the CCU will feature a VGA connector in place of the HDMI connector.



Key	Description	Comments
1	CANbus Socket	10-pin input socket used to connect pressurised or ATEX-compliant system (where fitted)
2	Battery Indicator LED	LED indicator to display the battery status while CCU is powered on
3	7-Pin Socket	7-pin input socket used to connect unpressurised systems
4	VGA/HDMI Socket	Video out socket used to connect external monitors
5	Power Socket	4-pin power input socket

Figure 7: CCU Rear Connectors

When making connections, please ensure the plug and socket are both clean and dry before making the connection. Check the plugs and sockets to ensure all pins are present and not twisted before engaging any connector. Do not force or twist any connectors when engaging; if they do not to engage correctly, confirm that the keyway is aligned properly and recheck the pins for damage.

a. 7 Pin Socket and Power Socket Engagement

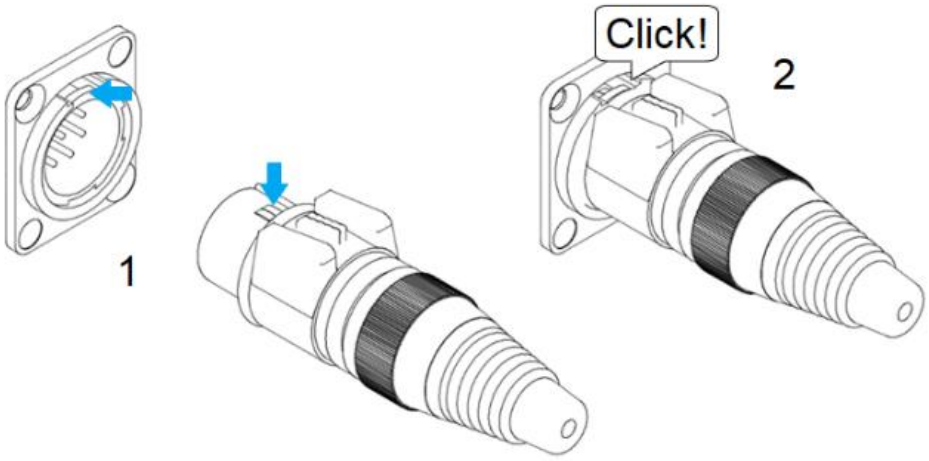


Figure 8: 7-Pin and Power Socket

Align the keyway clip at 12 o'clock with the socket, as illustrated in Figure 8, then push the connector into the socket until you hear the click of it locating. To disengage, press down on the rubber button on the top of the plug and pull.

b. 10 Pin Socket Engagement (CANbus only)

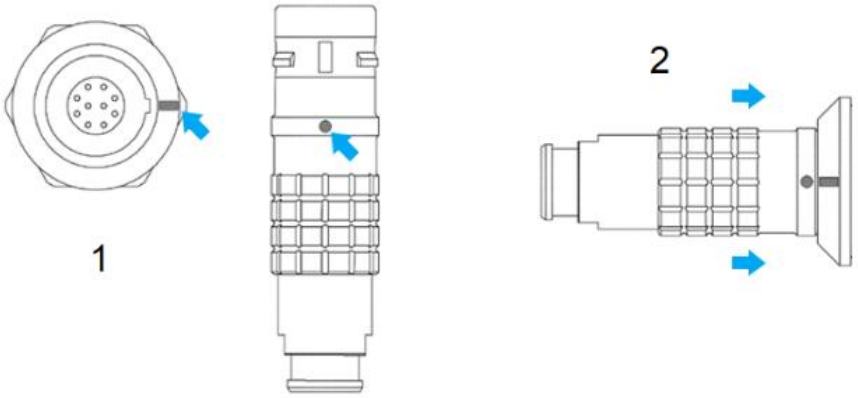


Figure 9: 10-Pin Connector

Align the red keyway marks on the plug with the connector and push firmly to engage the connector as illustrated in Figure 9. To disengage, pull back on the plug sleeve.

Mounting the CCU

As shown in Figure 10, lift the CCU at an angle above the mounting plate (1). Align the base of the handle (2) and clip over the plate (3). Lower the CCU so it rests against the frame (4). Check that the CCU is central to the frame (5). Connect the cables to the rear connectors.

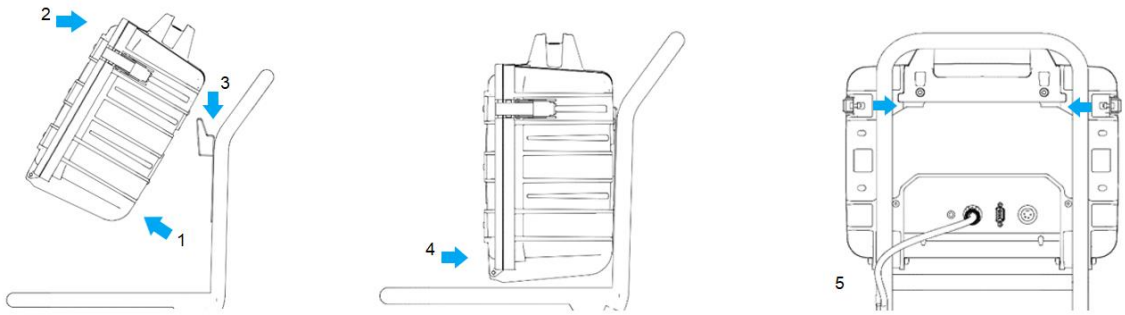


Figure 10: Mounting the CCU

Dismounting the CCU

Disconnect the cables from the rear of the CCU, tilt the bottom of the CCU away from the frame and lift the CCU away from the frame.

Maxprobe CCU Display

On the Start Screen, press the <Enter> button to navigate to the main display (see Figure 11). The meterage of pushrod fed out from the coiler is also displayed in the top right corner of the video screen by default, though this can be moved by pressing the “Meterage Placement” button on the keypad. This can be reset by pressing the “Meterage Counter Reset” button on the keyboard for three seconds.

Figure 11: Maxprobe CCU Display

The black bar down the right-hand side of the screen is used to display a range of icons to indicate the status of the system (see Table 1). The current date and time is shown towards the top of this icon bar below the Survey Mode icon.

Table 1: Maxprobe CCU Icons

Icon	Meaning	Notes
	Basic Survey Mode	Default Survey Mode
	Mina software reporting active	mina Survey Mode
	WinCan software reporting active	WinCan Survey Mode
	No camera detected	
	Camera detected	
	Video recording in progress	Only appears when a recording is in progress
	Temperature status	CANbus Systems Only
	Pressurisation status	CANbus Systems Only
	ATEX monitoring active	CANbus Systems Only
	Sonde On (frequency will appear beneath the icon)	CANbus Systems Only
	LED Status	Illustrates the level of brightness for the camera lights.
	Internal storage	Default storage
	USB storage	Only when USB storage has been plugged in
	Wi-fi connectivity and signal strength	
	Headset present	
	Wired connection activated	Only when connected to a compatible device through wired link (USB cable)
	Battery Status	Current battery status.
	Software loading	Only appears on the WiFi menu while checking for available networks

Battery Charge Icon

The battery charge icon displays the battery charge remaining in increments of 20%, as illustrated in Figure 12.

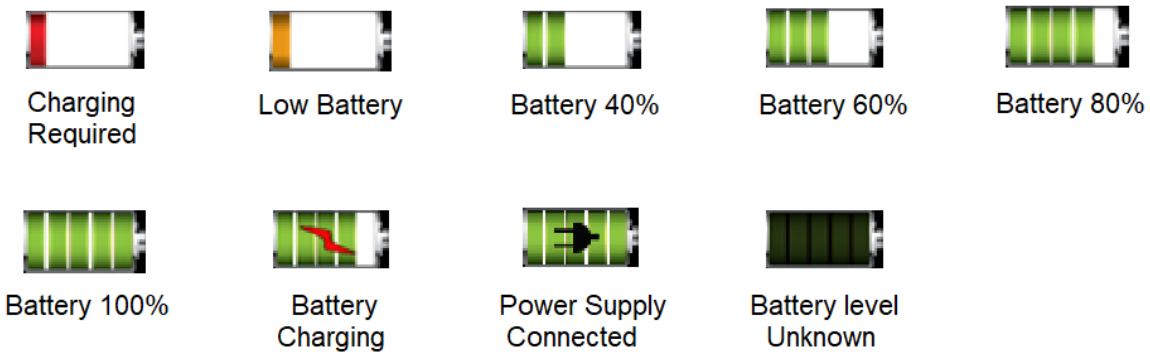


Figure 12: CCU Battery Status Icons

Battery Life

The Maxprobe CCU battery will provide around 8 hours of continuous use, though this will vary depending on the conditions of use and the environment. Constant and high power drain usage (such as using the sonde with the LEDs set to full illumination) will result in a shorter operational life before the CCU needs to be connected to an external power source. The approximate battery charge is displayed on the Maxprobe CCU screen, as illustrated in Figure 12. When the battery reaches a critically low level, an alarm will sound and the Battery Indicator LED on the rear of the CCU will flash red. When the low battery alarm sounds, the Maxprobe CCU should be recharged as soon as possible, and must be connected to an external power source to continue operations. Failure to do this may result in the CCU shutting down. This may cause any incomplete surveys to become corrupted or lost.

Once connected to an external power source, the Maxprobe™ CCU will be fully charged in around 4 hours.

After extended periods of storage, it may be necessary to charge and discharge the batteries several times to obtain maximum performance.

Battery Maintenance

Lithium ion batteries do not suffer from the same memory effect that nickel-cadmium batteries suffered from. Lithium ion battery life can be extended by performing shallow discharges and recharges rather than fully discharging the battery pack before recharging. For maximum battery life, recharge the battery when it reaches 50% charge, and charge to between 80-90% of the maximum capacity. Do not leave the Maxprobe CCU system plugged into the charger once the battery is fully charged, as this will also degrade the battery life.

Lithium ion cells are also less affected by cold than other cells, meaning they are better at retaining their power output at lower temperatures. However, as they rely on a liquid or gel electrolyte, they will be permanently damaged by attempting to charge the cells if the

electrolyte is frozen. If the Maxprobe CCU is used in cold weather or stored in cold temperatures (e.g. overnight in a vehicle in sub-zero temperatures), always allow the CCU to warm up before charging.

Battery Operating and Charging Temperatures

Operating Temperature:	-20°C to +60°C
Charging Temperature:	+10°C to +45°C

Battery Damage

The battery is protected within the Maxprobe CCU case and is not exposed to the user in normal operations. If the case is damaged and the battery pack is exposed:

- Return the Maxprobe CCU to Scanprobe Techniques Limited, or an approved service centre, for repairs. Never use or charge a Maxprobe CCU if it has an exposed battery pack.
- Do not tamper with an exposed battery pack.
- Do not short-circuit a cell or the battery, or store a cell or the battery pack where it may be short-circuited by other metal objects.
- Do not dismantle, open, or shred the cells or batteries.
- Do not subject cells or batteries to mechanical shock.
- In the event of a cell leaking, do not allow the liquid to come in contact with the skin or eyes. If contact has been made, wash thoroughly with clean water and seek immediate medical advice.
- Do not expose cells or batteries to heat or fire. Avoid storage of exposed batteries in direct sunlight.
- Seek medical advice immediately if a cell or a battery has been swallowed.
- Keep exposed cells and batteries clean and dry.

To ensure the batteries are kept in the best condition, do not use any charger except the one specifically supplied with the equipment and do not leave the equipment on prolonged charge when not in use.

Lithium Battery Shipping

The Maxprobe lithium ion battery pack, uses lithium-ion cells and are subject to shipping regulations. Certification for the requirements of UN38.3 can be provided by Scanprobe Techniques Ltd. The Maxprobe battery falls below 100Wh.

Maxprobe Settings

The settings menu (see Figure 13) is accessed by pressing the “Settings” button on the keyboard and allows users to administer features of the Maxprobe system. Within this menu, users can perform administrative tasks such as adjusting the system time and date, connecting to wireless networks, and connecting to WinCan web. Below is a brief list illustrating the main functions that are accessed through the settings menu and a description of their operation.

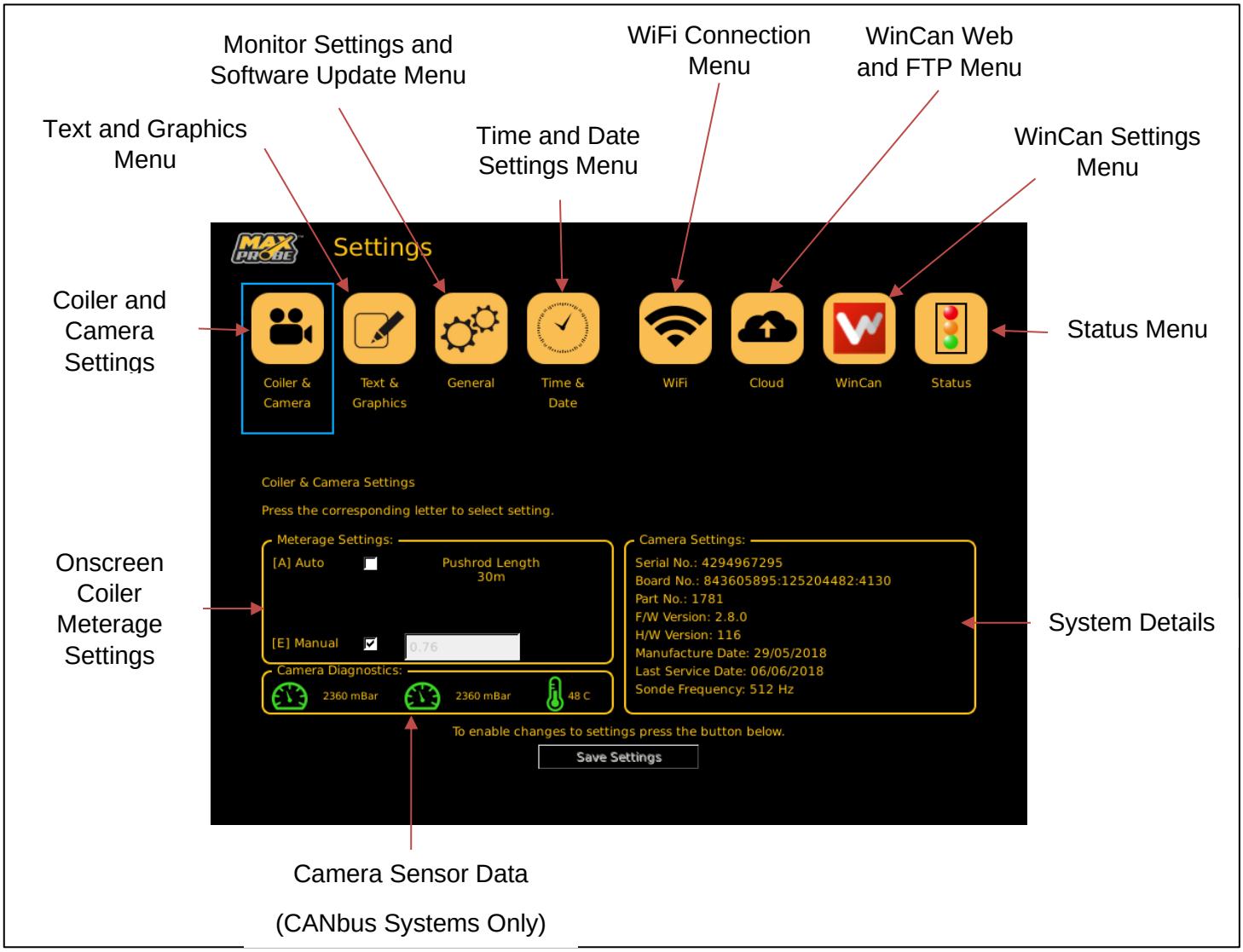


Figure 13: Maxprobe Settings

Coiler & Cam	Provides a health check of the components within a system and allows users to view serial numbers, camera temperature/pressure, service dates as well as change the coiler meterage setting.
Text & Graphics	Option to allow users to enter automated text that will appear at the end of every recording and configure the length of time it will appear for.

General	General settings include software updates, monitor brightness, turn on/off external monitor and auto screen shutdown, languages, factory reset and the option to change the meterage counter from metric to imperial.
Time & Date	Change the clock from 12 hour to 24 hour, set the time, and set the date.
WiFi	Displays available WiFi and personal hotspot networks and allows users to connect to a mobile device.
Cloud	WinCan Web username and password connection settings.
WinCan	The option to choose different catalogues when creating a WinCan report, as well as set the text screen time, colour, and turn on/off WRC code video stamp.
Status	Displays software and firmware version numbers, the serial number of the system, and the registered organisation that purchased it. Also displays a general overview of the system's health.

Maxprobe Pushrod Coilers

Maxprobe systems are available with several different frames, designed to carry different diameter pushrods at different lengths. Although the coilers slightly differ from one another, the overall concept is the same, which makes them more user friendly for operators who become familiar with the products.

Figure 14: Maxprobe Pushrod Coilers

The pushrod coiler is an integral component of any inspection system as it gathers the pushrod in a uniformed and redistributable way. The Maxprobe pushrod coiler has a mounting plate used to hold the Maxprobe CCU in position, the base of the frame is designed to sit stably on a variety of surfaces and the wheels offer good stability over commonly encountered terrain.

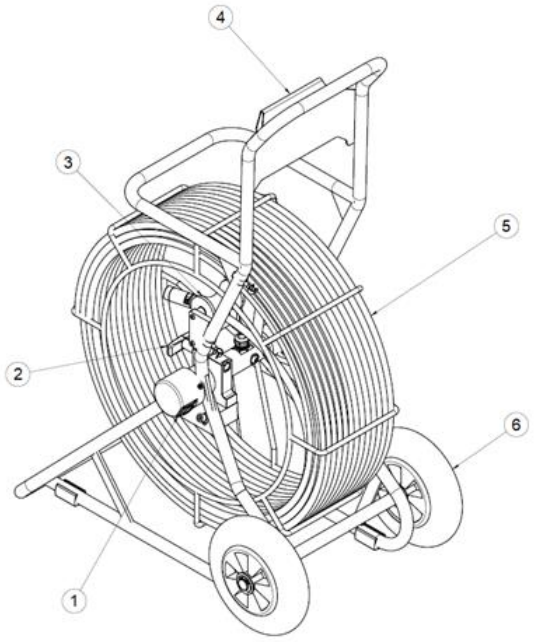


Figure 15: Maxprobe Coiler

1. Socket for Maxprobe CCU lead
2. Coiler Brake
3. Nylon rod guide
4. Maxprobe CCU mounting plate
5. Pushrod
6. All terrain tyres

Coiler Brake Operation

> ⚠ **Caution: Risk of Injury or Damage**
>
> When feeding the pushrod into, or out of, the Maxprobe coiler, ensure you always maintain control of the pushrod's feed speed by gently applying or releasing the brake. Do not completely release the brake, as this will allow the pushrod to feed out uncontrollably, and this may allow the cage to spin and possibly causing injury to you or others nearby, or damaging the camera, coiler, or pushrod.

There is a brake fitted to the coiler pushrod cage axle, to prevent the cage from spinning and the pushrod from uncoiling when the system is not in use. This brake must be released prior to feeding the pushrod out or back in, and should be reapplied whenever the pushrod is not being fed in or out. The brake handle is on the cage axle towards the centre of the coiler

(illustrated in Figure 16). The brake simply clamps onto the axle. To release the brake, unscrew the handle anticlockwise. To apply the brake, screw the handle clockwise.

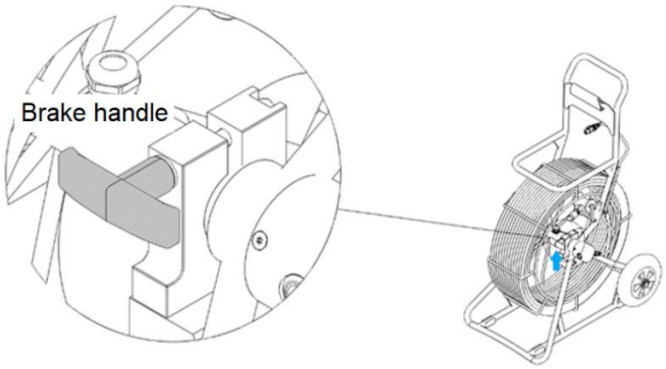


Figure 16: Coiler Brake Handle

Pushrod Instructions

When feeding the pushrod into the cage, align the pushrod neatly and try not to cross it over. This will reduce the risk of damage and an imprecise meterage reading.

Locator Sonde

A sonde locator for the correct frequency will need to be purchased separately to use this function. Contact Scanprobe Techniques for further details on all locator products or visit the website www.scanprobe.com.

a. CANbus Sonde

   On CANbus Maxprobe systems, the sonde is activated and disactivated using the “Sonde On/Off” button on the CCU. The frequency of the sonde can be changed between 512Hz and 33kHz using the CCU settings.

b. Non CANbus Sonde

   On all other Maxprobe systems, the sonde is activated and disactivated using the sonde button on the side of the coiler (see Figure 17). Pressing the button will toggle the sonde on and off. The sonde button has a collar that will illuminate either red or blue when the sonde is powered on.

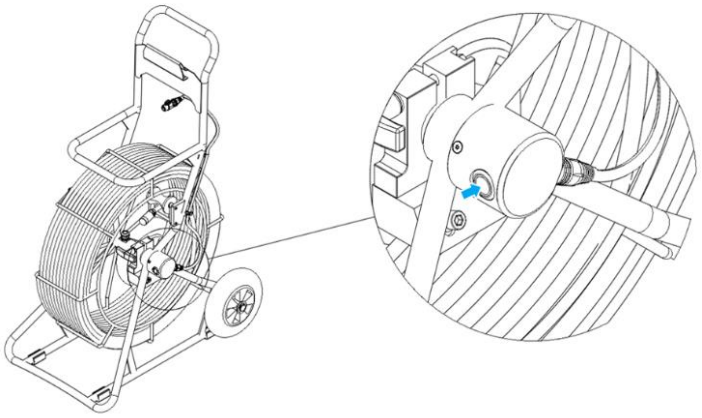


Figure 17: Sonde Activation Button

The non-CANbus cameras have a fixed sonde frequency, either 512Hz or 33kHz, which cannot be changed. The Camera body has a collar that indicates which frequency you are using (see Figure 18). A yellow collar indicates a 33kHz sonde while a white collar indicates either a 512Hz sonde or a no-sonde camera.

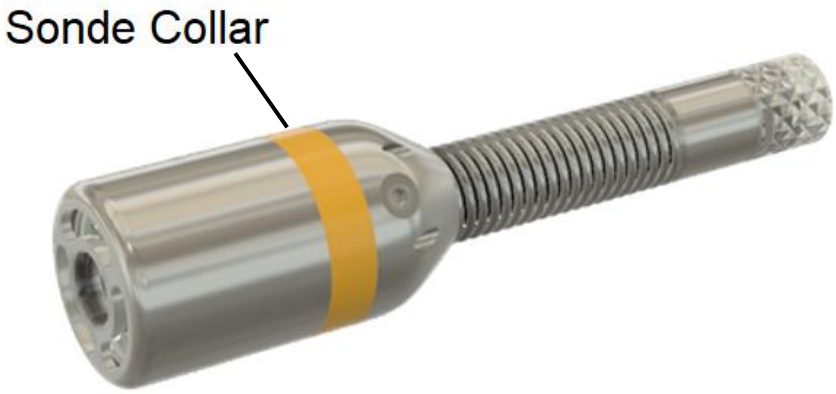


Figure 18: 44mm Camera Sonde Collar

Maxprobe 44mm Camera

The Maxprobe 44mm Camera is a sealed, self-levelling camera with integrated LED illumination and may include a magnetic sonde emitting an oscillating magnetic field with a frequency choice of 512Hz (Model No. 1015-1001-0) or 33kHz (Model No. 1015-1002-0). The lite version of this camera (Model No. 1015-1005-0) has no sonde fitted. The camera is designed to enter pipelines for the express purpose of undertaking a visual survey.

Figure 19: Maxprobe 44mm Camera

The camera is designed to navigate pipeline from 50mm diameter up to 300mm diameter and, for the models fitted with a sonde, be traceable up to a depth of 4 meters in optimal conditions. The spring to the reverse of the main body houses a flexible braid and is designed in a way to allow the camera to easily traverse 90° bends in 100mm pipework. The camera is sealed against water ingress and can be submerged to a depth of 5 meters.

⚠ **Warning:**
Do not attempt to open the camera head at any time. The camera head is not user serviceable and should only be opened by a Scanprobe engineer or agents explicitly authorised by Scanprobe Techniques Ltd.

⚠ **Warning:**
Do not look directly at the LEDs when illuminated to full brightness. The LEDs are very bright and may cause temporary or permanent damage to the eyes.

Connecting Camera to Pushrod

- Align the connector pins correctly using the keyway pin and the connector terminals male to female, as shown in Figure 20.

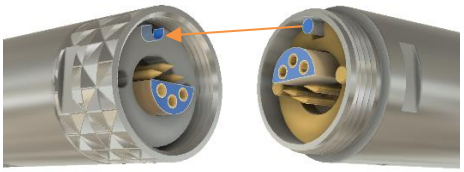


Figure 20: Aligning Pushrod and Camera Connectors

- Push the male and female connectors together.
- Hold the rod connector and camera still, so ONLY the outer shell can rotate.
- Screw the outer shell over both parts.
- Using the camera spanners (see Figure 21), screw the outer shell over the rod connector until tight.

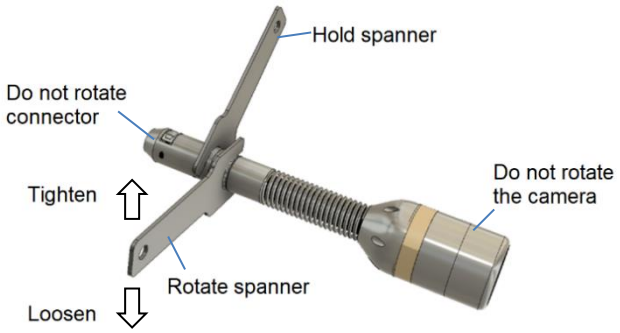


Figure 21: Use of Camera Spanners

⚠ **Caution:**
Take care with the connector thread, avoid extreme force, always use the provided spanners to tighten and just nip the connectors together. Do not over tighten!

☝ **Note:**
Always ensure the connector is clean and electrical contacts remain grease free.

Removing Camera from Pushrod

- Using the camera spanners (see Figure 22), loosen the outer shell from the pushrod connector.

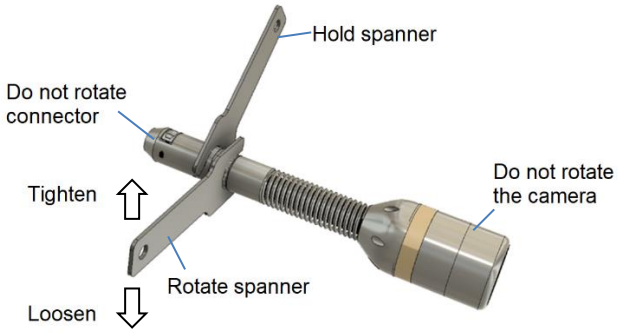


Figure 22: Use of Camera Spanners

- Unscrew the outer shell by hand, taking care not to rotate the camera head or the pushrod connector.
- Once the shell is free of the connector, gently pull the camera off the pushrod connector.

Camera Protective Skids

⚠ **Caution: Risk of Damage to the Camera**

When removing the skid from the camera, ensure you rotate the collar, not the skid front. Detritus can become trapped between the skid and the camera body, and this may cause the camera body to become unscrewed when removing a heavily fouled skid from a camera if the skid front is unscrewed from the collar.

The 44mm camera must always be fitted with a protective skid when in use. These provide protection for the camera while it is in the pipeline, minimising damage from contact with the walls of the pipe, especially from sharp edges such as those found when entering manholes and inspection chambers. There are various sizes of skid that can be used to centre the camera head in pipes from 50mm to 150mm, and to lift the camera head out of any liquid that may be standing or flowing in the pipeline. For larger diameter pipelines, a camera trolley is recommended.

a. Fitting a Camera Skid

To fit a protective skid to the camera, remove the camera head from the pushrod and slide the skid locking collar over the camera connector (see Figure 23).

Push the skid front on the camera head from the front then screw the collar into the front hand-tight. Connect the camera back on the pushrod.

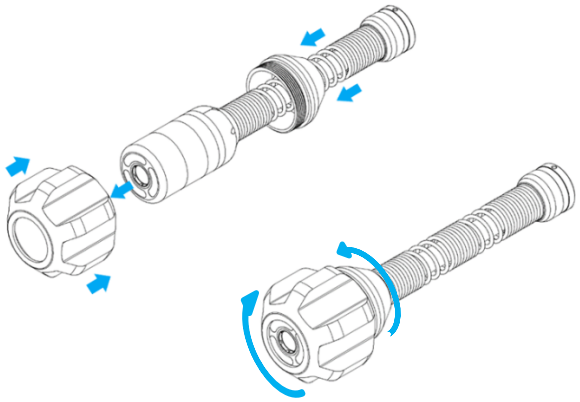


Figure 23: Fitting Protective Skids to 44mm Camera

b. Changing a Camera Skid

When changing skids, unscrew the collar from the camera front and slide the skid front off the camera head. If necessary, wipe the camera front with a damp cloth to clean the body and clean the skid collar. Fit the new skid front over the camera body and screw the collar into the new skid hand-tight.

c. Removing a Camera Skid

To remove a protective skid from the camera, remove the camera head from the pushrod and unscrew the collar from the front by hand. Slide the skid front off the front of the camera, and the collar off the rear of the camera.

Camera Trolley

The Maxprobe Camera Trolley is designed for use in pipelines of 150mm to 300mm diameter. The trolley centres the camera head in the larger diameter pipes, lifts the camera head out of any liquid that may be standing or flowing in the pipeline, and also reduces the friction between the camera head and the pipe, providing a smoother survey for less effort.

a. Fitting the Camera Trolley

Disconnect the camera head from the pushrod and place the rear of the skid case onto the pushrod, with the thread facing the open end of the rod, ensuring the O-ring is present on the thread.

Position the front section of the skid case onto the trolley base, aligning the screw holes on the skid case with those on the trolley base (see Figure 24). Note that the skid case can be mounted at either end of the trolley. Using the

M3 x 25mm screws and washers provided, fasten the front of the skid case to the trolley base.

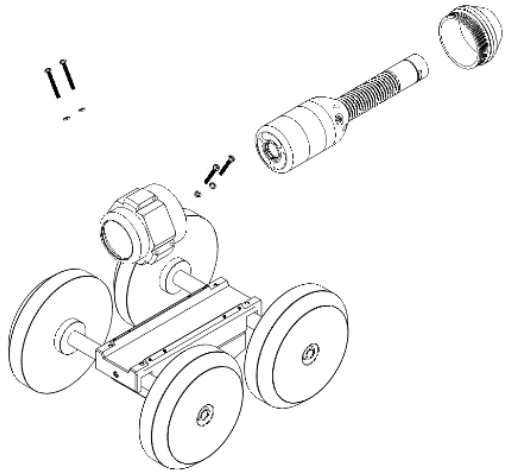


Figure 24: Fitting Camera to Trolley

Reconnect the camera head to the pushrod, being careful not to overtighten the connector. Position the camera head inside the skid case and screw the rear of the skid case into the front case by hand. Once tightened, ensure that the camera head rotates freely inside the skid case before placing the trolley in the pipeline.

b. Removing the Camera Trolley

Unscrew the rear of the skid case from the front case by hand. Remove the camera from the front case. Disconnect the camera head from the pushrod and remove the rear of the skid case from the camera.

Unscrew the front section of the skid case from the trolley base, retaining the M3 x 25mm screws and washers for reuse. Screw the rear of the skid case to the front of the skid case, ensuring the O-ring is still present.

c. Trolley Wheel Sets

The trolley mount is supplied with two wheel sets. The smaller wheel set is for surveying 150mm diameter pipes, while the larger set is for surveying 225mm and 300mm diameter pipes.

Each set of wheels have their own axles. Attach the wheels using the nut and washers supplied then attach the axels to the trolley using the two socket screws supplied.

The trolley is supplied with the additional ballast weight fitted to the trolley with socket screws. This increased weight is not always necessary, but it helps stabilise the trolley when using the larger wheels in bigger pipelines. The weight must be removed when using the smaller wheels to provide enough clearance.

i. For 150mm diameter pipes, use the small wheels and short axles, and remove the ballast weight (see Figure 25.

Figure 25: Trolley Fitted with Small Wheels

ii. For 225mm and 300mm diameter pipes, use the large wheels and long axles, and attach the ballast weight if necessary.

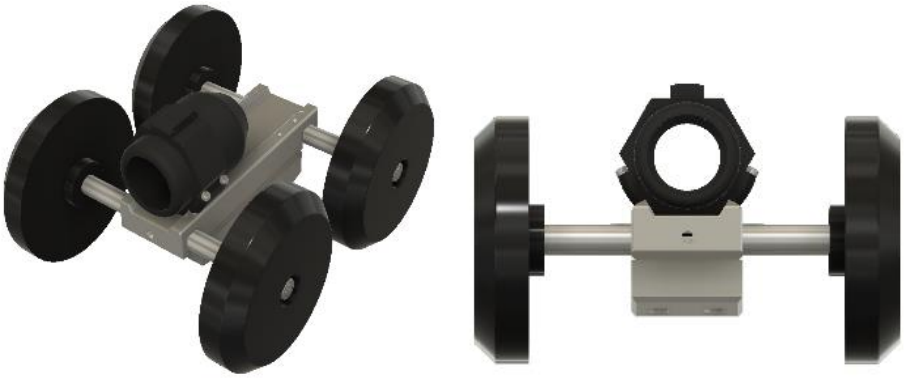


Figure 26: Trolley Fitted with Large Wheels

d. Maintaining the Camera Trolley

It is important to look after the condition of your trolley to ensure a long lifespan. Do not overtighten the bolts for the trolley wheels, or the M3 x 25mm screws fastening the skid to the trolley base. Do not trap any dirt in the thread on the camera skid when tightening, as this could damage the thread. Do not use the trolley to clear blockages within the pipe.

After use, clean the trolley with a damp cloth, and remove the wheels and clean any excess dirt present on the axle.

User Interface

Regardless of the survey mode that the Maxprobe system is used in, the main principles of operation remain consistent. This section provides guidance on the basic functionality of the Maxprobe CCU, such as recording video, taking snapshots and annotating recordings. Formal, professional report generation including site mapping and sharing these reports with customers requires the use of additional software (such as mina or WinCan; please refer to the mina User Manual or the WinCan User Manual for information on the use of these applications).

Note:

Some reporting software could require a licensing agreement and may come with addition cost.

Basic Report Navigation

When editing a report, the number keys can be used to navigate to the relevant page (i.e., press <1> for page 1, <4> for page 4, etc.). The <Page UP> and <Page DOWN> keys can also be used to navigate up and down pages.

Recording Video

Scanprobe recommends that video recordings are limited to a maximum of 1 hour each, as longer recordings generate larger file sizes and require more computing resource to handle. If the survey is going to take over one hour to complete, it is strongly recommended to break the recordings into 45 to 60 minute sections for ease of playback and file management.

To start the recording, press the record button (the “red dot”). The Maxprobe™ CCU will automatically record directly to the internal Solid State Drive (SSD) unless another device has been attached through the USB ports, whereupon the inserted device then becomes the default recording location.

Note:
In basic recording mode the Maxprobe will record exactly what appears on the screen if it has been stamped.

Note:

While the Maxprobe CCU does have the capability to record directly onto an external USB drive, this is not recommended. This is because the recording may freeze, or be corrupted, if the USB drive is knocked while in use.

The recording can be paused by pressing the pause button (the two vertical grey lines). This will allow, for example, text to be added to the screen without the viewer having a delay on the video while the operator types during the survey. Pressing the pause button again will continue the recording.

When the survey is complete, press the stop button (the grey square) to end the recording.

While recording, pressing the snapshot button will save a jpeg image of the screen.

The Maxprobe CCU will automatically record audio if you plug a microphone into the microphone socket in the CCU front. To hear the audio on a recording during playback through the Maxprobe CCU, you will need to plug in a speaker or a set of headphones into the headphones socket.

Writing Text

Text can be added to the recording by pressing one of the number keys to select the relevant page. The page number will be displayed on the right-hand side of the screen. To edit the text, press the “Text Overlay” key with a page selected. The size of the text can be changed by pressing the “Text Size” button, and the font and colour can be changed by pressing the “Text Font” button. The text box can be moved around the screen using the arrow keys. Once the text editing is complete and the text box is correctly positioned, press the “OK” button to ‘stamp’ the text into the video

> **Note**
> If the “OK” button is not pressed, the text will not be stamped on the screen and will not appear on your recording.

Insert Date

Press the number of the page you wish to add the date to then press <CTRL> and <D>. The size of the text can be changed by pressing the “Text Size” button, the font and colour can be changed by pressing the “Text Font” button, and the text position on the screen can be changed by pressing the <SHIFT> key and using the arrow keys.

Press the “OK” button to stamp the date onto the screen.

Insert Time

Press the number of the page you wish to add the date to then press <CTRL> and <T>. The size of the text can be changed by pressing the “Text Size” button, the font and colour can be changed by pressing the “Text Font” button, and the text position on the screen can be changed by pressing the <SHIFT> key and using the arrow keys.

Press the “OK” button to stamp the date onto the screen.

Counter

Press the number of the page you wish to add the date to then press the “Meterage Placement” button. The size of the text can be changed by pressing the “Text Size” button, the font and colour can be changed by pressing the “Text Font” button, and the text position on the screen can be changed by pressing the <SHIFT> key and using the arrow keys.

Press the “OK” button to stamp the date onto the screen.

Counter Reset

Press and hold the “Meterage Counter Reset” button for 3 seconds to reset the counter to zero.

Light Adjustment

> ⚠ **Warning: Risk of Damage to Eyes and Eyesight**
>
> The Scanprobe pipeline inspection systems feature bright LED illumination on the camera head which may cause damage to the eyes or to eyesight when fully illuminated. Do not look directly at them or point them at other people's eyes when illuminated.

The LED illumination can be incremented from off to full brightness by pressing the "Lights Up" and "Lights Down" buttons. There are 5 increments between lights off to full brightness. The LEDs can be immediately switched off by pressing the "Lights Off" button.

File Manager

> ⚠ **Caution**
>
> File sizes over 4GB cannot be managed (moved, copied, saved, or transferred) using a drive formatted using the FAT32 file system.

File systems are ways of organizing storage on devices such as hard drives, Solid State Drives (SSDs) and USB sticks. FAT32 is cross-compatible with almost all operating systems from Windows to macOS and Linux, meaning devices formatted to FAT32 can be used on smartphones, tablets, PCs, Mac's, etc. without having to reformat the device each time (and destroying the data held on the device). The Maxprobe CCU uses a FAT32 file system, so file transfer sizes are limited to a maximum of 4GB. This is approximately equal to 3 hours of video recording. It is advisable to break reports into separate parts if the entire report is likely to exceed 3 hours of recordings. For example, if a single site survey is expected to take 6 hours to complete, it is advisable to split the report into two parts. If the 4GB file size is being reached, the Maxprobe CCU will notify the operator with a pop-up dialog warning. While the file can continue to be worked on, once the file size is over this 4GB limit, the file cannot be transferred off the storage device it was recorded on to.

Please note that the Maxprobe CCU will store all video files and reports generated into the 32Gb onboard SSD by default. This should be regularly cleared up by copying all reports onto a USB drive or to a computer then deleting the file from the Maxprobe CCU. Using more that 75% of the onboard SSD for storing old reports and video can lead to the Maxprobe CCU becoming unresponsive or freezing up.

Viewing Recordings

Press the File Manager button to open the file manager screen. Select the storage device containing the recording using the navigation keys. If you have inserted any USB devices, they will show here, otherwise this this will only show the internal SSD.

Press the "OK" button to view the selected files.

Transferring Files

Press the File Manager button to open the file manager screen. Select the storage device containing the recording using the navigation keys. Highlight the folder or file you wish to copy then press <Ctrl> and <C>. You will be prompted to select the destination for the

copied file. Select the desired destination then press the “OK” key. A graphic showing the file transfer in progress will be displayed on the CCU screen.

Depending on the size of the files being transferred and the read/write speeds of the device being copied to, this can take some time to complete. For example, a 1GB file (approximately 45 minutes of video) may take 20 seconds or more to copy to a USB 2.0 drive. Please ensure that the file transfer is complete before removing an external drive, otherwise the file will be corrupted.

Deleting Files

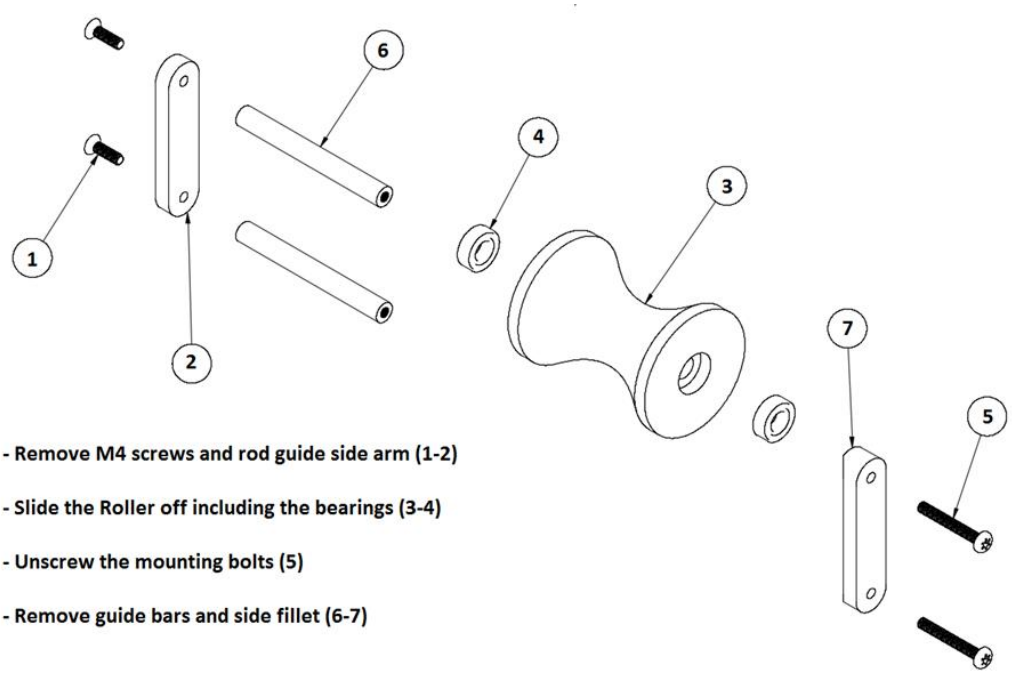
Press the File Manager button to open the file manager screen. Select the storage device containing the recording using the navigation keys. Highlight the folder or file you wish to delete then press the <Backspace> key. You will be prompted to confirm deletion. Press the “OK” button to confirm deletion, or the “Esc” button to cancel.

After Use, Care and Maintenance:

Roller guide

The roller guide is an integral part of the coiler which will increase the longevity of the push rod if maintained correctly. If the roller stops rotating it will start to wear out which will significantly increase the chance of wear to the push rod jacket. Please clean all parts thoroughly with clean water if rotation is hampered or stops.

How to remove roller parts for replacement or cleaning:



- Remove M4 screws and rod guide side arm (1-2)
- Slide the Roller off including the bearings (3-4)
- Unscrew the mounting bolts (5)
- Remove guide bars and side fillet (6-7)

Connector and cable care

Connectors and cables are an integral part of any system, taking good care of these will allow the electrical signals to reliably transmit. It is therefore essential to check the cable, connectors, and interfaces after each inspection by following these simple steps:

- Ensure the system is disconnected from the power supply.
- Check connector pins are all intact, clean and check no visible damage is present on the cable.
- Check O-rings for damage and replace if necessary (grease regularly).
- If damage is identified, contact Scanprobe Techniques or its authorised agents.

Cleaning and Maintenance

⚠ **Caution: Risk of Damage**

Check to make sure there are no external devices remaining plugged into the front connectors, and that there are no objects on the keyboard, before closing the keyboard. Closing the lid while devices remain plugged in may damage the

device, keyboard, and the front connectors. Objects on the keyboard may damage the screen, or keyboard, or cause damage to the CCU seals.

Maintenance:

Do not use a high-pressure water jet (i.e., a pressure washer) to clean down the Maxprobe CCU as water may get into the box, and damage may occur to the protective seals, batteries, and printed circuit boards. Wipe down the screen and keyboard with a clean, damp cloth. Close the box then use a low-pressure hosepipe and a damp cloth to clean the exterior of the Maxprobe CCU if necessary.

Note:

It is the sole responsibility of the user to keep the equipment to a good standard, any repairs required due to negligence will invalidate the warranty and will be chargeable. If systems are presented to a Scanprobe Techniques Limited approved service centre in a soiled condition, a cleaning charge will be levied to cover the additional time spent sanitising the system prior to undertaking repairs.

To increase the service life of your Maxprobe equipment we recommend the devices and components are kept clean and serviced regularly. To achieve the greatest improvement in longevity, pay close attention to moving parts such as rollers.

The system should be cleaned as frequently as necessary. When dirt is visible, it is recommended to clean the system to avoid the build-up of particles, which makes the system more difficult to clean later.

- Always be vigilant and clean/replace parts after every inspection according to their condition.
- Check for loose parts like the lens holder and roller screws after every inspection.
- Clean camera heads with water after use and remove all debris (a soft brush maybe required). Remove any fitted camera skids and clean between the camera and skid.
- Ensure the connector contacts are clean, use an electrical contact cleaner if cleaning is required.
- Always screw the protective caps on all connectors if the camera has been removed.
- Use clean water only, do not add any cleaning products.
- If the Maxprobe keypad/screen has been used in the rain, dry any water off the keyboard and screen with a clean cloth and leave the lid open in a warm, dry place until all water has evaporated.
- Keep all power leads, chargers, and electrical accessories clean and dry.
- Thoroughly clean all parts that have had contact with the inspection area. Wipe them over with a cloth, if necessary, after every use.
- Roll cables up neatly after use and place in a dry area.
- Wipe the push rod with a rag after use.

The individual system components should be kept clean and in good condition to increase the longevity of your Maxprobe CCU and to reduce the risk to the operator while operating the system. Maintaining the system in a clean working condition will also reduce abrasion

and other wear and tear on the components while in use to significantly extend the operational life of the system and it will help to minimise repairs.

Do not force the connectors together, as this may break the pins.

Always use the provided protection caps when transporting and ensure that cables do not get tangled up. Never deliberately bend any of the attached cables. Perform a visual inspection of the cables prior to use and get the cable repaired or replaced as soon as any damage occurs or is found.

After use, the Maxprobe CCU should be recharged by connecting the charging leads to a suitable external 12V or mains power source.

Repairs

⚠ **Warning:**

The Maxprobe Systems have no user repairable parts. Opening the system enclosures may be dangerous and is liable to damage or destroy the seals protecting the equipment.

Due to the specialist knowledge and tools required to repair and reseal the Maxprobe system components, any repair work should only be undertaken by Scanprobe Techniques Limited, agents explicitly authorised by Scanprobe Techniques Limited, or following explicit direction from Scanprobe Techniques Limited.

Undertaking repair or modification work without Scanprobe Techniques Limited consent and authorisation is forbidden. Undertaking any unauthorised repair or modifications to the Maxprobe System will invalidate the warranty.

Maxprobe System Interchangeability

The Maxprobe Systems are designed as modular systems, allowing components to be exchanged between systems depending on the tasks undertaken. The CCU is designed to control all Maxprobe systems, as well as the TrapJumper, as shown in Figure 27. Note that a CANbus CCU is required to operate the CANbus systems. These cannot be controlled using a non-CANbus CCU.

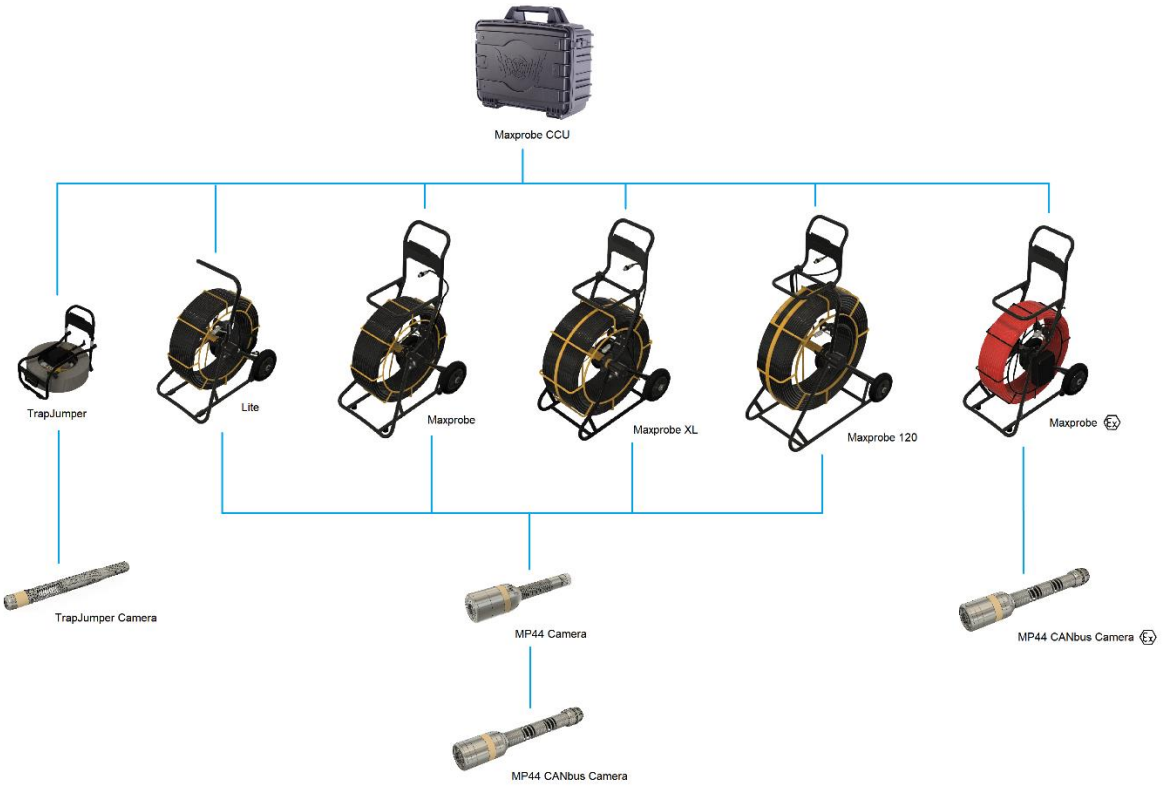


Figure 27: Maxprobe System Interchangeability

Description	Serial No.
Maxprobe CCU	1005-1001-0
Maxprobe CANbus CCU	1005-1005-0
TrapJumper Coiler	1024-1001-0
Maxprobe Lite	1023-1003-0
Maxprobe Coiler	1023-1001-0
Maxprobe XL Coiler	1002-1001-0
Maxprobe 120 Coiler	1003-1001-0
ATEX Maxprobe CANbus Coiler	1023-1002-7
TrapJumper Camera	1024-1002-0
Maxprobe 44mm Camera	1015-1001-0
Maxprobe 44mm CANbus Camera	1015-1003-0
ATEX Maxprobe 44mm CANbus Camera	1015-1003-7

Maxprobe Accessories

Camera Skids and Trolley

Description	Part Number
Ø60mm OD Slip skid	1015-3001-0
Ø75mm OD Sculptured skid	1015-3002-0
Ø130mm Roller skid	1015-3003-0
Ø180mm Roller skid	1015-3004-0
Ø150 – 300mm Camera Trolley	1015-3010-0
Rod connector protective cover	1020-2031-0
Camera connector protective cover	1020-2032-0
48mm Camera Trolley O-Ring	1022-3310-0

Maxprobe Accessories

Check the accessories before using this product.

⚠ **Warning:**

Keep the accessories out of reach of children to prevent swallowing.

Parts List			
Item	Qty	Part Number	Description
12	1	1005-3086-0	230v mains lead
11	1	1005-3022-0	110v power lead
10	1	1021-2040-0	USB Stick
9	1	1005-3017-0	24v Maxprobe power supply (PSU)
8	1	1020-2015-0	Ali rod end cap
7	1	1020-2014-0	Ali Camera lemo cap
6	2	1021-2021-0	Rubber Bung
5	1	1005-3021-0	12v car charger
4	2	1020-2021-0	Camera removal tool
3	1	1015-3002-0	44mm Sculptured Skid
2	1	1015-3001-0	44mm slip skid
1	1	1022-3094-0	Scanprobe Accessory Bag

This sets out the standard accessory kit provided with the Maxprobe system. The Maxprobe 120 may also include the Camera trolley and roller skids.

Scanprobe Techniques continue to offer a wider range of protective sleeves and equipment for the Maxprobe 44mm cameras, please check the website site for new accessories www.scanprobe.com.

Charging Accessories

The Maxprobe CCU charging leads:

Part Number	Image	Description
1005-3086-0		UK plug to IEC (2mtr Blk 5A) 240VAC mains
1005-3017-0		Switch mode power supply (PSU) Input: 100-240V ~ 50/60Hz 1.5A Output: 24.0V – 2.5A
1005-3022-0		110V 16A 2P+E Plug to IEC (2mtr Blk 10A)
1005-3021-0		12V Vehicle Charger Lead
1022-3341-0		Vehicle Charger Lead Fuse

⚠ **Caution:**

Observe mains voltage: the voltage of the power source must correspond with the information provided on the equipment or Power supply label.

☝ **Note:**
An alternative to the UK plug can also be supplied for operators using the equipment in US or EU territories, please contact Scanprobe Techniques Ltd for further details.

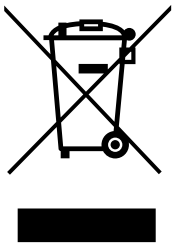
Troubleshooting

Problem	Cause	Solution
The device does not power up.	Power button was not pressed.	Press the power button.
The device does not power up when power button is pressed. The power button does not light up.	Battery is flat	Charge the battery.
	Battery is faulty	Return the CCU to your approved service center to have the battery replaced.
Buzzer sounds and the LED is flashing red on the rear of the CCU	Battery is critically low	Charge the battery.
Battery does not charge	Charger not connected	Check all cables and connections are connected and secure. Charge the battery.
	Charger is unpowered	Check the charger is plugged into a suitable and available power source. Charge the battery.
	Vehicle charger lead fuse has blown	Unplug the vehicle charger from the CCU and the vehicle. Unscrew the vehicle charger connector and replace the fuse.
	Battery is faulty	Return the CCU to your approved service center to have the battery replaced.
CCU screen is blank	System is not powered	Press the power button.
CCU shuts off	Battery is depleted	Charge the battery.
Blue Screen displayed on CCU	No camera	Fit a Maxprobe 44mm Camera
	Dirt in the camera connector	Clean the camera connector and refit the camera.
	No cable between the coiler and CCU	Check the cable between the coiler and CCU is present and both ends are securely connected.
	Damaged connector	Check the connector pins on the CCU and coiler for damage. Return the system to your approved service center to have the damaged connector replaced.
	Damaged cable	Check all cables for damage. Order a replacement cable from your approved service center.
	Damaged pushrod	Check the pushrod for damage. Return the system to your approved service center for a cutback or a re-rod.

Problem	Cause	Solution
Video suddenly cuts off while system in use. CCU now displays blue screen.	Camera damaged	Withdraw the pushrod and camera from the survey location. Return the damaged camera to your approved service center for repair.
	Camera lost; pushrod connector damaged	Withdraw the pushrod from the survey location. Return the system to your approved service center for repair.
	Coiler fault	Withdraw the pushrod and camera from the survey location. Return the damaged system to your approved service center for repair.
During data communication with a host computer, no data transmitted, or transmitted data was incomplete.	System disconnected from host computer during communication	Reattach the communication cable and re-transmit.
	Incorrect cable configuration.	Use the approved Maxprobe to CCU Cable.
During data communication over Wi-Fi, no data transmitted, or transmitted data was incomplete	No Wi-Fi signal	Move closer to an access point.
	You moved out of range of an access point	Move closer to an access point.
CCU slow and unresponsive	SSD full	Free up space on the internal SSD by transferring reports and video files off the internal drive
	Water ingress into CCU	Return the system to your approved service center for repair.

Disposal

The Maxprobe System, and the component parts, are classified as electrical equipment and is covered by the Waste Electrical and Electronic Equipment Regulations 2013 (as amended). The Maxprobe CCU contains batteries and by law must not be disposed of in landfill waste.



Waste Electrical and Electronic Equipment (WEEE) Logo

Scanprobe Techniques Limited are registered with a WEEE Producer Compliance Scheme with Registration Number WEE/MM5507AA. Any Scanprobe-manufactured electronic device can be returned to the manufacturer at the end of its service life for disposal at no further charge. Please contact Scanprobe directly to ask about the scheme.

Technical Data

Coiler Data

Description	Maxprobe	Maxprobe XL	Maxprobe 120
Cable Length	60 m	100 m	120 m
Meterage counter	Yes	Yes	Yes
Driving Force	Manual (push rod)	Manual (push rod)	Manual (push rod)
Voltage	12v DC / 230v AC / 110v DC	12v DC / 230v AC / 110v DC	12v DC / 230v AC / 110v DC
Current	Ex Power Supply 1.7amp max.	Ex Power Supply 1.7amp max.	Ex Power Supply 1.7amp max.
Battery	Li-ion - 9hrs running time	Li-ion - 9hrs running time	Li-ion - 9hrs running time
Operating temp.	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
Charging temp.	+10°C to +45°C	+10°C to +45°C	+10°C to +45°C
Weight	Coiler only - 23kg	Coiler only - 37kg	Coiler only - 53kg
Dimensions	H 955mm W 410mm L 625.5mm	H 997mm W 480mm L 661mm	H 1,385mm W 535mm L 841mm
Nominal Pipe size	50mm – 225mm	50mm – 300mm	50mm – 350mm
Rod bend access	90mm approx.	90mm approx.	70mm approx.

CCU Data

Description	Maxprobe CCU
LCD Size	10.4” diagonal
Resolution	800 x 600 RGB (SVGA)
LCD viewing angle	85° Typical
IP Rating	IP54 (lid open) IP56 (lid closed)
Memory	32Gb SSD

Description	Maxprobe CCU
Data Export	USB 2.1 x 2, Wi-Fi, 4G
Software	Wincan Embedded + Wincan Web Basic Survey Mina Survey
Output	800 x 600 SVGA, DE15
Video format	MPEG4
Image format	JPEG
Storage temp.	0°C to 40°C

Camera Data

Description	Maxprobe 44mm Camera	Maxprobe 44mm CANbus Camera
Pipe bend accessibility	90° 100mm nominal	90° 100mm nominal
Internal Camera Pressurization	No	Yes; 1 bar Nitrogen
Illumination	LED	LED
Field angle (diagonal)	90°	90°
Focal extent	400mm - ∞	400mm - ∞
Focus length	3.7mm	3.7mm
Iris control	Fixed	Fixed
TV System	PAL/NTSC	PAL/NTSC
Light sensitivity	0.01 Lux	0.01 Lux
Sonde frequency	33kHz / 512Hz	33kHz / 512Hz
Weight	0.55kg	0.74kg
IP Rating	IP68	IP68
Material	Stainless steel 304	Stainless steel 304
Resolution	600TVL Colour	600TVL Colour
Length	188mm	262mm

User Notes

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