

# MICRO PAN & TILT CAMERA

## QUICK GUIDE

P/N UC912, Revision 2: 092420



**CUES**® equipment is designed to be easy to use during day to day operation. However, it is powered electrically and thus must be operated with care and safety. PLEASE READ THE INFORMATION ON SAFETY AND MAINTENANCE EVEN IF THE SYSTEM IS SET UP BY SOMEONE ELSE.

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We would be pleased to hear from you. If you see any errors or desirable extensions or improvements, please write us at the following address, C/O Operator's Manuals: **CUES**® Corporate Office 3600 Rio Vista Avenue Orlando, Florida 32805

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Styles and specifications are subject to change without notice. First version published in 2004.  
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# CUES MICRO PAN & TILT QUICK GUIDE

P/N UC912, Revision: 001 09.24.20

## INTRODUCTION

This quick guide includes instructions and various information for the CUES MICRO Pan & Tilt Camera. The CUES MICRO Pan & Tilt Camera is designed to work with the LAMP II lateral launcher system for lateral pipe inspections. The Micro Pan & Tilt Camera is designed to navigate through multiple wyes and 45 and 90 degree bends / sweeps with the integrated directional rod. All pan and tilt functionality is integrated into the systems' controller.

Use the optional CUES MICRO Pan & Tilt Camera with the CUES LAMP II. The MICRO Pan & Tilt Camera includes a detachable steering guide rod, self-leveling camera head, built-in lens wiper, 360 degrees pan and tilt, (4) banks of LEDs with variable light intensity, and a built-in sonde with switchable frequencies.

If the MICRO Pan & Tilt Camera is being used with existing pipeline inspection equipment or vehicle, modifications to the truck equipment layout and electrical wiring may be required. For more information, please call our Customer Service Department at 1-800-327-7791.



# CUES MICRO PAN & TILT QUICK GUIDE

P/N UC912, Revision: 002 09.24.20

## QUICKSTART INSTRUCTIONS


Prior to operating the MICRO PAN & TILT CAMERA, perform the following:

- ◆ Ensure the K2 is updated to the latest firmware. R043 or later is required to use the Micro P&T camera. Please visit the following CUES web page to download the latest firmware:  
<https://cuesinc.com/pages/summit-upgrades>
- ◆ Ensure the lateral PCU product switch is set to the correct product (left for SR3/Micro P&T) right for the Mini P&T.
- ◆ Set light knob on lateral PCU to the 3 o'clock position.

## HELPFUL HINTS

- ◆ Micro P&T lights are adjusted with the gamepad controller. For controller instructions, refer to P/N LM912, Quick Card, K2/K3 LAMP II Mini/Micro P&T.
- ◆ Sonde frequency can be adjusted through the K2
- ◆ Ensure the camera contacts are clean and that the camera is securely fastened to the cable

## ADDITIONAL REFERENCE DOCUMENTATION

DESCRIPTION	PART NUMBER	QR CODE TO ACCESS DOCUMENTATION
LAMP II User Manual	LM903	
K2/K3 Gamepad Quick Card	LM912	
K2/K3 User Manual (without software)	MD910	
K2/K3 Firmware Manual	MK901	

## ACCESSORIES

DESCRIPTION	PART NUMBER
Accessory Kit	UC901
Shroud (Multiple sizes offered with different dash numbers)	UC065
Wiper	UC063
Wiper Cover	UC064
Guide Wand Mount	UC005
Guide Rod (Multiple lengths offered with different dash numbers)	UC006
Guide Rod Ball	UC007
Spring Assembly	UC302

# CUES MICRO PAN & TILT QUICK GUIDE

P/N UC912, Revision: 001 09.24.20



## GUIDE ROD INSTALLATION

The guide rod is attached to the Micro P&T camera to steer the camera in the pipeline during inspections involving wyes and to help navigate blockages and offsets. Each camera includes an accessory kit ([UC901](#)) with spare parts and hardware. Micro P&T cameras ship with the guide rod mount installed. To install the guide rod into the mount, see step 3 below.

1. Locate the guide rod mount ([UC005](#)), as well as the mount screws 2x [HW4946](#) (2-56x.250) and 1x [HW4945](#) (2-56x.188) and blue thread locker ([440061](#)). All items are included in the ([UC901](#)) accessory kit (KIT, CAMERA CASE, MICRO P&T).
2. Install the guide rod mount using the two longer screws ([HW4946](#)) in the front and the one shorter screw ([HW4945](#)) in the top. Apply blue thread locker ([440061](#)) to the screws.
3. Apply blue thread locker ([440061](#)) to the chosen guide rod ([UC006-X](#)) and thread it into the guide rod mount.
4. When the guide rod mount is not being used, insert the set screws [HW1373](#) (2-56x.094) to seal the holes. Apply blue thread locker ([440061](#)) to the set screws.



# CUES MICRO PAN & TILT QUICK GUIDE

P/N UC912, Revision: 002 09.24.20



## INSTALLING OR REPLACING THE SHROUD

Prior to installing or removing the shroud, the Micro P&T Camera spring assembly should be installed and it should be disconnected from the push cable. To install or replace the shroud, perform the following:

1. If the shroud is in place, remove the four screws securing the shroud in place.
2. Place the shroud over the camera and rotate to align the cutouts with the screw holes.
3. Reinstall the (4) screws from Step 1 above [HW665](#) (6-32x.25). Do not use blue thread locker on the screws. NOTE: Using a ball nose Allen wrench is highly recommended (drive size is 5/64 in).



# CUES MICRO PAN & TILT QUICK GUIDE

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## ATTACHING CAMERA TO LATERAL PUSH CABLE

To attach the camera to the push cable: NOTE: Prior to re-assembly, it is recommended to clean the pins and connections and then apply Deoxit (CUES P/N CS569). Deoxit is included in the camera kit.

1. Remove the C-clip from the camera.
2. Align the visual markers and guide pins and mate the cable ends together.
3. Thread the cable nut completely, ensuring the o-ring is covered and no physical play can be felt between the ends. Ensure the notches on the push cable and spring assembly end are aligned.  
NOTE: The o-ring is not present on the test cable used for photo below.
4. Tighten with a wrench.
5. Snap the C-Clip over the flats between the nut and spring where shown. NOTE: The C-Clip must be removed in order to disassemble the spring adapter from the push cable.



# CUES MICRO PAN & TILT QUICK GUIDE

P/N UC912, Revision: 002 09.24.20



## INSTALLING OR REPLACING THE SPRING

The following procedure is for use with the LAMP II. Ensure that the shroud is removed per the previous instructions prior to performing this procedure. To install/replace the spring, perform the following:

1. Using a 5/64in Allen Wrench, remove the (6) screws located around the rear of the camera, as shown.
2. Remove the spring (not shown).
3. Prior to re-assembly, it is recommended to clean the pins and connections and then apply Deoxit (CUES P/N CS569). Deoxit is included in the camera kit (not shown).
4. Before re-installing the spring, ensure that the hole and the pin are aligned as shown.
5. Using an Allen Wrench, re-install the (6) screws from Step #1 with blue thread locker until secure. The screw part number is [HW4764](#) (2-56 x .188).





# CUES MICRO PAN & TILT QUICK GUIDE

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## INSTALLING THE WIPER

The Micro P&T includes wipers to clean the lens when it contacts debris during pipeline inspections. There are two wiper mount locations, but the camera ships with one installed to maximize range of motion when using the wand mount.

1. Locate the wiper ([UC063](#)), wiper cover ([UC064](#)), and 2 mount screws ([HW4827](#), 2-56 x .188) in the accessory kit ([UC901](#))
2. Install the wiper and wiper cover utilizing the screws above and secure with blue thread locker. NOTE: Prior to tightening the screws, adjust the wiper to ensure it contacts the lens and does not catch on the camera.
3. Tighten the screws (it's recommended to use a .050" ball nose Allen wrench to easily access the angle).



## CUES STANDARD 12 MONTH WARRANTY

CUES (“CUES”) warrants that all parts, components, and equipment manufactured by CUES shall be free from defects in material and workmanship under normal use and service for which it was intended for a period of twelve (12) months from the date of shipment of materials by CUES to the purchaser. CUES’ obligation under this warranty is limited, at CUES’ option, to replacing or repairing, free of charge, any defective materials returned, freight prepaid, to the CUES designated service facility. For all warranty claims, the materials must be returned in accordance with CUES Material Return Policy.

Major items of equipment, such as vehicles, generators, etc., furnished, but not manufactured by CUES, will be covered only under the warranty of the third party manufacturer of such equipment. Expendable parts, such as light bulbs, fuses, connectors, etc., are excluded from this warranty.

Purchaser must notify CUES of a breach of warranty not later than the last day of the warranty period; otherwise, such claims shall be deemed waived.

CUES does not warrant the materials to meet the requirements of the safety codes of any federal, state, municipal or other governmental or administrative jurisdiction. Purchaser assumes all risk and liability whatsoever resulting from the use of its products, whether used singly or in combination with other products, machines or equipment.

This Warranty shall not apply to any materials, or parts thereof, which have; (a) been repaired or altered by anyone other than CUES without CUES’ written consent; (b) been subject to misuse, abuse, negligence, accident, or damage; (c) not been installed or operated in accordance with CUES’ printed instructions, or; (d) been operated under conditions exceeding or more severe than those set forth in the specifications of design tolerance of the equipment.

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CUES neither assumes nor authorizes any person (including employees, agents, or representatives of CUES) to assume for it any other liability, guarantee, or warranty in connection with the sale or use of the materials, and no oral agreements, warranties, or understandings exist collateral to or affecting this warranty.

This warranty shall not be extended, altered, modified, or waived except by a written instrument signed by CUES.

## CUES MATERIAL RETURN POLICY

To ensure the orderly return of CUES products from our customers and to assure proper credit and warranty replacements handled in a timely manner, CUES has implemented a MATERIAL RETURN AUTHORIZATION (MRA) SYSTEM. Please read and follow the instructions below to ensure your MRA is handled properly and efficiently:

1. Once it is determined that a CUES product needs to be returned, call the CUES Parts Department in Orlando at 1-800-327-7791.
2. CUES will provide an MRA number by phone and ask a few questions.
3. CUES will then mail or fax the MATERIAL RETURN AUTHORIZATION (MRA) FORM with the MRA number, or include it with the replacement parts, if applicable.
4. Follow all instructions on the MRA Form. Make 2 copies - one for your records and the other will be used as a packing list.
5. Place an MRA sheet in with the parts that are shipped back to CUES along with a copy of the original packing slip or invoice, if possible. Send only the parts originally agreed upon with your Parts Representative. Any deviations/changes will require an additional MRA.
6. Make sure to include a copy of the MRA form for a packing slip.
7. Write the MRA number on the outside of the box.
8. Please take care in packing the parts that are to be shipped back to CUES. Parts must be individually protected from each other and appropriate packing material must be used to prevent damage during shipping.
9. Freight on the material returned is to be prepaid by the customer. Depending on the warranty determination, CUES, at its' option, may credit freight charges both ways.
10. The parts must be returned to CUES within 5 days of receipt of the MRA for credit to be granted.

Under normal circumstances, a warranty determination can be made within 30 days, and if under warranty, the part will be replaced at no charge. A credit will be issued if you have already received a replacement part. No credits will be issued until CUES receives the defective part.

### \*\*\*\*\*NOTE\*\*\*\*\*

CUES will not warrant look-alike parts sold by competitors and reserves the right to charge a restocking fee. CUES shall not be liable for any loss or damage resulting, directly or indirectly, from the use of the materials, or for special, indirect, or consequential damages, economic losses, loss of profits, loss of business, or loss of business opportunity.

Without limiting the generality of the foregoing, this exclusion from liability embraces purchaser's expenses for downtime or for making up downtime, damages to property, and injury to or death of any persons.

CUES neither assumes nor authorizes any person (including employees, agents, or representatives of CUES) to assume for it any other liability, guarantee, or warranty in connection with the sale or use of the materials, and no oral agreements, warranties, or understandings exist collateral to or affecting this warranty. This warranty shall not be extended, altered, modified, or waived except by a written instrument signed by an authorized CUES representative.

# CUES MATERIAL AUTHORIZATION

Cust #:	Name:	Contact:	Date: 4/21/2004
Original SO #: N/A	SO Orig:	Dated:	New SO #:
Return For:	Reason:	Territory	S.O. To Be Credited:
		Prod. Ref. Cd: 51200	Orig:
Explanation:			

Items Returned	
1	
2	
3	
4	
5	
6	

**To ensure your MRA is handled properly and efficiently, please follow the instructions below.**

1. Ship parts back within five (5) business days of receiving your MRA number. Parts ordered in error are subject to a restocking fee.
2. Send only the parts originally agreed upon with your customer service representative. Any deviations will require an additional MRA.
3. Make a copy of this sheet and keep the original for your records. Use the copy as a packing slip.
4. Write the MRA number on the outside of the box.
5. Parts must be individually protected from each other (original packaging would be best) and appropriate packing material must be used to prevent against damage during shipping.

Note: If parts are not well protected and arrive at our facility damaged in any manner, we will automatically reject them and return them to you without credit.

**PARTS WILL BE RETURNED TO CUSTOMER AT CUSTOMER EXPENSE WITHOUT AN MRA NUMBER DOCUMENTED ON BOX. CUES IS NOT RESPONSIBLE FOR SHIPMENT FROM CUSTOMER TO CUES.**

Use this section as a Packing Slip.

**Please remember to write the MRA number on the box.**

<b>MRA #:</b> XXXX
-----------------------

**Return To:**

Cues  
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 Orlando, FL 32805  
 (407) 849-0190  
 FAX (407) 425-1569  
 WATS 800-327-7791

## CUES PARTS & SERVICE

At CUES, we realize your return on investment is directly related to daily production in the field. By stocking the largest inventory of OEM equipment in our industry, CUES strives to ship all parts orders on the same day or within 24 hours after receipt of the order.

Whether you need a camera or a fuse, CUES will quickly process and ship your order in accordance with your schedule requirements! Our experienced parts professionals can help you with parts identification, shipping methods, equipment operation questions, and connect you to the correct specialist for troubleshooting!

CUES offers four convenient stocking locations that contain a large assortment of parts, finished products, portable, and truck mounted systems. Texas, Arizona, Oklahoma and Louisiana customers can be serviced by our local dealerships. Contact us at your most convenient stocking location! For authorized dealer locations, log onto our website at [www.cuesinc.com](http://www.cuesinc.com).

Parts can be ordered via phone or facsimile! For operating hours, contact information, and locations, log onto our website at [www.cuesinc.com](http://www.cuesinc.com). Contact us at your most convenient stocking location! Log onto our website at [www.cuesinc.com](http://www.cuesinc.com) to view the CUES Parts Department & Dealers hours & locations.

CUES Parts Department: Parts turnaround is normally within 24 hours after receipt of order. Please note that special shipping arrangements can be made at the time of the order. All return shipments received at CUES freight collect will be refused upon delivery unless previously authorized by CUES personnel. Normal operating hours are 8am to 5pm, EST., Phone: 800-327-7791, Fax: 800-831-1184.

CUES Service Depot: Service turnaround is normally 72 hours or less upon receipt at our depot, excluding weekends and holidays. All return shipments received at CUES freight collect will be refused upon delivery unless previously authorized by CUES personnel. Normal operating hours are 8am to 5pm, EST., Phone: 800-327-7791.

**CUES @ Corporate Office**  
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Estacada, OR 97023  
Phone: 1.800.432.1549 ext: 403  
Fax: 909-923-2051

## CUES RECORD OF REVISIONS

This Record of Revision page is designed to allow the manual user to determine the engineering/manufacturing level to which the manual is written. As engineering changes to this hardware are made at CUES, necessary information in the manual will be revised to reflect those changes. The latest change level and the rationale for any change(s) will be explained in tabular format on this page to allow the manual user to be better equipped should the need arise to call CUES regarding technical information.

Original Manual	Revision	Change Description
Micro Pan & Tilt Camera	051320	Initial release
	082420 - 001	Added additional instructions and reference information.
	092420 - 002	Added additional instructions and reference information.

## SAFETY PRECAUTIONS

Precautions must always be taken when operating electronic equipment. Exposed wires, damaged equipment, or improper operation can lead to a dangerous situation.

Please take a few minutes and read this entire manual prior to operating the equipment. Follow all safety procedures and thoroughly inspect equipment prior to use each day. This will help the equipment retain its full value and will reduce the risk of injury, property, and/or equipment damage.



- Read the entire manual before attempting to connect or operate any equipment.
- Connect and disconnect cables only when the electric power is turned OFF.
- Never remove protection covers from the equipment or power generator. Internal repairs should only be done by an authorized CUES technician.
- If using a portable generator, always place it in an open area away from other equipment, manholes or obstructions prior to start-up; do not use a portable generator in an enclosed area.
- Upon receipt of the equipment, check for visible damage. If there is any evidence of rough handling, if damage is found, or if any equipment is missing, please contact the CUES Customer Service at 1-800-327-7791.

### PERSONAL SAFETY EQUIPMENT & TRAINING

CUES stresses the use of appropriate safety equipment while working in and around manholes and during system operation. Safety should constantly remain the utmost priority. NOTE: The user of CUES products is responsible for all training and operation under federal, state and local guidelines and regulations for both confined space entry and traffic control. Recommended safety equipment includes but is not limited to the following:

- Safety goggles
- Work gloves
- Steel-toed boots
- Reflective vests
- Hard hats
- Filter masks (full respirators may be necessary)
- Flashlights
- Safety lines
- Traffic warning signs
- Traffic cones
- Gas detectors
- Ventilation fans

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Innovation for over

50  
Years

**CUES** is the world's leading manufacturer of closed circuit television video (CCTV) inspection, rehabilitation, pipe profiling equipment and asset inspection/decision support software. For over 50 years, **CUES** has provided innovative pipeline inspection technology and solutions to enable accurate condition assessment and proactive maintenance programs for buried infrastructure.

In addition to inspection equipment, **CUES** also designs, manufactures, and sells a broad range of pipeline rehabilitation and profiling equipment. These include chemical grouting systems for sewer line pipe joints capable of using a wide variety of grouting products. **CUES** also manufactures lateral reinstatement cutting systems which enable the reinstating of laterals in mainline sewers after they have been relined with any of a wide variety of liner materials. Pipe profiling is accomplished via Laser for Sonar based systems.

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