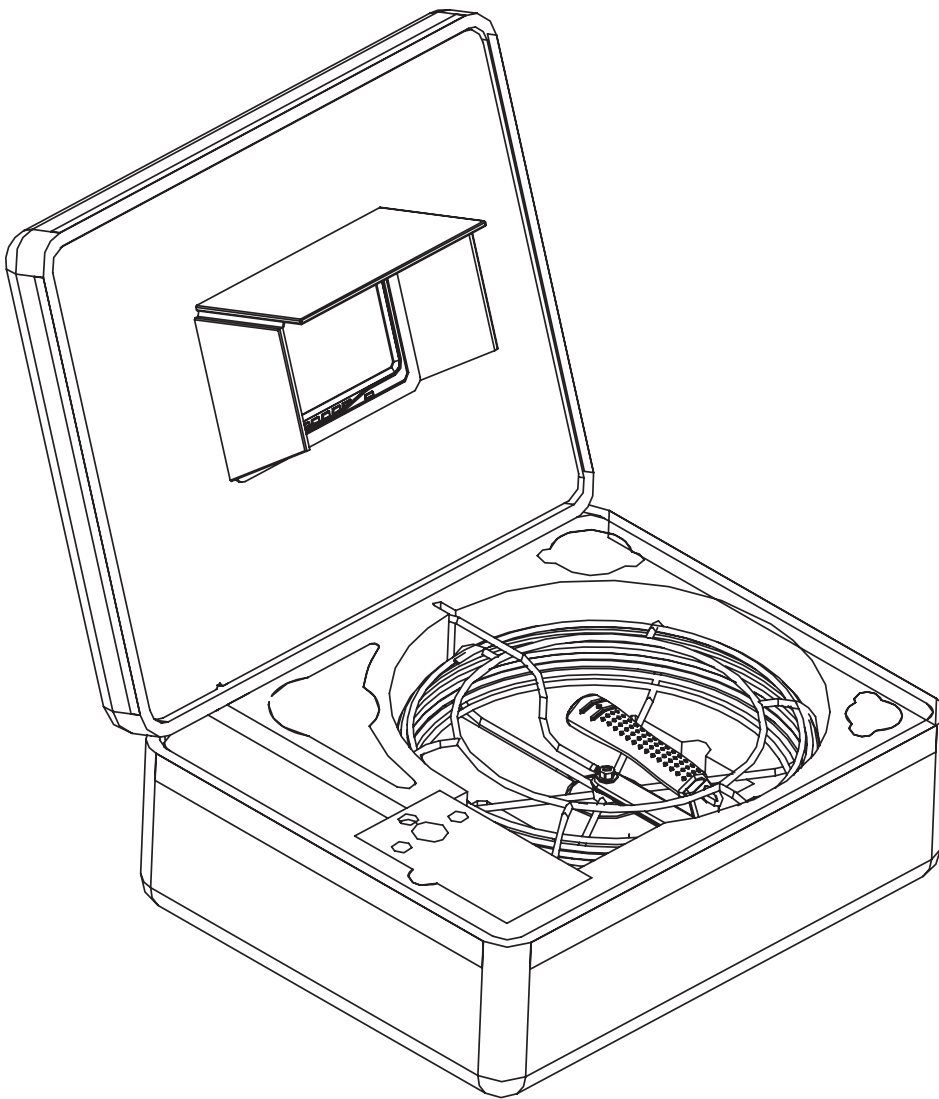


1 YEAR
WARRANTY



Ω OMEGA[®] **User's Guide**



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MADE IN CHINA

HHB1900

Pipe and Wall Inspection Systems With DVR Feature With Keypad OSD



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The information contained in this document is believed to be correct, but OMEGA accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARNING: These products are not designed for use in, and should not be used for, human applications.

PLEASE CHARGE THE BATTERY FIRST BEFORE USE!

Technical specifications

camera		
	Color camera with sapphire glass lens	
	Wide viewing angle	120°
	Illumination	12 white LEDs
	Operating temperature	-20°F ~ 120°F (-28°C ~ 50°C)
	Stainless steel house	Stainless steel 304
	PAL output	720X576(PAL)
	NTSC output	720X480(NTSC)
	Waterproof	IP68
cable		
	Special gold point touch connector to camera	
	Fiberglass cable	
	Cable length : 20m (standard)	50meter (optional)
monitor		
	7" TFT COLOR monitor	Picture Resolution:320 (TV Lines)
	OSD display	
	Video output	1Vpp 75 Ohms
power supply		
	Charge adaptor :110~240VAC ,12.6VDC /1000mA (included.)	
	Lithium battery box (4000mAh, included.)	
Dimensions		
	Case size	□ 48cm x 41cm x 20cm □ 52cm x 43cm x 20cm
	Camera	Ø23mm x 120mm
	Cable	reel Ø32cm

Save this Manual

Attention

1. Read the this manual carefully before using this system.
2. Avoid using the device in extremely cold, heat, or humidity environment, it may damage the device.
3. Do not drop or press hard on the device.
4. Warranty invalidation if the device is disconnected by users or has any physical damages.
5. Always back up your date before connecting your SD device to this system. The manufacturer is not responsible for any date damage on your device for any reason.
6. Do not disconnect the unit while recording or playing. It may damage the unit and/or the SD device.

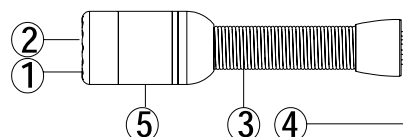
Application

WITH MINI-CAMERA FOR PIPE DIAMETER FROM 25mm TO 200mm.

1. WATER SUPPLY
2. WASTE WATER
3. ELECTRICAL AIR CONDITIONER
4. CABLE DUCTING
5. DUCTED VACCUM SYSTEMS
6. PLUMBING
7. IN BUILDING

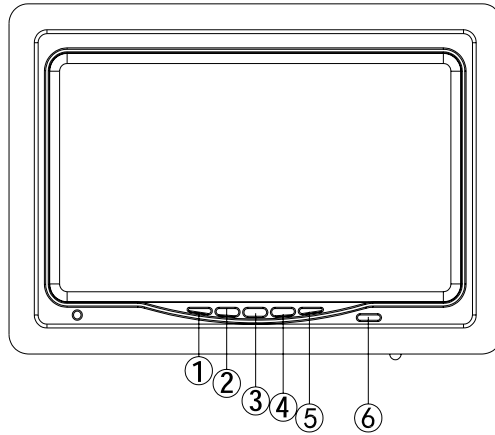
Camera

1. WHITE LEDS (12 PCS)
2. LENS
3. SPRING
4. CONNECTER
5. STAINLESS STEEL HOUSE



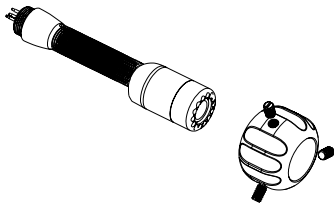
Know Your Tool

Monitor

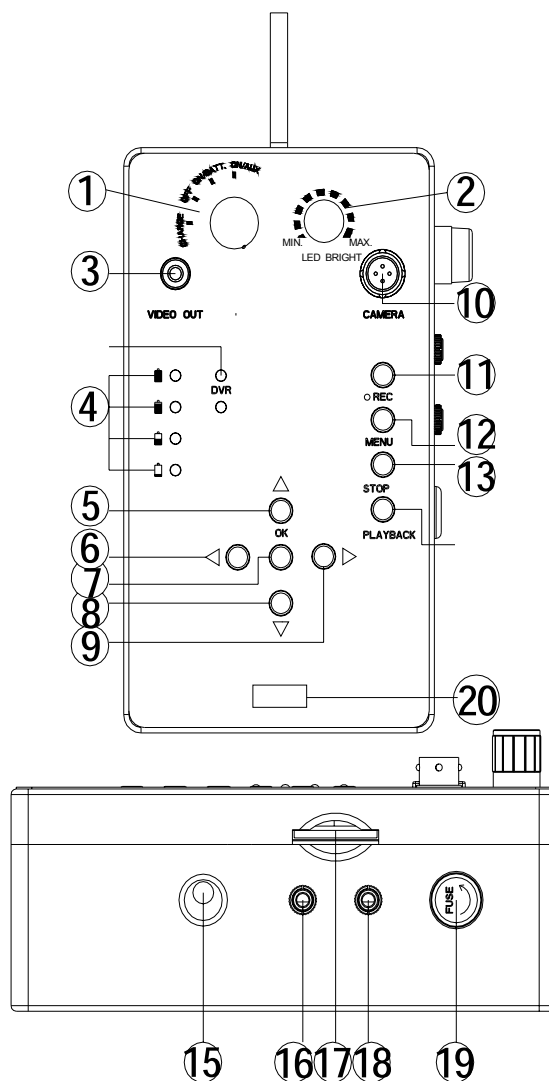


1. Video1 video2 selector button
2. Image UP and down left and right button
3. Menu button (include bright contrast color language 16:9 4:3 sleep)
4. Sub menu down selector
5. Sub menu up selector
6. Power on/off button

SKID ASSEMBLE



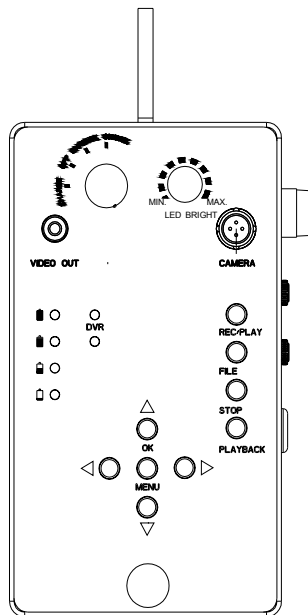
Control box



- | | |
|------------------------------|-----------------------------|
| 1. Switch | 2. led bright adjust knob |
| 3. Video output jack | 4. Battery level indicator |
| 5. DVR up selector button | 6. DVR left selector button |
| 7. DVR OK button | 8. DVR down selector button |
| 9. DVR right selector button | 10. To camera cable jack |
| 11. DVR record/stop button | 12. DVR MENU button |
| 13. DVR stop/back button | 14. DVR playback button |
| 15. Charge adaptor jack | 16. Earphone jack |
| 17. SD card socket | 18. Mic. phone jack |
| 19. Fuse socket | 20. USB keyboard jack |

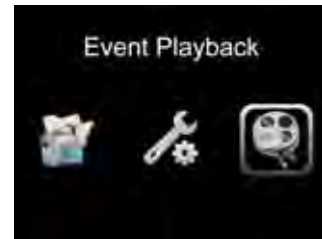
PLEASE NOTE: WHEN THE BATTERY LEVEL INDICATOR FLASH THAT THE POWER WILL CUT OUT 90 SECENDS LATER YOU SHOULD SAVE THE RECORDING DATA AND CHARGE THE BATTERY ASAP OTHERWISE YOU WILL LOST THE IMAGES YOU ARE RECORDING!

Keys on DVR



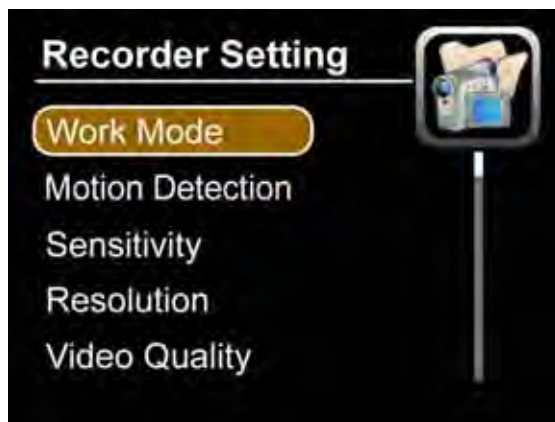
↑	Move up
↓	Move down
←	Move left
→	Move right
OK	Confirm
Power	Power indicator
Status	Recording working indicator
Playback	Playback video files
Stop	Stop play and back
menu	Enter to menu
Rec.	Manual start/stop recording

Icons on screen



Press "menu" key enter into main menu.

Recorder setting



1. Work Mode

- Video** Record videos by manual
- Photo** Snapshot photo by manual
- Audio** Record audio by manual

2. Motion Detection

- Off** stop the motion Detection
- On** start the motion Detection

3. Sensitivity

- High** the full area will be detected
- Medium** the 1/2 area will be detected
- low** the 1/4 area will be detected

4. Resolution

- 720x576**
- 720x480**
- 640x480**

5. Video Quality

High: high resolution

Medium: Standard resolution

Low: low resolution

6. Time stamp

Off Time stamp will not be show on the screen

On Time stamp will not be show on the screen



7. Video time

It can choose the video file length.

5 Min 5 minuets recorded video

10 Min

15 Min

30 Min

60 Min

8. Fps set

15 Fps 1 second 15Fps picture

30 Fps 1 second 30Fps picture

9. Audio record volume

Work with audio record mode

10 level can be adjust

10. Overwrite

Off the recording will be stop when the disk full.

On the recording will be Overwrite the old one video files when the disk full.



Press "menu" key enter into main menu to select the systems setting



1. Language

English (English only)

2. Date time

Choose Date Time press "OK" to confirm. Press"←, →"key to choose items. Press"↑,↓" to set.

3. Video output

It can choose PAL or NTSC mode to fit your Monitor and TV Video output.

4. Format

No the system will not format the SD card.

Yes the system will format the SD card. (caution: PLS backup the data of the SD card before operated

5. Firmware Update

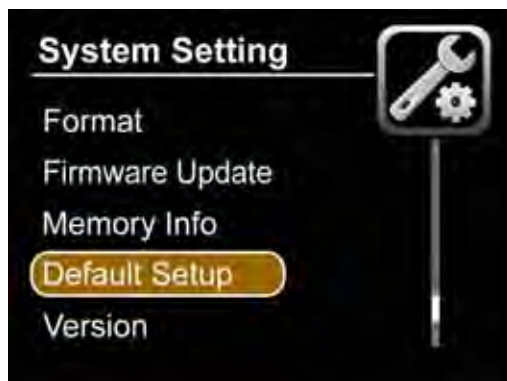
No. the system will not be **update** the systems.

Yes. the system will be **update** the systems.

6. Memory info

All: The SD full capacity

Free: The SD free capacity



7. Default Setup

No customer set

Yes factory set

8. Version

Booc.12.11.05 (soft Version)

Press "menu" key enter into main menu to select the playback setting



Event playback



- 1. Video files all recording Video files store inside
- 2. Photo files all snap Photo files store inside
- 3. Audio files all recording audio files store inside
- 4. All files All the file inside of the SD card

Delete files

1. Press “Playback” key to find the files .Press “menu” to Choose the file you want to delete ,one and all, and then press “OK” to delete it.

Specifications

Resolution	D1: 720X576
	High Resolution:720x480
	High Resolution:640x480
Compression format	M-JPEG & Standard JPEG
Video files format	AVI
Working mode	Recording/snap photo/ audio recording
Memory	SD/SDHC card≤32GB
Power	DC12V
Working electricity	≤200Ma
Working temperature	-10 ℃ ~+50 ℃
Working humidity	20%~85%

Basic operation

1. **IMPORTANT: When connecting the camera to the Monitor the power must be off .**
2. **Screw the camera to the reel cable connect the reel to the Monitor (See Figure 1-B).make sure the camera lens is clean.**
3. **Press the switch on the monitor and DVR will work after five seconds.**
Gently insert the camera into a pipe duct, etc and reel out the cable until it is at the desired depth.
IMPORTANT: Avoid kinking the fiberglass cable as this will cause irreversible damage. Do not bend under sharp angles and do not twist the cable.
NEVER use the camera and/or cable as an unclogging tool.
4. **adjust the led bright knob to suitable position .**
Press the **MENU** button to enter the setup of the monitor. Move through the setup page using the select button and adjust the values with the **UP** and **DOWN** buttons. Press and hold the **UP** and **DOWN** buttons to increase setting speed. Following values can be set between 0 and 100:

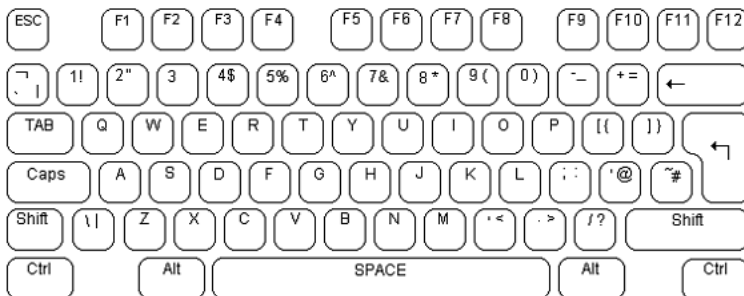
bright-contrast- color –languge-6:9 - 4:3-sleep)

5. To view the images on another screen (not incl.) connect that screen with a video cable (not incl.) to the VIDEO OUTPUT on the control box.
6. After use, switch the power off, carefully retract the camera from the inspection area. Clean the cable and wind it back on the reel. Disconnect all cables and place the protective caps back on the connectors. Make sure the camera and cables are clean and dry before storing them back in the case. Use a clean, soft and dry cloth to clean it .
7. Storage and cleaning
 - Always return the equipment back to its protective case when not in use.
 - Do not close the case with wet equipment inside as this will increase the risk of mould.
 - Clean the rest of the equipment with a clean dry cloth. Never use solvents or abrasive solutions.

OSD Interface Operation

The font and text size are fixed and cannot be changed.

The basic operation of the text overlay unit is straight forward. A flashing underscore cursor indicates the current screen position. This cursor can be moved the screen by the keyboard cursor keys. The cursor will wrap around the screen left and right, top and bottom. If no key is pressed then the cursor will disappear after approximately ten seconds. The video text overlay unit uses the standard US keyboard mapping.



Standard US keyboard mapping used by the video text overlay unit. By default all US units are supplied with this.

The alphanumeric characters in the QWERTY section of the keyboard and the keys of the numeric keypad can be typed directly to the screen as would normally be expected. Each alphabetic character key is normally lowercase. Uppercase characters can be typed by holding down the shift key or pressing the CAPS LOCK key. The keyboard's LED indicators will be lit by the unit. To exit CAPS LOCK mode press the key again.

To remove a character from the screen use the backspace key and delete key. This will replace the character immediately to the left of the current cursor position with a blank space and move the cursor to that position. The Delete

key has no function. The Home and End keys move the cursor position to the left and right of the current line on the screen. The Return key moves the cursor to the beginning of the next line.

The video text overlay unit operates in two modes. In the first mode the text is overlaid over the video input signal. When the video signal is removed the unit automatically switches to generating its own internal dark grey background video signal and will switch back to the external video when this is reconnected. In the second mode the unit generates its own video signal internally, but ignores the external video signal. All keyboard commands operate in the same way in both modes. To switch between modes use the F3 key as shown in the command table below. Each page can have this mode set independently.

Esc	Clear the cursor current settings back to the first line and the first position
F1	the cursor from any page back to the first line and the first position
F2	Select text over internal video
F3	Select text over external video signal
F4	Shift display up
F5	Shift display down
F6	Shift display left
F7	Shift display right
F8	Reset display X-Y position (defaults)
F9	Clear the screen

The video text overlay unit divides its display between four on screen pages. Text written to each of these pages is will be stored in the unit's non-volatile memory until overwritten. There is no default on screen indication of which page is currently selected. To move between the screen pages use the page up and page down keys or Page up moves toward page 1. Page down moves toward page 4. To clear the screen page of text press F9.

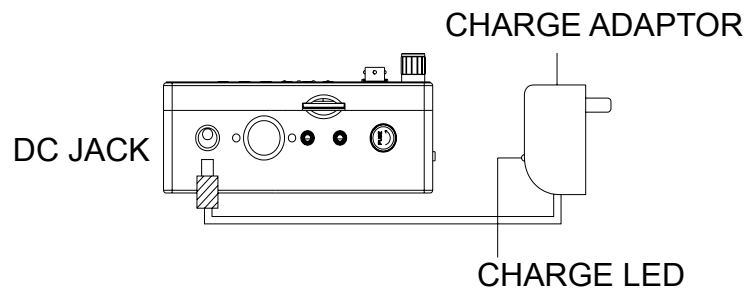
Fuse

1. The fuse and fuse cap on battery box are not assembled during shipping, please relocate the fuse with cap to the fuse holder first before use.
2. If the status LEDs on the control box don't light up after switching on the battery box, check the fuse.
 - Turn the fuse cap counter clockwise to remove it from the battery box.
 - Only replace the fuse with a new one with the same specifications as the original one (F2A250V).

Charge the battery

- 1) If the status LEDs on the battery box in lower level, charge the battery. Insert the charge adaptor cord into the battery charge jack. (**Figure 2**)
- 2) Switch to the charge position on control box.
- 3) Charge LED will be red during charging and turn to green when finish charging (normally charging time 6-7 hours).

Figure 2



4) Battery specifications:

- | | | |
|-----------------------------------|------------|--------------------|
| 1. TOTAL POWER | 14W | |
| 2. LITHIUM BATTERY | 12VDC MAX. | ≤ 40Wh |
| 3. CHARGER | 12.6V | 1A |
| 4. CHARGE TIME | 6 | HOURS |
| 5. WORK TIME | ≥260 | MINUTES |
| 6. PROTECTIVE VOLTAGE | 9.5 | V |
| 7. THE VOLTAGE BEFORE DISCHARGING | 12.6V | |
| 8. LOAD CURRENT | 700mA | (INPUT 12.2V HOUR) |

Assembly drawing and parts list

Part No.	Description
1	STAINLESS STEEL CAMERA
2	TFT COLOR MONITOR
3	CABLE WITH WHEEL
4	CHARGE ADAPTOR
5	CONTROL BOX WITH DVR
6	KEYBOARD
7	ABS CASE
8	SUNSHADE
9	SKID1
10	SKID2
11	1.5M CONNECT CABLE
12	CUSTOMER MANUAL
13	SCREW DRIVER
14	MICPHONE

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by it will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESS OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

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RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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