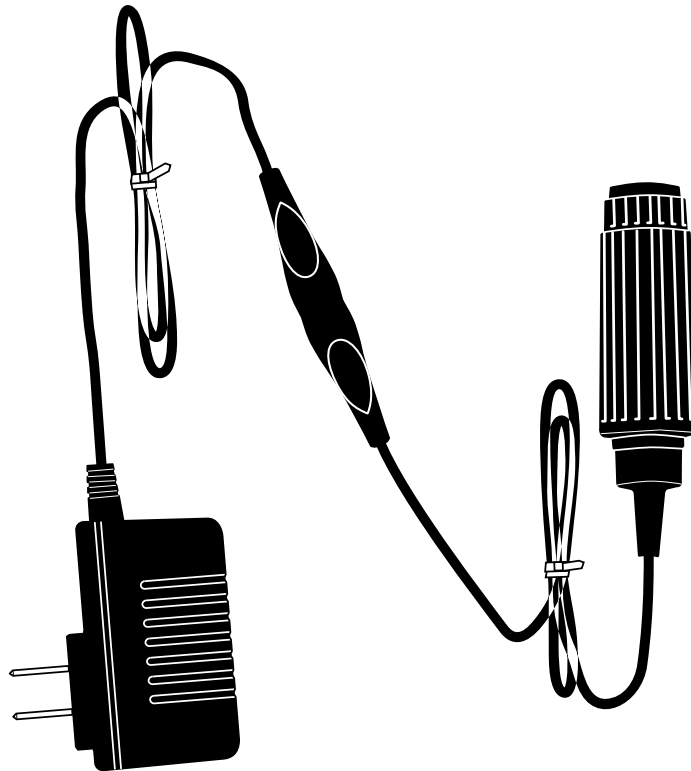




**Hillrom™**

# Welch Allyn® Rectal Light Handle



## Instructions for use

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Welch Allyn assumes no responsibility for any injury to anyone, or for any illegal or improper use of the product, that may result from failure to use this product in accordance with the instructions, cautions, warnings, or statement of intended use published in this manual.

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**REF** DIR 80028105 Ver. A, Revision date 2021-04

**#** 901074 ENDOSCOPE LIGHTING SYSTEM

**#** 901086 ACCESSORY, AC POWER SOURCE

**REF** 73211, 73220, 73222, 73224, 73226 ILLUMINATION SYSTEM

**REF** 73305, 73322, 73324, 73326 6V POWER SUPPLY



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# Introduction

## Intended use

The Rectal Light Handle and its appropriate power supply provide illumination to the Welch Allyn Sigmoidoscopes and Anoscopes.

## Symbol descriptions

For information on the origin of these symbols, see the Welch Allyn symbols glossary: [welchallyn.com/symbolsglossary](http://welchallyn.com/symbolsglossary).



**WARNING** The warning statements in this manual identify conditions or practices that could lead to illness, injury, or death. Warning symbols will appear with a grey background in a black and white document.



**CAUTION** The caution statements in this manual identify conditions or practices that could result in damage to the equipment or other property, or loss of data.



Consult Instructions for use (IFU). A copy of the IFU is available on this website. A printed copy of the IFU can be ordered from Welch Allyn for delivery within 7 calendar days.



Type BF Applied Part



Caution, hot surface



Direct current (DC)



Caution, high-intensity light



Alternating current (AC)



Class II equipment



Not protected from the ingress of water.



Prescription only or "For Use by or on the order of a licensed medical professional"



Medical device



Product identifier



Reorder number



Lot code



Separate collection of Electrical and Electronic Equipment. Do not dispose as unsorted municipal waste.

















**NOTE** Presents clarification about an instruction or helpful information about








Global trade item number

## Warnings

-  **WARNING** To avoid eye injury, do not look directly into the light beam.
-  **WARNING** Lamp is harmful to skin if touched when hot. Allow lamp to cool a minimum of 5 minutes before replacing.
-  **WARNING** Lamp generates heat and should remain off until just prior to and immediately after use.
-  **WARNING** Disconnect power supply from outlet prior to any maintenance.
-  **WARNING** The use of accessories, transducers, and/or cables other than those specified, with the exception of those sold by the manufacturer as replacement parts for internal components, may result in increased emissions or decreased immunity of the equipment or system.
-  **WARNING** Perform reprocessing immediately after each use.
-  **WARNING** The products specified in this IFU have not been validated for automated cleaning and disinfection. Use only the cleaning and disinfection methods described in this manual.
-  **WARNING** Consult your facility's procedures and the reprocessing agents' manufacturer's instructions for the agents reuse, recommended Personal Protective Equipment and other safety precautions such as ventilation.
-  **WARNING** Examine surfaces of all components for wear or damage after cleaning, disinfection, and/or sterilization. Verify that the device still functions, including the lamp and the battery or connection to power before putting into use.
-  **WARNING** Clean and disinfect all devices or accessories per these instructions prior to returning to Welch Allyn (e.g. for repair and service).
-  **WARNING** U.S. Federal Law restricts this device to sale by or on the order of a physician or licensed healthcare practitioner. This device should only be used by trained personnel.
-  **WARNING** This endoscopic accessory is for use with the Welch Allyn devices listed in the table on [page 5](#) only. Do not use the illuminator for any other use.
-  **WARNING** Inadequate or ineffective cleaning can contribute to cross-contamination and infection. Use only the cleaning methods described in this manual.
-  **WARNING** Portable and Mobile RF Communications Equipment can affect Medical Electrical Equipment.

## Cautions

-  **CAUTION** Rectal Light Handle illumination is intense.
-  **CAUTION** There are no user-serviceable parts inside the device except the lamp. Contact Hillrom Technical Support for service-related issues.
-  **CAUTION** The 73211 Rectal Light Handle is designed for connection only with the power source and appropriate country voltage and outlet style listed within this manual. No other use of these products is intended or advised.
-  **CAUTION** Medical Electrical Equipment needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information starting on [page 12](#).
-  **CAUTION** Only use the 6V power supplies described within this manual with the 73211 Rectal Light Handle. Failure to observe this warning may cause damage to the power supply and/or non-approved device.

## Residual risk

This product complies with relevant electro-magnetic interference, mechanical safety, performance, and biocompatibility standards. However, the product cannot completely eliminate potential patient or user harm from the following:

- Harm or device damage associated with electro-magnetic hazards,
- Harm from mechanical hazards,
- Harm from device, function, or parameter unavailability,
- Harm from misuse error, such as inadequate cleaning, and/or
- Harm from device exposure to biological triggers that may result in a severe systemic allergic reaction.

## Product use

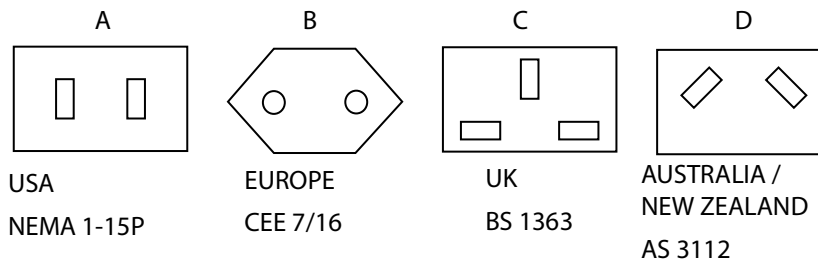
The Rectal Light Handle and its appropriate power supply provide illumination to the Welch Allyn Sigmoidoscopes and Anoscopes listed here.

### REF 73305, 73322, 73324, 73326 (Power Supplies)

Verify that the power supply will connect to the appropriate outlet and that the power supplied to the outlet is within the range specified in the table provided.

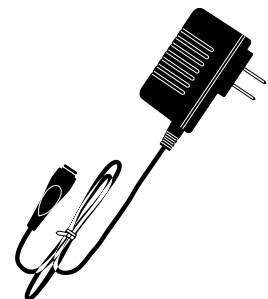
REF	Nom. Input Voltage	Input Current at Nom. Input Voltage (mA)	Input Voltage Range (V)	Plug Style
73305	120V 60 Hz	71	110 - 130	A
73322	230V 50 Hz	30	210 - 230	B
73324	240V 50 Hz	27	230 - 250	C
73326	234V 50 Hz	27	230 - 250	D

### Outlet Type



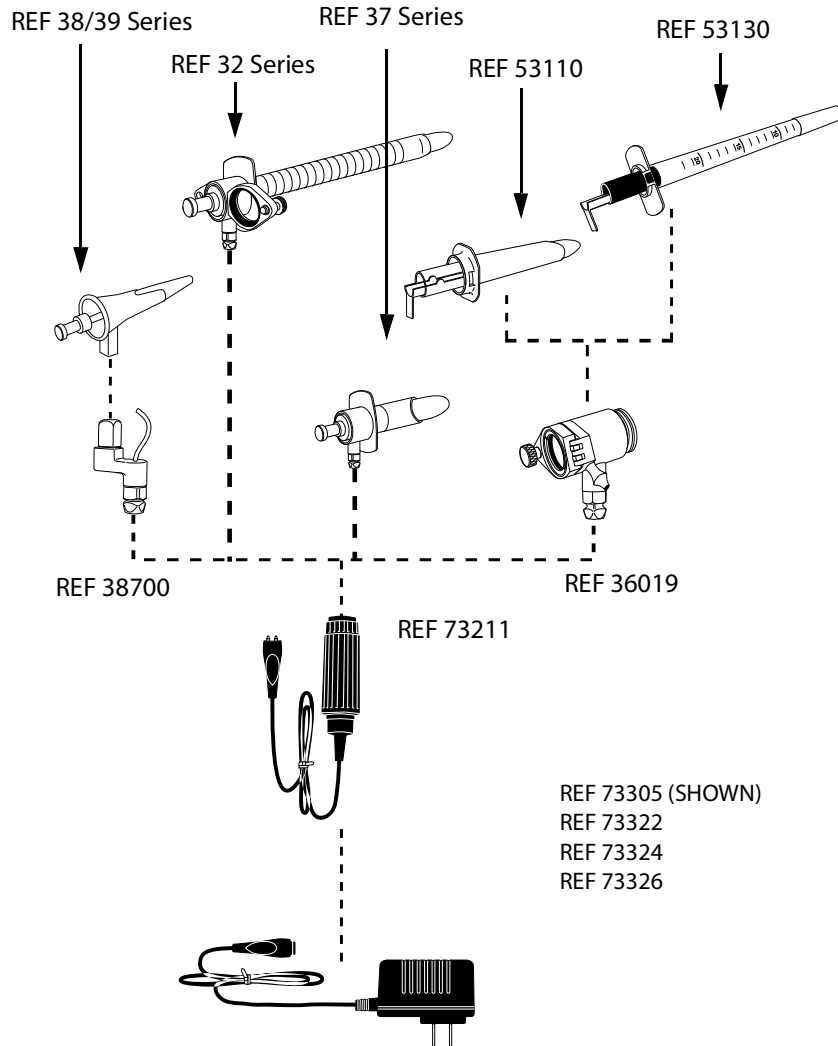
Insert the Power Supply into the receptacle of an appropriate voltage and plug configuration.

Once properly connected, the green LED located on the power supply housing will illuminate, indicating power is present to the power supply cord.



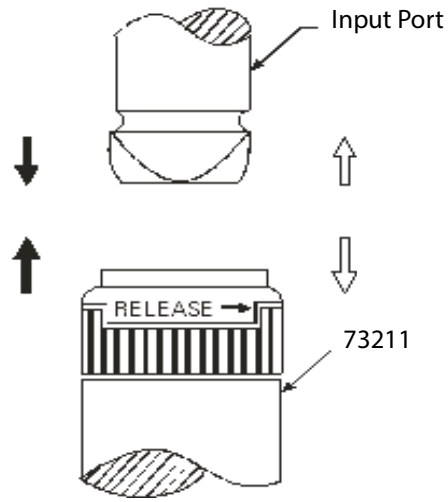
## REF 73211 Rectal Light Handle

Attach the 73211 Rectal Light Handle to the appropriate device selected from the table on page 5.





### To assemble/disassemble the Rectal Light Handle system



1. Select the appropriate device from the table on [page 5](#).
2. Insert the 73211 Rectal Light Handle over the device's rectangular "input port" while twisting the 73211's knob in the "release" direction as shown. Release the knob and verify that the 73211 Rectal Light Handle is securely attached to the device.
3. Plug the REF 73305, 73322, 73324, or 73326 Power Supply into an appropriate outlet.
4. Align the plug at the end of the Rectal Light Handle cord to the connector at the end of the Power Supply and connect. The lamp in the 73211 will turn on immediately.
5. To turn the lamp off, disconnect the Rectal Light Handle from the Power Supply.
6. To remove the device from the Rectal Light Handle, twist the 73211's knob in the "release" direction and pull the 73211 off of the device's input port.

## Compatible devices

The Rectal Light Handle (REF 73211) and power supply (REF 73305, 73322, 73324, 73326) are designed to work with the following Welch Allyn devices for endoscopic procedures:

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### 32/33 Series

32010	11mm x 10cm Fiber Optic Sigmoidoscope
32020	11mm x 25cm Fiber Optic Sigmoidoscope
32410	15mm x 15cm Fiber Optic Sigmoidoscope
32420	15mm x 25cm Fiber Optic Sigmoidoscope
32810	19mm x 15cm Fiber Optic Sigmoidoscope

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**32/33 Series**


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32820	19mm x 25cm Fiber Optic Sigmoidoscope
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33830	19mm x 30cm Fiber Optic Sigmoidoscope
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32830	10mm x 35cm Fiber Optic Sigmoidoscope
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33220	23mm x 25cm Fiber Optic Sigmoidoscope
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33620	27mm x 25cm Fiber Optic Sigmoidoscope
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**37 Series**


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37019	19mm x 7cm Fiber Optic Anoscope
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37023	23mm x 7cm Fiber Optic Anoscope
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37027	27mm x 7cm Fiber Optic Anoscope
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**38/39 Series Fitted with 38700**


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38108	8 mm x 89mm Anoscope
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38114	14mm x 89mm Anoscope
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38119	19mm x 89mm Anoscope
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38122	22mm x 89mm Anoscope
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38900	20mm x 68mm Rotating Anoscope
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38614	14mm x 89mm Operating Anoscope
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38619	19mm x 89mm Operating Anoscope
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38622	22mm x 89mm Operating Anoscope
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39614	14mm x 127mm Anoscope
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39619	19mm x 127mm Anoscope
-------	-----------------------

---

39622	22mm x 127mm Anoscope
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**Disposables Fitted with 36019**


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53130	19mm x 25cm KleenSpec Disposable Sigmoidoscope
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53110	19mm x 10cm Disposable Anoscope
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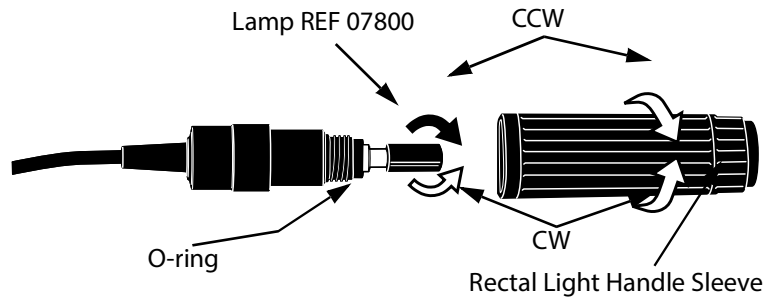
## Maintenance

### Preventive maintenance

Examine cords, connections, and transformer case for wear or damage monthly.

After every use, clean the Rectal Light Handle according to the Cleaning Section of this manual.

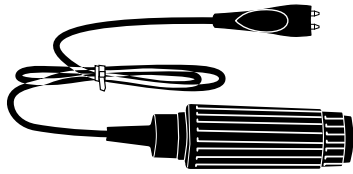
### Lamp replacement



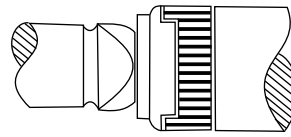
**NOTE** The lamp is the only user-serviceable part on the Rectal Light Handle (REF 73211). Refer to the above figure as a visual aid to replace the lamp.

1. Disconnect the system power supply from the wall outlet and then disconnect the Rectal Light Handle from the power supply cord. Allow lamp to cool for a minimum of 5 minutes.
2. Unscrew the Rectal Light Handle outer sleeve counterclockwise (CCW) to expose the lamp as shown.
3. Unscrew the lamp CCW from the Rectal Light Handle body.
4. Inspect the lamp socket of the Rectal Light Handle for damage or irregularities. Contact Hillrom Technical Support if any irregularities are found.
5. Using a new Welch Allyn lamp, verify the lamp number is REF 07800 and that the o-ring is present and in good condition.
6. Screw the lamp clockwise (CW) into the Rectal Light Handle body and tighten sufficiently to compress the lamp o-ring.
7. Screw the Rectal Light Handle sleeve CW onto the Rectal Light Handle body and tighten sufficiently to secure to the handle.
8. Connect the power supply to the appropriate wall outlet, reconnect the Rectal Light Handle cord to the power supply cord, and verify that the lamp illuminates.
9. If the lamp fails to illuminate, refer to the Troubleshooting section on [page 12](#) or contact Hillrom Technical Support for further assistance.

## Cleaning and disinfection



Part Number 73211  
(including 07800-U lamp)



Part Number 73500  
(including 03100-U lamp)



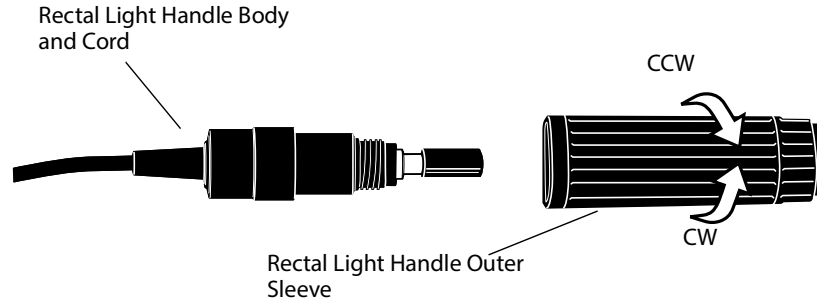
**WARNING** Allow the lamp to cool for at least 5 minutes before handling.



**NOTE** Leave the lamp installed while reprocessing 73211 and 73500.

### Assembly and disassembly instructions for 73211

1. Disconnect the light handle from the power supply cord and the device.
2. Unscrew the outer sleeve of the handle by turning it counterclockwise.



3. Follow one of the reprocessing methods described below.



**WARNING** Do not immerse the rectal light handle body and cord in any solution. Doing so may damage the rectal light handle body and cord, cause an electrical shock hazard and void the warranty.

4. After performing a reprocessing procedure, wipe the lamp with a soft, dry, lint-free cloth.
5. Re-attach the clean sleeve to the handle by screwing in a clockwise direction.
6. Re-connect the power supply cord to the light handle and verify that the unit works by plugging it in. If the lamp fails to illuminate, follow the troubleshooting guide below.

## Cleaning (73211 and 73500)

1. Prepare an enzymatic detergent formulated for endoscopic instruments according to the manufacturer's instructions. These instructions were validated using ENZOL/CIDEZYME.
2. Submerge the rectal light handle outer sleeve in the cleaning solution.
3. Using a soft bristle brush, scrub the item submerged in the cleaning solution for a minimum of 5 minutes then rinse with sterile water for 5 minutes.
4. Wet the rectal light handle body and cord with the cleaning solution.
5. Using a soft bristle brush, scrub the cord with the cleaning solution for a minimum of 5 minutes, then rinse with sterile water for 5 minutes.

## Intermediate-level disinfection (73211 and 73500)

1. Follow the Cleaning instructions above.
2. Using CaviWipes™, wipe all item surfaces and keep wet with CaviWipe solution for a minimum of 5 minutes.
3. Allow the item surface to dry for a minimum of 10 minutes.

## Sterilization (73211 ONLY)



**CAUTION** Autoclaving the light handle may reduce the product's functional life.

1. Follow the Cleaning instructions above.
2. Perform one autoclave cycle that includes 6 minutes at 270° F (132° C) and a cool down period of at least 15 minutes. These instructions were validated using a gravity autoclave. Validate any other sterilization equipment and load configurations.

## Inspection

Routinely inspect the Light Handle for wear, fraying, or other damage. Do not use if you see signs of damage, if the instrument malfunctions, appears not to be working properly, or if you notice a change in performance. Contact Hillrom Technical Support for assistance.

## Troubleshooting guide

<b>Problem</b>	<b>Possible cause</b>	<b>Solution</b>
Lamp does not light.	Rectal Light Handle is not plugged into the power supply.	Verify that the Rectal Light Handle is properly plugged into power supply cord.
	Power Supply is not plugged in.	Verify the power supply is properly plugged into the outlet.
	Faulty lamp	Replace with a new lamp.
	Loose lamp	Verify that the lamp is secured into the Rectal Light Handle.
	Wrong lamp	Verify that the lamp is a REF 07800 Welch Allyn lamp.
	Damaged lamp	Inspect the lamp and the o-ring for damage. Replace with REF 07800 lamp if damage is found.
Rectal Light Handle does not stay plugged into the transformer cord.	Rectal Light Handle/transformer interconnect plug is damaged.	Inspect interconnect plug for damage. Replace either or both REF 73211 or REF 73305, 73322, 73324, 73326.
Light output seems low.	Faulty lamp	Replace with a new lamp.
	Dirty lamp lens	Inspect lamp lens for debris and clean.
Lamp does not light.	No power to the power supply outlet	Verify that power is supplied to power supply outlet.
	Faulty power supply	Test the voltage supplied through the power supply at the cord end. Verify the voltage reads approximately 6.0 volts DC (REF 73305, 73322, 73324, 73326). Only properly trained personnel shall perform this test.
	Faulty Rectal Light Handle	Verify that the Rectal Light Handle is faulty by replacing with a new Rectal Light Handle or with power supplied through the transformer (above), remove lamp and measure the voltage between the lamp socket center contact and socket threads. Verify voltage reads approximately 6.0 volts (DC with REF 73305, 73322, 73324, 73326). Only properly trained personnel shall perform this test.
Light output seems low.	Improper voltage supplied to the transformer	Verify the voltage supplied to the transformer outlet meets the requirements stated in this manual.
Lamp does not light.	No power to the power supply outlet	Verify that power is supplied to power supply outlet.

This guide is intended to provide assistance towards determining the fault condition of this product. Contact the authorized Welch Allyn Service Center listed within the product owners manual for additional assistance.

## Disposal

Customers must adhere to all federal, state, regional, and/or local laws and regulations as they pertain to the safe disposal of medical devices and accessories. If in doubt, the user of the device should first contact Hillrom Technical Support for guidance on safe disposal protocols.

## Hillrom Technical Support

For service and product assistance, contact Hillrom Technical Support:  
[hillrom.com/en-us/about-us/locations/](http://hillrom.com/en-us/about-us/locations/).

Before contacting Hillrom Technical Support, refer to the Lot code section below.

If you are advised to return a product to Hillrom for repair or routine maintenance, schedule the repair with the service center nearest you.

Before returning a product for repair you must obtain authorization from Hillrom. A Service Notification number will be given to you by our service personnel. Be sure to note this number on the outside of your shipping box. Returns without a Service Notification number will not be accepted for service. Before shipment, clean and disinfect the component as instructed in this manual.

## Lot code

On the package label: YY-JJJ, YY=Year, and JJJ=Consecutive day of the Julian year.

On the Rectal Light Handle: MMY Y Four digits, month then last 2 digits of the year, stamped next to the REF 73211 label on the Rectal Light Handle sleeve.


On the Power Supply: WWYY Four digits, week then last 2 digits of the year stamped or labeled on the prong side of the transformer plug.

## Notice to Users and/or Patients in EU

Any serious incident that has occurred in relation to the device should be reported to the manufacturer and the competent authority of the Member State in which the user and/or patient is established.

## Specifications

Classification	Class II, Type BF Applied Part, Ordinary Equipment	
Input	100 $\sim$ to 240V $\sim$ , 50/60 Hz, 200 mA	
Output	6.0V $\equiv$ , 1150 mA	
Category	Not AP/APG Equipment	
Physical	Rectal Light Handle	96mm (3.775") x 25mm (1.00"), 104 grams (3.67 oz)
Specifications	Power Supply	43mm (1.71") L x 52mm (2.06") W x 55mm (2.18") H
	Power Supply Cord	183 cm (71.4")
Illumination	Lamp Life	75 hours
	Lamp Voltage	6 V
	Lamp	Welch Allyn REF 07800
IPX Rating	IPX0	

Environment	Operating	+10 °C to +35 °C (50 °F to 95 °F), 95% RH, 500 hPa to 1060 hPa
	Transport/Storage	- 20 °C to +49 °C (-2 °F to 120 °F), 95% RH, 500 hPa to 1060 hPa
 <b>CAUTION</b> Intermittent Operation Rectal Light Handle		10 minutes on max; 5 minutes off min

## Standards and compliance

The device complies with the following standards:

IEC 60601-1

IEC 60601-1-2 and IEC 60601-2-18

Country-specific standards are included in the applicable Declaration of Conformity.



## Guidance and Manufacturer's Declaration

### EMC compliance

Special precautions concerning electromagnetic compatibility (EMC) must be taken for all medical electrical equipment. This device complies with IEC 60601-1-2:2014.

- All medical electrical equipment must be installed and put into service in accordance with the EMC information provided in this *Instructions for use*.
- Portable and mobile RF communications equipment can affect the behavior of medical electrical equipment.

This product complies with all applicable and required standards for electromagnetic interference.

- It does not normally affect nearby equipment and devices.
- It is not normally affected by nearby equipment and devices.
- It is not safe to operate this product in the presence of high-frequency surgical equipment.
- However, it is good practice to avoid using this product in extremely close proximity to other equipment.



**WARNING** Avoid using the Welch Allyn Rectal Light Handle adjacent to or stacked with other equipment or medical electrical systems because it could result in improper operation. If such use is necessary, observe the Welch Allyn Rectal Light Handle and other equipment to verify that they are operating normally.



**WARNING** Use only accessories recommended by Welch Allyn for use with the Welch Allyn Rectal Light Handle. Accessories not recommended by Welch Allyn might affect the EMC emissions or immunity.



**WARNING** Maintain minimum separation distance between the Welch Allyn Rectal Light Handle and portable RF communication equipment. Welch Allyn Rectal Light Handle performance might degrade if you do not maintain a proper distance between equipment.




**WARNING** This device has not been tested for use in clinical environments near high-frequency surgical equipment and magnetic resonance imaging. Do not use this device in environments like these where electromagnetic disturbance is high.



## Emissions and immunity information

### Electromagnetic emissions

The Welch Allyn Rectal Light Handle is intended for use in the electromagnetic environment specified below. The customer or user of the Welch Allyn Rectal Light Handle should assure that it is used in such an environment.

Emission test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	The Welch Allyn Rectal Light Handle uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The Welch Allyn Rectal Light Handle is suitable for use in all establishments other than domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes, provided the following warning is heeded:
Harmonic emissions IEC 61000-3-2	Class A	 <p><b>WARNING</b> This equipment/system is intended for use by healthcare professionals only. This equipment/system may cause radio interference or may disrupt the operation of nearby equipment<sup>a</sup>. It may be necessary to take mitigation measures, such as re-orienting or relocating the Welch Allyn Rectal Light Handle or shielding the location.</p>
Voltage fluctuation/ flicker emission IEC 61000-3-3	Complies	

<sup>a</sup> The Welch Allyn Rectal Light Handle contains a 5-GHz orthogonal frequency-division multiplexing transmitter or a 2.4-GHz frequency hopping spread-spectrum transmitter for the purpose of wireless communication. The radio is operated according to the requirements of various agencies, including FCC 47 CFR 15.247 and RED Directive (2015/53/EU). The transmitter is excluded from the EMC requirements of 60601-1-2, but should be considered when addressing possible interference issues between this and other Welch Allyn Rectal Light Handles.

### Electromagnetic emissions

The Welch Allyn Rectal Light Handle is intended for use in the electromagnetic environment specified below. The customer or the user of the Welch Allyn Rectal Light Handle should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic Discharge (ESD) EN 61000-4-2	±8 kV contact ± 15 kV air	±8 kV contact ± 15 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV differential mode ± 2 kV common mode	± 1 kV differential mode ± 2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<0 % $U_T$ (>100 % dip in $U_T$ ) for 1 cycle 70 % $U_T$ (30 % dip in $U_T$ ) for 25/30 cycles <0 % $U_T$ (>100 % drop in $U_T$ ) for 0.5 cycles @ 0°, 45°, 90°, 135°, 180°, 225°, 270°, & 315° for 250/300 cycles	<0 % $U_T$ (>100 % dip in $U_T$ ) for 1 cycle 70 % $U_T$ (30 % dip in $U_T$ ) for 25/30 cycles <0 % $U_T$ (>100 % drop in $U_T$ ) for 0.5 cycles @ 0°, 45°, 90°, 135°, 180°, 225°, 270°, & 315° for 250/300 cycles	Mains power quality should be that of a typical commercial or hospital environment. If the user of the Welch Allyn Rectal Light Handle requires continued operation during power mains interruptions, it is recommended that the Welch Allyn Rectal Light Handle be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	30 A/m	30 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.




**NOTE**  $U_T$  is the AC mains voltage prior to application of the test level.

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**Electromagnetic immunity**


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The Welch Allyn Rectal Light Handle is intended for use in the electromagnetic environment specified below. The customer or the user of the Welch Allyn Rectal Light Handle should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
			Portable and mobile RF communications equipment should be used no closer to any part of the Welch Allyn Rectal Light Handle, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.
<b>Recommended separation distance</b>			
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms	$d = (1.17) \sqrt{P}$ 150 kHz to 80 MHz
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 1 GHz	3 V/m	$d = (1.17) \sqrt{P}$ 80 MHz to 800 MHz
Surge EN 61000-4-5	Differential mode: $\pm 1$ kV Common mode: $\pm 2$ kV	Differential mode: $\pm 1$ kV Common mode: $\pm 2$ kV	$d = (2.33) \times \sqrt{P}$ 800 MHz to 2,5 GHz where $P$ is the maximum output power rating of the transmitter in watts (W) and $d$ is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey <sup>a</sup> , should be less than the compliance level in each frequency range <sup>b</sup> . Interference may occur in the vicinity of equipment marked with the following symbol: 



**NOTE 1** At 80 MHz and 800 MHz, the higher frequency range applies.

**NOTE 2** These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

<sup>a</sup>Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast, and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Welch Allyn Rectal Light Handle is used exceeds the applicable RF compliance level above, the Welch Allyn Rectal Light Handle should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the Welch Allyn Rectal Light Handle.

<sup>b</sup>Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

**Recommended separation distances between portable and mobile RF communications equipment and the Welch Allyn Rectal Light Handle**

The Welch Allyn Rectal Light Handle is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or user of the Welch Allyn Rectal Light Handle can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Welch Allyn Rectal Light Handle as recommended below, according to the maximum output power of the communications equipment.

**Separation distance at the transmitter Output maximum frequency (m)**

Rated max. output power of transmitter (W)	150 kHz to 80 MHz $d = (1.17) \sqrt{P}$	80 MHz to 800 MHz $d = (1.17) \sqrt{P}$	800 MHz to 2,5 GHz $d = (2.33) \sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.




**NOTE 1** At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

**NOTE 2** These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

**Test specifications for enclosure port immunity to RF wireless communications equipment**

Test frequency (MHz)	Band <sup>a</sup> (MHz)	Service <sup>a</sup>	Modulation <sup>b</sup>	Maximum power (W)	Distance (m)	Immunity test level (V/m)
385	380 - 390	TETRA 400	Pulse modulation <sup>b</sup> 18 Hz	1.8	0.3	27
450	430 - 470	GMRS 460, FRS 460	FM <sup>c</sup> ±5 kHz deviation 1 kHz sine	2	0.3	28
710	704 - 787	LTE band 13, 17	Pulse modulation <sup>b</sup> 217 Hz	0.2	0.3	9
745						
780						
810	800 - 960	GSM 800/900, TETRA 800, iDEN 820, CDMA 850, LTE Band 5	Pulse modulation <sup>b</sup> 18 Hz	2	0.3	28
870						
930						
1720	1700 - 1990	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE Band 1, 3, 4, 25; UMTS	Pulse modulation <sup>b</sup> 217 Hz	2	0.3	28
1845						
1970						
2450	2400 - 2570	Bluetooth, WLAN, 802.11 b/g/n, RFID 2450, LTE Band 7	Pulse modulation <sup>b</sup> 217 Hz	2	0.3	28
5240	5100 - 5800	WLAN 802.11 a/n	Pulse modulation <sup>b</sup> 217 Hz	0.2	0.3	9
5500						
5785						

 **NOTE** If necessary to achieve the IMMUNITY TEST LEVEL, the distance between the transmitting antenna and the monitor may be reduced to 1 m. The 1 m test distance is permitted by IEC 61000-4-3.

<sup>a</sup> For some services, only the uplink frequencies are included.

<sup>b</sup> The carrier shall be modulated using a 50 percent duty cycle square wave signal.

<sup>c</sup> As an alternative to FM modulation, 50 percent pulse modulation at 18 Hz may be used because while it does not represent actual modulation, it would be worst case.

## Warranty

Instrumentation purchased new from Welch Allyn, Inc. (Welch Allyn) is warranted to be free from original defects in material and workmanship under normal use and service for a period of one year for Welch Allyn Rectal Light Handle (REF 73211) and the Power Supply (REF 73305, 73322, 73324, 73326) from the date of first shipment from Welch Allyn. This warranty shall be fulfilled by Welch Allyn or its authorized representative repairing or replacing at Welch Allyn's discretion, any such defect, free of charge for parts and labor.

Welch Allyn must be notified via telephone of any defective product and the item must be immediately returned, with a Service Notification number provided by Welch Allyn, securely packaged and postage prepaid to Welch Allyn. Loss or damage in shipment shall be at the purchaser's risk.

Welch Allyn will not be responsible for loss associated with the use of any Welch Allyn product that (1) has had the date of manufacture number defaced, (2) has been repaired by anyone other than an authorized Welch Allyn Service Representative, (3) has been altered, (4) has been used in a manner other than in accordance with the instructions, or (5) has been abused or exposed to extreme environmental conditions.

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY IMPLIED WARRANTY OR MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE, OR OTHER WARRANTY OF QUALITY, WHETHER EXPRESSED OR IMPLIED. WELCH ALLYN WILL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE SALE, USE, OR IMPROPER FUNCTIONING OF THE INSTRUMENTATION REGARDLESS OF THE CAUSE. THE DAMAGES FOR WHICH WELCH ALLYN WILL BE RESPONSIBLE INCLUDE, BUT ARE NOT LIMITED TO, LOSS OF REVENUE OR PROFIT, DOWNTIME COSTS, AND LOSS OF USE OF THE INSTRUMENTATION.

