

UPM 260

User Manual



Safety Precautions

Instrument Case

The instrument case is not waterproof and should not be immersed in water. If water enters the case the battery should be removed immediately. The unit should then be returned to Soniclean for repair. There are no user serviceable parts inside the case. If maintenance or repair is required please send the complete instrument to an authorised Soniclean service centre.

Connectors

The Soniclean UPM ultrasonic probe should be connected to the RCA socket located on top of the meter above the LED bar display. No other item should be connected to this RCA socket. Do not force the plug into the socket.

Before First Use

Please read and familiarise yourself with this manual prior to first use.

Ultrasound Pressure

Ultrasonic equipment under test generates high amplitude ultrasonic sound which can be harmful to ears. Ensure adequate ear protection is worn while this unit is in use.

1. Introduction

Thank you for purchasing a Soniclean UPM-260 Ultrasonic Performance Meter (UPM). The UPM-260 provides an indication of the performance of a Soniclean ultrasonic cleaner, providing a relative measurement of ultrasonic power present in the liquid within the tank. It is designed to replace the widely used foil test with a quick, clean testing procedure which verifies operation of the Soniclean machine's ultrasonic systems. The UPM is TGA approved ([ARTG 400854](#)¹) as a test and validation instrument harmonised to [GMDN](#).².

The simplicity of the meter allows it to be easily adapted to a number of different machine validation approaches. For example:

1. The performance level can be measured over a period of time to ensure the ultrasonic cleaning action remains effective.
2. Performance of an ultrasonic cleaner can be monitored over its lifetime, allowing degradation to be identified well before it becomes a problem.

1 https://mail.soniclean.com.au/qr/tga_cert-upm260

2 <https://www.gmdnagency.org/services/gmdn>

2. Description

The UPM comprises a sensing probe and the meter itself. The probe and meter are considered to be a single unit. A meter should be used only with the probe it was originally supplied with unless otherwise directed by Soniclean.

2.1. Sensing Probe

The probe comprises a 400 mm long tube made from 316 stainless steel with a sensor housing (the probe head) at one end made from 304 stainless steel, making it resistant to most chemicals. A 560 mm cable connects the probe to the meter unit. The ultrasonic sensor at the end of the probe is isolated from the rest of the probe to increase accuracy.

Ultrasonic signals are detected by the probe and sent to the meter unit via the cable for processing and display. A single RCA-style connector makes the connection of the probe to the meter quick and easy.

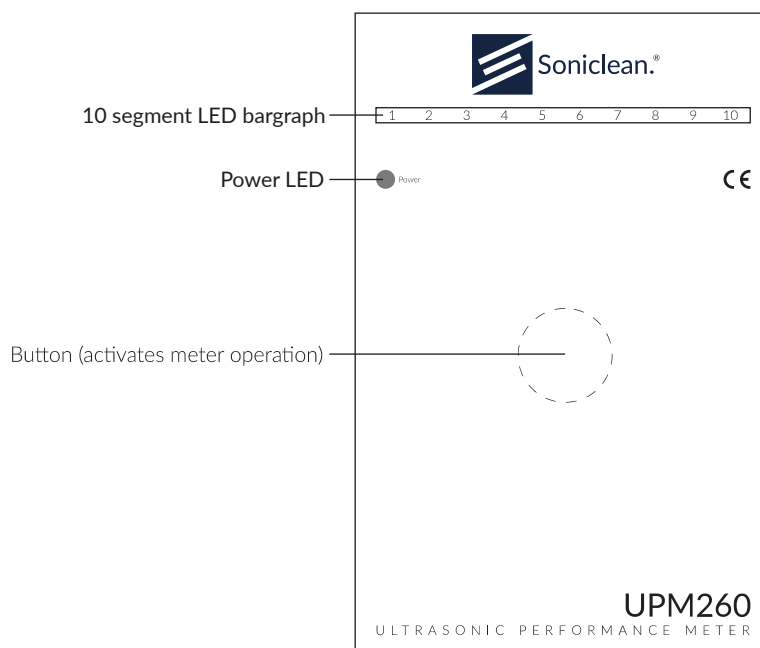


2.2. The Meter Unit

The UPM meter unit is housed in a small plastic box (approximately 75 mm wide, 105 mm tall, 25 mm thick). It contains the processing and display circuitry. Power is supplied by an internal user-replaceable 9V battery (alkaline type recommended). The UPM only consumes power when its button is held down.

The UPM operates whenever the pushbutton is pressed. The Power LED indicates that the unit is running normally. If the Power LED does not light when the button is held, the battery is most likely flat and needs to be replaced.

The front of the UPM also accommodates the 10-segment LED bargraph used to indicate the ultrasonic performance.



3. Operation

The process of taking a single measurement using the UPM 260 is straight forward.

Before commencing the testing procedure, fill the machine's tank with water and a suitable detergent, such as Sonic 1.

1. Insert the probe so that the head is 1-2cm below the surface of the water. For consistency, identify a reference location within the tank which you will use for all readings over time. The middle of the tank is probably the easiest to replicate in most cases, although replication accuracy does not need to be better than $\pm 50\text{mm}$ in any direction.
2. Move the probe gently $\pm 100\text{mm}$ around the chosen reference point while holding the black centre button and with the device's ultrasonics turned ON. Note down the maximum value observed during the test period as the test result.

If using the UPM-260 to monitor the long term performance of a machine, the following recommendations will ensure the readings acquired are comparable:

1. Ensure each test uses the same amount of water and detergent.
2. Always make measurements in the same area within the tank.
3. Make sure readings are taken with the probe submerged to the same depth in all tests.

When testing a given ultrasonic machine with a particular UPM the readings obtained between tests can be expected to vary by ± 1 LED unit. In the event that there is a noticeable decrease of 2-3 units compared to earlier recorded readings for the same ultrasonic machine with this UPM it indicates that the ultrasonics may not be functioning correctly any more. For further confirmation a foil test could be done at this point. If an ultrasonic failure is suspected please return your ultrasonic cleaning device to Soniclean or one of its approved service agents to determine the source of the problem and effect any necessary repairs.

Readings obtained with a UPM from different ultrasonic machine models will vary due to the shape of the machine and other physical properties. Measurements from different machines of the same type may also exhibit variation. For this reason it is important that when comparing the performance of a particular machine, only past results from that specific machine should be used.

Natural component tolerance variation means that two different UPMs may produce results which are offset by a consistent amount when presented with identical ultrasonic environments. This does not affect normal operation because the difference between an operating and faulty machine

remains the same (2-3 LEDs). It does mean that for historical accuracy, the same UPM should be used for all results which are to be compared.

Rapid probe movement within the tank will result in false readings. Resting the probe in contact with the tank wall may also give inaccurate results.

The probe handle and meter box are not waterproof, and should not be submerged or subjected to significant amounts of water or other liquids; only the probe head and shaft is designed for submersion.

If the Power LED or bar graph LEDs dim, the battery should be replaced.

4. Maintenance and Servicing

The internal 9V battery can be accessed from the rear of the meter unit by sliding the battery cover. The UPM is supplied with a single non-rechargeable battery; replacement of the battery when exhausted is the user's responsibility.

Apart from the battery there are no user serviceable parts inside the probe or the meter. Attempting to open either the meter case or the probe will void the warranty and may cause irreparable damage. If servicing of either the meter or the probe is required please contact Soniclean, your distributor or a Soniclean service centre.

To clean the meter use only a water-damped cloth; no solvents or abrasives should be used particularly on the meter or damage to the surface may result.

The jacket of the cable between the probe and the meter unit jacket is PVC and can be cleaned with a water-damped cloth.

4.1. Validation

Regular validation of the UPM is recommended every 12 months. Please contact Soniclean for the pricing of this service.

Appendix A: Specifications

Ultrasonic Machine Operating Frequency:	30kHz – 50kHz ³
Display:	Ten segment LED bar graph
Electrical Supply:	Internal 9V battery (alkaline recommended)
Warranty:	1 year warranty against manufacturing defects
Meter Dimensions:	75W x 105D x 25H mm (approx.)
Weight:	84g without battery (approx. 136g with battery)
Case Material:	ABS UL94 V-O std (-40°C - 75°C)
Probe Type:	Hand-held
Probe Calibration Temperature:	15°C - 25°C
Probe Material and Length:	Stainless steel 316/304 probe with plastic handle, 400mm standard length
Probe Cable Length:	560mm

³ The accuracy and performance of the UPM 260 has been verified by Soniclean only for use with Soniclean machines.

Appendix B: Product Warranty

The UPM-260 is covered by a limited warranty. The unit is warranted to the original purchaser to be free from defects in materials and workmanship under normal installation, use and service for a period of one (1) year from the date of shipment.

The obligation of Soniclean under this warranty shall be limited to the repair or replacement (at our option) during the warranty period of any part which proves defective in materials or workmanship under normal use and service, provided the product is returned to Soniclean or to an authorised Soniclean service centres. Transportation charges should be prepaid. This one (1) year warranty is in lieu of all other expressed warranties, obligations, or liabilities.

Further Enquiries

Technical Support

Nominated Service Provider

or

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To arrange a service or discuss the terms of your contract, contact our Customer Care Team on +61 8 8234 8398.

All services are provided subject to our Standard Service Terms and Conditions.