

STEAM TRAP CHECKER

PM11

USER'S MANUAL



 **MIYAWAKI INC.**

SAFETY GUIDE

The PM11 is designed to diagnose deterioration in steam-related valves such as steam traps by detecting ultrasonic signals. It is a part of our “Dr. Trap Jr.” package, which is supplied with the proprietary software called SurveyPro Light . This software provides quick steam leak and cost analysis just by entering the vibration readings measured with the PM11.

In order to get maximum benefit from this product, be sure to read this manual before using.

The following warnings and cautions are shown at appropriate places in this manual.



Failure to observe this type of precaution may lead to serious injury or death.



Failure to follow this type of precaution can lead to injury or damage to equipment and property.

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1 SAFETY NOTES



WARNING

The product is not intrinsically safe. Do not use it in hazardous areas! Failure to observe this precaution may lead to serious injury or death.

The following precautions should always be followed for proper use of the PM11.

Precautions

- Use this product only for its intended purpose as described in this manual.
- Press the vibration probe tip of the PM11 lightly (about 1.5 to 2kg) onto a point of a valve.
- Do not submerge the PM11 or its temperature probe in water. Wipe away water drops with a dry cloth.
- Do not pull out the tip of the temperature probe or cable.
- Do not contact the PM11 and cable directly with a high temperature surface.
- If the PM11 does not turn on, check if the batteries are properly installed.
- If using rechargeable batteries, use only 1.2V AA (R6) type. Do not use manganese dry batteries.

Storage

- Do not store the product in very humid conditions.
- If the product is not used for an extended period, remove the batteries.

For more details regarding dimensions and other specifications, please refer to the catalog.

2 SPECIFICATIONS

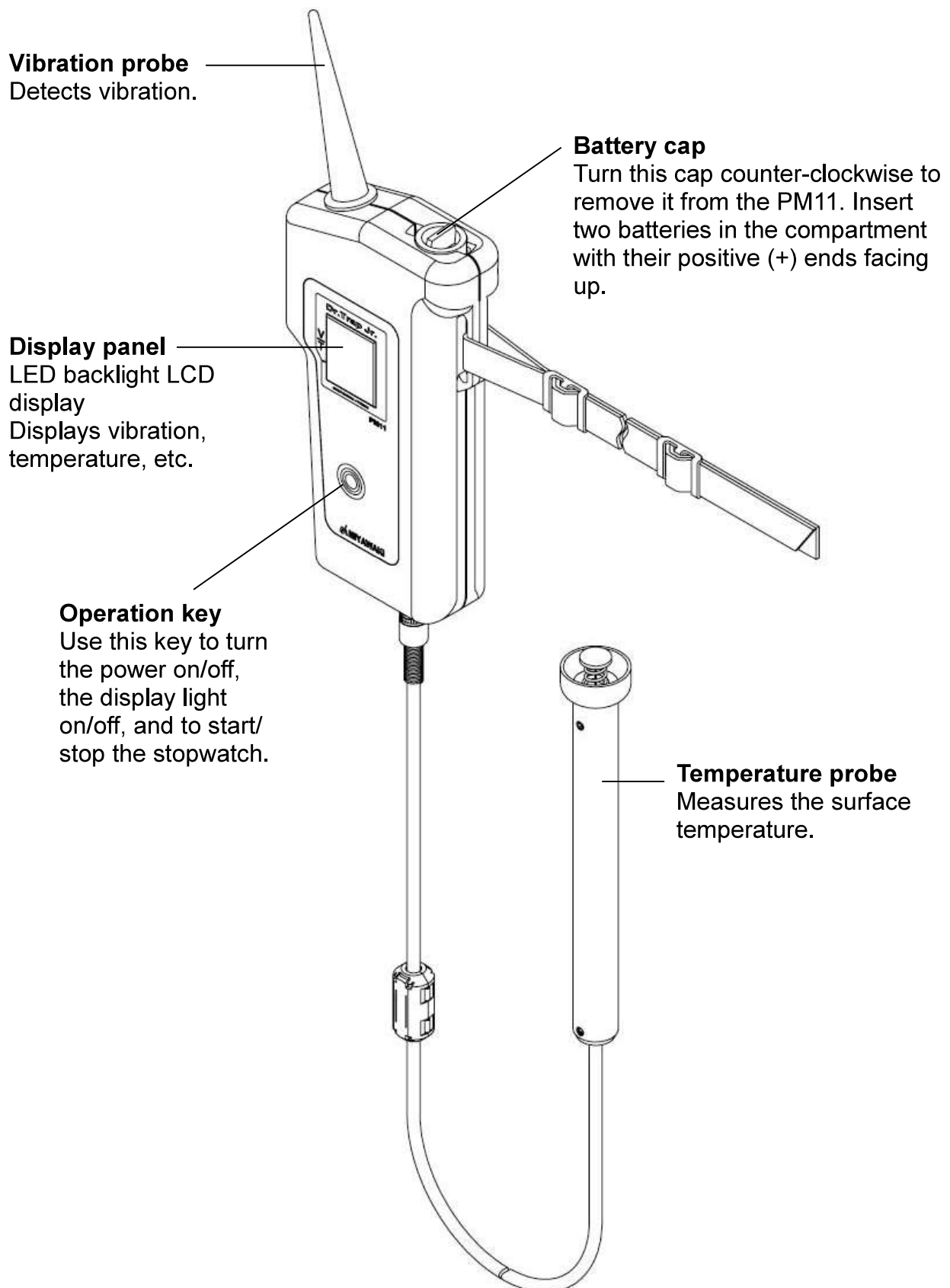
Housing	Heat-resistant plastic (ABS) Simple waterproofing treatment
Weight	230g (approx.8oz) including two batteries
Power supply	2.4 - 3.0V 2 x 1.5V AA (R6) alkaline battery, or 2 x 1.2V AA (R6) NiMH rechargeable battery
Continuous operating time	Alkaline batteries: 80 hours or more. (45 hours or more with the LCD light on continuously.) NiMH batteries (1900mAh): 75 hours or more. (40 hours or more with the LCD light on continuously.)
Ambient working temperature	0 - 40°C (32 - 104°F)
Vibration sensor Sensitivity Input frequency	Piezoelectric ceramic accelerator 30pc/g±5% 10k - 40kHz
Temperature sensor Temperature range	Thermistor sensor 0 - 250°C (32 - 482°F)
Display	LED backlight LCD display
Operation	1 key operation

3 SUPPLIED ITEMS LIST

Make sure the following items are included in your package.

- PM11
- Temperature probe
- Two 1.5V alkaline batteries
- Black strap

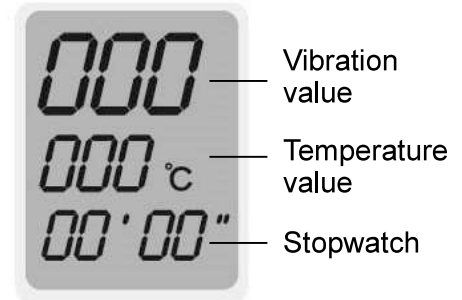
4 CONTROLS



5 FUNCTIONS

Vibration Display:

The PM11 displays the measured vibration value on the top line of the LCD window. The vibration value is displayed as a reading from 0 to 400. When a vibration higher than 400 is measured, the value 400 will flash. The displayed vibration reading is a relative integer value, which the PM11 has calculated by converting the actual physical vibration that is measured. The acceleration sensor's output is digitized as a proportion of the measurable range.

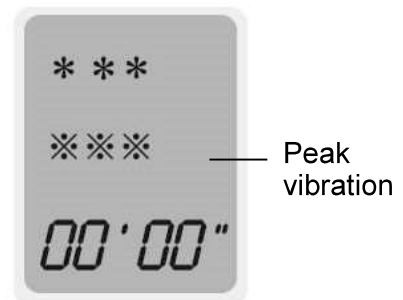


Temperature Display:

The PM11 displays the temperature that it detects on the middle line of the LCD window. The range is 250°C (482°F). When a temperature higher than 250°C (482°F) is detected, the value 250 (482) will flash.

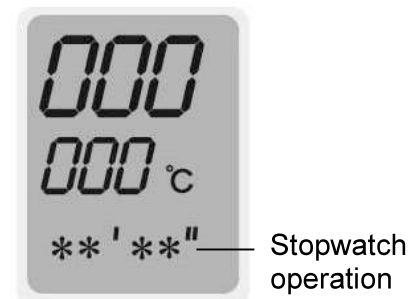
Peak value display:

When the temperature probe is not connected, the peak vibration value that has been measured will be displayed on the middle line of the LCD display, instead of the temperature. The peak value will disappear 3 seconds after the current vibration value returns to zero.



Stopwatch:

Pressing the key will start the stopwatch. After 1 hour and 40 minutes (99 minutes 59 seconds), the stopwatch will reset itself to zero and continue running. Pressing the key while the stopwatch is running will stop the stopwatch. Pressing the key again will reset the time to zero.



Estimated steam pressure:

By pressing and holding the key for 0.5 seconds with a temperature probe connected, the pressure will be displayed instead of the stopwatch. The value shows the estimated steam pressure that corresponds to a temperature that is about 10°C (18°F) higher than the surface temperature measured by the probe. This function can be useful when checking steam valves and pipes. Press the key again to return to the stopwatch display.



Estimated steam pressure

Power on/off:

Pressing the key turns the power on.
Pressing the key and holding it for 2 seconds turns the power off.

LCD backlight on/off:

The LCD display will illuminate by double pressing the key. Double press the key again to turn off the light.

Automatic power off:

The PM11 will switch off automatically if the key is not used for 9 minutes while no vibration is detected and the temperature reading is below 50 °C (122°F).

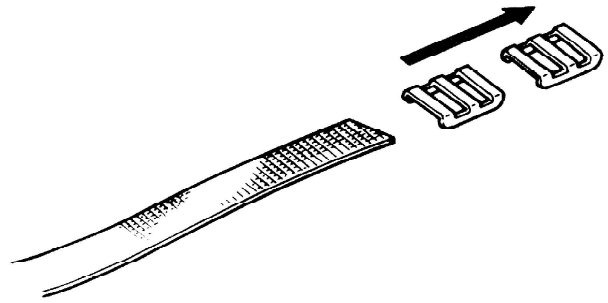
Battery life warning:

When the batteries run low, "Batt" will briefly be shown on the right side of the middle line in the display. Replace the batteries as soon as possible.

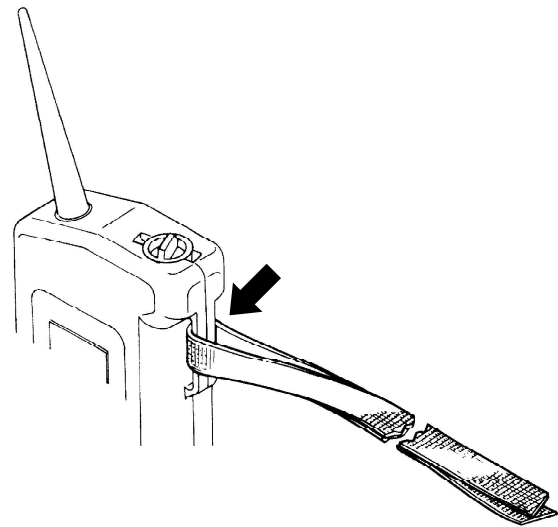


6 ATTACHING THE STRAP

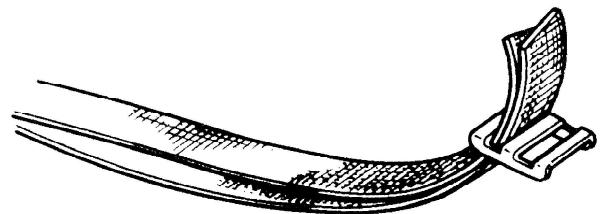
- (1) Remove the two buckles from the trap.



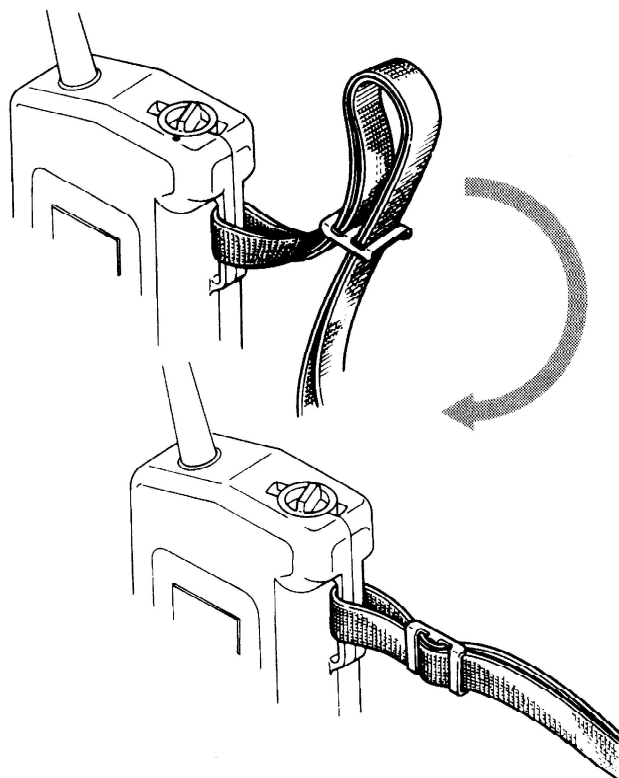
- (2) Pass the strap through the strap hook of the PM11.



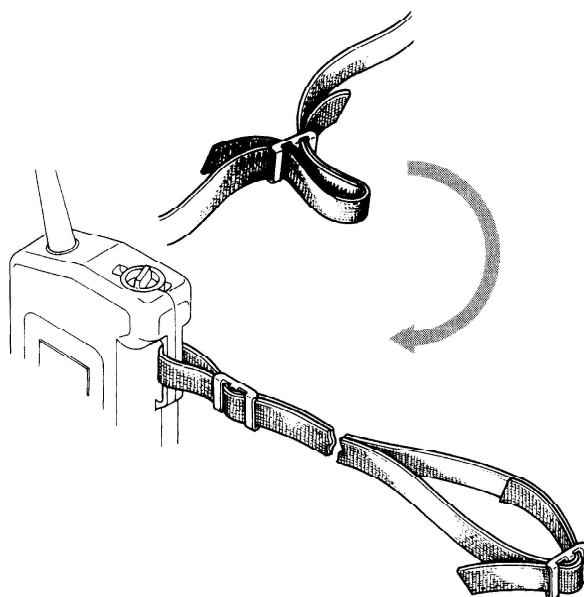
- (3) Putting both edges of the strap together, pass it through the openings of the buckle.



- (4) Move the buckle close to the strap hook of the PM11.



- (5) Pass the other half of the strap through the other buckle on the opposite side and adjust the length of the strap suitable to carry.



7 WARRANTY

7.1 Warranty period

The warranty period shall last 12 months from the date of product delivery.

7.2 Details of the warranty

If the product stops working correctly within the warranty period, we will repair or replace the product free of charge if the cause of the trouble is not one of the following items.

- 1) The precautions described in this manual were not observed
- 2) User's errors or mistakes such as an inappropriate installation or incorrect handling, or an excessively large impact caused by dropping
- 3) Problems caused by devices or equipment other than ours, or a disallowed use environment
- 4) When a repair or modification has been performed by anyone other than us or people who are authorized to make such repairs
- 5) Intrusion of salt or other substances that promote significant rust or corrosion or problems from fluids that contain the same substances
- 6) Consumable parts such as Packing, Gasket, O-ring, Diaphragm, etc
- 7) Attachment or accumulation of foreign matter in the pipe, such as dust and scale
- 8) Problems from fires, natural disasters, or other force majeure which is not our responsibility

7.3 Warranty limitation

The remedy available under the warranty shall not exceed the sales price of the products delivered, for any cause whatsoever.

8 EMC CERTIFICATE

Declaration of Conformity

MIYAWAKI Inc.

2-1-30, Tagawakita, Yodogawa-ku, Osaka 532-0021, Japan

We declare, under our solo responsibility, that the product:

Product Steam Trap Checker

Model PM11

to which this declaration relates complies with the provisions of following European Directives:

2014/30/EU – Directive on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 2004/108/EC.

Applied Standards:

EN 61326-2-2:2013

Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 2-2: Particular requirements – Test configurations, operational conditions and performance criteria for portable test, measuring and monitoring equipment used in low-voltage distribution systems

EN 61326-1:2013

Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements

Authorized Representative:

MIYAWAKI GmbH

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Signature:

Kensuke Miyawaki

Kensuke Miyawaki

President and CEO, MIYAWAKI Inc.

Date of Issue:

23 August, 2017

Class and Group Description

This is a group 1, class B product according to EN 55011/CISPR 11. This means that this product does not generate and/or use intentionally radio-frequency energy in the form of electromagnetic radiation inductive and/or capacitive coupling for the treatment of material or inspection / analysis purpose and that the PM11 is suitable for use in domestic establishments and in establishments directly connected to a low voltage power supply network which supplies buildings used for domestic purposes.

Please use only the cable which is specified below.

No	Item	Length (m)	Shield (Components)	Remark
1	Probe Cable* ¹	0.9	Shielded (Ferrite Core with case)* ²	(See below)

- 1 Do not change the type of cables.
- 2 Do not remove Ferrite Core from the cable.

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- For any questions about the product that you purchased or about the details in this user's manual, please contact the following.
 - © 2017 MIYAWAKI INC.
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 - Some special specifications of the product you have, may found to be different from the ones in the user's manual. If you have any question, please contact MIYAWAKI, our local authorized agent, or the place where you purchased.
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