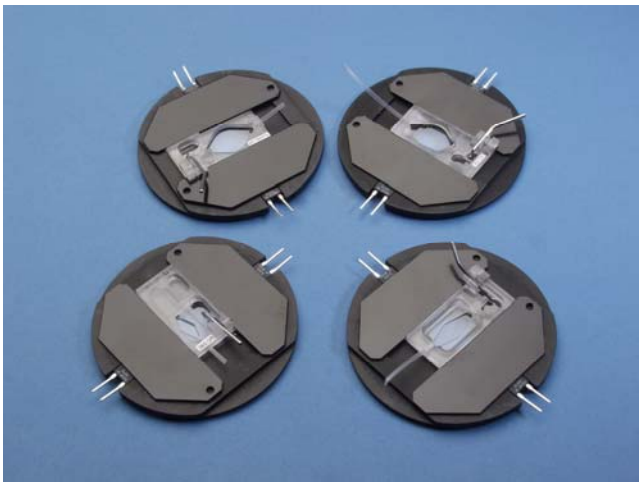
# Instructions for PM Series Magnetic Platforms



Warner **PM Series** platforms are designed to complete the assembly of all of Warner's Series 20 chambers and to facilitate the heating and mounting of these chambers onto a microscope.

Steel sheets positioned on the platform top serve to clamp the coverslip/chamber assembly together and to provide ample workspace for the attachment of probes, electrodes, thermistors and perfusion accessories. These sheets are secured into place by powerful magnets embedded in the platform body. This approach dramatically simplifies the assembly and use of PM Series platforms.

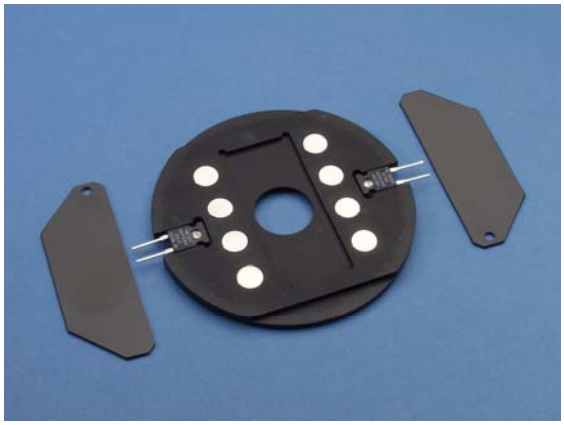
In general, **PM-2** and **PM-5** platforms are designed for use with Warner's closed bath chambers. All other PM platforms (**PM-1 - PM-8)** are designed for use with our **Series 20** open bath chambers. See the table at the end of this document for a complete listing of chamber/platform pairs as of this writing.

## ASSEMBLY

The **PM Series** platform is designed to act as a compressive base of your **Series 20** chamber. The general procedure for the assembly of a **PM Series** platform is to first mount a coverslip onto the chamber bottom and then to place the coverslip/chamber assembly into the **PM Series** platform. This is followed by making any perfusion and electrical connections with chamber. Finally, the completed assembly is inserted into a Warner stage adapter and mounted onto your microscope.

### Installing the chamber and mounting into the platform

The platform serves to (1) clamp the assembly together assuring a tight seal between the chamber and coverslip, and (2) to provide a means to mount the chamber/platform assembly onto the microscope.



Begin by removing the two steel side clamps on the **PM Series** platform to reveal the insert for your **Series 20** chamber. **NOTE**: You could alternatively slide the two side clamps to the side.

Next, assemble a clean coverslip onto your **Series 20** perfusion chamber following the instruction that came with that chamber. Place the chamber/coverslip assembly into the platform and position the platform side clamps over the

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edges of the chamber body. The powerful magnets in the platform base allows the side clamps to provide a strong clamping force on the chamber and coverslip, maintaining a tight seal between the two.

## PLATFORM HEATING

A general discussion regarding issues surrounding heating of solutions and Warner platforms is available for download on our website. (http://www.warneronline.com)

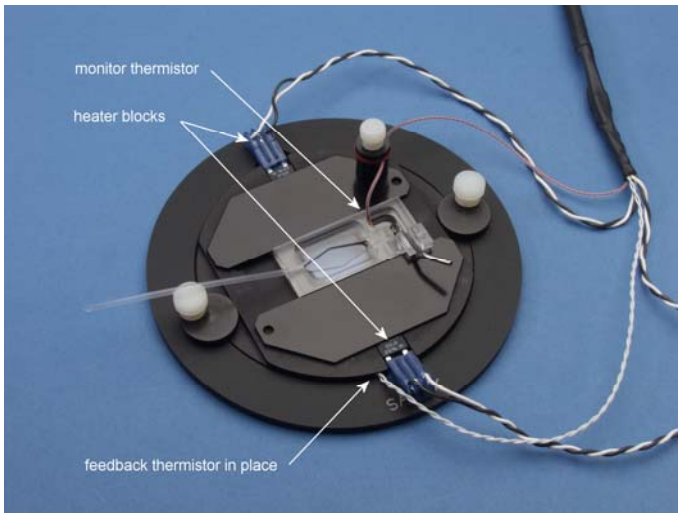
### Monitoring the heat

Heat is transferred to the aluminum platform from a pair of 20 Ω power resistors, one mounted on each side of the platform. The temperature of the platform is monitored by measuring the platform thermistor resistance and adjusting the voltage to the heaters. A second temperature sensing device such as a monitor thermistor should be placed in the bath to directly monitor the solution temperature.

Automatic heat control is achieved by using either a Warner temperature controller (single or dual channel models are available) or an external voltage source. The Warner temperature controllers allow either the platform or solution thermistor to be selected as the control sensor and the desired set temperature is automatically maintained at less than 1°C deviation.

### Feedback thermistor information

The maximum temperature rating of the supplied thermistor is 60°C. The white thermistor assembly is inserted into the small hole drilled into the side of the platform. See the image to the right for proper thermistor placement.




**NOTE**: If the thermistor fits loosely in the hole, use a drop of immersion or mineral oil, or alternatively vacuum grease, to insure good thermal transfer.

### Mounting onto the microscope

The assembled chamber/platform can be mounted directly onto a microscope stage if the stage is both flat and has a cutout smaller than the platform. In most cases, however, the stage cutout is larger than the platform necessitating the use of a stage adapter. In addition, a stage adapter is highly recommended if the platform is to be heated since it provides insulation between the platform and microscope stage.

Warner Instruments stocks stage adapters for most popular microscopes and we can custom manufacture adapters for special applications. See the table at the end of this document or contact our Sales Department for details.

## APPENDIX

### A. Warner Stage Adapters

Warner Instruments carries an extensive line of stage adapters for our **Series 20** chambers and we are constantly adding new adapters as microscope manufacturers add to or modify their product lines. Please contact our offices if you do not find an adapter for your microscope in the list below. You may also want to check our website (http://www.warneronline.com) to see if an adapter has been added since this manual was printed.

| MICROSCOPE MANUFACTURER | MODEL NO. | ORDER NO. |
|---|---|---|
| Nikon Diaphot / TE200 / TE300 / TE2000 | SA-NIK | 64-0291 |
| Nikon TMS with 8x12 cm cutout | SA-TMS/8 | 64-0292 |
| Nikon TMS with 9x13 cm cutout | SA-TMS/9 | 64-0293 |
| Olympus IMT | SA-OLY | 64-0294 |
| Olympus IMT-2 / IX-50 / IX-51 / IX-70 / IX-71<br>Burleigh Gibraltar™ stainless steel stage | SA-OLY/2 | 64-0295 |
| Leica-MicroSystems DMIL with Object Guide<br>Leica-MicroSystems DMIRB/E with plane stage<br>Zeiss Axiovert with 211x230 specimen stage<br>Zeiss Axiovert 25 / 35 / 100 / 200 | SA-20LZ | 64-0296 |
| Zeiss Axiovert with 85x130 Mechanical Stage<br>Zeiss Axiovert 100M, 200M | SA-20KZ | 64-0297 |
| Nikon E400 / E600 / E800<br>Olympus BX-40 / BX-50 / IX-81 | SA-20UU | 64-0298 |
| Prior & Ludl Motorized Stage on upright scope | SA-20PL | 64-0299 |
| Prior & Ludl Motorized Stage on inverted scope | SA-20PLI | 64-0300 |
| Zeiss, Leica-MicroSystems DMIRB/E<br>with 3-plate mechanical stage | SA-20L3P | 64-0301 |
| HAI 900 Inverted Microscope | – | 64-0302 |
| Zeiss Axioskop with 75x30 mechanical stage<br>Zeiss Axioskop LSM 510 | SA-20UUZ | 64-0336 |
| Nikon Eclipse TS100 | SA-TS100 | 64-0340 |
| Burleigh Gibraltar™ aluminum stage | SA-OLY/3 | 64-0386 |

### B. Warner PM Series Platform/Chamber pairs

Warner Instruments carries an extensive line of **Series 20** chambers and we are constantly adding new chambers as the scientific needs of our customers advance. Please contact our offices if you do not find your chamber or platform in the list below. You may also want to check our website (http://www.warneronline.com) to see if a platform or chamber has been added since this manual was printed.

| WARNER SERIES 20 CHAMBER | PM PLATFORM | ORDER NO. |
|---|---|---|
| RC-22, RC-22C, RC-24, RC-24E, RC-26, RC-26G, RC-26GLP, JG-23N/HP, JG-23W/HP, JG-23W/LP | PM-1 | 64-1526 |
| RC-21 | PM-2 | 64-1561 |
| RC-25 | PM-3 | 64-1562 |
| RC-25F | PM-4 | 64-1563 |
| RC-20, RC-20H | PM-5 | 64-1564 |
| RC-27, RC-27N, RC-27NE, RC-28 | PM-6 | 64-1527 |
| RC-27L, RC-29 | PM-6D | 64-1528 |
| RC-27LD | PM-7 | 64-1529 |
| RC-27LD (with slice support) | PM-7D | 64-1530 |
| RC-26GS | PM-8 | 64-1531 |

### C. Maintenance

The platform body is comprised of anodized aluminum and the steel wings are painted.

Cleaning of these components can be performed using a dilute detergent solution. Alternatively, Warner instruments has developed a trisodium phosphate (TSP) wash protocol which gives very good results for both metal and plastic parts. Download this protocol in PDF format from our website. (http://www.warneronline.com)

**NOTE**: Do not use alcohol, ether or other solvents on plastic parts. Solvents may be used on the anodized surfaces of the platforms.