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1. Introduction

The Golden Gate™ Heated Diamond ATR Top Plate (P/N’s GS10540 and GS10542) is one of a series of top plates that are used on the optical unit of the Golden Gate™ ATR system.

The Heated Diamond ATR Top Plate is operable from ambient to 200°C temperature by a dedicated 4000 Series™ Temperature Controller.

This particular manual is to be used in conjunction with the standard Golden Gate™ manual (GS10500 Series) supplied with every Golden Gate™ system and a separate 4000 Series™ Temperature Controller manual.

**Warning:** The diamond mounting in the Gold Gate™ ATR Top Plate has a very small air gap around its periphery. This is to minimize heat loss to the surrounding top-plate and to ensure quick warm up. It is possible, when cleaning the diamond with excessive amounts of solvent, for some of this to leak past the diamond plate and give solvent absorption bands. For this reason the diamond should only be cleaned with tissue moistened with solvent.

Before powering up the controller make sure that the power/ thermocouple lead of the Heated Golden Gate™ ATR Top-plate is connected to the back of the 4000 Series™ Temperature Controller. The plug is push-fit and the knurled ring is rotated to click the position.
2. Unpacking and Checklist

On receipt of the equipment please check that the following have been supplied:

- Golden Gate™ Heated Diamond ATR Top-plate (GS10540)
- Golden Gate™ Optical unit with choice of ZnSe or KRS-5 lenses and appropriate Benchmark baseplate (if ordered as GS10542).
- 4000 Series™ Temperature Controller, Power Cable and Manual

Remove the top plate and/or Golden Gate™ optics unit from their packing and install the Golden Gate™ ATR unit and the top plate into the spectrometer (see Golden Gate™ Manual GS10500).

For heating of the Golden Gate™ Heated Diamond ATR Top-Plate please follow instructions from the 4000 Series™ Temperature Controller Manual.
3. Displayable Parameters and Specifications

The Golden Gate™ Heated Diamond ATR Top Plate is provided with its own dedicated 4000 Series™ Temperature Controller. A separate manual is supplied for specific operation of the 4000 Series™ Temperature Controller.

For operation of the Heated Diamond ATR Top Plate the parameters of the 4000 Series™ Temperature Controller have been factory set as shown on the following page. Not all of the displayable parameters can be changed but have been listed for reference purposes. If you ever need to change a parameter or autotune the controller for a particular temperature range certain parameter settings will be altered. You can get back to original factory settings by reprogramming the controller with these original values.

Specifications

Accessory Type GS10540 or GS10452

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Voltage</th>
<th>Frequency</th>
<th>Max Power</th>
<th>Fuse Rating</th>
<th>Fuse Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>230V</td>
<td>50HZ</td>
<td>150W</td>
<td>1.5A</td>
<td>T</td>
</tr>
<tr>
<td></td>
<td>110V</td>
<td>60HZ</td>
<td>150W</td>
<td>3A</td>
<td>T</td>
</tr>
<tr>
<td></td>
<td>100V</td>
<td>50/60HZ</td>
<td>150W</td>
<td>3A</td>
<td>T</td>
</tr>
</tbody>
</table>

Insulation rating of external circuits (appropriate for single fault condition) = basic insulation and protective (earth) bonding.

Humidity operation range – 20% to 90% relative humidity non-condensing.
Displayable Parameters For Heated Golden Gate™ GS10540 with WEST 6100+ (4000 Series™) Controllers

<table>
<thead>
<tr>
<th>Parameter Display (In Green)</th>
<th>Parameter Name</th>
<th>Parameter Factory Set Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>FiLt</td>
<td>Input Filter Time Constant</td>
<td>3.0</td>
</tr>
<tr>
<td>OFFS</td>
<td>Process Variable Offset</td>
<td>0</td>
</tr>
<tr>
<td>PPL</td>
<td>Primary (Heat) Output Power</td>
<td>0</td>
</tr>
<tr>
<td>Pb_P</td>
<td>Primary Output Proportional Band</td>
<td>3.8</td>
</tr>
<tr>
<td>ArSt</td>
<td>Automatic Reset (Integral Time Constant)</td>
<td>0.31</td>
</tr>
<tr>
<td>rAtE</td>
<td>Rate (Derivative Time Constant)</td>
<td>0.07</td>
</tr>
<tr>
<td>biAS</td>
<td>Manual Reset (Bias)</td>
<td>25</td>
</tr>
<tr>
<td>SPuL</td>
<td>Setpoint Upper Limit</td>
<td>200</td>
</tr>
<tr>
<td>SPLL</td>
<td>Setpoint Lower Limit</td>
<td>0</td>
</tr>
<tr>
<td>OPuL</td>
<td>Primary (Heat) Output Upper Power Limit</td>
<td>100</td>
</tr>
<tr>
<td>Ct l</td>
<td>Output 1 Cycle Time</td>
<td>4</td>
</tr>
<tr>
<td>PhAl</td>
<td>Process High Alarm</td>
<td>200</td>
</tr>
<tr>
<td>AHyl</td>
<td>Alarm 1 Hysteresis</td>
<td>1</td>
</tr>
<tr>
<td>PLA2</td>
<td>Process Low Alarm</td>
<td>0</td>
</tr>
<tr>
<td>AHy2</td>
<td>Alarm 2 Hysteresis</td>
<td>2</td>
</tr>
<tr>
<td>APrt</td>
<td>Auto Pre-Tune enable/disable</td>
<td>diSA</td>
</tr>
<tr>
<td>PoEn</td>
<td>Manual Control select enable/disable</td>
<td>diSA</td>
</tr>
<tr>
<td>SPr</td>
<td>Setpoint Ramping enable/disable</td>
<td>EnAb</td>
</tr>
<tr>
<td>rP</td>
<td>Setpoint Ramp Rate Value</td>
<td>1800</td>
</tr>
<tr>
<td>SP</td>
<td>SP Value</td>
<td>1</td>
</tr>
<tr>
<td>SLoc</td>
<td>Set-up Lock Code</td>
<td>10</td>
</tr>
</tbody>
</table>
This is to certify that the:

HEATED GOLDEN GATE & 4000 Series TEMPERATURE CONTROLLER
10540/10542

Manufactured by:
SPECAC LIMITED

Conforms with the protection requirements of Council directives 2004/108/EC, relating to the EMC DIRECTIVE,
by the application of:
1) Testing to the following standard:
   EN-61326:2006/8   EMC (Emissions/Immunity) requirements for Electrical Equipment
                    for measurement, control and laboratory use.
2) Supported by SPECAC Technical File No.  TF10540

and also conforms to the general safety requirements of Council Directives 2006/95/EC, relating to
the LOW VOLTAGE DIRECTIVE,
by the application of:
1) EN61010-1:2010,
   Safety Requirements for Electrical Equipment for
   Measurement, Control and Laboratory use.
2) Supported by SPECAC Technical File No.  TF10540

Responsible Person:

Name:  Mr.G.Poulter
Position:  Technical Director

Signature:  
Of:  Specac Ltd.
Date:  14th Feb 2013
conforms to the above
Signature:  
Of:  Specac Ltd.

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Rev. No.: 02
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