The 1413 is not only a precision standard, it is a systems component as well - connections are made at the rear for this purpose.

- A laboratory standard
- For calibrating working standards
- Standard for dissipation factor
- Verification & calibration of LCR meters
- Working standard
- Capacitance measurement functions
- Verification of calibration of multimeters
- For calibrating instrumentation

Six precision decades are employed to provide a range of 0 to 1.11111 \( \mu \text{F} \) in increments as small as 1 pF and with an accuracy of 0.05% + 0.5 pF. Air capacitors are used for the two lower decades and precision silvered-mica capacitors are used for the remainder. The lower four decades contain adjustments that are factory set but accessible for readjustment later if desired.

The shielding is divided into two parts arranged to provide low terminal-to-guard capacitance. When the two shields are connected together, the 1413 becomes a well-shielded three-terminal capacitor with an extremely low zero capacitance, suitable for variety of applications.
1413 Series

SPECIFICATIONS

Range: 0 to 1.111 11 μF, controlled by six in-line-readout dials
Accuracy: ±(0.05% + 0.5 pF) at 1 kHz
Stability: ±(0.01% + 0.1 pF) per year.
Frequency: See Figure 1.

Temperature Coefficient: Approx. 20 ppm/°C from 10 to 50°C
Zero Capacitance: <0.1 pF.
Voltage Rating: 500 V pk max up to 10 kHz.

<table>
<thead>
<tr>
<th>Dissipation Factor: Maxim at 1 kHz</th>
<th>1 pF to 100 pF</th>
<th>101 pF to 1000 pF</th>
<th>1001 pF to 2000 pF</th>
<th>2001 pF to 0.1 μF</th>
<th>0.1 μF to 1.11111 μF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.002</td>
<td>0.001</td>
<td>0.005</td>
<td>0.0003</td>
<td>0.0004</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Insulation Resistance:</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3 term., after 2 min at 500V dc</td>
<td>≥5 x 10^10 Ω</td>
<td></td>
<td></td>
<td></td>
<td>≥5 x 10^9 Ω</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Terminal Capacitance:</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Max high to case</td>
<td>4 pF</td>
<td>8 pF</td>
<td>10 pF</td>
<td>30 pF</td>
<td>60 pF</td>
</tr>
<tr>
<td>high to guard</td>
<td>85 pF</td>
<td>110 pF</td>
<td>125 pF</td>
<td>165 pF</td>
<td>200 pF</td>
</tr>
<tr>
<td>low to guard</td>
<td>45 pF</td>
<td>70 pF</td>
<td>80 pF</td>
<td>110 pF</td>
<td>120 pF</td>
</tr>
</tbody>
</table>

Interface: Connections: 2 rear-mounted G874 locking connectors.
Mechanical: Convertible-bench cabinet;
Dimensions: 14.2 cm H x 42.3 cm W x 30.4 cm D (5.59” x 17” x 11.96”)
Rack, 13.3 cm H x 48.3 cm W x 27.7 cm D (5.22” x 19” x 10.9”)
Weight: Bench, 11 kg (23 lb.) net, 14 kg (29 lb.) shipping

ORDERING INFORMATION

1413-9700  1413  Precision Decade Capacitor Bench
1413-9701  1413  Precision Decade Capacitor Rack Model