CBI II is a computer programmed balancing instrument. It consists of an electronic differential pressure gauge and a micro computer which has been programmed with the TA valve characteristics which makes possible a direct reading of flow and differential pressures.

The CBI II instrument has two main components:

- An instrument which contains a micro computer, input touch pad, LCD display and re-chargeable NiMh batteries.
- A sensor unit which contains a piezo-resistive pressure sensor, one measurement valve and connections. The measurement valve has a safety function which protects the sensor from too high differential pressures.

MEASUREMENT RANGES

**Maximum Pressure:** 362.5 PSI (2500 kPa).

**Differential Pressure:** –1.3 to 29 PSI (–9 to 200 kPa).

**Flow:** During flow measurements the pressure range is –1.3 to 29 PSI (–9 to 200 kPa).

**Temperature:** –4°F to +248°F (–20°C to +120°C).

**Differential Pressure Measurement Deviation:**

- **Differential Pressure:** 03 PSI (0.2 kPa) or 1% of reading, whichever is the highest.
- **Flow:** As for differential pressure + valve deviation.

**Temperature Measurement Deviation:**

- **Temperature:** <+32.4°F (<+0.2°C) + sensors’ deviation.
- **Typical Operating Time:** 8 h between charges depending upon application.

**Ambient Temperature for the Instrument**

<table>
<thead>
<tr>
<th>Temperature</th>
<th>During Operation</th>
<th>Storage*</th>
<th>Charging</th>
</tr>
</thead>
<tbody>
<tr>
<td>+32°F to +104°F</td>
<td>0°C to +40°C</td>
<td>+4°F to +140°F</td>
<td>+5 to +40°C</td>
</tr>
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</tr>
</tbody>
</table>

*Do not leave water in the sensor when there is a risk of freezing.

CBI II OPERATING FUNCTIONS

**Differential Pressure Measurement:** Sensor for high total pressures and low differential pressures gives quick results and reliable readings.

**Temperature Measurement:** A Pt 1000 temperature sensor which allows measurement direct in the media is included.

**Automatic Calibration:** When the sensor is connected and the instrument switched on, the sensor is automatically calibrated before each measurement sequence.

**Automatic Venting:** The design of the sensor unit and a short flow-through during calibration eliminate measurement errors caused by insufficient venting of air.

**Balancing:** The instrument is programmed to calculate presetting values for balancing by using the TA Method, TA Balance and Computer Method.

**PC Communication:** The measured values can be saved in the CBI II instrument and then transferred to a PC for printout as a commissioning report. It is also possible to prepare the measurements by describing the system in the PC and then download the data to the CBI II Instrument. A PC program is included for this purpose.

CORRECTION FACTORS

**Media Correction:** CBI II can calculate flows with different contents of glycol or similar anti-freeze additives in the water.

**Troubleshooting:** CBI II can log differential pressures, flows or temperatures: up to 24,000 measured values can be logged.

With appropriate choice of logging interval, this means that periods from 20 hours to 65 days can be covered.
See the following manuals for descriptions of adjustment methods for various types of systems:

- **Manual No. 1**: Balancing control circuits
- **Manual No. 2**: Balancing distribution systems
- **Manual No. 3**: Balancing radiator system
- **Manual No. 4**: Stabilizing differential pressure

**Total hydronic balancing**

**TA Balance**

This method involves balancing the circuits (the modules) separately. Measure each valve at two settings: the prescribed position, and closed. When all the valves in the module have been measured, the CBIII calculates the correct settings for the valves within the module.

**TA Method**

The TA Method is used to calculate the position of a valve, corresponding to a given flow and differential pressure. The combination of desired flow and pressure differential must result in a Cv value that the valve chosen can produce.

**Computer Method**

The Computer Method is used to help adjust the valve to a specific flow. This method is based upon measuring the valve at two different handwheel positions. One is at least 50% open and the other is closed. From these two measurements the CBIII Instrument calculates the handwheel position that will give the desired flow.

**ACCESSORIES**

**Measuring Nipples**

- **Universal**

**Thread Connections**

- ½" and ¾"

**STAD, STADA, STA-DR, STAF, STAF-SG, STAF-R**

Extension 2.36" (60 mm)

Can be installed without draining the system.

**Allen Key**

**Measuring Hose Extension**

**Measurement Point**

**Key for Measurement Point**

TA Hydronics retains the right to make changes to its products and specifications without prior notice.