Dresser Series B3 Meter with ES3 Electronic Temperature Compensator
Circular Pulse Output Connector Version
Installation Supplement
Dresser ES3 Electronic Temperature Compensator (TC)
Installation Procedures

Use and Limitations
This document provides recommendations where there is no established company procedure or practice.

Safety
The purchaser and user of this product is warned that compliance with the manufacturer’s instructions and procedures is required in order to avoid the hazards of leaking gas resulting from improper installation, start-up or use of this product. The user is responsible to comply with all federal, state and local building and safety regulations. The manufacturer recommends that a qualified technician install this product for safe and proper operation.

Refer to “Installation Operation and Maintenance: ES3” (IOM) for complete instructions. Consult Factory to obtain the IOM.

Receiving, Handling and Storage
Although of very rugged construction, reasonable care should be taken during handling and storage.

At Time of Delivery
1. Check the packing list to account for all items received
2. Inspect each item for damage
3. Record any visible damage or shortages on the delivery record
   a. File a claim with the carrier if necessary
   b. Notify your Dresser Meter supplier immediately

IMPORTANT NOTE
Do not attempt repairs or adjustments, as doing so may be a basis for voiding all claims for warranty.

The ES3 Electronic TC does not require lubrication.

1. Meter Installation
Refer to “Installation Supplement IS:B3” for Meter installation procedures.

2. LCD Display
Scrolling through the screen displays and connecting to the ES3 Electronic TC requires use of the magnet. The magnet can be purchased as part of the Communications Kit, P/N 060542-000 or as an individual item, P/N 060541-000. Consult Factory for pricing.

Swipe the magnet across the “swipe line” as shown in Figures 1 - 2.

Note: the magnet will not change screen displays if swiped on another area of the label.

2.1 LCD Screen Displays
1. The default screen is either Compensated Volume or Non-Compensated Volume, depending on customer configuration.
   a. This parameter is the home/default screen.
   b. After a time out of approximately 30 seconds, the home screen always will appear.
2. Repeat the swiping motion of the magnet across the “swipe line,” and the screens will appear in sequential order as shown in Table 1.

Note: Using the Dresser MeterWare Software, the screens are configured by checking and un-checking the parameter to be displayed. Depending on the ES3 configuration, some screens may not appear.
Table 1 - Scrolling sequence for ES3 screen display

<table>
<thead>
<tr>
<th>Displayed on Screen</th>
<th>Represents</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPENSATED VOLUME</td>
<td>Compensated Volume</td>
<td>Displays non-compensated volume which has been corrected to standard conditions</td>
</tr>
<tr>
<td>NON-COMPENSATED VOLUME</td>
<td>Non-compensated Volume</td>
<td>Displays actual non-compensated volume</td>
</tr>
<tr>
<td>LINETEMP</td>
<td>Line Temperature</td>
<td>Displays live line temperature</td>
</tr>
<tr>
<td>FIXED P</td>
<td>Fixed Line Temperature</td>
<td>Displays the line pressure as entered by the user</td>
</tr>
<tr>
<td>FLOWRATE</td>
<td>Flow Rate</td>
<td>Displays uncorrected flow rate (average of latest 30 seconds of captured data)</td>
</tr>
<tr>
<td>MTR INFO</td>
<td>Meter Info</td>
<td>Meter size and type</td>
</tr>
<tr>
<td>PROVE CV</td>
<td>Compensated Prove Mode</td>
<td>Allows for compensated volume accuracy testing</td>
</tr>
<tr>
<td>PROVE UV</td>
<td>Non-compensated Prove Mode</td>
<td>Allows for non-compensated volume accuracy testing</td>
</tr>
<tr>
<td>BATTVOLT</td>
<td>Battery Voltage</td>
<td>Displays battery voltage</td>
</tr>
<tr>
<td>REM LIFE</td>
<td>Remaining Life</td>
<td>Calculated remaining battery life - shown in months</td>
</tr>
<tr>
<td>FIRM REV</td>
<td>Firmware Revisions</td>
<td>Displays the firmware revision that is in the ES3 at the present time</td>
</tr>
<tr>
<td>LCD TEST</td>
<td>LCD Test</td>
<td>Tests all display segments</td>
</tr>
<tr>
<td>BATTCHNG</td>
<td>Change Battery</td>
<td>Saves data to memory and resets clock</td>
</tr>
<tr>
<td>COMPFCTR</td>
<td>Compensation Factor</td>
<td>Displays the factor applied to non-compensated volume in order to arrive at compensated volume</td>
</tr>
<tr>
<td>COMPENSATED RESIDUAL</td>
<td>Compensated Residual</td>
<td>Shows extended compensated volume data beyond the value shown in the compensated volume screen</td>
</tr>
<tr>
<td>NON-COMPENSATED RESIDUAL</td>
<td>Non-compensated Residual</td>
<td>Shows extended non-compensated volume data beyond the value shown in the non-compensated volume screen</td>
</tr>
<tr>
<td>BASE T</td>
<td>Base Temperature</td>
<td>Displays base temperature as entered by the user</td>
</tr>
<tr>
<td>BASE P</td>
<td>Base Pressure</td>
<td>Displays base pressure as entered by the user</td>
</tr>
<tr>
<td>ATMOS</td>
<td>Atmospheric</td>
<td>Displays average atmospheric pressure as entered by the user</td>
</tr>
<tr>
<td>NCVOLFLT</td>
<td>Non-compensated volume under fault</td>
<td>Displays non-compensated volume that has accumulated since a fault occurred</td>
</tr>
</tbody>
</table>

3. Three to five seconds after the name of the value or the parameter appears, the screen will switch to show you the value of the selected parameter.


3. RPM Wheel

A high-speed RPM wheel is visible to the left of the digital display as shown in Figure 3.

The RPM wheel is tied directly to the meter impellers and is used to verify gas flow through the meter.

Figure 3 - Movement of the RPM wheel indicates impeller rotation
4. Wiring the Pulse Outputs

See Table 2 and Figure 4 for output pulse wiring for a Circular Connector.

<table>
<thead>
<tr>
<th>Output Name</th>
<th>Connector Pin</th>
<th>Pulse Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulse Output 1 (+)</td>
<td>PO1 (+)</td>
<td>A Form A</td>
</tr>
<tr>
<td>Pulse Output 1 (-)</td>
<td>PO1 (-)</td>
<td>B</td>
</tr>
<tr>
<td>Drain (Drain)</td>
<td>C</td>
<td>—</td>
</tr>
<tr>
<td>Pulse Output 2 (+)</td>
<td>PO2 (+)</td>
<td>D Form A</td>
</tr>
<tr>
<td>Pulse Output 2 (-)</td>
<td>PO2 (-)</td>
<td>E</td>
</tr>
</tbody>
</table>

**WARNING**

Ensure properly licensed/trained professionals are used to install equipment if installed in hazardous locations containing explosive atmospheres. All local codes and standards shall be maintained during installation.

**NOTE:**
The Circular mating connector is available with 5, 10 or 20 feet of cable. Contact Factory for price, part number and availability.

To maintain compliance with CSA requirements, use a suitable Intrinsic Safety barrier for a Class 1, Division 1 hazardous area for groups A, B, C and D:

1. Do not exceed the following input values for the barrier device:
   a. \( V_i = 8.2 \text{V} \)
   b. \( I_i = 10 \text{ma} \)

2. The OUTPUT and power handling capability of a barrier should not exceed:
   a. \( V_{out} = 30 \text{V} \)
   b. \( I_{out} = 50 \text{ma} \)

Refer to Figure 5 for proper wiring in hazardous locations.

**WARNING**

Products certified as intrinsically safe installations shall be:

- Installed, put into service, used and maintained in compliance with national and local regulations and in accordance with the recommendations contained in the relevant standards concerning potentially explosive atmospheres.
- Used only in situations complying with the certification conditions shown in this document and after verification of their compatibility with the zone of intended use and the permitted maximum ambient temperature.
- Installed, put into service and maintained by qualified and competent professionals who have undergone suitable training for instrumentation used in areas with potentially explosive atmospheres.

**NOTE:**

The Circular mating connector is available with 5, 10 or 20 feet of cable. Contact Factory for price, part number and availability.

To maintain compliance with CSA requirements, use a suitable Intrinsic Safety barrier for a Class 1, Division 1 hazardous area for groups A, B, C and D:

1. Do not exceed the following input values for the barrier device:
   a. \( V_i = 8.2 \text{V} \)
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2. The OUTPUT and power handling capability of a barrier should not exceed:
   a. \( V_{out} = 30 \text{V} \)
   b. \( I_{out} = 50 \text{ma} \)

Refer to Figure 5 for proper wiring in hazardous locations.
Figure 5 - Wiring Diagram for hazardous locations (060793-000).
5. Pulse Output Verification

Using the Dresser MeterWare software, the Correc tor pulse output allocation is configured in the Volume Configuration screen, as shown in Figure 6. Refer to this screen to verify proper configuration. Refer to the MeterWare Manual for complete operating instructions.

To ensure pulse outputs are properly wired, the Dresser MeterWare software has a test function available on the Advanced screen, as shown in Figure 7.

After clicking “Test Pulse Outputs,” a screen appears as shown in Figure 8. Click “Yes” to proceed with the pulse output test. For further information, refer to the Dresser MeterWare Manual.