

The Ramsey C-Level Continuous Level Indicator's unique precision strain gauge sensors are press-fit into a vessel's support structure, so there is no concern for failure or maintenance issues caused by difficult materials or harsh process environments. This ensures that your process operates at its optimum level of performance. It will increase your profits and improve your bottom line.

## Ramsey C-Level Continuous Level Indicator

Low-Cost Continuous Level Measurement for Bins and Vessels



### Features and Benefits

- Precision electronic strain sensing with hermetically-sealed stainless steel strain sensor (U.S. patent no. 4530245)
- Sensor mounted externally to the bin, which eliminates contamination or corrosion that can result from contact with the monitored product
- Incorporation of the sensor as an integral part of the support member cancels temperature effects common to so-called "bolt-on" sensors, eliminating the need for protective insulation

The Ramsey C-Level Continuous Level Indicator from Thermo Electron Corporation is ideally suited for inventory monitoring and process control during the load-out or filling of bins and vessels containing bulk solids or liquids. Because its unique precision strain gauge sensors are press-fit into the vessel's support structure, the system can operate without concern for failure or maintenance issues caused by the monitored material or process environment. This distinctive design also compensates for temperature changes that can affect the accuracy of bolt-on strain sensors. Accurate to within  $\pm 2\%$ , the Ramsey C-Level is unaffected by corrosive or abrasive materials, uneven material discharge, build-up on sidewalls, bridging, rat-holing or dusting.

### Ramsey CL-100 Control

Simple operation and ease of calibration have made the Ramsey CL-100 control a favorite with users worldwide. The microprocessor-based control uses inputs from up to eight sensors to calculate and display the material level on an easy-to-read LED bar graph.

The system is easily calibrated using the keypad on the front panel. Two different material levels are used to calibrate the system: one high point and one low point. The microprocessor does the rest. It automatically averages the outputs from the sensors and indicates the material level from 0-100%. High and low alarm set-points are also adjustable from the keypad. There's even a fixed set-point at 102% of bin capacity to indicate overflow conditions. All of the set-up and calibration information is retained in a non-volatile EEPROM.

**Ramsey Digital C-Level Controls**

The Ramsey Digital C-Level Control is a low-cost, microprocessor-based control with digital readout. Its 16-digit alphanumeric display and membrane keyboard make set-up and calibration very easy. This highly flexible device will display weights in tons, pounds, grams, kilograms or percent. It can act as a simple batching control or as a weight transmitter with optional 4-20 mA or RS-485 serial communications.

The Ramsey Digital C-Level is available as a compact panel mount DIN version (Model DCL-100) or as a field mount NEMA-4X version (Model DCLF-100).

**Ramsey GZ-1 Strain Sensor**

Filling any vessel or bin supported by metal members causes the supports to deform due to the addition of material weight. Although this deformation is so slight that it cannot

be seen, it can be accurately measured by the Ramsey GZ-1 Strain Sensor. When installed, this stainless steel sensor actually becomes part of the support structure. Its unique shape and full wheatstone bridge design cancel most of the effects caused by temperature changes. Once the sensor is electrically excited, a change in the strain of a support member will result in a proportional change to the output signal of the sensor. The Ramsey GZ-1 sensor has been successfully applied to I-beam, angle, pipe and skirted silo supports in over 100,000 installations. It comes complete with a special installation tool (U.S. patent no. 4738135) for easy installation.

**Ramsey Tank Weighing Assemblies**

Compression tank weighing assemblies are available as an option for the Ramsey C-Level system. Tank weighing assemblies used in

conjunction with the Ramsey DCL and DCLF controllers can achieve accuracies of 0.5% or better. They are self-checking and available in sizes from 1,000 pounds to 300,000 pounds, eliminating the need for stay rod assemblies. They feature 150% compression overload protection and can withstand 100% of their rated capacity in any direction with a UBC-88 rating for seismic zones one through four.

**Ramsey Tension S-Beam Load Cells**

When weighing for level indication in hanging bins, such as day bins or ingredient bins, the Ramsey C-Level system utilizes tension load cells. They are available in capacities of 200 pounds to 20,000 pounds and can provide accuracies of 0.5% or better. The load cells are rated for 150% overload and have normal deflections of 0.015 inches to 0.025 inches at full capacity.

**Ramsey C-Level Continuous Level Indicator**

| Specification                         |   |
|---------------------------------------|---|
| <b>Ramsey CL-100 Control</b>          |   |
| Enclosure                             | Polystyrene plastic; IP-64 weather-tight  |
| Temperature Range                     | -10°C to +50°C; Temperatures down to -40°C will not damage unit   |
| Power Requirements                    | Less than 10 W; 120/240 VAC selectable; -15% to +10%; 48-62 Hz  |
| Outputs                               | Three (3) SPDT dry contacts rated 5 A at 250 VAC (low, high, overflow);<br>Optional 4-20 mA output proportional to level indication           |
| Display                               | 50-segment LED bar graph changes in 2% increments   |
| <b>Ramsey Digital C-Level Control</b> |   |
| Enclosure                             | DCL-100 Panel Mount: DIN standard 144 x 72 mm, front panel IP-54<br>DCLF-100 Field Mount: Polycarbonate IP-65 (NEMA-4X)                       |
| Temperature Range                     | Operating Temperature: 0°C to +40°C; Storage Temperature: -20°C to +70°C  |
| Power Requirements                    | 110/220 VAC selectable; -15% to +10%; 48-62 Hz  |
| Outputs                               | Four (4) SPDT; NO dry contacts rated 0.5 A at 240 VAC; Optional 0-20 mA, 4-20 mA, 20-0 mA or 20-4 mA;<br>Optional RS-485 serial communication |
| Display                               | LCD with backlighting; 8mm height; 16-digit alphanumeric  |
| <b>Ramsey GZ-1 Strain Sensor</b>      |   |
| Sensor                                | Hermetically-sealed 304 stainless steel with PVC-coated cable (1 ft or 31 ft)   |
| Temperature Range                     | -40°C to +65°C  |
| Output                                | 1 mV/V excitation   |

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