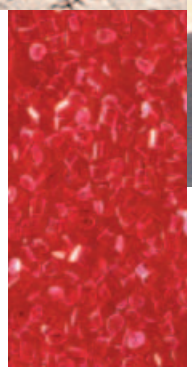
Product Specifications

The Ramsey Bob II Inventory Management System gives you the most reliable, intelligent and rugged inventory and level measurement system on the market today. Its new remote sensor design will provide years of dependable, maintenance-free service. Your process will operate more efficiently and accurately, which will decrease your frustration, save time and increase profits.

Ramsey BOB II Inventory Management System

Continuous Level Monitoring of Solids, Liquids and Slurries in Vessels, Silos and Tanks



System Features

- Robust mechanical design
- Heavy duty but lightweight molded polypropylene housing
- Flexible communications capabilities
- Requires no field calibration or adjustment
- RS-485 digital communication
- Measurement of distances up to 45.7 m (150 ft) available
- Unaffected by dust, echo, vapors, temperature and steam
- Simple daisy chain wiring makes for easy and inexpensive installation
- Quick and easy system expandability
- Minimal operation and maintenance costs

Superior Design

The Ramsey Bob II Inventory Management System from Thermo Electron Corporation gives you the most reliable, intelligent and rugged inventory measurement system on the market today. The new design of our Ramsey BR-II remote sensor will provide years of dependable, maintenance-free service on vessels up to 45.7 m (150 ft) in height.

Flexible Communications

Equipped with digital signal processing and advanced electronics, the Ramsey Bob II Inventory Management System provides you with the most communications options on the market: a simple manual interface that can control up to 30 vessels, and an interface that allows you to send and receive information with a PLC/DCS-controlled system or a PC/HMI controlled system. The system can be configured to meet your specific application requirements.

Formerly Thermo Ramsey

How the System Works

When the system's remote is commanded to take a measurement, the motor releases a stainless steel cable from the supply pulley, which causes the weighted sensor probe to quickly descend from the top of the vessel to the surface of the material.

During the descent, the remote measures the length of cable dispensed. A micro-controller counts the pulses from an internal encoder that produces over 260 pulses per meter (80 pulses per foot). When the sensor probe touches the material surface, measurement information is transmitted to the electronics and its pulse generation is momentarily stopped. The absence of these pulses immediately causes the motor to reverse and retract the bob to its neutral position at the top of the vessel.

When the bob is fully retracted, its cap seats in a specially designed seated flange. An electronic torque control reduces motor torque during the last 30 cm (12 in) of the retract cycle. This assures maximum pull strength throughout the entire measurement cycle and a soft stop to protect the motor. The retract distance is also measured and compared to the descend measurement to verify that the bob fully retracted.

PC/Active X Controlled System

This system is designed in conjunction with a PC-based system using the Ramsey Inventory Management System (IMS) software program. It is designed to give the operator total inventory management capability. This system can control up to 130 vessels and record the inventory using graphical representations of the vessels. The Ramsey IMS software also provides current inventory, inventory history, alarms, date and time, measurement scheduling capabilities, and alarm set points. It can communicate by fax, modem and more. An Active X control is also available, which allows an existing HMI program to directly control and monitor remote sensors.

PLC/DCS Controlled System

This system is designed to operate with an existing PLC/DCS system that initiates a measurement by providing a dry contact signal to the SU control. The remote sensor performs the measurement and the SU control sends the signal via 4-20 mA analog output back to the PLC/DCS. Each vessel requires its own SU control. One SU is required for each Ramsey BR-II Remote in the system.

Manually Controlled System

This system allows the operator to initiate a measurement with only the push of a button. The BC control will give an accurate measurement in feet to product, feet of product and percent full. One BC control can be used with up to 30 remote sensors. The last measurement on each remote is stored in a non-volatile memory.

BP-1

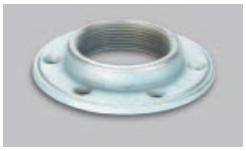
Spike designed for granular materials with angle of repose. For material with bulk density of 320 kg/m³ (20 lb/ft³) or greater. Comes standard with BRX remote.

BP-2

15.24 cm (6 in) hollow stainless steel inverted cone for liquids and light solids.

BP-8

10.16 cm (4 in) hollow stainless steel inverted cone for liquids and light solids.



DN80 (3 in - 8 NPT) Mounting Flange

Comes standard with all remote sensors.

BP-3

Bottle Bob filled with compatible material stored in vessel. For material with bulk density of 320 kg/m³ (20 lb/ft³) or greater.

BP-7

316 Stainless Steel Spiked Bob. For materials with bulk density of 320 kg/m³ (20 lb/ft³) or greater. Comes standard with BR-II remote.

XFMR-12

120 VAC/16 VAC wall transformer provides 16 VAC to BC, SU and DU consoles.

Ramsey Bob II Inventory Management System

	BR-II Remote	BRX Remote
Power Requirement	115 VAC 50/60 Hz; 230 VAC models available	16 VAC 50/60 Hz
Power Consumption	48 VA intermittent (motor on); 12 VA continuous	36 VA intermittent (motor on); 2.1 VA continuous
Current Draw (RMS)	0.4 A intermittent; 0.1 A continuous	2.25 A intermittent; 0.13 A continuous
Temperature		
• Electronics	-40°C to +85°C (-40°F to +185°F)	-40°C to +85°C (-40°F to +185°F)
• Process Temp Max	+121°C (+250°F)	+121°C (+250°F)
• With High Temp Package	+260°C (+500°F)	+260°C (+500°F)
Measurement Range	27.4 m (90 ft) standard; 45.7 m (150 ft) maximum	27.4 m (90 ft) standard; 54.9 m (180 ft) maximum
Measurement Rate	61 cm (2 ft) per second	61 cm (2 ft) per second
Measurement Accuracy	0.25%	0.25%
Repeatability	3 cm (1.18 in)	3 cm (1.18 in)
Resolution	0.4 cm (0.15 in)	0.4 cm (0.15 in)
Communication	RS-485 half duplex	RS-485 half duplex
Wiring Distance	1,220 m (4,000 ft)	1,220 m (4,000 ft)
Approvals	NEMA 4X,5,12; Explosion Proof Class II, Groups E, F, G	NEMA 4X,5,7,9,12; Explosion Proof Class I, Groups C & D; Class II, Groups E, F, G
Mounting	DN80 (3 in - 8 NPT) floor flange	DN80 (3 in - 8 NPT) floor flange
Conduit Entry	DN20 (0.75 in - NPT)	DN20 (0.75 in - NPT)
Weight	11.3 kg (25 lb)	11.3 kg (25 lb)
Width	40 cm (15.75 in)	22.9 cm (9 in)
Height	37.5 cm (14.75 in)	35.6 cm (14 in)
Depth	19 cm (7.5 in)	24 cm (9.5 in)
Air Purge Entry	DN5 (0.25 in - 18 NPT)	DN5 (0.25 in - 18 NPT)
Cable		
Standard	316 stainless steel 1.6 mm (0.063 in) diameter nylon coated	316 stainless steel 0.9 mm (0.037 in) diameter nylon coated
High Temp	316 Stainless Steel 1.6 mm (0.063 in) diameter Teflon® coated	316 stainless steel 0.9 mm (0.037 in) diameter Teflon® coated
Options		
Heater	N/A	16 VAC/25.6 VA/+4.4°C (+40°F) cycle temp
Transformer 150 VA	N/A	120-230 VAC/16 VAC
Transformer 250 VA	N/A	120-230 VAC/16 VAC
Communication Cable	Beldon 9463 shielded twisted pair	Beldon 9463 shielded twisted pair

	Consoles
Power Requirement	16 VAC @ 100 mA
Output Signal	RS-485 digital, 4-20 mA analog
Power Consumption	1.6 VA
Enclosure	NEMA 1 or 4X
Weight	0.4173 kg (0.92 lb)
Dimensions	12.95 cm H x 10.16 cm W x 6.60 cm D (5.1 in H x 4.0 in W x 2.6 in D)

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