

The Thermo Scientific Ramsey Micro-Tech 3000 series of electronic instruments signifies a new approach to scale instrumentation, giving you more flexibility and vastly increased upgrade capabilities. Each model is designed for your specific weighing application, and because they utilize a common platform, you only need to become familiar with one basic interface.

Thermo Scientific Ramsey™ Micro-Tech 3000

Electronic Instruments for Dynamic Weighing

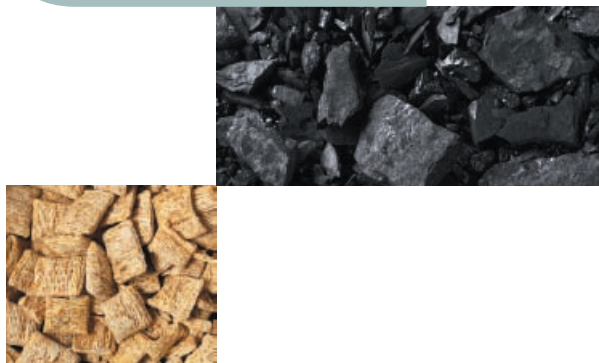


The Thermo Scientific Ramsey Micro-Tech 3000 series of instruments is suitable for production/consumption monitoring and control in many industries such as mining, cement, coal, ceramics, food, chemicals and more, for applications utilizing:

- Conveyor belt scales
- Weighbelt feeders
- Loss-in-weight feeders
- Impact flow meters
- Other load cell based dynamic weighing systems

Features Common to All Models

- Dual language (English/Second language). Second language can be Spanish, French, German, Dutch and Italian. Chinese (Mandarin) available on some versions only.
- Automatic conversion of data between Metric and English measure units
- 24 bits A/D converter (more than 16,000,000 intervals)
- Plug-and-play add-in boards recognition
- Audit trail
- Self diagnostics, alphanumeric alarm messages
- Panel mount and field mount versions
- Clip detector option for preventing weighing errors due to belt splices
- Moisture compensation option (with optional sensor)
- Inclination compensation option (with optional sensor)
- Battery back-up clock calendar for time and date monitoring and printing



The Ramsey Micro-Tech 3000 is designed to meet your specific weighing application and is available in five models.

Belt Scale Integrator Model 3101

The model 3101 is designed to provide an accurate measurement of the total quantity of material transported by a conveyor. It does this by measuring and indicating the belt load and belt speed; it also indicates flow rate. The model 3101 has three available internal slots for optional expansion boards. Digital inputs can be programmed for RUN, auto-zero, clip-detector, print, reset alarms, and load-out start/stop. The digital outputs can be programmed for cumulative alarm, high and low rate/speed/loading and remote pulse totalizer. Optional boards can also be added to provide 4-20 mA/0-20 mA analog input and output signals. Various communication options are available as well.

Belt Scale Integrator Model 3201

The model 3201 is similar to the model 3101, but it is suitable for approval under HB44 and OIML standards. This version uses an add-in premium A/D board to achieve superior accuracies and has two available internal slots for optional expansion boards.

Loss-In-Weight Feeder Controller Model 3104

The model 3104 is designed for accurately measuring and controlling the flow rate of materials extracted from bins and hoppers weighed statically. By integrating in time the loss of weight of the bin or hopper, this controller provides accurate measurement of the total quantity of material extracted by the system and indicates the flow rate. When equipped with optional add-in boards, it can control up to two loss-in-weight feeders. PID and PEIC control loops are provided to regulate the extracting devices. Refilling of the bin or hopper is automatically controlled, and compensated for. The 3104 provides a load-out function, which allows the batching of materials by entering the desired total quantity. This model is equipped with one current output board-type B and has two available internal slots for optional expansion boards.

Weighbelt Feeder Controller Model 3105

The model 3105 is similar to the model 3101, but with the addition of two PID or PEIC regulation loops. The first is typically used to modulate the conveyor speed to control the flow rate. The second can be used for extra controls in the process such as additive rate, temperature, etc. The model 3105 is equipped with one current output board-type B, which provides two analog inputs and two additional current outputs, and has two available internal slots for optional expansion boards.

Weighbelt Feeder Controller Model 3205

The model 3205 is similar to the model 3105, but it is suitable for approval under HB44 and OIML standards. The model 3205 is equipped with one current output board-type B and one premium A/D add-in board, and has one available internal slot for an optional expansion board.

Impact Flow Meter Controller Model 3106

The model 3106 is designed to accurately weigh materials with an impact scale. By integrating the impact force of the material on the plate over time, this controller provides accurate measurement of the total quantity of material transported by the system and indicates flow rate. The model 3106 is equipped with one PFM board and has two available internal slots for optional expansion boards.

Impact Flow Feeder Controller Model 3107

The model 3107 is similar to the model 3106, but with the addition of two PID or PEIC regulation loops. The first is typically used to modulate the material flow to control the flow rate. The second can be used for extra controls in the process such as additive rate, temperature, etc. The model 3107 is equipped with one PFM board and one current output board-type B providing two analog inputs and two additional current outputs, and has one available internal slot for an optional expansion board.

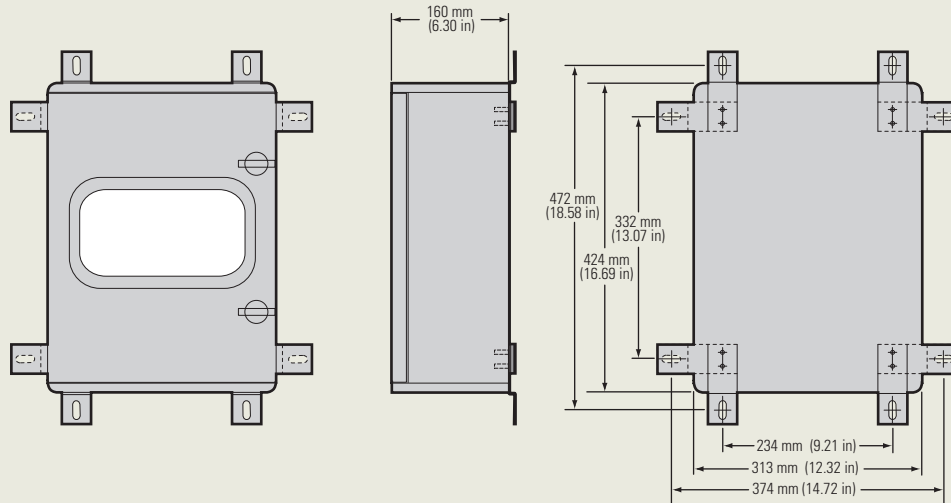


All set-up, calibration and diagnostic functions are performed via the front panel display and keyboard. Menu driven software makes the unit easy to use, with comprehensive messages and set up procedures, which minimizes human errors.

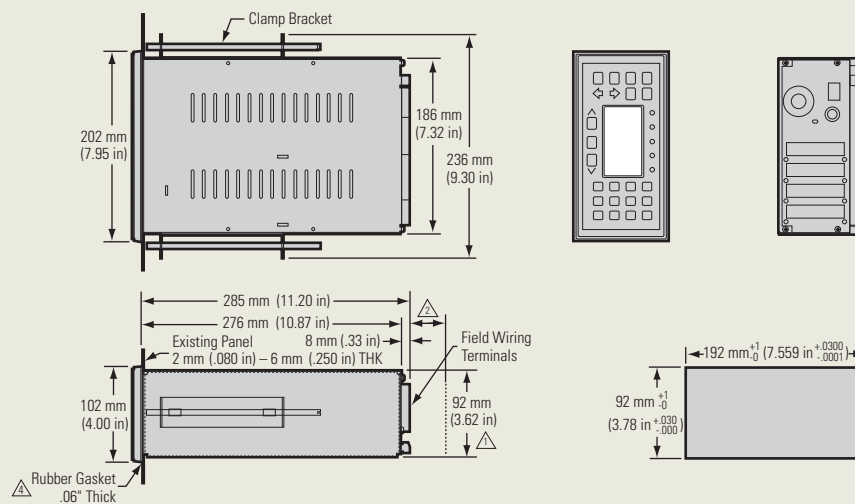


Specifications
(Continued on back cover)

Ramsey Micro-Tech 3000 Field Mount



Ramsey Micro-Tech 3000 Panel Mount



Thermo Scientific Ramsey Micro-Tech 3000

Software

Calibration	<p>Allows simple scale weighframe selection during initial calibration, which minimizes the need for determining and entering complex setup data</p> <p>Zero tracking on 500 segments of total belt length</p> <p>Guided calibration procedures</p> <p>10 points linearization</p> <p>Multiple zero and span calibration points</p>
Totalizers	Two independently resettable internal totalizers, plus one not resettable.
Alarms	<p>Load cell failure</p> <p>Internal failures</p> <p>Several process alarms, such as low and high rate, speed, load, etc.</p>
Load-out Function	This option allows for the batching of materials by entering the desired total quantity. The batch set point can be entered via keyboard or digital preselectors, or acquired from a serial communication line or field bus. The load-out option provides features to control the accuracy of the batch, such as pre-set to lower the rate, and automatic calculations of the queue of material at the end of the batch.
Communications and Printer	Through the built-in communication port, the system can print process variables, totalized quantities of material, alarms and set up data. When configured in RS-485 mode, the communication port can be used to connect with another intelligent device. The default communication protocol is Modbus RTU in slave mode. Optional add-in boards are available for field-bus connection. Typical options are AB Remote I/O and PROFIBUS DP. For other field-bus connections, please contact our representatives.

Thermo Scientific Ramsey Micro-Tech 3000

Hardware	
Panel Mount Housing	Dimensions: DIN 43700 size 192 x 96 mm (7.56 x 3.78 in), depth 271 mm (10.67 in) Weight: 4 kg (9 lb) Protection: front panel IP55, all housing IP00
Field Mount Housing	Reinforced fiberglass housing Dimensions: 310 x 425 x 160 mm (12.2 x 16.73 x 6.3 in) Weight: 10.2 kg (21 lb) Protection: IP65 (NEMA 4/4X)
Instrument Front	23 keys membrane keyboard Graphical LCD display emulating 4 lines of 20 characters 5 LEDs
Power Supply	Selectable 110/220 Vac or 120/240 Vac \pm 10%, 50/60 Hz
Environmental Conditions	Operating temperature -10°C to +50°C (+14°F to +122°F) Storage temperature -40°C to +70°C (-40°F to +158°F)
Computer	32 bits Motorola® CPU 64 KB RAM with lithium battery back-up 256 KB EPROM 8 KB EPROM
Load Cell Input	Power for up to six 350 Ohm load cells in parallel Nominal Input Signal: 3.5 mV/V, Max 35 mV bipolar Low-pass and Power Supply filters Sigma-delta A/D converter, more than 16,000,000 divisions
Digital Inputs	Four opto-coupled programmable inputs, expandable with optional add-in boards One input for speed sensor (max 2000 Hz)
Digital Outputs	Five relay outputs, suitable for 230 Vac, 5 Amps, of which one is dedicated to System Fail and one to the Remote Totalizer pulse signal.
Analog Output	One opto-coupled analog output programmable for 0-20 mA/4-20 mA or 20-0 mA/20-4 mA
Communications	One isolated RS232 or RS485 communication port, 20 mA
Expansion Slots	
Number of Slots	Three on base unit – the number of effectively available slots depends upon the model as specified. <i>Expansion slots can be used to install any combination of the following optional boards.</i>
Current Output Board–Type A	One 12 bit isolated analog output, programmable for 0-20 mA/4-20 mA or 20-0 mA/20-4 mA
Current Output Board–Type B	Two 12 bit isolated analog output, programmable for 0-20 mA/4-20 mA or 20-0 mA/20-4 mA and two analog inputs for remote set point and or moisture or inclination compensation.
Plant Scale A/D Board	One weight input channel
Premium A/D Board	One High Precision weight input channel
Serial Communication Board	One isolated RS232 or RS485 communication port, 20 mA
Profibus Board	One PROFIBUS DP field bus channel
AB RIO Board	One Allen Bradley® Remote I/O field bus channel
Digital Input Board	16 opto-coupled inputs and 4 open collector opto-coupled outputs
Digital Output Board	Four opto-coupled inputs and 16 open collector opto-coupled outputs
PFM Board	One Pulse Frequency Modulated input channel
Frequency Output Board	One frequency output



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