

The controller option provides a high security solution for existing and new users of Ramsey AC9 checkweighers. This new, and unique, solution for the food industry ensures that unauthorized users do not make changes to the operational settings of the checkweigher. It further enhances the performance of the checkweigher and its ability to protect your brand.

## Ramsey AC9-2 Checkweigher Controller

A high security software option for Ramsey AC9 Checkweighers



Thermo Electron Corporation provides advanced solutions for online and offline instrumentation. The Ramsey AC9 Checkweigher Controller is a state-of-the-art instrument for the measurement and control of packaged weights in the food, pharmaceutical, and consumer industries. The new high security variant of the Ramsey AC9 addresses one of the outstanding operational issues within these industries. No matter what the performance of a particular checkweigher the operational efficiency can be greatly impaired, or even negated, by unauthorized changes to its setup.

Thermo recognizes these issues and has developed the Ramsey AC9-2 variant to protect its checkweighers from unauthorized operation. Based on work in the pharmaceutical industry to meet the

stringent FDA requirements for 21 CFR Part 11, the unit requires an authorized user to enter a unique user ID and passcode. Without this electronic signature a user can interrogate the checkweigher information but is unable to make operational changes to the unit.

The system administrators for the checkweigher have various options at their command, which lets them determine how the security system will operate. They can also determine which level of access is available to each authorized user.

Greater security means better brand protection and higher quality standards for the user. For customers who require a full audit trail on their checkweigher, the option to incorporate the full functionality of FDA 21 CFR Part 11 is available.

### Introduction

The Ramsey AC9 checkweigher controller is a twin microprocessor design, which allows advanced and extensive user interface functions, and at the same time, provides consistent high performance weighing. The user interface is based on standard PC architecture, incorporating an Intel® 486 processor and color LCD screen. A dedicated 16-bit microprocessor performs the real time weighing function and controls the I/O activity. The controller can weigh up to 900 packages per minute when connected to the appropriate weighframe. The new high security variant provides superior operator security reducing the likelihood of expensive equipment malfunction.



### Full Color LCD Display with VGA Compatibility

The full-color display is easy to read and allows the user to provide the exact information that is best suited to the application on the main weigh screen. The large weight indicator can be configured to indicate actual weight or deviation weight from the nominal. A large selection of auxiliary statistics is available for up to eight user-defined fields.

### Extensive Product Library

The controller has the capacity to store up to 100 product operational parameters, with the capability of optional expansion to a maximum of 400 products. This feature allows quick product change over and the possibility of remote product selection. If the variable speed option is installed on the weighframe the product library will set the conveyor speeds to those for optimum performance as defined within the library.

### Three or Five Zone Classification

The Ramsey AC9 checkweigher controller will normally classify the product weight into five zones. European Average Weight legislation is fully supported with automatic setup and statistical records. The ability of the controller to additionally operate in a three-zone mode will allow alternative weighing applications, such as minimum weight legislation, to be simply implemented. The controller is a global product offering standardization for multi-national companies.

### Eleven User-Defined Reject Conditions

The user may define up to 11 events that will cause a product to be rejected. These reject conditions can be allocated to specific hardware rejects using the user definable I/O capability of the system. This flexibility permits configuration of the widest range of checkweighing applications within a standard controller.

Eight configurable, isolated, digital outputs allow a variety of reject and classification devices to be controlled by the unit.

### Variable Speed Facility

The speed of the infeed conveyor, weigh conveyor, and outfeed conveyor can be defined independently within the product set-up. This permits the optimal product handling and weighing to be achieved for each individual product without user adjustment at product change overs. *(Note: This facility requires a weighframe with variable speed capability).*

### Auto Zero

A software definable auto zero function ensures that any loadcell zero drift, or product build-up on the weigh conveyor, will have minimal effect on weighing accuracy. If an auto-zero is not completed within a pre-determined operating period an alarm will warn the operator to carry out a manual zero. This ensures that the checkweigher is always operating at its optimum performance.

### Servo Feedback

Filler control and efficiency can be greatly enhanced using the flexible servo feedback feature of the controller. The servo control option can control the upstream machinery either using an analog control signal or a digital increase/decrease control signal. Using servo feedback can increase filler efficiency and increase profitability by decreasing give-away.

### Enhanced Statistical Data

The enhanced graphical handling of the collected weigh data provides a powerful process control tool. Graphical and numeric trend displays of range, X-bar and standard deviation allows the production controller to instantly assess the performance of the line. Independent sample, short-term and long-term counters allow total assessment of the process. Pie charts provide easy-to-view information relating to yield and give-away. These facilities provide the tools to greatly improve the line efficiencies.

### Multi-Product Operation

When a line is handling several products in a random sequence, the multi-product function of the controller is essential. This operation allows up to five different products to be handled simultaneously. The product identification is indicated to the controller by activating one of five selection input signals, which may be derived externally from a bar code reader or similar device. Using this optional feature a maximum of five different products may be randomly checked.

### Sample Capability

The sample button rejects the next package that passes across the weightable, and displays and holds the weight of that package on the screen. This allows operators to perform a weight and accuracy check without interrupting the production, maximizing process efficiency.

### Zone of Indecision

The operator can initiate a zone of indecision accuracy test. In real time, as packages pass over the weightable, the zone of indecision, machine accuracy, standard deviation and running average are automatically calculated. This provides a “true accuracy” indication that is automatically displayed on the screen and enhances the QA procedures for the process.

### Power Failure Detection and Memory Backup

In the event of a power failure, or extended power brownout, the unit will store operating parameters and information, so that it is ready to operate on resumption of normal power. The memory backup uses advanced “flash card” technology that does not require a battery. The control incorporates a fully integrated 3.5-inch floppy disc drive with upload/download capability. These features ensure that the unit is always capable of running at peak performance, even after power interruptions.

### Automatic Self-Diagnostics

System operation is continually monitored to ensure that the checkweigher controller functions are performing correctly. Faults or alarms are indicated on the display and can be configured to generate an external output signal. Specific information is displayed by initiating a query through the keyboard.

### Automatic Set-Up Assist

The Ramsey AC9 AUTOCALC feature automatically calculates and selects optimum settings for filtering and sampling algorithms in the weighing software. If desired, these settings can be manually overridden and fine tuned by the operator.

### High Security Operation

This new option provides full control of operational access to the Ramsey AC9 checkweigher controller and secures the checkweigher from unauthorized changes. In order for a user to gain access to the setup controls the system administrator must first allocate a User ID and Access Level. The user will select their own password, which may be changed at any time.

### User ID

The system administrator allocates User IDs on an individual basis and also determines the Access Level for each individual. A User ID will consist of a minimum of 7 characters and a maximum of 12 characters.

### Access Levels

#### *Administrator*

Has full access to all menus except FACTORY only (adding options).

#### *Service*

Reserved for maintenance personnel. Allows access to functions that stop production line.

#### *Operator*

Makes normal controls available, not allowing the use of functions that could have a potentially negative impact on the process.

#### *Protected*

When no user is logged in, the checkweigher is in the protected mode. In this mode, no further changes to any variables are allowed until an operator logs on.

### Passwords

Passwords are always selected by the user and are encrypted for security reasons. A password consists of a minimum of 6 characters and a maximum of 12 characters. Passwords may, at the discretion of the system administrator have a validity period of 7 to 60 days. If the user does not change their password within the validity period (if selected by the system administrator) then the user will be locked out of the checkweigher and will have to be re-admitted by the system administrator. The user may change their password at any time within the validity period.

### After Market Services

A full range of aftermarket services are available to support the Ramsey AC9 Checkweigher Controller throughout its lifetime. These include commissioning at the time of installation. A full range of operating and service training modules are available either on site, or at one of the Thermo worldwide training facilities.

To ensure maximum operational efficiency Thermo can offer on site maintenance contracts and a full spare parts service.





The Ramsey AC9-2 controller has a highly flexible input/output system which may be configured in the setup software to provide solutions for the widest range of weighing applications.

## Ramsey AC9-2 Checkweigher Controller

Specification		
<b>Digital Inputs (Maximum 8)</b>		
Input Signal	Optically isolated configurable for NPN or PNP input signal	
Operating Voltage	5 - 24 VDC	
Typical digital input functions	Photocell	to detect when a package is entering the weightable
	Pin Detector	for synchronization when a carrier reject is used
	E-Stop Input	to indicate that an e-stop has been activated
	Line Interlock	to interface with other line equipment
	Multi-Product Selection	to indicate which one out of possibly five random packs is about to be weighed
	External Alarm	for indicating an alarm condition on other line equipment
	Print and Clear ST	will print and clear the short term statistics
	Print and Clear LT	will print and clear the long term statistics
	Print Free Run	will print free run weigh data
	Reset Servo	will restart the filler control waiting phase
<b>Speed Inputs (Maximum 3)</b>		
For use to indicate the speed of the infeed/outfeed/and weigh conveyors.		
Input Signal	Optically isolated configurable for NPN or PNP input signals	
Operating Voltage	5 - 24 VDC	
Frequency	Nominal 400 Hz, Minimum 200 Hz, Maximum 600 Hz	
<b>Digital Outputs (Maximum 8)</b>		
Optically isolated AC drives		
Operating Voltage	24 - 240 VAC	
Individual fuse protection	0.5 amp	
Typical digital input functions	Diverters	to control the reject diverters
	Servo ACT+	will increase the filler's batch quantity
	Servo ACT-	will decrease the filler's batch quantity
	Ready	will indicate that the checkweigher is running normally
	Need AZT	indicates that the checkweigher requires a manual zero
	Cumulative Alarm	indicates that one or more alarm conditions are active
	Cumulative Shutdown	indicates that one or more shutdown conditions are active
	Horn	to audibly indicate an alarm or shutdown condition
	Forward	to adjust the weight in the forward control option
Zone Lamp Output		
<b>Five NPN open collector outputs (non-isolated)</b>		
Operating Voltage	5 - 24 VDC, Max 28 mA	
Diode protection on board	These outputs may also be used as general purpose outputs for any of the output functions above	
<b>Analog Output (Maximum 3)</b>		
Typically used to control the conveyor motors speeds and / or servo feedback control.		
Configurable ranges (4)	0 - 20 mA / 20 - 0 mA / 4 - 20 mA / 20 - 4 mA	
<b>Communications</b>		
Serial port	Single RS232 port (standard) for connection to a SCADA protocol or a printer Optionally, the port may be configured for RS422 or RS485 A second optional communication port may be fitted	
Baud rate and word length	Fully configurable from 300 baud up to 9,600 baud	
Parallel Port	A parallel port is available for connection to a local printer	

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