METTLER TOLEDO

IND560fill

Terminal and

Fill-560

Technical Manual

FCC Notice

This device complies with Part 15 of the FCC Rules and the Radio Interference Requirements of the Canadian Department of Communications. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her expense.

◄ Declaration of Conformity is located on the IND560 documentation CD.

CUSTOMER FEEDBACK

Your feedback is important to us! If you have a problem with this product or its documentation, or a suggestion on how we can serve you better, please fill out and send this form to us. Or, send your feedback via email to: quality_feedback.mtwt@mt.com. If you are in the United States, you can mail this postpaid form to the address on the reverse side or fax it to (614) 438-4355. If you are outside the United States, please apply the appropriate amount of postage before mailing.

Your Name:		Date:
Organization Name:		METTLER TOLEDO Order Number:
Address:		Part / Product Name:
		Part / Model Number:
		Serial Number:
		Company Name for Installation:
Phone Number: ( )	Fax Number: ( )	Contact Name:
E-mail Address:		Phone Number:

	Please check the appropriate box to indicate how well this product met your expectations in its intended use?
	Met and exceeded my needs
	Met all needs
	Met most needs
	Met some needs
	Did not meet my needs

Comments/Questions:

DO NOT WRITE IN SPACE BELOW; FOR METTLER TOLEDO USE ONLY

☐ Retail   ☐ Light Industrial   ☐ Heavy Industrial   ☐ Custom

RESPONSE: Include Root Cause Analysis and Corrective Action Taken.

FOLD THIS FLAP FIRST

BUSINESS REPLY MAIL
FIRST CLASS   PERMIT NO. 414
COLUMBUS, OH
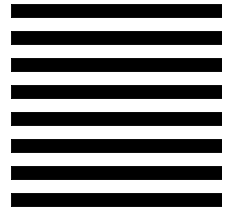
POSTAGE WILL BE PAID BY ADDRESSEE

Mettler-Toledo, Inc.
Quality Manager - MTWT
P.O. Box 1705

Columbus, OH 43216

USA

Please seal with tape

PRECAUTIONS

- READ this manual BEFORE operating or servicing this equipment and FOLLOW these instructions carefully.

- SAVE this manual for future reference.

	⚡ **WARNING!**
	FOR CONTINUED PROTECTION AGAINST SHOCK HAZARD CONNECT TO PROPERLY GROUNDED OUTLET ONLY. DO NOT REMOVE THE GROUND PRONG.

⚡ **CAUTION**

BEFORE CONNECTING/DISCONNECTING ANY INTERNAL ELECTRONIC COMPONENTS OR INTERCONNECTING WIRING BETWEEN ELECTRONIC EQUIPMENT ALWAYS REMOVE POWER AND WAIT AT LEAST THIRTY (30) SECONDS BEFORE ANY CONNECTIONS OR DISCONNECTIONS ARE MADE. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN DAMAGE TO OR DESTRUCTION OF THE EQUIPMENT AND/OR BODILY HARM.

⚠ **CAUTION**

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

	⚡ **WARNING!**
	A. NOT ALL VERSIONS OF THE IND560 ARE DESIGNED FOR USE IN HAZARDOUS (EXPLOSIVE) AREAS. REFER TO THE DATA PLATE OF THE IND560 TO DETERMINE IF A SPECIFIC TERMINAL IS APPROVED FOR USE IN AN AREA CLASSIFIED AS HAZARDOUS BECAUSE OF COMBUSTIBLE OR EXPLOSIVE ATMOSPHERES.

	⚡ **WARNING!**
	WHEN THIS EQUIPMENT IS INCLUDED AS A COMPONENT PART OF A SYSTEM, THE RESULTING DESIGN MUST BE REVIEWED BY QUALIFIED PERSONNEL WHO ARE FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF ALL COMPONENTS IN THE SYSTEM AND THE POTENTIAL HAZARDS INVOLVED. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

Contents

Chapter 1.0

Introduction

The Fill-560 option is a specialized application solution focused on the needs of users with single or multiple material filling requirements. When this special application is provided in the IND560 terminal, it is referred to as an IND560fill terminal. These applications are typically fixed sequences where containers are repeatedly filled with materials from supply hoppers. The filling and dispensing processes are controlled by the same weighing system (as opposed to one for filling and a different one for dispensing). Filling of "super sacks" or IBCs is a typical example of such an application.

This repetitive filling operation can also be found in process weighing applications where the material is weighed into one vessel, and then dumped or transported into another vessel or container together with materials from other operations. This multiple material mixing or batching operation may use a filling controller for one or more ingredients of the batch. Applications such as these will typically have filling scales of a smaller capacity than the mixing vessel, allowing the weighing of each material to be done with greater accuracy and repeatability.

A third type of operation that can use a filling controller is a "dosing" operation. In these situations multiple containers of material are filled from a supply vessel in a repeated weigh-out sequence. Each container would contain the same amount of material. This may be a pre-weigh station where multiple bags of an additive are weighed for use in a later process.

The IND560fill can also support the blending of up to four ingredients as they are weighed into a vessel. This blending process is handled in a fixed sequence, without the flexibility and adjustment capabilities of a recipe application.

Specifications

The IND560fill has the same physical and electrical capabilities of the standard IND560. The application firmware is enabled through the use of an "application hardware key." This is an electrical device that is inserted into a receptacle on the IND560 main board. It contains a specific code that enables access to the features and capabilities of this specific application solution.

Table 1-1 details specifications of the IND560fill, over and above the basic functionality of the IND560.

Table 1-1: IND560fill Specifications

Function	Features and Options
Weigh-in Sequences	• None • Blend / Fill (Fill is 1 material, Blend is 2 - 4 materials)
Weigh-out Sequences	• None • Dose (dispensing a certain amount of material) • Dump (empty entire scale)
Operating Modes	• Automatic transition • Semi-automatic transition
Timers	• Start delay • After weigh delay • After empty delay
Number of cycles	• Tracks number of cycles to alert operator when a job is complete.
Container Tare Table	• Memory for 100 containers • ID, description, tare or tare range, number of weighments, accumulator
Interlocks	• OK to weigh-in • OK to weigh-out
Adjustments to weight	• Automatic or manual jog • Auto spill adjustment • Manual overfill adjustment • Learn mode for spill and fast feed values
Auxiliary output	• Separate output signal that runs based on beginning weight value and either a second weight threshold or a preset time.

Input / Output Control

The IND560fill adds several new functions to the discrete input and output signals of the standard IND560. The optional internal discrete I/O module provides connections for up to four low voltage inputs and six dry contact relay outputs. The inputs can be selected as active (for pushbutton operation) or passive (for control from a PLC or DCS). The outputs may be used for switching an AC or DC voltage (provided externally) to control valves and gates.

To expand the I/O control for the IND560fill, support for external ARM100 modules is provided. Each ARM100 module provides an additional four low-voltage passive inputs and six dry contact relay outputs. The ARM100 communicates serially to the IND560fill. Each module comes in a plastic enclosure intended for DIN rail mounting within a control cabinet. A total of three I/O modules can be used (including both internal and external).

SmartTrac™

The SmartTrac display is used with the various runtime screens generated by the IND560fill firmware. This provides a user-friendly bar graph display of the change in weight on the scale compared to the programmed target and tolerance values.

Basic Functionality

The Basic Functionality capabilities of the IND560 are accessible when using the IND560fill. Functions such as printing with templates, TraxDSP filtering, TraxEMT maintenance, diagnostic and logging capabilities and support for analog or IDNet scale bases are accessible through the IND560fill. Please consult the **IND560 Technical Manual** for a full list of those capabilities and how to configure them.

Target Table

The storage capability of the Target Table, a Basic Functionality feature, has been expanded in the Fill-560 application. The maximum number of records has been increased from 25 to 100. There is still only one Target Table, and it will hold all target records regardless of which cycle they will be utilized in as a part of the overall process. Since the Fill-560 allows users to combine a Weigh-in cycle with a Weigh-out cycle, an additional step is required when activating a Target Table record for weighing. Users must identify whether the target is to be used for the Weigh-in or Weigh-out process. This is accomplished using the Target Weigh-in ⬇ and Target Weigh-out ⬆ softkeys. Refer to Chapter 2.0 for instructions on how to use these softkeys to recall specific target records for the Weigh-in or Weigh-out cycle.

Chapter 2.0

Operation

This chapter covers:

- Security
- Softkeys and Icons
- Weigh-in cycles
- Weigh-out cycles
- Sequences
- Special Features

This chapter provides information about general operation of the IND560fill terminal. It is assumed that the user of this manual has reviewed and understands the operation of the standard IND560.

Operation of the terminal depends on enabled functions and setup parameters. Functionality and configuration parameters are programmed in Setup mode and can be modified as necessary by users with appropriate access levels.

Security

The IND560fill supports multiple users/passwords for setup security. The terminal is pre-configured at the factory with two user names – "admin" and "anonymous." The factory default passwords are null (no password). The unit, as configured at the factory, requires no login or password entry to access the setup mode. Apart from adding or modifying a password, the pre-configured user (admin) cannot be changed. Be sure to remember the password. If the password is changed or forgotten, access to the setup menu will not be available. Be sure to protect the password from unauthorized personnel. The password provides access to the entire setup menu, unless the metrology switch is placed in the approved position, in which case access to the scale and other metrologically significant areas is not permitted. Please refer to the **IND560 Technical Manual** for additional information concerning the use of Security and the multiple classes of users available with the IND560 terminal.

Softkeys and Icons

The IND560fill builds upon the flexible softkey concept of the standard IND560 terminal by providing new choices for programming softkeys in the Terminal branch of setup. These softkeys can be added to the home screen to provide access to the IND560fill functionality. These new icons and an explanation of their use are given next. These are shown in Table 2-1.

Table 2-1: Softkey Icons Available at the Home Screen

Icon	Name	Function
	Active Container Tare Values	Provides a view of the container tare values that will be used in the weigh-in cycle. The values shown here can be selected from the Container Tare Table or entered manually by the operator. This includes either a tare value (which will be used in the process) or a tare range (that is used to confirm the current container is within a predetermined range. Changes to these values do not impact the Container Tare Table.
	Container Tare Table	The container tare table contains up to 100 container tare records. Each record has an ID, tare value, minimum and maximum tare values, and a description. In addition, each record is associated with an individual accumulator and consecutive number that can track the number of times the container has been used.
	Start Weigh-in	Starts the selected weigh-in cycle if all parameters have been programmed correctly.
	Start Weigh-out	Starts the selected weigh-out cycle if all parameters have been programmed correctly.
n	Number of Cycles	Allows tracking of a certain number of cycles before an operator message is shown indicating the number of cycles have been completed. Values from 1 to 64,999 can be entered as the number of cycles.
	Weigh-in Active Target	Provides a view of the target values that will be used in the weigh-in cycle. The values shown here can be selected from the Target Table or entered manually by the operator. Manual changes to these values do not impact the Target Table.
	Weigh-out Active Target	Provides a view of the target values that will be used in the weigh-out cycle. The values shown here can be selected from the Target Table or entered manually by the operator. Manual changes to these values do not impact the Target Table.

Icon	Name	Function
	Formula Values	Provides access to the page where the target values for each of the materials in a blend are configured. The values shown here can be selected from the Target Table or entered manually by the operator. Manual changes to these values do not impact the Target Table. Note that the weight unit is selectable in material #1 only. Any record that is retrieved from the target table must match the units for material #1. If the unit does not match, an invalid unit error will be shown. When exiting the formula view, the terminal confirms that the sum of the material targets is not greater than the programmed scale capacity. If it is, an error message is displayed and one of the target values in the formula must be reduced.

In addition to the new softkeys available at the home screen, there are a few new softkeys that are shown within sequences. These are shown in Table 2-2.

Table 2-2: Softkey Icons Available Within a Sequence

Icon	Name	Function
	Manual Jog (Weigh-In)	Starts a manual jog cycle at the end of the selected weigh-in cycle if the weight is below tolerance and manual jog has been enabled.
	Manual Jog (Weigh-Out)	Starts a manual jog cycle at the end of the selected weigh-out cycle if the weight is below tolerance and manual jog has been enabled.
+/−OK	Accept Off Tolerance	Permits acceptance of an out-of-tolerance condition if enabled in setup.
OK	OK	Acknowledges the end of a step in a semi-automatic sequence or the completion of a manual overfill adjustment.
	Pause	Pauses the sequence and provides softkey choices of either RESUME or ABORT.
	Resume	When a sequence is paused, pressing this softkey will resume the sequence where it was stopped.
	Abort or Stop	When a sequence is paused, pressing this softkey will abort the sequence.

Customizing Softkeys

All the softkeys available for assignment to the home screen can be replaced with customized bitmap images.

The bitmaps must measure no more than 23 pixels wide by 15 pixels high. Each graphic must have a white border at least one pixel wide at left, right and top – see Figure 2-1.
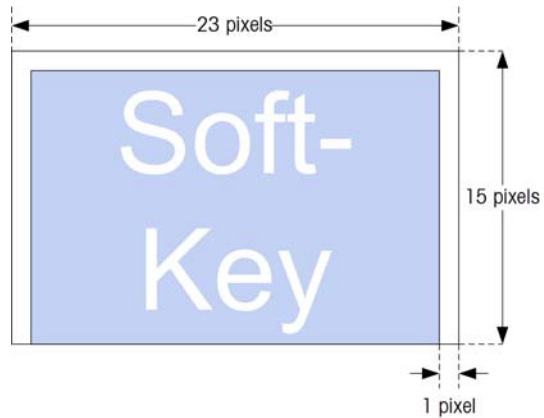
Figure 2-1: Softkey Graphic Dimensions

Graphics may be uploaded to the IND560fill terminal using an ftp connection via Ethernet, or through a serial port. Refer to the IND560 Technical Manual (document # 71209394) Appendix D, **Communications**, for details on this procedure.

New bitmap graphics must have the same filename as the graphic they replace. Table 2-3 lists the Fill-560 specific softkey graphics that can be replaced with customized images. Bitmap graphic files common to both the IND560 and IND560fill can be found in the IND560 Technical Manual.

Table 2-3: Bitmap Graphic Filenames

Softkey	Default Image	Graphic File Name
Container Tare		ConTare.bmp
Number of Cycles		Cycles.bmp
Formula		Formula.bmp
Weigh-in Start		W_in.bmp
Weigh-out Start		W_out.bmp
Target Weigh-in		targ_in.bmp
Target Weigh-out		Targ_out.bmp
Container Tare Table		Cntnr_tr.bmp

Weigh-in Cycles

The IND560fill can be configured for either no weigh-in control or a blend/fill weigh-in cycle as described below. A weigh-in cycle is defined as a material transfer operation that adds weight to the scale.

None

When none is selected as the weigh-in cycle, the IND560 will not provide any control for the weigh-in process. This is selected when the weigh-in process is controlled manually or by other equipment outside the control of the IND560 terminal.

Blend / Fill

In this case, the IND560 controls the filling process onto the scale connected to the terminal. This selection provides one-speed or two-speed feed control for a single material (Fill) or up to four materials (Blend). Special features that could be used in a Blend / Fill cycle include:

- Timing intervals
- Tracking cycles
- OK to weigh-in interlock
- Zero tolerance check
- Tolerance checking

- Auto jog
- Fill adjustments
- Learn mode
- Auxiliary output

If Blend is selected, the IND560fill will provide the same control as for the Fill for up to four materials. One-speed or two-speed control is selectable for each material.

Weigh-Out Cycles

The IND560fill can be configured for various weigh-out cycles as described below. A weigh-out cycle is defined as a material transfer operation that removes weight from the scale.

None

When none is selected as the weigh-out cycle, the IND560 will not provide any control for the weigh-out process. This mode is selected when the weigh-out process is controlled manually or by other equipment outside the control of the IND560 terminal.

Dose

Dosing is the process of dispensing a certain amount of material from a weigh vessel into multiple containers, one after the other. This process typically occurs from a larger tank or supply vessel that can hold sufficient material to fill several containers. Special features that could be used in a dose cycle include:

- Timing intervals
- Tracking cycles
- OK to weigh-out interlock
- Auto jog
- Heel weight

- Fill adjustments
- Learn mode
- Auxiliary output
- Tolerance checking

Dump

If the entire contents of the weigh vessel are to be emptied in one cycle, the process is known as a dump (to empty). This cycle could be used in applications where several scales are each used to each pre-weigh a certain amount of material that will all be added into another larger vessel. Special features that could be used in a dump cycle include:

- Timing intervals
- Tracking cycles
- Heel weight

- OK to weigh-out interlock
- Auxiliary output

Sequences: Combinations of Cycles

The power of the IND560fill comes from the combination of a weigh-in cycle with a weigh-out cycle. This allows the IND560 terminal to control a complete weigh-in / weigh-out sequence. The seven combinations that the IND560 will support are:

- Fill / None
- Fill / Dump
- Fill / Dose
- None / Dose

- Blend / None
- Blend / Dump
- Blend / Dose

These sequences are described in detail in Chapters 4 to 10.

Special Features

Several special features available in the IND560fill are designed to make the weigh-in and weigh-out cycles operate properly for specific applications. These features are described next.

Target Comparison Parameter Entry

Since the Fill-560 allows users to combine a Weigh-in cycle with a Weigh-out cycle, an additional step is required when manually creating Active Target comparison values or when activating a record from the Target Table. Users must identify whether the target is to be used for the Weigh-in process or the Weigh-out process. Do not use the TARGET TABLE ⬙ and ACTIVE TARGET ⊕ softkeys found in the standard IND560 firmware, as doing so will not correctly trigger other features of the Fill-560.

Direct Editing of Active Records

To edit an active record for the Weigh-in cycle directly:

1. Press the WEIGH-IN TARGET softkey ⬙. The Active Weigh-in Values screen displays. Use the UP and DOWN navigation keys to scroll through the fields available for editing.

2. Press the ENTER key to select a field to edit. Press the OK softkey ✓ to accept the edits to the active record. Press the ESCAPE softkey [Esc] to return to the weighing operation screen without saving the active record edits.

To directly edit an active record for the Weigh-out cycle:

1. Press the WEIGH-OUT TARGET softkey ⬙. The Active Weigh-out Values screen displays. Use the UP and DOWN navigation keys to scroll through the fields available for editing.

2. Press the ENTER key to select a field to edit. Press the OK softkey ✓ to accept the edits to the active record. Press the ESCAPE softkey [Esc] to return to the weighing operation screen without saving the active record edits.

Loading Records from the Target Table

The WEIGH-IN TARGET ⬙ and WEIGH-OUT TARGET softkeys ⬙ can also be used load records from the Target Table via Quick Access or List Selection.

Quick Access to Records

Use the Quick Recall mode when the ID of the Target Table record to be loaded is known. First, press either the The WEIGH-IN TARGET ⬙ or WEIGH-OUT TARGET softkeys ⬙. Use the numeric keypad to enter the ID and then press the TARGET

TABLE softkey ⬥ that now appears in the softkey tray to load the record. If the record is available, the data is loaded. If the record is not found, an "ID not found" error displays.

List Selection

Use the List Selection mode when the ID of the Target Table record is unknown. To use the List Selection mode:

1. Press the TARGET MEMORY softkey ⬥ without any preceding data entry. The Target Search screen displays.

2. Enter any search restrictions required or leave selections as they are to retrieve all records.

3. Press the SEARCH softkey 🔍 to view the selected records in the table.

4. Use the UP and DOWN navigation keys to scroll through the list until the desired record is highlighted.

5. Press the OK softkey OK✓ to load the selected record from the list.

6. Press the ESCAPE softkey [Esc] to return to the weighing operation screen without loading the record.

Sequence Mode

The Fill-560 application can be programmed to continue between the weigh-in and weigh-out cycles automatically or semi-automatically. The selections for the type of weigh-in and weigh-out cycles affect how the sequence operates based on this parameter. Each sequence is explained next. "Home" refers to the IND560fill home screen.

- Fill / None
    - Automatic: Returns to Home after fill is complete.
    - Semi-automatic: Sequence holds after fill and waits for operator to press the OK softkey OK✓ before returning to Home.
- Fill / Dump
    - Automatic: After a fill is complete, a dump begins automatically. Returns to Home after dump is complete.
    - Semi-automatic: Sequence holds after fill and waits for operator to press the OK softkey OK✓ before continuing to dump. After dump, sequence holds and waits for operator to press the OK softkey OK✓ before returning to Home.
- Fill / Dose
    - Automatic: After a fill or each dose is complete, the display returns to Home.
    - Semi-automatic: After a fill, the sequence holds until the operator presses the OK softkey OK✓. After that, it returns to Home. After a

dose, the sequence holds until the operator presses the OK softkey OK⁄. After that, it returns to Home.

- **None / Dose**
  - o Automatic: After the dose is complete, the display returns to the Home screen.
  - o Semi-automatic: After a dose, the sequence holds until the operator presses the OK softkey OK⁄. After that, it returns to Home.
- **Blend / None**
  - o Automatic: Transitions between materials automatically then returns to Home when complete.
  - o Semi-automatic: Sequence holds after each material is completed and waits for operator to press the OK softkey OK⁄ before continuing to the next material. After the OK softkey OK⁄ is pressed after the last material is complete, it returns to Home.
- **Blend / Dump**
  - o Automatic: Transitions between materials automatically, after which the sequence holds at the end of the blend. The operator must press the Weigh-out Start softkey ⌐ to continue to the dump cycle. When the dump is complete, it returns to Home.
  - o Semi-automatic: Sequence holds after each material is completed and waits for operator to press the OK softkey OK⁄ before continuing to the next material. After the last material is complete, press the Weigh-out Start softkey ⌐ to begin the dump cycle. Sequence holds after dump is complete and waits for the operator to press the OK softkey OK⁄. After that, it returns to Home.
- **Blend / Dose**
  - o Automatic: Transitions between materials automatically then returns to Home when complete. The Dose cycle must be manually started and when complete, the display returns to Home.
  - o Semi-automatic: Sequence holds after each material is completed and waits for operator to press the OK softkey OK⁄ before continuing to the next material. After the last material is complete, the sequence holds for the operator to press the OK softkey OK⁄ then it returns to Home. The Dose cycle must be manually started and when complete, the sequence holds until the operator presses the OK softkey OK⁄ then the display returns to Home.

Sequence Tare

This feature provides a trigger to perform an automatic tare during the sequence such as before a filling cycle or between materials in a blend or before a dose. To make the sequence operate automatically without operator intervention, this should be enabled.

If this parameter is disabled in setup, tare can still be taken manually before a fill cycle – but **not** between materials in a blend. Disabling this feature also allows a

formula for a blend to be set up in gross instead of net mode. In certain applications, this provides better control of the final blended weight than controlling the tolerance of each individual material.

Timing Intervals

Five timing intervals can be programmed in the IND560fill. These are Start Delay, After Weigh Delay, After Empty delay, Weigh-in Complete and Weigh-out Complete.

The **Start Delay** initiates a timer that begins when the respective "START" key is pressed and delays the actual start of the feeders for a programmed amount of time. During this time, the display will show the active target description, the target value and the tolerances. If the time is programmed as "0", then there will be no delay and the target values will not display. A Start Delay discrete output is turned "on" during the start delay time.

The **After Weigh Delay** provides some additional time after the feeder stops before a tolerance check is made. The status of the sequence remains as Running during this time. This can provide some additional time for pressure equalization in enclosed weigh vessels. There is an After Weigh Delay discrete output that is turned "on" during the after weigh delay time.

The **After Empty Delay** is used with the Dump weigh-out cycle. When the gross weight reaches the programmed Heel weight, the After Empty Delay timer starts and runs for the programmed time. After the programmed time has been reached, the weigh-out feeders are turned off. This is used to keep the feeders from running continuously when the weigh vessel does not return to zero after a Dump cycle.

The **Weigh-in Complete** and **Weigh-out Complete** timers are only available when the sequence mode is set to Automatic. While operating in automatic sequence mode, the Weigh-in Complete timing interval allows you to program an amount of time that the Complete: Weigh-in discrete output will be active once the weigh-in cycle is completed. This timer does not enact a physical pause in the sequence itself.

When operating in automatic sequence mode, the Weigh-Out Complete timing interval allows you to program an amount of time that the Complete: Weigh-out discrete output will be active once the weigh-out cycle is completed. This timer does not enact a physical pause in the sequence itself.

When operating in Semi-automatic sequence mode, the Complete: Weigh-in and Complete: Weigh-out discrete outputs will remain on while the sequence is holding, until the operator acknowledges by pressing the OK softkey OK.

Tracking Number of Cycles

This feature is used to track the number of cycles completed and then trigger an operator message when the programmed number of cycles have been met. At this

point, additional weigh-in and weigh-out cycles are inhibited until the number of cycles has been reset. The display message is shown in Figure 2-2.
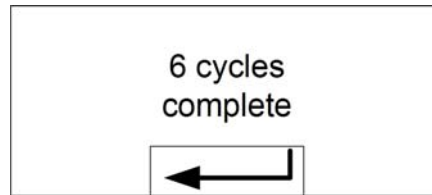
Figure 2-2: Cycles complete message

This message is cleared by pressing ENTER. After it is cleared, the status changes from Holding to all status outputs off indicating a "non-ready" state. The number of cycles must be reprogrammed or reset before the status will change to Ready.

The discrete output, Complete Cycles, can be initiated simultaneously with the display message.

Depending upon the combination of weigh-in and weigh-out cycles selected, different criteria is used to determine a completed "cycle". Next, each combination is defined:

- **Fill / None** - each successfully completed fill process triggers the cycle counter.

- **Fill / Dump** - each successfully completed fill and dump sequence triggers the cycle counter.

- **Fill / Dose** - each successfully completed dose process triggers the cycle counter.

- **None / Dose** - each successfully completed dose process triggers the cycle counter.

- **Blend / None** - each successfully completed blend process triggers the cycle counter.

- **Blend / Dump** - each successfully completed blend and dump sequence triggers the cycle counter.

- **Blend / Dose** - each successfully completed dose process triggers the cycle counter.

The number of cycles may be set to any value from 1 to 64,999, by accessing the CYCLES softkey 🔢 from the home position.

Active Container Tare Record

When the programmed weigh-in sequence (Fill or Blend) involves placing an empty container onto the scale before it is filled, the weight of the empty container can be evaluated to confirm that the correct container has been placed on the scale. This is done by enabling container tare in setup and adding the CONTAINER TARE softkey 🗄 to the home screen.

When this softkey is pressed, the active container tare record is available for editing. The fields in this record include: tare value, minimum value, maximum value, and description. If a non-zero tare value is included in the record, this weight is used as the tare weight for the container. If the tare value field is "0" then the gross weight on the scale must be greater than the minimum value field and less than the maximum value field or an "Invalid tare" error will be displayed. This error is shown in Figure 2-3.
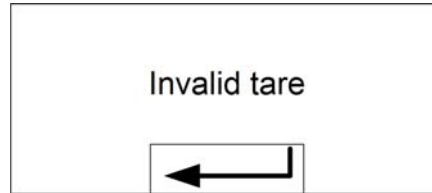
Invalid tare

Figure 2-3: Invalid Tare Message

This message is cleared by pressing ENTER. When cleared, the cycle is aborted and the alarm output is turned on.

Container Tare Table

There is a container tare table available that stores up to 100 records that can be recalled to populate the active container tare values. When a container tare record is recalled from memory, it places the stored values into the active tare container record. After populating the active container tare record, the active record can be edited as described above.

A container tare record can be recalled from the Container Tare Table by use of the CONTAINER TARE TABLE softkey ⬚. This softkey can be used to select a record from a view of the entire table or, when preceded by a numeric ID value, can access a stored record directly.

The container tare table can also be selected as "linked" to a target record when the weigh-in mode is programmed as Fill. When selected as "linked", when a new target record is recalled from the target table, the container tare table record with the same ID is automatically recalled and placed into the active container tare record to be used in the next fill cycle. This provides recall of both a target ID and container ID with just one ID entry. Even when the table is "linked", a new container tare record can be manually recalled and the active container tare record can be edited.

Interlocks

The IND560fill provides both weigh-in interlock and weigh-out interlock signal control. These signals can be used in applications where a fill should not be started unless a container is in position or a dump should not occur unless the system is ready to accept it.

If the interlocks are enabled and the "OK" discrete input signal is not present, an error message such as shown in Figure 2-4 will be displayed and the sequence will be paused. The sequence will not continue until the problem has been fixed.

Figure 2-4: "No OK Signal" Message

The operator must press the ENTER key to clear the message and then press the RESUME softkey ◇ to continue the cycle again.

These two interlocks can be enabled or disabled in setup depending upon the application requirements.

Jog

Either an automatic or manual jog process can be enabled in setup. If the programmed spill value is too large and the Feeder output turns off too soon, the final weight will not be within tolerance. In this case, the jog function can be used to slowly feed additional material to reach the tolerance value.

If automatic jog mode is enabled, the feed output is pulsed on and off automatically per programming in setup when the final weight is below the lower tolerance limit. If manual jog is selected, this procedure is performed manually by pressing the weigh-in MANUAL JOG softkey ⌐⋮⌐ or the weigh-out MANUAL JOG softkey ⌐⋮⌐ provided or by programming a discrete input as a jog function. Each time the manual jog function is initiated, it runs one pulse on/off cycle. Multiple presses of the softkey may be required to reach the lower tolerance level.

Target Tolerance Check

A tolerance check is performed at the end of each weigh-in cycle and each weigh-out cycle to confirm that programmed target and tolerance requirements have been met. The IND560fill provides various controls based on this tolerance check. The terminal can be programmed to abort the current cycle if an out of tolerance condition is determined or it can allow the operator to make this decision.

If a tolerance check is not required for an application, it can be disabled if both the + Tolerance and - Tolerance values are programmed as "0". If either of the tolerance parameters have values entered for them, a tolerance check will automatically be performed.

Other features that are associated with the tolerance check are automatic and manual jog, and overfill adjustment. If a tolerance check is not required, the tolerance values for a specific material can be programmed as "0" and the tolerance check will be skipped.

Zero Tolerance Check

The Zero Tolerance Check feature is normally disabled but can be used in weigh-in cycles only. Typically, this is used to make sure that a large vessel is empty (within a certain tolerance) before it is filled again.

When using container tare, this feature should be disabled and the Minimum and Maximum values in the Container Tare Active Values are used to detect the correctly sized container.

Overfill Adjustment

In certain weigh-in cycles, a manual adjustment of an overfill condition may be possible while the final filled weight is still on the scale. If this feature is enabled and the final weight is above the over tolerance, the system line will indicate a "Manual adjust" condition in the system line and an OK softkey $\overset{OK}{\vee}$ will be shown. After the adjustment, the operator acknowledges the completion of the adjustment by pressing the OK softkey $\overset{OK}{\vee}$ and the tolerance is retested.

Automatic Spill Adjustment

If the final weight of a weigh-in cycle or weigh-out cycle is repeatedly not reaching the exact target value, this feature enables the IND560 terminal to calculate a new spill value to make the weigh-in cycle or weigh-out cycle more accurate.

The number of cycles to average and a percentage of error to apply are programmable in the setup mode. After calculation, the new spill value can be kept in the active target record only, or it can be stored in the Target Table.

Averaging the error over several cycles and taking a smaller percentage of adjustment will provide a more accurate result over a period of time. For quicker results, fewer cycles can be averaged and a higher percentage of the error can be applied.

Learn Mode

If the fine feed and spill values for a material are unknown, the IND560fill can determine what values to use during the active weigh-in or weigh-out cycle. This is useful if a particular material changes characteristics (clumps or thins) when environmental conditions change.

To use this feature, enable the Learn Mode in setup and program the fine feed and spill values as "0" in the active target record or formula. During the sequence, the IND560 terminal will turn the fast feed and feed outputs off to determine what these values should be, populate the active record with these values then turn the feeds back on to finish the cycle. After calculation, these values are kept in the active

record only or, if the active record was populated from the Target Table, they can be stored back into the Target Table.

When enabled, the Learn Mode operates in both the weigh-in cycle and the weigh-out cycle automatically based on whether the fine feed and spill values are "0" or not. For one-speed control (where there is no fine feed value), only the spill value is checked for a value of "0". If non-zero values are in the fine feed and spill fields, then these values will be used and the Learn Mode will not operate.

Auxiliary Output

A separate, Auxiliary output signal can be triggered in either the weigh-in cycle or the weigh-out cycle (but not both). This signal can be used as a control for external devices such as a mixer or heater. It is selectable in setup to be active within a programmed weight range or for a certain amount of time after passing a programmed weight threshold.

This output is always based on the gross weight on the scale. It is not interrupted when the sequence is paused, however if the sequence is aborted, it does terminate. In either automatic or semi-automatic mode of operation, when the sequence is complete, the Auxiliary output will not automatically turn off - it will continue until its normal completion. If a new cycle is started before the Auxiliary output completes its cycle, the Auxiliary output will be turned off, its trigger will be reset and it will begin operating again within its programmed values.

Chapter 3.0

Setup Parameters

This Chapter covers:

- Entering Setup Mode
- Exiting Setup Mode
- Setup Menu Tree
- Overview of Configuration
- Configuration of the Fill-560
- Assigning Discrete I/O

This chapter provides information about how to configure the IND560 terminal's operating system with Fill-560 functionality. It describes access to the setup mode, where functions can be enabled, disabled, or defined by entering parameter values in specific setup screens.

Entering Setup Mode

The configuration of the IND560fill terminal is accessed through the SETUP softkey. If security has not been enabled, pressing the SETUP softkey will provide direct access to the setup menu tree. If password security has been enabled, a login screen displays and the user must enter the correct password in order to advance into setup. (See the Security section in Chapter 2.0, **Operation**, in the standard **IND560 Technical Manual** for further information about password setup and security.) When the login screen is shown, pressing the ESCAPE softkey (Esc) exits to the home screen without entering any login information.

Exiting Setup Mode

To exit the setup mode, select Home from the setup menu tree and press ENTER. The default weighing operation screen displays.

◄ As an alternative, press the first softkey at any time the menu tree is displayed to exit the menu tree.

Setup Menu Tree

After pressing the SETUP softkey, the IND560fill menu tree will be displayed. The menu tree of the IND560fill is similar to the standard IND560 with the addition of a new branch under Application, called "Pac". This is the branch that provides

access to most of the programming steps for the Fill-560 functionality. Other leaf nodes, such as Softkeys, are also modified. Figure 3-1 shows an expanded menu tree with focus on the Pac branch.
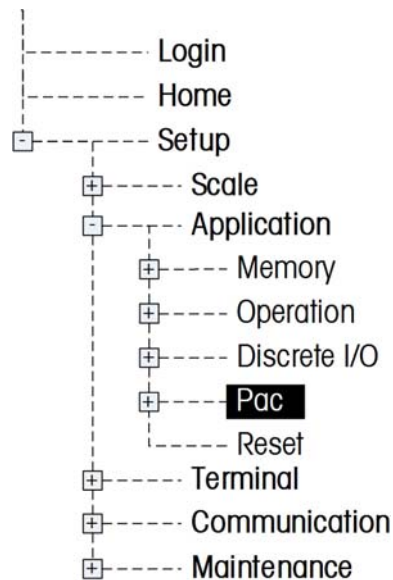
Figure 3-1: Setup Menu Tree with Pac Branch in Focus

Navigation in the menu tree is the same as the standard IND560 terminal:

- Use the UP and DOWN navigation keys to move focus through the branches of the setup menu tree.

- Press the RIGHT navigation key to expand a branch and the LEFT navigation key to collapse a branch. When the focus is on a sub-branch, focus can quickly be moved back to the main branch by pressing the LEFT navigation key.

- When a leaf node (singular, non-expandable) branch such as Device or Display is in focus, press the ENTER key to display the setup screen for that function.

Overview of Configuration

The setup menu tree can be expanded to show every branch and leaf node in the terminal's configuration. Use the navigation keys to select the desired setup screen.

The five major branches in the setup menu tree are shown in green in Figure 3-2:

- Scale
- Application
- Terminal
- Communication
- Maintenance

New branches or existing branches with new parameters for the Fill-560 functionality are shown in red in Figure 3-2.
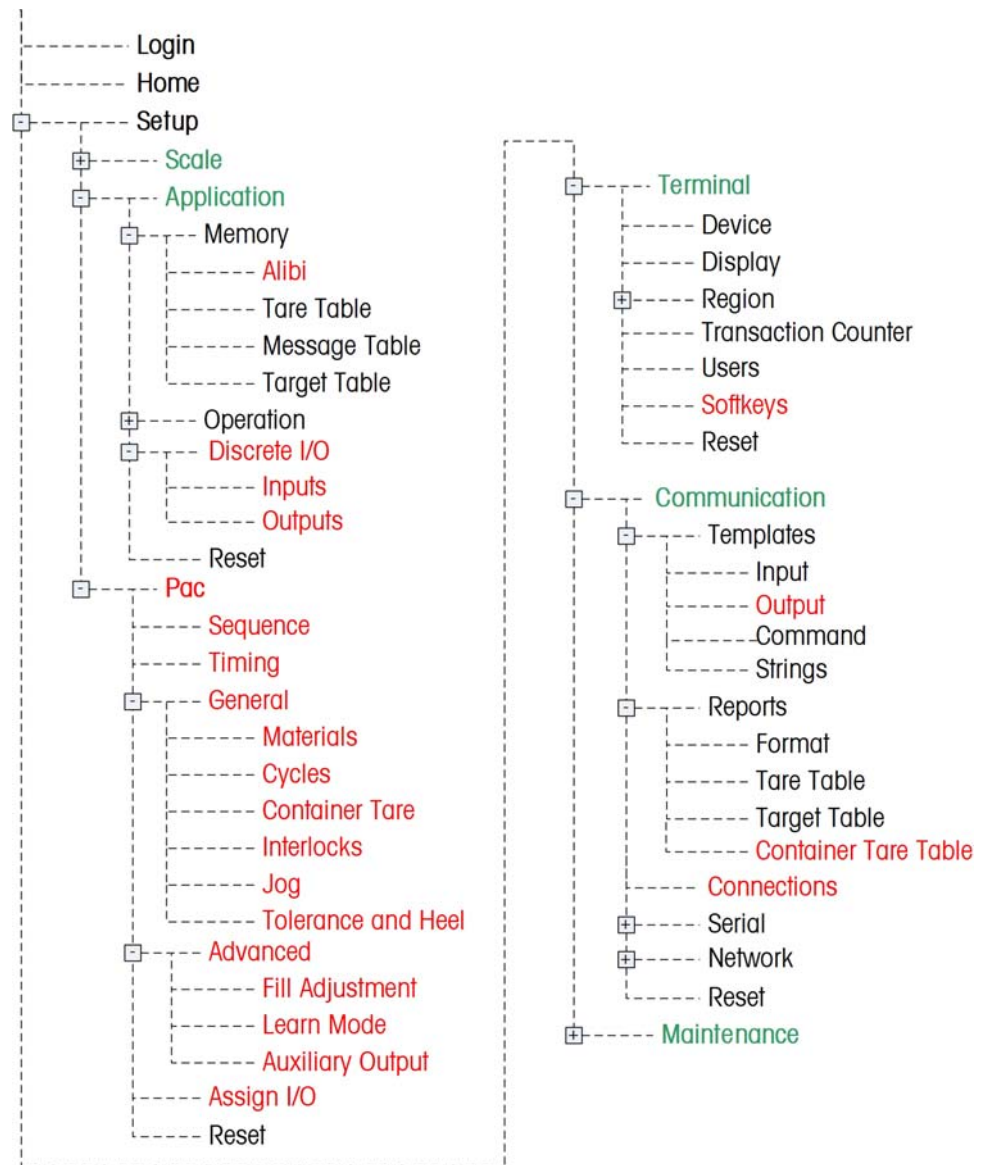
Figure 3-2: The IND560fill Menu Tree

Configuring Setup

Configure the IND560fill terminal options on the setup screens that are available under the Alibi, Discrete I/O, Pac, Softkey and Connections sub-branches of the setup menu. These are described next.

◄ Note: If the metrology switch is in the approved position (SW1-1 = ON), access to the Scale branch is not permitted. The Scale branch will not be expandable on the setup menu tree.

```
⊞-- Scale
```

Scale

The IND560fill adds no new setup parameters or selections to the Scale branch. Refer to the standard IND560 terminal **Technical Manual** for setup information.

```
⊟-┬--- Application
  ⊟-┬-- Memory
  │  ├------- Alibi
  │  ├------ Tare Table
  │  ├------ Message Table
  │  └------ Target Table
  ├----- Operation
  ⊟-┬--- Discrete I/O
  │  ├------- Inputs
  │  └------ Outputs
  ⊟----- Pac
  │  ├-- Sequence
  │  ├-- Timing
  │  ⊟-┬ General
  │  │  ├----- Materials
  │  │  ├----- Cycles
  │  │  ├----- Container Tare
  │  │  ├----- Interlocks
  │  │  ├----- Jog
  │  │  └----- Tolerance & Heel
  │  ⊟-┬ Advanced
  │     ├----- Fill Adjustment
  │     ├----- Learn Mode
  │     └----- Auxiliary Output
  │  └-- Assign I/O
  └------ Reset
```
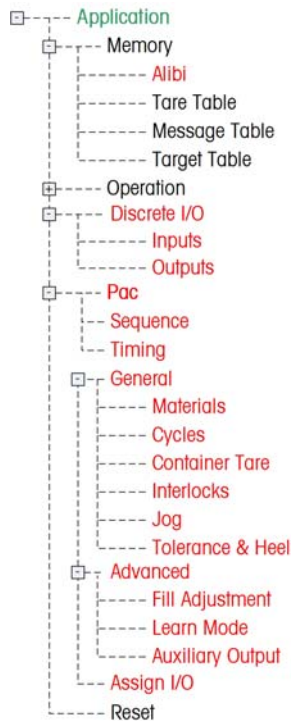
Application

Most of the IND560fill setup is located in this branch of the setup menu tree. New selections are added to the Alibi, Discrete Inputs, and Discrete Outputs sub-branches, and a new Pac sub-branch is shown.

- Alibi

- Discrete I/O

- Pac

Alibi

A new parameter is added to the selection box for Alibi memory. In the standard IND560, Alibi memory can either be enabled or disabled. To these, the IND560fill adds an Action Log option. When the Alibi memory is set to Action Log, the file logs actions that occur during the weigh-in and weigh-out sequences in the Fill-560. The file is available for FTP or serial port transfer through the Shared Data Server. More details on the Action Log can be found in Appendix A, .

Since they both use the same memory space, the Alibi memory and Action log cannot be used simultaneously.

Enter the Alibi selection box and choose Disabled, Alibi Memory or Action Log.

◄ Beginning with IND560 firmware version 3.02, the Fill-560 specific triggers will also automatically log an Alibi Memory transaction, if Alibi Memory is enabled.

Discrete I/O

Discrete I/O setup screens include:

- Inputs   - Outputs

Inputs

The Discrete Inputs screen displays discrete input assignments, including the input assignment address, polarity, and function. Only records with non-null values display.

Press the CLEAR softkey **C** to clear the entire table.

Press the UP and DOWN navigation keys to scroll up and down the screen in order to view all of the possible discrete input assignments.

To modify or add discrete inputs:

1. Press the UP and DOWN navigation keys to select (highlight) a discrete input.

2. Press the EDIT softkey ✏ to open the setup screen for editing an input assignment or press the INSERT softkey ▢ to open the setup screen to create a new input assignment.

    A. Enter the input assignment address. The input address is shown as [x.y.z] where x indicates the input location, y indicates the slot address of the I/O option, and z indicates the input position. The input address digits are:

        *   Location—The first digit represents whether the I/O is local (0) or remote (1–3).

        *   Slot Address—The second digit will always be a 1 for the IND560 internal I/O and a 0 for the remote I/O (ARM100 modules).

        *   Position—The third digit refers to the position (1–4) of the discrete input option (internal or remote) that is being assigned to a function.

    Valid address numbers are:

        *   Local—0.1.1, 0.1.2, 0.1.3, 0.1.4

        *   Remote #1—1.0.1, 1.0.2, 1.0.3, 1.0.4,

        *   Remote #2—2.0.1, 2.0.2, 2.0.3, 2.0.4,

        *   Remote #3—3.0.1, 3.0.2, 3.0.3, 3.0.4

    Examples:

        *   Address 0.1.1 = Local discrete board , position 1.

        *   Address 1.0.3 = Remote address #1, position 3.

    B. The inputs can be programmed to accept either a + True or − True polarity level as "ON". Use the Polarity selection box to select + True or − True.

    C. Use the Assignment selection box to select an input assignment. The new selections for the Fill-560 application include:

        *   Jog
        *   OK to weigh-in
        *   Weigh-in start
        *   NO key
        *   OK to weigh-out
        *   Weigh-out start
        *   OK key
        *   Silence alarm

    D. Other control inputs (from the standard IND560) that might also be used for control from a remote location include:

        *   ENTER key - acknowledges error conditions.

        *   Target Pause/Abort - pauses and aborts any cycle.

        *   Target Start/Resume - resumes any cycle after a pause.

    E. Press the OK softkey ✓ to accept the entry.

F.   Press the ESCAPE softkey $\boxed{\text{Esc}}$ to return to the Discrete Inputs screen.

To delete a discrete input:

With the input assignment highlighted (selected), press the DELETE softkey ✐.

Outputs

The Discrete Outputs screen displays discrete output assignments, including the output assignment address and function. Only records with non-null values display.

Press the CLEAR softkey $\mathbb{C}$ to clear the entire table.

Press the UP and DOWN navigation keys to scroll up and down the screen in order to view all of the possible discrete output assignments.

To modify or add discrete outputs:

1.   Press the UP and DOWN navigation keys to select (highlight) a discrete output.

2.   Press the EDIT softkey ✎ to open the setup screen for editing an output assignment or press the INSERT softkey ▯ to open the setup screen to create a new output assignment.

   A.   Enter the output assignment address. The output address is shown as [x.y.z] where x indicates the output location, y indicates the slot address of the I/O option, and z indicates the output position. The output address digits are:

   - Location—The first digit represents whether the I/O is local (0) or remote (1–3).
   - Slot Address—The second digit will always be a 1 for the IND560 internal I/O and a 0 for the remote I/O (ARM 100).
   - Position—The third digit refers to the position (1–4) of the discrete output option (internal or remote) that is being assigned to a function.

   Valid address numbers are:

   - Local—0.1.1, 0.1.2, 0.1.3, 0.1.4, 0.1.5, 0.1.6
   - Remote #1—1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6
   - Remote #2—2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.0.6
   - Remote #3—3.0.1, 3.0.2, 3.0.3, 3.0.4, 3.0.5, 3.0.6

   Examples:

   - Address 0.1.1 = Local discrete board , position 1.
   - Address 1.0.3 = Remote address #1, position 3.

B. When the Fill-560 application software is added, new selections for output assignments are added to the choices of the standard IND560. These new selections for the Fill-560 application are listed below.

- After Weigh Delay
- Alarm
- Auxiliary output
- Before Weigh Delay
- Complete: Cycles
- Complete: Weigh-in
- Complete: Weigh-out
- Holding
- Material 1
- Material 1 Fast Feed
- Material 1 Feed
- Material 2
- Material 2 Fast Feed
- Material 2 Feed

- Material 3
- Material 3 Fast Feed
- Material 3 Feed
- Material 4
- Material 4 Fast Feed
- Material 4 Feed
- Out of tolerance
- Ready
- Running
- Weigh-in Fast Feed
- Weigh-in Feed
- Weigh-out Fast Feed
- Weigh-out Feed

C. Press the OK softkey $\overset{OK}{\checkmark}$ to accept the entry.

D. Press the ESCAPE softkey ⌈Esc⌋ to return to the Discrete Outputs screen.

To delete a discrete output:

With the output assignment highlighted (selected), press the DELETE softkey ✐.

Pac

The Pac setup sub-branches include:

- Sequence
- General

- Timing
- Advanced

Sequence

The Sequence screen displays selections for the weigh-in and weigh-out cycles, the sequence mode, sequence tare and (if sequence tare is enabled) refill mode and refill tare.

Weigh-in

The weigh-in selection box provides two choices for the weigh-in cycle.

- None: no weigh-in cycle supported

- Blend/Fill: the weigh-in cycle will be either blend (if more than 1 material is selected) or fill (if only 1 material selected)

Weigh-out

The weigh-out selection box provides three choices for the weigh-out cycle.

- None: no weigh-out cycle is supported
- Dose: the weigh-out cycle will be a dose or dispensing operation
- Dump: the weigh-out cycle will be a dump (to empty)

Sequence Mode

This selection determines how the sequence will proceed between the weigh-in cycle and weigh-out cycle or between materials in a blend. Refer to Chapter 2, Operation; Special Features; Sequence Mode for an explanation. Choices are:

- Automatic
- Semi-automatic

Sequence Tare

This selection determines if the IND560fill will perform an automatic tare before starting the sequence or between materials of a blend. Normally this parameter will be enabled but if you have a blend weigh-in cycle and want to create the formula using additive gross weight values, this can be disabled.

Enter the selection box and select either Disabled or Enabled.

Refill Mode

This parameter is shown only if Dose is selected as the weigh-out cycle. In this case, the weigh-in cycle (blend or fill) must be selected as either automatic or manual. In automatic mode, the IND560fill controls the output signals for refilling the container. In manual mode, the IND560fill does not provide any control. If there is insufficient material in the supply vessel for the next dose, an operator message is displayed to prompt the operator to manually refill the supply vessel.

Enter the selection box and select either Automatic or Manual.

Refill Tare

This parameter is shown only if the Refill Mode (previous step) is selected as manual. In the case where the supply vessel for a dose is a movable IBC or tote and the operator is manually replacing it when it is empty, it is necessary that the IND560fill know the tare weight of the vessel to accurately determine the weight of the supply available for a dose. If this step is programmed as enabled, the operator will be prompted to enter the tare weight of the new container after it has been changed. If disabled, it is assumed the supply vessel is a hopper to tank that does not have a tare value.

Enter the selection box and select either Disabled or Enabled.

Timing

The Timing screen displays selections for the start delay, after weigh delay, after empty delay, weigh-in complete and weigh-out complete timers.

Start Delay

A start delay can be programmed to delay the start of the cycle after the START key has been pressed. The same delay value is used for both the weigh-in and weigh-out cycles and before each material in a blend. During this time, the material description, target value and target tolerances will be displayed for viewing by the operator and the system line will count down the remaining time delay.

Program the number of seconds for the start delay or enter 0 to start immediately. Values from 0 to 999 seconds may be entered. If a Start Delay is enabled, there is a Start Delay discrete output that turns "on" during the start delay time.

After Weigh Delay

An After Weigh Delay can be programmed to delay the tolerance test at the end of a weigh cycle. This could be used to allow pressure to equalize in a sealed vessel or to allow some extra settling time for unstable weigh vessels. During the delay, the system line will count down the remaining delay time.

Program the number of seconds for the After Weigh Delay or enter 0 to start the tolerance check immediately after turning the feed signal off. Values from 0 to 999 seconds may be entered. If an After Weigh Delay is enabled, there is an After Weigh Delay discrete output that turns "on" during the start delay time.

After Empty Delay

This parameter will be shown only when Dump or Dose is selected as the weigh-out cycle. The After Empty Delay timer is used only in the Dump cycle and starts when the gross weight on the scale falls below the Heel Weight value. (The Heel Weight parameter is entered on the Tolerance & Heel setup page). The weigh-out fast feed and weigh-out feed outputs remain "on" until the After Empty Delay times out then they turn "off". The combination of the After Empty Delay and Heel Weight provide control so that the weigh-out feeders don't run continuously when the weigh vessel does not completely empty during the Dump cycle. During the delay, the system line will count down the remaining delay time.

Program the number of seconds for the After Empty Delay or enter 0 to turn the weigh-out fast feed and weigh-out feed signals immediately when the gross weight falls below the Heel Weight value. Values from 0 to 999 seconds may be entered.

Weigh-in Complete

This parameter will be shown only when Automatic is selected as the sequence mode. The Weigh-in Complete timer is used only to designate an amount of time

that the Complete: Weigh-in output will be turned on after the completion of the weigh-in cycle. Programming a value into this timer does not put a physical pause into the sequence. Values of 0 to 99 seconds may be entered.

Weigh-out Complete

This parameter will be shown only when Dump or Dose is selected as the weigh-out cycle and Automatic is selected as the sequence mode. The Weigh-out Complete timer is used only to designate an amount of time that the Complete: Weigh-out output will be turned on after the completion of the weigh-in cycle. Programming a value into this timer does not put a physical pause into the sequence. Values of 0 to 99 seconds may be entered.

General

The General branch provides setup pages for:

- Materials
- Cycles
- Container Tare

- Interlocks
- Jog
- Tolerance & Heel

Materials

The Materials setup page provides selections for the number of materials in the Blend/Fill, the number of speeds for each material and the number of speeds for the dosing control.

Materials Weigh-in

If a single material Fill will be used as the weigh-in cycle, enter a value of "1". If multiple materials in a Blend cycle will be used, enter a value of "2", "3", or "4". This parameter determines how many material speeds will be prompted next.

#1 Feed Speeds

Select the feed control for material #1 as either "1" for single-speed control or "2" for two-speed control. If one-speed is selected, a fine feed value will not be prompted in the active target record or formula. If one-speed is selected, only the Weigh-in Feed signal will be turned on during the weigh-in cycle - the Weigh-in Fast Feed signal is not used. If two-speed control is selected, both the Weigh-in Fast Feed and the Weigh-in Feed control signals will be used.

#2 Feed Speeds

Select the feed control for material #2 as either "1" for single-speed control or "2" for two-speed control. If one-speed is selected, a fine feed value will not be prompted in the active formula record. If one-speed is selected, only the Weigh-in Feed signal will be turned on during the weigh-in cycle - the Weigh-in Fast Feed signal is not used. If two-speed control is selected, both the Weigh-in Fast Feed and the Weigh-in Feed control signals will be used.

#3 Feed Speeds

Select the feed control for material #3 as either "1" for single-speed control or "2" for two-speed control. If one-speed is selected, a fine feed value will not be prompted in the active formula record. If one-speed is selected, only the Weigh-in Feed signal will be turned on during the weigh-in cycle - the Weigh-in Fast Feed signal is not used. If two-speed control is selected, both the Weigh-in Fast Feed and the Weigh-in Feed control signals will be used.

#4 Feed Speeds

Select the feed control for material #4 as either "1" for single-speed control or "2" for two-speed control. If one-speed is selected, a fine feed value will not be prompted in the active formula record. If one-speed is selected, only the Weigh-in Feed signal will be turned on during the weigh-in cycle - the Weigh-in Fast Feed signal is not used. If two-speed control is selected, both the Weigh-in Fast Feed and the Weigh-in Feed control signals will be used.

Dose Speeds

This parameter is shown only when Dose is selected as the weigh-out cycle. Select the number of speeds of control for the dose cycle as either "1" for single-speed control or "2" for two-speed control. If single-speed is selected, a fine feed value will not be prompted in the active weigh-out target record and only the Weigh-out Feed signal will be turned on during the weigh-out cycle - the Weigh-out Fast Feed signal is not used. If two-speed control is selected, both the Weigh-out Fast Feed and the Weigh-out Feed control signals will be used.

Cycles

The Cycles setup page provides a selection to enable or disable tracking based on the number of cycles run. One complete "cycle" is determined based on the weigh-in and weigh-out cycles selected. Refer to Chapter 2, Operation; Features; Number of Cycles for more details on what determines a "cycle".

Track Cycles

If tracking of cycles is enabled, the Number of Cycles softkey **n** must be added to the Home page to program the number of cycles to be tracked.

Enter the selection box and select either Disabled or Enabled.

Container Tare

Parameters for the container tare table are shown on this setup page.

Container Tare

The container tare table can be disabled, enabled or programmed as linked. In the linked mode, a container tare record is automatically recalled when a target ID is recalled.

Enter the selection box and select Disabled, Enabled or Linked. Linked is only available for a Fill weigh-in cycle.

Description

The Description parameter will be shown only if the container tare table is enabled or linked. This choice determines if the description field will be shown when the container tare table is viewed.

Enter the selection box and select either Disabled or Enabled.

Totalization

The Totalization parameter will be shown only if the container tare table is enabled or linked. This choice determines if a total register with counter will be active for each of the container tare records. If activated, these fields can be viewed in the active record and edited in setup.

Enter the selection box and select either Disabled or Enabled.

To clear all Container Tare Table records:

Press the CLEAR softkey $\mathbf{C}$ to reset the table.

To view Container Tare Table records:

1. Press the VIEW TABLE softkey. The Container Tare Search screen displays.

2. Use the selection boxes and associated fields to enter specific search information to limit the search, or do not enter any search limits to view all Container Tare Table information.

3. Press the START SEARCH softkey. The Container Tare Search View screen displays with the search results. Only records with non-null values display. Records are ordered by ID, with the lowest ID number shown first.

4. Press the UP, DOWN, LEFT, and RIGHT navigation keys to scroll up and down and across the screen in order to view all data and all records listed.

To modify or add Container Tare Table records:

1. Press the UP and DOWN navigation keys to select (highlight) a record in the table.

2. Press the EDIT softkey to open the setup screen for editing a record or press the INSERT softkey to open the setup screen to create a new table record.

   A. Press the UP and DOWN navigation keys to move the focus to the field name to be edited or inserted.

   B. Press the ENTER key to select a field value to edit or insert. The alpha keys display.

   C. Use the alpha keys and the numeric keypad to edit or enter the desired value.

   D. When focus is inside the tare entry box, press the TARE softkey →T← to capture the current live scale weight and unit, which will display in the Tare field.

   E. Press the OK softkey to accept the modifications or additions to the Tare Table.

F.   Press the ESCAPE softkey [Esc] to return to the Tare Search View screen without saving modifications or additions.

To delete a single Container Tare Table record:

Press the DELETE softkey ✎ to delete a tare record in the list.

To print the displayed Container Tare Table records:

Press the PRINT softkey 🖶 to print the list.

To exit the edit screen:

Press the EXIT softkey ↖ to return to the Container Tare Search screen.

Interlocks

Two interlock selections provide additional control for the weigh-in and weigh-out cycles.

OK to Weigh-in

If enabled, the OK to Weigh-in discrete input must be "on" in order to operate the weigh-in cycle. If it is disabled, an error display is shown and the sequence is paused.

Enter the selection box and select either Disabled or Enabled.

OK to Weigh-out

If enabled, the OK to Weigh-out discrete input must be "on" in order to operate the weigh-out cycle. If it is disabled, an error display is shown and the sequence is paused.

Enter the selection box and select either Disabled or Enabled.

Jog

This setup page allows programming of how the jog feature will operate. It includes selecting the mode, the on pulse time and the off pause time.

Mode

If enabled, the jog feature can operate in the manual or automatic mode. In manual mode, one jog cycle is completed each time the jog is initiated. In automatic mode, when a weight is below the low tolerance range, the jog function will be initiated automatically and repeat until the weight is within tolerance.

Enter the selection box and select Disabled, Automatic or Manual.

Pulse Time (on)

This parameter controls how long the jog pulse will be turned on. This value should be short enough so that one cycle does not take the weight through the complete tolerance range and create an overfill condition.

Enter the data entry box and enter a time value from 0.1 to 9.9 seconds.

Pause Time (off)

This parameter controls how long of a pause there will be between jog pulses. In manual jog, the jog key will not work again until this time has expired. The value should be short enough so that it does not delay the cycle but long enough to reach no motion so a tolerance check can be made.

Enter the data entry box and enter a time value from 0.1 to 9.9 seconds.

Tolerance & Heel

All parameters related to tolerance and heel programming are shown on this page including enabling a zero tolerance check, the zero tolerance value and the heel weight.

Manual Accept

The IND560fill can be programmed to allow the operator to determine if an out of tolerance weight condition is to be accepted or not. If Manual Accept is disabled, the cycle will automatically abort when an out of tolerance condition is determined. If enabled, an out of tolerance display is shown and the operator must either accept the out of tolerance weight or reject it. If accepted, the cycle continues. If rejected, the cycle will abort.

Note that if auto jog is enabled, it will operate before the manual accept display is shown. If manual jog or overfill adjustment is enabled, the operator has a chance to adjust the weight to bring the weight within tolerance range before having to accept an out of tolerance weight.

Enter the selection box and select either Disabled or Enabled.

Zero Tolerance Check

This parameter disables or enables the zero tolerance check function. It is typically used in applications where there is no tare value present such as a tank or hopper to make sure the vessel is empty (within the zero tolerance value) before beginning a weigh-in cycle.

Enter the selection box and select either Disabled or Enabled.

Zero Tolerance Value

This step is shown only if the Zero Tolerance Check parameter is enabled.

Enter the data entry box and enter a weight value from 0 to scale capacity (in primary units).

Heel Weight

This setup step is shown only when the weigh-out cycle is selected as either Dose or Dump. It is used to indicate the amount of material that might remain in the

weigh vessel when it is considered empty. For example, material left below the level of the outlet in a tank or stuck to the sides of a hopper.

When Dump is selected as the weigh-out cycle, and the gross weight falls below this value, the After Empty Delay timer starts. After the timer completes, the outputs are turned off. When Dose is selected as the weigh-out cycle, this value is added to the dose target value to determine if there is sufficient material for another dose cycle.

Enter the data entry box and enter a value between "0" and scale capacity as the heel value.

Advanced

In this sub-branch of the Pac setup, the more advanced features of the Fill-560 can be programmed such as auto spill adjustment, learn mode and the auxiliary output.

Fill Adjustment

Setup parameters for manual overfill adjustment and auto spill adjustment are located on this page.

Overfill Adjustment

The IND560fill can be programmed to allow manual adjustment of an overfill condition. If this step is enabled, when an out of tolerance condition exists above the upper tolerance limit, the operator will be prompted to make a manual adjustment to the material. After the adjustment, the operator must acknowledge completion of the task and the tolerance is tested again. If disabled, an out of tolerance condition will occur when the final weight is beyond the upper tolerance limit.

Enter the selection box and select either Disabled or Enabled.

Auto Spill Adjustment

This feature allows the IND560fill to make adjustments to the spill value after running a certain number of cycles to make the final weight more accurate compared to the target.

Enter the selection box and select either Disabled or Enabled.

Cycles Averaged

If Auto Spill Adjustment has been enabled, this parameter determines how many cycles should be averaged to determine the adjustment to the spill value. After an adjustment, this number of cycles must be run again before another adjustment is made.

Enter the data entry box and enter a value between "1" and "9" as the number of successful cycles to be averaged for a spill adjustment.

Adjustment Factor

If Auto Spill Adjustment has been enabled, this parameter determines what percentage of the calculated error will be applied to the spill value. For example, if the error is determined to be 0.1 kg after averaging 3 cycles, and the adjustment factor was programmed as 50%, then the spill value would be adjusted by 50% of the error or 0.05 kg.

Enter the data entry box and program a value between "1" and "99" percent as the adjustment factor for the spill adjustment.

Update Table

If Auto Spill Adjustment has been enabled, this parameter determines whether the adjustments made to the spill value will be saved to just the active record or also to the Target Table. Select Enabled to save adjusted spill values into the Target Table. If Disabled is selected, the adjusted spill values are only saved in the active target record.

Learn Mode

On this setup page, parameters that affect the Lean mode of the IND560fill are programmed, such as enabling the Learn feature, the test point and the feed time.

Learn Mode

Enabling the Learn mode in the IND560fill allows the terminal to "learn" the best possible fine feed and spill values (or spill value in a single-speed control). In order to operate, the fine feed and spill values in the active record must be "0" and the Learn mode must be enabled.

Enter the selection box and select either Disabled or Enabled.

Test Point

If the Learn mode is enabled, this parameter determines at what point in the weigh-in or weigh-out cycle the learning process will start. If 30% is entered, the learn process will start at 30% of the target weight.

Enter the entry box and program a value from 10% to 90% in 10% increments.

Feed Time

When the Learn mode is enabled, this parameter determines how long the feed output will run when turned back on (to equalize flow) before turning off again to learn the new spill value. The value entered here should be long enough to realize a constant flow at the feed rate but not long enough to allow the weight to approach the target value.

Enter the entry box and program a value from 0.1 to 9.9 seconds in 0.1 second intervals.

Update Table

If Learn Mode has been enabled, this parameter determines if these "learned" values will be saved to just the active record or also to the Target Table. These new values will be saved back into the Target Table if this parameter is Enabled. If Disabled is selected, the new "learned" values are only saved in the active target record.

Auxiliary Out

This setup page provides access to the programming parameters for the Auxiliary output such as the method of operation, the active cycle, the trigger on weight and either the weight limit or the time to turn off. The Auxiliary output compares the gross weight of the scale to these values - never the net weight.

Operation

If enabled, the Auxiliary output can operate based on time or on the weight being within a certain weight range. Depending upon the selection to this step, either the Time (off) parameter or the Weight Limit (off) parameter will be displayed below.

Enter the selection box and select Disabled, Time or Weight Range for the operating mode of the Auxiliary output.

Active Cycle

When enabled, the Auxiliary output can be programmed to operate in either the weigh-in or the weigh-out cycle but not both.

Enter the selection box and choose either the Weigh-in cycle or the Weigh-out cycle.

Trigger Weight (On)

This is the weight value that will trigger the start of the Auxiliary output.

Enter the data entry box and enter a value between "0" and scale capacity as the trigger point to turn on the Auxiliary output.

Time (Off)

If the operation was selected as Timed, this value will determine how long the Auxiliary output will remain on.

Enter the data entry box and enter a value between "0" and "999" seconds.

Weight Limit (Off)

If the operation was selected as Weight Range, this value will determine the weight that will turn the Auxiliary output off. When used in a weigh-in cycle, this value must be greater than the trigger weight. If used in a weigh-out cycle, this value must be less than the trigger weight.

Enter the data entry box and enter a value between "0" and scale capacity as the trigger point to turn off the Auxiliary output.

Assign I/O

This sub-branch provides automatic assignment of the discrete I/O. It will override any existing discrete I/O assignments and assign the discrete I/O per Table 3-1. A warning page is shown as an extra precaution when this sub-branch is accessed. When the warning page is shown, press the ESCAPE [Esc] softkey to escape without making any assignments or press the OK softkey $\overset{OK}{\diagdown}$ to assign the discrete I/O per Table 3-1.

After this step, these assignments can be edited or added to in the Discrete I/O block under the Applications branch. This step just provides a beginning point for the Fill-560. These assignments assume that the internal discrete I/O option is present.

Table 3-1: Discrete I/O Assignments

Inputs		Outputs	
0.1.1	Weigh-in Start	0.1.1	Weigh-in Fast Feed
0.1.2	Weigh-out Start	0.1.2	Weigh-in Feed
0.1.3	Jog	0.1.3	Weigh-out Fast Feed
0.1.4	Silence Alarm	0.1.4	Weigh-out Feed
		0.1.5	Alarm
		0.1.6	Tolerance - OK

```
⊟--┬- Terminal
  |---- Device
  |---- Display
  ⊟--┬- Region
  |  |--- Format Time & Date
  |  |--- Set Time & Date
  |  └--- Language
  |---- Transaction Counter
  |---- Users
  |---- Softkeys
  └---- Reset
```
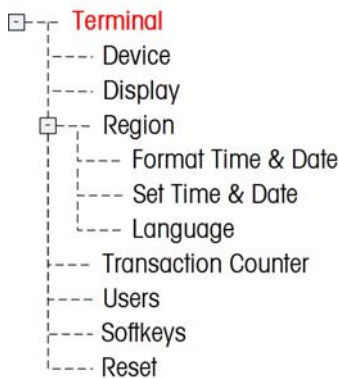
Terminal

The IND560fill adds new selections to the Softkey sub-branch of setup. This is the only addition in the Terminal branch of the setup menu tree.

• Softkeys

Softkeys

Add or rearrange the softkeys on the terminal's main menu on the softkeys setup screen. Appendix E, **Softkey Mapping**, in the standard IND560 Technical manual provides a more detailed explanation of the softkeys.

When the softkeys setup screen opens, focus is on the softkey position numbers located above the icons.

Two softkeys, INFORMATION RECALL $\mathcal{D}$ and SETUP $\overset{\diagup}{\diagdown}\mathcal{D}$, are automatically placed in the softkey setup. The default setting for the placement of these softkeys is in positions 9 and 10.

The INFORMATION RECALL and SETUP softkeys must always be assigned a position. They can be moved or multiple copies of them can exist but there must always be at least one appearance of them. They cannot be deleted. All other softkeys may be added or deleted as desired.

Adding a softkey to the home pages of the terminal does not automatically enable the softkey's function. Most softkeys must also be enabled in setup too. For instance, adding the CYCLE softkey **n** does not automatically enable cycle tracking — tracking cycles must also be enabled in the menu tree of setup.

New softkey assignments that are added when the IND560fill application software is installed include:

- Container Tare
- Target Weigh-in
- Container Tare Table
- Target Weigh-out
- Formula
- Weigh-in Start
- Number of Cycles
- Weigh-out Start

Press the UP, DOWN, LEFT and RIGHT navigation keys to navigate among the softkey position numbers. Softkeys can be added, removed, and positioned using the following softkeys:

✏	**Edit**	Changes the softkey in the selected position to another softkey or to none, which leaves the softkey position blank. Editing a blank position does not move the position of following softkeys.
📄	**Insert**	Inserts a softkey into a selected position. All other softkeys located at or after that position increase position number by one.
◇	**Delete**	Deletes a softkey in a selected position. All other softkeys located at or after that position decrease position number by one.
C	**Clear**	Clears all softkey assignments except the INFORMATION RECALL 🔍 and SETUP ⬦ softkeys. They will be shown in positions 1 and 2 respectively.
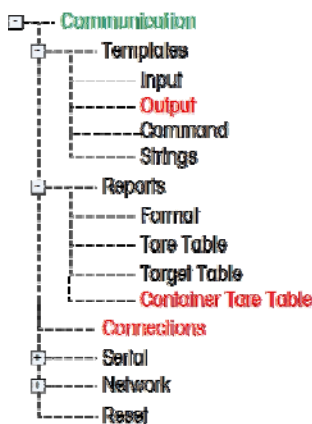
Communication

The IND560fill adds new shared data fields that can be added to output templates, a Container Tare Table report, an Action log output and new selections to the trigger parameter in the Connections sub-branch of setup. Refer to the standard IND560 terminal Technical Manual for details on all other setup information for the Communication branch of setup.

- Output Templates
- Container Tare Table Report
- Connections

Templates

New data fields are available to be transmitted in the IND560fill application software version. These shared data fields can be added to templates and then triggered to print at the end of each weigh-in and weigh-out cycles.

Output

The new shared data fields that are added with the Fill-560 application software are listed below in Table 3-2, Table 3-3, Table 3-4, Table 3-5 and Table 3-6. In these tables, A/N indicates an alphanumeric field.

Table 3-2: Miscellaneous Shared Data Fields

IND560 Data Field	SDName	Length
Cycle start time	ar0110	12 A/N
Cycle start date	ar0111	12 A/N
Current cycle number	ap0153	3 A/N
Total number of cycles	ax0131	3 A/N
Total weight for cycles	af0170	Note 1
Cycle total weight unit	ce0103	5 A/N
Complete: Cycles	as0128	1 A/N
Complete: Weigh-in	as0129	1 A/N
Complete: Weigh-out	as0130	1 A/N

Table 3-3: Fill Cycle Shared Data Fields

IND560 Data Field	SDName	Length
Fill material description	ar0106	20 A/N
Fill target weight	af0161	Note 1
Fill weight unit	ap0136	5 A/N
Fill +tolerance weight	af0164	Note 1
Fill -tolerance weight	af0165	Note 1
Fill +tolerance (%)	af0166	Note 2
Fill -tolerance (%)	af0167	Note 2
Active container tare description	ar0107	20 A/N
Out of tolerance flag	ar0112	1 A/N

Table 3-4: Blend Shared Data Fields

IND560 Data Field	SDName	Length
Material #1 description	ar0101	20 A/N
Material #2 description	ar0102	20 A/N
Material #3 description	ar0103	20 A/N
Material #4 description	ar0104	20 A/N
Material #1 target	af0111	Note 1

IND560 Data Field	SDName	Length
Material #2 target	af0121	Note 1
Material #3 target	af0131	Note 1
Material #4 target	af0141	Note 1
Material #1 +tolerance weight	af0114	Note 1
Material #2 +tolerance weight	af0124	Note 1
Material #3 +tolerance weight	af0134	Note 1
Material #4 +tolerance weight	af0144	Note 1
Material #1 -tolerance weight	af0115	Note 1
Material #2 -tolerance weight	af0125	Note 1
Material #3 -tolerance weight	af0135	Note 1
Material #4 -tolerance weight	af0145	Note 1
Material #1 +tolerance (%)	af0116	Note 2
Material #2 +tolerance (%)	af0126	Note 2
Material #3 +tolerance (%)	af0136	Note 2
Material #4 +tolerance (%)	af0146	Note 2
Material #1 -tolerance (%)	af0117	Note 2
Material #2 -tolerance (%)	af0127	Note 2
Material #3 -tolerance (%)	af0137	Note 2
Material #4 -tolerance (%)	af0147	Note 2
Material #1 fill variance	af0120	Note 1
Material #2 fill variance	af0130	Note 1
Material #3 fill variance	af0140	Note 1
Material #4 fill variance	af0150	Note 1
Material #1 actual fill weight	af0119	Note 1
Material #2 actual fill weight	af0129	Note 1
Material #3 actual fill weight	af0139	Note 1
Material #4 actual fill weight	af0149	Note 1
Material #1 out of tolerance flag	ar0112	1 A/N
Material #2 out of tolerance flag	ar0113	1 A/N
Material #3 out of tolerance flag	ar0114	1 A/N
Material #4 out of tolerance flag	ar0115	1 A/N
Material 1 Fast Feed	as0131	1 A/N
Material 1 Feed	as0132	1 A/N

IND560 Data Field	SDName	Length
Material 2 Fast Feed	as0133	1 A/N
Material 2 Feed	as0134	1 A/N
Material 3 Fast Feed	as0135	1 A/N
Material 3 Feed	as0136	1 A/N
Material 4 Fast Feed	as0137	1 A/N
Material 4 Feed	as0138	1 A/N
Total formula weight	af0160	Note 1
Actual total formula weight	af0176	Note 1
Total formula variance	af0177	Note 1
Formula weight units	ap0111	5 A/N

Table 3-5: Dose Shared Data Fields

IND560 Data Field	SDName	Length
Dose material description	ar0105	20 A/N
Dose target	af0151	Note 1
Dose weight unit	ap0131	5 A/N
Dose +tolerance weight	af0154	Note 1
Dose -tolerance weight	af0155	Note 1
Dose +tolerance (%)	af0156	Note 2
Dose -tolerance (%)	af0157	Note 2
Out of tolerance flag	ar0112	1 A/N
Refill tare value	af0168	Note 1

Table 3-6: Dump Shared Data Fields

IND560 Data Field	SDName	Length
Gross weight at start of dump	af0174	Note 1
Final gross weight	wt0101	12 A/N
Net weight dumped	af0175	Note 1
Weight units	wt0103	3 A/N

Note 1: These values should be trimmed with the justification feature of the template. They are numeric values with irregular decimal positions.

Note 2: These values should be trimmed with the justification feature of the template. A maximum of three decimal positions are available.

Reports

The Fill-560 adds a Container Tare Table to the reports branch. The fields to be printed when a Container Tare Table report is generated are selected.

Container Tare Table

Use this setup screen to select which fields in the Container Tare Table will print when a Container Tare Table Report is printed from the REPORTS softkey ⬚. More details are provided in Appendix C, Reports. The ID field is always printed; it cannot be disabled. Fields that can be enabled or disabled include:

- Tare
- Description
- Minimum Tare

- Maximum Tare
- n (number of transactions)
- Total (accumulated total tare weights)

◄ If the Container Tare Table is disabled, this branch cannot be expanded.

Connections

The IND560fill application software adds new triggers that can be used to automatically send data at the end of a weigh-in cycle, the end of a weigh-out cycle or when the number of cycles has been reached. Each of these outputs must be programmed separately by creating a demand output to the desired port and then selecting one of the new triggers.

◄ Beginning with IND560 firmware version 3.02, the Fill-560 specific triggers will also automatically log an Alibi Memory transaction, if Alibi Memory is enabled.

There is also a new assignment added to print each record of the Action Log as they occur. This is accessed by programming an assignment of Action Log Output. Each time a new record is added to the Action log, the same data will be transmitted out the selected port. Refer to Appendix A for more details of the Action Log.

The connections setup screen shows the physical port connections that have been programmed for the terminal. This includes the standard serial port COM1, optional COM2 and COM3 serial ports, the optional Ethernet ports and the EPrint port. The optional ports are only available if the option has been installed. This screen defines what will happen when a demand print occurs or when a custom trigger is activated. If no connections are programmed, nothing will be available on the COM or Ethernet ports.

The following functions are available via softkeys on the connections screen:

- Editing
- Deleting
- Clearing
- Inserting

To edit or insert connection assignments:

1. Press the UP and DOWN navigation keys to select (highlight) a connection assignment in the list.

2. Press the EDIT softkey ✎ to open the setup screen for editing a specific connection assignment or press the INSERT softkey ☐ to create a new connection assignment.

   Parameters that are configured in the connections screen include the port and the type of input or output assignment. Depending upon these selections the remaining fields will vary but could include the trigger, the template to be sent, and if checksum will be sent or not.

3. Press the UP and DOWN navigation keys to move the focus to the fields to be edited or added.

4. Press the ENTER key to select a field to edit or add.

5. Use the selection boxes for each field to select the port, associated assignment, and desired settings for the connection. New choices added with the IND560fill are:

Trigger	**Assignment**
• Blend / Fill	• Action Log Output
• Cycle	
• Dose	
• Dump	

◄ Not all choices are available for all connection assignments. Only valid choices are shown in the selection boxes.

   The Trigger field displays only when the assignment selection is Demand Output. The Blend/Fill trigger will initiate a data output at the completion of the weigh-in cycle. The Cycle trigger will initiate a data output when the message [xx cycles complete] is acknowledged with the ENTER key. The Dose trigger will initiate a data output at the completion of a dose weigh-out cycle and the Dump trigger will initiate a data output at the completion of a dump weigh-out cycle. If none of these triggers are used for a connection, no automatic prints will occur.

   Any of the output templates can be used for the Fill-560 demand outputs.

   If usage conflicts occur, an error message displays.

6. Press the OK softkey ⁰ᴷ to accept the connection parameters and return to the Connections setup screen when editing or adding the connection assignment is complete.

7. Press the ESCAPE softkey [Esc] to discard the connection parameters and return to the Connections setup screen without saving the connection assignment edits or additions.

   Press the DELETE softkey ✐ to delete a connection assignment from the Connections list.

Press the CLEAR softkey **C** to clear all connection assignments in the Connections list.

Press the EXIT softkey ↖ to return to the menu tree.

⊞ - Maintenance

Maintenance

The IND560fill adds no new setup parameters or selections in the Maintenance branch. Refer to the standard IND560 terminal **Technical Manual** for setup information.

Fill / None Sequence

This chapter covers the following items in the Fill / None Sequence:

- Overview
- Softkey Icons
- Configuration Suggestions

This chapter provides information about the Fill / None Sequence. It includes an overview of the sequence and the softkeys used, and a discussion of the configuration options.

Overview

In this sequence, an empty container is usually placed on a weighing platform and then filled while on the platform. This is typically a simple sequence that uses a one- or two-speed feeding mechanism to fill the container. The filling of the container is controlled by the IND560, but replenishing of the supply is not.

Weigh-In: One- or two-speed fill

Weigh-Out: None

Sequence:

1. Place container on the scale platform.
2. Press Weigh-in Start.
3. Container tare is used (if enabled) and/or tare weight to net zero.
4. Container is filled to target.
5. Fill results are printed.
6. Container is removed.

Features that might be used to enhance the performance of this sequence:

- Timing intervals
- Tracking cycles
- Container tares
- OK to weigh-in interlock

- Auto jog
- Fill adjustments
- Learn mode
- Auxiliary output

Softkey Icons

The following softkeys can be added to the Home page of the IND560 to provide access to features used in this sequence.

Softkey	Function
⊟	**Container Tare Active Record** – The Active Container Tare provides a view of the container tare values that will be used in the fill cycle. The values shown here can be selected from the Container Tare Table or entered manually by the operator. This includes either a tare value (which will be used in the process) or a tare range (that is used to confirm the current container is within a predetermined range. Changes to these values do not impact the Container Tare Table.
⬦	**Container Tare Table** – The container tare table contains up to 100 container tare records. Each record has an ID, tare value, minimum and maximum tare values, and a description. In addition, each record is associated with an individual accumulator and consecutive number that tracks the number of times the container has been used.
n	**Number of Cycles** – Allows programming of a certain number of fill cycles before an operator message is shown indicating the number of cycles is complete.
⊕	**Target Weigh-in Active Record** – The Active Fill Target provides a view of the target values that will be used in the fill cycle. The values shown here can be selected from the Target Table or entered manually by the operator. Changes to these values do not impact the Target Table.
⬇	**Weigh-in Start (Fill)** – This softkey starts the fill cycle.

Configuration Suggestions

Suggested configuration selections associated with the Fill / None sequence of the IND560fill are described in this section. Comments are provided to help guide in making a decision regarding a specific setup parameter. For a complete listing and explanation of all setup parameters for the IND560fill, refer to Chapter 3.

Sub-Branch	Function	Selection	Comments
		Sequence	
	Weigh-in	Blend / Fill	
	Weigh-out	None	
	Sequence Mode	Automatic	Semi-automatic mode requires OK softkey to be pressed at the end of a cycle.
	Sequence Tare	Enabled	This enables the terminal to control the tare process using a container tare record or an automatic tare.

Sub-Branch	Function	Selection	Comments
	Timing		
	Start Delay	0 sec	Program a time delay only if required.
	After Weigh Delay	0 sec	Program a time delay only if required.
	Weigh-in Complete	?? sec	When running in Automatic sequence mode, program this field with the amount of time the Complete: Weigh-in output should remain "on" after the Fill cycle completes.
	General		
Materials	Materials Weigh-in	1	If multiple materials are selected, the cycle is a blend and not a fill.
	#1 Feed Speeds	2	Select 1 if only a single-speed filling control is required.
Cycles	Track Cycles	Disabled	Enable only if cycles will be tracked.
Container Tare	Container Tare	Disabled	Select "Enable" if the operation requires the use of the Container Tare Table. Select "Linked" if a container tare record is to be linked to a target table record.
Interlocks	OK to Weigh-in	Disabled	Enable only if this signal will be used.
Jog	Mode	Automatic	Manual jog may be used if desired.
	Pulse Time (On)	?? seconds	Enter as needed for specific material.
	Pause Time (Off)	?? seconds	Enter as needed for specific material.
Tolerance & Heel	Manual Accept	Disabled	Enable only if the operator is to make the tolerance acceptance decision.
	Zero Tolerance Check	Disabled	Normally not used. Enable this only if a stored container tare value (not the minimum and maximum values) will be used to check for a correct container on the scale.
	Advanced		
Fill Adjustment	Overfill Adjustment	Disabled	Enable only when the operator is to make manual adjustments to an overfill condition.
	Auto Spill Adjustment	Enabled	
	Cycles Averaged	3	Decrease or increase this number as required.

Sub-Branch	Function	Selection	Comments
	Adjustment Factor	65%	Reduce this number to make smaller adjustments or increase to make larger adjustments.
	Update Table	Enabled	Enable when the adjusted spill value should be saved back into the Target Table. "Disabled" saves the new value in the active record only.
Learn Mode	Learn Mode	Enabled	
	Test Point	40 %	Adjust this value as necessary.
	Feed Time	?? seconds	Program as needed for material used.
	Update Table	Enabled	Enable when the "learned" values should be saved back into the Target Table. "Disabled" saves the new values in the active record only.
Auxiliary Output	Operation	Disabled	Enable only when required.

Required Discrete Outputs

The following discrete outputs are required for this sequence and must be assigned in the Application > Discrete I/O > Outputs sub-branch of the menu tree and then connected for external control. Other input and output functions may be assigned and connected as required.

Output	Operation
Weigh-in Fast Feed	This output is not used in a one-speed control system. Turns "on" during the faster speed feed of a two-speed control system.
Weigh-in Feed	Turns "on" for the feed cycle of a one-speed control. In a two-speed control system this output turns "on" during the slower feed.

Optional I/O

All of the required operator controls are automatically provided by the IND560fill terminal with its softkey icons and keypad. The following discrete inputs are not duplicated on the IND560fill keypad and can be assigned in the Application > Discrete I/O > Inputs sub-branch of the menu tree then connected and used when required by the application.

Input	Operation
Silence Alarm	Turns the alarm output off.
OK to weigh-in	An input signal used to Indicate it is OK to begin and continue the weigh-in cycle.

Additional output signals are available to provide additional information and control during the sequence. The following discrete outputs can be assigned in the Application > Discrete I/O > Outputs sub-branch of the menu tree then connected and used when required by the application.

Output	Operation
After Weigh Delay	When "on", indicates the after weigh delay timer is counting down.
Alarm	Signals an alarm condition such as cycle aborted.
Auxiliary output	Used as a separate output control signal based on weight or time.
Ready	When this status output is "on", it indicates the system is ready and a new cycle can begin. Only one of the three status outputs will be on at one time. If this output is not "on", a weigh-in or weigh-out cycle cannot be started.
Running	When this status output is "on", it indicates a sequence is running.
Holding	When this status output is "on", it indicates the sequence is in a holding state or a paused state.
Out of tolerance	Indicates the actual weight is not within the programmed tolerances of the target weight. This output is only active during the tolerance check portion of the sequence.
Start Delay	When "on", indicates the start delay timer is counting down.
Complete: Weigh-in	In Semi-automatic sequence mode, output is "on" when a sequence is Holding until operator presses OK. In Automatic sequence mode, output is "on" for the amount of time programmed in the Weigh-in Complete timer.

Chapter 5.0
Fill / Dump Sequence

This chapter covers the following items in the Fill / Dump Sequence:

- Overview
- Softkey Icons
- Configuration Suggestions

This chapter provides information about the Fill / Dump Sequence. It includes an overview of the sequence of actions and the softkeys used, and a discussion of the configuration options.
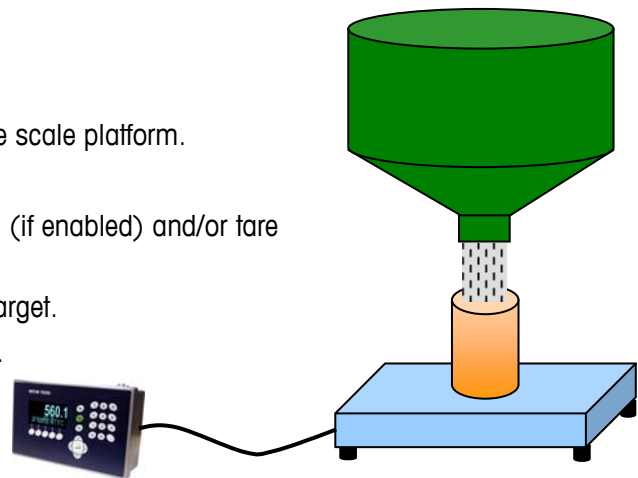
Overview

The Fill / Dump cycle is used with a fixed hopper or vessel that will hold the material. This hopper or vessel is the scale. The hopper will be filled to a target value, and then the contents dumped until the vessel is completely empty. Both the filling and dumping of the material is controlled by the IND560.

Weigh-In: One- or two-speed fill into the weigh vessel

Weigh-Out: Single speed, dump to empty

Sequence:

1. Press Weigh-in Start.
2. Weight is tared to net zero.
3. Vessel is filled to target.
4. Fill results are printed.
5. Press Weigh-out Start.
6. Vessel is emptied.
7. Fill results are printed.

Features that might be used to enhance the performance of this sequence:

- Timing intervals
- Tracking cycles
- Container tares
- OK to weigh-in interlock
- Zero tolerance check
- Heel weight

- Auto jog
- Fill adjustments
- Learn mode
- Auxiliary output
- Tolerance checking
- OK to weigh-out interlock

Softkey Icons

The following softkeys can be added to the Home page of the IND560 to provide access to features used in this sequence.

Softkey	Function
n	**Number of Cycles** – Allows programming for a certain number of Fill/Dump sequences to be completed before an operator message is shown indicating the number of cycles is complete.
	Target Weigh-in Active Record – The Active Weigh-in Target provides a view of the target values that will be used in the fill cycle. The values shown here can be selected from the Target Table or entered manually by the operator.
	Start Weigh-in – This softkey starts the weigh-in process and fills the weigh vessel to the weigh-in target value in the net mode.
	Start Weigh-out – After the weigh-in process has been completed, the contents of the vessel / container may be completely emptied (dump to empty) by pressing this softkey.

Configuration Options

Suggested configuration selections associated with the Fill / Dose sequence of the IND560fill are described in this section. Comments are provided to help guide in making a decision regarding a specific setup parameter. For a complete listing and explanation of all setup parameters for the IND560fill, refer to Chapter 3.

Sub-Block	Function	Selection	Comments
Sequence			
	Weigh-in	Blend / Fill	
	Weigh-out	Dose	
	Sequence Mode	Automatic	If Semi-Automatic is selected, manual acknowledgement is required between the weigh-in and weigh-out cycles.
	Sequence Tare	Enabled	This enables the terminal to control the tare process using an automatic tare.
Timing			
	Start Delay	0 seconds	Program a time delay only if required.
	After Weigh Delay	0 seconds	Program a time delay only if required.

Sub-Block	Function	Selection	Comments
	After Empty Delay	?? seconds	Program the amount of time the weigh-out signals should remain "on" after the gross weight reaches the programmed heel weight value.
	Weigh-in Complete	?? seconds	When running in Automatic sequence mode, program this field with the amount of time the Complete: Weigh-in output should remain "on" after the Fill cycle completes
	Weigh-out Complete	?? seconds	When running in Automatic sequence mode, program this field with the amount of time the Complete: Weigh-out output should remain "on" after the Dump cycle completes.
General			
Materials	Materials Weigh-in	1	If multiple materials are selected, the cycle is a blend and not a fill.
	#1 Feed Speeds	2	Select 1 if only a single-speed filling control is required.
Cycles	Track Cycles	Disabled	Enable only if cycles will be tracked.
Container Tare	Container Tare	Disabled	Container tare should not be used in this sequence.
Interlocks	OK to Weigh-in	Disabled	Enable only if this signal will be used.
	OK to Weigh-out	Disabled	Enable only if this signal will be used.
Jog	Mode	Automatic	Manual jog may be used if desired.
	Pulse Time (On)	2 seconds	Enter as needed for specific material.
	Pause Time (Off)	2 seconds	Enter as needed for specific material.
Tolerance & Heel	Manual Accept	Disabled	Enable only if the operator is to make the tolerance acceptance decision.
	Zero Tolerance Check	Disabled	Enable this if the operation requires the vessel to be within a tolerance value near zero before beginning the filling operation. If this is the case, the Sequence tare should be disabled.
	Heel Weight	?? (primary units)	Enter the weight of the material remaining in the vessel when it is completely empty.

Sub-Block	Function	Selection	Comments
Advanced			
Fill Adjustment	Overfill Adjustment	Disabled	Enable only when the operator is to make manual adjustments to an overfill condition.
	Auto Spill Adjustment	Enabled	
	Cycles Averaged	3	Decrease or increase this number as required.
	Adjustment Factor	65%	Reduce this number to make smaller adjustments or increase to make larger adjustments.
	Update Table	Enabled	Enable when the adjusted spill value should be saved back into the Target Table. "Disabled" saves the new value in the active record only.
Learn Mode	Learn Mode	Enabled	
	Test Point	40 %	Adjust this value as necessary.
	Feed Time	?? seconds	Program as needed for material used.
	Update Table	Enabled	Enable when the "learned" values should be saved back into the Target Table. "Disabled" saves the new values in the active record only.
Auxiliary Output	Operation	Disabled	Enable only when required.

Required Discrete Outputs

The following discrete outputs are required for this sequence and must be assigned in the Application > Discrete I/O > Outputs sub-branch of the menu tree and then connected for external control. Other input and output functions may be assigned and connected as required.

Output	Operation
Weigh-in Fast Feed	This output is not used in a one-speed fill cycle. Turns "on" during the faster speed feed of a two-speed fill cycle.
Weigh-in Feed	Turns "on" for the feed cycle of a one-speed fill cycle. In a two-speed control system this output turns "on" during the slower feed.
Weigh-out Fast Feed _or_ Weigh-out Feed	Both of these outputs turn "on" during the weigh-out dump cycle. The dump cycle is a one-speed control.

Optional I/O

All of the required operator controls are automatically provided by the IND560fill terminal with its softkey icons and keypad. The following discrete inputs are not duplicated on the IND560fill keypad and can be assigned in the Application > Discrete I/O > Inputs sub-branch of the menu tree then connected and used when required by the application.

Input	Operation
Silence Alarm	Turns the alarm output off.
OK to weigh-in	An input signal used to indicate it is OK to begin and continue the weigh-in cycle.
OK to weigh-out	An input signal used to indicate it is OK to begin and continue the weigh-out cycle.

Additional output signals are available to provide additional information and control during the sequence. The following discrete outputs can be assigned in the Application > Discrete I/O > Outputs sub-branch of the menu tree then connected and used when required by the application.

Output	Operation
After Weigh Delay	When "on", indicates the after weigh delay timer is counting down.
Alarm	Signals an alarm condition such as cycle aborted.
Auxiliary output	Used as a separate output control signal based on weight or time.
Ready	When this status output is "on", it indicates the system is ready and a new cycle can begin. Only one of the three status outputs will be on at one time. If this output is not "on", a weigh-in or weigh-out cycle cannot be started.
Running	When this status output is "on", it indicates a sequence is running.
Holding	When this status output is "on", it indicates the sequence is in a holding state or a paused state.
Out of tolerance	Indicates the actual weight is not within the programmed tolerances of the target weight. This output is only active during the tolerance check portion of the sequence.
Start Delay	When "on", indicates the start delay timer is counting down.
Complete: Weigh-in	In Semi-automatic sequence mode, output is "on" when a sequence is Holding until operator presses OK. In Automatic sequence mode, output is "on" for the amount of time programmed in the Weigh-in Complete timer.
Complete: Weigh-out	In Semi-automatic sequence mode, output is "on" when a sequence is Holding until operator presses OK. In Automatic sequence mode, output is "on" for the amount of time programmed in the Weigh-out Complete timer.

Chapter 6.0
Fill / Dose Sequence

This chapter covers the following items in the Fill / Dose Sequence:

- Overview
- Softkey Icons
- Configuration Suggestions

This chapter provides information about the Fill / Dose Sequence. It includes an overview of the sequence of actions and the softkeys used, and a discussion of the configuration options.
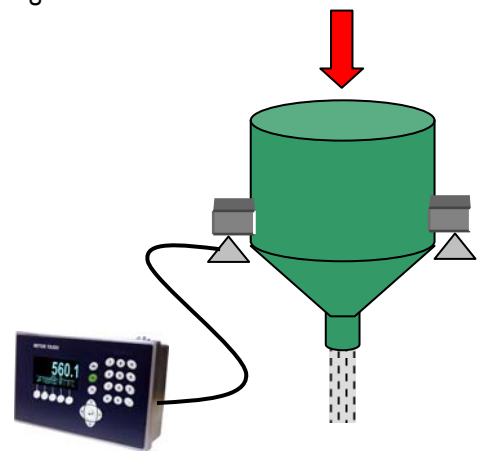
Overview

In this sequence, material is weighed-out of a weigh vessel into one or more containers. The placement and removal of the container to be filled is handled by others. Replenishing of the material into the weigh vessel is either controlled by the IND560 or done manually and prompted by the IND560. Each weigh-out dose is done in the net weight mode.

Weigh-In: Refilling of the supply material into the weigh hopper or vessel with one- or two-speed control.

Weigh-Out: One- or two-speed doses into containers.

Sequence to Dose:

1. Place container under weigh vessel.
2. Press Weigh-out Start.
3. Supply vessel is tared to net zero.
4. Container is filled to weigh-out target.
5. Dose results are printed.
6. Container is removed.

Sequence to Refill:

1. Press Weigh-in Start.
2. Tare is cleared.
3. Vessel is filled to weigh-in target or operator is prompted to replace supply vessel.
4. Fill results are printed.

Features that might be used to enhance the performance of this sequence:

- Timing intervals
- Tracking cycles
- Container tares
- OK to weigh-in interlock
- Zero tolerance check
- Heel weight

- Auto jog
- Fill adjustments
- Learn mode
- Auxiliary output
- Tolerance checking
- OK to weigh-out interlock

Softkey Icons

The following softkeys can be added to the Home page of the IND560 to provide access to features used in this sequence.

Softkey	Function
n	**Number of Cycles** – Allows programming for a certain number of Dose cycles to be completed before an operator message is shown indicating the number of cycles is complete.
	Target Weigh-in – The Active Weigh-in Target provides a view of the target values that will be used in the fill cycle. The values shown here can be selected from the Target Table or entered manually by the operator.
	Target Weigh-out – The Active Weigh-out Target provides a view of the target values that will be used in the dose cycle. The values shown here can be selected from the Target Table or entered manually by the operator.
	Start Weigh-in – This softkey starts the weigh-in process and refills the weigh vessel to the weigh-in target value in the net mode.
	Start Weigh-out – This softkey starts the weigh-out cycle and doses material to the weigh-out target value in the net mode.

Configuration Options

Suggested configuration selections associated with the Fill / Dose sequence of the IND560fill are described in this section. Comments are provided to help guide in making a decision regarding a specific setup parameter. For a complete listing and explanation of all setup parameters for the IND560fill, refer to Chapter 3.

Sub-Block	Function	Selection	Comments
Sequence			
	Weigh-in	Blend / Fill	
	Weigh-out	Dose	

Sub-Block	Function	Selection	Comments
	Sequence Mode	Automatic	If Semi-Automatic is selected, manual acknowledgement is required between the weigh-in and weigh-out cycles.
	Sequence Tare	Enabled	This enables the terminal to control the tare process using an automatic tare.
	Refill Mode	Automatic	Select Manual if the supply vessel will be refilled by the operator with prompting from the IND560fill terminal.
Timing			
	Start Delay	0 seconds	Program a time delay only if required.
	After Weigh Delay	0 seconds	Program a time delay only if required.
	After Empty Delay	?? seconds	Program the amount of time the weigh-out signals should remain "on" after the gross weight falls below the heel weight value if Dump is selected from a low material condition.
	Weigh-in Complete	?? sec	When running in Automatic sequence mode, program this field with the amount of time the Complete: Weigh-in output should remain "on" after the Fill cycle completes.
	Weigh-out Complete	?? sec	When running in Automatic sequence mode, program this field with the amount of time the Complete: Weigh-out output should remain "on" after the Dose cycle completes.
General			
Materials	Materials Weigh-in	1	If multiple materials are selected, the cycle is a blend and not a fill.
	#1 Feed Speeds	2	Select 1 if only a single-speed filling control is required.
	Dose Speeds	2	Select 1 if only a single-speed dosing control is required.
Cycles	Track Cycles	Disabled	Enable only if cycles will be tracked.
Container Tare	Container Tare	Disabled	Container tare should not be used in this sequence.
Interlocks	OK to Weigh-in	Disabled	Enable only if this signal will be used.

Sub-Block	Function	Selection	Comments
	OK to Weigh-out	Disabled	Enable only if this signal will be used.
Jog	Mode	Automatic	Manual jog may be used if desired.
	Pulse Time (On)	?? seconds	Enter as needed for specific material.
	Pause Time (Off)	?? seconds	Enter as needed for specific material.
Tolerance & Heel	Manual Accept	Disabled	Enable only if the operator is to make the tolerance acceptance decision.
	Zero Tolerance Check	Disabled	This feature is not used in this sequence.
	Heel Weight	?? (primary units)	Enter the weight of the material remaining in the vessel when it is completely empty.
Advanced			
Fill Adjustment	Overfill Adjustment	Disabled	Enable only when the operator is to make manual adjustments to an overfill condition in the weigh-in cycle.
	Auto Spill Adjustment	Enabled	
	Cycles Averaged	3	Decrease or increase this number as required.
	Adjustment Factor	65%	Reduce this number to make smaller adjustments or increase to make larger adjustments.
	Update Table	Enabled	Enable when the adjusted spill value should be saved back into the Target Table. "Disabled" saves the new value in the active record only.
Learn Mode	Learn Mode	Enabled	
	Test Point	40 %	Adjust this value as necessary.
	Feed Time	?? seconds	Program as needed for material used.
	Update Table	Enabled	Enable when the "learned" values should be saved back into the Target Table. "Disabled" saves the new values in the active record only.
Auxiliary Output	Operation	Disabled	Enable only when required.

Required Discrete Outputs

The following discrete outputs are required for this sequence and must be assigned in the Application > Discrete I/O > Outputs sub-branch of the menu tree and then connected for external control. Other input and output functions may be assigned and connected as required.

Output	Operation
Weigh-in Fast Feed	This output is not used in a one-speed fill cycle. Turns "on" during the faster speed feed of a two-speed fill cycle.
Weigh-in Feed	Turns "on" for the feed cycle of a one-speed control. In a two-speed control system this output turns "on" during the slower feed.
Weigh-out Fast Feed	This output is not used in a one-speed dose weigh-out cycle. It turns "on" during the faster speed of a two-speed dose weigh-out cycle.
Weigh-out Feed	This output turns "on" during a one-speed dose weigh-out cycle or during the slower speed of a two-speed dose weigh-out cycle.

Optional I/O

All of the required operator controls are automatically provided by the IND560fill terminal with its softkey icons and keypad. The following discrete inputs are not duplicated on the IND560fill keypad and can be assigned in the Application > Discrete I/O > Inputs sub-branch of the menu tree then connected and used when required by the application.

Input	Operation
Silence Alarm	Turns the alarm output off.
OK to weigh-in	An input signal used to Indicate it is OK to begin and continue the weigh-in cycle.
OK to weigh-out	An input signal used to indicate it is OK to begin and continue the weigh-out cycle.

Additional output signals are available to provide additional information and control during the sequence. The following discrete outputs can be assigned in the Application > Discrete I/O > Outputs sub-branch of the menu tree then connected and used when required by the application.

Output	Operation
After Weigh Delay	When "on", indicates the after weigh delay timer is counting down.
Alarm	Signals an alarm condition such as cycle aborted.
Auxiliary output	Used as a separate output control signal based on weight or time.

Output	Operation
Ready	When this status output is "on", it indicates the system is ready and a new cycle can begin. Only one of the three status outputs will be on at one time.
Running	When this status output is "on", it indicates a sequence is running.
Holding	When this status output is "on", it indicates the sequence is in a holding state or a paused state.
Out of tolerance	Indicates the actual weight is not within the programmed tolerances of the target weight. This output is only active during the tolerance check portion of the sequence.
Start Delay	When "on", indicates the start delay timer is counting down.
Complete: Weigh-in	In Semi-automatic sequence mode, output is "on" when a sequence is Holding until operator presses OK. In Automatic sequence mode, output is "on" for the amount of time programmed in the Weigh-in Complete timer.
Complete: Weigh-out	In Semi-automatic sequence mode, output is "on" when a sequence is Holding until operator presses OK. In Automatic sequence mode, output is "on" for the amount of time programmed in the Weigh-out Complete timer.

None / Dose Sequence

This chapter covers the following items in the None / Dose Sequence:

- Overview
- Softkey Icons
- Configuration Suggestions

This chapter provides information about the None / Dose Sequence. It includes an overview of the sequence of actions and the softkeys used, and a discussion of the configuration options.

Overview

This sequence assumes a fixed supply vessel as the weighing platform. The IND560fill controls the dosing of material out of the supply vessel into multiple containers. The refilling of the supply material is not controlled by the IND560fill. The IND560fill will still monitor for sufficient material in the supply to complete a full dose. If the supply material is low, an operator message will be displayed and the next dose is inhibited.

Weigh-In: None

Weigh-Out: One- or two-speed feed control of material being dosed into containers.

Sequence:

1. Place container under weigh vessel.
2. Press Weigh-out Start.
3. Supply vessel is tared to net zero.
4. Container is filled to weigh-out target.
5. Dose results are printed.
6. Container is removed.
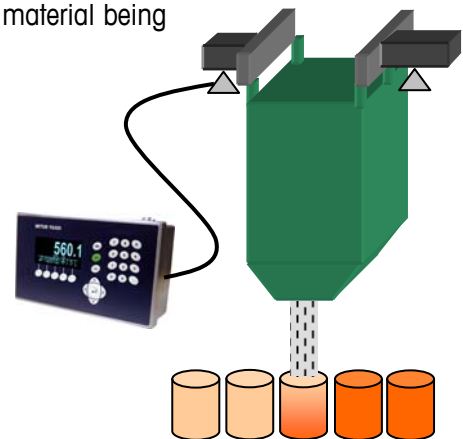
Features that might be used to enhance the performance of this sequence:

- Timing intervals
- Tracking cycles
- OK to weigh-out interlock
- Auto jog

- Fill adjustments
- Learn mode
- Auxiliary output
- Heel weight

Softkey Icons

The following softkeys can be added to the Home page of the IND560 to provide access to features used in this sequence.

Softkey	Function
n	**Number of Cycles** – Allows programming for a certain number of Dose cycles to be completed before an operator message is shown indicating the number of cycles is complete.
	Target Weigh-out Active Record – The Active Weigh-out Target provides a view of the target values that will be used in the dose cycle. The values shown here can be selected from the Target Table or entered manually by the operator.
	Start Weigh-out – This softkey starts the weigh-out cycle and doses material to the weigh-out target value in the net mode.

Configuration Options

Suggested configuration selections associated with the None / Dose sequence of the IND560fill are described in this section. Comments are provided to help guide in making a decision regarding a specific setup parameter. For a complete listing and explanation of all setup parameters for the IND560fill, refer to Chapter 3.

Sub-Block	Function	Selection	Comments
		Sequence	
	Weigh-in	None	
	Weigh-out	Dose	
	Sequence Mode	Automatic	If Semi-Automatic is selected, manual acknowledgement is required at the end of the weigh-out cycle.
	Sequence Tare	Enabled	This enables the terminal to control the tare process using an automatic tare.
		Timing	
	Start Delay	0 seconds	Program a time delay only if required.
	After Weigh Delay	0 seconds	Program a time delay only if required.
	Weigh-out Complete	?? seconds	When running in Automatic sequence mode, program this field with the amount of time the Complete: Weigh-out output should remain "on" after the Dose cycle completes.

Sub-Block	Function	Selection	Comments
General			
Materials	Dose Speeds	2	Select 1 if only a single-speed dosing control is required.
Cycles	Track Cycles	Disabled	Enable only if cycles will be tracked.
Container Tare	Container Tare	Disabled	Container tare should not be used in this sequence.
Interlocks	OK to Weigh-out	Disabled	Enable only if this signal will be used.
Jog	Mode	Automatic	Manual jog may be used if desired.
	Pulse Time (On)	?? seconds	Enter as needed for specific material.
	Pause Time (Off)	?? seconds	Enter as needed for specific material.
Tolerance & Heel	Manual Accept	Disabled	Enable only if the operator is to make the tolerance acceptance decision.
	Zero Tolerance Check	Disabled	This feature is not used in this sequence.
	Heel Weight	?? (primary units)	Enter the weight of the material remaining in the vessel when it is completely empty.
Advanced			
Fill Adjustment	Overfill Adjustment	Disabled	This feature is not used in this sequence.
	Auto Spill Adjustment	Enabled	
	Cycles Averaged	3	Decrease or increase this number as required.
	Adjustment Factor	65%	Reduce this number to make smaller adjustments or increase to make larger adjustments.
	Update Table	Enabled	Enable when the adjusted spill value should be saved back into the Target Table. "Disabled" saves the new value in the active record only.
Learn Mode	Learn Mode	Enabled	
	Test Point	40 %	Adjust this value as necessary.
	Feed Time	?? seconds	Program as needed for material used.

Sub-Block	Function	Selection	Comments
	Update Table	Enabled	Enable when the "learned" values should be saved back into the Target Table. "Disabled" saves the new values in the active record only.
Auxiliary Output	Operation	Disabled	Enable only when required.

Required Discrete Outputs

The following discrete outputs are required for this sequence and must be assigned in the Application > Discrete I/O > Outputs sub-branch of the menu tree and then connected for external control. Other input and output functions may be assigned and connected as required.

Output	Operation
Weigh-out Fast Feed	This output is not used in a one-speed dose weigh-out cycle. It turns "on" during the faster speed of a two-speed dose weigh-out cycle.
Weigh-out Feed	This output turns "on" during a one-speed dose weigh-out cycle or during the slower speed of a two-speed dose weigh-out cycle.

Optional I/O

All of the required operator controls are automatically provided by the IND560fill terminal with its softkey icons and keypad. The following discrete inputs are not duplicated on the IND560fill keypad and can be assigned in the Application > Discrete I/O > Inputs sub-branch of the menu tree then connected and used when required by the application.

Input	Operation
Silence Alarm	Turns the alarm output off.
OK to weigh-out	An input signal used to indicate it is OK to begin and continue the weigh-out cycle.

Additional output signals are available to provide additional information and control during the sequence. The following discrete outputs can be assigned in the Application > Discrete I/O > Outputs sub-branch of the menu tree then connected and used when required by the application.

Output	Operation
After Weigh Delay	When "on", indicates the after weigh delay timer is counting down.
Alarm	Signals an alarm condition such as cycle aborted.

Output	Operation
Auxiliary output	Used as a separate output control signal based on weight or time.
Ready	When this status output is "on", it indicates the system is ready and a new cycle can begin. Only one of the three status outputs will be on at one time.
Running	When this status output is "on", it indicates a sequence is running.
Holding	When this status output is "on", it indicates the sequence is in a holding state or a paused state.
Out of tolerance	Indicates the actual weight is not within the programmed tolerances of the target weight. This output is only active during the tolerance check portion of the sequence.
Start Delay	When "on", indicates the start delay timer is counting down.
Complete: Weigh-out	In Semi-automatic sequence mode, output is "on" when a sequence is Holding until operator presses OK. In Automatic sequence mode, output is "on" for the amount of time programmed in the Weigh-out Complete timer.

Chapter 8.0
Blend / None Sequence

This chapter covers the following items in the Blend / None Sequence:

- Overview
- Softkey Icons
- Configuration Suggestions

This chapter provides information about the Blend / None Sequence. It includes an overview of the sequence of actions and the softkeys used, and a discussion of the configuration options.

Overview

Blending of up to four ingredients into a single container, in a fixed sequence can be managed by the IND560. The feeding of each material may use one- or two-speed feeders, and can be different from one material to another. Either a fixed vessel or a removable one can be used to receive the materials being blended. No weigh-out control is provided in this sequence - it must be handled manually. The IND560's auxiliary output can be used to control a mixer.

Weigh-In: Blend of 2 – 4 materials using 1-speed or 2-speed control

Weigh-out: None

Sequence:

1. Place container on the scale platform.
2. Press Weigh-in Start.
3. Container is tared to net zero.
4. Each material in the formula is filled to its target weight.
5. Blend results are printed.
6. Container is removed.
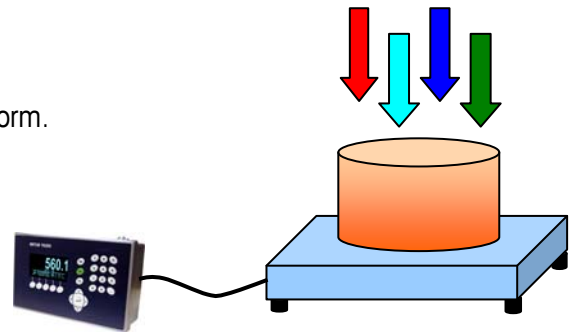
Features that might be used to enhance the performance of this sequence:

- Timing intervals
- Tracking cycles
- OK to weigh-in interlock
- Tolerance checking

- Auto jog
- Fill adjustments
- Learn mode
- Auxiliary output

Softkey Icons

The following softkeys can be added to the Home page of the IND560 to provide access to features used in this sequence.

Softkey	Function
n	**Number of Cycles** – Allows programming for a certain number of Dose cycles to be completed before an operator message is shown indicating the number of cycles is complete.
(icon)	**Formula Values** – This softkey provides access to the page where the target values for each of the materials in a blend are configured. The values shown here can be selected from the Target Table or entered manually by the operator. Targets recalled from Target Table must match the active Target units inside the formula. When exiting the formula view, the terminal confirms that the sum of the material targets is not greater than the programmed scale capacity. If it is, an error message is displayed and one of the target values in the formula must be reduced.
(icon)	**Weigh-in Start** – This softkey starts the weigh-in cycle to begin the blending process.

Configuration Options

Suggested configuration selections associated with the Blend / None sequence of the IND560fill are described in this section. Comments are provided to help guide in making a decision regarding a specific setup parameter. For a complete listing and explanation of all setup parameters for the IND560fill, refer to Chapter 3.

Sub-Block	Function	Selection	Comments
		Sequence	
	Weigh-in	Blend	
	Weigh-out	None	
	Sequence Mode	Automatic	If Semi-Automatic is selected, manual acknowledgement is required at the end of each material and at the end of the blend cycle.
	Sequence Tare	Enabled	Disable this only if the target values in the formula will be based on gross weight. No tare will be taken between materials. The target for material 2 must also include the weight from material 1, the target for material 3 must include the weight from material s 1 and 2, etc..

Sub-Block	Function	Selection	Comments
			Timing
	Start Delay	0 seconds	Program a time delay only if required.
	After Weigh Delay	0 seconds	Program a time delay only if required.
	Weigh-in Complete	?? 5 sec	When running in Automatic sequence mode, program this field with the amount of time the Complete: Weigh-in output should remain "on" after the Blend cycle completes.
			General
Materials	Materials Weigh-in	2 - 4	Enter the maximum materials to be used in any blend.
	#1 Feed Speeds	2	Select 1 if only a single-speed material control is required.
	#2 Feed Speeds	2	Select 1 if only a single-speed material control is required.
	#3 Feed Speeds	2	Select 1 if only a single-speed material control is required.
	#4 Feed Speeds	2	Select 1 if only a single-speed material control is required.
Cycles	Track Cycles	Disabled	Enable only if cycles will be tracked.
Container Tare	Container Tare	Disabled	Container tare is not supported in this sequence.
Interlocks	OK to Weigh-in	Disabled	Enable only if this signal will be used.
Jog	Mode	Automatic	Manual jog may be used if desired.
	Pulse Time (On)	?? seconds	Enter as needed for materials used.
	Pause Time (Off)	?? seconds	Enter as needed for materials used.
Tolerance & Heel	Manual Accept	Disabled	Enable only if the operator is to make the tolerance acceptance decision.
	Zero Tolerance Check	Disabled	This feature is not used in this sequence.

Sub-Block	Function	Selection	Comments
		Advanced	
Fill Adjustment	Overfill Adjustment	Disabled	Enable only when the operator is to make manual adjustments to an overfill condition.
	Auto Spill Adjustment	Enabled	
	Cycles Averaged	3	Decrease or increase this number as required.
	Adjustment Factor	65%	Reduce this number to make smaller adjustments or increase to make larger adjustments.
	Update Table	Enabled	Enable when the adjusted spill value should be saved back into the Target Table. "Disabled" saves the new value in the active record only.
Learn Mode	Learn Mode	Enabled	
	Test Point	40 %	Adjust this value as necessary.
	Feed Time	?? seconds	Program as needed for material used.
	Update Table	Enabled	Enable when the "learned" values should be saved back into the Target Table. "Disabled" saves the new values in the active record only.
Auxiliary Output	Operation	Disabled	Enable only when required.

Required Discrete Outputs

The following discrete outputs are required for this sequence and must be assigned in the Application > Discrete I/O > Outputs sub-branch of the menu tree and then connected for external control. Other input and output functions may be assigned and connected as required.

Output	Operation
Weigh-in Fast Feed	This output is not used in a one-speed fill cycle. Turns "on" during the faster speed feed of a two-speed fill cycle.
Weigh-in Feed	Turns "on" for the feed cycle of a one-speed control. In a two-speed control system this output turns "on" during the slower feed.
Material #1	This output turns "on" when material #1 is feeding. It can be used to connect the weigh-in fast feed and weigh-in feed signals to the correct feeder system.

Output	Operation
Material #2	This output turns "on" when material #2 is feeding. It can be used to map the weigh-in fast feed and weigh-in feed signals to the correct feeder system for material #2.
Material #3	This output turns "on" when material #3 is feeding. It can be used to map the weigh-in fast feed and weigh-in feed signals to the correct feeder system for material #3.
Material #4	This output turns "on" when material #4 is feeding. It can be used to map the weigh-in fast feed and weigh-in feed signals to the correct feeder system for material #4.

Alternatively, use

Material 1, 2, 3 or 4 Fast Feed	Used in a two-speed fill cycle. The Material 1 (2, 3 or 4) Fast Feed output turns "on" when Material #1, 2, 3 or 4 is feeding at the faster rate of a two-speed fill cycle. This direct material fast feed output eliminates the need to combine the Weigh-in Fast Feed and Material # outputs to correctly activate a feeding system.
Material 1, 2, 3 or 4 Feed	Turns "on" for the feed cycle of a one-speed control. In a two-speed control system this output turns "on" during the slower feed. The Material 1 (2, 3 or 4) Feed output turns "on" when Material # 1, 2 3 or 4 is feeding at the slower rate of a two-speed fill cycle or during the feed cycle of a single speed fill. This direct material feed output eliminates the need to combine the Weigh-in Feed and Material # outputs to correctly activate a feeding system.

*   Refer to Appendix E for examples of discrete output mapping using both the combined output signals and direct material output signals.

Optional I/O

All of the required operator controls are automatically provided by the IND560fill terminal with its softkey icons and keypad. The following discrete inputs are not duplicated on the IND560fill keypad and can be assigned in the Application > Discrete I/O > Inputs sub-branch of the menu tree then connected and used when required by the application.

Input	Operation
Silence Alarm	Turns the alarm output off.
OK to weigh-in	An input signal used to Indicate it is OK to begin and continue the weigh-in cycle.

Additional output signals are available to provide additional information and control during the sequence. The following discrete outputs can be assigned in the Application > Discrete I/O > Outputs sub-branch of the menu tree then connected and used when required by the application.

Output	Operation
After Weigh Delay	When "on", indicates the after weigh delay timer is counting down.
Alarm	Signals an alarm condition such as cycle aborted.
Auxiliary output	Used as a separate output control signal based on weight or time.
Ready	When this status output is "on", it indicates the system is ready and a new cycle can begin. Only one of the three status outputs will be on at one time.
Running	When this status output is "on", it indicates a sequence is running.
Holding	When this status output is "on", it indicates the sequence is in a holding state or a paused state.
Out of tolerance	Indicates the actual weight is not within the programmed tolerances of the target weight. This output is only active during the tolerance check portion of the sequence.
Start Delay	When "on", indicates the start delay timer is counting down.
Complete: Weigh-in	In Semi-automatic sequence mode, output is "on" when a sequence is Holding until operator presses OK. In Automatic sequence mode, output is "on" for the amount of time programmed in the Weigh-in Complete timer.

Chapter 9.0
Blend / Dump Sequence

This chapter covers the following items in the Blend / Dump Sequence:

- Overview
- Softkey Icons
- Configuration Suggestions

This chapter provides information about the Blend / Dump Sequence. It includes an overview of the sequence of actions and the softkeys used, and a discussion of the configuration options.

Overview

A hopper or tank is typically the weigh vessel that will be used to hold the blended materials and is usually in a fixed location. The blending sequence occurs as with the previous example, but the IND560 also controls the dumping to empty of the vessel. The IND560's auxiliary output can be used to control a mixer.

Weigh-In: One- or two-speed feed of up to four materials

Weigh-Out: Dump to Empty

Sequence:

1. Press the Weigh-in Start.
2. Vessel is tared to net zero.
3. Each material in the formula is filled to its target weight.
4. Blend results are printed.
5. Press the Weigh-out Start.
6. Vessel is dumped to empty.
7. Dump results are printed

Features that might be used to enhance the performance of this sequence:

- Timing intervals
- Tracking cycles
- OK to weigh-in interlock
- OK to weigh-out interlock
- Tolerance checking
- Auto jog
- Fill adjustments
- Learn mode
- Heel weight
- Auxiliary output

Softkey Icons

The following softkeys can be added to the Home page of the IND560 to provide access to features used in this sequence.

Softkey	Function
n	**Number of Cycles** – Allows programming for a certain number of Dose cycles to be completed before an operator message is shown indicating the number of cycles is complete.
	Formula Values – This softkey provides access to the page where the target values for each of the materials in a blend are configured. The values shown here can be selected from the Target Table or entered manually by the operator. When exiting the formula view, the terminal confirms that the sum of the material targets is not greater than the programmed scale capacity. If it is, an error message is displayed and one of the target values in the formula must be reduced.
	Weigh-in Start – This softkey starts the weigh-in cycle to begin the blending process.
	Weigh-out Start – After the weigh-in process has been completed, the contents of the vessel / container may be completely emptied (dump to empty) by pressing this softkey.

Configuration Options

Suggested configuration selections associated with the Blend / Dump sequence of the IND560fill are described in this section. Comments are provided to help guide in making a decision regarding a specific setup parameter. For a complete listing and explanation of all setup parameters for the IND560fill, refer to Chapter 3.

Sub-Block	Function	Selection	Comments
Sequence			
	Weigh-in	Blend	
	Weigh-out	Dump	
	Sequence Mode	Automatic	If Semi-Automatic is selected, manual acknowledgement is required at the end of each material and at the end of the blend cycle.
			If Automatic mode is selected, the sequence will pause at the end of the Blend, and the Weigh-out Start softkey will have to be pressed to initiate the dump portion of the sequence.

Sub-Block	Function	Selection	Comments
	Sequence Tare	Enabled	Disable this only if the target values in the formula will be based on gross weight. No tare will be taken between materials. The target for material 2 must also include the weight from material 1, the target for material 3 must include the weight from material s 1 and 2, etc..
Timing			
	Start Delay	0 seconds	Program a time delay only if required.
	After Weigh Delay	0 seconds	Program a time delay only if required.
	After Empty Delay	?? seconds	Program the amount of time the weigh-out signals should remain "on" after the gross weight reaches the programmed heel weight value.
	Weigh-in Complete	?? sec	When running in Automatic sequence mode, program this field with the amount of time the Complete: Weigh-in output should remain "on" after the Blend cycle completes.
	Weigh-out Complete	?? sec	When running in Automatic sequence mode, program this field with the amount of time the Complete: Weigh-out output should remain "on" after the Dump cycle completes.
General			
Materials	Materials Weigh-in	2 – 4	Enter the maximum materials to be used in any blend.
	#1 Feed Speeds	2	Select 1 if only a single-speed material control is required.
	#2 Feed Speeds	2	Select 1 if only a single-speed material control is required.
	#3 Feed Speeds	2	Select 1 if only a single-speed material control is required.
	#4 Feed Speeds	2	Select 1 if only a single-speed material control is required.
Cycles	Track Cycles	Disabled	Enable only if cycles will be tracked.
Container Tare	Container Tare	Disabled	Container tare is not supported in this sequence.
Interlocks	OK to Weigh-in	Disabled	Enable only if this signal will be used.

Sub-Block	Function	Selection	Comments
	OK to Weigh-out	Disabled	Enable only if this signal will be used.
Jog	Mode	Automatic	Manual jog may be used if desired.
	Pulse Time (On)	?? seconds	Enter as needed for materials used.
	Pause Time (Off)	?? seconds	Enter as needed for materials used.
Tolerance & Heel	Manual Accept	Disabled	Enable only if the operator is to make the tolerance acceptance decision.
	Zero Tolerance Check	Disabled	This feature is not used in this sequence.
	Heel Weight	?? (primary units)	Enter the weight of the material remaining in the vessel when it is completely empty.
Advanced			
Fill Adjustment	Overfill Adjustment	Disabled	Enable only when the operator is to make manual adjustments to an overfill condition.
	Auto Spill Adjustment	Enabled	
	Cycles Averaged	3	Decrease or increase this number as required.
	Adjustment Factor	65%	Reduce this number to make smaller adjustments or increase to make larger adjustments.
	Update Table	Enabled	Enable when the adjusted spill value should be saved back into the Target Table. "Disabled" saves the new value in the active record only.
Learn Mode	Learn Mode	Enabled	
	Test Point	40 %	Adjust this value as necessary.
	Feed Time	?? seconds	Program as needed for material used.
	Update Table	Enabled	Enable when the "learned" values should be saved back into the Target Table. "Disabled" saves the new values in the active record only.
Auxiliary Output	Operation	Disabled	Enable only when required.

Required Discrete Outputs

The following discrete outputs are required for this sequence and must be assigned in the Application > Discrete I/O > Outputs sub-branch of the menu tree and then connected for external control. Other input and output functions may be assigned and connected as required.

Output	Operation
Weigh-in Fast Feed	This output is not used in a one-speed fill cycle. Turns "on" during the faster speed feed of a two-speed fill cycle.
Weigh-in Feed	Turns "on" for the feed cycle of a one-speed control. In a two-speed control system this output turns "on" during the slower feed.
Material #1	This output turns "on" when material #1 is feeding. It can be used to connect the weigh-in fast feed and weigh-in feed signals to the correct feeder system.
Material #2	This output turns "on" when material #2 is feeding. It can be used to map the weigh-in fast feed and weigh-in feed signals to the correct feeder system for material #2.
Material #3	This output turns "on" when material #3 is feeding. It can be used to map the weigh-in fast feed and weigh-in feed signals to the correct feeder system for material #3.
Material #4	This output turns "on" when material #4 is feeding. It can be used to map the weigh-in fast feed and weigh-in feed signals to the correct feeder system for material #4.
Weigh-out Fast Feed or Weigh-out Feed	Both of these outputs turn "on" during the weigh-out dump cycle. The dump cycle is a one-speed control.

Alternatively, use

Material 1, 2, 3 or 4 Fast Feed	Used in a two-speed fill cycle. The Material 1 (2, 3 or 4) Fast Feed output turns "on" when Material #1, 2, 3 or 4 is feeding at the faster rate of a two-speed fill cycle. This direct material fast feed output eliminates the need to combine the Weigh-in Fast Feed and Material # outputs to correctly activate a feeding system.
Material 1, 2, 3 or 4 Feed	Turns "on" for the feed cycle of a one-speed control. In a two-speed control system this output turns "on" during the slower feed. The Material 1 (2, 3 or 4) Feed output turns "on" when Material # 1, 2 3 or 4 is feeding at the slower rate of a two-speed fill cycle or during the feed cycle of a single speed fill. This direct material feed output eliminates the need to combine the Weigh-in Feed and Material # outputs to correctly activate a feeding system.

*   Refer to Appendix E for examples of discrete output mapping using both the combined output signals and direct material output signals.

Optional I/O

All of the required operator controls are automatically provided by the IND560fill terminal with its softkey icons and keypad. The following discrete inputs are not duplicated on the IND560fill keypad and can be assigned in the Application > Discrete I/O > Inputs sub-branch of the menu tree then connected and used when required by the application.

Input	Operation
Silence Alarm	Turns the alarm output off.
OK to weigh-in	An input signal used to Indicate it is OK to begin and continue the weigh-in cycle.
OK to weigh-out	An input signal used to indicate it is OK to begin and continue the weigh-out cycle.

Additional output signals are available to provide additional information and control during the sequence. The following discrete outputs can be assigned in the Application > Discrete I/O > Outputs sub-branch of the menu tree then connected and used when required by the application.

Output	Operation
After Weigh Delay	When "on", indicates the after weigh delay timer is counting down.
Alarm	Signals an alarm condition such as cycle aborted.
Auxiliary output	Used as a separate output control signal based on weight or time.
Ready	When this status output is "on", it indicates the system is ready and a new cycle can begin. Only one of the three status outputs will be on at one time.
Running	When this status output is "on", it indicates a sequence is running.
Holding	When this status output is "on", it indicates the sequence is in a holding state or a paused state.
Out of tolerance	Indicates the actual weight is not within the programmed tolerances of the target weight. This output is only active during the tolerance check portion of the sequence.
Start Delay	When "on", indicates the start delay timer is counting down.
Complete: Weigh-in	In Semi-automatic sequence mode, output is "on" when a sequence is Holding until operator presses OK. In Automatic sequence mode, output is "on" for the amount of time programmed in the Weigh-in Complete timer.
Complete: Weigh-out	In Semi-automatic sequence mode, output is "on" when a sequence is Holding until operator presses OK. In Automatic sequence mode, output is "on" for the amount of time programmed in the Weigh-out Complete timer.

Chapter 10.0
Blend / Dose Sequence

This chapter covers the following items in the Blend / Dose Sequence:

- Overview
- Softkey Icons
- Configuration Suggestions

This chapter provides information about the Blend / Dose Sequence. An overview of the sequence of actions, the softkeys used, and the configuration options are discussed.

Overview

In this sequence, material is weighed-out of a weigh vessel into one or more containers. The placement and removal of the container to be filled is handled by others. Replenishing of the multiple material supply (into the weigh vessel) is controlled by the IND560fill. A fixed tank, hopper or other vessel is typically used as the scale. The IND560's auxiliary output can be used to control a mixer.

Weigh-In: One- or two-speed feed of two to four materials into to refill the supply vessel.
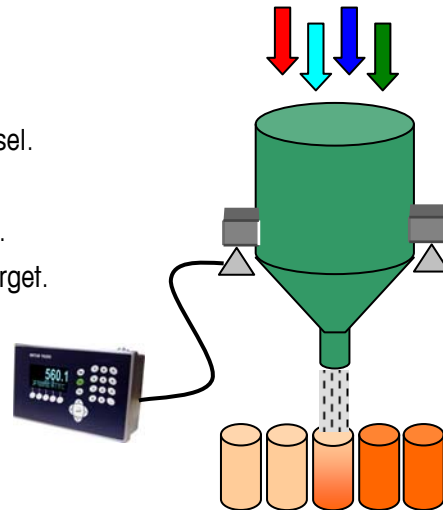
Weigh-Out: One- or two-speed dosing of the blended materials from the weigh vessel into one or more containers.

Sequence to Dose:

1. Place container under weigh vessel.
2. Press Weigh-out Start.
3. Supply vessel is tared to net zero.
4. Container is filled to weigh-out target.
5. Dose results are printed.
6. Container is removed.

Sequence to Refill:

1. Press the Weigh-in Start.
2. Vessel is tared to net zero.
3. Each material in the formula is filled to its target weight.
4. Blend results are printed.

Softkey Icons

The following softkeys can be added to the Home page of the IND560 to provide access to features used in this sequence.

Softkey	Function
n	**Number of Cycles** – Allows programming for a certain number of Dose cycles to be completed before an operator message is shown indicating the number of cycles is complete.
	Formula Values – This softkey provides access to the page where the target values for each of the materials in a blend are configured. The values shown here can be selected from the Target Table or entered manually by the operator. When exiting the formula view, the terminal confirms that the sum of the material targets is not greater than the programmed scale capacity. If it is, an error message is displayed and one of the target values in the formula must be reduced.
	Target Weigh-out – The Active Weigh-out Target provides a view of the target values that will be used in the dose cycle. The values shown here can be selected from the Target Table or entered manually by the operator.
	Weigh-in Start – This softkey starts the refill weigh-in cycle to begin the blending process.
	Weigh-out Start – This softkey starts the weigh-out cycle and doses material to the weigh-out target value in the net mode.

Configuration Options

Suggested configuration selections associated with the Blend / Dump sequence of the IND560fill are described in this section. Comments are provided to help guide in making a decision regarding a specific setup parameter. For a complete listing and explanation of all setup parameters for the IND560fill, refer to Chapter 3.

Sub-Block	Function	Selection	Comments
Sequence			
	Weigh-in	Blend	
	Weigh-out	Dose	
	Sequence Mode	Automatic	If Semi-Automatic is selected, manual acknowledgement is required at the end of each material and at the end of the blend and dose cycles.

Sub-Block	Function	Selection	Comments
	Sequence Tare	Enabled	Disable this only if the target values in the formula will be based on gross weight. No tare will be taken between materials. The target for material 2 must also include the weight from material 1, the target for material 3 must include the weight from material s 1 and 2, etc..
	Refill Mode	Automatic	Select Manual if the supply vessel will be refilled by the operator with prompting from the IND560fill terminal.
Timing			
	Start Delay	0 seconds	Program a time delay only if required.
	After Weigh Delay	0 seconds	Program a time delay only if required.
	After Empty Delay	?? seconds	Program the amount of time the weigh-out signals should remain "on" after the gross weight falls below the heel weight value if Dump is selected from a low material condition.
	Weigh-in Complete	?? sec	When running in Automatic sequence mode, program this field with the amount of time the Complete: Weigh-in output should remain "on" after the Blend cycle completes.
	Weigh-out Complete	?? sec	When running in Automatic sequence mode, program this field with the amount of time the Complete: Weigh-out output should remain "on" after the Dose cycle completes
General			
Materials	Materials Weigh-in	2 - 4	Enter the maximum materials to be used in any blend.
	#1 Feed Speeds	2	Select 1 if only a single-speed material control is required.
	#2 Feed Speeds	2	Select 1 if only a single-speed material control is required.
	#3 Feed Speeds	2	Select 1 if only a single-speed material control is required.
	#4 Feed Speeds	2	Select 1 if only a single-speed material control is required.
Cycles	Track Cycles	Disabled	Enable only if cycles will be tracked.

Sub-Block	Function	Selection	Comments
Container Tare	Container Tare	Disabled	Container tare is not supported in this sequence.
Interlocks	OK to Weigh-in	Disabled	Enable only if this signal will be used.
	OK to Weigh-out	Disabled	Enable only if this signal will be used.
Jog	Mode	Automatic	Manual jog may be used if desired.
	Pulse Time (On)	?? seconds	Enter as needed for materials used.
	Pause Time (Off)	?? seconds	Enter as needed for materials used.
Tolerance & Heel	Manual Accept	Disabled	Enable only if the operator is to make the tolerance acceptance decision.
	Zero Tolerance Check	Disabled	This feature is not used in this sequence.
	Heel Weight	?? (primary units)	Enter the weight of the material remaining in the vessel when it is completely empty.
Advanced			
Fill Adjustment	Overfill Adjustment	Disabled	Enable only when the operator is to make manual adjustments to an overfill condition.
	Auto Spill Adjustment	Enabled	
	Cycles Averaged	3	Decrease or increase this number as required.
	Adjustment Factor	65%	Reduce this number to make smaller adjustments or increase to make larger adjustments.
	Update Table	Enabled	Enable when the adjusted spill value should be saved back into the Target Table. "Disabled" saves the new value in the active record only.
Learn Mode	Learn Mode	Enabled	
	Test Point	40 %	Adjust this value as necessary.
	Feed Time	?? seconds	Program as needed for material used.
	Update Table	Enabled	Enable when the "learned" values should be saved back into the Target Table. "Disabled" saves the new values in the active record only.
Auxiliary Output	Operation	Disabled	Enable only when required.

Required Discrete Outputs

The following discrete outputs are required for this sequence and must be assigned in the Application > Discrete I/O > Outputs sub-branch of the menu tree and then connected for external control. Other input and output functions may be assigned and connected as required.

Output	Operation
Weigh-in Fast Feed	This output is not used in a one-speed fill cycle. Turns "on" during the faster speed feed of a two-speed fill cycle.
Weigh-in Feed	Turns "on" for the feed cycle of a one-speed control. In a two-speed control system this output turns "on" during the slower feed.
Material #1	This output turns "on" when material #1 is feeding. It can be used to connect the weigh-in fast feed and weigh-in feed signals to the correct feeder system.
Material #2	This output turns "on" when material #2 is feeding. It can be used to map the weigh-in fast feed and weigh-in feed signals to the correct feeder system for material #2.
Material #3	This output turns "on" when material #3 is feeding. It can be used to map the weigh-in fast feed and weigh-in feed signals to the correct feeder system for material #3.
Material #4	This output turns "on" when material #4 is feeding. It can be used to map the weigh-in fast feed and weigh-in feed signals to the correct feeder system for material #4.
Weigh-out Fast Feed	This output is not used in a one-speed dose weigh-out cycle. It turns "on" during the faster speed of a two-speed dose cycle.
Weigh-out Feed	This output turns "on" during a one-speed dose weigh-out cycle or during the slower speed of a two-speed dose weigh-out cycle.

Alternatively, use

Material 1, 2, 3 or 4 Fast Feed	Used in a two-speed fill cycle. The Material 1 (2, 3 or 4) Fast Feed output turns "on" when Material #1, 2, 3 or 4 is feeding at the faster rate of a two-speed fill cycle.
	This direct material fast feed output eliminates the need to combine the Weigh-in Fast Feed and Material # outputs to correctly activate a feeding system.
Material 1, 2, 3 or 4 Feed	Turns "on" for the feed cycle of a one-speed control. In a two-speed control system this output turns "on" during the slower feed. The Material 1 (2, 3 or 4) Feed output turns "on" when Material # 1, 2 3 or 4 is feeding at the slower rate of a two-speed fill cycle or during the feed cycle of a single speed fill.
	This direct material feed output eliminates the need to combine the Weigh-in Feed and Material # outputs to correctly activate a feeding system.

*   Refer to Appendix E for examples of discrete output mapping using both the combined output signals and direct material output signals.

Optional I/O

All of the required operator controls are automatically provided by the IND560fill terminal with its softkey icons and keypad. The following discrete inputs are not duplicated on the IND560fill keypad and can be assigned in the Application > Discrete I/O > Inputs sub-branch of the menu tree then connected and used when required by the application.

Input	Operation
Silence Alarm	Turns the alarm output off.
OK to weigh-in	An input signal used to Indicate it is OK to begin and continue the weigh-in cycle.
OK to weigh-out	An input signal used to indicate it is OK to begin and continue the weigh-out cycle.

Additional output signals are available to provide additional information and control during the sequence. The following discrete outputs can be assigned in the Application > Discrete I/O > Outputs sub-branch of the menu tree then connected and used when required by the application.

Output	Operation
After Weigh Delay	When "on", indicates the after weigh delay timer is counting down.
Alarm	Signals an alarm condition such as cycle aborted.
Auxiliary output	Used as a separate output control signal based on weight or time.
Ready	When this status output is "on", it indicates the system is ready and a new cycle can begin. Only one of the three status outputs will be on at one time.
Running	When this status output is "on", it indicates a sequence is running.
Holding	When this status output is "on", it indicates the sequence is in a holding state or a paused state.
Out of tolerance	Indicates the actual weight is not within the programmed tolerances of the target weight. This output is only active during the tolerance check portion of the sequence.
Start Delay	When "on", indicates the start delay timer is counting down.
Complete: Weigh-in	In Semi-automatic sequence mode, output is "on" when a sequence is Holding until operator presses OK. In Automatic sequence mode, output is "on" for the amount of time programmed in the Weigh-in Complete timer.
Complete: Weigh-out	In Semi-automatic sequence mode, output is "on" when a sequence is Holding until operator presses OK. In Automatic sequence mode, output is "on" for the amount of time programmed in the Weigh-out Complete timer.

Action Log

This appendix covers:

- Action Log File Structure
- Logged Actions
- Viewing the file
- Resetting the file
- Exporting the file

This appendix provides information about the Action log file.

The IND560fill provides the ability to log certain actions that occur during the weigh-in and weigh-out cycles into a file. This log file can then be viewed at the terminal or exported via FTP or the serial port using the shared data server. The InSite configuration tool can export this file and also display the data. This file is only available if Alibi memory is not enabled. In certain applications where the Alibi memory is required, the Action log file cannot be used. It is also possible to program a demand output connection that sends each record out a programmed port as the action is logged.

File Structure

The file is an encoded binary file and each record in the Action log file is six bytes long. Approximately 150,000 records can be stored in the log file. The log is structured as a ring file that overwrites the oldest record when it becomes full. Each record includes:

- Date and time stamp fields
- An action code. This index (see **Logged Actions**, below) is translated to actual text for viewing at the IND560fill terminal and using the InSite configuration tool, but only the code will be visible if the file is exported.
- Check digit

Logged Actions

Each action is recorded by its action code. If enabled, the following actions are logged when they occur:
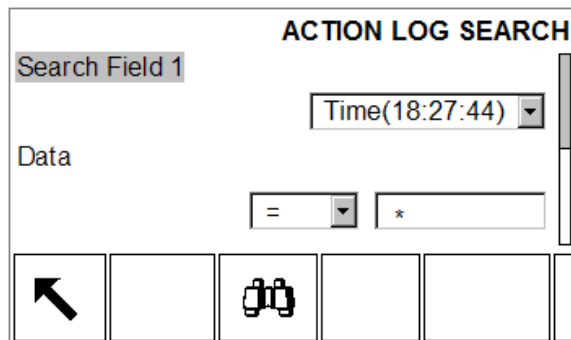
Action Code	Logged Action
1	Start weigh-in cycle
2	Start Weigh-out cycle
3	Cycle Paused
4	Cycle Resumed
5	Cycle Aborted
6	Tolerance OK

Action Code	Logged Action
7	Out of tolerance
8	Accept out of tolerance
9	Reject out of tolerance
10	Start manual jog
11	Overfill adjustment
12	Weigh-in target edited
13	Weigh-out target edited
14	Formula edited
15	Container Tare value edited
16	Scale blanked over capacity
17	Scale blanked under zero

Viewing the File

When enabled, the Action log file can be viewed in setup at Application > Memory > Alibi. The Action log file will be shown instead of the Alibi memory file.

1. Access the menu tree and open the Application > Memory > Alibi sub-branch.

2. Press the VIEW TABLE softkey ▱ shown at the bottom of the screen. The Search Screen displays (Figure A-1).

Figure A-1: Action Log Search Screen

3. Use the Search Field 1 and Search Field 2 selection boxes and associated data fields to enter specific search information to limit the search, or use the default "find all" character, the asterisk (*) to view all records.

4. Press the SEARCH softkey ▱▱. The Action Log Search View screen (Figure A-2) displays with the search results sorted in chronological order. The file will have the most current record at the end of the file and focus will be on that record. Only the first two fields of the records (date and time) will be shown on the display. The action text in each record can be viewed by pressing the RIGHT navigation key twice to move the view to the right.

(Figure A-3). Pressing the LEFT navigation key will return the view toward the left.

Figure A-2: Action Log Search Results View

Figure A-3: Action Log Text View

Resetting the File

The Action log cannot be manually reset or cleared. It is automatically cleared after it has been disabled and enabled again or if the assignment for Alibi memory is changed.

Exporting the File

The Action log file is a compressed binary file called **Act_log.bin**. It can be exported from the IND560fill using InSite or a standard FTP connection, or through the serial port shared data server.

Printing the File

The Action log file cannot be printed, but each record can be printed as it occurs if a connection is configured (in setup at Communication > Connections) with an assignment of Action Log Output. Each record will provide the date, the time and the Action log text and is 40 characters long. A sample of this print is shown in Figure A-4.

```
21-Feb-2007  11:12:45  Start weigh-in
21-Feb-2007  11:12:49  Aborted
21-Feb-2007  11:13:12  Edit container tare
21-Feb-2007  11:13:18  Start weigh-in
21-Feb-2007  11:13:29  Tolerance OK
21-Feb-2007  11:13:41  Tolerance OK
21-Feb-2007  11:13:57  Out of tolerance
21-Feb-2007  11:13:59  Accept out of tolerance
21-Feb-2007  11:14:07  Start weigh-out
```

Figure A-4: Action Log Output Sample

Appendix B
Default Values

This appendix provides details of the default condition of all the IND560fill setup parameters.

Setup Feature	Default Value	Security Access
Application—Pac—Sequence		
Weigh-in	Blend / Fill	Maintenance
Weigh-out	None	Maintenance
Sequence Mode	Automatic	Maintenance
Sequence Tare	Enabled	Maintenance
Refill Mode	Automatic	Maintenance
Refill Tare	Disabled	Maintenance
Application—Pac—Timing		
Start Delay	0	Maintenance
After Weigh Delay	0	Maintenance
After Empty Delay	5	Maintenance
Weigh-In Complete	0	Maintenance
Weigh-Out Complete	0	Maintenance
Application—Pac—General—Materials		
Materials Weigh-in	1	Maintenance
#1 Feed Speeds	2	Maintenance
#2 Feed Speeds	2	Maintenance
#3 Feed Speeds	2	Maintenance
#4 Feed Speeds	2	Maintenance
Dose Speeds	2	Maintenance
Application—Pac—General—Cycles		
Track Cycles	Disabled	Maintenance
Application—Pac—General—Container Tare		
Container Tare	Disabled	Maintenance
Application—Pac—General—Interlocks		
OK to Weigh-in	Disabled	Maintenance

Setup Feature	Default Value	Security Access
OK to Weigh-out	Disabled	Maintenance
Application—Pac—General—Jog		
Mode	Automatic	Maintenance
Pulse Time (on)	2 seconds	Maintenance
Pause Time (off)	2 seconds	Maintenance
Application—Pac—General—Tolerance & Heel		
Manual Accept	Disabled	Maintenance
Zero Tolerance Check	Disabled	Maintenance
Zero Tolerance Value	0 (primary units)	Maintenance
Heel Weight	0 (primary units)	Maintenance
Application—Pac—Advanced—Fill Adjustment		
Overfill Adjustment	Disabled	Maintenance
Auto Spill Adjustment	Disabled	Maintenance
Cycles Averaged	3	Maintenance
Adjustment Factor	65 %	Maintenance
Update Table	Disabled	Maintenance
Application—Pac—Advanced—Learn Mode		
Learn Mode	Disabled	Maintenance
Test Point	40 %	Maintenance
Feed Time	3 seconds	Maintenance
Update Table	Disabled	Maintenance
Application—Pac—Advanced—Auxiliary Output		
Operation	Disabled	Maintenance
Active Cycle	Weigh-in	Maintenance
Trigger Weight (on)	0 (primary units)	Maintenance
Time (off)	1 second	Maintenance
Weight Limit (off)	0 (primary units)	Maintenance

Container Tare Table

This appendix provides details of the Container Tare Table used in the IND560fill terminal. The container tare table can include up to 100 records, which store tare weights and minimum and maximum values. These records can be used instead of manually entering a tare for each transaction; the minimum and maximum values can be used for a tare comparison.

When totalization is enabled, each time a transaction is completed using a specific ID, the selected weight value (gross or net weight) is added to the total and the counter increments by one. The counter for the totals is seven digits long and has a maximum value of 1,500,000. When this value is exceeded, an overflow error displays and that value is not accumulated. The counter must be reset in order to continue totalizing. The total register is 11 digits in length including all positions to the right of the decimal point. The decimal position is determined by the display resolution for the unit entered as the tare unit. Thus, the maximum value for a scale with a display resolution of 0.01 kg would be 999999999.99 kg. When this value is exceeded, an overflow error displays and that value is not accumulated. The total must be reset in order to continue totalizing.

Container tare weights can be recalled by selecting from a list of all the values using the CONTAINER TARE TABLE softkey ⊕ followed by the SEARCH softkey ⧉, or they can be "quick accessed" directly by pressing the ID value followed by the CONTAINER TARE TABLE softkey ⊕. A printed report of the records in the Container Tare Table is available through the REPORTS softkey ▤. This procedure is explained later in this appendix.

Record Format

The structure of a container tare record is shown in Table C-1. Each record in the Container Tare table will have these fields available.

Table C-1: Container Tare Records Stored in the Tare Table

Field	Length	Type	Description
ID	2	Numeric	Numeric string used for tare record lookup
Tare Weight	8	Numeric	Tare value. Stored in display resolution.
Tare Units	3	Alpha	Tare weighing units (dwt, g, kg, lb, oz, ozt, t, ton)
Minimum Tare	8	Numeric	Minimum acceptable tare weight. Stored in display resolution.
Maximum Tare	8	Numeric	Maximum acceptable tare weight. Stored in display resolution.

Field	Length	Type	Description
Description	20	Alpha-numeric	Description of this tare value
Total Weight	8	Numeric	Total weight of transactions completed using this stored tare record
Total Count	8	Numeric	Total number of transactions using this stored tare record.

Selecting From a List

Before the container tare table can be accessed, the CONTAINER TARE TABLE softkey ⓣ must be added to the softkeys on one of the home screens (refer to Appendix E, **Softkey Mapping** in the standard **IND560 Technical Manual**).

To Access the Container Tare Table:

1. Press the CONTAINER TARE TABLE softkey ⓣ to display the search screen as shown in Figure C-1.
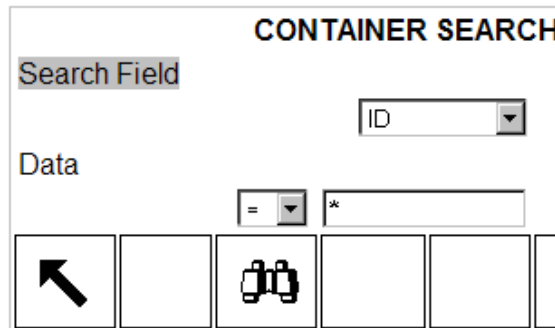
Figure C-1: Container Tare Table Search Screen

2. Use the Search Field selection boxes and associated data fields to enter specific search information to limit the search, or use the default "find all" character, the asterisk (*) to view all records.

3. Press the SEARCH softkey 🔍. The Container Tare Table Search View screen (Figure C-2) displays with the search results sorted by ID. The file will have the lowest ID record at the top of the file and focus will be on that record. Only the first three fields (ID, Tare, and Units) will be shown on the display. The remainder of the fields in each record can be viewed by pressing the RIGHT navigation key to move the view to the right. Pressing the LEFT navigation key will return the view toward the left.

Figure C-2: Container Tare Table Search View Results

3. Use the UP and DOWN navigation keys to focus on a container tare record.

4. Press the OK softkey ^{OK} to recall that record and move it to the active container tare record. If the record has a non-zero tare value, that value will be used for the tare. If the tare value is "0", then the minimum and maximum tare values will be used. All values stored in the container tare table are automatically converted when recalled if they don't match the display unit.

Quick Access

If the ID number for a specific record in the Container Tare Table is known, the record can be quickly recalled for use without going through the view and selection process.

Before the container tare table can be accessed, the CONTAINER TARE MEMORY softkey ⓣ must be added to the softkeys on one of the home screens (refer to Appendix E, **Softkey Mapping** in the standard **IND560 Technical Manual**).

To Access a Container Tare Record Quickly:

1. Enter the one- or two-digit ID for the container tare that is to be used. The data entry screen displays as shown in Figure C-3.

Figure C-3: Data Entry Screen

2. Press the CONTAINER TARE MEMORY softkey ⬦ to quickly recall the ID record entered. The stored tare record is recalled from the Container Tare Table and is moved to the container tare active record. All values recalled from the container tare table are automatically converted if it doesn't match the display unit.

3. If an invalid ID number is entered, a message [ID not found] displays.

Clearing Records and Totals

To Clear Records

All the records in the Container Tare Table can be cleared by pressing the CLEAR softkey **C** when viewing the first setup page for the table at the Application > Pac > General > Container Tare Table sub-branch of the menu tree.

To Clear all Totals

The totals for all of the records in the Tare Table are cleared by pressing the REPORTS softkey ▭, selecting Container Tare Table from the selection box, and pressing the CLEAR TOTALS softkey **C✳**.

To Clear An Individual Record Total

1. Access the menu tree and move to the Application > Memory > PAC > General > Container Tare Table sub-branch.

2. Press the VIEW TABLE softkey 🔍. The Search screen (Figure C-1) displays.

3. Use the Search Field selection boxes and associated data fields to enter specific search information to limit the search, or use the default "find all" character, the asterisk (*), to view all records.

4. Press the SEARCH softkey 🔍. The Container Tare Table Search View screen (Figure C-2) displays with the search results sorted by ID.

5. Use the UP and DOWN navigation keys to highlight the tare record for which the total is to be cleared and press the EDIT softkey ✎. The Container Tare Edit screen displays.

6. Press the DOWN navigation key to highlight the "n and Total" label and press ENTER.

7. Clear the "n" and/or "Total" values by pressing the CLEAR key on the numeric keypad when focus is in that data entry box. When the value in the data entry box is clear, press ENTER.

8. Press the OK softkey ✓ to accept the changes.

9. Press the EXIT softkey ↖ four times to return to the home screen.

Container Tare Table Report

The Container Tare Table can be viewed by an operator by pressing the REPORTS softkey ⬚. Results of the container tare table view can also be printed. The table report structure is based on the fields defined in the table and report configuration. These fields are described in Chapter 3.0, **Configuration**. Sample report printouts are shown in Figure C-4 below.

In order to access the report function, the REPORTS softkey ⬚ must be added to the selection of softkeys on one of the home pages (refer to Appendix E, **Softkey Mapping** of the standard **IND560 Technical Manual**).

To View / Print the Container Tare Table

1. Press the REPORTS softkey ⬚. The Reports Selection Screen displays (Figure C-12). Only tables that have been enabled in setup are shown. The Tare Table will always be shown.
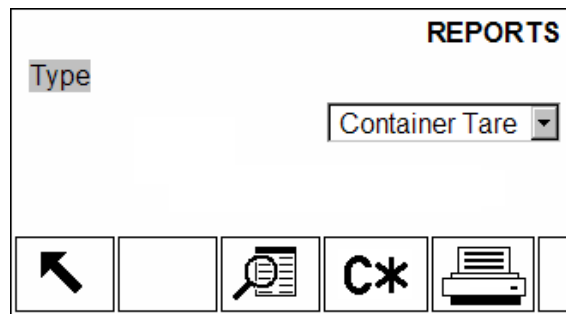

Figure C-4: View Reports Screen

2. Select the Container Tare Table from the Type selection box. Note that the available softkeys will change based on the selection of the type of report.

3. After selecting the container tare report, press the VIEW TABLE softkey 🔍.

4. The table search screen displays. This screen is shown in Figure C-1.

5. Use the Search Field selection boxes and associated data fields to enter specific search information to limit the search, or use the default "find all" character, the asterisk (*) to view all records.

6. Press the Search softkey 👓 to view the results of the search.

7. After the search is complete, the PRINT softkey 🖨 can be pressed to generate a printout of the report. A "Reports" connection must be present to generate the report print.

40 Column Example

If the first field on a line is disabled, it will not be printed and the field to the right will be shifted left. If a field on the right of a line is disabled, it will not print and

that space will be blank. If all fields on a specific line are disabled, the entire line will be removed from the report.

```
Container Tare Table Report
10:15:43    Mar 20 2007

ID:  1               Tare:        1 kg
Minimum:      0.8  Maximum:      1.2
Desc: Blue Box #4
n:        0   Total:          0 kg
**************************************
ID:  2               Tare:        0 kg
Minimum:      1.8  Maximum:      2.2
Desc: Green Bag #29
n:        0   Total:          0 kg
**************************************
ID:  3               Tare:        0 kg
Minimum:      2.8  Maximum:      3.2
Desc: Yellow Bag #11
n:        0   Total:          0 kg
**************************************
```

80 Column Example

If any field is disabled, that data will not be printed and the entire column will be removed from the report.

```
Container Tare Table Report
10:15:43    Mar 20 2007

ID     Tare      Minimum  Maximum       Desc         n      Total
********************************************************************************
  1     2.3  kg       0        0 AAA                 0        0 kg
********************************************************************************
 22       0  kg     5.3      7.8 BBB                 0        0 kg
********************************************************************************
 25       0  kg    22.3     22.7 CCC                 0        0 kg
```

Fill-560 Print Templates

This appendix covers

- Fill cycle template
- Dump cycle template
- Dose cycle template
- Blend cycle template
- Number of Cycles template

This appendix provides information regarding the print templates available for the Fill-560 application software from the InSite template editor PC program. These templates are not available as default templates in the terminal but predefined templates can be loaded into the IND560fill using the InSite PC tool and then modified as needed.

A print trigger for each of the types of cycles (Fill/Blend, Dump, and Dose) and for the completion of the Number of Cycles is provided to trigger a demand output at the end of its cycle. A connection must be made using these triggers for a demand output for a selected port.

The following five templates are given as examples for the Fill, Dump, Dose, Blend and Number of cycles prints.

Fill Cycle

The available shared data variables for the Fill cycle are listed in Table 3-2 in Chapter 3, **Setup Parameters**. In addition to these shared data variables, any variables from the standard IND560 may also be added.

Sample Output

```
Fill      Cycle  1  of 5

Start:    05:06 PM   Feb 26 2006
Finish:   05:07 PM   Feb 26 2006

Mixture B42
Target:               21.75 lb
Net Delivered:        21.77 lb
```

Dump Template

The available shared data variables for the Dump cycle are listed in Table 3-6 in Chapter 3, **Setup Parameters**. In addition to these shared data variables, any variables from the standard IND560 may also be added.

Sample Output

```
Dump        Cycle  1  of 5

Start:     02:45 PM    Feb 26 2006
Finish:    02:46 PM    Feb 26 2006

Start Weight:             18.35 lb
Finish Weight:             0.18 lb
Net Delivered:            18.17 lb
```

Dose Template

The available shared data variables for the Dose cycle are listed in Table 3-5 in Chapter 3, **Setup Parameters**. In addition to these shared data variables, any variables from the standard IND560 may also be added.

Sample Output

```
Dose        Cycle  1  of 7

Start:     04:44 PM    Feb 26 2006
Finish:    04:45 PM    Feb 26 2006

#12 Clean Water
Target:              4.95 lb
Net Delivered:       4.96 lb
```

Blend Template

The available shared data variables for the Blend cycle are listed in Table 3-4 in Chapter 3, **Setup Parameters**. In addition to these shared data variables, any variables from the standard IND560 may also be added.

Sample Output

```
Blend        Cycle  2  of 5

Start:       03:24 PM   Feb 26 2006
Finish:      03:26 PM   Feb 26 2006

Mat. Target(lb)  Actual(lb)   Var.(lb)
1         11.25       11.25       0.00
2         12.15       12.14      -0.01
3         13.67       13.65       0.00
4         14.38       14.35       0.00
     ------------------------------------
Total     51.45       51.39      -0.01
```

Number of Cycles Template

The available shared data variables for the Number of Cycles trigger are listed in Table 3-2 in Chapter 3, **Setup Parameters**. In addition to these shared data variables, any variables from the standard IND560 may also be added.

Sample Output

```
Total of  5  cycles complete

Finish:   05:27 PM   Feb 26 2006

Total material:       284.96 lb
```

Material Steering for Blending

This appendix provides information regarding the mapping of discrete outputs for controlling feeding systems. The IND560fill provides two discrete output alternatives for selection a specific material for feeding.

The Material 1 (2, 3 or 4) output can be combined with the Weigh-in Fast Feed and Weigh-in Feed outputs to correctly map the output signal to a feeding system. The direct material feed outputs, Material 1, 2, 3 or 4 Fast Feed and Material 1, 2, 3 or 4 Feed, are discrete outputs that allow you select the material and the feeding speed with a single signal, eliminating the need for external relay logic for feeder control.

External Relay Logic

To properly route the Weigh-in Feed and Weigh-in Fast Feed outputs of the IND560fill terminal when blending more than one material, it is sometimes necessary to use external relay logic. The diagrams below and on the next page provide examples of how this can be done.
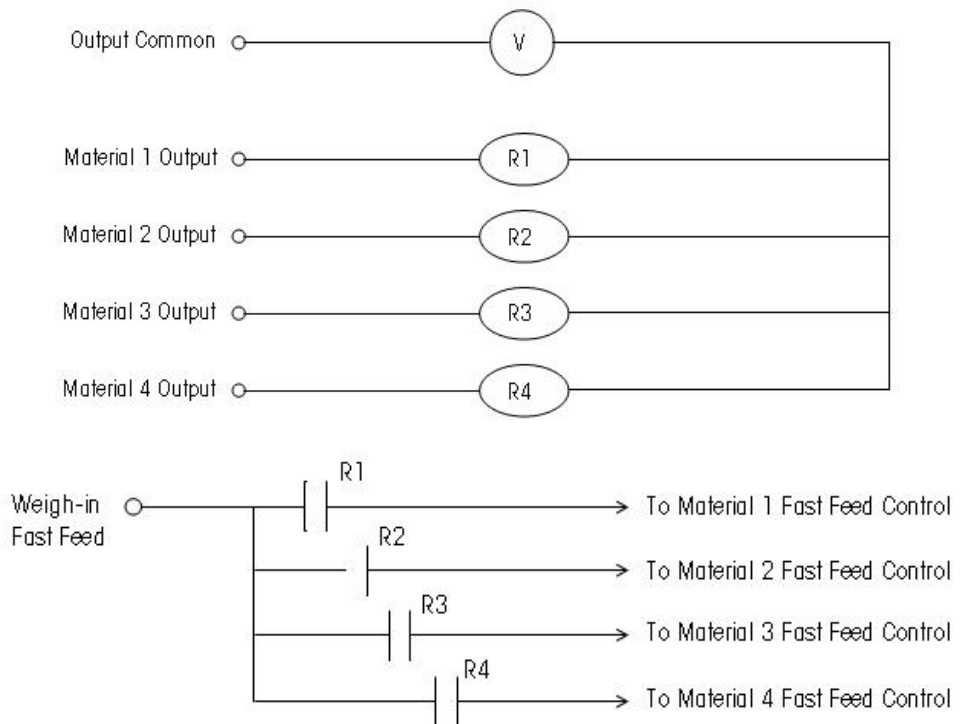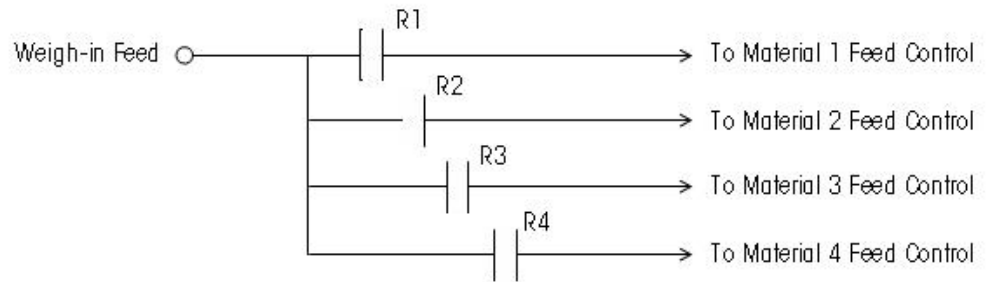
Direct Material Outputs

The direct material outputs of the IND560fill (Material 1, 2, 3 and 4 Fast Feed and Material 1,2,3 and 4 Feed) are discrete outputs that allow you to select the appropriate material and the feeding speed with a single signal. The output can be directly connected to the feeding system, eliminating the need for external relay logic. The diagram below provided a basic example of these direct material outputs.

Discrete Output Shared Data

The IND560fill has unique shared data to monitor the status of all discrete inputs and outputs. When a discrete output is "on", the shared data field value sets to "1". When the output is off, the shared data field value resets to "0". The shared data fields associated with the material steering principles discussed in this appendix can be found in Table E-1.
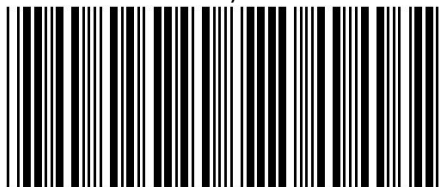
Table E-1: Blend Shared Data Fields

IND560fill Data Field	SDName	Length
Material 1	as0115	1 A/N
Material 2	as0116	1 A/N
Material 3	as0117	1 A/N
Material 4	as0118	1 A/N
Weigh-in Fast Feed	as0122	1 A/N
Weigh-in Feed	as0123	1 A/N
Material 1 Fast Feed	as0131	1 A/N
Material 1 Feed	as0132	1 A/N
Material 2 Fast Feed	as0133	1 A/N
Material 2 Feed	as0134	1 A/N
Material 3 Fast Feed	as0135	1 A/N
Material 3 Feed	as0136	1 A/N
Material 4 Fast Feed	as0137	1 A/N
Material 4 Feed	as0138	1 A/N