1280 Filling / Dosing

Custom 1280 Program

Operation Manual

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RICE LAKE WEIGHING SYSTEMS

PN 191883

An ISO 9001 registered company

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Contents

1.0 Introduction

This manual provides operation instructions for the 1280 Filling/Discharge software (PN 191318).

Manuals are available for viewing and/or downloading from the Rice Lake Weighing Systems website at www.ricelake.com/manuals

Warranty information can be found on the website at www.ricelake.com/warranties

1.1 Overview

The Filling/Dosing software is designed for multiple scenarios.

1.1.1 Filling

Gross Filling

This software is used to fill a container that is placed on a scale. It offers one-button operation and automatically tares the empty container at the beginning and end of filling the container. It can automatically store and transmit each fill weight and ongoing accumulations. Built-in safety interlocks prevent startup of a fill cycle if an empty container is not in place, or if the previously filled container has not been removed.

Net Filling

Provides simple one-button operation and automatically fills the scale to a preset weight, followed by an automatic discharge into a container. Remove the container from under the scale and replace it with another empty container, repeat the process as needed. It can automatically store, display and transmit each fill weight and ongoing accumulations. Built-in safety interlocks prevent startup of a fill cycle if an empty container is not in place, or if the previously filled container has not been removed.

1.1.2 Net Dispensing/Dosing

Automatic Source Refill

Automatic Source Refill is used when a preset target weight is repeatedly dispensed from a tank or a hopper scale. The system maintains weight within high and low limits to guarantee enough content for a complete dispense cycle. When Start is pressed the system automatically tares the scale and begins the loss-in-weight dispense.

Pause and Resume

Pause and Resume is used when product supply containers are placed on the scale and net weight quantities are dispensed from the containers until empty.

If a container does not have enough material during the dispense, a Slow Cycle alarm is triggered. The cycle is paused, allowing the operator to change out containers or correct dispense control issues.

When the software is restarted, the scale tares and the remainder of the product is dispensed.

Note *All modes allow a transaction to be transmitted out a serial port to a printer and stored within an onboard database.*

2.0 Operation

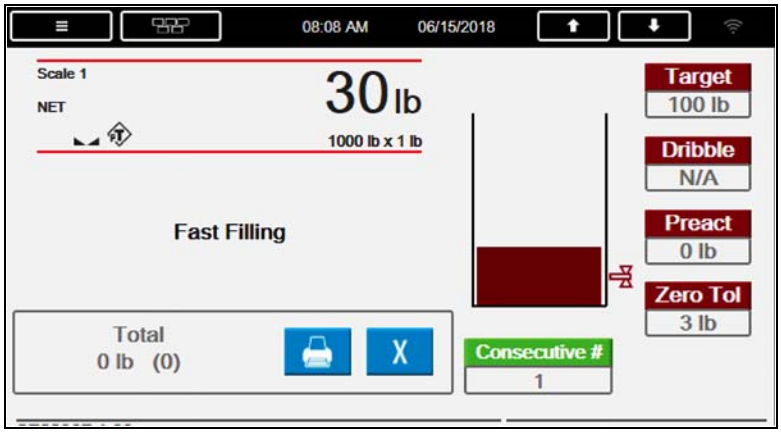

Figure 2-1. Main Display

2.1 Modifying Preset/Weights

Operator presses Target, Dribble, Preact, Zero Tol, or Consecutive # icon to edit the corresponding weight/number.

2.2 Printing and Clearing Totals

1. Press  . System prints the current total.
2. Press  . The *Clear Totals* popup displays.

Figure 2-2. Clear Totals

3. Press Yes to clear the totals or No to cancel.

2.3 Gross/Net Filling

1. Ensure the E-Stop button is pulled out.
2. Turn the Start/Abort switch to the *Start* position to begin a fill.
   A. System verifies:
      i. Gross weight is within *Zero Tolerance* (Disabled if *Zero Tolerance* = 0) or gross weight above *Container Threshold* (Disabled if *Container Threshold* = 0).
      ii. The E-Stop button is pulled out.
      iii. A valid target value is entered (Target > 0).
      iv. If *Discharge* is disabled and optional container photo eye is enabled, system checks for a container.

      Note *A relevant error message displays for any conditions that are not met. Examples: ERROR: No Valid Target or ERROR: No Container.*

   B. System performs the following:
      i. Increments the *Consecutive* # by 1 on the main display.
      ii. Tares the scale if *Auto Tare* is enabled in the setup menu.
   C. System begins filling:
      i. Single Speed – system turns on:
         • *Fast Fill* until the *Target – Preact Weight* is satisfied
      ii. Parallel Speed – system turns on:
         • *Fast Fill* and *Slow Fill* until the *Target – Dribble Weight* is satisfied
         • *Fast Fill*, leaving the *Slow Fill* on until the *Target – Preact Weight* is satisfied
      iii. Dual Speed – system turns on:
         • *Fast Fill* until the *Target – Dribble Weight* is satisfied
         • *Slow Fill* on until the Target – Preact Weight is satisfied
   D. System performs the following once the target is reached:
      i. Captures a stable weight.
      ii. Updates the total weight and number of fills.
      iii. System adds a transaction to the Transaction Database (*deletes 25% of oldest records when full*).
      iv. Sends a transaction message out *TCP Client 1* if *Transaction Message* is enabled in the setup menu.
      v. System prints out a weigh ticket if *Auto-Print* is enabled. Pressing PRINT or Print reprints last ticket.
      vi. Turns on the *Fill Complete* light.
   E. System checks the following:
      i. Discharge Option Enabled
         • If optional Container In Place photo eye is enabled, system checks to ensure a container is in place.
         • If Auto-Discharge is disabled, *Press Discharge Button* displays. Skip to Step 3.
      ii. Discharge Option Disabled
         • *Remove Container* displays. The Fill Complete is on until the scale drops below *Zero Tolerance* or *Container Threshold*.
3. Press Discharge.
   A. System turns on *Discharge* output until the weight drops below Zero Tolerance
   B. System turns off the Fill Complete output when the weight drops below Zero Tolerance.
   C. System delays for the Delay After Discharge before it completes the cycle.
4. Remove the container. Once the weight falls within the *Zero Tolerance*, the system is ready for the next fill.

2.4 Dispensing Material (Dosing)

1. Ensure the E-Stop button is pulled out.
2. Turn the Start/Abort switch to the *Start* position to begin a fill.
   A. System verifies the following:
      i. E-Stop button is pulled out
      ii. Valid Target value is entered (Target > 0)
   B. If *Refill Option* is enabled and the weight is:
      i. above *Target Weight* and *Low Level* weight system proceeds to C.i.
      ii. below *Target Weight* or *Low Level* weight:
         - System refills (*Refill Output* turns on) the scale to the *High Level* weight
         - When weight reaches the *High Level* weight, the *Refill Output* turns off
         - System returns to Start
   C. If *Refill Option* is disabled, system performs the following:
      i. Turns off the *Dispense Complete* and *Refill Complete* (if enabled) outputs.
      ii. Increments the *Consecutive Number* by 1.
      iii. Tares the scale if *Auto Tare* is enabled in the setup menu.
   D. System begins dispensing material (weight is subtracting):
      i. Single Speed – system turns on:
         - *Fast Dispense* until the *Target – Preact Weight* is satisfied
      ii. Parallel Speed – system turns on:
         - *Fast Dispense* and *Slow Dispense* until the *Target – Dribble Weight* is satisfied
         - *Fast Dispense* turns off and leaves the *Slow Dispense* on until the *Target – Preact Weight* is satisfied
      iii. Dual Speed (default) – system turns on:
         - *Fast Dispense* output until the *Target – Dribble Weight* is satisfied
         - *Slow Dispense* output until the *Target – Preact Weight* is satisfied
   E. System performs the following when the target is reached:
      i. Captures a stable net weight.
      ii. Updates the total weight and number of fills.
      iii. Turns on the *Dispense Complete* light.
      iv. Starts the *Delay After Discharge* time.
   F. System prints a Weigh Ticket. Press PRINT or Print to reprint the last ticket.
   G. After *Delay After Discharge* the weight display switches to gross mode and performs one of the following:
      i. Refill Option enabled – if the gross weight is below *Low Level* weight or below the *Target Weight* the *Refill Output* automatically turns on until the gross weight exceeds the *High Level* weight.
      ii. Refill Option disabled – system returns to start.

2.4.1 Pausing/Resume/Reset a Fill or Discharge

Press in the E-Stop button. All outputs turn off and *System Stopped* displays.

A. A fill can be resumed by pulling the E-Stop out and toggling the Start/Abort switch to the *Start* position.
B. A fill can be reset (terminated) by toggling the Start/Abort switch to the *Abort* position while the E-Stop button is pushed in.

Note *If a container runs empty in the middle of dispensing, causing a Slow Cycle, the cycle is paused to change out containers or correct dispense control issues. Press Start and the system automatically tares the scale, begins the loss-in-weight dispense and stops as programmed while storing the accumulated weight totals.*

3.0 Serial Communications - Tickets, PC

3.1 Weigh Ticket (AuxFmt1)

The ticket is transmitted out of Port 1. The format can be modified through the front panel or using Revolution®.

```
Consecutive # : 36

Target Weight : 100 lb

Actual Weight : 99 lb

08/10/2018 3:34 PM
```

Figure 3-1. Ticket Example

String	Description
User String 1 <US1>	Consecutive #
User String 2 <US2>	Gross Weight
User String 3 <US3>	Tare Weight
User String 4 <US4>	Net Weight
User String 5 <US5>	Date
User String 6 <US6>	Time
User String 7 <US7>	Scale Units String
User String 8 <US8>	Target Weight
User String 9 <US9>	Dribble Weight
User String 10 <US10>	Preact Weight
User String 11 <US11>	Total Count
User String 12 <US12>	Total Weight

Table 3-1. User Strings

3.2 Transaction Message (AuxFmt2)

The message is transmitted (defaulted to Port None). The format can be modified through the front panel or using Revolution. The same user strings used in the Weigh Out Tickets are used.

Consecutive Number, Target, Net, Time, Date<CR><LF>

4.0 Input/Output

4.1 Input Data from 1280 to PLC

Input No.	Description
1	Communication status – this will be an incrementing number that is updated every time the PLC sends back the same number
2	Live Scale Status (see Table 4-2)
3	Digital Input Output Statuses (0 off : 1 on) • Bit 0 Emergency Stop (Input) • Bit 1 Start (Input) • Bit 2 Fast Fill (Output) • Bit 3 Slow Fill (Output) • Bit 5 Zero Tolerance (Output) • Bit 6 Discharge (Output) • Bit 7 Container in Place (Input)
4	Live Gross Weight
5	Live Tare Weight
6	Live Net Weight
7	Last Fill Weight

Table 4-1. Input Data

Word 2 Bit	Value = 0	Value = 1
00	Error	No error
01	Tare not entered	Tare entered
02	Not zero	Center of zero
03	Weight invalid	Weight OK
04	Standstill	In motion
05	Primary units	Other Units
06	Tare not acquired	Tare acquired
07	Gross weight	Net weight
08	Channel number *NOTE: Value 0 represents scale #32*	
09		
10		
11		
12		
13	Not used	
14	Integer data	Floating point data
15	Positive weight	Negative weight

Table 4-2. Indicator Status Data

4.2 Output Data From PLC to 1280

Output Number	Description
1	Commands 0 = No Command 1 = Start 2 = Acknowledge 3 = Pause 4 = Abort - PLC looks at the Center Of Zero Bit and then sets this to 0 if a Zero is acquired.
2	Communication status – PLC sends back the same number that the 1280 is sending in Input #18 This is the heart beat logic; system will wait 5 seconds before it considers it a loss of communications

Table 4-3. Output Data

5.0 Application Setup & Configuration

Parameter		Description
System Password	"" (default)	Change the password required for entry into the setup menu; set the password to nothing and the system does not prompt for a password when the Setup Menu icon is pressed; enter alpha/numeric string
Filling Speeds	Single-Speed (default) Dual-Speed Parallel Speed	Change to the filling speed operation
Filling Mode	Net (default) Dosing	Displays the current mode whether it be Gross/Net Filling or Dosing
Refill Option	Enabled (default) Disabled	Dispensing/Dosing Mode – enable or disable the automatic refill option
Slow Cycle Time	enter value 20.0 Sec (default)	Edit the Slow Cycle Time for dosing
Auto Tare	Enabled (default) Disabled	Enable/disable the Auto Tare feature
Auto-Print	Enabled (default) Disabled	Enable/disable the Auto Print feature
Discharging	Enabled (default) Disabled	Enable/disable the Discharge option
Auto-Discharging	Enabled (default) Disabled	Enable/disable the Auto Discharge option
Container Photo Eye	Disabled (default) Enabled	Enable/disable the container photo eye option
Container Threshold	enter value 3.0 lb (default)	Edit the Container Threshold Weight for filling and removing containers (primarily without discharge)
Delay After Discharge	enter value 3.0 sec (default)	Enter a time in seconds to delay after completion of Discharge before a new Start input is enabled
Digital IO Testing	ON OFF	Turn digital outputs on or off; touch the corresponding square icon to toggle output
Transaction Message	Enabled (default) Disabled	Sends a Transaction String out TCP Client 1 if enabled; Settings: Enabled (default), Disabled
Clear Transaction	YES NO	Clears the transaction database
Import / Export	--	Import and export databases

Table 5-1. Setup and Configuration Parameters

5.1 Change Units to Metric

1. Press ≡. The main menu is displayed.
2. Select *Scale*.
3. Select *Format*.
4. Navigate to primary units and select metric.

6.0 Database Tables

System deletes 25% of oldest records when the database reaches maximum capacity.

Field	Type	Description
Consec	Integer	Auto-Incrementing Consecutive Number
Target	Real	Target Weight
Dribble	Real	Dribble Weight
Preact	Real	Preact Weight
Actual	Real	Actual Dispensed Weight
DT	Date/Time	Time and Date of Transaction

Table 6-1. Transactions Database (5000 Records)

7.0 Hardware Setup

Slot	Type
1	Single Channel A/D Card
2	Ethernet IP Card
3-6	Currently Not Used

Table 7-1. Option Card Locations

Slot	Bit	Type	Function
0	1	Programmability	Start/Abort
0	2	Programmability	Emergency Stop
0	3	Programmability	Container In Place (receives product if Discharge is enabled)
0	4	Output	Fast Fill/Fast Dispense
0	5	Output	Slow Fill/Slow Dispense
0	6	Output	Fill Complete/Dispense Complete
0	7	Output	Zero Tolerance
0	8	Output	Discharge/Refill

Table 7-2. Digital I/O

Port	Type	Description	Setup
1	CMD	Printer	9600,8,N,1
2	CMD	Currently Not Used	9600,8,N,1

Table 7-3. Serial Port

Port	Type	Description	Setup
10001	CMD	Revolution Downloads	TCP Server
10001	CMD	Transaction Message Output (if enabled)	TCP Client 1
10002	CMD	Currently Not Used	TCP Client 2
3000	CMD	Web Server	Web Server

Table 7-4. Ethernet TCP/IP Port

Port	Type	Description	Setup
3	CMD	Qwerty Keyboard	-

Table 7-5. USB Device Port

Port	Type	Description	Setup
-	CMD	Currently Not Used	-
-	CMD	Currently Not Used	-

Table 7-6. USB Type-A Port

Port	Type	Description	Setup
-	CMD	8GB Micro SD Card	Images

Table 7-7. SD Card Slot

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