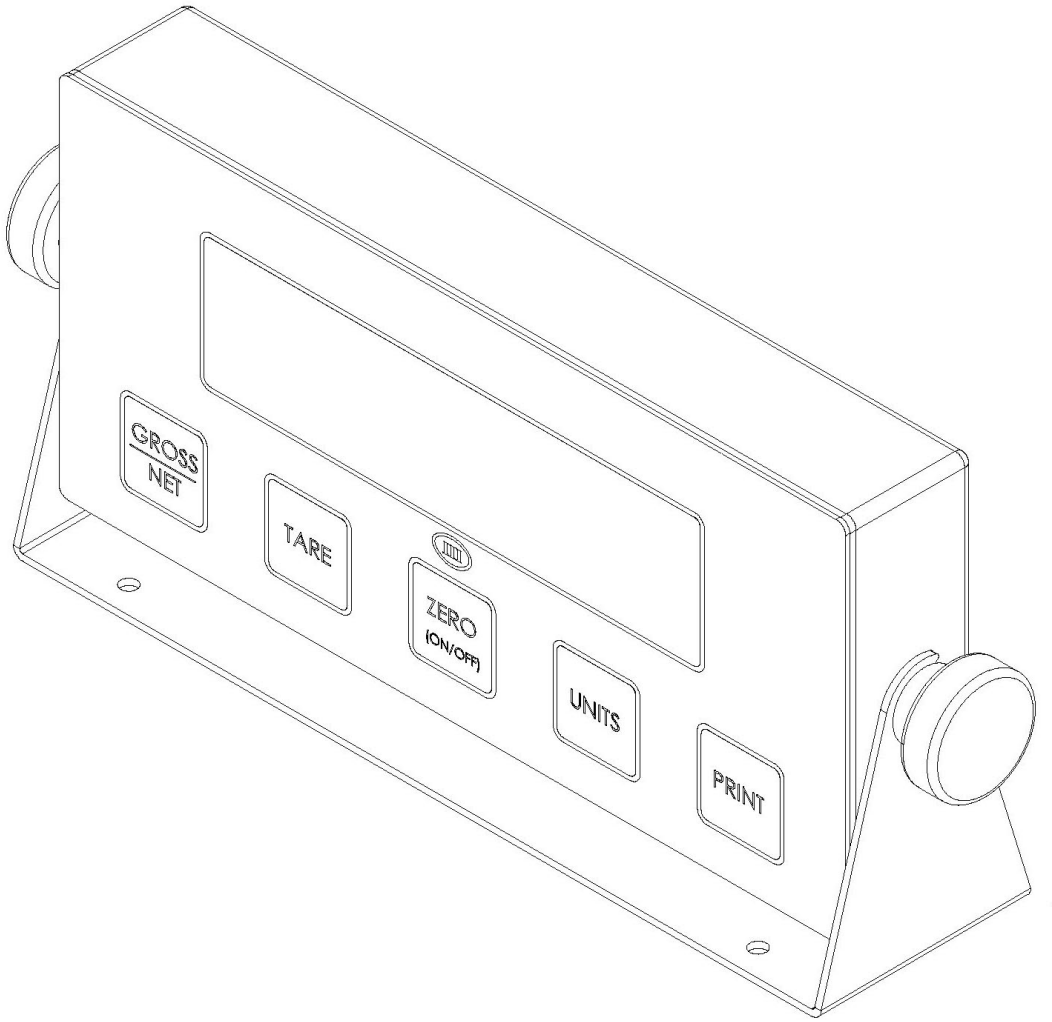
Model DS100
Scale Indicator



Instruction Manual

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Section 1. Unpacking and Installation

Unpacking

Before unpacking your Doran scale, please read the instructions in this section. Your new scale is a durable industrial product, but it is also a sensitive weighing instrument. Normal care should be taken when handling and using this product. Improper handling or abuse can damage the scale and result in costly repairs that may not be covered by the warranty. If you notice any shipping damage, notify the shipper immediately. Please observe the following precautions to insure years of trouble free service from your new scale.

! DO NOT drop the scale.

! DO NOT drop objects on the scale.

Carefully remove the scale from the shipping carton. Be sure to retain all shipping materials in case the scale must be shipped elsewhere.

Installation

Place the scale on a stable flat surface. Verify that the bubble level located under the platter shows that the scale is level. Adjust the four feet to obtain a level condition (bubble in center.)

Electrical Connections

The DS100 uses a wall mounted transformer to provide power to the scale. The transformer requires 115 VAC, 50/60 Hz power. Be sure the AC power is not excessively noisy – this can occur if large inductive loads, such as solenoids or motors, are on the same power line. Subjecting electronics to problematic AC power lines may result in damage not covered by the warranty. Also be sure that the power outlet and transformer are not exposed to water while the scale is plugged in.

Care & Cleaning

With reasonable care, this product will last for many years. Here are some tips to care for your DS100 Scale Indicator.

- Hand clean with a damp cloth using mild detergent.
- Do not use strong solvents or abrasive cleaners as this can damage the touch panel or other plastic parts.
- Do not drop or overload the scale.
- Do not use sharp objects to press any of the buttons.
- Do not immerse.

Section 2. Scale Operation

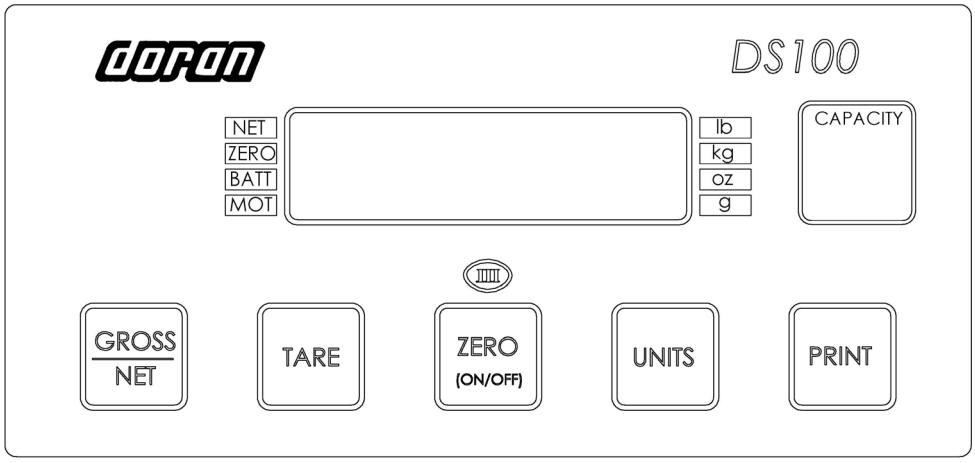

Fig. 1 DS100 Front Panel

Display Functions

The Model DS100 controls consist of GROSS/NET, TARE, ZERO (ON/OFF), UNITS and PRINT buttons located under to the LED display. The display is used to provide weight indications and operator messages describing scale operation.

Power

The DS100 is powered by an AC wall transformer. Turn the scale off by pressing and holding the ZERO (ON/OFF) button for three seconds. Turn the scale on by pressing the ZERO (ON/OFF) button.

Units Select

Press the UNITS button to change weight display units from lb, lb:oz, oz, kg, g. The units annunciator to the right of the LED display will indicate the current weight.

Print

To transmit the selected print string through the standard RS-232 port, press PRINT. This will cause the selected print string to be printed. The scale will not transmit while the scale is in motion. If the scale is in motion when the PRINT button is pressed, the DS100 will transmit the selected print string once the scale becomes stable.

Motion

Motion is indicated by the MOT annunciator to the left of the LED display.

Zero Weighing

1. Empty the scale base or place an empty container on the base and press ZERO to zero the scale. If the scale is in motion when the ZERO button is pressed, the DS100 will zero the scale once the scale becomes stable.
2. Place an item on the scale and wait for the MOTION indicator to go out
3. Read the weight on the display
4. Press ZERO again to weigh additional items

Net / Gross Mode

The NET annunciator to the left of the LED display will indicate the NET or GROSS weigh status of the indicator. The indicator enters the NET mode when the TARE button is pressed with an item on the base. Alternatively, to enter the NET mode, press the GROSS/NET button. The NET mode is not available when a TARE weight is not active.

To clear an active TARE weight:

1. If the scale is in the NET mode, enter the GROSS mode by pressing ZERO.
2. When the scale display reads zero in the GROSS mode, press TARE.

Net / Gross Weighing

1. Empty the scale base or place an empty container on the base and press TARE
2. The indicator will read zero and place the scale in NET mode
3. Place an item on the scale platter and wait for the MOTION indicator to go out
4. Read the weight on the display
5. Press TARE again to weigh additional items
6. Press ZERO, then TARE to clear the tare weight

Section 3. Setup and Calibration Guide

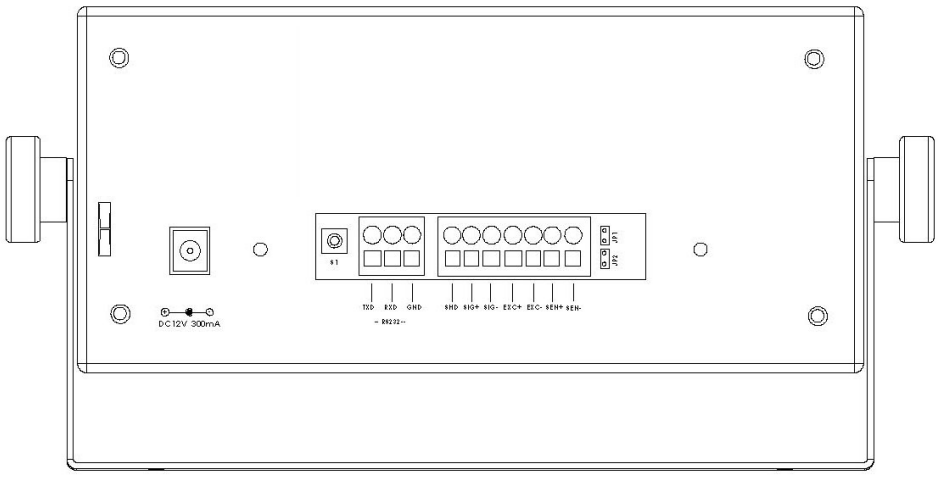

Fig. 2 DS100 Rear Panel

Power connections

The DS100 is powered from a wall mounted transformer. The transformer has a power cord which plugs into the power jack located on the back of the scale. A strain relief is provided to the left of the power jack. The power cord can be looped around the strain relief to prevent accidental unplugging.

RS-232 Connections

The DS100 has a standard RS-232 output. To use this feature, the optional RS-232 cable (P/N DSOPT001 or DSOPT002) is required. To access the RS-232 terminals at the rear of the scale, remove the rear panel from the indicator as shown in Figure 2.

Insert the cable conductors by placing a small flat blade screw driver into the terminal slot and then push the handle of the screw driver upwards towards the top of the indicator. This forces the terminal below to open. Insert the conductor into the terminal and remove the screwdriver.

Load Cell Connections

The DS100 accepts 4 wire and 6 wire load cells. For 4-wire operation, jumpers JP1 and JP2, located to the right of the load cell connections, must be inserted. For 6-wire operation, remove JP1 and JP2. To protect against ESD, use the ground wire provided with your Doran base load cell cable and connect to the Shield (SHD) terminal. If a ground wire is not available, ground the base to the meter with the SHD connection. Verify proper grounding by measuring the resistance from the SHD terminal on the DS100 to the base chassis.

Insert the cable conductors by placing a small flat blade screw driver into the terminal slot and then push the handle of the screw driver upwards towards the

top of the indicator. This forces the terminal below to open. Insert the conductor into the terminal and remove the screwdriver.

Doran Standard Load Cell Color Code	
+ Signal	Red
- Signal	White
+ Excitation	Green
- Excitation	Black
+ Sense	Blue
- Sense	Brown or Yellow

Entering and Exiting Setup Mode - Pushbutton

The setup mode can be entered by pressing the setup pushbutton located behind the rear panel as shown in Figure 2. This pushbutton is provided so a lead and wire seal can be utilized to metrologically seal the scale. To exit the setup mode, press the setup pushbutton or the PRINT button.

Entering and Exiting Setup Mode – Front Panel

To enter setup mode from the front panel, turn off the indicator. Then press and hold PRINT and ZERO(ON/OFF). When the indicator turns on, all annunciators will be activated. Release both PRINT and ZERO(ON/OFF). To exit the setup mode, press PRINT to immediately exit or press and release UNITS until the indicator automatically exits.

Setup Mode Navigation

To navigate through the parameter menus:

- Press ZERO to change the parameter selection
- Press UNITS to go to the next parameter
- Press TARE to back up to the previous parameter

For changing the capacity and scale calibration, refer to the sections below for detailed instructions.

Capacity and Resolution Configuration

After entering the setup mode, the display will briefly show the Calibration and Parameter audit counters. The display will then show CAP 100, in this case, the capacity is set to 100. The capacity unit can be either lb or kg. The units annunciator to the right of the weight display will indicate the active unit.

1. To change the capacity, press ZERO
2. The active digit will flash
3. Press ZERO to change the active digit
4. Once the active digit is properly set, press UNITS to advance to the next digit to the right or press TARE to move one digit to the left
5. After setting the right most digit, the units annunciator will flash
6. To change the capacity unit, press ZERO to change between lb and kg

7. Press UNITS to advance to the resolution parameter once the proper unit is selected
8. The display will read the current “count by” setting for example: d 0.01
9. Only resolutions that are available for the defined capacity can be selected. The DS100 is limited from 100 to 12500 displayed divisions.
10. Press ZERO to select the desired resolution
11. Press UNITS to advance to calibration

NOTE: If CAP E appears on the display during step 7, the capacity selected is out of range. Ensure the capacity is within 1 to 99,999 lb or 1 to 45,000 kg. Verify the desired unit annunciator is lit. Press ZERO to clear this error.

Calibration

Once the capacity and resolution are set, the scale can be calibrated. The DS100 utilizes a two point zero and span calibration. Note: the minimum calibration weight is 5% of scale capacity. For the most accurate results, it is recommended to calibrate as close to full capacity as possible.

1. After the capacity is set the scale reads CAL 0
2. To perform a zero calibration, remove all items from the base and ensure the base is free from any disturbance (air currents or vibration)
3. Press ZERO. The indicator will count down from 7 to 0. If there is any disturbance, the countdown will reset back to 7 to ensure an accurate calibration.
4. Once zero calibration is successfully completed, the display will show the calibration weight value. For example 00100, represents 100 lb or kg. The units annunciator to the right of the LED display will indicate the active unit. This unit must be the same as the capacity and resolution unit as defined above.
5. To change the span calibration weight, press ZERO.
6. The active digit will flash
7. Press ZERO to change the active digit
8. Once the active digit is properly set, press UNITS to advance to the next digit to the right or press TARE to move one digit to the left
9. After setting the right most digit, place the calibration weight on the base
10. Press UNITS to perform the span calibration
11. After span calibration, the scale returns to the weigh mode to confirm calibration

NOTE: If r9 Err appears on the display during step 3, the calibration zero is out of range. Press ZERO to clear this error. Refer to the Calibration Troubleshooting below for additional information.

NOTE: If SPn E appears on the display during step 4, the entered calibration weight value is outside the required 5% to 100% of capacity. Press ZERO to clear this error.

NOTE: If SPnL or SPnH appears on the display, the calibration span is out of range. Verify that the calibration weight is correct and repeat the calibration. Refer to the Calibration Troubleshooting below for additional information.

Calibration Troubleshooting

The following table shows the acceptable Raw Counts for no load and full load. Raw Counts can be viewed through the last setup parameter. Refer to Section 4, Parameter Setup, for more information regarding parameter viewing.
If the scale's raw counts are not within the ranges specified in the following table, contact a Doran Certified Scale Distributor, or Doran's Technical Assistance department at 800-262-6844.

Calibration Requirements in Raw Counts		
	Minimum	Maximum
Zero Calibration Point	-8,000	55,000
Required Calibration Span (100% of Capacity Scale Cal Point – Zero Cal Point)	10,000	220,000
Required Calibration Span (5% of Capacity Cal Point – Zero Cal Point)	500	11,000

Section 4. Parameter Setup

The DS100 has adjustable setup parameters, which control the scale's operation.

Entering and Exiting Setup Mode - Pushbutton

The setup mode can be entered by pressing the setup pushbutton located behind the rear panel as shown in Figure 2. This pushbutton is provided so a lead and wire seal can be utilized to metrologically seal the scale. To exit the setup mode, press the setup pushbutton or the PRINT button.

Entering and Exiting Setup Mode – Front Panel

To enter setup mode from the front panel, turn off the indicator. Then press and hold PRINT and ZERO(ON/OFF). When the indicator turns on, all annunciators will be activated. Release both PRINT and ZERO(ON/OFF). To exit the setup mode, press PRINT to immediately exit or press and release UNITS until the indicator automatically exits.

Parameters are accessed by pressing the UNITS button. Pressing this button will cause the scale to step to the next parameter on the list.

NOTE: No setup information is saved until the DS100 exits the setup mode. A power failure while in the setup mode will cause changes to be lost.

If it is necessary to physically seal the scale, run a lead and wire seal through the three cross drilled bolts at the rear of the indicator.

Changing a Parameter

Once the desired parameter has been found, it may adjusted. Press and release ZERO to step through the individual options. See Section 3 for setting scale capacity and resolution. When you have stepped through all of the parameters, the scale will return to the weigh mode.

Legal for Trade Restrictions

The Legal for Trade mode disables the lb:oz mode. Setup mode front panel access can be disabled for applications that require a physical lead and wire seal.

Capacity Setup Menu

C	Select Scale Capacity (lb or kg)
1-99999(lb) 1-45000(kg)	Capacity setting: 1 to 99,999 in lb 1 to 45,000 in kg See Capacity and Resolution Configuration in Section 3 for configuration instructions.

Resolution Setup Menu

d	Select Scale Capacity (lb or kg)
0.0001- 50	0.0001 to 50 resolution setting in same unit as capacity unit above. The resolution selections are limited by the capacity setting from 200 to 12,500 divisions.

Calibration Menu

CAL	Zero Calibration Point
0	Press ZERO to calibrate zero point

000000	Span Calibration Point
1-99999(lb) 1-45000(kg)	Span calibration weight setting: 1 to 99,999 in lb 1 to 45,000 in kg. See Calibration in Section 3 for calibration instructions. NOTE: This parameter is only visible after a zero calibration is performed.

Reset All Parameters to Default Settings

rSt	Default parameters
n	No. Parameters are not defaulted.
y	Yes. Set all parameters to the factory default values when UNITS is pressed.

Operation Mode

oP	Sets the scale for Legal for Trade mode
St	Standard mode. NOT legal for trade.
44	Legal for trade setting. This setting automatically disables certain parameter menus below as indicated by an (*).

Auto Zero Tracking

2t *	**# of displayed divisions that are automatically zeroed from displayed zero, while the scale is stable.**
oF	Zero tracking is disabled
0.5	1/2 division (Legal for Trade Setting)
3.0	3 divisions
1.0	1 division

Motion Aperture

nnA *	**# of displayed divisions that must change before motion is detected.**
1	1 division (Legal for Trade Setting)
3	3 divisions
5	5 divisions

Start Up Zero

Suo *	**Controls the start-up zero point**
no	Scale will NOT zero on power up. Calibrated zero is loaded on power-up.
F5	Scale will zero up to 100% of scale capacity on power-up.
20	Scale will zero up to 20% of scale capacity on power-up. (Legal for Trade Setting)

NOTE: The Legal for Trade requirements disables certain parameter menus listed above. These items have been indicated by an asterisk (*).

Data Output

d.o.	**Controls when information is transmitted from the scale though the serial port**
C.P.	Continuous data transmission. Transmits data each time the display is updated. Readings that occur when the scale is in motion are identified by the abbreviation "MOT." following the weight data.
A.1	Auto Print 1 transmits the first scale reading after the scale leaves motion. The reading must be stable and must be a valid reading before it can be sent.
A.2	Auto Print 2 transmits the first scale reading following the scale leaving motion. In Auto Print 2, no further readings will be sent until the scale returns to displayed zero. The reading must be stable and must be a valid reading before it can be sent.
t.d.	Transmit on Demand transmits when the PRINT button is pressed and when the "W" data request command is received through the serial port. The scale must be stable and the weight must be valid (no error codes displayed) before data is printed.

Data Format

For.	**Format of transmitted data from the serial port**
F0	Basic data format.
2P	Basic dual print format. Includes metric weight.
F1	Legacy data format. **<u>Output NOT Legal for Trade.</u>**
SP	Basic format for an Eltron SSP printer. Call Doran for details.
GN	Gross, Net and Tare format
UPS	UPS print string compatible with UPS Online World Ship program

Baud Rate

b.r. ↑	**Serial port transmission rate**
12	1200 Baud (bits per second)
24	2400 Baud (bits per second)
48	4800 Baud (bits per second)
96	9600 Baud (bits per second)
192	19,200 Baud (bits per second)

lb Units Enabled

	Enables/Disables pounds
on	lb is enabled.
oF	lb is disabled.

lb:oz Units Enabled

* †	**Enables/Disables pounds:ounces**
on	lb:oz is enabled.
oF	lb:oz is disabled.

oz Units Enabled

†	**Enables/Disables ounces**
on	oz is enabled.
oF	oz is disabled.

kg Units Enabled

	Enables/Disables kilograms
on	kg is enabled.
oF	kg is disabled.

g Units Enabled

†	**Enables/Disables grams**
on	g is enabled.
oF	g is disabled.

Startup Units

Un its	**Determines scale startup units** Note: Unit annunciator to the right of the display indicates parameter setting
lb	Scale starts up in lb.
lb:oz † *	Scale starts up in lb:oz.
oz †	Scale starts up in oz.
kg	Scale starts up in kg.
g †	Scale starts up in g.

NOTE: Depending on capacity and resolution selection, some units are not available due to display constraints. These limitations are indicated by (†).

Front Panel Calibration

FCL	**Enables/Disables Front Panel Calibration** Note: This menu is only accessible by pressing the calibration pushbutton at the rear of the DS100.
on	Front panel calibration is enabled.
oF	Front panel calibration is disabled. Access to the setup mode is allowed through the calibration pushbutton located behind the rear panel.

Raw Counts

######	**Raw counts from A/D converter**
	View these numbers if calibration is unsuccessful. Refer to Section 3 for interpretation of these numbers. Press UNITS to exit setup mode.

NOTE: Depending on capacity and resolution selection, some units are not available due to display constraints. These limitations are indicated by (†).

Section 5. Data Communications

Introduction to data communications

Basic understanding of serial data communications is needed when setting up the DS100 to communicate with a printer or PC.

When setting up a serial communications system, there are two concerns which affect the configuration of that system. These are:

- Baud Rate
- Data Bits and Parity

The baud rate determines how fast the data is sent from the scale. The sending and receiving units must be set to the same baud settings. Typical values are 1200, 2400, 4800 and 9600.

The DS100 is factory set for eight bits, no parity and one stop bit also known as 8n1. The receiving units must be set to 8n1 for proper communications.

"F0" Example (Negative weight, in motion)

☻- 2.452 lb MOT.♪◙

"F0" Print String Definition for Each Weight Unit:

Pounds
STX | POL | WEIGHT| SP | lb | SP | ST | CR | LF
Ounces
STX | POL | WEIGHT| SP | oz | SP | ST | CR | LF
Kiligrams
STX | POL | WEIGHT| SP | kg | SP | ST | CR | LF
Grams
STX | POL | WEIGHT| SP | g | SP | SP ST | CR | LF
Pounds-ounces
STX | POL | WEIGHTLB| SP | lb | POL | WEIGHTOZ | SP | oz | SP | ST | CR | LF

STX (☻) = ASCII 02
POL = minus sign for negative weight or a space for a positive weight
WEIGHT = 6 character field plus decimal if needed
WEIGHTLB = pound portion of lb-oz weight
WEIGHTOZ = ounce portion of lb-oz weight. (WEIGHTLB and WEIGHTOZ total 5 characters plus decimal)
SP = ASCII space
ST = MOT. if in motion or a space if stable
CR (♪) = Carriage return
LF (◙) = Linefeed
| = Separator, not printed

"F 1" Example (Negative weight, in motion)

☻- 2.452 LBM♪◙

"F 1" Print String Definition for Each Weight Unit:

Pounds
STX | POL | WEIGHT| SP | LB | ST | CR | LF
Ounces
STX | POL | WEIGHT| SP | OZ | ST | CR | LF
Kiligrams
STX | POL | WEIGHT| SP | KG | ST | CR | LF
Grams
STX | POL | WEIGHT| SP | G | SP | ST | CR | LF
Pounds-ounces
STX | POL | WEIGHTLB| SP | LB | POL | WEIGHTOZ | SP | OZ | SP | ST | CR | LF

STX (☻) = ASCII 02
POL = minus sign for negative weight or a space for a positive weight
WEIGHT = 6 character field plus decimal if needed
WEIGHTLB = pound portion of lb-oz weight
WEIGHTOZ = ounce portion of lb-oz weight. (WEIGHTLB and WEIGHTOZ total 5 characters plus decimal)
SP = ASCII space
ST = MOT. if in motion or a space if stable
CR (♪) = Carriage return
LF (◙) = Linefeed
| = Separator, not printed

"2P" Example (Negative weight, in motion)

☻- 2.452 lb MOT.♪◙

☻(- 1112 kg MOT.)♪◙

The dual print mode provides the DS100 with the ability to print the current scale reading followed by the equivalent value in kilograms.
The weight is first printed using the "F0" format. Then the weight is recalculated in kilograms and is sent as a second line of text. The kilogram data follows the "F0" data format except where parentheses are placed after the STX character and before the carriage return & line feed.

"SP" Example (Negative weight, in motion)

FR"L1"◙

? ◙

- 1.052◙

lb◙

GS◙

MOT. ◙

- 0.478◙

kg◙

P1,1◙

"SP" Print String Definition for Each Weight Unit:

Pounds

FR"L1" | LF | ? | LF | POL | WEIGHT | LF | lb | LF | GS | LF | ST | LF | POL | WEIGHT2 | LF | kg | LF | P1,1 | LF

Ounces

FR"L1" | LF | ? | LF | POL | WEIGHT | LF | oz | LF | GS | LF | ST | LF | POL | WEIGHT2 | LF | kg | LF | P1,1 | LF

Kilograms

FR"L1" | LF | ? | LF | POL | WEIGHT | LF | kg | LF | GS | LF | ST | LF | POL | WEIGHT2 | LF | kg | LF | P1,1 | LF

Grams

FR"L1" | LF | ? | LF | POL | WEIGHT | LF | g | SP | LF | GS | LF | ST | LF | POL | WEIGHT2 | LF | kg | LF | P1,1 | LF

Pounds - ounces

FR"L1" | LF | ? | LF | POL | WEIGHTLB | SP | lb | POL | WEIGHTOZ | LF | oz | LF | GS | LF | ST | LF | POL | WEIGHT2 | LF | kg | LF | P1,1 | LF

POL = minus sign for negative weight or a space for a positive weight
WEIGHT = 6 character field plus decimal if needed
WEIGHT2 = Kilogram weight. 6 character field plus decimal if needed
WEIGHTLB = pound portion of lb-oz weight
WEIGHTOZ = ounce portion of lb-oz weight. (WEIGHTLB and WEIGHTOZ total 5 characters plus decimal)
SP = ASCII space
ST = MOT. if in motion or four (4) spaces if stable
CR (♪) = Carriage return
LF (◙) = Linefeed
| = Separator, not printed

“9n” Example (Negative weight, in motion)

☻ 25.15 lb GR MOT.♪◙

☻ 20.05 lb NT MOT.♪◙

☻ 5.10 lb TR MOT.♪◙

“9n” Print String Definition for Each Weight Unit:

Pounds

STX | POL | WEIGHTGROSS | SP | lb | SP | GR | SP | ST | CR | LF
STX | POL | WEIGHTNET | SP | lb | SP | NT | SP | ST | CR | LF
STX | POL | WEIGHTTARE | SP | lb | SP | TR | SP | ST | CR | LF

Ounces

STX | POL | WEIGHTGROSS | SP | oz | SP | GR | SP | ST | CR | LF
STX | POL | WEIGHTNET | SP | oz | SP | NT | SP | ST | CR | LF
STX | POL | WEIGHTTARE | SP | oz | SP | TR | SP | ST | CR | LF

Kiligrams

STX | POL | WEIGHTGROSS | SP | kg | SP | GR | SP | ST | CR | LF
STX | POL | WEIGHTNET | SP | kg | SP | NT | SP | ST | CR | LF
STX | POL | WEIGHTTARE | SP | kg | SP | TR | SP | ST | CR | LF

Grams

STX | POL | WEIGHTGROSS | SP | g | SP | GR | SP | ST | CR | LF
STX | POL | WEIGHTNET | SP | g | SP | NT | SP | ST | CR | LF
STX | POL | WEIGHTTARE | SP | g | SP | TR | SP | ST | CR | LF

Pounds-ounces

STX | POL | WEIGHTLBGROSS | SP | lb | POL | WEIGHTOZGROSS | SP | oz | SP | GR | SP | ST | CR | LF
STX | POL | WEIGHTLBNET | SP | lb | POL | WEIGHTOZNET | SP | oz | SP | NT | SP | ST | CR | LF
STX | POL | WEIGHTLBTARE | SP | lb | POL | WEIGHTOZTARE | SP | oz | SP | TR | SP | ST | CR | LF

STX (☻) = ASCII 02
POL = minus sign for negative weight or a space for a positive weight
WEIGHT[GROSS/NET/TARE] = 6 character field plus decimal if needed
WEIGHTLB[GROSS/NET/TARE] = pound portion of lb-oz weight
WEIGHTOZ[GROSS/NET/TARE] = ounce portion of lb-oz weight. (WEIGHTLB and WEIGHTOZ total 5 characters plus decimal)
SP = ASCII space
ST = MOT. if in motion or a space if stable
CR (♪) = Carriage return
LF (◙) = Linefeed
| = Separator, not printed

Remote Scale Commands

The scale will respond to the following single letter ASCII commands.

“W”	Initiates transmission of current weight data (if in motion, scale will wait until stable, then print).
“U”	Changes the displayed weight units.
“Z”	Zeroes the scale (if in motion, scale will wait until stable, then zero).

UPS Application Note: UPS On-Line WorldShip Software Rev 3.1 and Higher

Description:

The following instructions will allow a Scale to be connected to the UPS On-Line shipping system. The UPS On-Line software operates by continuously polling the scale for weight several times a second. The UPS program then displays the current weight in a window marked “Scale Weight:”. This package weight, in pounds is then used to generate a shipping label if the “Electronic Scale Activated” check box is selected.

Hardware Setup:

Before starting the UPS On-Line software, connect the Scale's serial port to the computer’s serial port (com1 or com2) by way of the optional serial cable (P/N DSOPT001 or DSOPT002). Apply power to the scale and press the ZERO push button.

WARNING: The scale must be on and connected at all times while the UPS On-Line program is running. If the scale is disconnected, turned off, or placed in the calibration mode, an error message will be displayed on the computer screen. To correct this error, you must perform a scale setup again or restart the UPS software – see Software Setup for instructions.

Software Setup:

If the UPS On-Line program has been already installed, follow the configuration steps below only. If the UPS On-Line program is not installed, power up the scale and connect the scale's serial cable to an available PC serial port. Next, install the UPS On-Line program as per instruction on the UPS installation CD. The installation program will prompt you to select if a scale is connected, select yes.

To configure the UPS On-Line WorldShip program:

1. Click on the “Tools” menu located at top of screen, then select “System Preferences”.
2. Click on the “Hardware” tab and set the “Scale Type:” drop down menu to “Fairbanks 70-2453-4”.
3. Click on the “Scale Port:” drop down menu, choose which serial port the scale is connected to, com1, com2 or other com port. This is the port that the DB9 cable is connected to at the rear of your PC from the scale.
4. Finally, click on the “Test Scale” button. Place weight on the scale. The computer should then display the current weight on the scale.
5. Click the “OK” button, and return back to the service menu.
6. Check the “Electronic Scale Activation” box to accept weight readings from the scale. The current weight will be displayed under the “Package:” section, in the “Scale Weight” window. NOTE: UPS software does not show zero or negative weights on the main display page.

Scale Configuration:

In order to be compatible with the UPS On-Line program. The Scale's Parameters must be configured to the following settings:

d.o.	= t.o.d.	Data Output Mode is set to Transmit On Demand
For.	= UPS	Data Output Format is set to UPS protocol
br.	= 96	Baud Rate is set to 9600 baud
Unit5	= lb	Start up units must be set to pounds

Troubleshooting:

If any problems occur with your UPS On-Line Software, a trouble-shooting guide can be found on the United Parcel Service web site under Shipping Systems Scales at address:

http://www.ups.com/using/custserv/techfaq/scales.html

Or alternatively, contact Doran Scale's Technical Support Department at 800-262-6844 for assistance over the phone.

Section 6. Specifications

Resolution	200 to 12500 divisions
Indicator Load Cell Input Range	0.35 mV/V to 3.0 mV/V
Excitation	5 V
Power Supply	Wall Transformer output: (scale input) 12VDC, 300mA Neg. (-) center
Display	0.56” high red LED
Displayed Units	lb, oz, kg, g and lb-oz
Indicator Capacities	1 to 99,999 lb 1 to 45,000 kg
Printer Interface	Bi-directional RS-232
Calibration	Zero and Span (Minimum Span = 5% of Capacity)
Controls	GROSS/NET, TARE, ZERO(ON/OFF), UNITS AND PRINT buttons
Construction	Painted Mild Steel
Options	RS232 cable (Female) P/N DSOPT001 RS232 cable (Male) P/N DSOPT002 230 VAC Transformer P/N DSOPT003

Section 7. Troubleshooting

General Problem Resolution

Problem	What to Do or Check
Weight reading will not repeat or scale does not return to zero when weight is removed.	Make sure that the scale platter is not rubbing or touching the scale cover. Verify that there is nothing caught in the platform, under or around the load cell.
Scale overloads early	Verify scale calibration is correct. If problem persists, recalibrate the scale.
Scale will not come to zero when the ZERO button is pressed.	Make sure that the scale is becoming stable (Motion annunciator is off). After pressing the ZERO button, the scale should zero as soon as it becomes stable. If problem persists, there may be a problem with the touch panel or motherboard.
Weight readings don't seem to be correct.	Verify the scale calibration with an accurate test weight. If the readings are not correct, recalibrate.
Scale drifts off zero.	Check for air currents and/or vibration around the scale. If that is the cause, it may be necessary to set the AZt and nnA parameters to wider settings to compensate (see the parameter section.) Verify that no mechanical restrictions exist, i.e. platter rubbing, something caught under or around the load cell.
Scale shuts itself off or will not turn on.	Press the ZERO button to turn on the indicator. The transformer may be bad or the power connector at the rear of the scale may have an intermittent connection. Check the power connector at the rear of the scale.

Error Messages

Error Message	What to Do or Check
Er EP	The setup parameters loaded in nonvolatile memory have become corrupted. Verify scale parameters and calibrate.
Er Ad	The A/D communication is not detected. If problem persists, recalibrate. If problem still persists, the motherboard will need to be replaced.
Ad oF	Verify load cell wiring connections. Ensure the load cell is wired properly. Ensure that all load cell conductors are inserted into the terminal properly and that the conductor jacket in not interfering. Verify that JU1 and JU2 have the jumper inserted for a four wire load cell or removed for a six wire load cell. If problem still persists, the motherboard will need to be replaced.
r9 Err	The calibration zero is out of range. Error is displayed after a ZERO calibration attempt. Press zero to clear this error. Refer to the analog setup section for additional information. Motherboard or load cell may need to be replaced.
Ld9 0	The scale is attempting to zero on power-up. This message will remain until the scale is stable. Air currents or vibration may be the cause. If problem persists, the pcb or load cell may be damaged. NOTE: This message will not appear if parameter Suo = no.
ou-Ld	The scale is in overload. The load on the scale platform exceeds the scale capacity by more than 105%. Remove excess weight from scale platform. If problem persists, recalibrate. If problem still persists, the motherboard or load cell may need to be replaced.

Error Message	What to Do or Check
95-oL	The scale is in gross overload. The load exceeds the scale rating and might result in damage to the scale. Remove excess weight immediately. If problem persists, recalibrate. If problem still persists, the motherboard or load cell will need to be replaced.
SPnL	Raw counts for the span calibration is too low. Refer to the Calibration Troubleshooting section for raw count ranges.
SPnH	Raw counts for the span calibration is too high. Refer to the Calibration Troubleshooting section for raw count ranges.
SPn E	The span calibration weight must be between 5% and 100% of full capacity.
Err 0	Load on the scale exceeds 20%. Remove excess weight. This error only occurs when the Start Up Zero Suo parameter is set to 20. Change this parameter for 95 to allow for automatic start up zeroing up to 100% of capacity.
CAP E	The capacity has a zero value or the value exceeds 45,000 kg. Adjust capacity and ensure the capacity is defined in the desired unit.

Limited One Year Warranty

Doran Scales, Inc. warrants its products to be free from defects in material and workmanship for a period of one (1) year from date of shipment. Any product found to be defective within this time period may be returned to Doran's factory, freight prepaid, with prior return authorization and proof of purchase showing date of original sale, for repair or
replacement at no charge.

Doran's liability under this warranty is limited to the repair or
replacement of the defective product and in no event shall Doran Scales, Inc. be liable for consequential or indirect damages to equipment or personnel. Nor shall Doran Scales. Inc. be liable for damages to equipment or for personal injury caused by misuse, overload, accidental damage, alteration, improper installation, or unauthorized opening of the equipment. Under no circumstances will Doran Scales, Inc. be responsible for any indirect or consequential damages due to errors in weighing or failure of a Doran Scales, Inc. product to perform properly.

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