DS7060

Handrail Scale

User Manual

doran®

Section 1. Unpacking and Installation

Introduction

Thank you for purchasing a Doran scale. This product has been designed with the highest level of technology. We are dedicated to delivering a superior product that will provide many years of trouble free service.

As an ISO9001 registered company, Doran Scales is dedicated to delivering products built with strict compliance to our high quality standards. If you have any questions regarding your scale, please contact Doran Scales, Inc.

Unpacking

Carefully remove the scale from the shipping carton. If you notice any shipping damage, notify the shipper immediately. Be sure to retain all shipping materials in case the scale must be shipped elsewhere.

Cautions and Warnings

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. Please observe the following precautions to insure years of trouble free service from your new scale.

- Do not use sharp objects to press any of the buttons.
- Do not pick up the scale by the indicator.
- Do not use the scale if the scale is damaged in any way.
- Do not leave patients unattended on the scale.
- Do not exceed the scale capacity.
- Do not drop the scale.
- Do not drop objects on the scale.
- When transporting, do not hit other objects, walls or doorframes with the scale.

Care & Cleaning

With reasonable care, this product will last for many years. Here are some tips to care for your scale. Failure to comply with these guidelines may void the warranty.

- Hand clean the scale platform and indicator with a moist cloth.
- Only clean with a mild detergent.
- Do not get water inside the indicator.
- Do not use strong solvents or abrasive cleaners as this can damage the touch panel or other plastic parts.
- Do not immerse.
- Examine the scale periodically for damage and wear and tear before use.
- Remove batteries during long periods of non-use.

Section 2. Battery Operation

Battery Installation

The indicator can be powered by a set of six AA alkaline batteries. These batteries can perform over 85,000 weighments of typical use with the standard Automatic Shutoff Timer settings.

The battery compartment is located on the backside of the indicator. Press the locking tab up to release battery compartment cover. Completely remove all the batteries from the indicator and install the new set of batteries. Be sure the batteries are oriented properly. Reinstall the battery compartment cover to complete the battery installation.

Battery Indicator

The battery indicator displays the remaining battery life available. A low battery status is also indicated by two beeps when a weight is held (If Parameter BH is set to on.) This indicator will not be displayed if the scale is powered by its wall transformer.
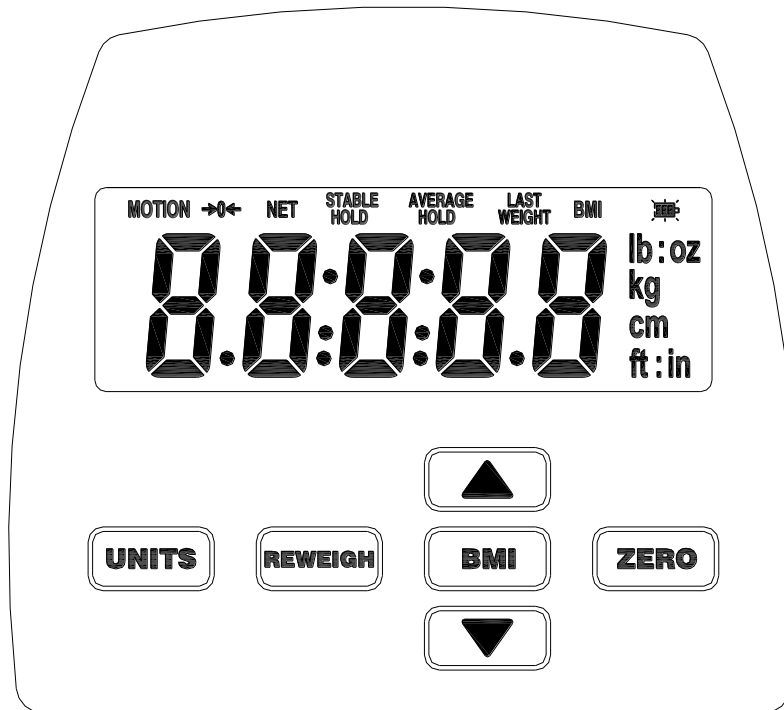
Replace Batteries

Maximum Battery

2

Section 3. Scale Operation

Fig. 3 Front Panel

Display Pushbuttons
The Model DS7060 controls consist of Units, Zero, Reweigh, ▲, ▼, and BMI buttons. The display is used to provide weight indications and operator messages indicating scale operation.

Power On/Off
Press the Zero button to turn on the indicator. Press and hold the Zero button for 3 seconds to turn off the indicator. The indicator has an adjustable Automatic Shutoff Timer that will turn off the indicator when not in use.

Zero
When the Zero button is pressed, the scale will reset to zero weight. This feature can be used to zero out any weight not desired to be part of the patient weight. The current BMI entry will be changed back to a 0.0 value.

Units
Press the Units button to toggle between lb and kg weighing units. The current unit will be displayed to the right of the weight digits. *NOTE: The Units button can*

be locked or unlocked by pressing and holding Units for 5 seconds. An "L on" message is displayed when button is locked and "L off" when unlocked.

Reweigh

To reinitiate the weighing process, press Reweigh. This will allow a new measurement to be taken without the patient having to leave the platform.

BMI

With the Hold weight being displayed, press the BMI button to enter the height of the patient. Adjust the value by using the ▲ or ▼ buttons. *NOTE: Select the Height units by pressing the Units button to toggle between the height in inches or centimeters. A menu timer will exit out of this mode if no buttons are pressed within a 30 second time period.*

Display Annunciators

The display annunciators will indicate the scale status.

Motion

When the scale senses motion, MOTION will be indicated. Once motion ceases, a stable reading will be displayed.

Stable Hold

Indicates a stable weight has been achieved and held on the display. This indicates an accurate weight has been achieved. *Note: Weights below 4.5 pounds will not be held.*

Average Hold

Indicates that the weight held on the display is a result of averaging several weights due to excessive motion on the scale. *Note: Weights below 4.5 pounds will not be held. The Average Hold weight may be slightly less accurate than a Stable Hold weight.*

Displaying an Average Hold weight instead of a Stable Hold weight will speed the weighment process for patients that cannot stand still. The Average Hold weight will differ from the patient's actual weight based upon the severity of the motion caused by the patient while on the scale. Although this weight may be less accurate than a Stable Hold weight, the deviation from the patient's actual weight will be minimal.

The time required for the Average Hold to engage is based upon the Average Aperture parameter. See the Parameter Setup section for configuration instructions.

Battery Indicator
The battery indicator displays the remaining battery life. See the battery operation section for detailed information. *NOTE: The battery Indicator will be disabled when using an external power supply.*

Software Number and Revision display
Pressing and holding the Reweigh button for 3 seconds will perform a display test, show the Software number "Su179" and the revision "r 3.2" or higher and then display "StESt" to indicate the Switch test mode is active. The Switch test mode stops after 10 seconds if no switch was pressed. The scale will then run a Display Segment test. After the display Segment test, the scale will return to the normal mode of operation.

Weighing a Patient
1. Turn on the indicator by pressing the Zero button.
2. The indicator will perform a startup zero.
3. The indicator will momentarily display dashes, "-----", followed by 0.0.
4. Patient stands on the scale platform. *NOTE: The handrails and indicator tower can be grasped during weighing.*
5. The display will scroll dashes until the patient's weight is captured.
6. The indicator will beep (when enabled) and then hold the weight on the display until the scale shuts off.

Zero Operation
1. Place item to be zeroed on the scale platform.
2. Press Zero. The scale will display a zero weight. If the item is removed, the stable negative weight will be automatically zeroed out after 3 seconds.
3. Step onto the scale platform and the patient's weight, less the item's weight, will be displayed.
4. To reset the scale weight to zero, Press Zero again with the scale platform empty.

BMI Operation
1. With Hold weight displayed, press BMI button to enter the height value. Height entry starts at 5: 6.0 or 168.0 in representing 5 foot 6 inches or 168 centimeters. *NOTE: Height units can be changed by pressing the Units button.*

2. Press the ▲ button to increase or the ▼ button to decrease the value. When the correct value is displayed, press the BMI button to enter the value and exit. *NOTE: A menu timer will exit out of this entry mode if no buttons are pressed within a 30 second time period.*

Reweigh Operation
1. With the patient standing on the scale platform, press Reweigh to reinitiate the weighing process.
2. The display will scroll dashes until the patient's weight is captured.
3. The indicator will beep (when enabled) and hold the weight on the display until the scale shuts off automatically.

Section 4. Data Communications

RS-232 Communications Port

The indicator is equipped with an RS-232 communications port. The RS-232 connection is located on the back of the indicator behind the top access cover. An optional RS-232 cable is available. Insert the phone style connector into the receptacle on the indicator housing and connect the 9-pin connector to your computer or printer.
Note: This option may reduce battery life.

Basic understanding of RS-232 data communications is needed when setting up the indicator to communicate with a printer or PC. When setting up an RS-232 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. Refer to the **For.** parameter for details.

The indicator's data bits, parity and stop bits are set when configuring the **For.** parameter. The receiving units must match the scale setting for proper communication.

USB Communications Port

The indicator is equipped with a USB communications port. The USB connection is located on the back of the indicator behind the top access cover.   An optional USB cable is available. Follow the instructions included with the option to install all necessary drivers.

Once the USB drivers are installed on your PC, insert the USB connector into the receptacle on the indicator and connect the other end of the cable to your computer.

IQ Vitals protocol (IV)
Fairbanks TeleWeigh (9600,7,ODD,2)

Command (RXD) Computer to Scale	Scale Output Responds (TXD) Scale to Computer	Description
Z or z		Zero the scale (if in motion, scale will wait until stable, then zero)
<cr> or W	<weight><sp><uu><sp> <mot><sp><sp><cr><lf> <eot>	Current Display Weight. Active, Stable Hold, or Average Hold. (<mot> GR = stable, gr = motion)
U		Scale scrolls through available weight units.
H	<height><sp><hh><sp>GR<sp> <sp><cr><lf>	Current height value in inches "in".
R or r		Scale performs a Reweigh operation (same as pressing the Reweigh button)

Welch Allyn Spot protocol (VU)
(2400,7,EVEN,1)

Command (RXD) Computer to Scale	Scale Output Responds (TXD) Scale to Computer	Description
DR<cr><lf>	<mot><sp><sp> <weight><uu><cr><lf>	Current Weight. (<mot> SD = stable, S_ = motion)

Doran F0 protocol (f0)
(9600,8,NO,1)

Command (RXD) Computer to Scale	Scale Output Responds (TXD) Scale to Computer	Description
Z or z		Zero the scale (if in motion, scale will wait until stable, then zero)
<cr> or W	<stx><pol><weight><sp> <uu><sp><cr><lf>	Current Display Weight. Active, Stable Hold, or Average Hold.
U		Scale scrolls through available weight units.
H	<height><sp><hh><sp>GR <sp><cr><lf>	Current Height value in inches or centimeters.
R or r		Scale performs a Reweigh operation (same as pressing the Reweigh button)

Doran F1 protocol (f1)
(9600,8,NO,1)

Command (RXD) Computer to Scale	Scale Output Responds (TXD) Scale to Computer	Description
Z or z		Zero the scale (if in motion, scale will wait until stable, then zero)
\<cr> or W	\<stx>\<pol>\<weight>#\<uu># GRS#\<BMI>#\<uu>#\<height># \<hh>#\<bmi>#BMI\<cr>\<lf>	Current Display Weight. Active, Stable Hold, or Average Hold.
U		Scale scrolls through available weight units.
R or r		Scale performs a Reweigh operation (same as pressing the Reweigh button)

Doran Fd protocol (Fd)
(9600,8,NO,1)

Command (RXD) Computer to Scale	Scale Output Responds (TXD) Scale to Computer	Description
Z or z		Zero the scale (if in motion, scale will wait until stable, then zero)
\<cr> or W	--:--,--/--/--, \<bmi>, \<height>, \<pol>\<gross>\<uu>\<sp>G, \<BMI>\<uu>\<sp>T, \<pol>\<net>\<uu>\<sp>N, \<cr>\<lf>	Current Display Weight. Active, Stable Hold, or Average Hold. (\<mot> G or N = stable, g or n = motion)
U		Scale scrolls through available weight units.
R or r		Scale performs a Reweigh operation (same as pressing the Reweigh button)

Doran FH protocol (FH)
(Continuously transmits at 3.75 per second - 2400,8,NO,2)

Command (RXD) Computer to Scale	Scale Output Responds (TXD) Scale to Computer	Description
Z or z		Zero the scale (if in motion, scale will wait until stable, then zero)
\<cr> or W	\<stx>\<status>\<0xD7>\<0xE4> \<weight>\<cr>	\<status> 0x80 = positive lb weight, 0x82 = positive kg weight, 0xB0 = negative lb weight, 0xB2 = negative kg weight. Current Display Weight. Active, Stable Hold, or Average Hold.
U		Scale scrolls through available weight units.

Doran FH protocol (FH)		
(Continuously transmits at 3.75 per second - 2400,8,NO,2)		
Command (RXD) Computer to Scale	**Scale Output Responds (TXD)** Scale to Computer	**Description**
R or r		Scale performs a Reweigh operation (same as pressing the Reweigh button)

Data String Key

    < > = Separator for reference, not printed

    <stx> (☻) = ASCII 02h, start of text, non-printable character

    <etx> (♥) = ASCII 03h, end of text, non-printable character

    <eot> (♦) = ASCII 04h, end of transmit, non-printable character

    <cr> (♪) = ASCII 0dh, Carriage return, non-printable character

    <lf> (◙) = ASCII 0ah, Linefeed, non-printable character

    <sp> ( ) = ASCII 20h, space

    <mot> = GR for stable, gr for motion or SD for stable, S_ for motion

    <pol> = minus sign for negative weight or a space for a positive weight

    <weight> = current displayed weight 6 character field with decimal point

    <gross> = gross weight 5 character field with decimal point

    <net> = net weight 5 character field with decimal point

    <BMI> = BMI weight 6 character field with decimal point

    <height> = 6 character field with decimal point

    <hh> = Height units

    <bmi> = 5 character field with decimal point

    <status> = status byte, weigh units and polarity

Section 5. Specifications

Scale Platform Dimensions	28" L x 28" W x 50" H
Indicator Dimensions	8" L x 6.5" W x 2.3" H
Power	12VDC AC Adapter (Negative Center) Optional: 6 AA Alkaline Batteries
Displayed Units	lb, kg
Capacity	800 x 0.2 lb or 350 x 0.1 kg
Construction	Painted Mild Steel and Plastic Housing.
Options	RS-232 Communication cable USB Communication cable

Section 6. 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.	Person or object other than that being weighed is touching the scale. Verify that there is nothing caught in or interfering with the platform.
Scale overloads before scale capacity is reached.	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 stabilizing (Motion annunciator is off). After pressing the Zero button, the scale should zero as soon as it becomes stable.
Weight readings are not correct.	Verify the scale calibration with an accurate set of test weights. If the readings are not correct, recalibrate. Be sure the platform is on a flat surface and all four feet are touching the floor.
Scale drifts off zero.	Check for air currents and/or vibration around the scale.
Scale shuts itself off or will not turn on.	Press the Zero button to turn on the indicator. Check that new batteries are installed properly in the battery tray. If using an AC adapter, confirm that it is firmly plugged into a functioning wall outlet. Verify the connector at the rear of the indicator is properly installed.

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