

WIZARD 4000

DRUMM-SCALE

SCALE: **DRUMM-SCALE™**

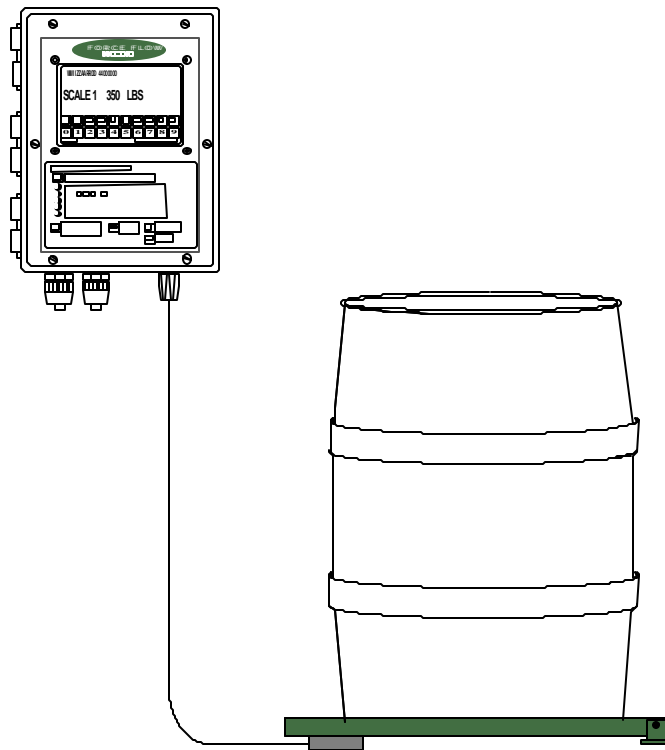
INDICATOR: **WIZARD 4000⁷**

factory calibrated

s/n _____

INSTALLATION & OPERATION

electronic 30- to 55-gallon drums
to 1,000 lb. with
1- to 4-Channel Wizard Indicator



Version: PR128G

1150-D Burnett Ave, Concord, CA 94520 USA
1-800-893-6723 Fax: 925-686-6713
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REF: T4\O&M\DRUMWIZ\CVRDRMWZ.tcw (G00.pdf)

FORCE FLOW
FLOQUIP

INCLUDES MODELS:

ELECTRONIC DRUMM-SCALE with WIZARD 4000 DIGITAL INDICATOR

FOR CAPACITIES: 400 lbs. (181 kg) thru 1,000 lbs. (454 kg)

FOR PLATFORM SIZES: 27-1/2" x 27-1/2" (699mm x 699mm)

COVERING MODELS:	400 lbs.	27-DR4DS	(Metric: DR2KDS 200 kg)
	600 lbs.	27-DR6DS	(Metric: DR3KDS 300 kg)
	800 lbs.	27-DR8DS	(Metric: DR4KDS 400 kg)
	1000 lbs.	27-DR10DS	(Metric: DR5KDS 500 kg)

Includes Stainless Steel Models

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REF: T4\O&MDRUMELECMODELNOS.tcw (G0A.pdf)

WIZARD Indicator with DRUMM-SCALE

SECTION

W.1.000

INSTALLATION OF SCALE PLATFORM:

- W.1.101 Installation Instructions
- W.1.102 Dimensional Drawing

YOU
ARE
HERE !

INSTALLATION OF LOAD CELL

- W.1.141 Load Cell Installation Drawing

INDICATOR INSTALLATION

- W.1.201 Indicator Wiring & Plumbing
- W.1.202-203 Indicator Installation Instructions
- W.1.204 Wizard Component Layout

INSTALLATION CHECK OFF LISTS

- W.1.301 Installation Check-Off List
- W.1.305 Installation Start-Up Check-Off List

W.2.000

INDICATOR OPERATION

- W.2.101 Keyboard Display Selections
- W.2.102 Keyboard Menu - Quick Reference
- W.2.103 Tank Load Mode

MEMU OF DAY-TO-DAY OPERATIONS

- W.2.104 Low Level Alarm & Date Last Cleared
- W.2.105 Clear Amount Used & Set Scale Zero
- W.2.106 Set Scale Zero cont... & Allarm Reset
- W.2.107 Review Daily Usage & Printing Report
- W.2.108 Report (example) & Protocol

SET-UP CODES - CUSTOM FORMATTING

- W.2.201 Code 9080 (Scale Set Up)
- W.2.202 Code 9082-9083 (Feed Rate Format/Display Units)
- W.2.203 Code 9084-9086 (Single or Dual Display/Tank Loading/Printer)
- W.2.204 Code 9086 (cont...)-9089 (Time/Date/Calibration/Channels)
- W.2.205 Code 4200 & 3256 (Set Point Configuration/4-20mA Output Configuration)
- W.2.206 Code 3256 (cont...)

W.3.000

MISCELLANEOUS

- W.3.101 Code 9081 (Field Calibration)
- W.3.201 Checking Calibration via Water Test
- W.3.301 Troubleshooting Tips
- W.3.401 Spare Parts List

INSTALLATION

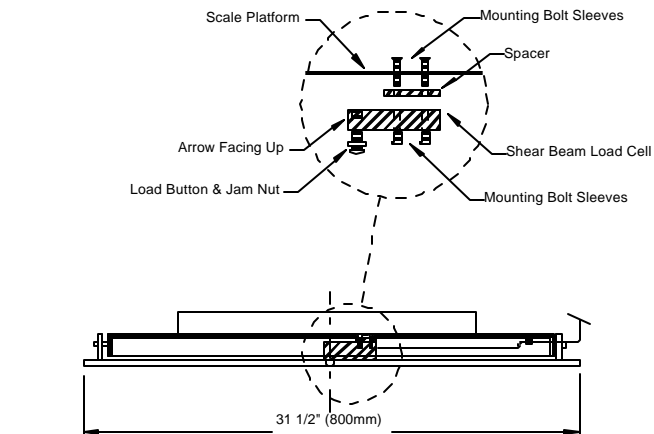
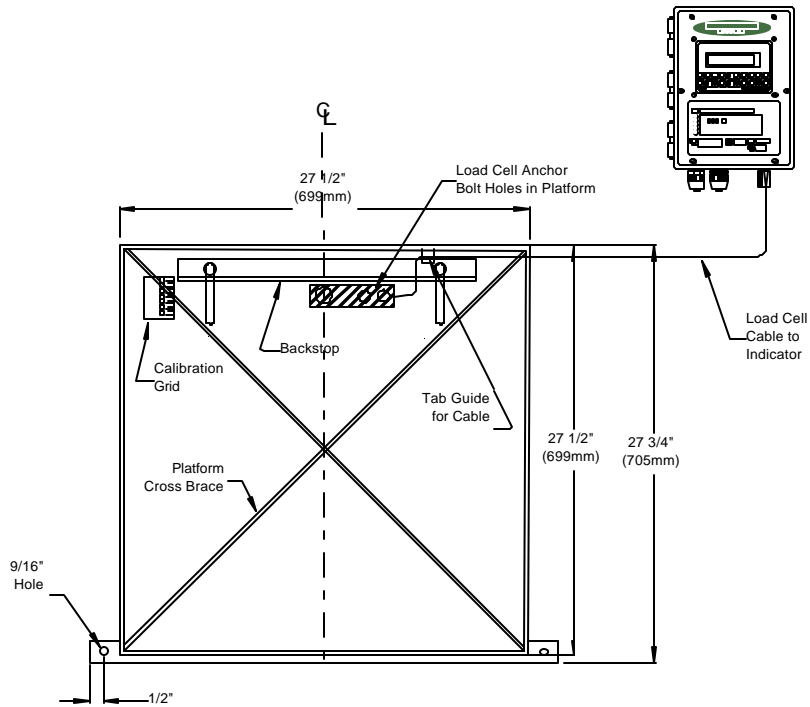
DRUMM-SCALE with ELECTRONIC INDICATOR (1,000 lb. or 500 kg. Capacity)

DRUMM-SCALE SCALES for PORTABLE Drums

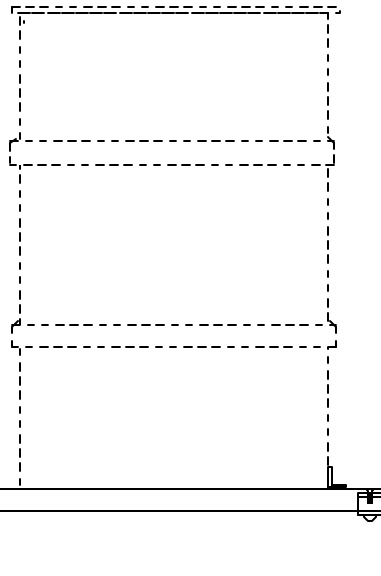
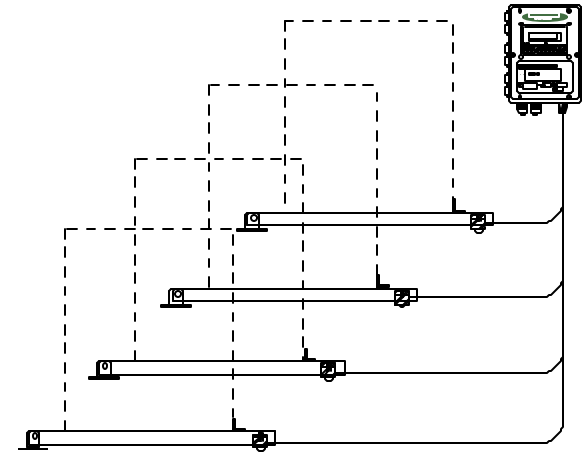
INSTALLATION:

(See Installation Drawings 29886 and 29895 for Drumm-Scale)

- 1 Position scale platform on level surface. The hinge and load cell must be adequately supported by concrete slab or other suitable substrate.
- 2 Anchor hinge to ground or substrate using suitable anchors. **DO NOT OPERATE SCALE UNLESS IT IS ANCHORED TO GROUND !**
- 3 Install shear-beam load cell using 2 flat head socket screws, shim plate and threaded nuts per Drawing 29886 and Drawing 29895. Load cell "arrow" should point upward, load button with jam nut should face toward ground with shim plate between load cell and platform.
- 4 Level the platform by threading the load button in or out and locking the jam nut in place when level. DO NOT extend the load button beyond the available threads in the load cell. This will cause the improper operation of your scale. The load button is all that contacts the ground.
- 5 Feed load cell cable through notch in side of platform and use tab to keep cable suspended and clear of platform edge and obstructions.
- 6 The Load Cell is equipped with 20' of shielded cable which connects to the inside of the bottom of the indicator (see page 6). If you are imbedding conduit in your concrete pad, between your scale and indicator, we recommend 1-1/2" ID conduit so you can fit all your load cell cables in one conduit. **DO NOT** run any other inductive load with your load cell cable. Wire load cell cable to indicator per indicator wiring instructions Page 9.
- 7 Measure the diameter of your drum and set the backstop on the platform to the drum diameter using the calibration grid.



- _____ Model Number of Platform
- _____ Model Number of Indicator
- _____ Feet of Cable (20' Std)
- _____ Pound or Kilo Indicator
- _____ Number of Scales



EPOXY MODEL (Platform with Load Cell)

- DR4DS (400 lb) DR2KDS (200 kg)
- DR5DS (500 lb) DR2.5KDS (250 kg)
- DR6DS (600 lb) DR3KDS (300 kg)
- DR8DS (800 lb) DR4KDS (400 kg)
- DR10DS (1,000 lb) DR5KDS (500 kg)

316 SS MODEL (Platform with Load Cell)

- DR4DSS (400 lb) DR2KDSS (200 kg)
- DR5DSS (500 lb) DR2.5KDSS (250 kg)
- DR6DSS (600 lb) DR3KDSS (300 kg)
- DR8DSS (800 lb) DR4KDSS (400 kg)
- DR10DSS (1,000 lb) DR5KDSS (500 kg)

MODEL NUMBER (for WIZARD 4000 Indicator)

- 4000-1 1-Channel WIZARD 4000 Indicator
- 4000-2 2-Channel WIZARD 4000 Indicator
- 4000-3 3-Channel WIZARD 4000 Indicator
- 4000-4 4-Channel WIZARD 4000 Indicator

W.1.102



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**ELECTRONIC DRUM-SCALE
 with WIZARD INDICATOR
 for 30- to 55-Gallon Drums
 (Capacities to 1000 lbs or 500 kg)**

Drawn by: SLP
 Date: 09/01/95
 Revised:
 Scale: NONE

Drawing Number
30290

WIZARD Indicator with DRUMM-SCALE

SECTION

- W.1.000** **INSTALLATION OF SCALE PLATFORM:**
 W.1.101 Installation Instructions
 W.1.102 Dimensional Drawing



INSTALLATION OF LOAD CELL
 W.1.141 Load Cell Installation Drawing

- INDICATOR INSTALLATION**
 W.1.201 Indicator Wiring & Plumbing
 W.1.202-203 Indicator Installation Instructions
 W.1.204 Wizard Component Layout

- INSTALLATION CHECK OFF LISTS**
 W.1.301 Installation Check-Off List
 W.1.305 Installation Start-Up Check-Off List

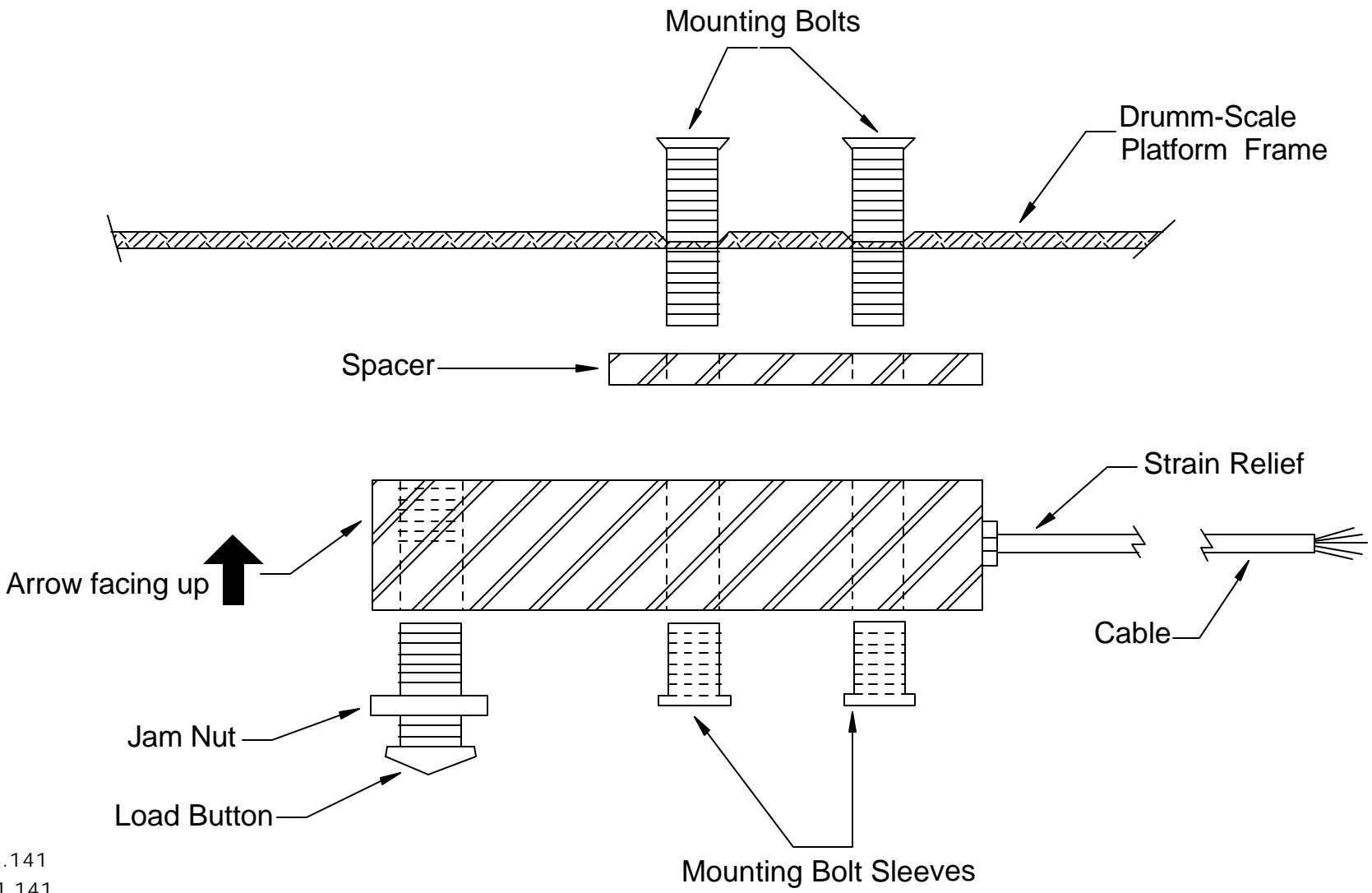
- W.2.000** **INDICATOR OPERATION**
 W.2.101 Keyboard Display Selections
 W.2.102 Keyboard Menu - Quick Reference
 W.2.103 Tank Load Mode

- MEMU OF DAY-TO-DAY OPERATIONS**
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 W.2.105 Clear Amount Used & Set Scale Zero
 W.2.106 Set Scale Zero cont... & Allarm Reset
 W.2.107 Review Daily Usage & Printing Report
 W.2.108 Report (example) & Protocol

- SET-UP CODES - CUSTOM FORMATTING**
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 W.2.205 Code 4200 & 3256 (Set Point Configuration/4-20mA Output Configuration)
 W.2.206 Code 3256 (cont...)

- W.3.000** **MISCELLANEOUS**
 W.3.101 Code 9081 (Field Calibration)
 W.3.201 Checking Calibration via Water Test
 W.3.301 Troubleshooting Tips
 W.3.401 Spare Parts List





S.1.141
W.1.141



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DRUMM-SCALE
Load Cell Mounting Drawing

Drawn by: SLP
Date: 09/01/95
Revised: 05/20/97
Scale: NONE

Drawing Number
29886

WIZARD Indicator with DRUMM-SCALE

SECTION

W.1.000

INSTALLATION OF SCALE PLATFORM:

- W.1.101 Installation Instructions
- W.1.102 Dimensional Drawing

INSTALLATION OF LOAD CELL

- W.1.141 Load Cell Installation Drawing

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- W.1.202-203 Indicator Installation Instructions
- W.1.204 Wizard Component Layout

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W.2.000

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- W.2.108 Report (example) & Protocol

SET-UP CODES - CUSTOM FORMATTING

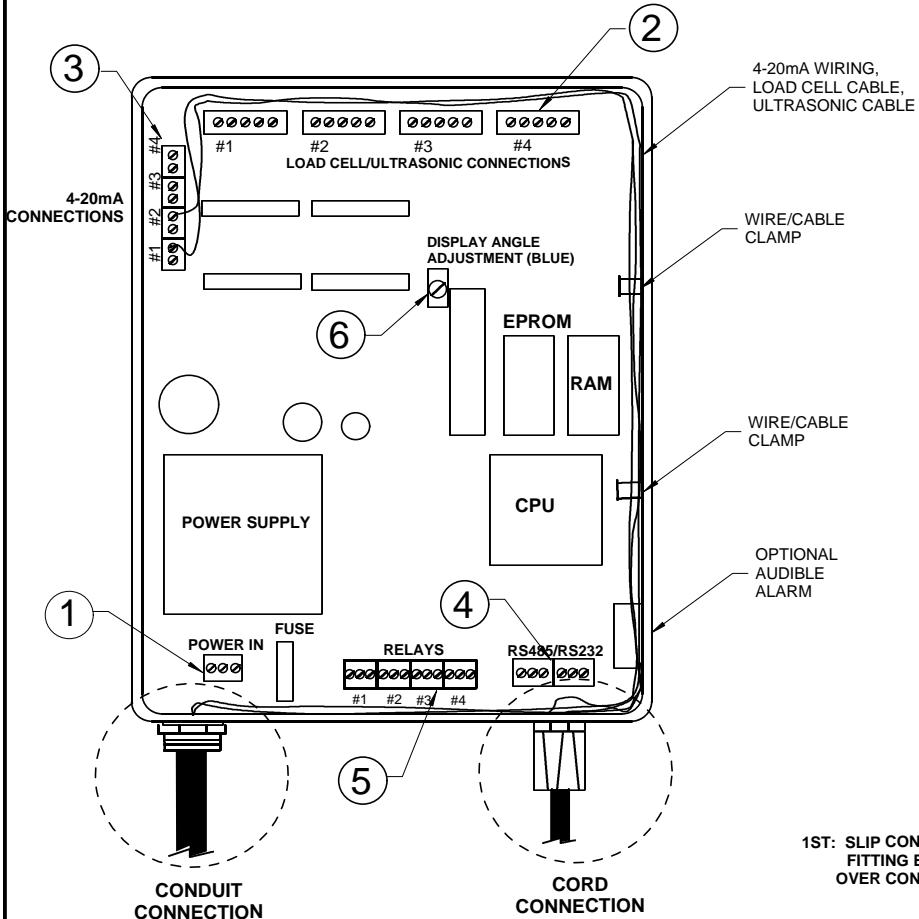
- W.2.201 Code 9080 (Scale Set Up)
- W.2.202 Code 9082-9083 (Feed Rate Format/Display Units)
- W.2.203 Code 9084-9086 (Single or Dual Display/Tank Loading/Printer)
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- W.2.205 Code 4200 & 3256 (Set Point Configuration/4-20mA Output Configuration)
- W.2.206 Code 3256 (cont...)

W.3.000

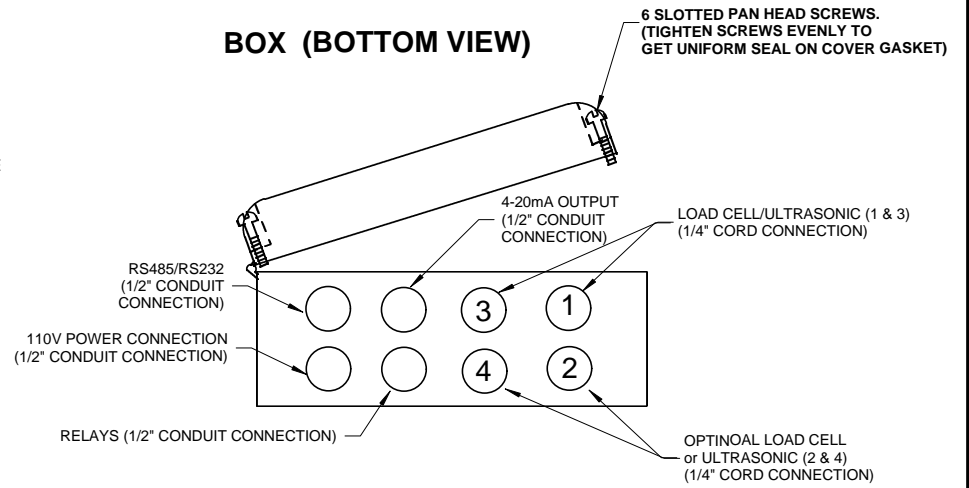
MISCELLANEOUS

- W.3.101 Code 9081 (Field Calibration)
- W.3.201 Checking Calibration via Water Test
- W.3.301 Troubleshooting Tips
- W.3.401 Spare Parts List

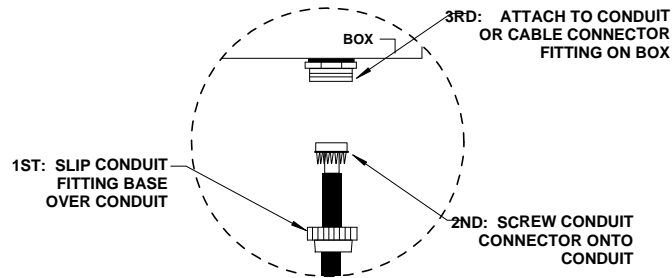
BOX (FRONT VIEW)



BOX (BOTTOM VIEW)



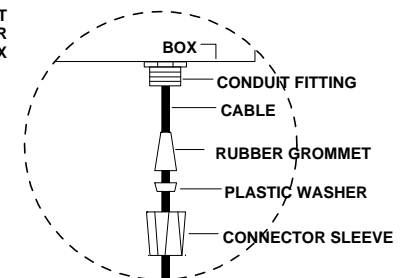
CONDUIT CONNECTION



1/2" CONDUIT CONNECTOR, USED FOR:

- POWER
- 4-20 MA SIGNAL
- RELAY WIRING
- COMMUNICATIONS)

CORD CONNECTION



1/4" CORD CONNECTOR, USED FOR:

- LOAD CELL CABLE
- ULTRASONIC CABLE

NOTE:
Mount Indicator at "EYE LEVEL"
with the mounting fixtures provided.

W.1.201



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INDICATOR WIRING & PLUMBING INSTRUCTIONS

Drawn by: SLP

Drawing Number

Date: 09/01/95

Revised: 01/17/01

Scale: NONE

29893

INDICATOR INSTALLATION & WIRING


ALWAYS SHUT OFF MAIN POWER, AS WELL AS POWER TO ANY AUXILIARY EQUIPMENT THAT WILL BE INSTALLED IN THIS UNIT, BEFORE OPENING FRONT OF CASE !!

All connectors have a "PLUG IN" feature to assist in connecting wires. Remove the connector from the board before attaching wires.


1 POWER HOOK-UP

TURN OFF MAIN POWER BEFORE CONNECTING !! Use a clean 110 Volt AC (or 220 Volt, if provided) power line, connected directly to the main power panel at the facility. DO NOT connect any other inductive loads, relays, etc. to this power line ! Resulting power surges can damage the electronics !!! Use far left bottom port and connect per following: (NOTE: Use 1/2" conduit connector)

110 VOLT AC

POWER IN	PC BOARD	110 Volt
	+	Hot
+ G C	G	Ground
	C	Common

230 VOLT AC

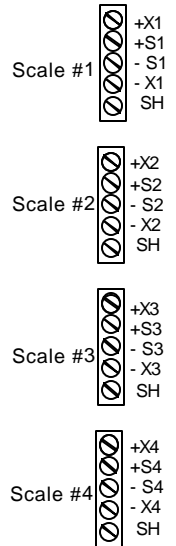
POWER IN	PC BOARD	230 Volt
	+	Hot
+ G +	G	Ground
	+	Hot

2 LOAD CELL CONNECTION

DO NOT CUT LOAD CELL CABLE !! This may void your warranty!! Your WIZARD 4000 Indicator is shipped with the load cells connected and ready to power up. Should you need to run the load cell cable through conduit, first unplug the connector from the board, then disconnect wires, and remove by unscrewing cord connectors.

When routing load cell cable into box, use a separate 1/2" cord connector per cable. DO NOT run load cell cable with any other inductive load or power cables !! Run load cell cable up right hand side of enclosure and use the cable clamps provided to keep cables from laying on the PC board. Connect load cell wires per following: (NOTE: Use 1/2" conduit connector)

PC BOARD	WIRE COLOR	DESCRIPTION
+ X	RED	+ EXCITATION
+ S	GREEN	+ SIGNAL
- S	WHITE	- SIGNAL
- X	BLACK	- EXCITATION
SH	BRAIDED WIRE	SHIELD



3 4-20 MA SIGNALS

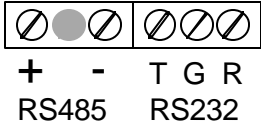
Your 4-20 MA signals are internally powered for up to 900 OHMS each. DO NOT use external loop power. Run 4-20 MA wiring up the right hand side of enclosure using the cableclamps to keep wires off of PC Board. (NOTE: Use 1/2" conduit connector). If more than one (1) 4-20 MA signal is used, you may use the same conduit and connector, but DO NOT run 4-20 MA signals with any other power lines, which carry an inductive load..

		PC BOARD	DESCRIPTION
Scale #1	+ 11		
Scale #2	+ 12	+	+ EXCITATION
Scale #3	+ 13	-	- EXCITATION
Scale #4	+ 14		



4 PRINTER COMMUNICATIONS

Use a separate conduit connector for your serial port communication. DO NOT RUN ANY OTHER CONDUCTIVE LOAD or power lines with your communicationn wiring. Wire your communications per the following: (NOTE: Use 1/2" conduit connector).



<u>RS232</u>	<u>PC BOARD</u>	<u>DESCRIPTION</u>
	T	Transmitted Data (printer data output line)
	G	Signal Ground (signal)
	R	Received Data (printer data input line)

<u>RS485</u>	<u>PC BOARD</u>	<u>DESCRIPTION</u>
	+	Positive
	-	Negative

5 RELAYS

External apparatus (pumps, valves, alarms, etc) may be ordered either normally open (N O) or normally closed (N C) These relays are rated at 5 AMPS maximum! To format your relays, see Set-Up Code #4200 in Chapter "SCALE SET-UP CODES". If more than one relay is being used, you may use the same conduit connector, but DO NOT run any other wiring with your relays. (NOTE: Use 1/2" conduit connector).

If ordered NORMALLY OPEN: Circuit is NOT complete until the relay is activated. (Example: Turning ON a warning light). We recommend normally open for all "low level" applications.

If ordered NORMALLY CLOSED: Circuit IS complete until relay is activated. (Example: Turning OFF a pump)

RELAYS



6 DISPLAY ANGLE ADJUSTMENTS

Before adjusting the Display Angle Adjustment, make sure of the following:

- A Indicator is mounted at "Eye Level". (Display angle is factory set for "eye level")
- B POWER IS OFF !

If it is not possible to mount the indicator at eye level, you may adjust the angle of display by turning the screw potentiometer clockwise (for down) or counterclockwise (for up). Rotate 1/2 turn at a time until display is clear.

LIGHTNING ~ SURGE PROTECTION:

Be sure that all power coming into the facility is sufficiently protected for transient lighting strikes and power surges. Improper protection may void your warranty.

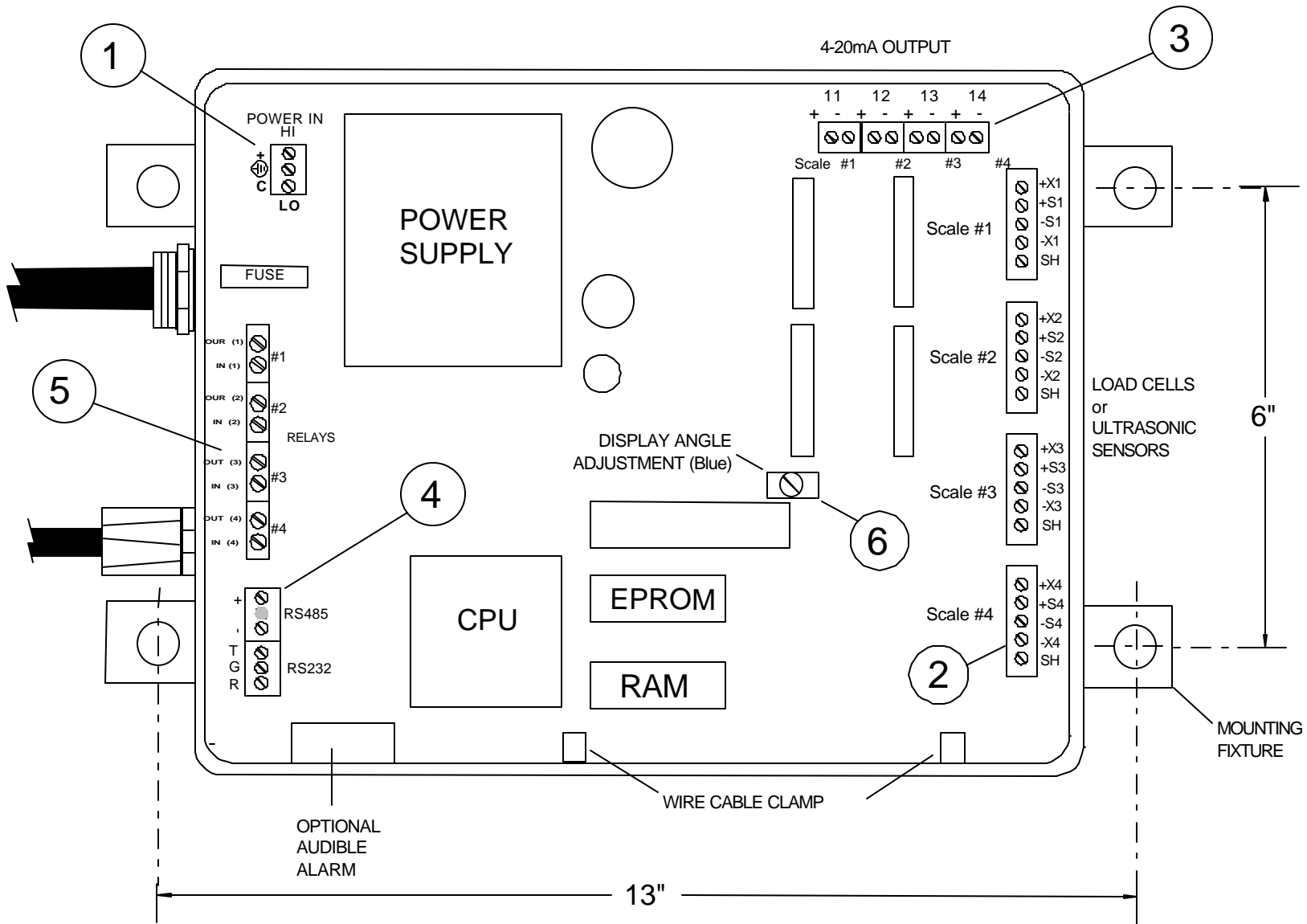
STATIC ELECTRICITY PROTECTION

CAUTION should be observed whenever box is open to avoid damage or memory loss by static electricity. DO NOT touch any of the circuit board, other than the intended contact noted in these instructions. Carpets, especially can build up static electricity.



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NOTE: For best viewing, mount indicator at "eye level" with the mounting fixtures provided.



W.1.204



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File: T4\O&M\AWZMSTR\WIZINDIA.tcw (B04.pdf) 05/27/99

**WIZARD INDICATOR
 COMPONENT LAYOUT**

Drawn by: SLP
 Date: 09/01/95
 Revised: 05/27/99
 Scale: NONE

Drawing Number
29892

WIZARD Indicator with DRUMM-SCALE

SECTION

W.1.000

INSTALLATION OF SCALE PLATFORM:

- W.1.101 Installation Instructions
- W.1.102 Dimensional Drawing

INSTALLATION OF LOAD CELL

- W.1.141 Load Cell Installation Drawing

INDICATOR INSTALLATION

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- W.1.202-203 Indicator Installation Instructions
- W.1.204 Wizard Component Layout

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INSTALLATION CHECK OFF LISTS

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- W.1.305 Installation Start-Up Check-Off List

W.2.000

INDICATOR OPERATION

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- W.2.103 Tank Load Mode

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- W.2.107 Review Daily Usage & Printing Report
- W.2.108 Report (example) & Protocol

SET-UP CODES - CUSTOM FORMATTING

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- W.2.205 Code 4200 & 3256 (Set Point Configuration/4-20mA Output Configuration)
- W.2.206 Code 3256 (cont...)

W.3.000

MISCELLANEOUS

- W.3.101 Code 9081 (Field Calibration)
- W.3.201 Checking Calibration via Water Test
- W.3.301 Troubleshooting Tips
- W.3.401 Spare Parts List

INSTALLATION CHECK-OFF LIST



INSTALL SCALE PLATFORM & LOAD CELL

(Section W.1.000)

DRUMM-SCALE PLATFORMS

- Route load cell cable to indicator mounting location per instructions.

CHEM-SCALE PLATFORMS

- Line up load cell and platform for anchor bolt location to avoid binding frame hinges and ensure load cell button is properly seated.
- Check for flexible supply connections to/from tank (if applicable).

TON CONTAINER FRAMES

- Line up load cell and Frame(s) for anchor bolt location to avoid binding frame hinges and ensure load cell button is properly seated.



MOUNT INDICATOR

(Section W.1.201 thru W.1.204)

- Mount at proper location, at "eye level".
- DO NOT mount Wizard in "direct" sunlight.



WIRE INDICATOR - TURN OFF ALL POWER BEFORE WIRING !

(Section W.1.202)

- TURN OFF all POWER before wiring. Always follow "Lock-Out", "Tag Out" procedures.
- Connect dedicated clean 110 volt AC power line through 1/2" conduit connector.
- Connect load cell cables through 1/4" cord connector.
- Connect 4-20mA signals through 1/2" conduit connector.
- Connect communications through 1/2" conduit connector.
- Connect relays through 1/2" conduit connector.
- Adjust "Display Adjust" if necessary



CUSTOM FORMATTING

(Section W.2.201 thru W.3.101)

- Check all default settings in "Set-Up Codes" and if necessary, make changes to better fit your application.

NOTE: Any changes to Set-Up Code "9080 SCALE SET-UP" will require recalibration of your scale.



SEAL INDICATOR ENCLOSURE TO MAINTAIN 4X RATING !!!

(Section W.1.201)

- Tighten all six (6) door screws to maintain NEMA 4X seal in box.
- Double check all cord connectors for tight seal.
- Double check all 1/2" conduit connectors for tight seal.

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W.1.301

QUESTIONS ? Help Hotline: 1-800-893-6723

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START-UP CHECK-OFF LIST

- 1 **POWER-UP:** Scale display should read "NET WEIGHT REMAINING". The value will be the tare weight of your SCALE PLATFORM(s) in "PORTABLE" Tank applications, or your VESSEL & PLATFORM in "FIXED" tank applications.
- 2 Press  and verify correct time and date. If incorrect, see SET-UP CODE 9087 (Section W.2.204).
- 3 Apply pressure to platform to see if indicator responds to changes in weight.
- 4 Review SET-UP CODES, especially 9082, 9084, 9085 and 9089 (Starting at Section W.2.201)


"PORTABLE" TANKS - Tank is REPLACED

5

Press  until "SET SCALE ZERO" appears on display. Zero scale as per instructions in Section W.2.106 "Menu of Day-To-Day Operations". For future reference, record ZERO FACTOR on a sticker inside Wizard cover. Refer to Section W.2.204 "Custom Formatting your Scale", CODE 9088, to obtain zero factor.

"FIXED" TANKS - Tank is REFILLED


5

With EMPTY tank on platform, press  until scale indicator reads "ENTER TARE". Zero scale as per instructions in Section W.2.106 "Menu of Day-To-Day Operations". For future reference, record ZERO FACTOR on a sticker inside Wizard cover. Refer to Section W.2.204 "Custom Formatting your Scale", CODE 9088, to obtain zero factor.

- 6 Press  until "CLEAR AMOUNT USED" appears on display. Clear the memory per instructions in Menu of Day-To-Day Operations (Section W.2.105).


"PORTABLE" TANK - Tank is REPLACED

7

Before LOADING Tank(s), press  and wait until Step 4 "CHANGE TANKS NOW" appears. See instructions on Tank Load Mode Section W.2.103.

"FIXED" TANK - Tank is REFILLED

7

Before FILLING Tank(s), press  and proceed as directed. Refer to "Operating Instructions", Section W.2.103 TANK LOAD MODE.

NOTE: If you load tank before reaching the "CHANGE TANK NOW" or the "FILL TANK NOW" step, your usage data will be inaccurate.



WIZARD Indicator with DRUMM-SCALE

SECTION

W.1.000

INSTALLATION OF SCALE PLATFORM:

- W.1.101 Installation Instructions
- W.1.102 Dimensional Drawing

INSTALLATION OF LOAD CELL

- W.1.141 Load Cell Installation Drawing

INDICATOR INSTALLATION

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- W.1.202-203 Indicator Installation Instructions
- W.1.204 Wizard Component Layout

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- W.1.301 Installation Check-Off List
- W.1.305 Installation Start-Up Check-Off List

W.2.000

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- W.2.101 Keyboard Display Selections
- W.2.102 Keyboard Menu - Quick Reference
- W.2.103 Tank Load Mode

YOU
ARE
HERE !

MEMU OF DAY-TO-DAY OPERATIONS

- W.2.104 Low Level Alarm & Date Last Cleared
- W.2.105 Clear Amount Used & Set Scale Zero
- W.2.106 Set Scale Zero cont... & Allarm Reset
- W.2.107 Review Daily Usage & Printing Report
- W.2.108 Report (example) & Protocol

SET-UP CODES - CUSTOM FORMATTING

- W.2.201 Code 9080 (Scale Set Up)
- W.2.202 Code 9082-9083 (Feed Rate Format/Display Units)
- W.2.203 Code 9084-9086 (Single or Dual Display/Tank Loading/Printer)
- W.2.204 Code 9086 (cont...)-9089 (Time/Date/Calibration/Channels)
- W.2.205 Code 4200 & 3256 (Set Point Configuration/4-20mA Output Configuration)
- W.2.206 Code 3256 (cont...)

W.3.000

MISCELLANEOUS

- W.3.101 Code 9081 (Field Calibration)
- W.3.201 Checking Calibration via Water Test
- W.3.301 Troubleshooting Tips
- W.3.401 Spare Parts List

Toggles through a multi-function display for each scale.

DISPLAY SELECT

Net Remaining
Amount Used
Average Feed Rate
Days Until Empty
Daily Usage

If applicable:
Tare Weight
Gross Weight

Reset Button (Resets screen to opening menu in case of entry error)

TOTALS

Toggles through a multi-function display for the totals of all scales.
Total Remaining
Total Used
Total Feed Rate

%

Displays Percent of Full

Single or Dual Display (16 Characters per Line Screen)

TIME DATE

"Time" and "Date"

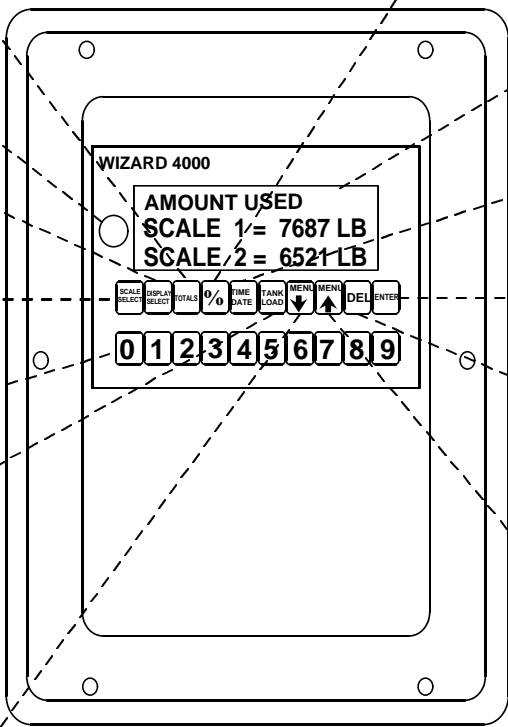
SCALE SELECT

Toggles Between Individual Scales

ENTER

Data Entry and Menu Function Access

Numeric Data Entry Key Pad



DEL

Backspace or Escape Menu Operations

TANK LOAD

Loading New Tanks or Chemicals

MENU
↓

Scrolls Forward Through the Menu

MENU
↑

Scrolls Back Through the Menu

OPERATIONS MENU

FUNCTION DESCRIPTION

LOW LEVEL ALARM.....	Entering of low level setpoint
DATE LAST CLEARED.....	Date the "amount used" was last reset
CLEAR AMOUNT USED.....	Clears the "amount used" display
SET SCALE ZERO/ENTER TARE..	Zero's the display
ALARM RESET.....	Resets the low level alarm (if set in the latching mode)
REVIEW DAILY USE.....	Reviews past 10 days usage

W.2.101



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INDICATOR BUTTON FUNCTIONS LIST FOR WIZARD INDICATOR

Drawn by: SLP
Date: 09/01/95
Revised: 11/01/99
Scale: NONE

Drawing Number
29887
WIZ

KEYBOARD & MENU FUNCTIONS

QUICK REFERENCE GUIDE

These are the functions that are used on a day-to-day basis.

SCALE SELECT Scrolls forward through individual scales.

DISPLAY SELECT Toggles through a multi-function display for each scale in the following descending order:

NET REMAINING..... Chemical remaining in tank or cylinder
AMOUNT USED..... A running total of net chemical used since last reset
AVERAGE FEED RATE.. Current chemical feed rate in lbs. or gallons per day
DAYS UNTIL EMPTY..... Days until empty at the current feed rate
DAILY USAGE..... Previous day's total chemical usage

If applicable:

TARE WEIGHT..... Tank tare weight
GROSS WEIGHT..... Tank tare plus chemical weight

TOTALS Toggles through a multi-function display for the totals of all scales, in the following descending order:

TOTAL REMAINING..... Chemical remaining in all tanks
TOTAL USED..... Chemical used in all tanks
TOTAL FEED RATE..... Chemical feed rate of all tanks

% Displays NET REMAINING as a PERCENTAGE of full.

TIME DATE Time and Date

TANK LOAD Loading new tanks or chemicals and entering tank tare weights.

MENU DOWN Scroll through a list of day-to-day operations in DESCENDING order. See Section "OPERATING INSTRUCTIONS", under "MENU OF DAY-TO-DAY OPERATIONS":

LOW LEVEL ALARM..... Entering of low level set point values
DATE LAST CLEARED..... Date the "amount used" display was last cleared
CLEAR AMOUNT USED..... Clears the "amount used" display and "daily usage" display
SET SCALE ZERO/TARE... Zero's the display
ALARM RESET..... Resets the low level alarm (if set in the latching mode)
REVIEW DAILY USE..... Stores the last 10 days Daily Usage
PRINT..... Outputs date via serial port to a printer



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W.2.102

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TANK LOAD MODE

TANK
LOAD

Allows you to load new tanks without adversely affecting the "AMOUNT USED" and "DAILY USAGE" displays.

It also allows you to enter the tare weight(s) of your tanks if you choose "Manual" tank load mode, or load the net weight of a cylinder if you chose the "Auto" tank load mode. (See Code Set-up 9085)

WARNING ! DO NOT UNLOAD or LOAD tanks until "CHANGE TANKS NOW, THEN PRESS ENTER" appears on the display. If you load or unload tanks before reaching this step, the "amount used" and "daily usage" displays will be incorrect.

Digital Display

Action Required - Press "ENTER" after completing each step.

Step 1

NET REMAINING
SCALE 1 = XXXX

Press

TANK
LOAD

to enter the tank load mode.

Step 2

ENTER SCALE #
1 THRU 2 X

Press

1

or

2

then

ENTER

Enter the scale NUMBER that you want to load/unload tanks. This "freezes" or "holds" the AMOUNT USED and DAILY USAGE displays until feeding resumes).

Skip to STEP 7 in "FIXED" Tank Applications.

"PORTABLE" Tank Applications (Follow Steps 1 thru 6 only) (such as Ton Containers, Drums and Cylinders)

Step 3

TARE MODE
*AUTO MANUAL



Press

MENU

to select which method, then press

ENTER

Use "MANUAL" for PARTIALLY FULL containers.

....If you chose "MANUAL" you will manually enter tank tare weight in Step 6.

Use "AUTO" for FULL containers.

....If you chose "AUTO" the WIZARD automatically loads the net weight and goes into the weighing mode (skip Step 6).

Step 4

CHANGE TANKS NOW
THEN PRESS ENTER

Remove empty tanks and place new tank(s) onto the scale then press

ENTER

Step 5

WAIT

Wait until this clears to continue.

....If MANUAL chosen above in Step 3...

Step 6

SCALE #2 TANK #1
TARE = XXXX

MANUAL Mode: Requires that you enter tare weight of EACH tank on EACH scale. (Example: Scale #2, tare weight of TANK #1, then TANK #2, etc). After entering the tare weights of all your tanks, the WIZARD 4000 automatically adds them up and subtracts them from the gross weight.

"FIXED" Tank Applications (Follow Steps 1, 2 and 7 only) (such as Chem-Scale, Hoppers, Powercells and Ultrasonic)

Step 7

FILL TANK NOW
THEN PRESS ENTER

Fill your tank with chemicals, then press

ENTER

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W.2.103

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WIZARD Indicator with DRUMM-SCALE

SECTION

W.1.000

INSTALLATION OF SCALE PLATFORM:

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INSTALLATION OF LOAD CELL

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- W.2.108 Report (example) & Protocol

YOU
ARE
HERE !

SET-UP CODES - CUSTOM FORMATTING

- W.2.201 Code 9080 (Scale Set Up)
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- W.2.205 Code 4200 & 3256 (Set Point Configuration/4-20mA Output Configuration)
- W.2.206 Code 3256 (cont...)

W.3.000

MISCELLANEOUS

- W.3.101 Code 9081 (Field Calibration)
- W.3.201 Checking Calibration via Water Test
- W.3.301 Troubleshooting Tips
- W.3.401 Spare Parts List

MENU OF DAY-TO-DAY OPERATIONS

This menu contains a list of operations that are used on a frequent basis. Each menu item is followed by "THEN PRESS ENTER" and has step-by-step operating instructions.

LOW LEVEL ALARM

Allows you to enter your low level set point values for the optional low level alarm. For this function to work properly, the alarm must be "enabled" under the Set-up Code #4200. Be sure to read this set-up code thoroughly before using this function. When a low level condition exists, your display will continuously flash "Low Level Scale # _____" and the optional 5 AMP relay will be activated. (See Chapter "SET-UP CODES")

NOTE: You must have purchased the low level alarm option and your alarm must be enabled under Code Set-Up #4200 for this function to operate. (See Chapter "SET-UP CODES")

Digital Display

Action Required - Press "ENTER" after completing each step.

Step 1

LOW LEVEL ALARM
THEN PRESS ENTER

Press to continue.

Step 2

LOW LEVEL ALARM
SCALE 1 = X LB.

Enter low level VALUE via key pad for SCALE 1...
then press (Example: Low level set point 100 lbs)

Step 3

LOW LEVEL ALARM
SCALE 2 = X LB.

Enter low level VALUE via key pad for SCALE 2...
then press (Example: Low level set point 150 lbs)

DATE LAST CLEARED

This function allows the user to find out the last time and date the "Amount Used" display was cleared or reset for each scale.

Digital Display

Action Required - Press "ENTER" after completing each step.

Step 1

DATE LAST CLEARED
THEN PRESS ENTER

Press to continue.

Step 2

ENTER SCALE #
1 THRU 2 X
(or 1 thru 4)

Enter which scale NUMBER... then press

Step 3

SCALE 2 CLEARED
09/15/95 22:15

Displays DATE and TIME "AMOUNT USED" function was last cleared is displayed for 8 seconds

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W.2.104

CLEAR AMOUNT USED

Clears or resets the "AMOUNT USED" and "DAILY USAGE" display to zero.

Digital Display

Action Required - Press "ENTER" after completing each step.

Step 1

CLEAR AMOUNT USED
THEN PRESS ENTER

Press **ENTER** to continue.

Step 2

CLEAR ALL SCALES
1=Y 0=N X

Enter **1** to clear all scales....or (if "1" entered, skip Step 3)

Enter **0** to clear individual scales (go to Step 3)

Step 3

ENTER SCALE #
1 THRU 4 X

If you chose INDIVIDUAL scales....

Enter the NUMBER of the scale you want to enter a Tare Weight.
Choose scale 1, 2, 3 or 4

Step 4

ARE YOU SURE?
1=Y 0=N X

Enter **1** for YES...

Enter **0** for NO

SET SCALE ZERO / TARE

Allows the user re-zero the display if it has drifted or changed, OR enter the TARE WEIGHT of the tank.

PORTABLE TANK APPLICATIONS

Digital Display

Action Required - Press "ENTER" after completing each step.

Step 1

SET SCALE ZERO
THEN PRESS ENTER

Press **ENTER** to continue.

Step 2

ARE YOU SURE?
1=Y 0=N X

Enter **1** for YES....or

Enter **0** for NO

Step 3

ENTER SCALE #
1 THRU 4 X

Enter the NUMBER of the scale you want to enter a Tare Weight.
Choose scale 1, 2, 3 or 4

FIXED TANK APPLICATIONS

Digital Display

Action Required - Press "ENTER" after completing each step.

Step 1

ZERO / TARE
THEN PRESS ENTER

Press **ENTER** to continue.

Step 2

ARE YOU SURE?
1=Y 0=N X

Enter **1** for YES....or

Enter **0** for NO

Step 3

ENTER SCALE #
1 THRU 4 X

Enter the NUMBER of the scale you want to enter a Tare Weight.
Choose scale 1, 2, 3 or 4

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SET SCALE ZERO / TARE

Continued . . .

FIXED TANK APPLICATIONS cont

Digital Display

Action Required - Press "ENTER" after completing each step.

Step 4

IS TANK EMPTY ?
 1 = Y 0 = N

Enter 1 for YES...or

Enter 0 for NO

Step 5

ENTER TANK
 TARE = XXXX

Using the Numeric Keys, input the TARE WEIGHT (the weight of the empty tank and any other accessories)

ALARM RESET

Re-sets the optional low level alarm, if your alarm is set in the latching mode.

NOTE: You must correct the low level condition (choose the applicable remedy):

Portable Tank: Replace the CL2 or SO2 tank(s)

Stationary Tank/Hopper: Fill the tank

before resetting the alarm. Silence the optional internal audible alarm by pressing

DELETE

Digital Display

Action Required - Press "ENTER" after completing each step.

Step 1

ALARM RESET
 THEN PRESS ENTER

Press ENTER to reset.



REVIEW DAILY USAGE

Allows the user to review past 10 days chemical usage.

Digital Display

Action Required - Press "ENTER" after completing each step.

Step 1

REVIEW DAILY USAGE
THEN PRESS ENTER

Press **ENTER** to continue.

Step 2

ENTER SCALE #
1 THRU 2 XXXX

Enter the number of the scale you want to review.

Step 3

SCALE 1 USAGE;
12/25/96 164

Chemical usage on that particular date. Press
for next date, or **DELETE** to escape.

ENTER

PRINT

The print function allows you to download display functions to a printer or other apparatus on a manual or automatic basis. If you chose "Auto Print" under Code Set-Up 9086, the entire report will be printed.

Digital Display

Action Required - Press "ENTER" after completing each step.

Step 1

PRINT
PRESS ENTER

Press **ENTER** to continue.

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W.2.107

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REPORT (example of "REPORT")

Ready . . .

	8/ 15/ 0	14:21Time and Date of Report
Net Chemical Remaining..... in the Tank	NET REMAINING		
	SCALE 1	1950 LB	
	SCALE	1832 LB	

	TOTAL =	3782 LB	

	AVG FEED RATEAverage Chemical Feed	
	SCALE 1	0 PD	Rate in Lbs/Days or Lbs/Hr
	SCALE 2	288 PD	

	TOTAL =	288 PD	

PROTOCOL

Protocol for other communication devices.

Baud Rate: 600, 1200, 2400, 4800 or 9600

Bits: 8 Bit, 1 Start Bit, 1 Stop Bit, No Parity

Hand Shake: None



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W.2.108

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WIZARD Indicator with DRUMM-SCALE

SECTION

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- W.2.204 Code 9086 (cont...)-9089 (Time/Date/Calibration/Channels)
- W.2.205 Code 4200 & 3256 (Set Point Configuration/4-20mA Output Configuration)
- W.2.206 Code 3256 (cont...)

YOU
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W.3.000

MISCELLANEOUS

- W.3.101 Code 9081 (Field Calibration)
- W.3.201 Checking Calibration via Water Test
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- W.3.401 Spare Parts List

SET-UP CODES

Model Number of Scale/Sensor: _____
Quantity of Scale Platforms: _____ (if applicable)

These Set-Up Codes allow you to custom format your scale for your specific application. They may be accessed when initially installing your scale, but otherwise, very infrequently. You may change your default setting by entering the 4-digit numeric password and then pressing "ENTER". You may NOT access Set-Up codes while in the "MENU". You must press delete to escape the Menu.

NOTE: All Set-Up Codes have been factory set for your specific application and your scale(s) has been calibrated.

9080 SCALE SET-UP

This function allows you to format your display by choosing various parameters like "lbs" or "kilos"; how many fixed zeros; number of decimal places; your increments or "county by"; total number of digits or "resolution", and your capacity.

NOTE: If any of the scale Set-Up functions are changed, your scale must be recalibrated.

Digital Display / Default (in red)

Action Required - Press "ENTER" after completing each step

WEIGHT UNITS
*LBS or KGS _____

Choose to read either "metric" or "imperial" units. Use arrow keys to select.

NUMBER OF DECIMALS _____

How many numbers right of the decimal point. Enter "0" or "1"
Example: 1 decimal place = 486.3 pounds.

NOTE: Most applications over 2,000 lbs. will use "0" decimal places.

FIXED ZEROS _____

This function is displayed only if "0" decimal places is selected. This represents how many "dead" zeros you want on your display. Enter "0" or "1".
Example: 1 fixed zero = 26,340

NOTE: Most applications under 20,000 lbs. will have "0" fixed zeros.

1, 2, OR 5
COUNT BY _____

Establishes the minimum increments of the display. Enter "1", "2" or "5".
Example: "1" = 1 lb. increments. "5" = 5 lb. increments. Choose 1, 2 or 5.

RESOLUTION
DIGITS = _____

Establishes the number of displayed increments or total "counts".
Choices: 1,000, 2,000, 3,000, 4,000, 8,000 or 12,000. Scroll the Menu Keys until the desired resolution displays, then press ENTER.

NOTE: This number is not the total "capacity". Capacity will be the automatic result of the "count by" and "resolution" entry.

CAPACITY _____
BY _____

Displays the result of the above selections. Push ENTER to accept.

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9081 FIELD CALIBRATION

(See Chapter "FIELD CALIBRATION, SET-UP CODE 9081")

9082 FEED RATE FORMAT

Allows you to choose between "lbs per day" ("gallons per day") and "lbs. per hour" ("gallons per hour") and allows you to set your sample time or "update period" for your feed rate function.

***IMPORTANT NOTE:** Setting your "Update Period"

In general, if your feed rates are fairly constant on a daily basis, the longer you set your update period for, the more accurate your feed rate function will be. However, if your feed rate varies from hour to hour or minute to minute, choose a shorter update period to give you a more accurate feed rate at a point in time. You may have to experiment with different update periods to get the desired result for your application.

	HIGH FEED	LOW FEED (less than 2% capacity/day)
FLUCTUATING	Use a Short Update Period	N/A (Not Accurate)
CONSTANT	Use a Short or Long Update Period	Use a Longer Update Period

For certain applications with very low feed rates (less than 2% of full scale capacity per day), low sample times will not give you accurate readings.

Digital Display / Default (in red)

RATE TIME BASE	
___ PPH	___ PPD
___ KPH	___ KPD

Action Required - Press "ENTER" after completing each step

Use ARROWS to select: (If Lbs chosen) (If Kgs chosen)
If calibrated in LBS/KGS: PPH = Lbs. per HOUR KPH = Kgs. per HOUR
PPD = Lbs. per DAY KPD = Kgs. per DAY

Or if calibrated in GALLONS: GPH = Gallons per HOUR
GPD = Gallons per DAY

PERIOD BASE	
___ MIN	___ HOUR

Use ARROWS to select:
Rate Update Period In: MIN = Minutes
HOUR = Hours

UPDATE PERIOD
HOURS = _____

Use ARROWS to select update period:
Choice if HOURS: 2, 4, 6, 8, 12 Hours
Choice if MINUTES: 2, 5, 10, 20, 30, 60 Minutes
NOTE: See IMPORTANT NOTE above "Setting your Update Period".

9083 DISPLAY UNITS

This function allows you to choose your display to read in weight or gallons. If you choose gallons, you must enter the specific gravity of the chemical being fed.

Digital Display / Default (in red)

DISPLAY UNITS	
*LBS.	GAL
*KGS	GAL

Action Required - Press "ENTER" after completing each step

Use ARROWS to select WEIGHT (Lbs/Kgs) or VOLUME (Gallons).

SPECIFIC GRAVITY
SCALE 1 = X.XXX

If you choose VOLUME, enter the specific gravity of material being fed.

NET REMAINING
SCALE 1 = X.XXX

Displays the result of the above selections.



9084 SINGLE or DUAL DISPLAY

Allows display to alternate between scale displays automatically or manually as well as displaying 1 or 2 scales at a time.

Digital Display / Default (in red)

Action Required - Press "ENTER" after completing each step

AUTO SCAN ?
1=Y 0=N

Do you want the screen to automatically alternate between displays?
Choices: "1" = YES "0" = NO

DISPLAY FORMAT
*SINGLE DUAL

Use ARROW KEY to select:
SINGLE = 1 scale displayed
DUAL = 2 scales displayed

NOTE: Single channel scale CANNOT Auto Scan and will only use single scale display.

9085 TANK LOADING MODE

For **CL2 & SO2** applications: This allows the user to either manually enter tank tare weights, or to automatically load full containers of 2,000 lbs.net weight. However, if container is partially empty, or if you are only loading one tank on a multiple tank scale, you must use "MANUAL" mode.

For **ALL OTHER CHEMICAL FEED, HOPPER & TANK** applications: You must use "MANUAL" mode.

Digital Display / Default (in red)

Action Required - Press "ENTER" after completing each step

TARE MODE
___AUTO ___MANUAL

Use ARROW KEY to select:
AUTO = Automatically load the net contents of containers
MANUAL = Manually enter the tare weight of your tanks.
NOTE: "AUTO" applies to CL2 & SO2 tanks only
(and on some Drumm-Scale applications)

AUTO NET WT / LB (KG)
WEIGHT = _____

Will be displayed if AUTO was chosen above.
Use key pad to enter the net contents of containers.

NET WEIGHT EXAMPLES

2000 lb. = Ton Containers (USA)
150 lb. = 150 lb. Cylinders (USA)
907 kg. = Canadian Ton Containers
1000 kg. = Metric Ton Containers

100% / AUTO LOAD
SCALE 1 XXX

Enter the value that represents a full tank.

9086 FORMAT PRINTER PORT (RS232 / RS485)

Allows you to format your communications baud rate; print format and whether you want to engage the datalogging (auto print) function.

Digital Display / Default (in red)

Action Required - Press "ENTER" after completing each step

USE DEL , ENTER
BAUD = _____

Use ARROW KEY to select your BAUD RATE:
Choices: 300, 600, 1200, 2400, 4800, 9600.

TOP LINE FEEDS
NUMBER = _____

Enter the number of SPACES at the TOP of your printout.
Choices: 1 to 100

BTM LINE FEEDS
NUMBER = _____

Enter the number of SPACES at the BOTTOM of your printout.
Choices: 1 to 100.



9086 FORMAT PRINTER PORT (RS232 / RS485) continued

Digital Display / Default (in red)

AUTO PRINT ?
1 = Y 0 = N

Action Required - Press "ENTER" after completing each step

Do you want to engage the AUTO PRINT (Datalogging) function?
Choices: "1" = YES "0" = NO (by engaging this function, the WIZARD 4000 will automatically download all display functions and totals on an hourly or daily basis).

If "YES", you will see the following:

AUTO PRINT TIME
HOUR DAY

Use ARROW KEY to select AUTO PRINTING once per HOUR or once per DAY.

9087 TIME AND DATE

Sets time and date

Digital Display / Default (in red)

YEAR XX
MONTH XX
DAY XX
HOUR XX
MINUTE XX

Action Required - Press "ENTER" after completing each step

Enter the YEAR (last 2 digits only. Example: 96 = 1996)
Enter the MONTH (2 digits. Example: 09 = Sept)
Enter the DAY (2 digits. Example: 02 = 2nd)
Enter the HOUR (military time. Example: 14 = 2pm)
Enter the MINUTE (2 digits. Example: 05 = 5 minutes)

9088 CALIBRATION FACTOR

Allows you to verify Calibration Factor against original factory Calibration Factor.

Digital Display / Default (in red)

SCALE 1 FACTOR
NUMBER = XXXXXX

The number displayed should correspond to the calibration factor recorded on the calibration data inside the front cover. To restore original factory value, use numeric keypad to enter correct value.

SCALE 1 ZERO
NUMBER = XXXX

The number displayed should correspond to the zero factor recorded on the calibration data inside the front cover. To restore original factory value, use numeric keypad to enter correct value.

SCALE 1 MOT CTS
NUMBER = 15

Factory setting is 15. DO NOT CHANGE.

SCALE 1 FILTER
NUMBER = 47

Factory setting is 47. DO NOT CHANGE.

NOTE: Repeat for each additional scale.

9089 CHANNEL IDENTIFICATION NUMBERS

Allows you to assign an Identification Number (from 1 to 99) to each scale.

Digital Display / Default (in red)

CHANNEL 1 SCALE
NUMBER = XX

Action Required - Press "ENTER" after completing each step

Use the numeric keypad to enter any number from 1 to 99 to identify each scale.

FORCE FLOW

W.2.204
WA.2.204

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4200 SET POINT CONFIGURATION

This option requires a special access code, which will be provided when this option is supplied.

Digital Display / Default (in red)

Action Required - Press "ENTER" after completing each step

**ENTER CODE
NUMBER = _____**

Enter the PASSWORD to continue. Required to access this option.
(Optional Accessory)

**#1 SET POINT ENABLED
1 = Y 0 = N _____**

For Scale ONE. Do you want to turn the low level alarm ON or OFF.
Choice: "1" = ON "0" = OFF

**#1 SET POINT LATCHED
1 = Y 0 = N _____**

For Scale ONE. Do you want your alarm latching?
Choose: "1" = LATCHING (alarm condition exists until
operator acknowledges the alarm by re-setting in the menu)

Choose: "0" = NON-LATCHING (alarm condition exists until tank is refilled)
NOTE: Questions repeat for each additional scale.

THIS UNIT CONTAINS:

Dry Contact Relays

N/O (Normally Open)

Solid State Relay

N/C (Normally Closed)

**INVERT RELAYS ?
1 = Y 0 = N _____**

For ALL Scales: Do you want to invert the operation of the relays?

Choose "1" = The relay will be actuated in a NON-ALARM condition.
If an ALARM condition occurs, relay is de-activated.

EXAMPLE: If "INVERTED RELAY" is selected, a Normally
Closed relay will be actuated (OPENED contact)
in NON-ALARM status. During an ALARM
situation, relay is de-actuated (CLOSED contact).

Choose "0" = The relay will be actuated when an ALARM situation
is encountered.

EXAMPLE: If "INVERTED RELAY" is NOT selected, a Normally
Closed relay will NOT be actuated (CLOSED contact)
in NON-ALARM status. During an ALARM
situation, relay is actuated (OPEN contact).

This feature allows configuration of FAIL SAFE alarm
relay contacts.



3256 4-20 MA ANALOG OUTPUT CONFIGURATION

If you have chosen the analog output option, this allows you to select either net weight or feed rate as your output. This option requires a special access code.

Digital Display / Default (in red)

Action Required - Press "ENTER" after completing each step

**ENTER CODE
NUMBER =** _____

Enter the PASSWORD to continue. Required to access this option.
(Optional Accessory)

**4-20 MA OUTPUT?
1 = Y 0 = N** _____

To activate the 4-20 MA option.
Choices: "1" = YES "0" = NO

**TRANSMIT SCALE
*SINGLE TOTAL** _____

This allows you to choose between transmitting the TOTAL of ALL SCALES, or transmitting INDIVIDUAL SCALES (when "total" is chosen, transmitting is ALWAYS done on PORT 1). Use ARROW KEY to select, then ENTER.

**HOW MANY PORTS ?
1 thru 4** _____

How many scales will have transmitters?
Choices: "1", "2", "3" or "4"

**PORT 1 SCALE
NUMBER =** _____

Which scale will have PORT 1?
NOTE: We recommend using Port 1 for Scale 1,
Port 2 for Scale 2, etc.

__RATE __NT WT _____

Use ARROW KEY to choose (for the scale on PORT 1), either:
RATE (Rate of Feed) or
NET WT (Net Weight)

**PORT 1 RANGE FS
NET WT =** _____

Enter FULL SCALE range for the scale on PORT 1

NOTE: If you choose "NET WEIGHT": We recommend that you set your full scale range equal to your scale capacity.

If you choose "RATE": Set your full scale equal to the maximum feed rate which you expect to see on that scale.

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**W.2.206
WA.2.206**

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WIZARD Indicator with DRUMM-SCALE

SECTION

W.1.000

INSTALLATION OF SCALE PLATFORM:

- W.1.101 Installation Instructions
- W.1.102 Dimensional Drawing

INSTALLATION OF LOAD CELL

- W.1.141 Load Cell Installation Drawing

INDICATOR INSTALLATION

- W.1.201 Indicator Wiring & Plumbing
- W.1.202-203 Indicator Installation Instructions
- W.1.204 Wizard Component Layout

INSTALLATION CHECK OFF LISTS

- W.1.301 Installation Check-Off List
- W.1.305 Installation Start-Up Check-Off List

W.2.000

INDICATOR OPERATION

- W.2.101 Keyboard Display Selections
- W.2.102 Keyboard Menu - Quick Reference
- W.2.103 Tank Load Mode

MEMU OF DAY-TO-DAY OPERATIONS

- W.2.104 Low Level Alarm & Date Last Cleared
- W.2.105 Clear Amount Used & Set Scale Zero
- W.2.106 Set Scale Zero cont... & Allarm Reset
- W.2.107 Review Daily Usage & Printing Report
- W.2.108 Report (example) & Protocol

SET-UP CODES - CUSTOM FORMATTING

- W.2.201 Code 9080 (Scale Set Up)
- W.2.202 Code 9082-9083 (Feed Rate Format/Display Units)
- W.2.203 Code 9084-9086 (Single or Dual Display/Tank Loading/Printer)
- W.2.204 Code 9086 (cont...)-9089 (Time/Date/Calibration/Channels)
- W.2.205 Code 4200 & 3256 (Set Point Configuration/4-20mA Output Configuration)
- W.2.206 Code 3256 (cont...)

W.3.000

MISCELLANEOUS

- W.3.101 Code 9081 (Field Calibration)
- W.3.201 Checking Calibration via Water Test
- W.3.301 Troubleshooting Tips
- W.3.401 Spare Parts List

YOU
ARE
HERE !

9081 FIELD CALIBRATION

Your scale has been factory calibrated. This function allows you to field calibrate your scales by setting the zero and span for each scale with known weights.

NOTE: All Chlor-Scales, Chem-Scales and Drumm-Scales are factory calibrated for your specific application. Should you notice any error, field calibration can be performed as follows:

Digital Display / Default (in red)

Action Required - Press "ENTER" after completing each step

DEL FACTORY CAL ?
1 = Y 0 = N X

Do you want to DELETE THE FACTORY CALIBRATION ?
Enter "1" for YES, or "0" for NO. If answered "Y", you will see next question.

ENTER SCALE NUMBER X

Enter which scale you want to calibrate. Choice "1", "2", "3" or "4"

WAIT

Wait for further instructions.

REMOVE ALL WEIGHT THEN PRESS ENTER

To set your "ZERO", remove all weight from the scale.

APPLY WEIGHT THEN PRESS ENTER

For CL2 & SO2 Applications: Place full container(s) on scale.
For CHEM and DRUM SCALES Applications. Consult Factory
For ALL OTHER Applications: Place test weight(s) on scale.

WAIT....

Wait for further instructions.

ENTER VALUE XXXX

For CL2 & SO2 Applications: Key in the combined gross weights (net WEIGHT contents and tare weights) using the key pad then press enter.
For ALL OTHER Applications: Key in the test weight(s) using the key pad, then press enter.

GROSS WEIGHT SCALE X = XXXX

Your scale is now calibrated and goes into the gross weight display mode.



CHECKING SCALE CALIBRATION via the "WATER TEST" on VERTICAL ROUND TANKS

TO DETERMINE TANK MEASUREMENTS:

To calculate volume, you need to make 2 basic measurements with a tape measure: TANK "RADIUS" and WATER "HEIGHT".

STEP 1: With NO WATER in the tank, measure the inside diameter (I.D.) of the tank to the nearest 1/16" of an inch. Take care when measuring so that your tape measure is "level" and you are measuring across the MIDDLE of the tank.

STEP 2: ZERO scale indicator, then fill the tank with water approximately 80% full.

STEP 3: Put tape measure down through the water and measure the water level to the nearest 1/16 of an inch. This value represents your "HEIGHT".

Step 1:

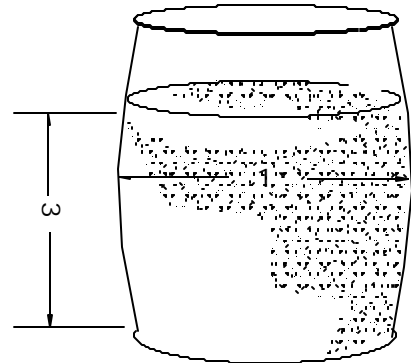
Measure tank inside diameter.

Step 2:

Zero scale indicator, then fill 80% full with water.

Step 3:

Measure water height.



TO DETERMINE VOLUME:

The volume (in gallons) of your container can be determined by this simple formula:

FORMULA: $(3.1416 \times \text{Drum Radius} \times \text{Drum Radius} \times \text{Water Height})$ divided by 231 = Gallons

Example: $(3.1416 \times 11.281" \times 11.281" \times 35.187")$
divided by 231 = 60.89 Gallons

3.1416 = PI (constant)

231 = Cubic inches in 1 gallon (constant)

Drum radius is half of drum inner diameter.

Example: $22\text{-}9/16"$ ($22.562"$) divided by 2 = 11.281" Drum Radius

Water Height = $35\text{-}3/16$ (35.1870)

TO DETERMINE WEIGHT:

Once the volume is determined, multiply the total gallons times the weight per gallon of water (which is 8.34 lbs. per gallon). The weight of water is the same universally.

FORMULA: Gallons x Lbs. per gallon = Total lbs.

Example: $60.89 \times 8.34 \text{ lbs/gallon} = 507.9 \text{ lbs. Total}$

60.89 = Gallons as determined above

*8.34 = Weight of water (lbs. per gallon)

IMPORTANT NOTE: Minimum test sample: 20 gallons

All measurements should be made to + or - 1/16".

All calculations should be made to 3 decimal places (i.e. 7.225)

DO NOT GIVE CREDENCE TO "GALLON" MARKINGS ON TANK !!
THEY PROBABLY ARE NOT ACCURATE !!

TROUBLESHOOTING

PROBLEM ***SOLUTION***

Cannot get INTO the MENU: - Exit CODE SET-UP function, then push "arrow" key.

Cannot get OUT OF the MENU: - Push DELETE

Cannot get OUT OF the CODE SET-UP: - Keep pushing ENTER until you get to the display.

AMOUNT USED and DAILY USAGE values are incorrect.: - When in the TANK LOAD mode, make sure you wait until the:
"CHANGE TANKS NOW" (for PORTABLE tank applications)
or "FILL TANKS NOW" (for PERMANENT tank applications)
before loading/unloading of tanks/chemicals.

NET REMAINING is NOT correct:

- If using AUTO TARE mode, make sure you are using full tank(s).
- If you are using MANUAL TARE mode, make sure you are entering the correct tare weight(s) for your tank(s).
- If you don't replace all tanks on a multiple tank scale, you must use MANUAL mode.
- If all else fails, recalibrate under CODE SET-UP 9081 under field calibration.

FEED RATE and DAYS UNTIL EMPTY is incorrect: - Read CODE SET-UP 9082 under custom formatting thoroughly and adjust accordingly.

ALARM does NOT operate: - Make sure you purchased this option.
- Make sure alarm for that scale is ENABLED under CODE SET-UP 4200.
- Make sure relay is wired NORMALLY OPEN under indicator wiring instructions.

Alarm RESET does NOT operate: - You must first correct your alarm condition before attempting to reset (i.e. fill your tank, or load a full tank beforehand).

PRINTER does NOT operate: - Make sure printer protocol has been set properly (see #4 PRINTER COMMUNICATIONS in Indicator Installation & Wiring)
- Printer must have at least 24 character width capability and a 2K buffer.

4-20mA SIGNAL does NOT operate: - Make sure you purchased this option.
- Make sure there is no more than 975 Ohms load on 4-20mA loop.
- Make sure 4-20mA signal is formatted properly under CODE SET-UP 3256.

READOUT does NOT operate: - Check for proper power connections.
- Check fuses in Indicator.

Fluctuating readings or inaccurate readings. - Make sure load cell cable is not in proximity to any other power wiring.



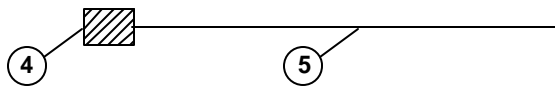
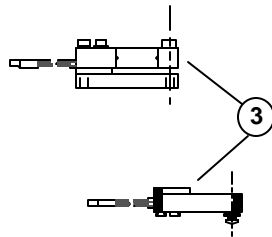
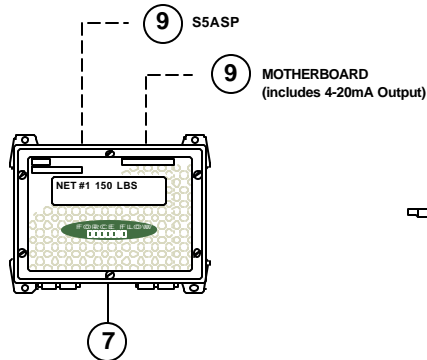
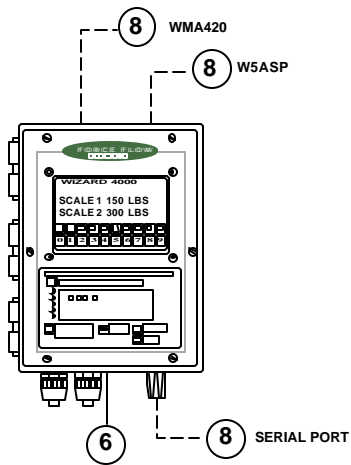
W.3.301

QUESTIONS ? Help Hotline: 1-800-893-6723

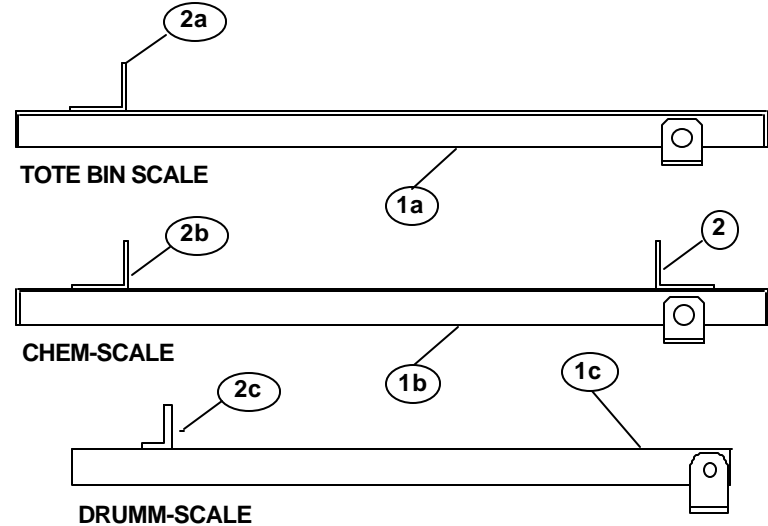
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Electronic CHEM-SCALE or DRUMM-SCALE -- PARTS & ACCESSORIES



- | | |
|---|--|
| <p>1 1a or b: Chem-Scale or Tote Bin Scale Platform:
 30" x 30" Chem-Scale Platform
 40" x 40" Chem-Scale Platform
 50" x 50" Chem-Scale Platform
 60" x 60" Chem-Scale Platform
 72" x 72" Chem-Scale Platform</p> <p>1c: Drumm-Scale Frame:
 27-1/2" x 27-1/2" Drumm-Scale Platform</p> <p>2 a) Backstop (1 for Chem Tote Bins)
 b) Hold Down Clips (4 for Chem Tanks)
 c) Backstop (1 for Drums)</p> <p>3 Load Cell with Cable:
 (Consult Factory on which load cell fits your application)</p> <p>4 J10 JUNCTION BOX (to extend cable beyond the standard length)
 J40 SUMMING BOX (to sum multiple scales or for high accuracy applications)</p> | <p>5 Cable</p> <p>6 Electronic WIZARD Indicator:
 Wizard 4000-1 (1-Channel)
 Wizard 4000-2 (2-Channel)
 Wizard 4000-3 (3-Channel)
 Wizard 4000-4 (4-Channel)</p> <p>7 Electronic SOLO Indicator:
 Solo 1000 Single Channel
 Solo 1000-2 Dual Channel</p> <p>8 Accessories for WIZARD:
 W5ASP (level alarm)
 WMA420 (4-20mA Output)
 WRS232/WRS485 (Serial Port)
 WMB4000 (Motherboard Replacement)</p> <p>9 Accessories for SOLO:
 S5ASP (level alarm)
 SMB1000 (Motherboard Replacement (includes 4-20mA))</p> |
|---|--|



S.3.401
 W.3.401



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ELECTRONIC CHEM-SCALE or DRUMM-SCALE PARTS LIST for Tanks, Tote Bins or Drums

Drawn by:	SLP	Drawing Number
Date:	01/01/89	
Revised:	03/15/00	29502
Scale:	NONE	

