**Operating Manual** 



# 2300 Series

Model: 2300



# **Amendment Record**

# 2300 Series Models: 15744,15849,22258,21877,21879,22260 50202 / SJ 4773

#### Manufactured by Fairbanks Scales Inc. 821 Locust Kansas City, Missouri 64106

- Created 12/98
- Issue #1 12/98 New Product Release
- Issue #2 7/99 Software Update, added 5 digit part numbers, added 610 printer
- Issue #3 02/01 Added battery operated models
- Issue #4 6/01 Update the Troubleshooting page and Technical Specifications (NEMA 4)

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#### Disclaimer

Every effort has been made to provide complete and accurate information in this manual. However, although this manual may include a specifically identified warranty notice for the product, Fairbanks Scales makes no representations or warranties with respect to the contents of this manual, and reserves the right to make changes to this manual without notice when and as improvements are made.

# Section 1: Introduction/Description



#### Caution: This product is shipped from the factory set for

<u>110-120 VAC operation. For 220-240 VAC operation,</u> <u>settings must be changed before powering up.</u> <u>See power settings below for 220-240 VAC.</u>

#### **Power Settings:**

AC Power can be set for 110/120VAC OR 220/240VAC via jumpers @ JP1 on Power PCB# 15759 or 21514, confirm setting. For 220/240VAC = Jumper only center positions "B" For 110/120VAC = Jumper both end positions "A" and "C"

# A. Description:

The 2300 Series instrument is an all purpose analog weight indicator with the following features:

- 6 digit, 7 segment .56" LED display
- Full numeric keypad
- · LED indicators for modes and functions
- Outputs, and two (2) inputs for external switches
- Choice of AC only or Battery & AC power (when ordering only)

### B. Model Differences:

- Original model units did NOT have an ON/OFF switch on the keypad and are AC only.
- Neither their software nor their hardware allow battery operation or battery add-on.
- Parts from an original may NOT be used in a new style instrument and visa-versa.

### (Original Styles)

- 15744 Composite
- 15849 Stainless Steel
- Newer models HAVE the new style keypad with an ON/OFF switch, and are ordered WITH or WITHOUT battery option. All contain the "bAtt' menu in their software.
   Parts from an original may NOT be used in a new style instrument and visa-versa.

( Newer Styles)
22258 - AC Only Stainless Steel
21877 - AC Only Composite
21879 - AC/Battery Composite
22260 - AC/Battery Stainless Steel

The 2300 Series is available in an ABS hostile environment version and in a hostile environment SS enclosure. The enclosure(s) come with a mounting bracket suitable for desk or wall mount. Options are Time Clock and 4-20mA output accessories.

#### C. Intended Applications:

Include, but are not limited to:

- Tank weighing assemblies
- Floor scales
- Bench scales
- Hopper scales
- Truck scales

# Section 2: Technical Specifications

A. Approval Specifications:	NTEP CC #	98-131A1
	CVVIVI APAIVI	97-0103

B. Models:

<u>Version</u>	<u>Style</u>	<u>NEMA</u>	<u>IP</u>
Original:	IND-HR2300-1 Composite	4	IP66
Original:	IND-HR2300-2 Stainless Steel	4X	IP66
Newer:	IND-HR2300-3 Composite, AC Only	4	IP66
Newer:	IND-HR2300-4 Composite AC/DC	12	IP40
Newer:	IND-HR2300-5 SST,AC Only	4X	IP66
Newer:	IND-HR2300-6 SST, AC/DC	4X	IP66

Division sizes from .0002 to 50

(Platform capabilities take precedence over the instrument capabilities)

C. Environment:

The enclosures are suitable for use at their listed ratings. Composite=Non washdown, Stainless Steel=Hand washdown Only

D. Power Requirements:

120/240 Volt AC, 50-60 Hertz grounded source -OR-- 6 "D" cell batteries (for those units so equipped). It is highly recommended that the proper grounds/shields from the base or junction box to the instrument be used. Power consumption: Approximately 4 watts

- E. Instrument Capabilities:
  - 1. Number of load cells: 8 each 350 ohm cells/16 each 1000 ohm cells
  - 2. Div size: .0002 to 50
  - 3. Counts/div: 500,000 internal counts available
  - **4. Cable lengths:** Use 18 ga cable, absolute maximum of 500 feet. (Must use sense leads over 25')
  - 5. Excitation voltage: Pulsating (chopped) DC excitation measures (approx) 5.00 DCV (true RMS) at TB1-1 to TB1-2 (reading - exc to + exc on instrument terminal strip)
  - **6.** Approximately 100 hrs of battery life using alkalines, battery life will vary by battery manufacturer and actual usage.

a. With 1 load cell, battery life equals 100+ hours

# Section 3: Setup

# A. Unpacking:

Be certain the instrument is undamaged and the packing list is correct.

### B. Installing:

Setup is accomplished by locating and securing the instrument within a suitable area, wiring to the load cell(s) or junction box, programming to meet specific needs, calibration, then adding peripheral equipment as required. Place the instrument so that the platform can be viewed while operating, out of direct sun, and close to a power outlet if AC power is to be used. Configuration, calibration, accessory installation and peripheral device setup must be performed by an authorized installing technician. The instrument stand is attached via the two (2) screw knobs and used as a desk mount, or a wall mount using the pre-drilled holes in the base of the stand.



**Note:** When adjusting screw knobs, hand tighten only, do NOT overtighten.

**1.** AC Power can be set for 110/120VAC OR 220/240VAC via jumpers @ JP1 on Power PCB# 15759 or 21514, confirm setting.

For 220/240VAC = Jumper only center position "B" For 110/120VAC = Jumper both end positions "A" and "C"

### 2. Models with battery option:

**a. Stainless Steel:** Open the battery holder's cover by loosening the four thumbscrews and insert 6 NEW "D" (alkaline) cells into the holder observing polarity. Ensure all batteries are inserted correctly, then secure screws before powering up.

**b. Composite:** Remove the battery holder cover and insert 6 NEW "D" (alkaline) cells into the holder observing polarity. Ensure all batteries are inserted correctly, then secure cover before powering up.

C. Power On:

To turn power ON, firmly press the ON/OFF switch on the front panel. On original models, without the ON/OFF switch, simply plug the power cord in to power up.

A 'Power-up' display will sequence is as follows:

LL.LLLL	(digit test)
777.777	(digit test)
	(digit test)
init.	(initialization
P21579	(or current Prom # )
Rev 2	(or current Rev #)
X.X U	(battery voltage)
XX.XCs	(temperature
XX.XCn	(temperature
Adinit	(A-D Initialization)
Stby 25-1	(Countdown for A-D Initialization)
XXX.X	(weight display)

# Section 4: Programming

# A. Keyboard Layout:

Description of front panel keys and their function(s):







Captures weight on platform as TARE, sets display to 00

- Used the enter PROGRAM mode
- Used to view choices in PROGRAM mode
- Used to set ID or Identification number
- GROSS NET

UNITS

Pgr

ゝ

SCROLL ID

- Changes from GROSS to NET modes/ exits from Program mode. Selects weighing Units
- **→**⊺←



ZERO



Resets display to 00

Reads current stored TARE weight

 $\underline{\odot}$ PRINT

Sends data to printer device(s)





9

•

ON / OFF

Transacts "keyed" data into memory



Decimal for data entry in decimals

Press FIRMLY to turn power ON, then OFF



B. Getting Started with Menus and Programming:

**1.** The **Main Menu** is accessed from the weigh screen by pressing PGR. The Main Menu's layout is shown here:

**'Pgr'** = Program **'S'** = Scroll



- Each Main menu is accessed by pressing ENTER with the Main menu legend displayed
- Each Main menu contains sub-menus
- Each sub-menu contains data
- Data can be viewed by pressing the SCROLL key, and 'accepted' by pressing ENTER
- · Pressing the SCROLL key repeatedly will exit to a menu
- · Pressing the GROSS/NET key repeatedly will exit to the weigh screen
- Menus can be accessed in any order for adjustments or calibration

### Menu Description

Info	NO password needed, set Time & Date, view data, print config reports
ю	"U" code required, set up all ports for printers,and other devices and outputs
BAtt	NO password needed, view battery voltage, set sleep time and display brightness (Original instruments did NOT have the bAtt menu)
CAnnEd	"S" code required, clears memory and sets a default program
ConFig	"S" code required, set all weighing parameters here
CAL	"S" code required, calibrate zero and span
CALno0	"S" code required, re-calibrate without emptying or zeroing scale



### C. info Menu:

The info menu may be accessed without a code. This menu may be looked at by Weights and Measures to check the "S Audt", "U Audt", or "C Audt" for entries after a seal has been attached. This menu contains other good information such as CoUntS for checking live counts, dEg C for checking the ambient temperature of the instrument location, and CPg or the counts per division. IF installed, time & date settings are accessed here.

• Press 'Pgr' to enter the program mode



• Press ENTER at the inFo menu

Prompts are:	<u>Results</u> are:
CoUntS	XXXXXX
dEg C	XX.X ° C
U AUdt	User Audit
S AUdt	Service Audit
C AUdt	Calibration Audit
Срд	Counts/Grad
dAtE	Date setting shows ONLY IF Time/Date Accessory is installed
hoUr	Time setting shows ONLY IF Time/Date Accessory is installed
rEPort	Report

- With any prompt showing, press ENTER to 'view' the information at that prompt.
- Press ENTER again and the display will advance to the io menu.
- Use the SCROLL key to exit programming to the weigh mode.

# 1. Setting Time and Date:

The time and Date prompts will show ONLY if the time clock accessory 15819 is installed.

- Press 'Pgr' to enter the program mode
- inFo will be shown, press ENTER to go into the inFo menu
- Use 'Scroll' to go to the "dAtE" menu and press ENTER
- The existing date, "XXXXXX" will be displayed
- · Use the keypad to enter the correct date in mmddyy format
- · Press ENTER, the display will show "hoUr"
- Press ENTER, the display will show the existing time "XX.XX"
- Use the keypad to enter the correct time "XX.XX"
- Press AUTOTARE for "AM" or PRINT for "PM", an "A" or "P" will be added
- With the proper Time shown, press ENTER
- The display will show "rePort", press SCROLL repeatedly to exit to the weigh mode
- DONE



D. bAtt Menu: This menu is used for checking battery voltage, setting 'sleep' time, and display brightness. No passwords are required to access this menu.





**Note:** If either SLEEP or BRIGHT are accessed, the SCROLL key will advance to STORE. If neither are accessed, then SCROLL will 'loop' SLEEP-to-BRIGHT until an entry is made, or, the Gross/Net key is pressed repeatedly to exit programming and return to the weigh mode.

\* The 'sleep' option: If the scale is idle at "0" (zero) for the amount of programmed 'sleep' time, the display will start to scroll dashes (- - - - -) from right to left and momentarily flash "ASLEEP". It will stay this way for about 5 minutes if the scale is undisturbed, then turn OFF. If the scale is used in that 5 minute period, it will resume weighing, and reset the 'sleep' timer. The ON/OFF switch must be pressed to repower the unit if it turns itself OFF.

# Section 5: Operation

### A. Keyboard features:

Include eight (8) LED indicators that "light" when that function or parameter is selected.

ID	Indicates the instrument is in the ID entry mode.
PROGRAM	Indicates the instrument is in the program mode
lb	Indicates pounds (lb) is selected as the weighing unit
kg	Indicates kilograms (kg) is selected as the weighing unit
oz	Indicates ounces (oz) is selected as the weighing unit
g	Indicates grams (g) is selected as the weighing unit
*lb & oz	Indicates pound-ounces (Ib-oz) is selected as the weighing unit
TARE	Indicates the inst. is in the TARE mode, displays TARE weight
NET	Indicates the inst. is in the NET mode, displays NET weight

\* The lb-oz unit is NOT LEGAL for TRADE, do NOT use in commercial applications.

**Notes:** If neither TARE or NET are selected, the instrument is in GROSS mode.

B. Other Key Functions:

# 1. Using ID

Press ID, then press numeric keys 0-9 (up to six [6] digits) for unique customer or container number.Example:Press ID, 55147, then press ENTER, 55147 is temporarily stored as ID.ID can then be printed on a ticket to identify a weighment.ID is not saved through power reset.

# 2. Using TARE

Enter numeric value in proper units, then press ENTER. Value becomes a stored TARE weight. Enter 0, then ENTER to set a "zero" tare. Press TARE to view temporary TARE weight. Tare is not saved through power reset.



# 3. Using UNITS

IF 2 or more UNITS are set up in programming, then pressing the UNITS key will toggle through all choices. Selecting units will show another division size, and possibly different decimal places. Units reset to primary unit on power reset.

# C. Weighing Operation

# 1. Gross Weighing

- a. Use ZERO key to set scale to 0.0
- b. Place container/vehicle on scale
- c. If ID is desired, Press ID, enter numeric ID, press ENTER
- d. Record/Read GROSS weight

### 2. Net Weighing

- a. Use ZERO key to set scale to 0.0
- b. Place container/vehicle on scale (Tare weight)
- c. Press AUTOTARE or enter TARE weight via keypad
- d. Place material in container/vehicle (net weight)
- e. If ID is desired, Press ID, enter numeric ID, press ENTER
- f. Record/Read NET weight

### 3. Gross/Tare/Net Weighing

- a. Use ZERO key to set scale to 0.0
- b. Place container/vehicle on scale (Tare weight)
- c. Press AUTOTARE or enter TARE weight via keypad
- d. Place material in container/vehicle (Net weight)
- e. Press Gross/Net
- f. If ID is desired, Press ID, enter numeric ID, press ENTER
- g. Record/Read Gross/Tare/Net Weight

# Section 6: Troubleshooting

Symptom	Cause	Remedy	
ON/OFF sw	Sw not pressed firmly	Press the ON/OFF switch FIRMLY and SLOWLY to turn ON	
will NOT	No power at outlet	Check AC outlet	
turn ON	Faulty Instrument	Call for Service	
(AC Power)			
ON/OFF sw	Display must be in	Press SCROLL to return the display to the weighing mode	
will NOT	weight display mode	Press the ON/OFF switch FIRMLY to turn OFF	
turn OFF			
Blank with	No Power	Check power, check outlet, check plug, check cord,	
AC power	Faulty Instrument	replace power PCB, replace main PCB	
no rEF	No Load Cell	Connect simulator to test, attach load cell, replace load	
	Reference	cell cable, replace load cell	
InPErr	Input Error	Call for Service	
Lo CPd	Low Counts per Division	Call for Service	
LoSPAn	Low Span Weight(s) Used	Call for Service	
LoLoAd	Low Load, below ZERO reference	Remove platform bind, Call for Service	
HiLoAd	High Load, above scale capacity	Remove Heavy Load, Call for Service	
ESdrSt	Electro Static	Check grounds, check for 3 prong plug, reinitialize power,	
	Discharge Reset	Call for Service	
gt6chr	More than 6 Characters	Call for Service	
ON/OFF sw	Sw not pressed firmly	Press the ON/OFF switch FIRMLY and SLOWLY	
Inop	Batteries dead	Replace ALL 6 batteries with NEW alkaline "D"cells	
(Batteries)	Faulty Instrument	Call for Service	
Blank	Batteries BELOW	Replace ALL 6 batteries with NEW alkaline "D"cells	
DC power	6.4 VDC		
LoBAtt	Batteries at about	Replace ALL 6 batteries with NEW alkaline "D"cells	
	6.4 VDC		
LoBAtt	Batteries BELOW	Replace ALL 6 batteries with NEW alkaline "D"cells	
'Flashing'	6.4 VDC		
Was ON	Sleep 'timed out'	Press the ON/OFF switch to repower unit	
now Blank			
SLEEP/	SCROLL kev	Access either SLEEP or BRIGHT via the ENTER key, the	
BRIGHT		SCROLL key will now advance. (If neither are accessed	
'loop'		the SCROLL key will 'loop' these parameters).	
<u> </u>			

# Appendix I: PTR-3950 Ticket Printer Information

PTP-3050 Switch Sottings:	S\//1	S	\$\\/\2
FIR-5350 Switch Settings.	400.45	070 4	0045070
	12345	678 1	2345678
	01100	011 1	0010010
2400, None, 8 Bits, Busy=0	Use Cable 1	5598 ( A	cc 1296)
Printout of REPORT in INFO menu Port 2: 2400 none 8 CRLF 3950		Printout in INFO User Aud Audit Da	of U Audt <u>menu</u> dit 57 te 092898
Port 1:		<u>Printout</u>	of Ticket
none		1670 lb (	GROSS
8 Frbnks		1000 lb	NET
EXSW2 = >0< EXSW1 = PRINT		670 lb	TARE
1ND2300: d/PU 1 LB UNITS LB KG OZ GM LB- kb tare auto tare AZT Id 0 RANGE 100% MOT 1d Filter MEDIUM Security: Software lock disal Hardware lock disabled	OZ	125 ID	
Analog Loop: Lo W = 00 Hi W = 18500 Lo I = 0 SPAN = 102 gross			
Platform: PU Cap = 1000 PU Cpd = 637.508000 0 ref = 348458			
Battery: Voltage = 27.3 Sleep Time = 0 Intensity = Lo			

# Appendix II: PTR-3960 Form Printer Information

PTR-3960 Switch Settings:	SW1 =	123456	78910
		1110000	0000
9600, None, 8 Bits, Busy=0	Use cable1	5599 ( A	сс 1297)
Printout of REPORT		Printou	t of Uaudt
in INFO menu Port 2: 9600 none 8 CRLF 3960		<u>in INFO</u> User Aud Audit Da	<u>menu</u> dit 33 te 092898
Port 1: 2400		<u>Printout</u>	of Ticket
none		2500 lb	GROSS
Frbnks		1000 lb	NET
EXSW2 = >0< EXSW1 = PRINT		1500 lb <sup>-</sup>	TARE
1ND2300: d/PU 1 UNITS LB KG OZ GM LB-0 kb tare auto tare AZT ld 0 RANGE 100% MOT 1d Filter MEDIUM Security: Software lock disat Hardware lock disabled	DZ	77 ID	
Analog Loop: Lo W = 00 Hi W = 18500 Lo I = 0 SPAN = 102 gross			
Platform: PU Cap = 1000 PU Cpd = 637.508000 0 ref = 348458			
Battery: Voltage = 27.3 Sleep Time = 0 Intensity = Lo			

# Appendix III: 50-3921 Form Printer Information

50-3921 Form Printer Sw	vitch Settings:	
SW1(super spd ser bd)	SW2 (super spd ser bd)	) DipSW (Main PC)
12345678	12345678	12345678
1111111	01100110	00001010
9600, None, 8 Bits, Busy	=0 Use cable 15599	9(Acc 1297)
Printout of REPORT in INFO menu Port 2: 9600 none 8 CRLF 3921	Prir in II Use Auc	ntout of Uaudt NFO menu er Audit 16 lit Date 092898
Port 1:	Prir	ntout of Ticket
2400 none 8 Frbnks	30.0 12.9 17.9	00 oz GROSS 50 oz NET 50 oz TARE
EXSW2 = >0< EXSW1 = PRINT	407	77 ID
1ND2300: d/PU .01 OZ UNITS LB KG OZ G kb tare auto tare AZT Id 0 RANGE 100% MOT 1d Filter MEDIUM Security: Software loo Hardware lock disabl	GM LB-OZ ck disabled ed	
Analog Loop: Lo W = 00 Hi W = 18500 Lo I = 0 SPAN = 102 gross		
Platform: PU Cap = 1000 PU Cpd = 637.508 0 ref = 348458	000	
Battery: Voltage = 27.3 Sleep Time = 0 Intensity = Lo		

# Appendix IV: 610 Ticket Printer Information

610 Switch Settings:	<b>Switch 1</b> 12345678 01001011
1200, Odd, 7 Bits, Busy=1	Use cable 15598 (Acc 1296 )
Printout of REPORT <u>in INFO menu</u> Port 2: 9600 none 8 CRLF 3921	Printout of Uaudt in INFO menu User Audit 11 Audit Date 101098
Port 1: 2400	Printout of Ticket
none 8 Frbnks	30.00 oz GROSS 12.50 oz NET 17.50 oz TARE
EXSW2 = >0< EXSW1 = PRINT	555555 ID
1ND2300: d/PU .01 OZ UNITS LB KG OZ GM LB kb tare auto tare AZT Id 0 RANGE 100% MOT 1d Filter MEDIUM Security: Software lock disa Hardware lock disabled	-OZ abled
Analog Loop: Lo W = 00 Hi W = 18500 Lo I = 0 SPAN = 102 gross	
Platform: PU Cap = 1000 PU Cpd = 637.508000 0 ref = 348458	
Battery: Voltage = 27.3 Sleep Time = 0 Intensity = Lo	

# Appendix V: 3550 Tape Printer Infromation

3550 Switch Settings: SW1 = 0111010100 SW2 = 11111010

> 3715 Setting, Busy 0, 4800 baud, 8 bits, no parity Use Cable 15597 (ACC 1295)

Printout of REPORT in INFO menu Port 2: 9600 none 8 CRLF 3921 Port 1: 2400 none 8 Frbnks EXSW2 = >0< EXSW1 = PRINT 1ND2300: .01 OZ d/PU UNITS LB KG OZ GM LB-OZ kb tare auto tare AZT Id 0 RANGE 100% MOT 1d Filter MEDIUM Security: Software lock disabled Hardware lock disabled Analog Loop: LoW = 00Hi W = 18500 Lol = 0SPAN = 102gross Platform: PU Cap = 1000PU Cpd = 637.5080000 ref = 348458Battery: Voltage = 27.3Sleep Time = 0Intensity = Lo

**Printout of Uaudt** in INFO menu User Audit 11 Audit Date 101098

**Printout of Ticket** 

30.00 oz GROSS 12.50 oz NET 17.50 oz TARE

555555 ID

# Appendix VI: 3715 Tape Printer

50-3715 Switch Settings:	<u>Switch 1</u> 12345678 00000100	<u>Switch 2</u> 12345678 01001010
2400, None, 8 Bits, Busy =1	Use cable <sup>2</sup>	15597 (Acc 1295)
Printout of REPORT in INFO menu Port 2: 9600 none 8 CRLF 3921		Printout of Uaudt in INFO menu User Audit 11 Audit Date 101098
Port 1:		Printout of Ticket
2400 none 8 Frbnks		30.00 oz GROSS 12.50 oz NET 17.50 oz TARE
EXSW2 = >0< EXSW1 = PRINT		555555 ID
1ND2300: d/PU .01 OZ UNITS LB KG OZ GM LB kb tare auto tare AZT Id 0 RANGE 100% MOT 1d Filter MEDIUM Security: Software lock disa Hardware lock disabled	-OZ abled	
Analog Loop: Lo W = 00 Hi W = 18500 Lo I = 0 SPAN = 102 gross		
Platform: PU Cap = 1000 PU Cpd = 637.508000 0 ref = 348458		
Battery: Voltage = 27.3 Sleep Time = 0 Intensity = Lo		

# Appendix VII: 590 Ticket Printer

590 S	witch Settings:	Swite	<u>:h 1</u>	Switch 2	<u>2</u>
		1,3,7	ON	All Off	
9600,	None, 8bits, Busy	= 1	Use ca	able 15598 (A	cc 1296)
	Printout of REPOR in INFO menu Port 2: 9600 none 8 CRLF TM-U590	т		590 3 4 7	<b>TB2</b> 2300 2 3 4
	Port 1: 2400 none 8 none				
	EXSW2 = none EXSW1 = none				
	1ND2300: d/PU .01 LB UNITS LB KG OZ ( kb tare auto tare AZT 3d 0 RANGE 100% MOT 3d Filter CENTER Security: Software loc Hardware lock disab	GM ock disal	bled		
	Analog Loop: Lo W = $6.6$ Hi W = $800.0$ Lo I = $0$ SPAN = $103.2$ gross				
	Platform: PU Cap = 1000.0 PU Cpd = 26.2171 0 ref = 524250	00			
	Battery: Voltage = 16.1				

# Appendix VIII: 295 Ticket Printer

295 Switch Settings: Switch	<u>1</u>	
1 and 3	ON	
9600, None, 8bits, Busy = 0	Use cable 15599 (Acc	1297)
Printout of REPORT in INFO menu Port 2: 9600 none 8 CRLF TM-U295	<b>295</b> 2 3 7	<b>TB2</b> <u>2300</u> 1 2 4
Port 1: 2400 none 8 none		
EXSW2 = none EXSW1 = none		
1ND2300: d/PU 0.1 LB UNITS LB KG OZ GM kb tare auto tare AZT 3d 0 RANGE 100% MOT 3d Filter CENTER Security: Software lock disabled	d	
Analog Loop: Lo W = $6.6$ Hi W = $800.0$ Lo I = $0$ SPAN = $103.2$ gross		
Platform: PU Cap = 1000.0 PU Cpd = 26.217100 0 ref = 524250		
Battery: Voltage = 16.1 Sleep Time = 0 Intensity= Hi		

# Appendix IX: Interface Cables/Pin-Outs

## Port 1 RS232 (continuous)

From TB4 in the	3715	3950	3921	3960	Computer	Computer	RMT140XA
indicator	25Pin	25Pin	25Pin	25Pin	25 Pin	9 Pin	(using RS232)
Pin 1 TX RS232					3	2	3
Pin 2 GND					7	5	2
Pin 3 +5V							
Pin 4 +20mA							
Pin 5 -20mA							

### Port 1 20mA

From TB4 in the	RMT 140XA/150X
indicator	
Pin 4 +20mA	1
Pin 5 -20mA	5
	2 jumpor
	6

### Port 2 RS232

From TB2 in the	3715	3550	3950	3921	3960	Comp	Comp	TMU	TMU
indicator	25Pin	25 Pin	9 Pin	590	295				
Pin 1 RX				2	2	2	3	-	2
Pin 2 TX	3	3	3	3	3	3	2	3	3
Pin 3 CTS	20	20	4					4	-
Pin 4 GND	7	7	7	7	7	7	5	7	7
Pin 5 RTS									
Cable Acc	15597	15597	15598	15598	15599	15599			

#### Port 2 RS485

From TB3 in the	3715	3950	3921	3960	Comp	Comp	RMT
indicator	25 Pin	9 Pin	140XA				
Pin 1 485+					RX+	RX+	-
Pin 2 485-					RX-	RX-	_
Pin 3 GND							_
Pin 4							_
Pin 5							_

# Appendix X: Port 1 Data Stream

Selected Format	Char	Assignment
Fairbanks Std	1st	Stx
	2nd	'4'
	3rd	'0' gross lbs or ounces
		'1' net lbs or ounces
		'3' gross kgs or grams
		'4' net kgs or grams
	4th thru signed weight	'- 12.33' or
	string e.g. 9th or 10th	' 20' or
		'- 1'
	10th	Etx
Weightronix	1st	'0' if net ' ' if gross
	2nd	'N' " " 'G' " "
	3rd thru signed weight	
	string e.g. 8th or 9th	'-12.33' or
		' 20' or
		'- 1'
	9th, 10th & 11th OR	
	10th, 11th, & 12th	'lb' or 'kg' or 'g' or 'oz' or 'lb-oz'
	12th & 13th OR	
	13th & 14th	Cr and Lf
Consolidated	1st	Stx
Controls	2nd thru signed weight	
	string e.g. 7th or 8th	'-12.33' or
		' 20' or
		'- 1'
	9th or 10th	'L' or 'K' or 'G' or 'O'
	10th or 11th	O' or 'l' indicator Error
		'M' Motion
		' ' No Motion
	12th or 13th	Cr
dPlus	1st	Sx
	2nd	STATUS WORD A
		Bit Decimal point or Dummy Zero
	1	1

#### Port 1 Continuous Output Data Stream:

		Bit	Increr	nent Size	
		<u> 21</u>	Count by 1	Count by 2	Count by 5
	3rd	3	1	0	1
		4	0	1	1
		5	Always I	ogic 1	•
		6	Always I	ogic 1	
		7	Parity Bi	t	
			· •	-	
		STA		2	
		Bit			
		0	Gross =	0	Net = 1
		1	Positive	= 0	Negative = 1
dPlus	4th	2	In Rang	e = 0 O	vercapacity = 1
		3	No Moti	on = 0	Motion = $1$
		4	Avoirdupo	$\sin = 0$	Metric = 1
		5	Always I	ogic 1	mound
		6	Always L	.ogic 0	
		7	na	rity hit	
		'	ρα		
		от <b>л</b> -		<b>、</b>	
		514	IUS WORD C	,	
		D:+			
			Δίνκονο		
		1	Always		
	Ethe them : 40the sum eigene eth		Always		
		2	Always		
	6 character gross weight	3	Normal =	= 0 Print Ope	rated Switch = 1
	string without decimal e.g.	4	Always	Logic 0	
		5	Always	Logic 1	
		6	Normal	= 0 Keyboa	rd Tare = 1
	11th thru 16th 6 character	7	parity bi	t	
	tare weight string				
	without decimals e.g.				
		'-12	.33' SENT A	S' 1233' or	r
		' 2	20' or		
		·_	1' SENT AS	' 1'	
	17th			-	
		1 10	22' CENT A	C ' 1022' ~	hr.
				1233 0	/1
		<sup>2</sup>			
		-	T SENTAS	1'	
		Cr			

# Appendix XI: 4-20mA Option

The 4-20mA analog output can be used to drive chart recorders, logic controllers or computers. The indicator is passive as it relates to the 4-20mA signal. The power for the signal MUST come from the customer's equipment. That equipment MUST be capable of supplying a minimum of 7 to a maximum of 40 volts of power to that circuit. Common voltages supplied are 12-24 vdc.

### **Specifications:**

- 16 bit resolution
- +/- .01 integral linearity
- Current loop voltage compliance: 7 vdc minimum to 40 vdc maximum (typical voltage 24 vdc)
- Full scale settling time: 8 msecs
- Output impedance: 25 meg
- Alarm current: 3.5 to 24 mA (underload/overload conditions)
- Offset @ 25 degrees C; +/- .1% of full scale
- Offset drift: +/- 25 ppm of full scale per degree C
- Total output error: (20mA) @ 25 degrees C: +/- .2% of full scale max
- Total output drift: +/- 50 ppm of full scale per degree C max

For supplying signal levels other than 4 to 20mA, use the following formula example:

Supply voltage = **12V** 4mA x 500 ohms = **2V** 20mA x 500 ohms = **I0V** 

The above example would provide a 2-I0V analog, adjustable signal. The sense resistor or the power supply may be changed to accommodate different levels.

Do NOT exceed the power supplied by the customer's equipment, i.e., 12V. Leave at least a 10% margin so that the power supplied is at least 10% greater than the signal being sent at maximum output. Use the following illustrations for wiring.

# *Warning:* The (-) terminal of the customer's power supply must NOT be connected to or shorted to instrument case ground or catastrophic failure will occur.

# Appendix XII: 4-20mA Option continued





Appendix XIII: ASCII Chart							
Decimal Code #	Control Char	Decimal Code #	Control Char	Decimal Code #	Control Char	Decimal Code #	Control Char
0	NUL	33	!	66	В	99	С
1	SOH	34	"	67	С	100	d
2	STX	35	#	68	D	101	е
3	ETX	36	\$	69	E	102	f
4	EOT	37	%	70	F	103	g
5	ENQ	38	&	71	G	104	h
6	ACK	39	1	72	Н	105	i
7	BEL	40	(	73	I	106	j
8	BS	41	)	74	J	107	k
9	HT	42	*	75	K	108	I
10	LF	43	+	76	L	109	m
11	VT	44	,	77	М	110	n
12	FF	45	_	78	Ν	111	0
13	CR	46		79	0	112	р
14	S0	47	/	80	Р	113	q
15	S1	48	0	81	Q	114	r
16	DLE	49	1	82	R	115	S
17	DC1	50	2	83	S	116	t
18	DC2	51	3	84	Т	117	u
19	DC3	52	4	85	U	118	v
20	DC4	53	5	86	V	119	w
21	NAK	54	6	87	W	120	х
22	SYN	55	7	88	Х	121	у
23	ETB	56	8	89	Y	122	z
24	CAN	57	9	90	Z	123	{
25	EM	58	:	91	[	124	1
26	SUB	59	•	92	١	125	}
27	ESC	60	<	93	]	126	~
28	FS	61	=	94	٨	127	Delete
29	GS	62	>	95	-		
30	RS	63	?	96	`		
31	US	64	@	97	а		
32	Space	65	А	98	b		



**NOTE:** Refer to your printer or computer's User Manual for special control codes that your printer or computer may require for proper operation.