8360

Backroom Controller

Technical Manual

14642200A
(9/95)

INTRODUCTION

This publication is provided solely as a guide for individuals who have received Technical Training in servicing the METTLER TOLEDO product.

Information regarding METTLER TOLEDO Technical Training may be obtained by writing to:

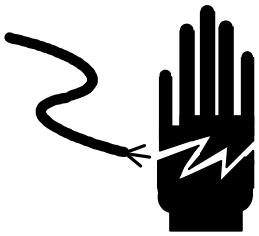
METTLER TOLEDO
1150 Dearborn Drive
Worthington, Ohio 43085-6712
(614) 438-4400

WARNING!

This equipment generates, uses, an can radiate radio frequency energy and if not installed and used properly, i.e., in accordance with the instructions manual, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

PRECAUTIONS

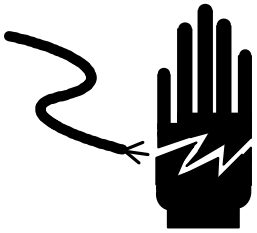
READ this manual BEFORE operating or servicing this equipment.



WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.

FOLLOW these instructions carefully.

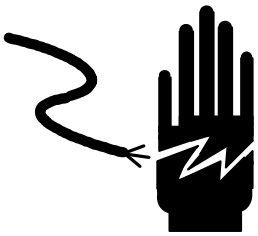


WARNING

FOR CONTINUED PROTECTION AGAINST SHOCK HAZARD CONNECT TO PROPERLY GROUNDED OUTLET ONLY.

DO NOT REMOVE THE GROUND PRONG.

SAVE this manual for future reference.



WARNING

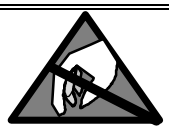
DISCONNECT ALL POWER TO THIS UNIT BEFORE REMOVING THE FUSE OR SERVICING.

DO NOT allow untrained personnel to operate, clean, inspect, maintain, service, or tamper with this equipment.

CAUTION

BEFORE CONNECTING/DISCONNECTING ANY INTERNAL ELECTRONIC COMPONENTS OR INTERCONNECTING WIRING BETWEEN ELECTRONIC EQUIPMENT ALWAYS REMOVE POWER AND WAIT AT LEAST THIRTY (30) SECONDS BEFORE ANY CONNECTIONS OR DISCONNECTION'S ARE MADE. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN DAMAGE TO OR DESTRUCTION OF THE EQUIPMENT OR BODILY HARM.

ALWAYS DISCONNECT this equipment from the power source before cleaning or performing maintenance.



CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

CALL METTLER TOLEDO for parts, information, and service.

CONTENTS

1 Specifications

General Description

The Model 8360 is a Programmable Controller designed for use in a Prepack Meat Department in the Retail Food Environment. This product is designed for use in both automatic and hand applied label applications. The METTLER TOLEDO 8360 **Smart***Touch* Controller is a part of a programmable scale system that offers very flexible programming and formatting in an easy to user interface. The 8360 offers an easy-to-use Graphical Touchscreen that allows only valid keys and prompts to be painted on the LCD screen as needed (Figure 1.1). Since the 8360 Touchscreen contains no mechanical parts, there are no keys or keyboards to wear out. The pulldown menus and a word processor-type Extra Text editor in the **Smart***Touch* Master reduce operator training time. In each of five standard label sizes 2.1" to 4.2", there are eight label styles for each of three PLU types. These styles can be selected from any of the 77 standard (including 3 for 1.9" labels) or 30 custom formats.

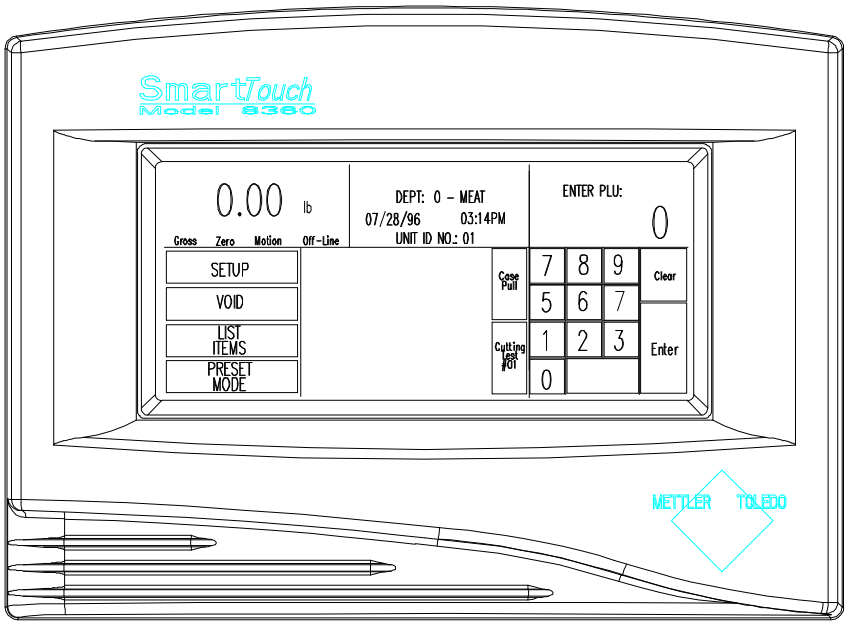


Figure 1.1 8360 Front View

The 8270, like all METTLER TOLEDO products, is designed for maximum durability and reliability in even the most demanding application environments. The 8270 is manufactured in one of Mettler Toledo's seven ISO 9000 certified facilities so you are assured to receive a high-quality product.

The 8360 Controller is available as a Satellite only or Satellite with **Smart***Touch* Master. The 8360 **Smart***Touch* Master can be networked to the 8305, 8422, 8423, 8427, 8450, 8460, satellites, or other 8360 Satellite units. The 8360 satellite version can be networked to the 8360 or 8460 Master with full functionality, or to the 8422, 8423, or 8305 Nutrifact Masters with limited functionality. The satellites are connected to the master controller with standard phone cable using an RS485 multidrop high speed communications network (Figure 1.2). The maximum line length for the scale network is 1500 feet. Each master can support up to 24 satellite scales. All access to the **Smart***Touch* Master Editor must be performed through an 8360 or 8460 satellite. Any 8360 or 8460 satellite on the network can access the **Smart***Touch* Master. Access can be limited using three levels of passwords: Master Access, Department Supervisor Access, and Operator Access.

The 8360 is designed to be used with the 8270-3000 scale base, one or two 317 remote thermal label printers (one for standard labels, one for DayGlo), and the Model 606 or 705 Autolabelers. Capacity with the 8270 remote scale base is 50 x .01 lb. or 20 x .005 kg.

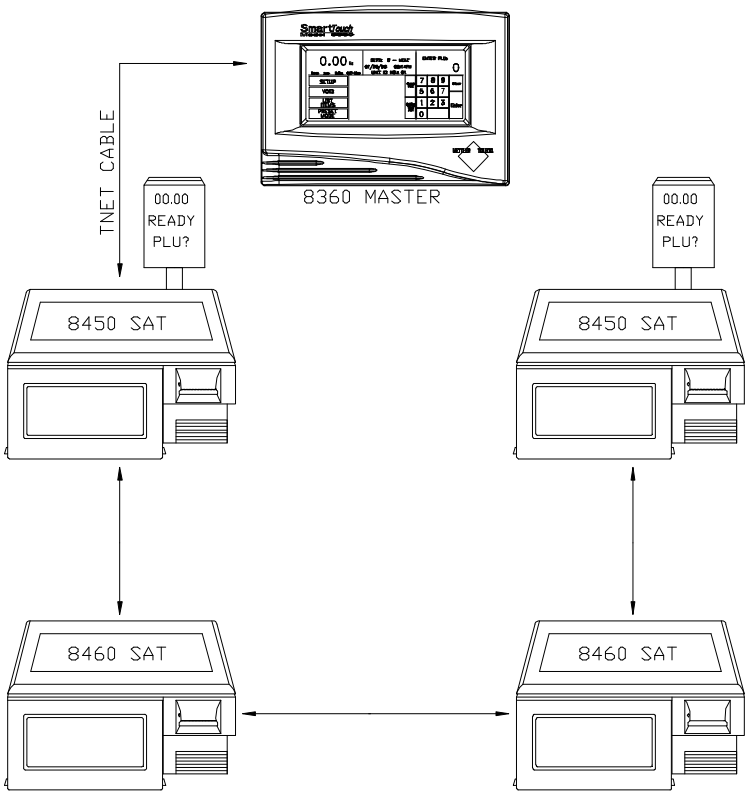


Figure 1.2 - Master/Satellite Network (TNET)

Features

- Available as a Satellite only, or Satellite with **Smart***Touch* Master.
- Satellite versions are compatible with the Model 8460 (with full **Smart***Touch* functionality), and Models 8422/8423/8305 NF Masters (with limited functionality).
- Audible variable volume tone upon key contact.
- Touch screen graphical user interface.
- Labels can be printed on up to two remote thermal printers (METTLER TOLEDO Model 317).
- Label formats can be linked (factory or user defined) by PLU record.
- Seven (7) factory defined label formats for each of three (3) PLU types for five (5) label sizes (2.1, 2.4, 3.3, 3.7 and 4.2); (105 standard formats total). Thirty (30) customer defined label formats that can be assigned to any label size or PLU type.
- Up to four different graphic images can be assigned to one label for the primary printer: a store logo, a linked graphic, a satellite based graphic, and a safehandling panel. The second printer can print: a store logo, a DayGlo linked graphic, a satellite graphic, or a nutrifact panel.
- Standard Style Definitions include:

  0 : Data*
  1 : Data w/Extra Text
  2 : Data w/ Linked Graphic
  3 : Data w/ Satellite Graphic
  4 : Data w/ Safe Handling
  5 : Data w/ Space for Preprinted Safe Handling
  6 : Data w/ Nutrifact
  7 : Customer Designed (Factory set to Data)

  Data labels designed for labels greater than 2.4” include extra text. For the smaller size labels (ie 2.4”), larger items won’t fit (ie Nutrifacts).

- Multiple font sizes can be printed on a line by line basis or a PLU by PLU basis. A label turn command can be assigned to the PLU record when used in automatically labeling applications.

- Twelve (12) programmable macro keys allow the operator to override a PLU's preprogrammed record price by a fixed price per unit (i.e. .25 per pound off), by a fixed percentage off the unit price (i.e. 10 % off), override a PLU's preprogrammed tare to a new fixed value (i.e. from .05 to .07 lb.), or redirect the particular transaction to a new accumulator.
- 350 Presets (10 pages @ 35 per page) can be programmed to call by Group, Item, PLU. PLU entry in three ways; numeric keypad, presets, or file listing.
- Five PLU specific, user definable accumulators, each with weight, count, total $ and number of runs.
- Temporary Field Print Inhibit.
- Compatible with 50 x .01 lb (20 x .005 kg) Model 8270-3000 Back Room Prepack Scale.
- Two tare fields are available and are switch selectable in setup mode.
- Available in three languages; English French, and Spanish. Currency symbol, decimal point location are selectable in setup mode. (Language change requires reprogramming the software through FLASHPRO).
- Includes an auto switchable power supply, and country specific line cord.
- Canada, U.S., Latin American, and Australia agency approvals (UL, CUL, SAA, ANCE, NIST HB-44, OIML R-76, NSC).
- Reports from the master can be printed directly to an optional line printer.
- I/O capability includes:

    * Two label printer ports
    * One line printer port (Master)
    * Wrapper Interface
    * Master Host Port
    * Satellite Host/Aux Port
    * TNET Scale Network Port
    * External PC-AT style QWERTY keyboard Port
    * Scale Base Port (8270)

- Context sensitive help screens.
- Cutting test capability.
- Multi level passwords: Operator, Supervisor, and Master levels.
- Voids by run listing (with last 10 runs displayed on listing) or by a particular transaction within a run.

Major Components
External

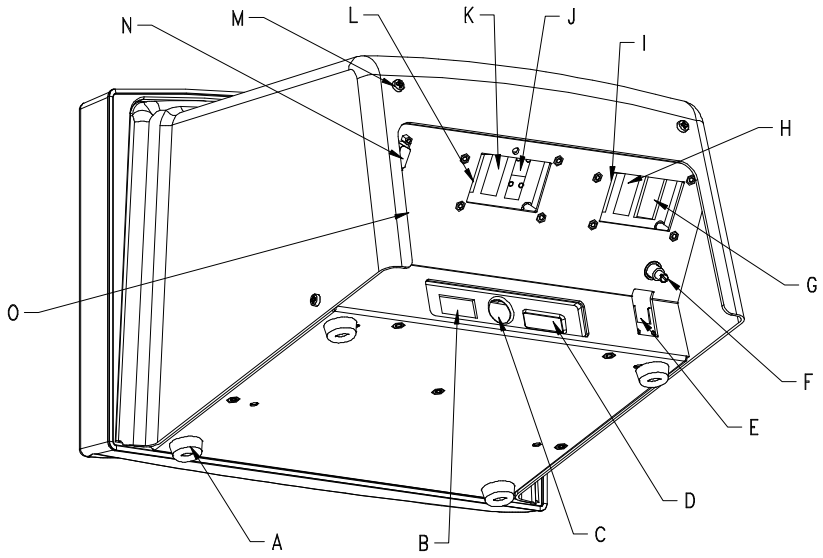


Figure 1.3 - External Components

Symbol	Description
A	Stick-On Foot (4)
B	Power Switch
C	Programming Keyboard Jack
D	Satellite Aux/Host Port (DB9-F)
E	Satellite TNET Jack (RJ11)
F	Beeper Volume Control
G	External Scale Port, DB9-F
H	Labeler Interface Port (DB9-F)
I	Label Printer 1 Port (DB9-F)
J	Master TNET Port (RJ11)
K	Master Host Port (Port 0, DB9-F)
L	Master Report Line Printer Port 1 (DB9-F)
M	Rear Cover Screw (2)
N	Label Printer 2 Port (DB9-F)
O	Power Cord Jack (Not Shown)

Major Components
Internal

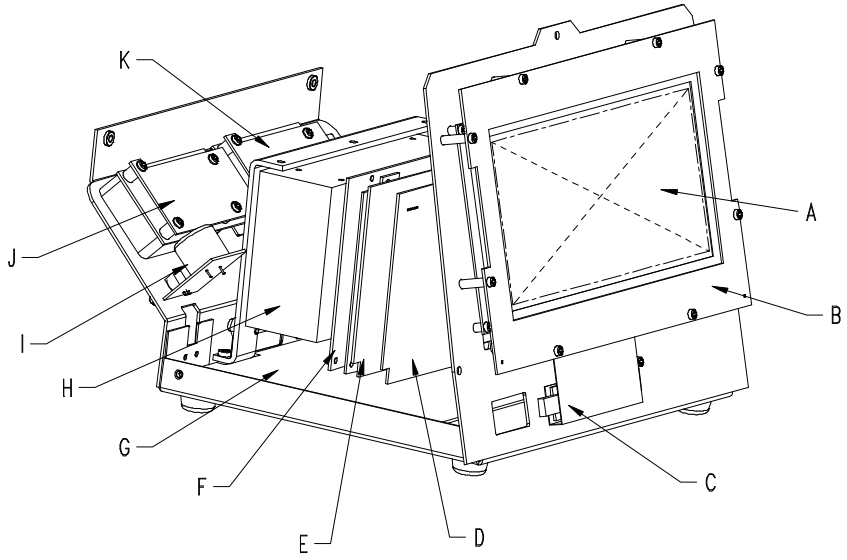


Figure 1.4 - Internal Components

Symbol	Description
A	LCD Display (Liquid Crystal Display Panel) Backlit
B	IR Touchpanel PCB (InfraRed Touchpanel)
C	Inverter PCB (For Backlighting of LCD)
D	Satellite CPU PCB (Central Processing Unit)
E	Satellite Memory/Display PCB
F	Satellite Memory PCB -OR- Master CPU/Memory PCB's
G	Mother PCB
H	Power Supply +21VDC
I	Beeper PCB
J	Satellite I/O Logic & Connector PCB's
K	Master I/O Logic & Connector PCB's

Operator Touchscreen

The operator touchscreen consists of a 640 X 200 pixel backlit Liquid Crystal Display (LCD), and a 40 X 17 InfraRed LED transmitter/receiver array that provides keyboard input. When key input is required, the key functions are drawn on the LCD for operator selection. When touching the key area, an invisible InfraRed beam is blocked creating a key entry. The fingertip must be withdrawn each time to reestablish the beam before another key entry can be made. Help information screens are available by touching the upper left corner of the screen. Figure 1.5 shows the operator "touch-screen" and identifies the areas and keys of the "home" screen.

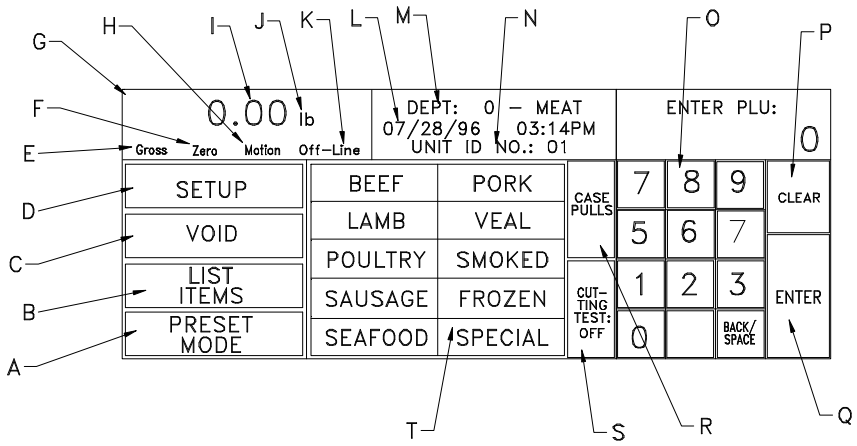


Figure 1.5 Home Screen

Symbol	Description for Figure 1.5
A	Preset Mode Toggle Key
B	List Items Key. Lists the last 150 Backup PLU's that have been previously called up.
C	Void Key. Removes selected item from totals accumulator.
D	Setup Key. Access to Unit Setup Options for Satellite, or to the **Smart***Touch* Master Editor.
E	Gross/Net Weight Indicator.
F	Zero Indicator. Displays when scale is at zero.
G	Help & Adjust Contrast. Touch the top left corner to access **Smart***Touch* Help, or to adjust the screen contrast.
H	Motion Indicator. Displays when scale is in motion or when external source causes vibration and movement.

I	Weight Display.
J	Units Indicator. Displays lb for pounds mode or kg for metric mode.
K	Satellite Off-Line Indicator. Displays when satellite is not communicating with the master.
L	Current Time and Date.
M	Current Satellite Department.
N	Satellite Unit ID number. Used by satellite to communicate with the master. Each satellite must have a unique number on the network.
O	Numeric Keypad. Used to enter data, call up PLU's, etc.
P	Clear Key. Used to clear entries.
Q	Enter Key. Used to enter and confirm data entry.
R	Case Pulls. Used to enter case pull mode.
S	Cutting Test. Starts or Stops cutting test mode.
T	Preset Page Keys. Used to select the preset page.

Dimensions

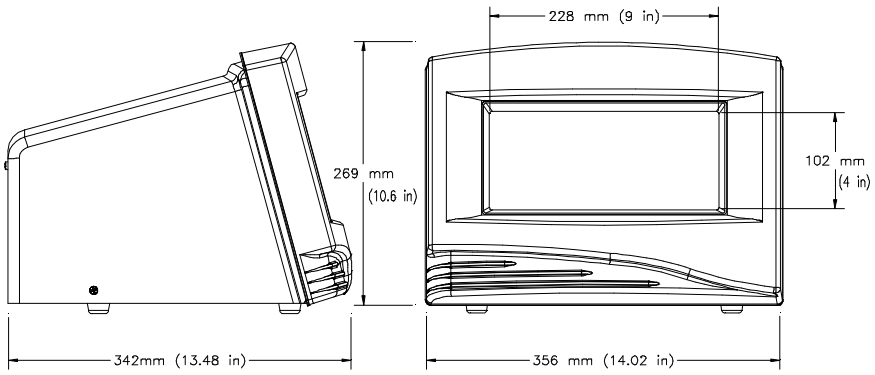


Figure 1.6 - 8360 Dimensions

Capacity, Overloading, & Zero

When used with the model 8270-3000 scale base, the 8360 can be calibrated in 50 x 0.01 lb or 20 x 0.005 kg weighing modes. The scale is designed to withstand static overloads up to five times the rated capacity without sustaining permanent damage. A weight greater than five increments over capacity causes the weight display to blank and printing is inhibited. If the scale is under zero by more than five increments, the weight field will display dashes (------). When zero cannot be captured, the weight field will display **EEEEEE**.

Tare

Tare is limited to a maximum of 50 lb or 9.995 kg.

Battery Specifications

Master CPU - An on board replaceable Zinc-Air battery (P/N 14548600A) provides data backup for the Master CPU PCB for up to 2 years with AC power off. This battery is not rechargeable.

Satellite CPU PCB, Memory/Display PCB, & Optional Satellite Memory PCB - A rechargeable NiCad battery that will retain the memory for up to 2 weeks. When AC power is on, a recharging circuit maintains the batteries at full charge. An optional external battery is available in the event the onboard batteries fail. The external battery is Alkaline and not rechargeable.

Reliability

The demonstrated MFBF (Mean Time Before Failure) is 30,000 hours. The MTTF (Mean Time To Repair) is less than 30 minutes.

Agency Approvals

The model 8360 is designed to meet the requirements of the following agencies:

UL	Conforms to UL 1950 Safety Requirements.
CUL/CUL	Conforms to CSA/CUL 22.2 #950 Safety Requirements
CSA	CSA Std. C22.2 No. 0 Definitions And General Requirements. CSA Std. C22.2 No 143 Office Machines
NIST	NTEP requirements for Class III weight device NTEP/California Electronic Cash Registers General Code Requirements New Jersey Type Approval
OIML	OIML R76
ANCE	Complies with ANCE testing per NOM specifications.
FCC	Requirements for FCC Conducted Emissions and Radiated

Master/Satellite Communications

The master/satellite communication network (TNET) uses an RS485 Synchronous Data Link Communication (SDLC) at 345k baud. A transformer provides isolation with no DC connection between the scales. A four conductor modular connector telephone cable is used to connect each scale to the scale network. The maximum recommended data cable length is 1500 feet, including the 25 ft scale drops. ***Both ends of the main data cable must be terminated using a 113 ohm resistor to provide line voltage balance at all points on the line.*** The **Smart***Touch* Master CPU is connected to the network using a jumper harness to the I/O PCB that provides a connection for both the Satellite CPU and **Smart***Touch* Master CPU to the scale network. The **Smart***Touch* Master can be located at any point on the network, ***although when the nearing the maximum cable length of 1500 feet, the master should reside near the middle.***

Electrical

The 8360 requires a dedicated grounded AC power supply. The 8360 Power Supply is autoswitching and can handle AC power from 120 VAC to 240 VAC nominal, at 50-60 Hz (± 2%), Single Phase. The AC power tolerance range is -20% to +10% or 96 VAC to 264 VAC. At 120 VAC the 8360 draws 0.5 amps. ***The AC line (including ground) must not be shared with noise and surge generating equipment such as, electric motors, compressors, thermostats, fluorescent lights, etc.*** A line conditioning device is recommended to provide protection from surges and spikes. The Power Supply uses an electronic thermal overload protection circuit designed to protect the internal electrical components. When an overload exists, the power supply output will be significantly lowered until the overload condition is corrected. An internal non-replaceable fuse in the power supply is used for catastrophic failures.

Operating & Storage Temperature

Operating Range: 0°C to 40°C (32°F to 104°F), humidity from 5% to 95% non-condensing.

Storage Range: 0°C to 70°C (32°F to 158°F), with humidity from 5% to 95% non-condensing.

Satellite Interfaces

The following interfaces are available from the 8360 satellite.

Connection	Interface	Data	Connector
Scale	RS232	9600,7,E,1	DB9
Indexer	RS422	9600,7,E,1 or 9600,8,N,1	DB9
DataBack	RS232	Configurable	DB9
Label Printer 1	RS232	38400,8,N,1	DB9
Label Printer 2	RS232	38400,8,N,1	DB9
QWERTY Keyboard	PC-AT		5 Pin DIN
Scale Network	TNET	345k bd SDLC	RJ-45

Database Records

The PLU database file consists of:

PLU Number: Price Look Up Number from 1 to 999999.

PLU Type: This is the pricing mode that will be used and will affect which options are presented in the master editor. Select from Price Per Pound/KG, Pounds/KG For, Price Per Half or Quarter, By Count, Standard Pack, or Manual Pricing.

Pounds/KG/Count: Depending on PLU Type, this field contains the Weight for Pounds/KG For pricingor the quantity for By Count PLU's. This field is blanked when the PLU Type is by weight.

Unit Price/Total Price: This field changes depending on the PLU Type. For by weight items, the unit price would be used. For fixed price items, the total price is used.

Group Number: Three digit 1 to 500 used for reports.

Tare 1/Ounces: Up to 50.00 pounds or 9.995 kg tare for by weight PLU's, or if the PLU is Standard Pack, the nominal weight is entered.

Tare 2: Up to 50.00 pounds or 9.995 kg. The 8360 satellite can be setup to use the alternate Tare 2 value, instead of the default Tare 1.

Grade: Two digit number linking grade descriptions to the PLU record.

Shelf Life: 0 to 999 days, used for Sell-By or Use-By dates.

Use By Days: Enter 1 to 999 for use-by date.

Price: By weight pricing range is 000.00 to 999.99. By-count pricing range is limited to 99/99.99 or 9/999.99.

Item Number: The product number encoded in the Bar Code symbol. Bar Code Types 2 or 4, six digits maximum (five digits with price check digit enabled), between 0 and 999999. Bar Code Type 0, ten digits including a four digit manufacturer code.

Description: Text that describes the product. (Two lines of 32 characters.)

Action Code: Two digit number from 1 to 46 used to link an Action Message to the PLU record.

Extra Text: A six digit number from 1 to 999999 linking an Extra Text Record to the PLU record. Standard characters can be used with the exception of the following, which can cause printer errors in non-8360 scales: **[ ]** \ ~ ^ **{ }** | _`

NutriFacts: A six digit number between 1 and 999999 used to link a separate preprogrammed Nutrifact Record to the PLU record.

Graphics: Six digit code linking a Monochrome PCX image used to print graphics on a label. Graphics must be downloaded from a PC program such as Intelli-Net. The graphics record must be no larger than 29,920

pixels or 3240 bytes. When setting up an image in programs such as Paintbrush©, the image should be no larger than 128 by 128.

Turn Label: Yes or No entry. Used by label applicator to turn the label 90 degrees.

Date Forward: This field tells the satellite whether to advance the date one day at the selected hour that is programmed in the satellite.

Barcode: When type 8 Scale Setting is selected in this field, the Bar Code type will use the format setup in the satellite setup. When selections 0-7 are used the barcode type in the PLU record will override the satellite settings. A menu is presented listing the barcode types. When type 2 and type 6 barcodes are selected, you will then select the barcode format.

0 GENERAL MERCHANDISE
1 NOT IDENTIFIED
2 RAND. WT. (PRICE ENCODED)
3 NATIONAL DRUG AND HEALTH
4 IN-STORE MARKING
5 COUPONS
6 PRICE ENCODED (TYPE 2)
7 NOT IDENTIFIED
8 USE SCALE SETTING

Barcode Format: When a type 2 or 6 barcode type is selected, the format of the barcode must be selected as follows. (N=Item Number, C=Price Check Digit, $=Total Price, W=Weight Check Digit, X=Bar Code Check Digit, #=Weight).

0 =NNNNN C$$$$ X (5-D N/PC/4-D $)
1 =NNNNN 0$$$$ X (5-D N/Zero/4-D $)
2 =NNNNN N$$$$ X (6-D N/4-D $)
3 =NNNNN $$$$$ X (5-D N/5-D $)
4 =NNNNN W#### X (5-D N/W Digit/4-D W)
5 =NNNNN 0#### X (5-D Item/Zero/4-D W)
6 =NNNNN N#### X (6-D Item/ 4-D W)
7 =NNNNN ##### X (4-D Item /5-D W)

Blanked: Certain fields can be blanked on the label when selected. These are in addition to fields that may be blanked through the numeric keyboard. The fields that can be blanked are: Pack Date, Net Weight, Unit Price, and Total Price.

Activation Date: This field is only available on Pending PLU records and sets the date when the Pending record becomes active.

Active Hour: This field is only available on Pending PLU records. A numeric keyboard is presented for entering the hour for activation (0-23).

Description Line 2: This field defines the size of the second description line. The line can be larger, smaller or the same size as the first description line.

Label Style: This field presents a numeric keyboard for the entry (0-7) of label style. This number indicates which style of label will be printed for this PLU. This is determined by the defaults setup in the satellite.

Dayglo Number: This is for the linked graphics number for the dayglo label which may be printed on printer 2.

Smart*Touch* Master Memory Capacity

The **Smart***Touch* Master is available with RAM Memory PCB's in 512k, 1 Meg, 2 Meg, and 4 Meg configurations. This memory is battery backed RAM memory. The battery backed memory is supported when AC power is disconnected from the unit for up to two years. The battery is a Zinc-Air type and is not recharged on the PCB. Size requirements can be computed using the following record size specifications.

- Each PLU record uses 223 bytes.
- Up to 3240 bytes (not including 9 bytes overhead). The extra text formula is: (Lines x #characters per line) + 9 = # bytes required. For example: 10 lines x 42 char/line = 420 bytes per record.
- NutriFacts records use 383 bytes per record. (Units with Nutrifact upgrade only.)
- Graphics can be up to 3240 bytes per record.

For example, 1000 PLU records would use 223,000 bytes (223k) of space, 100 ET records with 420 bytes per ET record, would use 42,000 bytes (42k). If the total memory capacity is 512k, subtracting 42k of ET records from 512k would leave 470k free for the PLU records. The remaining 470k would allow for 2107 PLU records.

Master Host Communications

Two types of hardware interfaces are available on the 8360 master host port: RS232 and RS422 Multidrop. The interfaces are active all the time and are selected by connecting to the appropriate pins on the DB9 connector on the I/O Connector PCB. The RS232 interface can be connected directly to a host computer or modem for full asynchronous communication. The cable length using the RS232 interface is limited to 100 feet (30.5 meters. The RS422 can be used when the distance of the

cable may exceed 100 feet, or if there will be more than one master or scale connected on the host network. The maximum cable length of the RS422 is 1200 feet (366 meters.) The master is multi-tasking and can perform complete host communication in the background while servicing requests from the satellite scales. Baud rates from 1200 to 115.2k baud can be selected. The data string can be setup in the host configuration. Seven-bit Even Parity is recommended and used for METTLER TOLEDO software. A Host ID number is used as part of the communication string and is programmable in the Master ***Host Port Setup*** menu.

Label Specifications

Label formatting is flexible with the 8360. Many different types of labels can be used. Table 1-1 shows standard label sizes available from METTLER TOLEDO and general guidelines for fields on the labels.

DayGlo Labels	Std Labels	Label Width	# Lines of Text
40mm/1.5 in		40mm/1.5 in	N/A
43mm/1.7 in		40mm/1.5 in	N/A
48mm/1.9 in		40mm/1.5 in	N/A
	53mm/2.1 in	64mm/2.63 in	N/A
	61mm/2.4 in	64mm/2.63 in	5
	84mm/3.3 in	64mm/2.63 in	7/10
	94mm/3.7 in	64mm/2.63 in	11/15
	107mm/4.2 in	64mm/2.63 in	15/20
	129mm/5.1 in	64mm/2.63 in	22/30

Table 1-1 Standard Format Label Specs

Factory Numbers for 8360

The factory numbers for the model 8360 can be used to determine the options installed in the unit. The factory number can be found on the unit Data Plate. The codes are as follows:

8360-ABCD-000

A - Master/Satellite
1= Satellite **Smart***Touch* Master
2= Satellite Only

B - Language
1= English
2= French
3= Spanish

C- Power
1= North American Power
2= 220V, Europlug
3= 240 V, UK plug
4= 220 V, Australia

D- RAM Memory Capacity
0= ∅k
1= 512K
2= 1 MB
3= 2 MB
4= 4 MB

Factory Numbers for Accessories

PART #	DESCRIPTION	FACTORY #
14132300A	Keyboard, Programming (8360/8460/8422M Switchable)	0952-0024
13698700A	Keyboard, Programming Keyboard (8360/8460 Only)	0977-0025
14548600A	Replacement Battery for Master CPU PCB	N/A
13393700A	External Battery for Sat CPU, Sat Mem/Disp PCB, Sat Mem.	N/A
14021300A	Guide, Label Layout	N/A
A12716400A	Cable, **Smart***Touch* Master To Serial Line Printer (10 ft)	0900-0209
A12717700A	Cable, **Smart***Touch* Master to Serial Line Printer (25 ft)	0900-0213
N/A	DataBack Software and Manual (3.5" Disks)	0918-0027
N/A	**Smart***Touch* Master Memory Kit 512k	0977-0015
N/A	**Smart***Touch* Master Memory Kit 1 Meg	0977-0016
N/A	**Smart***Touch* Master Memory Kit 2 Meg	0977-0017
N/A	**Smart***Touch* Master Memory Kit 4 Meg	0977-0018
N/A	Satellite Memory PCB Kit 512k	0977-0011
N/A	Satellite Memory PCB Kit 1 Meg	0977-0003
14582600A	Cable, 8270-3000 Scale Base to 8360 6 ft/1.8 m	0900-0305
13816200A	Cable, PC DB9 to **Smart***Touch* Master 10 ft/3 m	0900-0285
13816300A	Cable, PC DB25 to **Smart***Touch* Master 10 ft/3 m	0900-0286
14102600A	Cable, PC DB9 to **Smart***Touch* Master 25 ft/7.6 m	0900-0297
14102800A	Cable, PC DB25 to **Smart***Touch* Master 25 ft/7.6 m	0900-0298
14102400A	Cable , Modem to **Smart***Touch* Master 25 ft/7.6 m	0900-0296

Table 1-2 Accessories

Bar Code Symbols

The 8360 is capable of printing both UPC and EAN bar code symbols. Following are examples of Type-2 and Type-0 bar codes. The bar code must be setup correctly to work with the store's scanner. In addition, the Type-2 bar codes include an optional price check digit that must match the scanner's settings.

Type 0 Bar Codes

The Standard Type 0 Bar Code is used for general grocery, drug, or other prepackaged items. The Bar Code provides the register with a 10 digit Item Number. This number is used for a lookup to retrieve the item's description and price. The symbol contains 12 digits. The first position from the left is always the Bar Code Type. Positions 2 through 11 (from left to right) are reserved for data, depending on the Bar Code Type that is in use for the PLU. Position 12, the last position on the right, is exclusively reserved for the Bar Code Check Digit. An example Type 0 Bar Code is shown in Figure 1.7.

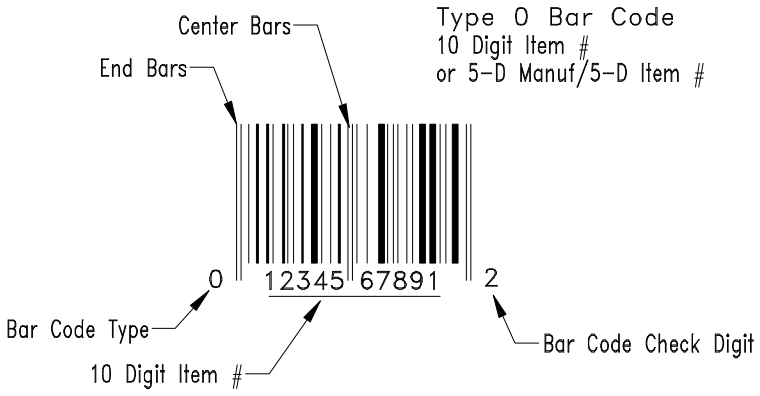


Figure 1.7

Type 2 Bar Codes

The Type 2 Bar Code is used when the product's total price may vary package-to-package, such as products sold by quantity, weight, etc. Since no standard total price can be set, the total price is encoded in the bar code symbol, along with the Item Number. When a Type 2 Bar Code is scanned, the Item Number is used to retrieve the product description. The Type 2 Bar Code allows for a six digit Item Number (w/no price check digit) and a four digit total price or weight, or five digits each of item and price/weight, to be encoded in the bar code symbol. An example is shown in Figure 1.8.

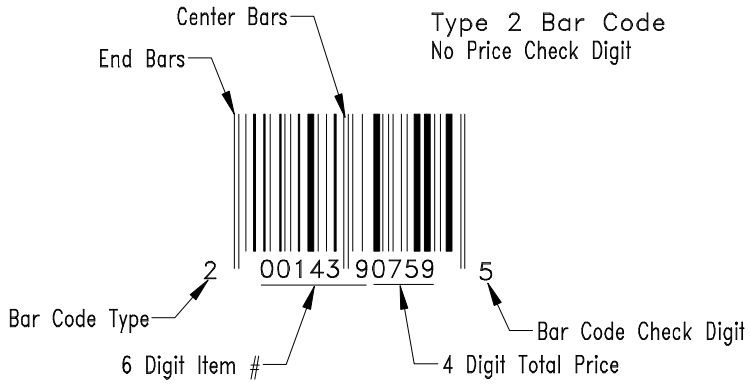


Figure 1.8

A price check digit is also available as an option in the Type 2 Bar Code. The price check digit is used as a secondary check for the total price. When the Price Check Digit is enabled, it takes the place of the last position of the Item Number, limiting the Item Number to five digits. The Price Check Digit will be positioned the first position to the right of the center bars, as shown in Figure 1.9. When the Price Check Digit is enabled, the Item Number will shift one position to the left.

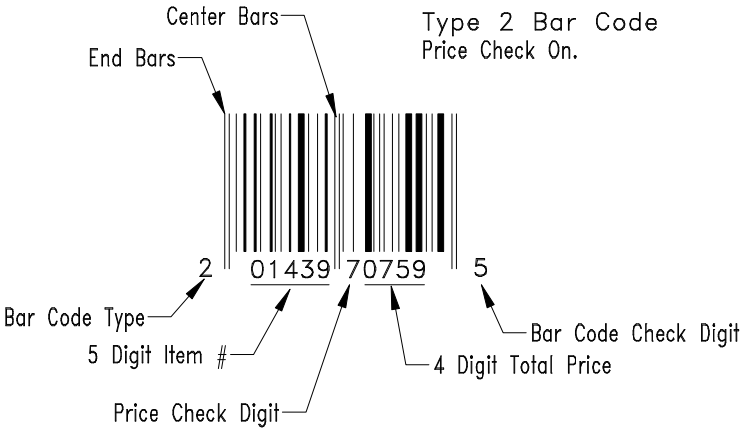


Figure 1.9

2 Setup

Satellite Setup

Remove the 8360 and all accessories from the shipping carton and inspect for visual damage. Report any damage to the carrier promptly. Remove and verify you received a Programming Manual, scale platter or dead deck, power cord, 25 foot TNET communication cable, and a phone jack.

Install any option kits at this time. Refer to the appropriate section for kit installation instructions. If the 8360 will be installed on an autolabeler, refer to the Installation Instructions shipped with the autolabeler. *Install the scale base and printer (and other accessories) and connect all harnesses before connecting AC Power*. Install the power cord in the receptacle on the rear of the 8360 (Location shown in Figure 1.3). If units have been stored or transported in below freezing temperatures, allow the units to warm up to room temperature before turning on AC power. Connect the power cord to the AC outlet. Set the power switch to the ON position. Allow at least 30 minutes warm-up time before initial calibration. The 8360 must be powered-up for at least four hours to initially charge the internal NiCad batteries on the Satellite CPU, Memory/Display, and Optional Satellite Memory PCB's. ***NOTE: Satellite units must be connected to a master during setup to initialize the satellite's local memory. The Super Caps on the Master CPU and Master Memory PCB's require up to four hours to charge. Discharge time is approximately 12 hours. Do not remove a programmed Memory PCB from the Master CPU PCB until the Super Caps have charged.***

On power-up, the contrast adjustment screen will display, as shown in Figure 2.1. To adjust the contrast, touch the bar on the right and move your finger up or down. To bypass this step, touch the **CONTINUE** bar. The contrast can be adjusted at anytime if this step is bypassed by first touching the upper left corner of the display (HELP shown in Figure 1.3), then selecting ***Adjust Contrast*** on the help window. The 8360 satellite goes directly to the numeric screen and updates after a delay (in minutes) equal to the Unit ID number. At 2:00 A.M., the 8360 satellites will request

a backup at the time equal to the value of the Unit ID multiplied by 5. (Example: Unit ID 1 multiplied by 5 will request the backup at 2:05.)

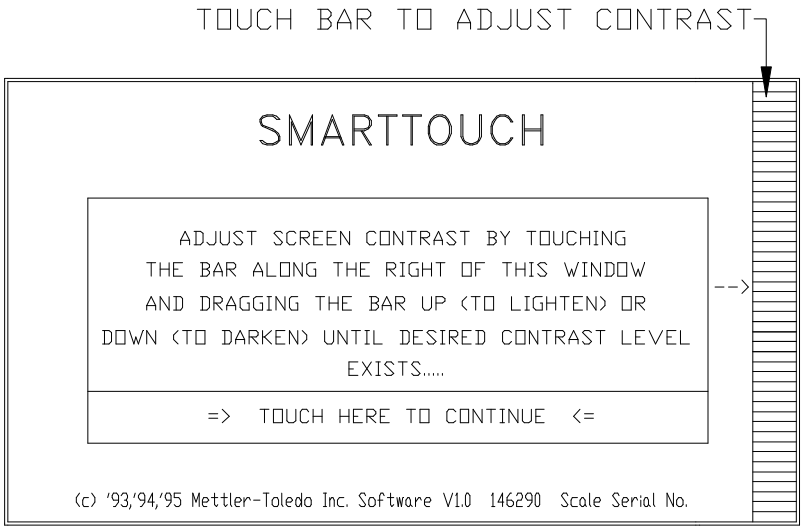
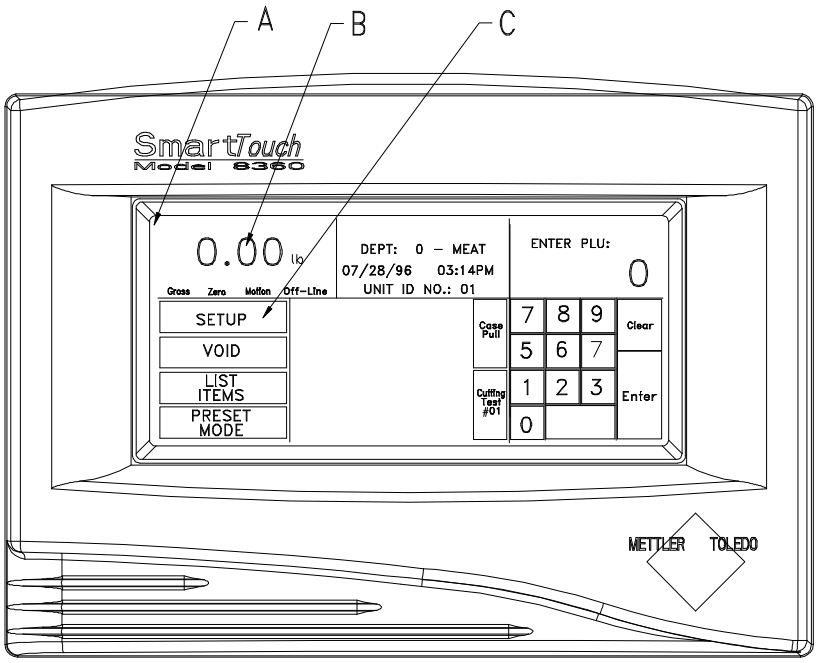


Figure 2.1 - Adjust Contrast Screen

The default screen on power-up with be the numeric entry home screen, as shown in Figure 2.2. Certain "keys" will be drawn on the screen, however, some functions, such as zero, do not show a key area. If the weight display field shows **EEEEEE**, zero was not captured (on scale/printer units). Make sure the platter is in place and empty. (Note: The zero "key" does not work if zero is not captured at power-up or calibration.) If zero cannot be captured, calibration may be necessary. If dashes (------) are displayed, zero was captured but the scale is behind zero. Make sure the platter is in place and empty, then touch the Weight Display Field (B in Figure 2.2) to manually zero the scale. For Help Information on the various scale functions or to adjust the display contrast, briefly touch the top left corner of the screen (A in Figure 2.2), to open a help window.



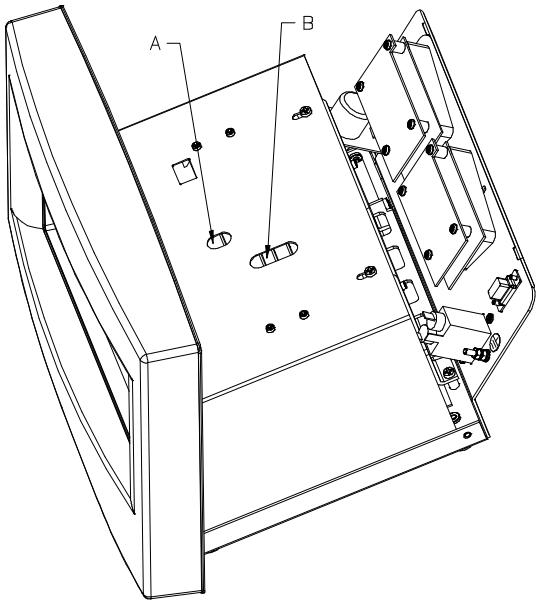
A = Help/Contrast Adjustment
B = Zero Scale
C = Setup Mode Key

Figure 2.2

Satellite Configuration

To configure the 8360, first touch the **SETUP** key, shown directly below the weight display field (C in Figure 2.2), then touch **UNIT**. If a password has been previously programmed and is not known, remove the Rear Cover and press the Satellite CAL Switch when asked for the password. The Satellite CAL Switch (A) and the **Smart***Touch* Master Setup Switch (B) are shown in Figure 2.3.

The ***Unit Setup*** screen is shown in Figure 2.4.



A= Satellite CAL Switch
B= Master Setup Switch
Figure 2.3

UNIT SETUP			QUIT
PROGRAM PRESET KEYS	WRAPPER PACKAGE COUNT		CHANGE TIME/DATE
CALIBRATE/ INSTALL UNIT	PERIPHERAL CONFIGURATION	PROGRAM LABEL FORMATS	PRINTER SETUP
	PLU SCREEN OPTIONS	PLU OPTIONS	VERIFY LABELS
	CHANGE DEPARTMENT	PROGRAM PASSWORD	SET BEEPER DURATION

Figure 2.4 Satellite Setup Screen

Configuration Options in Calibrate/Install

To calibrate the scale or configure satellite options, touch the key marked **CALIBRATE/INSTALL UNIT**. After touching the calibrate key, press the ***Satellite Setup/CAL Switch*** (Figure 2.3). After pressing the **CAL** switch, the screen shown in Figure 2.5 will display. Notice the setup options are shown in various menu headings.

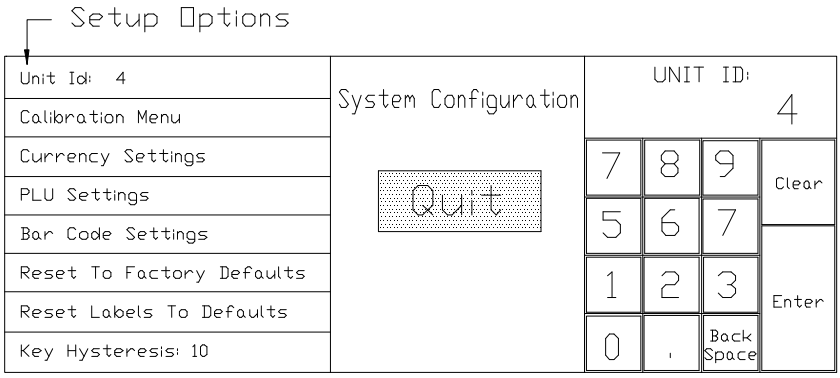


Figure 2.5

The following section explains the configuration options available in the Calibrate/Install System Configuration screens.

UNIT ID The Unit ID is used by the master scale to address satellite scales. The 2-digit number must be unique on the network and between 01 and 30. (Between 1 and 25 for non-SmartTouch satellites.) **DO NOT DUPLICATE UNIT ID NUMBERS**.

CALIBRATION MENU

Load Cell Answer Yes to use remote scale, or No for no scale attached.

Weighing Units Weigh in pounds (50 x .01 lb) or metric kilograms (20 x .005 kg).

Calibrate This selection enables the calibration mode.

CURRENCY SETTINGS MENU

Currency Inc. This is the increment size and decimal point for the price fields.

Currency Symbol Enter currency symbol for the monetary system in use.

PLU SETTINGS MENU

Protocol TNET protocol for master & satellite communications. Default is SmartTouch. **NOTE: ALWAYS USE Smart*Touch* FOR 8360 SATELLITES CONNECTED TO THE 8460 or 8360 MASTER.** The 4D and 6D settings are for use with satellites connected to the 8422-type Master.

Call By Item Call record by Item number or by PLU number. This is the number used for the look-up number. Yes = By Item Number, No = By PLU Number.

Tare Field To Use Select Tare 1 or Tare 2 Fields

Store Logo No. Enter the graphics code of the image to be used as a store logo on the label.

Void Available To activate the Void Key, enter Yes. This is used to cancel transactions from the accumulators.

Manual Mode Keys Enable/Disable the **Pounds-For**, **By-Qtr**, or **By-Half** keys that display in manual (off-line) mode.

Prepack Mode Keys Select the following options in prepack mode:

Print After Motion: Label is printed automatically when weight is applied and a motion to no-motion condition has occurred (weight must exceed minimum print increment value). **Normally set to YES**.

Print Key Always Active

Yes = Print key always active allowing multiple label printing per each transaction.
No = Only one label can be printed per transaction.

Name Accumulators Up to five accumulators can be used with the 8360. The default accumulator names can be used, or can be given new names. The default names are: Auto, Manual, ReWrap, Combination, Inventory. The names in the master should match the names of accumulators in the satellites.

Define Accumulators Define the keys for auto price and manual pricing modes.

BAR CODE SETTINGS MENU

The following selections are determined by the last item on the menu (Bar Code Type), which selects either ***UPC*** or ***EAN*** bar code symbols. When ***UPC*** is selected, the following prompts will display. When ***EAN*** is selected, refer to the EAN Bar Code Setup following the UPC Bar Code Setup section.

UPC BAR CODE SETUP (displays only when UPC bar code type is selected.)

By weight bar code Select bar code type. The default is 2. The selections are as follows:

0 =Ten digit Item Number. (No price is encoded)
1 =Not identified.
2 =Random weight bar code with item number and total price encoded.
3 = System 3 is used for drug and health items. Similar to type 0.
4 = In-Store Marking is used for non-random weight items where a 6-digit item number and 4 digit price is encoded.
5 = Coupons.
6 = Similar to type 0. Used for non-random weight items.
7 = Not identified.

By-Count Bar Code Refer to By Weight Bar Codes. (Default = 2).

Standard Pack Bar Code Refer to by Weight Bar Codes. (Default = 2).

Random Weight Type

The random weight type is used to select the format of the bar code when types 2 or 6 are selected. Options include price check digit or zero, four or five digit price, etc. The default is 1. (N=Item Number, C=Price Check Digit, $=Total Price, W=Weight Check Digit, X=Bar Code Check Digit, #=Weight).

0 = NNNNN C$$$$ X (5-D N/PC/4-D $)
1 = NNNNN 0$$$$ X (5-D N/Zero/4-D $)
2 = NNNNN N$$$$ X (6-D N/4-D $)
3 = NNNNN $$$$$ X (5-D N/5-D $)
4 = NNNNN W#### X (5-D N/W Digit/4-D W)
5 = NNNNN 0#### X (5-D Item/Zero/4-D W)
6 = NNNNN N#### X (6-D Item/ 4-D W)
7 = NNNNN ##### X (4-D Item /5-D W)

Run Total WGT type

Selects the format of the bar code when types 2/6 are selected. (N=Item Number, C=Price Check Digit, $=Total Price, W=Weight Check Digit, X=Bar Code Check Digit, #=Weight). The selections are as follows:

0 = NNNNN C$$$$ X (5-D N/PC/4-D $)
1 = NNNNN 0$$$$ X (5-D N/Zero/4-D $)
2 = NNNNN N$$$$ X (6-D N/4-D $)
3 = NNNNN $$$$$ X (5-D N/5-D $)
4 = NNNNN W#### X (5-D N/W Digit/4-D W)
5 = NNNNN 0#### X (5-D Item/Zero/4-D W)
6 = NNNNN N#### X (6-D Item/ 4-D W)
7 = NNNNN ##### X (4-D Item /5-D W)

Manufacturer Num

This selection allows for a default five digit manufacturer number, when used with type 0, 1, 3 5, or 7 bar codes, replacing the first five MSD digits of the item number.

Hard 0 => PC
- or -
6 D Item=>PC

When a PLU contains a command to turn off the price check digit, (Ex: Action Code 49), this selection determines what will print in the price check digit space. A hard zero or a 6-digit item number can be selected.

Barcode Type

Select UPC Barcode (Std. U.S.), or EAN for European Barcode applications.

EAN BAR CODE SETUP (displays only when EAN Bar Code Type is selected.)

EAN By weight bar code Enter the EAN Flag 2 digit to be used for by weight labels (0-9).

EAN By count bar code Enter the EAN Flag 2 digit to be used for by count labels (0-9).

EAN Std. Pack bar code Enter the EAN Flag 2 digit to be used for standard pack labels (0-9).

By weight format Selects the format of the by weight bar code. (N=Item Number, C=Price Check Digit, $=Total Price, W=Weight Check Digit, X=Bar Code Check Digit, #=Weight). The selections are as follows:

0 =NNNNN N$$$$ X (6D N/4D $)
1 =NNNNN $$$$$ X (5D N/5D $)
2 =NNNN$ $$$$$ X (4D N/6D $)
3 =NNNNN C$$$$ X (5D N/C/4D $)
4 =NNNNC $$$$$ X (4D N/C/5D $)
5 =NNNNN ##### X (5D N/5D #)
6 =NNNNC ##### X (4D N/W/5D #)

By-Count format Refer to By weight formats

Std Pack format Refer to By weight formats

Run Total Fmt Refer to By weight formats.

SYSTEM CONFIGURATION MENU

The following selections follow the Bar Code Settings Menu:

RESET TO FACTORY DEFAULTS CAUTION! THIS FUNCTION WILL ERASE ALL SETUP INFORMATION! This selection is used to reset to original factory default settings

RESET LABELS TO DEFAULTS **CAUTION! THIS WILL ERASE ALL CUSTOM LABEL FORMATS.** This selection will reset all label formats to the original factory defaults.

KEY HYSTERESIS Key hysteresis (0-10) pertains to screens using drag menus, or menus where the key does not enter until the finger is removed. This setting provides an increased zone around a selected key so that if the finger is pulled away at an angle, the chance of selecting a neighboring key is reduced. Normal setting is **4**.

VIEW/CLEAR ERROR LOG These selections are for factory use.

Calibration

To calibrate, first select the ***Calibration Menu*** from the ***System Configuration Menu*** (Figure 2.5), touch ***ENTER***, then ***Calibrate.*** Calibration is required whenever the Load Cell in the scale base or Satellite CPU is replaced, or when changing from kg to lb.

Touch **Begin** to start calibration. Empty the scale platter, then touch **Continue** to set Zero. The display will next ask for the value of the test weight used for span calibration. Use a minimum of 10 lb or 5 kg. Enter the value, then touch **Enter** to set span (full capacity).

Databack Backup and Restore

Configuration data from the 8350 can be backed-up or restored to a PC (Personal Computer) using the METTLER TOLEDO program **DataBack Version 4**. New scales can be easily set up by using files backed up from other 8350 units.

DataBack requires an IBM or 100% compatible PC with a 3.5 inch DD or HD floppy drive and one serial port. The wiring diagrams shown in Figure 2.6 can be used to make cables from a 25-pin or a 9-pin PC Serial Port to the 9-pin connector at the 8360. Factory cables are available from METTLER TOLEDO using the part numbers shown in Figure 2.6. (Note: The cables are the same as used for the 8422/8423/8305/8460 Masters.)

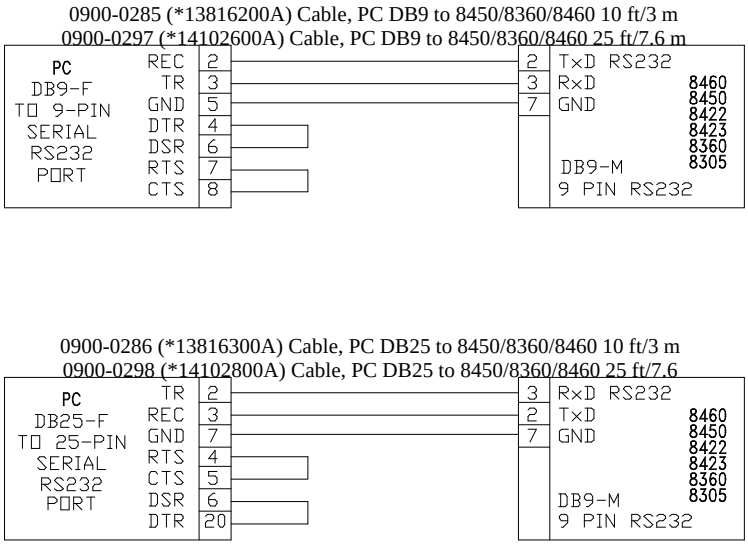
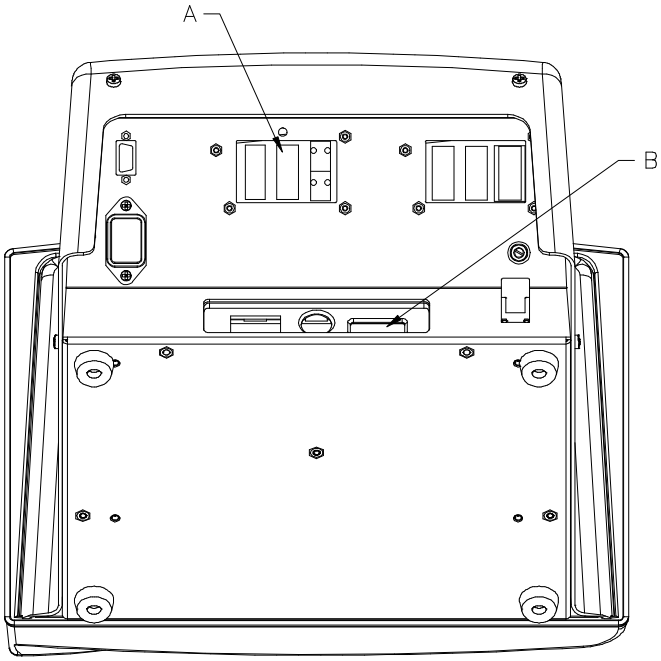


Figure 2.6 - Host RS232 Cables

To backup or restore the satellite data, connect the cable end for the scale to the Satellite Aux/Host Port, as shown in Figure 2.7 item B. To connect to the **Smart*Touch*** Master Host Port, connect the cable to item A in Figure 2.7.



A - Smart*Touch* Master Host Port
B - Satellite Aux/Host Port
Figure 2.7

Satellite Backup/Restore

Using DataBack, the following categories of 8360 satellite backup/restore can be performed:

All	Includes all categories.
Labels	Includes label data, custom formats, programmable text.
Label Styles	Printer Setup, etc.
Macros	Programmable Macros.
Scale Presets	Includes only the user defined preset keys.
Miscellaneous	Includes Grade/Action Tables, PLU Settings, TNET Protocol, Department setup, Accumulators, etc.

Select ***Backup*** at the Main Menu, then 8360s to backup or restore to the satellite. Next, select the type of backup. Make your selection, type in the file name and press **ENTER**. Press any key to continue. To restore data to the 8360, select **RESTORE** from the DataBack menu, select scale type and file name, then follow the same steps.

Master Backup/Restore

Databack Version 4.0 or higher is required to backup and restore the master. The master backup/restore consists of the following categories:

PLU	Includes only the PLU data files.
Extra Text	Includes only the Extra Text File.
NutriFacts	Includes only the Nutrition Text.
Graphics	Includes only Graphics files.
Miscellaneous	Includes Cutting test Info, Accumulator Names, Host ID, Weight Increment, Currency Increment, Tare Limit, Currency DP, Currency Symbol, Host Protocol, Master Editor Password, Department Table, Store Record, Grade Table, Group Table, Message Table, Operator Totals Table, Operator Records Table, Item Number Duplication status, Printer Setup, Serial Device Setup.

To backup data from the master, connect the data cable end marked PC to the correct PC serial port and the end marked SCALE to the 8360 Master Host Port 0 on the I/O Connector PCB. Start up DataBack and select BACKUP and 8460m from the menu to backup, or RESTORE and 8460m to download a file to the 8360 master.

Flashing New Software

The 8360 Software is retained in Flash EPROM's (EEPROM) on the CPU PCB's. The EPROM's can be reprogrammed using a PC and a downloader program called **FLASHPRO**. If a new CPU PCB is installed, or if the Software needs to be updated, the software will need to be flashed into the CPU PCB. **FLASHPRO** uses the *COM1* RS232 Serial Port as a default. If *COM2* is required, you will need to add ***-COM2*** at the end of the command line. Typing FLASHPRO alone displays a help screen. Cables and components are the same as used with Databack and are shown in Figure 2.6. **NOTE: SETUP DATA MAY BE ERASED WHEN THE SOFTWARE IS UPDATED!** FLASHPRO uses special DOS files that contain the operating system software. The software may be distributed in a compressed format and may need to be uncompressed before using the files.

Flashing The Software

The Software files on the distribution disk are compressed. To use the files, first copy all the files to a subdirectory on your hard disk drive. Make the directory your default, then type the file names to uncompress the files. New files will be created as they are uncompressed in this directory. The new files will be the software files that can be downloaded using Flashpro. Current software part numbers are: *145237R.MNG for the Version 3 **Smart***Touch* Master, and *146290R.MNG for the 8360 Satellite. (Note: software part numbers subject to change without notice.)

First turn the 8360 power switch to OFF. Connect the cable end marked PC to the PC's serial port and the other end to the 8360 Satellite Aux/Host Port if flashing the Satellite Software, or to the Master Host Port if flashing the master software, as shown in Figure 2.7. The FLASHPRO command line is as follows:

FLASHPRO -T*filename.xxx*

Replace *filename.xxx* with the actual file name on the distribution diskette. Example: FLASHPRO -t123456R.mng. If you get a DOS Bad command or file name error, check to make sure you have not mis-typed the file name (ex: FLASHPRO), and the file FLASHPRO.EXE is in your PC's path or current directory or on the distribution diskette.

Before starting the flash procedure, pre-type the Flashpro command line on the PC, but do not press the Enter key.

When flashing the satellite, press and hold the Satellite ***CAL*** Switch (B in Figure 2.7), then turn the power switch to ON. The display will show:

Boot in Progress
Waiting on Downloader.

When flashing the master, press and hold the ***Master Setup*** switch (A in Figure 2.7), then turn the power switch to ON. *There will be no status display on the 8360 while the master software is flashed.*

Next, press the ***Enter*** key. (If a UART Error is displayed, check that the cable is connected to the correct serial port, and the correct cable is used.) When you see Acknowledgment on the PC screen, release the button. FLASHPRO will display A's during the download process, (Acknowledgment). When the download is complete, FLASHPRO will display the message File Transfer Successful. After flashing in the software, the setup will need to be redone.

Satellite Peripheral Configuration

To use the 8360 with DataBack, the Satellite Aux/Host port must be configured correctly. To configure the host port, touch the ***Setup, Unit, & Peripheral Configuration*** keys, then the ***DataBack*** key when the *Select Device* window (Figure 2.8) displays.

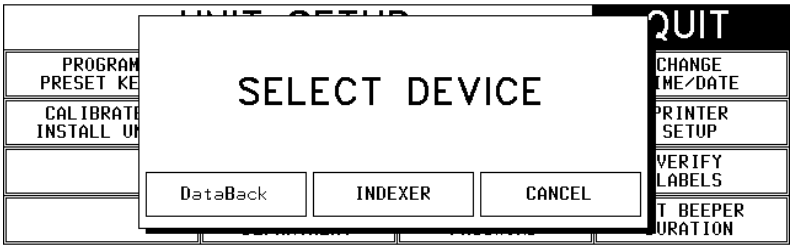


Figure 2.8 - Peripheral Setup Selection Screen

Databack Setup

The following selections will be presented in the Databack Setup Screen (Figure 2.9).

Figure 2.9 Databack Configuration

Host ID: The two digit Host ID must match the scale address programmed in DataBack.

Baud Rate: The default is 9.6k (9600) baud. This must match the baud rate in DataBack.

Parity: The default is EVEN for use with Databack. Other selections are Even, Odd, Low, High, and Off.

Stop Bits: Use 1 with DataBack. Other selections are 1.5 and 2.

Data Bits: Default is 7 for use with DataBack. Selections are 5, 6, and 8.

Flow Ctrl: Default is None for use with DataBack. Selections are XON/XOFF, and RTS/CTS.

Timeout: Default is 20000ms for use with DataBack. If OverRun Errors occur, increase the value of the timeout to 30000 or 40000ms.

Indexer Setup

When the 8360 is used with an automatic Labeler/Indexer, select Indexer from the Peripheral Configuration Screen, then select the correct Indexer, as shown in Figure 2.10.

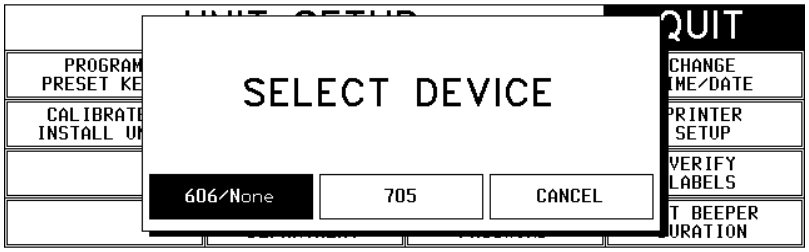


Figure 2.10 Indexer Setup

Smart*Touch* Master Setup

All access to the **Smart***Touch* Master is accomplished through any 8360/8460 satellite on the network. Only one satellite at a time can access the master. If another satellite attempts to access the master, the message Master Editor Currently Unavailable will display. There are three levels of passwords for master access: Master Access, Department Access, and Operator Access. Master Access allows entry into all master functions and is required to change the configuration of the Master. Department Access allows access for any department that matches the department password. Operator Access allows only viewing and printing data. No changes can be made with Operator Access. If no passwords are programmed, Master access is assumed.

Smart*Touch* Master Editor

To access the master editor, first touch Setup, then select Master Editor as shown in Figure 2.17. When asked for the master password, just press Enter if no password has been programmed, or enter the password if one has previously been programmed. (Note: If the master password is not known, use the service password 7627.) The Master Editor screen is shown in Figure 2.11.

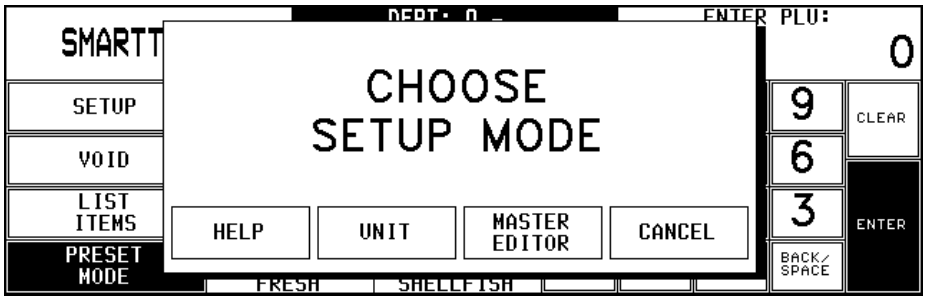


Figure 2.11

Passwords

The password determines whether the operator has Master, Department, or Operator access. When a password is entered, it is checked against a list of passwords. If it matches the master password, Master level access is granted. If it matches a password for a particular department, Department level access is granted for that department. If it does not match any stored passwords, no access is granted. If no password is entered, Operator level access is granted. A service password of 7627 allows Master Access in the Master Editor. Master Access is required to configure the master.

Smart*Touch* Master Configuration

The **Smart***Touch* Master Editor screen is shown in Figure 2.12. To configure the master, first touch conFig, as shown in Figure 2.12. The configuration options will then display on the right.

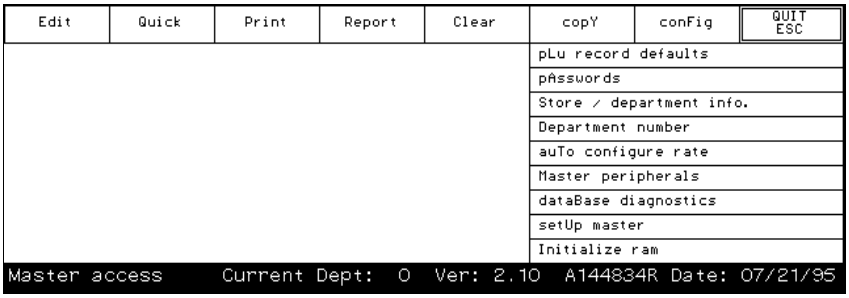


Figure 2.12 Smart*Touch* Master Editor Configuration Screen

Configure SmartTouch PLU Record Defaults

The **Smart***Touch* PLU Record Defaults menu allows configuration of the PLU Accumulator Names and enables/disables duplicate Item Numbers. To make changes in the configuration, touch ***conFig*** followed by ***pLu record defaults*** to present a SELECT DEFAULT OPTION message with three options.

PLU Accumulator Names

When this option is chosen, a screen is displayed with a list of the five accumulator names. Touch the accumulator you wish to edit, and make changes to the accumulator name (up to 15 characters) through the alphanumeric keyboard. From the list, when you are finished editing, touch ***QUIT*** to return to the Master Editor Menu. These names appear on the accumulator reports.

Item Number Duplication

When this option is chosen, an ALLOW ITEM NO. DUPLICATION message is presented with three options. Touch ***YES*** to allow item number duplication, ***NO*** to require unique item numbers, or ***CANCEL*** to return to the Master Editor Menu without making a change. Note: If the Satellite Unit utilizes the "Call By Item Number" option for PLU's, the Item Numbers must be unique.

Configure SmartTouch Master Passwords

This section is used to assign Master and Department passwords. To change a password, touch ***conFig*** followed by ***pAsswords*** to display a list of passwords. (The Master Password will be first followed by all of the department passwords.)

PASSWORDS — QUIT

DEPT.	DESCRIPTION	PASSWORD
	MASTER ACCESS	0
0		0
1		0
2		0
3		0
4		0
5		0
6		0

Figure 2.13 Passwords

Use the Page Up/Down keys to locate the password you wish to change and touch that line. Enter the new password (up to 4 digits) through the numeric keyboard. To clear a password, enter a zero (0).When finished

editing passwords, touch ***QUIT*** to save the changes and return to the Master Editor Menu. Note: If the password is ***0***, then access to the Master Editor for that level can be gained by touching ***ENTER*** at the "Enter Password numeric keyboard" without entering a 0.

Configure Store/Department

This section is used to change the store and current department names and addresses as well as the current department barcode and the operator names. To make changes, touch ***conFig*** followed by ***Store/department info***. to display the Information Edit screen. Configure the Store Name, Store Address, Department Name and address, Department UPC, and Operator Name and number. (Store Name/Address is used on reports. Dept Name/Address is used on labels).

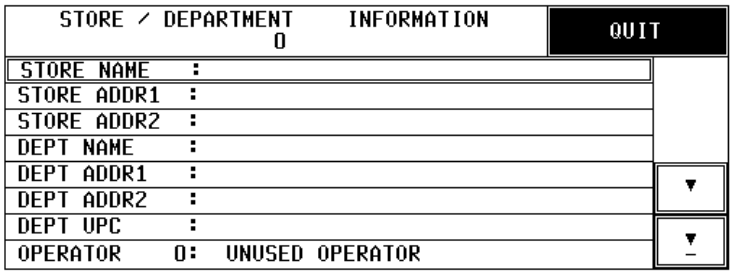


Figure 2.14 Configure Store/Department Information

Department Number

Used to select the current department for programming and configuration in the Master Editor. The current master department is displayed at the bottom of the **Smart***Touch* Master Editor screen. (The satellite does not have to be in the same department as the master.)

Auto Configure Rate

Auto configuration is the transmission of satellite addresses (along with a request for connection command) to addresses not yet connected to the network. This permits addition of new satellites to the network without having to manually tell the Master of the new satellite. The auto configure rate is the time (in seconds) between each network auto configure sequence. Values of between 5 and 25 seconds are permitted (the default is 5). After setting up a new network a higher value can be used which can speed up the network. (Note: the 8427 NF satellite will experience a delay to On-Line status at power depending on this setting.)

Master Peripherals

This selection configures the Master's printer and host serial ports. Touching ***conFig*** followed by the ***Master peripherals*** from the pull-down presents the Configure Serial Ports Screen, as shown in Figure 2.15.

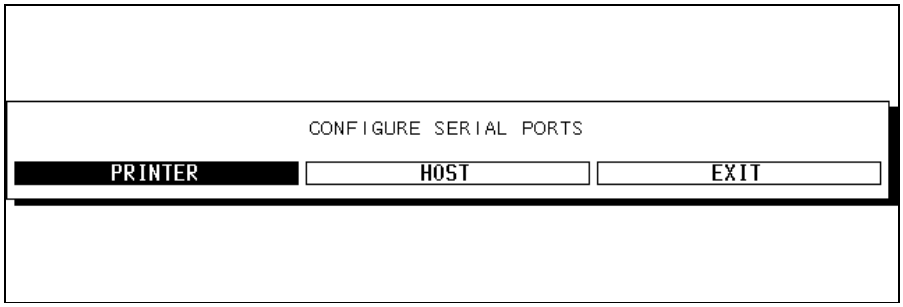


Figure 2.15

Configure Printer Port

The printer port is for a serial printer like the METTLER TOLEDO 8845, and is used for printouts and reports from the Master. The configuration of the printer must match the setup defined in this section. To define the printer port setup, touch ***PRINTER*** to display the Printer Setup screen Figure 2.16. After editing the printer parameters, touch ***eXit*** to save the setup and return to the Master Editor Menu.

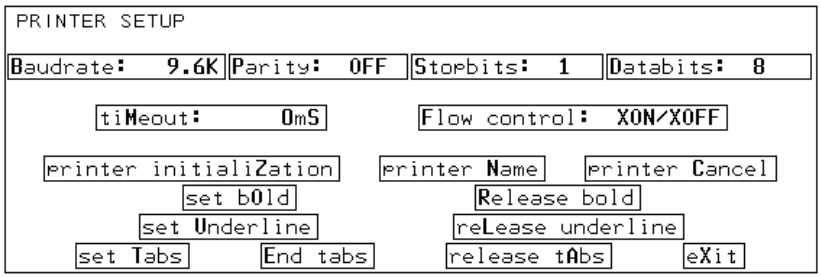


Figure 2.16

The printer options are as follows:

Baud Rate The baud rate (in Kilobytes) can be selected from 1.2k to 115k. This must match the baud rate configured in the printer. 9.6k (9600) baud is the default.

Parity Parity of Even, Odd, Low, High, and Off can be selected. Use Off for the 8842/8843/8844/8845 Document Printers. For most applications, when using 7 data bits, select Even Parity, and when using Off, select 8 data bits. (Note: Off and No parity are the same.)

Stop Bits Selections are 1, 1.5, and 2. Use 1 Stop Bit for the 8842, 8843, 8844, and 8845 Document Printers. Most applications use 1 stop bit.

Data Bits Selections are 5, 6, 7, and 8 data bits (sometimes called word length). Use 8 data bits for the 8842/8843/8844/8845 Document Printers.

Time Out This selection is not used for normal printing functions. The default is zero.

Flow Control Selects type of control between the host device and a peripheral that will start and stop data transfer to prevent an overflow condition. XON/XOFF is software handshaking and should be selected for the 8844/8845 Document Printers.

Printer Initialization This selection is used to enter printer Hex Control Codes used to setup the printer before printing a document. The standard initialization code for the 8843/8844/8845 is: 18,1B,40,1B,39,1B,49,00,1B,4D,0F,1B,42,3C.

Printer Name This is used for reference only.

Printer Cancel This hex code is used to stop or cancel whatever the printer is doing. The 8842/8843/8844/8845 use hex code 18 for cancel.

Set Bold This hex code is used to turn on bold or emphasized printing. The 8842/8843/8844/8845 use 1B,45 for bold print.

Release Bold This hex code is used to return the print to regular (non-emphasized) print mode. The 8842/8843/8844/8845 use 1B,46 for release bold.

Set Underline This hex code is used to turn on underline printing. The 8842/8843/8844/8845 use 1B,2D,31 for underline print.

Release Underline This hex code is used to turn off underline printing. The 88XX printers use 1B,2D,30 for underline print.

Set Tabs This hex code is used to setup tab spacing. The 8842/8843/8844/8845 use 1B,44 to set tabs.

End Tabs End tabs are not normally used with the master reports.

Release Tabs This hex code releases tab spacing. The 88XX use 1B,52.

Configure Host Port

The host port is used for communication with the Master through a PC communication program (DataBack, Intelli-Net, other). Intelli-Net is a PC based PLU File database Manager METTLER TOLEDO retail scales. DataBack is a PC program used to backup or restore data files to various METTLER TOLEDO Programmable scales without any editing capability. The configuration of the PC communication program must match the setup defined in this section.

To define the host port setup, touch ***HOST*** to display the Host Setup screen (shown in Figure 2.7). After editing the communication parameters (described below), touch ***eXit*** to save the setup and return to the Master Editor Menu.

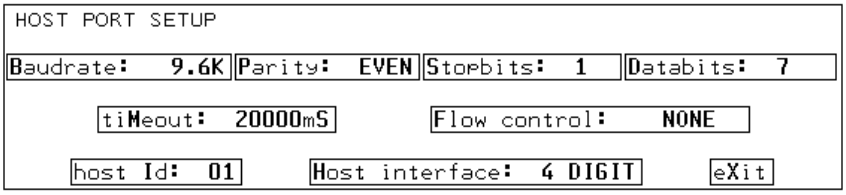


Figure 2.17

Baud Rate The baud rate (in Kilobytes) can be selected from 1.2k to 115.2k. This must match the baud rate of the host or DataBack. The default is 9600 baud.

Parity Parity of Even, Odd, Low, High, and Off can be selected. Use EVEN parity for Intelli-Net and DataBack. (Note: Off and No parity are the same.)

Stop Bits Selections are 1, 1.5, and 2. Use 1 Stop Bit for Intelli-Net or DataBack. The default is 1.

Data Bits Selections are 5, 6, 7, and 8 data bits (sometimes called word length). Use 7 data bits for Intelli-Net or DataBack.

Time Out This selection is used to end host communications if no response is detected. The default is 20000mS (milliseconds). If communication errors occur, increase the setting. If Databack reports OverRun Errors, increase the setting to 30k or 40k ms.

Flow Control This selects either hardware, software, or no handshaking. Flow Control sets up communication between the host device and a peripheral that will start and stop data transfer to prevent an overflow condition. Use NONE with Intelli-Net or DataBack.

Host ID The host ID is used by a host computer to communicate with a specific device. This number must match the number programmed at the host to identify this master. ID numbers from 1 to 99 can be used, but must not be duplicated if other units are connected to the host. NOTE: POWER MASTER DOWN AFTER CHANGING THE HOST ID TO RESET THE ID IN MEMORY.

Host Interface This selection is used to configure external host communications for a 6-digit PLU or a 4-digit PLU database.

Database Diagnostics

This section is used to set parameters for an engineering diagnostic tool and should not be changed.

Setup Master

This section is used to define master defaults including Weighing Units, Weight Increment, Currency increment, Currency Symbol, Date Format, Date Separator, Time Format, Barcode Style and Obsolete PLU's Enabled.

Weighing Units Select lb for pounds or kg for metric.

Weighing Increment The defaults are 0.01 for lb, or 0.005 for kg.

Currency Increment Currency increment size. The default is 0.01.

Currency Symbol The default currency symbol is **$**

Date Format Selections for the date format should match the satellite setup. MM/DD/YY, DD/MM/YY, YY/MM/DD, or YY/MON/DD

Date Separator Default is the slash (/). Other options are: **/ - .**

Time Format Select either 12 hour or 24 hour formats.

Barcode Style UPC for U.S., or EAN for European Barcodes.

Obsolete PLU's Selects whether obsolete PLU's are created when Pending PLU's active. An obsolete PLU takes on data (including accumulators) off the old PLU. The New PLU has zero in the accumulators and the other data is from activated Pending PLU.

Initialize Ram

This displays a warning screen with a confirmation to reset the Master to factory defaults. (Note: This does not affect the satellite setup.)

Master Report Printer Setup

The Mettler Toledo 8842, 8843, 8844, and 8845 printers can be used at the master to print reports, totals information, PLU/ET listings, etc. After configuring the printer in the master editor, you must setup the printers as shown in Table 2-1. Figure 2.18 shows cable wiring from the Master Port 1 Printer to the 88XX Printers. Refer to the appropriate printer Technical Manual for additional information.

Switch	Table 2-1 Description	8842/8843	8844/8845
SW1-1	Word Length ON=7, OFF=8	OFF	OFF
SW1-2	Parity Check ON=Enable, OFF=None	OFF	OFF
SW1-3	Parity Bit ON=Even, OFF=Odd	ON	ON
SW1-4	DTR Polarity ON=-, OFF=+	OFF	OFF
SW1-5	Baud Rate (Set for 9600)	OFF	OFF
SW1-6	Baud Rate	ON	ON
SW1-7	Baud Rate	OFF	OFF
SW1-8	Baud Rate	OFF	OFF
SW2-1	Buffer/Resume Data Transfer	OFF	OFF
SW2-2	Buffer Enable	ON	ON
SW2-3	Suspend Data Transfer	OFF	OFF
SW2-4	Suspend Data Transfer	ON	ON
SW2-5	Self Test Mode	OFF	OFF
SW2-6	Self Test Mode	OFF	OFF
SW2-7	DTR Control	OFF	OFF
SW2-8	*F/C Protocol ON=ETX, OFF=XON (*8842 Short Jumper J105 between B & C Pins.)	OFF	OFF
SW3-1	Printer Mode	OFF	N/A
SW3-2	Skip Perforation	OFF	
SW3-3	Auto Line Feed	OFF	
SW3-4	Cut Sheet Feeder	ON	
SW3-5	Bit Code Selector	OFF	
SW3-6	Character Set	OFF	
SW3-7	Auto Carriage Return	OFF	
SW3-8	Zero Font Style	OFF	

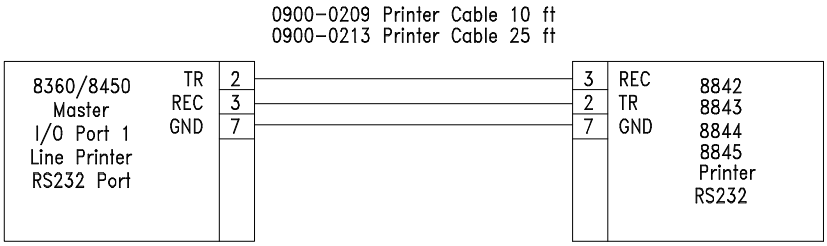


Figure 2.18 - Master Report Printer Cables

Programming Keyboard

The 0952-0024 Programming Keyboard for the 8422/8423/8305/8460 currently made by Honeywell can be used with the 8360. Earlier programming keyboards not manufactured by Honeywell will not work with the 8360. A PC-AT compatible keyboard 0977-0025 for use only with the 8360/8460 is also available.

For the Honeywell Keyboard only, set the program switch on the bottom as follows:

SW1 ON for the 8422/8423/8305/8427

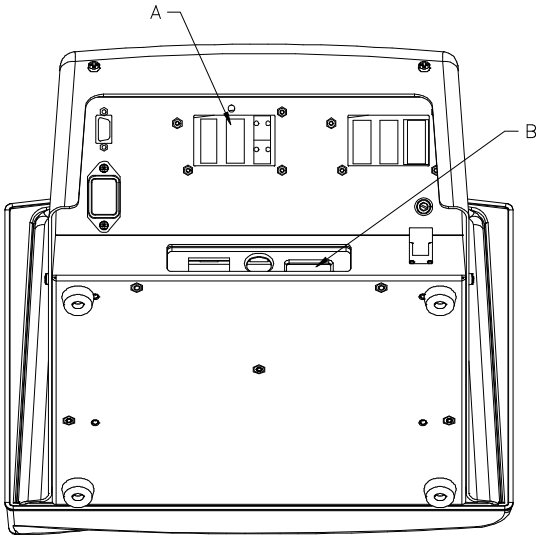
SW1 OFF for the 8360/8460/Std PC.

Connecting Master to Host

When connecting the **Smart***Touch* Master to a host PC using programs such as Intelli-Net or DataBack, two types of interfaces are available on the Master I/O Port 0 Host: RS232 and RS422.

Host Connections

Figure 2.18 shows the host ports on the 8360 for the satellite and master.



A - Master Host Port
B - Satellite Host/Aux Port
Figure 2.18

RS232 Interface

When using RS232, the Master can be connected directly to a standard PC serial port for distances up to 100 feet. Figure 2.19 shows a typical RS232 connection to a PC serial port.

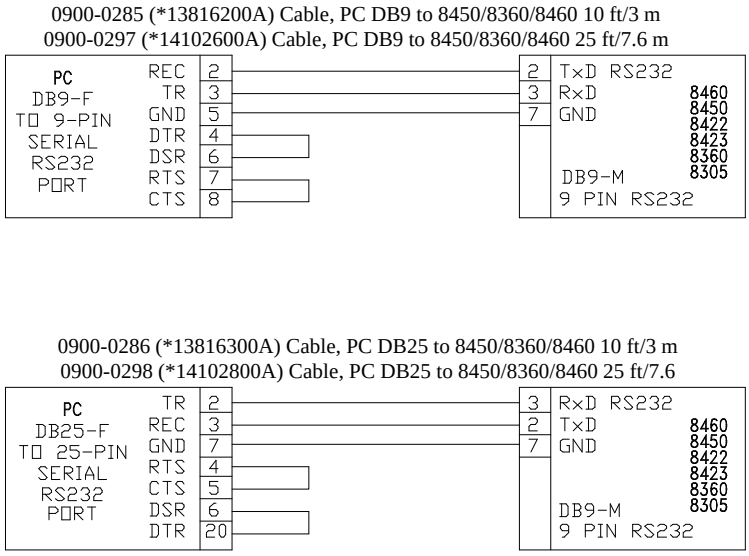


Figure 2.19 - Host RS232 Cables

RS422 Interface

When the cable length will exceed 100 feet or multi-drop capability is needed, RS422 must be used. The maximum cable length for RS422 is 1500 feet. A typical Intelli-Net wiring diagram is shown in Figure 2.20 using the METTLER TOLEDO RS232 to RS422 Converter. A cable kit is available for the 8360 by ordering kit 0900-0301 (p/n 14519300A). The kit contains cable p/n 14519200A.

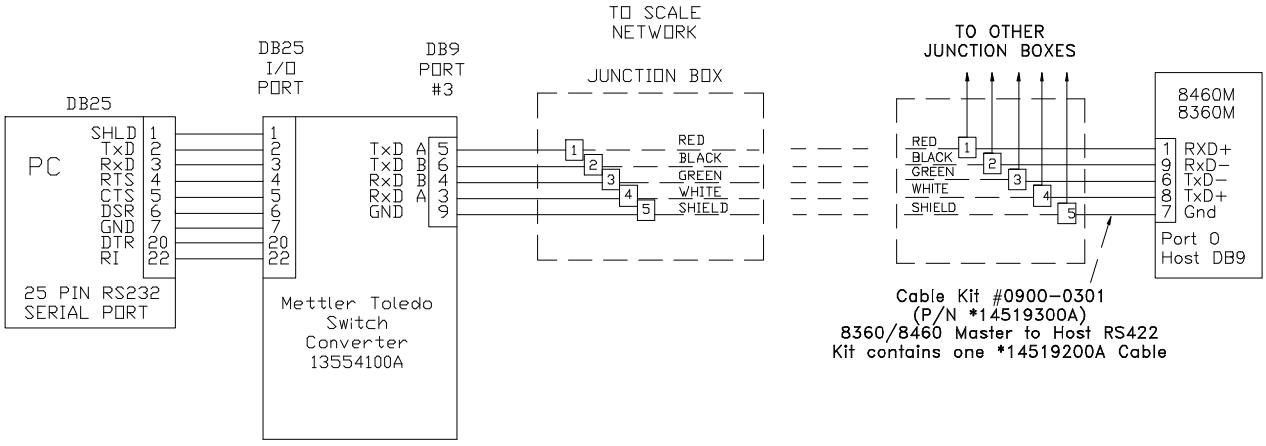


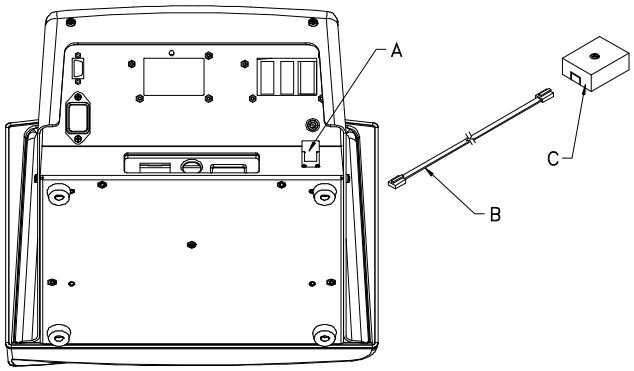
Figure 2.20 - Master RS422 Host Interface Wiring

3 Network Installation

Satellite Overview

The 8360 satellite must be connected to a Master or **Smart***Touch* Master in order to access the master PLU file. When a PLU number is called up, it is retrieved from the Master and added to a local backup PLU table. The 8460 satellite will perform an automatic download, starting at 2:00 A.M. to update the local records which include the PLU records, Extra Text and NutriFacts (with optional Satellite Memory PCB installed), the action code table, grade table, and department configuration. If the master controller goes "off-line," the satellite can continue to operate with this backup information until the master goes back "On-Line".

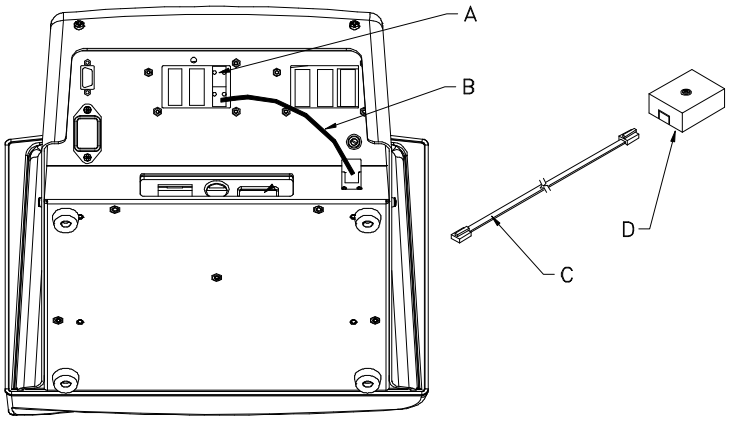
The scale network (TNET) connects all the satellites to the master. Each satellite is shipped with a modular phone jack box (P/N 12716300A) and a 25-foot communication cable (P/N 12716500A) that connects the box to the TNET connector on the rear of the scale, as shown in Figure 3.1. The 25-foot communication cable (B in Figure 3.1) has a 4-position modular phone plug on one end, and a 6 position modular plug on the other. Connect the 4-position end to the rear of the 8360 in the satellite TNET jack (A in Figure 3.1), and the 6-position end to the supplied phone jack (C in Figure 3.1).



A - 8360 Satellite TNET Jack
B - 12716500A Phone Cable
C - 12716300A Phone Jack
Figure 3.1

Smart*Touch* Master Overview

Since an 8360 Master is a satellite with the **Smart***Touch* Master Hardware installed, a jumper harness connects the satellite TNET jack with the Master TNET jack. This external jumper connects the Satellite CPU and the Master CPU on the network. In this case, the TNET connection would be made on the I/O Connector PCB, as shown in Figure 3.2. All access to the **Smart***Touch* Master is through and 8360 or 8460 satellite on the TNET network, (including the internal Satellite in the master.)



A - Master/Satellite TNET Jack
B - Jumper for Smart*Touch* Master & Satellite TNET
C - 12716500A Phone Cable
D - 12716300A Phone Jack

Figure 3.2

TNET Hardware

MATERIAL	APPROVED VENDOR	PART #	QUANTITY
Wall mount phone jack	Allen Tel. Prod. #AT468-4	12716300A	1 per scale
113 ohm resister		12839300A	2 - one resistor at each end of main data line. Refer to Figure 4.2.
Telephone Cable, 4-Conductor color coded (B/Y/G/R) or equivalent. (NOTE: USE ONLY UNSHIELDED SOLID-CORE 22-24 GAUGE.)	*Belden 1227A *AT&T 1005 002A W1000 Cable Specs: 24 AWG Solid Copper 4 Conductor PVC Insulation 60 deg C 300 Volts N.E.C. type CM Nom. Capacitance 16-18 pf/ft Attenuation (Max): @1 MHz. 7.8 dB/1000ft @4 MHz. 17 dB/1000ft @10 MHz. 30 dB/1000 ft @16 MHz. 49 dB/1000 ft	N/A	As required (1500 feet max. cable length)

Table 3-1 TNET Hardware

*Note: if cable is to be run through a plenum area, or in ceilings check your local electrical/fire codes. Special non-flammable/non-smoking plenum cable may be required.

! IMPORTANT NOTE !

MAXIMUM RECOMMENDED CABLE LENGTH, INCLUDING THE MAIN CABLE AND 25 FOOT SCALE DROPS, IS LIMITED TO 1500 FEET. USE ONLY APPROVED OR EQUIVALENT UNSHIELDED TELEPHONE TYPE CABLE. THE USE OF UNAPPROVED CABLE MAY RESULT IN DATA COMMUNICATIONS ERRORS.

TNET Wiring

A sufficient amount of telephone cable must be available to run between all scales in the network. This cable is referred to as the main data cable and must be located near each scale. Once the cable is routed, a modular phone jack (P\N 12716300A) must be attached to the main data cable at each scale location. The phone jack must be located within 25 feet of the scale to allow connecting the 25-foot communication cable between the phone jack and the scale. Each scale is shipped with a 25-foot communication cable (P/N 12716500A) which connects the scale communication port to the phone jack. Refer to Figure 3.3 which gives an example of the scale network wiring in detail. The main data line must be terminated at the ends by connecting the supplied 113 ohm resister (p\n 12839300A) between the Green and Red terminals in the phone jacks. The terminating resistors are supplied with each master scale.

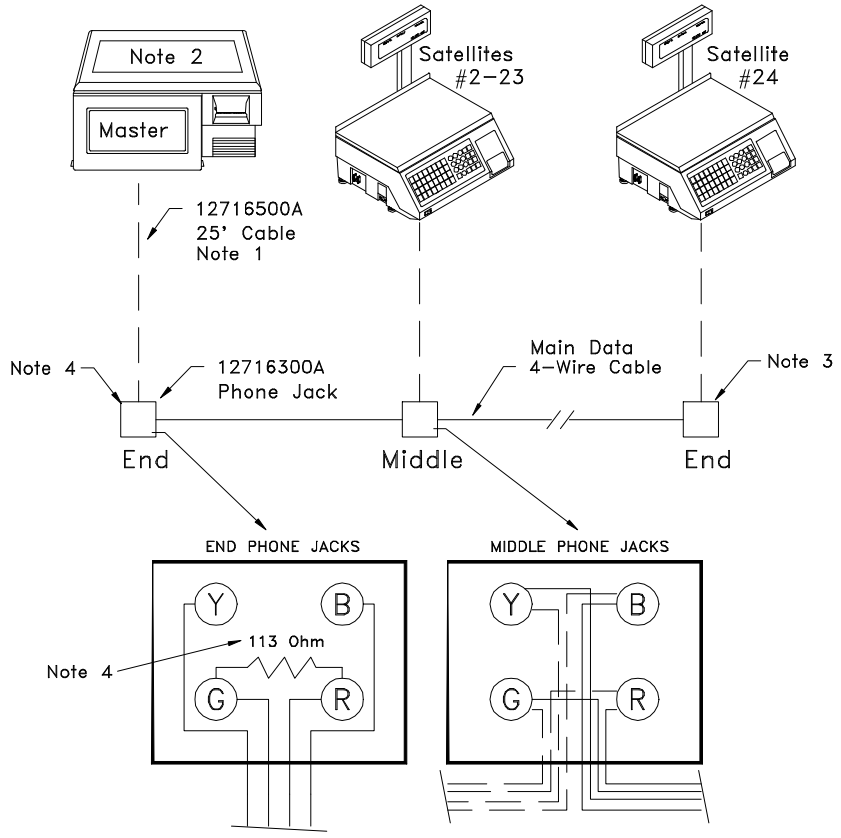


Figure 3.3 Master/Satellite TNET Wiring

TNET Wiring Notes

NOTE 1

The 25' Communication Cable, P/N 12716500A, and the Phone Jack, P/N 12716300A, is supplied with each scale. The four-position modular phone connector plugs in the scale TNET connector identified as "COMM", and the six-position modular phone connector plugs into the phone jack.

NOTE 2

The Master can be installed at any location on the network. In this example, the Master is installed at one end of the main cable. When the cable length approaches near maximum, it is recommended the master be located in the middle of the network. Up to 24 satellites are supported.

NOTE 3

All phone jacks must be installed on the main data line which runs to each location. This main data line must not branch off into multiple sub-networks from one phone jack. The total cable length, including the 25' scale communication cables must not exceed 1500 feet. Standard 4-wire color-coded telephone cable can be used, however, it must meet the local building code requirements and meet NFPA requirements.

NOTE 4

The 12839300A 113 ohm Terminating Resistor MUST BE INSTALLED BETWEEN THE GREEN AND RED TERMINALS OF THE PHONE JACK AT BOTH ENDS OF THE MAIN DATA CABLE.

4 Troubleshooting

Troubleshooting Guide

Following is a list of symptoms that could occur, and the recommended action to correct the problem.

- **SCALE INOPERATIVE/BLANK DISPLAYS**

  1. LCD Contrast Adjustment. Touchpanel Status LED's illuminated?
  2. Check Power Supply Voltage. Is status LED illuminated?
  3. Check Mother PCB.
  4. Check CPU PCB.
  5. Check Memory/Display PCB.

- **TOUCHSCREEN INOPERATIVE**

  1. Clean LCD and IR lens, check for obstruction.
  2. Check status of IR PCB LED's visible through touchscreen lens. If LED's are:

     LED'S ON
     Path is not blocked. Do LED's go off when path is blocked? If not, IR PCB is not functioning. If LED's are operating properly, check CPU PCB.

     LED'S OFF
     Path is blocked or IR is defective.

     LED'S FLICKERING
     Path is blocked or IR is defective.

- **BLANK TOUCHSCREEN**

  1. Check LCD contrast adjustment.
  2. Check Power Supply.
  3. Check Mother PCB voltages.
  4. Test LCD voltages.
  5. Replace Memory/Display PCB.

- **BACKLIGHT DIM OR NOT WORKING ON LCD DISPLAY**

  1. Check Connectors from Backlight and Inverter PCB, and Inverter to J6 on Mother PCB.
  2. Refer to Troubleshooting Section on LCD for troubleshooting Backlit Display.

- **CHECKSUM ERROR WHEN FLASHING NEW SW**

  1. Incorrect file or compressed file used with Flashpro. Check file name, and/or uncompress file before using with Flashpro.

- **OVERRUN ERROR WHEN USING DATABACK**

  1. Increase the value of the timeout setting. The default is 20k ms. Increase to 30k or 40k and retry.
  2. Try slower baud rate.

- **SCALE WON'T ZERO (DISPLAYS "EEEEEE" IN WEIGHT FIELD)**

  1. Check platter and spider for obstructions. Turn power off, then on.
  2. Check Motion Readings Setting in Calibration Menu. Zero setting will cause this symptom..
  3. Recalibrate. (Section 2).
  4. Check 8270-3000 supply voltage.
  5. Check 8270.

- **SATELLITE OFF-LINE WITH MASTER**

  1. Are other satellites On-Line? If not, check master.
  2. Check for duplicate Scale ID on another satellite.
  3. Check TNET wiring (Section 3). Disconnect all satellites from main cable. At one end, remove the terminating resistor from phone jack and check wiring with meter. There should be from 113 to 180 ohms between the red and green terminals of phone jack. If zero ohms, a wire is shorted. If excessively high, check for bad connections.
  4. Reconnect one satellite. If On-Line, connect another satellite and observe On-Line status. If one unit takes the others off-line, check that unit.
  5. Check 25 ft communication cable between scale and phone jack.
  6. Check Satellite CPU PCB.

Check Mother PCB.

- **All SATELLITES OFF-LINE WITH MASTER**

  1. Check the Jumper Cable from the satellite TNET port on the Mother PCB to the I/O Logic PCB (Figure 3.2).
  2. Disconnect satellites from Master. Does master come back On-Line? If so check TNET wiring. Disconnect all satellites from main cable. At one end, remove the terminating resistor from phone jack and check wiring with meter. There should be from 113 to 180 ohms between the red and green terminals of phone jack. If zero ohms, a wire is shorted. If excessively high, check for bad connections. NOTE: Each terminating resistor must read approximately 113 ohms.
  3. If master is off-line with satellites disconnected, check the master CPU PCB.
  4. Check connectors from master CPU to I/O Logic PCB.
  5. Replace I/O Logic PCB.
  6. Replace Master CPU PCB.

- **LOSING SATELLITE SETUP DATA**

  1. Check Satellite CPU voltage.
  2. Check Memory/Display PCB.
  3. Add external battery kit if necessary.
  4. Replace Satellite CPU PCB.

- **MASTER LOSING DATA**

  1. Make sure Master Memory PCB is firmly seated onto the Master CPU PCB.
  2. Check Master CPU battery voltage with power ON and Off.
  3. Replace battery if necessary.

- **MASTER EDITOR KEY SAYS *PING MASTER.***

  1. If Ping Master displays in place of Master Editor Key, go into the unit setup and select Calibrate/Install Unit. Under PLU options, highlight Protocol and select SmartTouch mode.

- ***ERROR COMMUNICATING WITH THE MASTER* DISPLAYS**

1. Is the Off-Line message displayed in the satellite weight field box?
2. If so, are other satellites on line?
3. If other satellites are OK, check the unit ID number. It must be set below 30.
4. Cycle power.
5. Check Satellite CPU PCB. Make sure TNET PCB is securely seated onto CPU.
6. Replace Satellite CPU PCB.

- ***MASTER EDITOR CURRENTLY UNAVAILABLE* DISPLAYS**

1. Is another satellites currently in the Master Editor? Only one satellite can use the Master editor at one time.
2. Is a host communicating with the master? If a host is communicating, the Master Editor will be unavailable until the host ends communications. If a host or modem is connected to the master, disconnect the cable and retry entering the Master Editor.
3. Cycle power and retry.

- ***UART ERROR* WHEN FLASHING SOFTWARE**

1. Power up 8360 first holding setup switch, then start FLASHPRO.
2. Check COM Port. The default in FLASHPRO is COM1. COM2 requires -COM2 at the command line.
3. Check wiring. This error may also display on some PC's if the cable isn't connected.

- **MASTER OFF-LINE WITH HOST**

1. Check cable to PC's COM Port. Make sure program is configured with correct COM port.
2. Check Host ID number in master. This must match the Scale ID at the host.
3. Cycle power to 8360 and retry.
4. Check cable to master. Is the host cable connected to the Master I/O Host Port 0 on the rear of unit (not the satellite Host/Aux port)? Check wiring. Look for opens or shorts.
5. Check baud rate/parity/stop bits in master and the host. They must match. (Note: Intelli-Net and DataBack use 7 bit, even parity, 1 stop bit as a default).

- **MASTER LINE PRINTER PRINTS GARBAGE**

  1. Check printer setup in Section 2. Incorrect parity, baud rate etc., can cause this symptom.
  2. Check printer Program Switch and Jumper settings. Match to the configuration at the master.

- **MASTER LINE PRINTER WON'T PRINT**

  1. Check printer On-Line status.
  2. Check printer setup and master printer configuration.
  3. Check flow control setting in master and printer.
  4. Check printer cable.

Testing the Power Supply

Place the power switch to the OFF position, then remove the rear cover. Place the power switch to ON, then check the +26 VDC output voltage from the Power Supply terminal strip between the terminals marked +V and -V, as shown in Figure 4.1. The acceptable output range for the +26 VDC is ± 0.50 VDC. The output voltage on the 14340600A Power Supply is preset at the factory and cannot be adjusted.

If the +26 VDC is extremely low, disconnect power to the scale. Next, disconnect connector P11 on the Mother PCB. This is the +26 VDC supply from the Power Supply terminal's +V and -V to J11 on the Mother PCB. Reconnect the scale to AC power, then recheck the +26 VDC output. If the voltage returns to normal, the Power Supply should be good, and the problem should be suspected as being in the Mother PCB or a component that connects to the Mother PCB. Refer to Section 4 Testing the Mother PCB to check the voltages on the Mother PCB.

If the output voltage is zero, check the 120 VAC input voltage to the terminals marked AC(L) and AC(N). If the correct AC input voltage is present, but there is no +26 VDC output, replace the Power Supply. If no voltage is present, check the AC input at the Line Cord Jack between the terminals marked N and L1. If 120 VAC is present at the jack, suspect a defective power switch. If no voltage is present at the Line Cord Jack, verify voltage is present at the AC wall outlet.

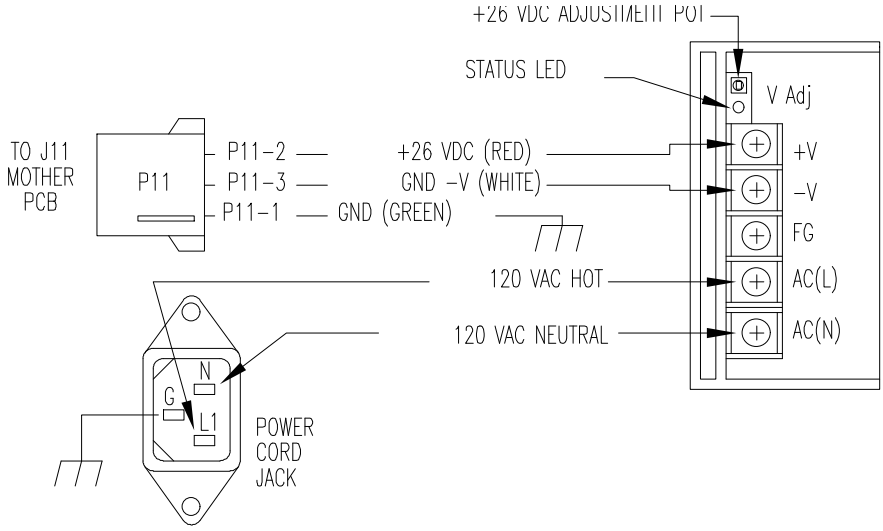
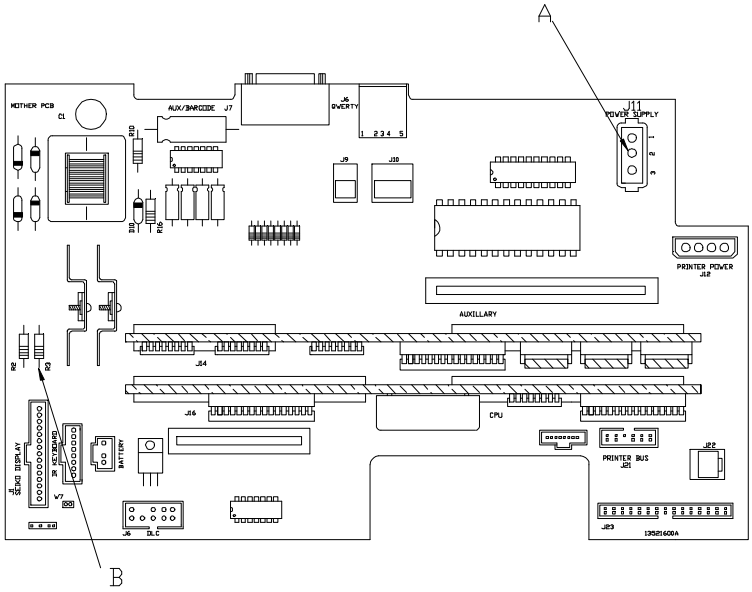


Figure 4.1 - Power Supply

Testing the Mother PCB

The Power Supply supplies a single +26 VDC to the Mother PCB at connector J11 on the Mother PCB. From this voltage, the Mother PCB steps-up or regulates the voltages shown below.

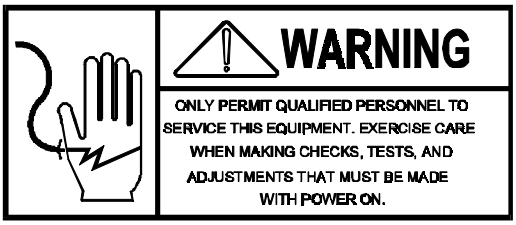


Mother PCB Test Points

A = +26 VDC Supply From
Mother PCB (J11-2 to Gnd)
B = R3 to Gnd +5VDC (Acceptable
Range +4.75 to +5.25 VDC)

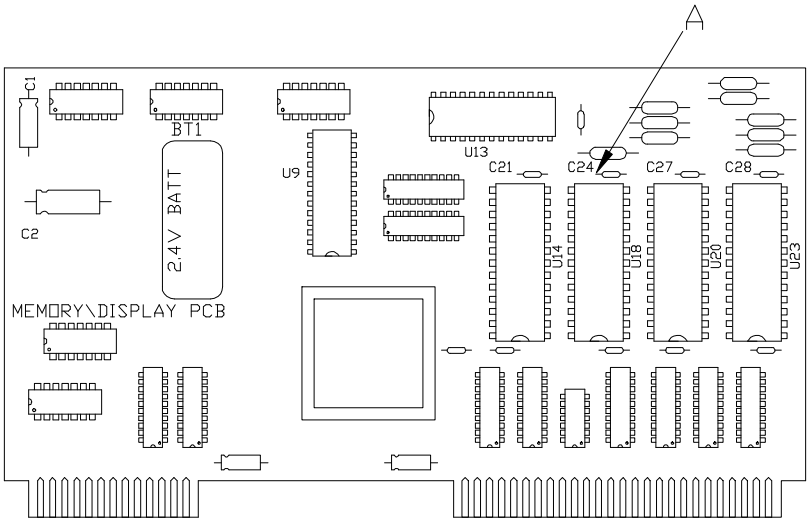
Figure 4.2

Testing the Satellite Memory/Display PCB



Certain Satellite Data is stored in battery backed RAM on the Memory/Display PCB. If the battery fails, setup data will be lost. This data includes label formats, backup PLU table, grade table, action message table, marquee messages, and the preset keys. The onboard battery is recharged only when the scale is powered up. The onboard battery is a rechargeable NiCad and may require more than 4 hours to recharge. Anytime a new PCB is installed, the unit will require 4 or more hours to initially charge the battery. A fully charged battery should hold data for 1 to 2 weeks. If a BRAM error is reported and cannot be cleared, suspect either a failed battery or the Memory/Display PCB as defective. The Memory/Display PCB also contains a driver chip for the LCD. Certain symptoms relating to the LCD may be isolated to the Memory/Display PCB. Note: If the Memory/Display PCB is replaced, the software must be reflashed using Flashpro and the appropriate software file. When replacing with a service parts replacement PCB, the unit will only display WAITING ON DOWNLOADER until the software has been installed.

The power ON operating voltage and battery backup voltage can be tested at C24 to Chassis Ground, as shown in Figure 4.3. The power ON voltage should range between +4.5 and +5.25 VDC. If the voltage is outside this range, or zero volts, check the voltages on the Mother PCB. The power OFF battery voltage should be +2.0 VDC minimum. If the voltage with power OFF is below +2.0 VDC, replace the Memory/Display PCB or add an external battery kit. When possible, the data can be backed up before replacing the PCB by using the Mettler Toledo DATABACK program and a PC. The data can then be restored after PCB replacement, or if the data has been lost, the backup/restore program can be used to restore data from a previous backup or from another 8360.

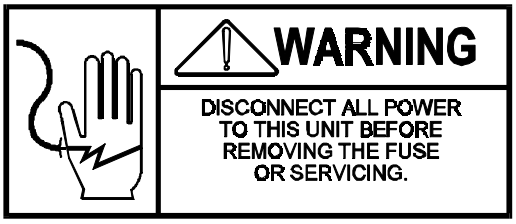


Satellite Memory/Display PCB

A = Test Point +5VDC
Power On Range between +4.5 to +5.25 VDC
Power Off Range between +2.0 to +2.6 VDC

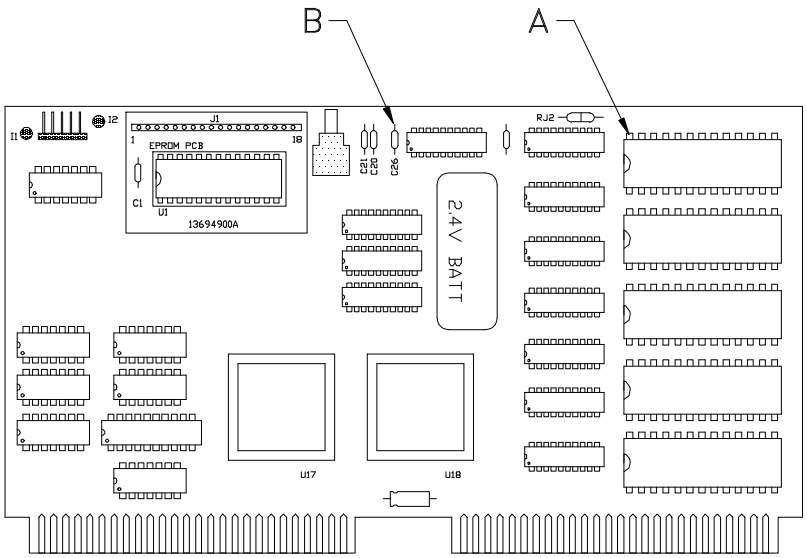
Figure 4.3

Testing the Satellite CPU PCB



Certain Satellite setup data is stored on the CPU PCB. This data includes calibration parameters, and other setup selections accessed in the Calibrate/Install Screens. If the onboard battery fails, the unit may lose all or part of the setup information. If the power supply voltage is not correct, the CPU will not operate correctly. The onboard battery is recharged only when the scale is powered up. The onboard battery is a rechargeable NiCad and may require more than 4 hours to recharge. Anytime a new PCB is installed, the unit will require 4 or more hours to initially charge the battery. A fully charged battery should hold data for 1 to 2 weeks.

First place the 8360 Power Switch to OFF. Check the voltage with AC power OFF at Pin 1 of IC U29 to Chassis Ground, as shown in Figure 4.4. If the power OFF voltage is below +2.0 VDC, replace the CPU PCB, or add an external battery kit. Next, place the power switch to ON. The power ON voltage acceptable range is +4.1 to +5.5 VDC. If the power ON voltage is outside the acceptable range, or zero, check the input voltage at C26 to ground. The acceptable range is 4.1 VDC to 5.5 VDC. If the voltage is outside the acceptable range or zero, check the voltages on the Mother PCB. If the +5 VDC input voltage at C26 is correct, but the power ON voltage at U29 is zero or outside the acceptable range, replace the Satellite CPU PCB. Note: If the Satellite CPU PCB is replaced, the software must be reflashed using Flashpro and the appropriate software file. When replacing with a service parts replacement PCB, the unit will only display WAITING ON DOWNLOADER until the software has been installed.



Satellite CPU PCB Test Points:

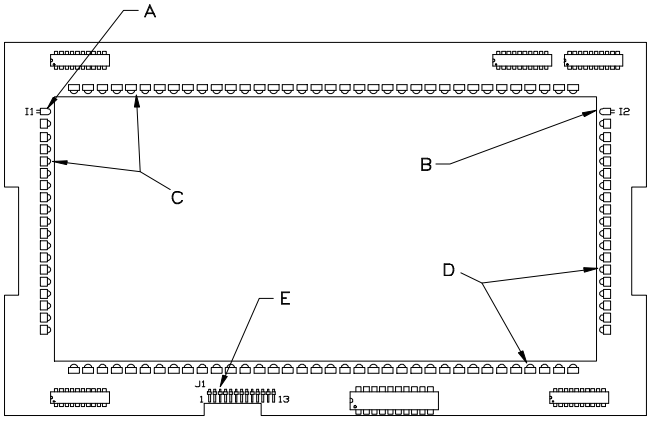
A = Pin 1 IC29 to Ground
Power ON = +4.65 VDC
Power OFF = +2.65 VDC
B = +5VDC C26 to Ground
Check with Power On.

Figure 4.4

Testing the IR Touchpanel PCB

Figure 4.5 shows a diagram of the IR (InfraRed) Touchpanel PCB (or IR PCB). Two status LED's (I1 and I2), located on the board can be used to verify operation of the Photo Transistor/IR Diode arrays. The status LED's can be seen through the dark panel of the touchscreen lens. The IR board is working properly when the LED's are ON with nothing blocking the transistors, and OFF when one or more are blocked.

Voltage on the IR board can be checked, as shown in Figure 4.5. When one of the phototransistors is blocked, the LED's will be OFF and the voltage should read in the range of +5 VDC. When not blocked, the LED's should be ON and the voltage should read approximately +1.86 VDC. If the +5 VDC supply from the Mother PCB is present at Pin 3, but the voltage at the LED is zero, or does not change, replace the IR PCB. If the LED's flicker, and the power supply voltage is good, replace the IR PCB.



IR Touchpanel PCB Test Points

A = Status LED I1
LED ON = +1.86 VDC
LED OFF = +5 VDC
B = Status LED I2
C = InfraRed Diode Array
D = Photo Transistor Array
E = Supply Voltage from Mother PCB
Pin J1-3 to J1-5 (Gnd) +5VDC

Figure 4.6

Testing the LCD Display

WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS, AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON.

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

The LCD Display uses a CCFT (Cold Cathode Fluorescent Tube) to light up the LCD from the rear to provide a readable display under low light conditions. Care must be taken when testing the high voltage display circuitry. There are three electrical parts to the LCD assembly: 1) LCD Panel, 2) CCFT, and 3) Inverter PCB.

The contrast is set by the voltage level sent from the Memory/Display PCB. The contrast can be adjusted by first touching the screen HELP area, then touching ADJUST CONTRAST.

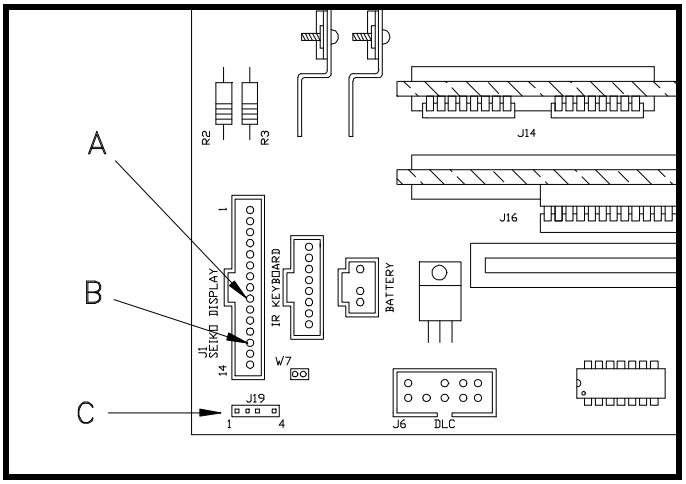


Figure 4.7 LCD/Backlight Test Points on Mother PCB

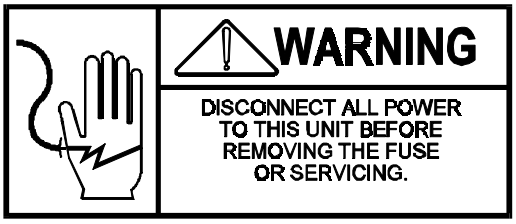
A +5VDC Supply from Mother PCB to LCD. Check voltage on Pin J1-9 to Ground. Acceptable range is +4.5 to +5.5 VDC.

B Contrast Adjustment for LCD. Check Pin J1-11 or 12 to Ground for -16 to -21 VDC depending on the contrast setting.

C If no keyboard activity is detected for approximately 15 minutes, a timer circuit will cause the +5 VDC control line to drop to +1.9 VDC which causes the Inverter PCB to lower the voltage output to the CCFT. Check the supply and control lines at J19. J19-1 to Ground should measure +5VDC supply to the Inverter. J19-4 is the control line. Measure J19-4 to ground as follows:

Dimmer Normal: +5 VDC, Dimmed Display: +1.9 VDC

Testing the LCD Backlight



The LCD Backlight is powered from a DC to AC Inverter PCB which converts a variable +5VDC input to a 380-VAC/40 kHz/5 mA output. (Note: Initial startup voltage is approximately 900 VAC). The Inverter PCB is located under the LCD Panel. If the Backlight is not working, and the voltages at the Dimmer PCB check good, the problem may be the Inverter PCB, or the CCFT (Cold Cathode Fluorescent Tube.) The output voltage from the Inverter to the CCFT cannot be checked using a standard volt-ohm meter, since the unloaded voltage is approximately 1100 VAC RMS. at 40 kHz. If the Inverter is suspect, it is best to plug in a new backlit display assembly, or a new CCFT which is available separately (P/N 14385100A). Figure 4.8 shows the LCD and CCFT.

To replace the CCFT, remove the LCD Panel from the cover assembly. Disconnect the CCFT voltage harness from the Inverter PCB. Remove the screws 1-4, as shown in Figure 4.8. Install new CCFT (5) reversing previous steps.

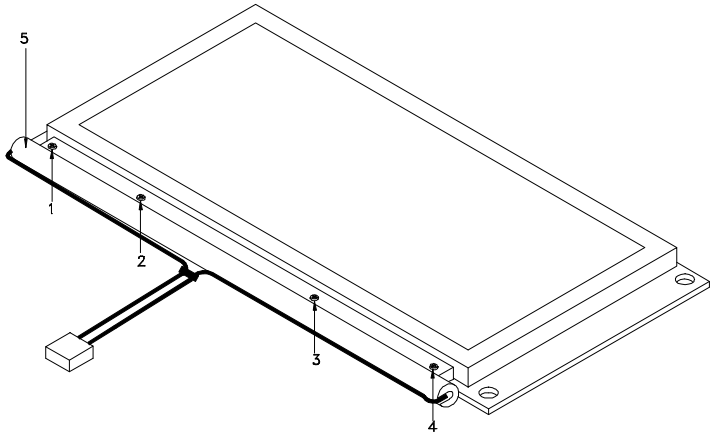
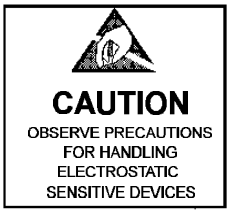


Figure 4.8 CCFT Replacement

Testing the Master CPU PCB



Voltages on the Master CPU can be checked at the points shown in Figure 4.9. The Master CPU and Master Memory PCB are battery backed using a 4.2 VDC Zinc Air battery mounted to the Master CPU PCB. This battery is not rechargeable and should retain data under normal conditions for up to two years with power off. The battery can be safely replaced without data loss. When the battery is removed, a SuperCap on both the Master CPU and Master Memory PCB will hold memory for approximately 12 hours. If the battery needs replacement, order a p/n 14548600A Replacement Battery. (Note: Although the battery can be changed without normally losing any data, it is wise to first backup the memory using DataBack.)

Note: The SuperCaps on the Master CPU and Master Memory PCB require up to four hours to initially charge. Do not remove a programmed Master Memory PCB from the Master CPU until the SuperCaps have charged or memory loss will occur.

A Check the +5VDC supply from the Mother PCB at J2-3 to Ground.

B The 4.2 VDC Zinc Air Battery (P/N 14167300A) is mounted to the rear of the PCB.

C The Battery Voltage should be +4.2 VDC with +3.8 Minimum.

D When the Battery is removed, the SuperCap will hold memory up to 12 hours.

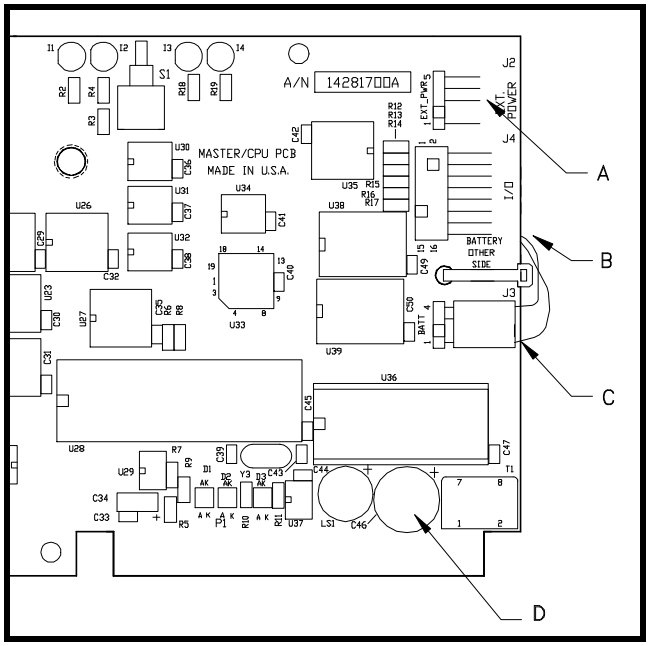


Figure 4.9

Master Memory PCB

The Master Memory PCB provides storage capacity for the PLU, Extra Text, Nutrition Facts, Graphics, and master setup data. The Master Memory PCB's are piggybacked to the Master CPU PCB. Power and battery backup is provided from the Master CPU PCB. The PCB is available in four configurations based on the amount of installed RAM memory. The Master Memory PCB has an onboard Supercap that will retain backup voltage for the memory for approximately 12 hours. The Supercap allows changing the Master CPU without losing data on the Memory PCB. Note: Although the battery on the Master CPU PCB can be changed without normally losing data, it is always wise to first backup the memory using DataBack if possible. The SuperCaps require up to four hours to initially charge. Do not remove a programmed Master Memory from the Master CPU until the SuperCaps have fully charged. Figure 4.10 shows the four Master Memory PCB's available.

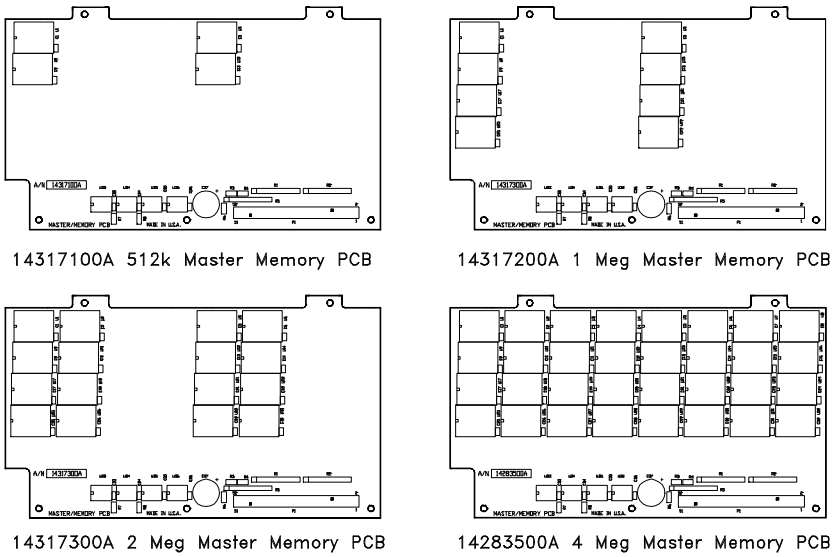


Figure 4.10 Master Memory PCB's

Testing the Satellite Memory PCB

WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS, AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON.

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

The Satellite Memory PCB is available with either 512k or 1Meg of RAM and are used by the Satellite for Extra Text and NutriFacts backup storage. The Satellite Memory PCB uses a 2.4 VDC battery for backup. This battery is a rechargeable NiCad battery and will generally hold data for 1 to 2 weeks. Recharge time is approximate four hours. Voltage test points are shown in Figure 4.11.

To test the Satellite Memory PCB Voltage, test at Pin 1 on any IC (A in Figure 4.11) to Ground. You should read the following voltages:

Power ON: +4.65 VDC
(+4.1 to +5.5 VDC)

Power OFF: +2.65 VDC
(+2.0 VDC Minimum)

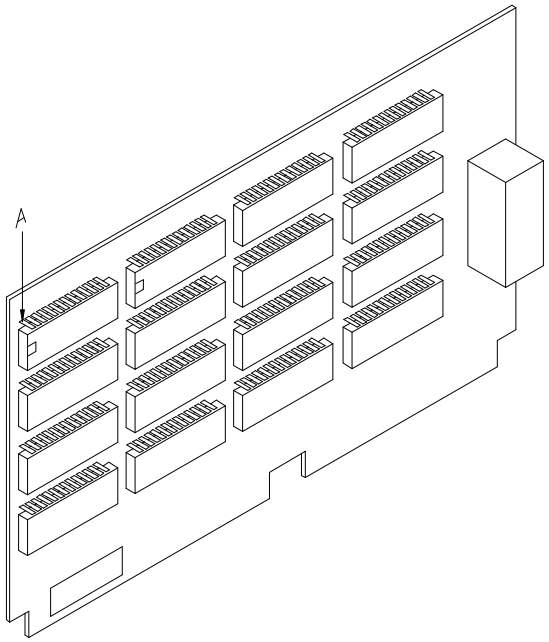


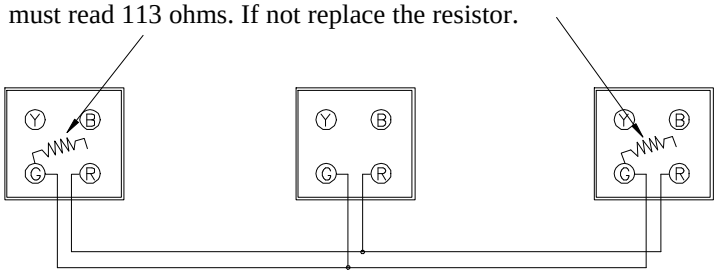
Figure 4.11 Satellite Memory PCB

Testing the TNET

When troubleshooting on/off line symptoms, the TNET wiring should be tested as shown in the following Test 1, Test 2, and Test 3. All scales must be disconnected from the phone jacks before making the tests. (Note: verify the cable is unshielded phone cable as specified in Section 3.

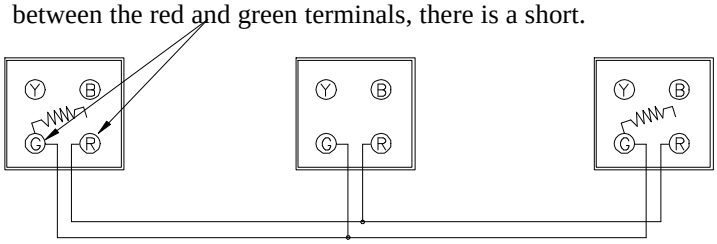
Test 1

Check both 12839300A terminating resistors with a meter. Remove resistor from one terminal before testing. Each resistor must read 113 ohms. If not replace the resistor.



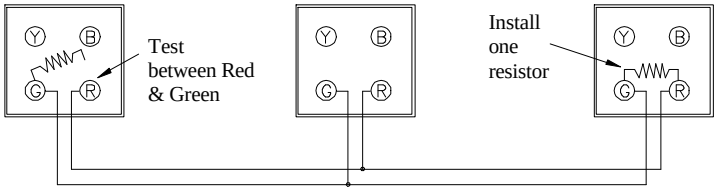
Test 2

While resistors are off, check across the ***Red*** and ***Green*** terminals for shorts. If there is continuity or low resistance between the red and green terminals, there is a short.



Test 3

Install one resistor only. Check the ohms between the ***Red*** and ***Green*** terminals at the end where the resistor is off. You should read between 113 and 180 ohms (depending on the cable length). Zero indicates a short in the cable or resistor. Very high or infinity resistance indicates a defective resistor or break in the cable.



5 Optional Accessories

External Replacement Battery

If the onboard battery on either the Satellite CPU or Memory/Display PCB fails, an external battery can be added to supply backup power to the board with the failed battery. To install the p\n 13393700A External Battery, remove the rear cover, the RFI Shield, and connect the battery to connector J4 on the Mother PCB, as shown in Figure 5.1.

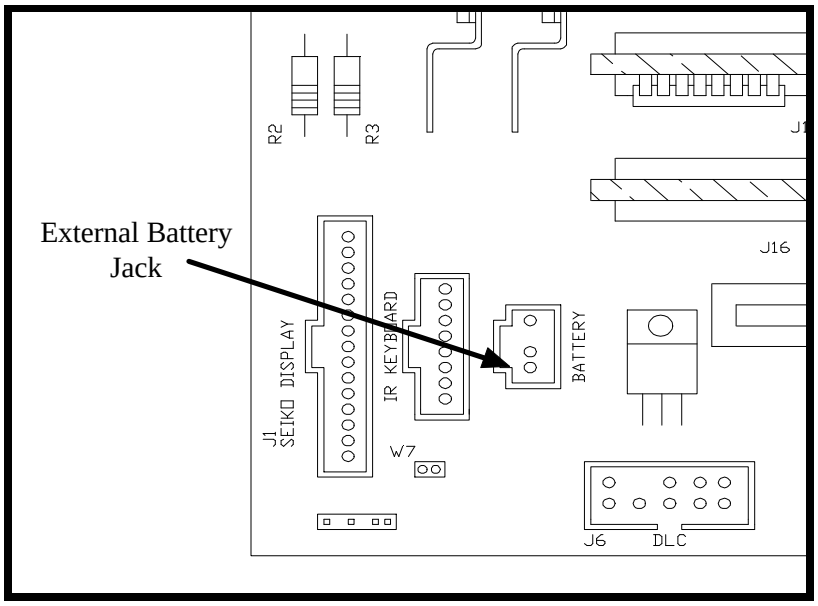


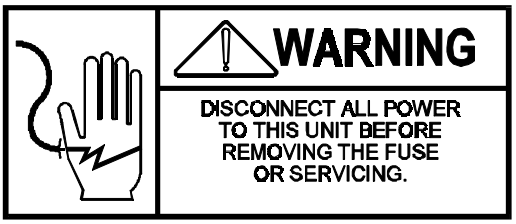
Figure 5.1

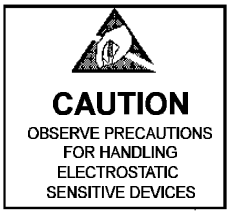
Satellite Memory PCB Kits

To backup Extra Text, NutriFacts, and Graphics, an optional Satellite Memory PCB is required. If the master on the system should encounter problems and go off-line, the standard satellite will back up 150 PLU records only. This kit cannot be installed in a **Smart***Touch* Master since they use the same slot in the Mother PCB. The Satellite Memory PCB kits are available with different amounts of RAM memory, as shown in Table 5-1.

KIT	RAM	Part Numbers
0977-0011	512 K	(*)14131400A or (*)14222800A
0977-0003	1 Meg	(*)13699300A or (*)14222900A

(*) May have letter prefix.
Table 5-1Memory Kit Numbers





To install the Satellite Memory PCB, first disconnect AC power from the outlet. Remove the Rear Cover and RFI shield. Install the PCB in the Mother PCB Slot marked ***Auxiliary*** next to the Power Supply.

Master Memory PCB Kits

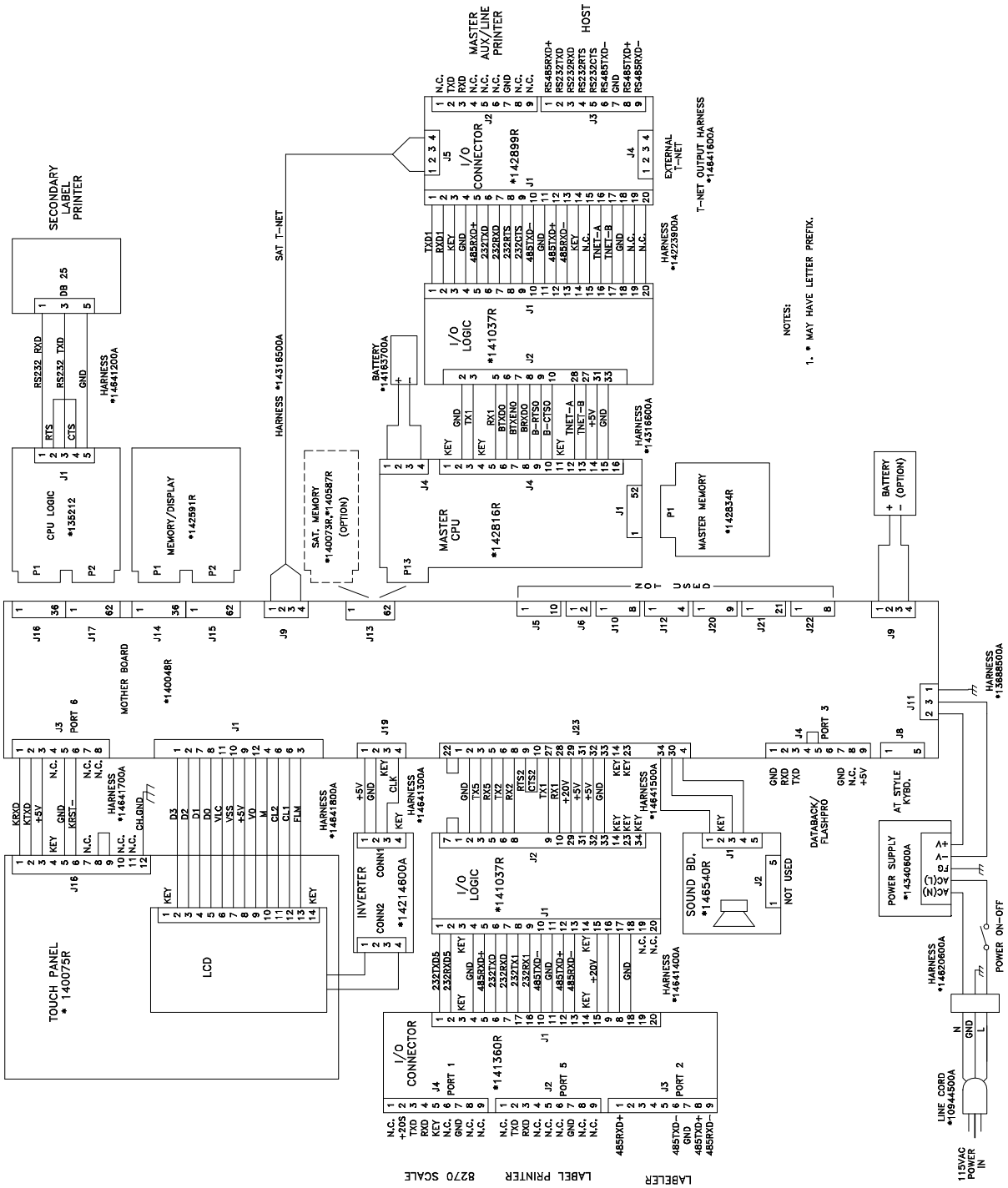
To add more memory to the **Smart***Touch* master, the Memory PCB must be replaced. The Master Memory PCB is installed as a piggyback board on the Master CPU. Kits are available depending on the amount of RAM memory required.

0977-0015	512 K	(*)14317100A
0977-0016	1 Meg	(*)14317200A
0977-0017	2 Meg	(*)14317300A
0977-0018	4 Meg	(*)14283500A

To upgrade the Master Memory perform the following steps.

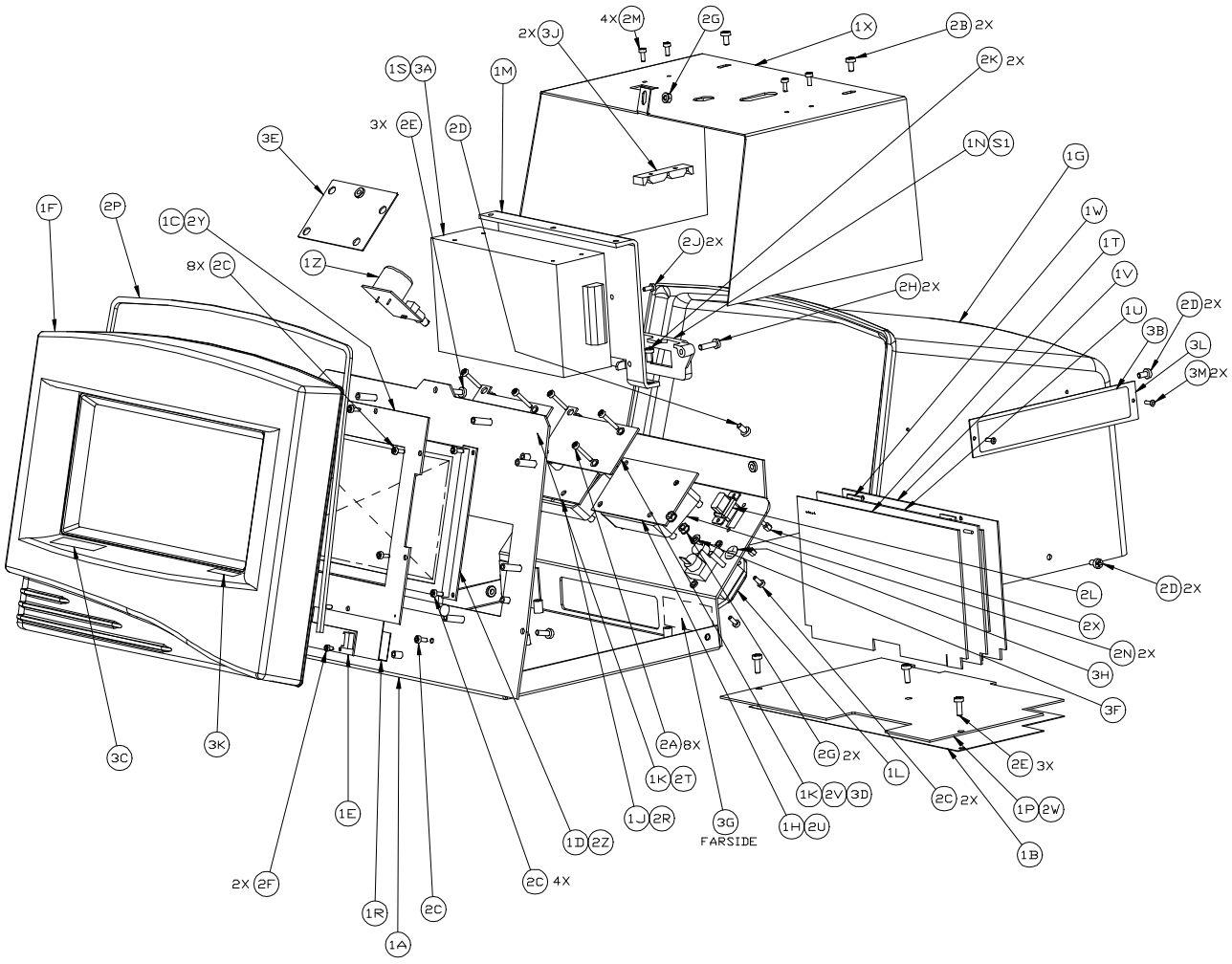
1. Backup the existing PLU/ET files from the Master using DataBack or Intelli-Net.
2. Disconnect the 8360 AC power cord from the outlet before proceeding.
3. Remove the rear cover and RFI shield.
4. Remove the Master CPU Assembly from J13 on the Mother PCB. Carefully separate the Master Memory PCB from the Master CPU PCB. The PCB's are held together with three plastic standoffs.
5. Install the new Master Memory PCB onto the Master CPU PCB. Carefully seat the Memory PCB onto J1 and seat the PCB standoffs. MAKE SURE THE CONNECTOR IS COMPLETELY SEATED BEFORE PROCEEDING.
6. Re-install the Master CPU PCB assembly in connector J13 on the Mother PCB.
7. Re-install the RFI and Rear covers. Remove the label with the same Factory Number as the kit from Label Set, (*)14226400A, and place the label near the data plate.
8. Apply power and verify the unit powers up correctly.
9. Enter the Master Editor and select ***Config*** and ***Initialize Ram.***
10. Restore previously backed-up PLU/ET files or reconfigure the master.

6 Interconnecting Diagram



7 Replacement Parts

8360 Illustration



8360 Parts List

COMMON PARTS			
SYM	QTY	PART NUMBER	DESCRIPTION
1A	1	14640400A	CHASSIS ASSEMBLY - CONTROLLER
1B	1	A13825800A	INSULATOR, MOTHER PCB
1C	1	D13538300A	PCB ASSY, IR TOUCH PANEL
1D	1	14214500A	LCD PANEL, BACKLIT
1E	1	14214600A	PCB ASSEMBLY, INVERTER
1F	1	14640200A	FRONT PANEL ASSEMBLY
1G	1	A14640100A	REAR COVER
1J	1	A14136100A	PCB ASSY, I/O CONN (SATELLITE)
1K	1	14662500A	PCB ASSEMBLY, I/O LOGIC
1L	1	A14620600A	HARNESS, AC POWER IN
1M	1	13502300A	BRACKET, POWER SUPPLY
1N	1	13503100A	COVER, SWITCH/CONNECTOR
(2) 1P	1	A14340900A	PCB ASSEMBLY, MOTHER
1R	1	14247700A	INSULATOR ASSEMBLY, INVERTER
1S	1	14340600A	POWER SUPPLY, 24VDC, 4.0A
1T	1	A14259900A	PCB ASSEMBLY, CPU
1U	1	14260200A	PCB ASSEMBLY, MEMORY DISPLAY
1X	1	14642500A	SHIELD/SUPPORT
1Z	1	14654100A	PCB ASSEMBLY, BEEPER
2A	4	R0524600A	SCREW,M3X20 CROSS PAN HD
2B	2	R00848050	SCREW,8-32X5/16 PHILLIPS RD HD
2C	15	R0524700A	SCREW,M3X8 CROSS PAN HD
2D	4	R0520400A	SCREW,M4X8 CROSS PAN HD - SS
2E	6	R0337700A	SCREW,M4X12 CROSS FILLISTER HD
2F	2	R01862050	SCREW,4-40X3/16 PHILLIPS PAN HD
2G	3	R0519600A	HEX NUT, M4 KEPS
2H	2	R01881130	SCREW,8-32X5/8 PHILLIPS PAN HD
2J	2	R0374900A	SCREW,M3X8 CROSS PAN HD W/LW
2K	2	R0516800A	SCREW,M4X8 CROSS PAN HD
*	4	11133700A	STICK-ON FOOT, .88 DIA.
2L	1	14641200A	HARNESS, PRINTER 2
2M	4	R0511200A	SCREW, M3 X 8 TAPTITE
2N	1	A14641100A	SHROUD, CONNECTOR
2P	30"	14641000A	GASKET, 3/16 X 1/8
2R	1	14641400A	HARNESS, I/O LOGIC - SATELLITE
2S	1	14641300A	HARNESS, INVERTER PCB
2T	1	14641500A	HARNESS, BEEPER/SATELLITE I/O
2W	1	14641600A	HARNESS, T-NET OUTPUT
2X	1	10856800A	SCREW LOCK KIT
2Y	1	14641700A	HARNESS, IR PCB
2Z	1	14641800A	HARNESS, LCD TOUCHSCREEN
3A	1	A13688500A	HARNESS, DC POWER OUT
3B	1	14397300A	DATA LABEL
3C	1	14643300A	LABEL, CAPACITY 50LB/20KG
3F	1	R00589130	LOCKWASHER, #8 INT. TOOTH
3G	1	12699700A	LABEL, WARNING
3H	1	12943000A	LABEL, GROUND
3J	2	14640700A	GUIDE, PCB
3K	1	10756000A	LABEL, PREPACK ONLY
3L	1	14643500A	MOUNTING PLATE, DATA LABEL
3M	2	R0393000A	RIVET, BLIND 3/32
S1	1	13688900A	SWITCH, ROCKER SPST 10A
*	1	A12745800A	QUALITY FEEDBACK CARD
*	1	12716300A	PHONE JACK, WALL MOUNT
*	1	12716500A	CABLE, PHONE
*	2	R0510000A	SCREW, M4 X 10 DRILLED HD.
	REF.	146434R	CUSTOMER DIMENSIONS - 8360
	REF.	146409R	INTERCONNECT DIAGRAM - 8360
	REF.	146423R	EMBOSSING INFORMATION - 8360

ADD FOR MASTER RAMS 8360-1XXX-000			
SYM	QTY	PART NUMBER	DESCRIPTION
1H	1	14290000A	PCB ASSY, I/O CONN (MASTER)
1K	1	14662500A	PCB ASSEMBLY, I/O LOGIC
1V	1	B14281700A	PCB ASSEMBLY, MASTER CPU
2U	1	14223900A	HARNESS, I/O LOGIC - MASTER
2V	1	B14316600A	HARNESS, MASTER I/O
2A	4	R0524600A	SCREW,M3X20 CROSS PAN HD
2N	1	A14641100A	SHROUD, CONNECTOR
3D	1	14316500A	HARNESS, T-NET JUMPER
*	2	12839300A	RESISTOR, 113 OHM,1/4W,MF

ADD FOR SATELLITE RAMS 8360-2XXX-000			
SYM	QTY	PART NUMBER	DESCRIPTION
3E	1	14642400A	COVER PLATE, I/O CONNECTOR
2D	1	R0520400A	SCREW,M4X8 CROSS PAN HD - SS

ADD FOR LINECORD				
SYM	QTY	PART NUMBER	DESCRIPTION	FACTORY NO.
*	1	10386700A	CORDSET, STRAIGHT - NO. AMERICA	8360-XX1X-000
*	1	14235600A	CORDSET, STRAIGHT - CONT. EURO.	8360-XX2X-000
*	1	A13894600A	CORDSET, STRAIGHT - U.K.	8360-XX3X-000
*	1	14235700A	CORDSET, STRAIGHT - AUSTRALIA	8360-XX4X-000

ADD FOR MASTER MEMORY CAPACITY				
SYM	QTY	PART NUMBER	DESCRIPTION	FACTORY NO.
1W	1	14317100A	PCB ASSY, MASTER MEMORY - 512K	8360-1XX1-000
1W	1	14317200A	PCB ASSY, MASTER MEMORY - 1M	8360-1XX2-000
1W	1	14317300A	PCB ASSY, MASTER MEMORY - 2M	8360-1XX3-000
1W	1	14283500A	PCB ASSY, MASTER MEMORY - 4M	8360-1XX4-000

ADD FOR PRODUCT LITERATURE				
SYM	QTY	PART NUMBER	DESCRIPTION	FACTORY NO.
*	1	14642100A	USER'S GUIDE - 8360	8360-X1XX-000
*	0	14642200A	TECHNICAL MANUAL - 8360	

ADD FOR SOFTWARE/PROGRAM				
SYM	QTY	PART NUMBER	DESCRIPTION	FACTORY NO.
(3) *	0	146290R	SAT. SOFTWARE, V1.0 - ENGLISH	8360-X1XX-000
(3) *	0	145237R	MASTER SOFTWARE, V3.0 - ENGLISH	8360-11XX-000
*	1	14728100A	DISK, PROGRAMMED - ENGLISH	8360-X1XX-000

NOTES:
1. * INDICATES ITEMS TO BE PACKED WITH UNIT.
2. INVERSE VIDEO JUMPER, W7, MUST BE ON BOTH PINS.
3. SOFTWARE TO BE DOWN LOADED INTO FLASH MEMORY AT FINAL ASSEMBLY.
4. ASSEMBLE LINE FILTER GROUND WIRE TO CHASSIS STUD FIRST ON TOP OF LOCKWASHER-3F. SECURE WITH KEPS NUT-2G. ASSEMBLE GROUND WIRE FROM J11-POWER SUPPLY ON TOP OF FIRST NUT AND SECURE WITH SECOND KEPS NUT-2G.

METTLER TOLEDO
Scales & Service
350 West Wilson Bridge Road
Worthington, Ohio 43085-2273

P/N: 14642200A

8/95

14642200A