# C-Collect®
## by CTB Inc.

# Bird Scale Control
## Installation & Operator's Instruction Manual

# CTB Inc. Warranty

**CTB Inc.** warrants each new C-Collect® product manufactured by it to be free from defects in material or workmanship for one year from and after the date of initial installation by or for the original purchaser. If such a defect is found by the Manufacturer to exist within the one-year period, the Manufacturer will, at its option, (a) repair or replace such product free of charge, F.O.B. the factory of manufacture, or (b) refund to the original purchaser the original purchase price, in lieu of such repair or replacement. Labor costs associated with the replacement or repair of the product are not covered by the Manufacturer.

## Conditions and Limitations

1. The product must be installed by and operated in accordance with the instructions published by the **Manufacturer or Warranty will be void**.

2. Warranty is void if **all components** of the system are not original equipment supplied by the **Manufacturer**.

3. This product must be purchased from and installed by an authorized distributor or certified representative thereof or the Warranty will be void.

4. Malfunctions or failure resulting from misuse, abuse, negligence, alteration, accident, or lack of proper maintenance shall not be considered defects under the Warranty.

5. This Warranty applies only to systems for the care of poultry and livestock. Other applications in industry or commerce are not covered by this Warranty.

The **Manufacturer** shall not be liable for any **Consequential or Special Damage** which any purchaser may suffer or claim to suffer as a result of any defect in the product. **"Consequential"** or **"Special Damages"** *as used herein include, but are not limited to, lost or damaged products or goods, costs of transportation, lost sales, lost orders, lost income, increased overhead, labor and incidental costs and operational inefficiencies.*

THIS WARRANTY CONSTITUTES THE MANUFACTURER'S ENTIRE AND SOLE WARRANTY AND THIS MANUFACTURER EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, INCLUDING, BUT NOT LIMITED TO, EXPRESS AND IMPLIED WARRANTIES AS TO MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSES SOLD AND DESCRIPTION OR QUALITY OF THE PRODUCT FURNISHED HEREUNDER.

C-Collect® Distributors are not authorized to modify or extend the terms and conditions of this Warranty in any manner or to offer or grant any other warranties for C-Collect® products in addition to those terms expressly stated above. An officer of CTB, Inc. must authorize any exceptions to this Warranty in writing. The Manufacturer reserves the right to change models and specifications at any time without notice or obligation to improve previous models.

Effective: **April 2006**

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**Thank You**

The employees of CTB Inc. would like to thank your for your recent C-Collect® purchase. If a problem should arise, your C-Collect® distributor can supply the necessary information to help you.

# Contents

# General

## Support Information

The C-Collect® Bird Scale is used to calculate the Weight of Poultry at different stages of growth. Using this equipment for any other purpose or in a way not within the operating recommendations specified in this manual will void the warranty and may cause personal injury.

This manual is designed to provide comprehensive planning, installation, safety, operation, and parts listing information. The Table of Contents provides a convenient overview of the information in this manual. The Table of Contents also specifies which pages contain information for the sales personnel, installer, and consumer (end user).

# Safety Information

**Caution, Warning and Danger Decals** have been placed on the equipment to warn of potentially dangerous situations. Care should be taken to keep this information intact and easy to read at all times. Replace missing or damaged safety decals immediately.

Using the equipment for purposes other than specified in this manual may cause personal injury and/or damage to the equipment.

### Follow Safety Instructions

Carefully read all safety messages in this manual and on your equipment safety signs. Follow recommended precautions and safe operating practices.

Keep safety signs in good condition. Replace missing or damaged safety signs.

### Decal Descriptions

**DANGER: Electrical Hazard**



Disconnect electrical power before inspecting or servicing equipment unless maintenance instructions specifically state otherwise.
Ground all electrical equipment for safety.

All electrical wiring must be done by a qualified electrician in accordance with local and national electric codes.

Ground all non-current carrying metal parts to guard against electrical shock.

With the exception of motor overload protection, electrical disconnects and over current protection are not supplied with the equipment.

# Introduction to Control

Here is a diagram to help you get more familiar with the various parts of your Bird Scale Control.
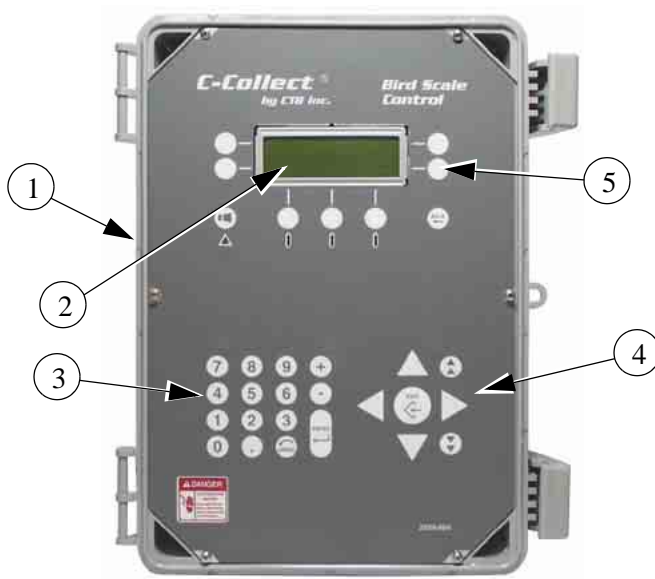


| Item | Description |
|------|-------------|
| 1 | Bird Scale Control |
| 2 | Viewing Screen |
| 3 | Numeric Key Pad |
| 4 | Navigation Keys |
| 5 | Soft Keys |

**Figure 1.  Various Parts**
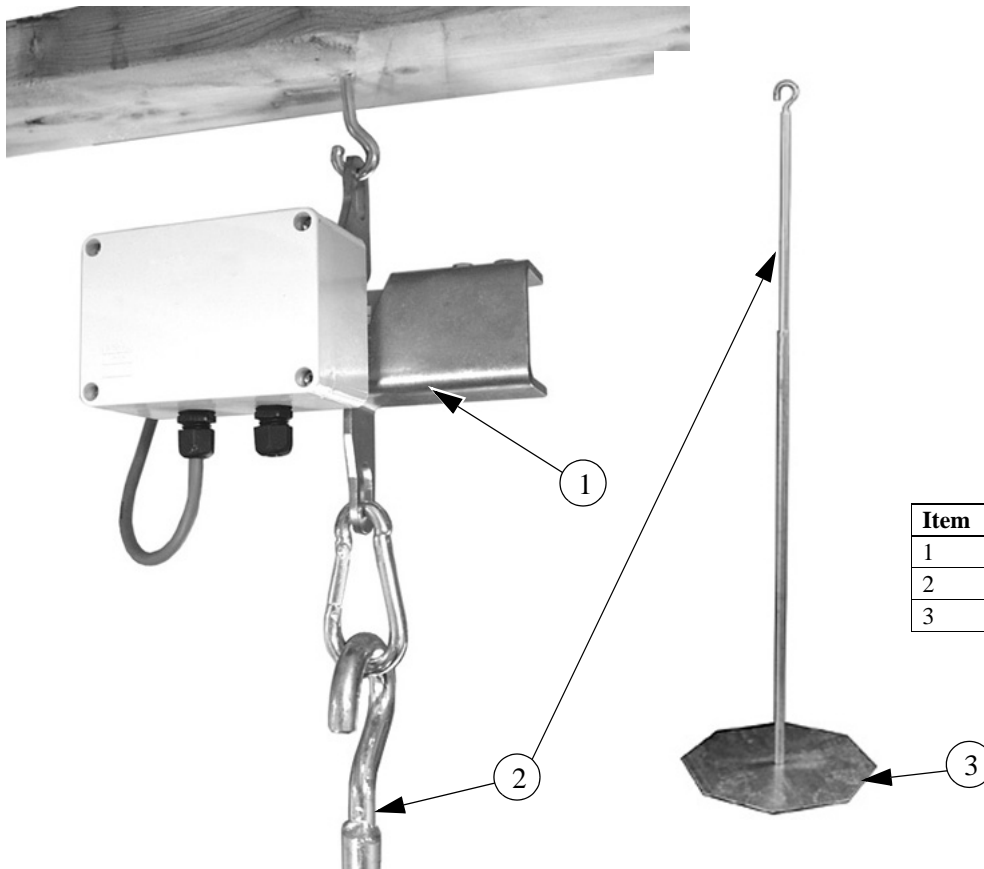


| Item | Description |
|------|-------------|
| 1 | Load Cell |
| 2 | Bird Platform Support |
| 3 | Bird Weighing Platform |

**Figure 2.  Various Parts**

### Viewing Screen
The viewing Screen has a display that has up to four lines. What is viewed on the screen is determined by the soft key located on each side, and at the bottom of the screen.

### Soft Keys
The Soft Key determines what subject you are viewing. Each Soft Key can have multiple subjects as you move within the screen. The Back Key, **(Item 1, Figure 3),** takes you back to the previous screen. If an Alarm is present you press the Alarm Key, **(Item 2, Figure 3),** to remove the Alarm indication from the screen.

### Edit Key
If you are in an editable screen, you press the Edit Key, **(Item 3, Figure 3),** to highlight the cursor and edit a setting.

### Enter Key
The Enter Key, **(Item 4, Figure 3)**, is used after you have changed a setting. The change will not be accepted without pressing the Enter Key after making the change.

### Navigation Keys
The Navigation Keys, **(Item 5, Figure 3),** will move the cursor around the screen. Use the Up, Down, and Side arrows to move the cursor in the appropriate direction. These Keys also allow you to scroll up or down within a screen. To scroll rapidly, use the scroll up and down Keys. **(Item 6, Figure 3)**.

### Numeric Keypad
The Numeric Keypad is used to enter a number value in the setup. Existing numbers can also be increased or decreased by using the plus and minus keys **(Item 7, Figure 3)**. As a reminder, any changes that are entered must be followed by the enter key.
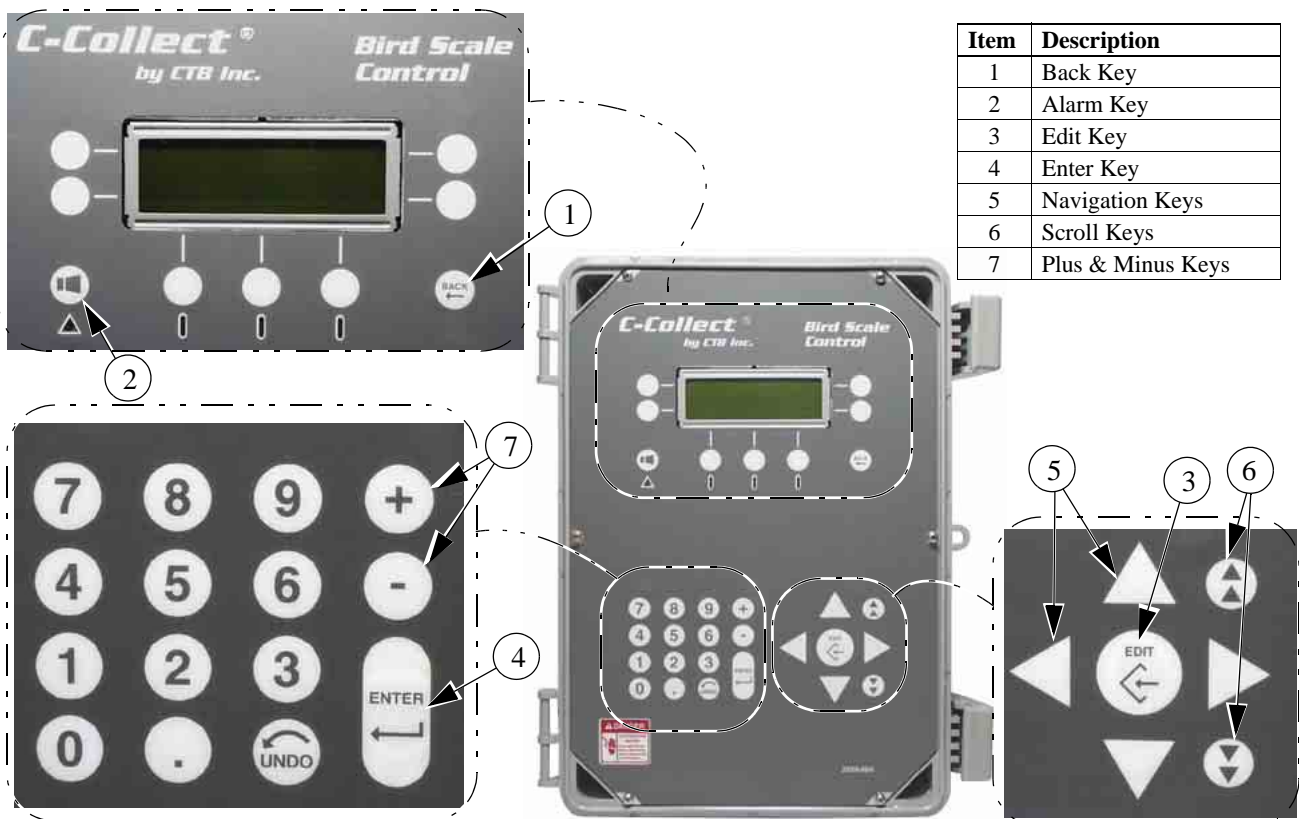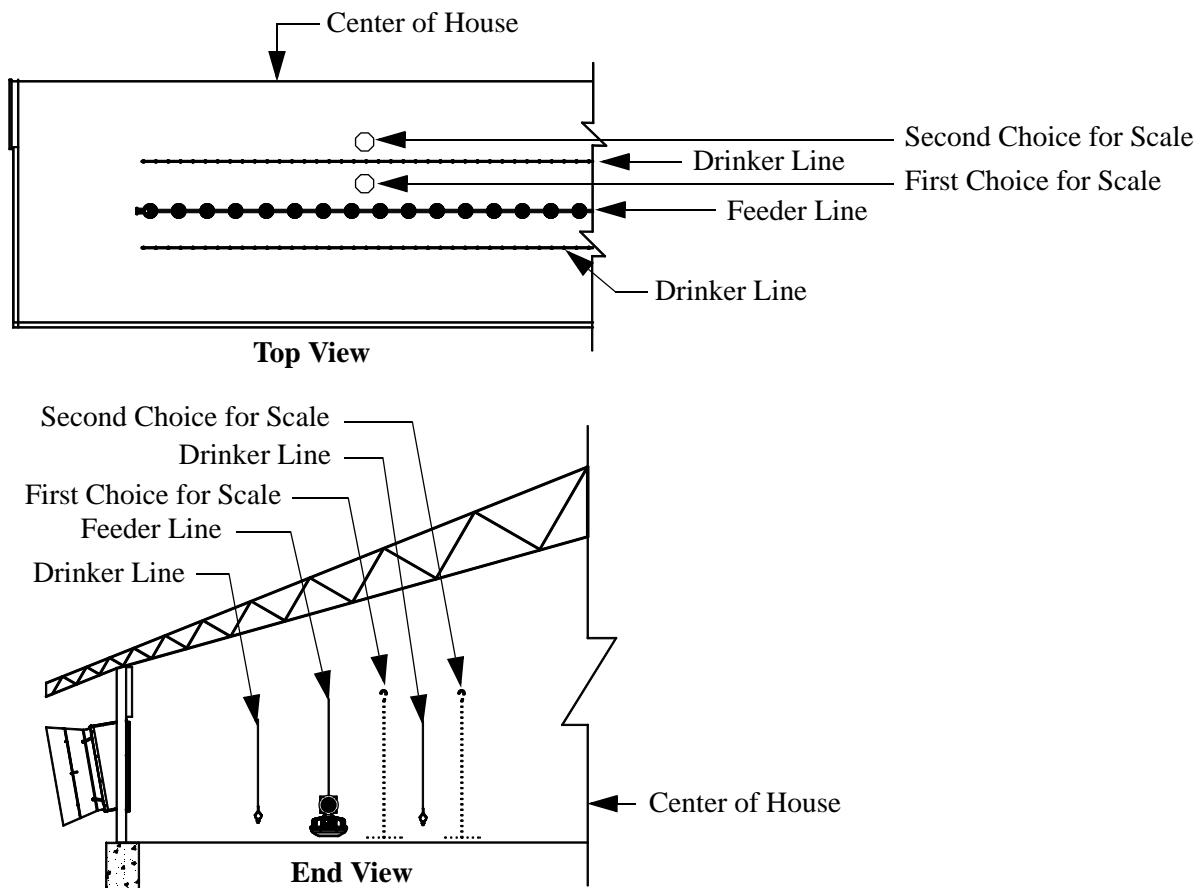
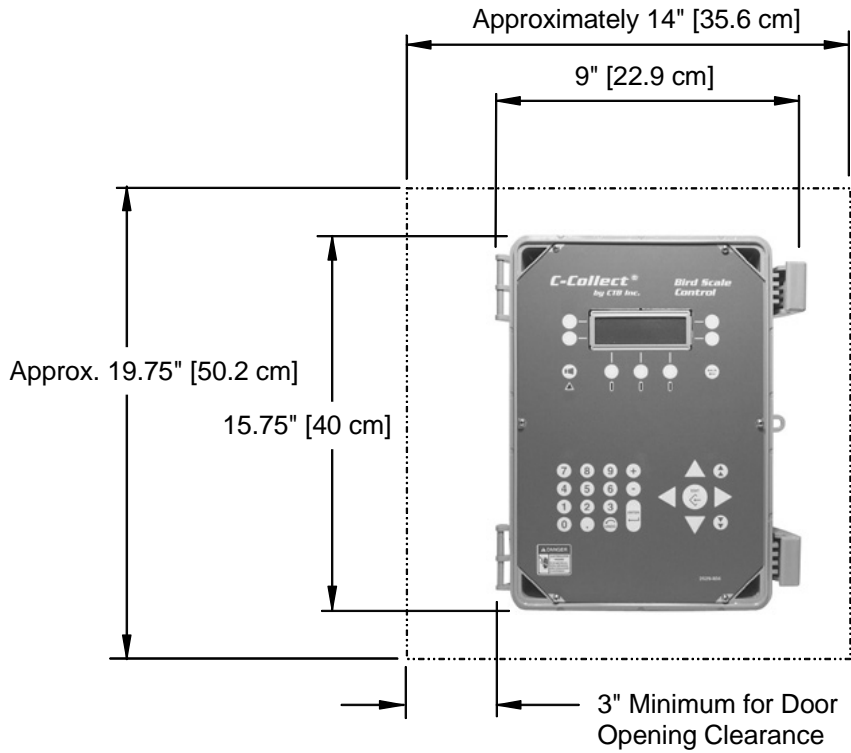| Item | Description |
|------|-------------|
| 1 | Back Key |
| 2 | Alarm Key |
| 3 | Edit Key |
| 4 | Enter Key |
| 5 | Navigation Keys |
| 6 | Scroll Keys |
| 7 | Plus & Minus Keys |



**Figure 3.  Keys**

# Installation

- Either 110V or 220V can be used. We Recommend 220V wherever possible.
- When possible, the Control needs to be wired to its own separate circuit breaker.
- Mount the Control in a dry, warm area with the screen at a comfortable eye level with a minimum of glare.
- The Control needs to be mounted firmly to the wall using the screw holes located in the back of the box.
- Ground the Control properly. Refer to local code requirements.
- Use water tight plastic connectors in the bottom of the box where the power and scale wires enter the box.
- To avoid damage from voltage spikes (lightning), the use of surge suppression is strongly recommended.
- Do not run scale wires together with incoming power wires.
- Wire to the Load Cells must be six-conductor, 22 gauge, with a shield. There is 250 feet of wire included with each pair of scales.
- The scales can only be mounted a maximum of 120 feet from the Control. If you have to exceed this distance then an SJB (signal amplifier) must be used. See the wiring diagrams for wiring these installations.
- In a house with a central workroom and half house brooding, position the scales equal distance from the center of the house. One in the brood end, and one in the non-brood end.
- Position the scales between the inner most feeder and drinker lines if the space permits. If there is not enough room between the lines for easy operation, then place the scales inside the inner most line **(See Figure 4)**.

Center of House

Second Choice for Scale
Drinker Line
First Choice for Scale
Feeder Line
Drinker Line

**Top View**

Second Choice for Scale
Drinker Line
First Choice for Scale
Feeder Line
Drinker Line
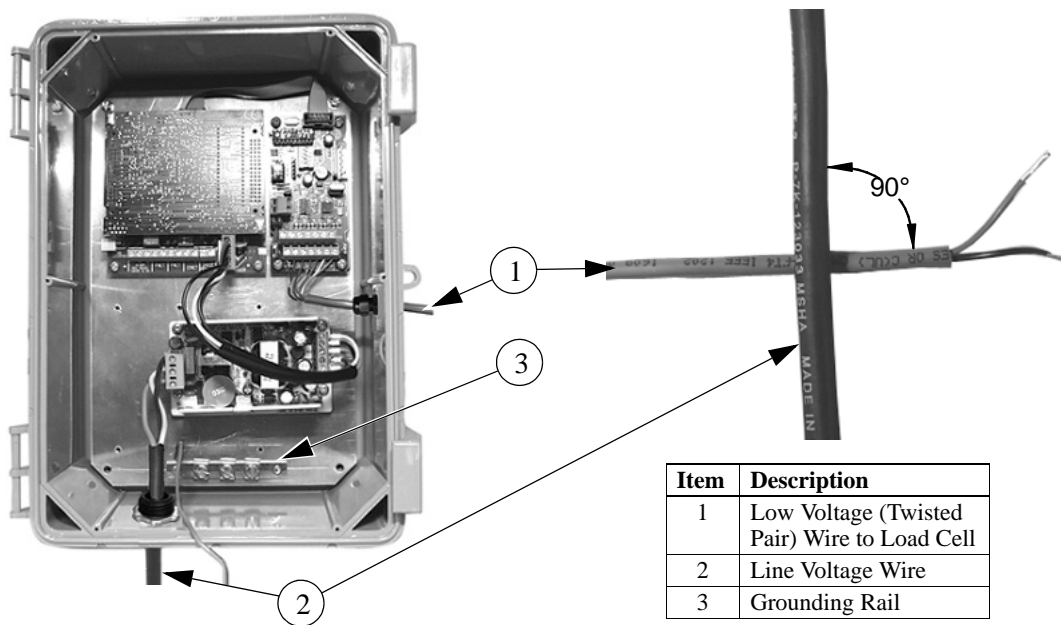
Center of House

**End View**

- When running the cable from the scales, make sure you do not run them with other wires, and if you have to cross a wire carrying line voltage, make sure you do it at a 90 degree angle.
- Use the provided hardware to hang the scales. In a steel truss house, the cup hook may have to be replaced with a hook with threaded bolt end.

## Mounting the Control

Approximately 14" [35.6 cm]

9" [22.9 cm]

Approx. 19.75" [50.2 cm]

15.75" [40 cm]

3" Minimum for Door
Opening Clearance

## Wiring the Control

When wiring the Bird Scale Control it is recommended that the line voltage wires be brought into the bottom of the Control Box and the low voltage wires (Wires to the Load Cell) be brought in the side of the Control Box (See Figure below). When routing the Twisted Pair Wire be sure to keep it a minimum of 12"(305mm) away from line voltage wiring. If there is a need for the Twisted Pair Wire to cross line voltage wires cross them at a 90° angle to each other as shown.

90°

| Item | Description |
|------|-------------|
| 1 | Low Voltage (Twisted Pair) Wire to Load Cell |
| 2 | Line Voltage Wire |
| 3 | Grounding Rail |

# Control Setup

1.Make sure you are in the Main Screen by pressing the Back Key once.
2.Press the Back Key five times rapidly.The following screen should
appear.:.

| | |
|---|---|
| Setup | System |

3.Press the Soft Key next to <u>System</u>. The following screen should appear:

| | |
|---|---|
| General | IO |
| Communication | |

4.Press the Soft Key next to <u>General</u>. The following screen should appear:

| General | |
|---|---|
| Date | 27-05-2006 |
| Time | 14:19 |
| **Clock Type** | **24H** |

•Set the correct date (day, month, year format), time and clock type by using the edit key, the +
and - Keys or the numeric keypad. Press enter after every change.
5.Press the back key.
6.Press the Soft Key next to Communication. The following screen should appear:

| Communication | |
|---|---|
| Computernumber | 1 |
| Messages | 0 |
| Last failure | 0 |

•Enter the correct Control number in the Computernumber line.
7.Press the Back Key twice.
8.Select <u>Setup</u>.
9. Select <u>Setup</u> again. The following Screen should appear:

| House number | |
|---|---|
| Nbr. of scales | 1 |
| Address   Scale descr. | |
| 0.   1     SCALE--1 | |

10.By using the Edit Key and the Down Arrow, fill in the requested information. **Reminder:** *Press the
Enter Key after every change*.
    • Insert the house number by using either the Plus or Minus keys, or the Number key.
    • Indicate the number of scales.
    • The address and scale description will already be inserted for installations less than 120 ft. If
    one scale is positioned further than 120 ft, then an SJB will have to be used on scale 2. If this is
    the case, the scale needs to be addressed as **"1.1"**.

| Scale Addressing | | |
|---|---|---|
| | **Scale 1** | **Scale 2** |
| No SJB | 0.1 | 0.2 |
| 1 SJB | 0.1 | 1.1 |
| 2 SJB | 1.1 | 2.1 |

    • By using the Plus and Minus keys choose between "lbs" and "grams" for weight read out.
11.Press the "Back" key.
12.Select <u>Uniformity</u>.

13. By using the Edit Key and the Plus and Minus keys, choose between 10% or 15%. This indicates the variance from the average weight you wish to include in the uniformity. The recommended variance for broilers is 10%; turkeys is 15%.

14. Press the "Back" key.

15. Select <u>Calibration</u>

16. To zero the scale, make sure there is nothing on the platform. Make sure the display reads Scale, and press the key under the viewing screen that is marked "CAL". This will zero the scale, and the screen will read
"Calibration Done".

17. Press the same key that is now marked "Back". The readout should be 0 or very close to 0.

18. Press the key marked "SPAN"

19. Place a 5 lb. weight (included with the Kit) on the scale you are calibrating.

20. Change "Cal. Weight" to read 5.00 and press Enter.

21. Press the key marked "CAL" and you should get a message that reads "Calibration Done". If not, repeat steps 20 and 21.

22. Press the key marked "Back" and both the Cal. Weight and the Weight Readout numbers should be the same.

23. Press the Soft Key next to Scale 1. Scale 2 should now appear in the display.

24. Repeat steps 17 through 22 for scale 2.

25. Press the "Back" key three times to return to the Main Screen.

# Control Operation

**Please refer to the beginning of this manual for an explanation for the front of the Control and the use of the Keys.**

### Menu Options

1. Use the "Back" Key to return to the Main Screen...................................................................

2. Select <u>Weight</u> and the following screen will appear:

| Weight | Scale readout |
|--------|---------------|
| History | Other.. |



Button 1 ⎯⎯ Button 2 ⎯⎯ ⎯ Button 3
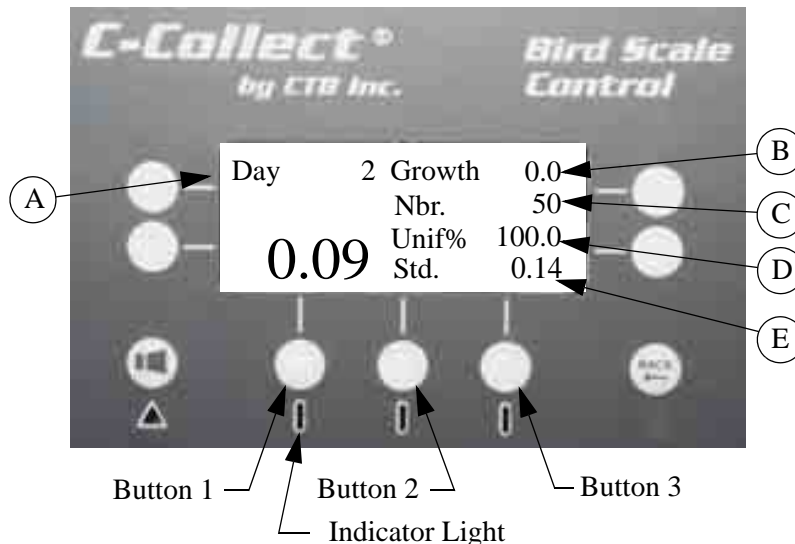
⎿⎯ Indicator Light

Push the appropriate soft keys to toggle between House Weight, Scale 1 Weight, and Scale 2 Weight. Pushing **Button 1** gives the information for House Weight, **Button 2** for Scale 1 Weight, and **Button 3** for Scale 2 Weight **(See Figure above)**. The **Indicator Light** will light up red under the active Button.

A. **Day**- The current flock day number.

B. **Growth**- The daily weight increase per animal since midnight.

C. **Nbr**.- The number of weights recorded in the past rolling 24 hours.

D. **Unif%**- The percentage of all measurements that fall within 10% (or 15%) of the average weight.

E. **Std**.- That day's assigned standard weight.

Press the "Back" Key.

3. Select <u>History</u> and the screen will appear like this:



A. **Day/Week**- The day (or week) number of the current cycle. Pressing this Key will change it from day to week.

B. **Wght**- The bird weight on that day (or week).

C. **Std**- The anticipated weight for that day (or week) as indicated on the <u>Growth std</u> table.

D. **Growth**- The weight increases per bird on that day (week).

Select the tab at the bottom of the screen for uniformity (UNIF), and the screen appears like this:

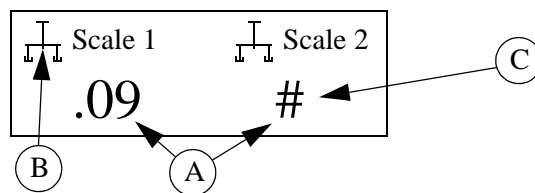| Day | Unif% | Nbr. meas |
|-----|-------|-----------|
| 2   | 100.0 | 0         |
| 1   | 100.0 | 0         |

WEIGHT  UNIF

A. **Day/Wk**- The day (or week) number of the current cycle. Pressing this Key will make the data change from day to week.

B. **Unif**%- The average uniformity for that day or week.

C. **Number**- The number of measurements on that day or week.

Press the "Back" Key.

4.  Select <u>Scale readout</u> and the screen will appear like this:

Scale 1     Scale 2

.09          #

A. The number represents the current average weight. The weights are separated by Scale 1 and Scale 2.

B. The little scale indicator will be active when the scale is taking weights. A "chicken head" will appear when the scale registers a weight and that weight will appear momentarily.

C. # indicates no weights being read.

# Setup to Weigh

1. Go to the main screen by pushing the Back button.
Select <u>Other</u> and the screen will appear like this.

| | |
|---|---|
| <u>Flock</u> | <u>Time</u> |
| <u>Growth Std.</u> | <u>Zero</u> |

2. Now Select <u>Flock</u>. When beginning a new flock, this is where you will initialize the Control to start taking new data.

| | | |
|---|---|---|
| Day number | 9 | (1.2) |
| Flock number | | 3 |
| Setup date | 7 Jul 2003 | |
| Init. weight | | 0.09 |

3. Press the Edit Key.
4. The cursor will be on day number. Enter the current day number and press Enter. This will bring up the following.

| | |
|---|---|
| SETUP FLOCK Reset admin. | **YES** |
| **PREV.** | **NEXT** |

5. Answer yes to reset admin. and press enter. Press the Soft Key under the word Next. (Note: Previous Flock history will be erased).
6. Enter the flock number and press Enter, then Next.
7. Enter the initial (today's) weight, press Enter, then Next. (for broilers we recommend .09. if the birds are 1 day old and a weight is not supplied by the hatchery). If the birds are not 1 day old, weigh 5 birds to establish an average initial weight.
8. Enter the date the flock started weighing by putting in the day and pressing Enter, then the month and pressing Enter, and the year if needed then pressing Enter. Now press Next.
9. If you are satisfied with entries press Enter to answer yes then press Done and it will display what you have entered for flock initialization.
10. If you want to change something, press the + or - Key to say no and press Enter and it will return you to step 1, or you can press Previous to return to return to the screen you want to change.
Press the "Back" Key until you see the following screen:

| | |
|---|---|
| <u>Flock</u> | <u>Time</u> |
| <u>Growth Std.</u> | <u>Zero</u> |

Select <u>Time</u> and you will be in the screen to enter the correct time and date. By using the Edit Key, the Navigation Keys, and the Enter Key, you can set the date and time. If you want to record weights only during specific times of the day, press the Key under the meas. time tab. This allows you to establish two recording periods per each 24 hours if desired.
Press the "Back Key.
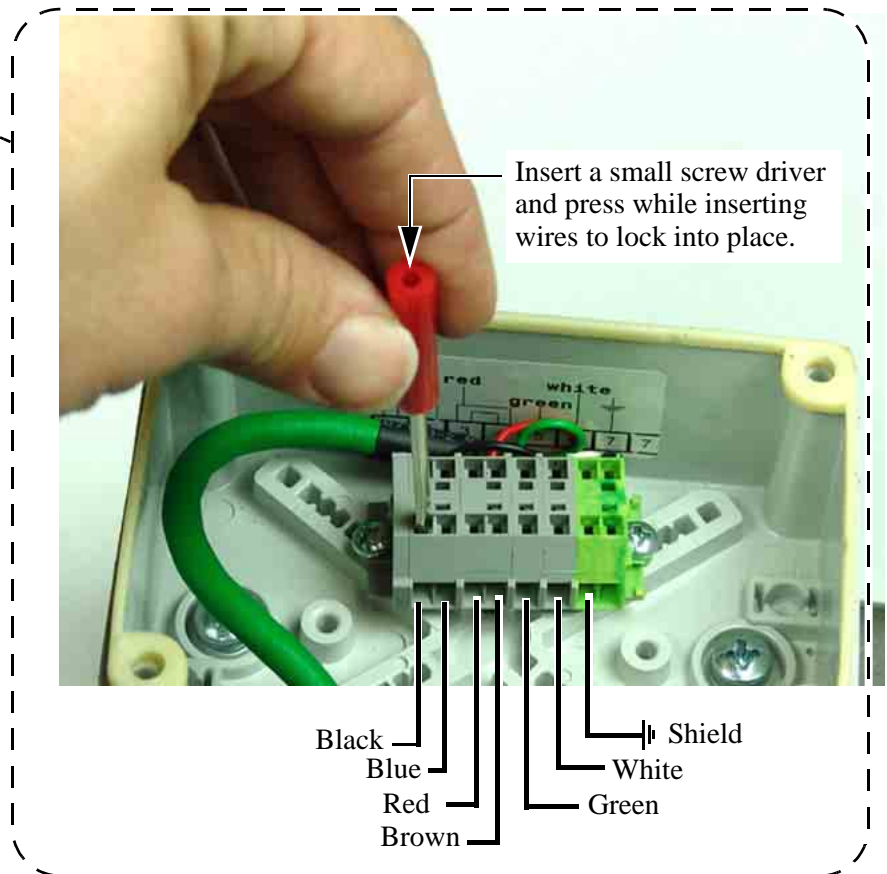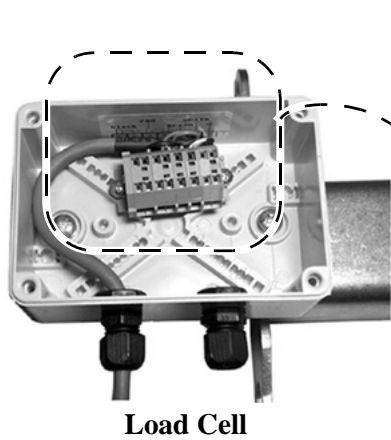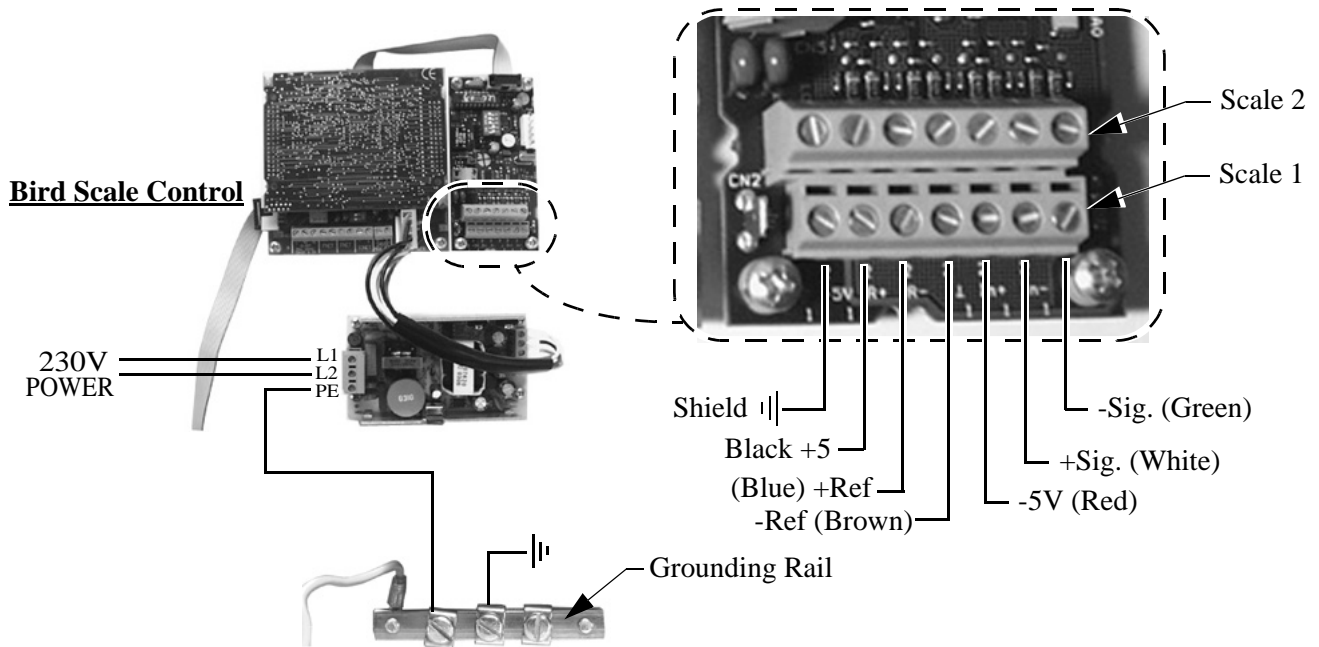Now select <u>Growth std.</u> and the screen will appear like this:

| Day | Std. | <u>Day/Week</u> |
|---|---|---|
| 0 | 0.09 | |
| 7 | 0.29 | |
| 14 | 0.79 | |

This is where you enter the weight standard values by day and/or by week. To choose between day or week, press the Key in the upper right hand corner. After selecting the time period, use the Edit Key, the Navigational Keys, and the Enter Key to input the desired weights that correspond with the daily or weekly age of the birds. These will then be values that appear on the <u>Weight</u> and <u>History</u> screens. The weight standard is not used to calculate the weight of the birds. It is meant only as a guide for bird growth.

# Wiring Diagrams

### Platform within 120 feet of Control

Use the following wiring sequence when the platforms are within 120 feet of the Control. This installation **does not** require an SJB box if 22 guage-six conductor Wire with Shield is used.

**Bird Scale Control**

Scale 2

Scale 1

230V
POWER

L1
L2
PE

Shield

Black +5

(Blue) +Ref

-Ref (Brown)

-Sig. (Green)

+Sig. (White)

-5V (Red)

Grounding Rail

**Load Cell**

Insert a small screw driver and press while inserting wires to lock into place.

red        white
green

Black

Blue

Red

Brown

White

Green

Shield

## Platform beyond 120 Feet from the Control

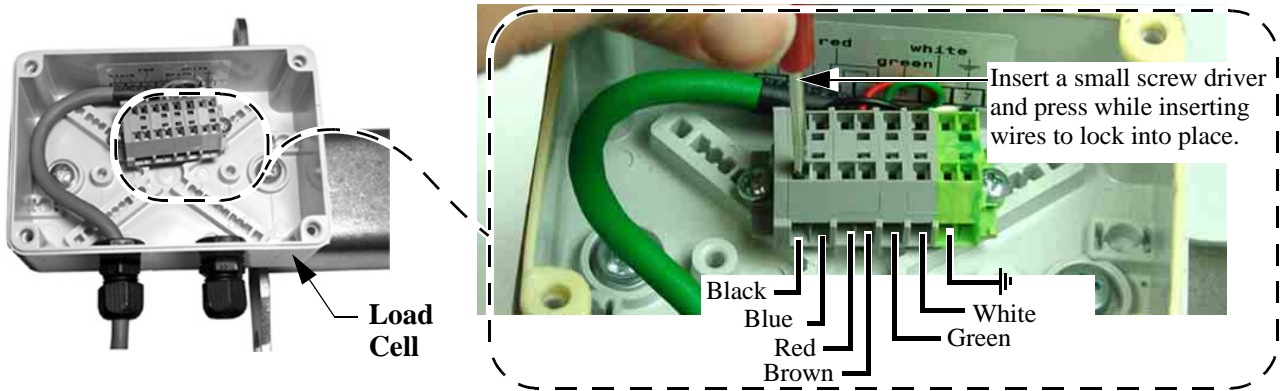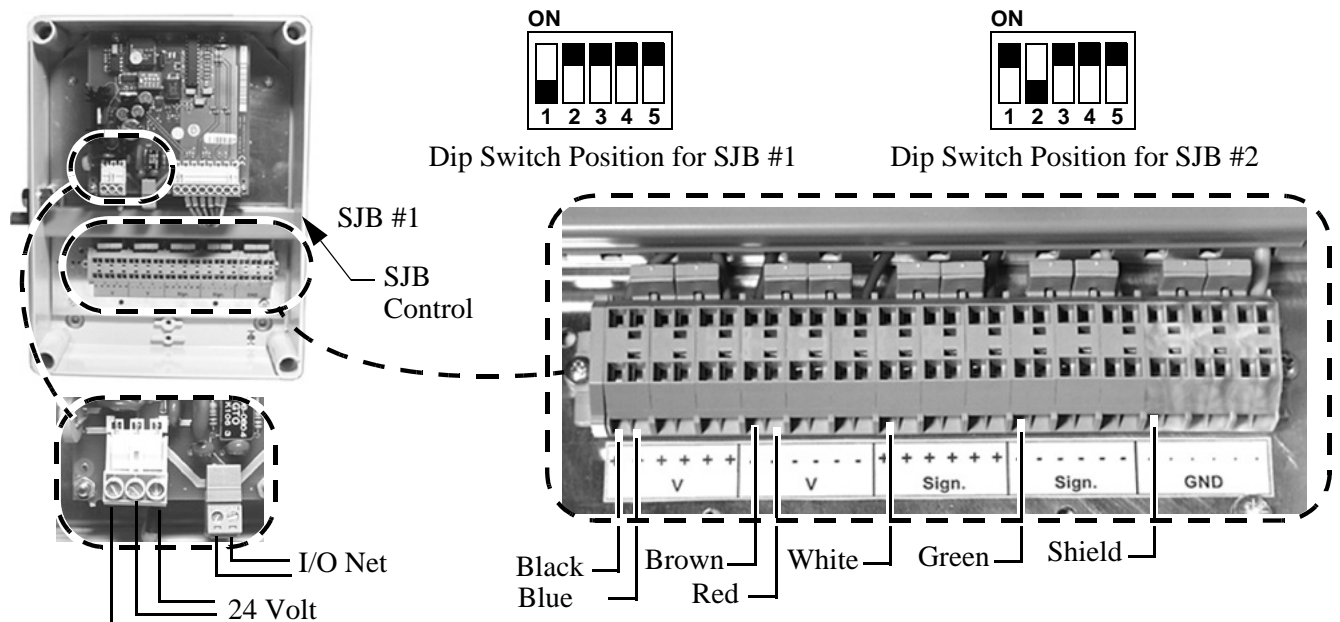When distances from the load cells to the Control are greater than 120 feet, a signal booster or SJB **(Chore-Time part no. 40733)** is required. To wire this, 22 gauge twisted pair non-shielded wire is required. The following is how this setup is wired:

**At the Control**

Bird Scale Control
Function Board

HUMAN INTERFACE

C NO NC
ALARM
MAX.30VAC
50VDC 0.5A

FNET  FNET  IONET  24VDC MAX.0.5A

Twisted Pair to SJB (Scale 1 and 2)

230V POWER  L1  L2  PE

To SJB (Scale 1 and 2)

Grounding Rail

**At the Load Cell:**

**Load Cell**

Insert a small screw driver and press while inserting wires to lock into place.

Black
Blue
Red
Brown
Green
White

**At the SJB:**

SJB #1

SJB Control

**ON**
**1 2 3 4 5**
Dip Switch Position for SJB #1

**ON**
**1 2 3 4 5**
Dip Switch Position for SJB #2

I/O Net

24 Volt
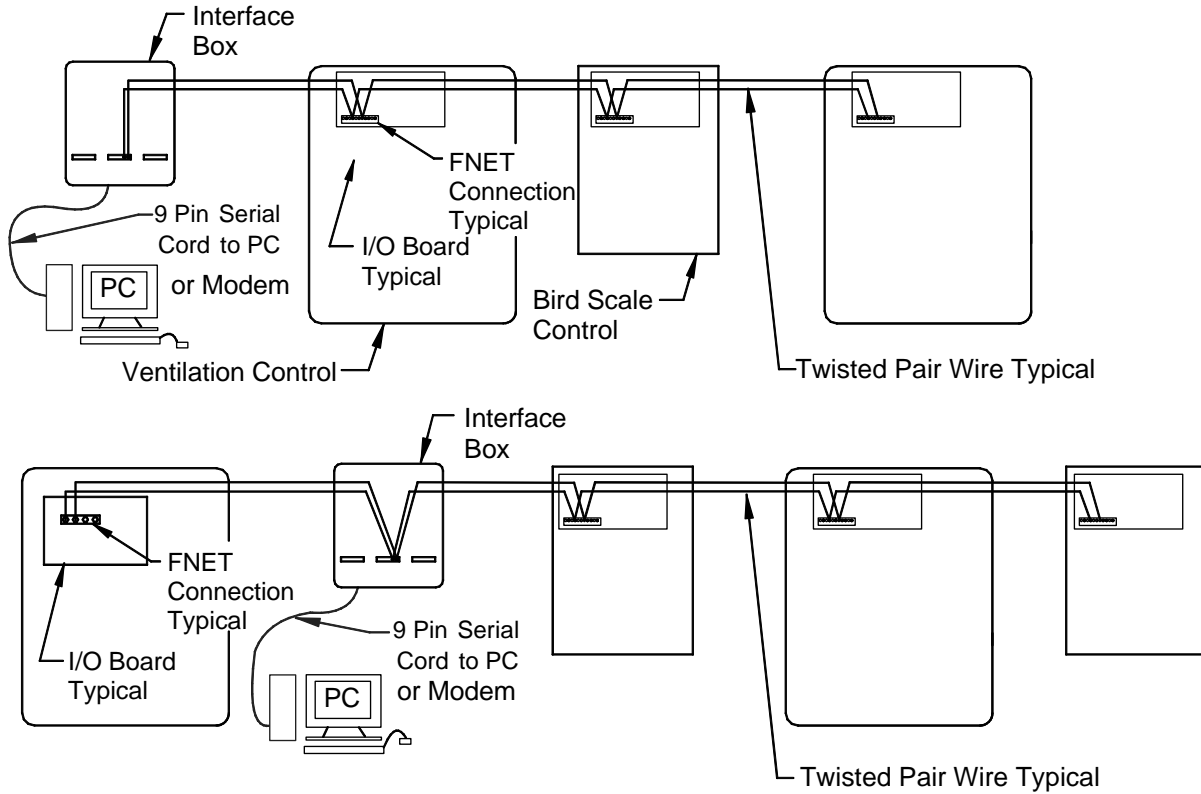
V  V  Sign.  Sign.  GND

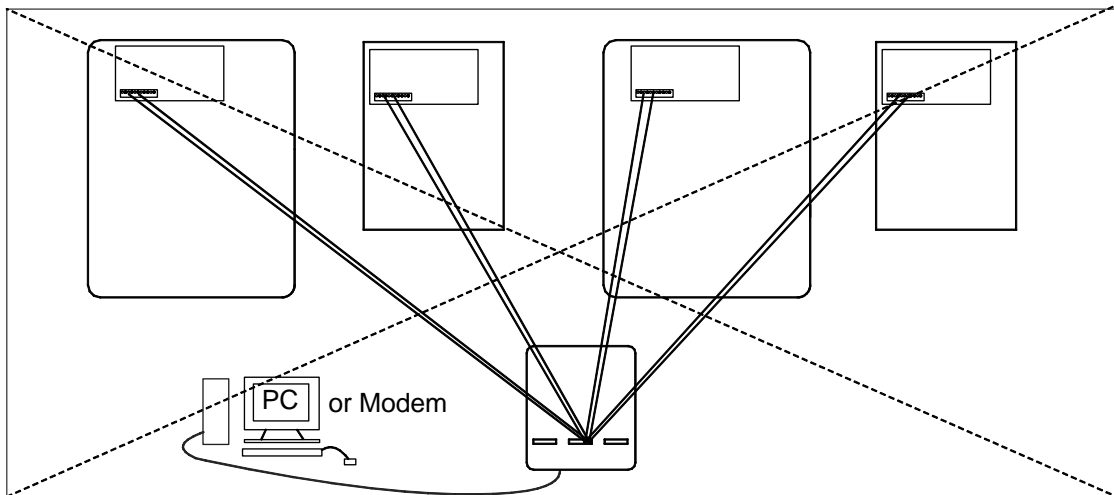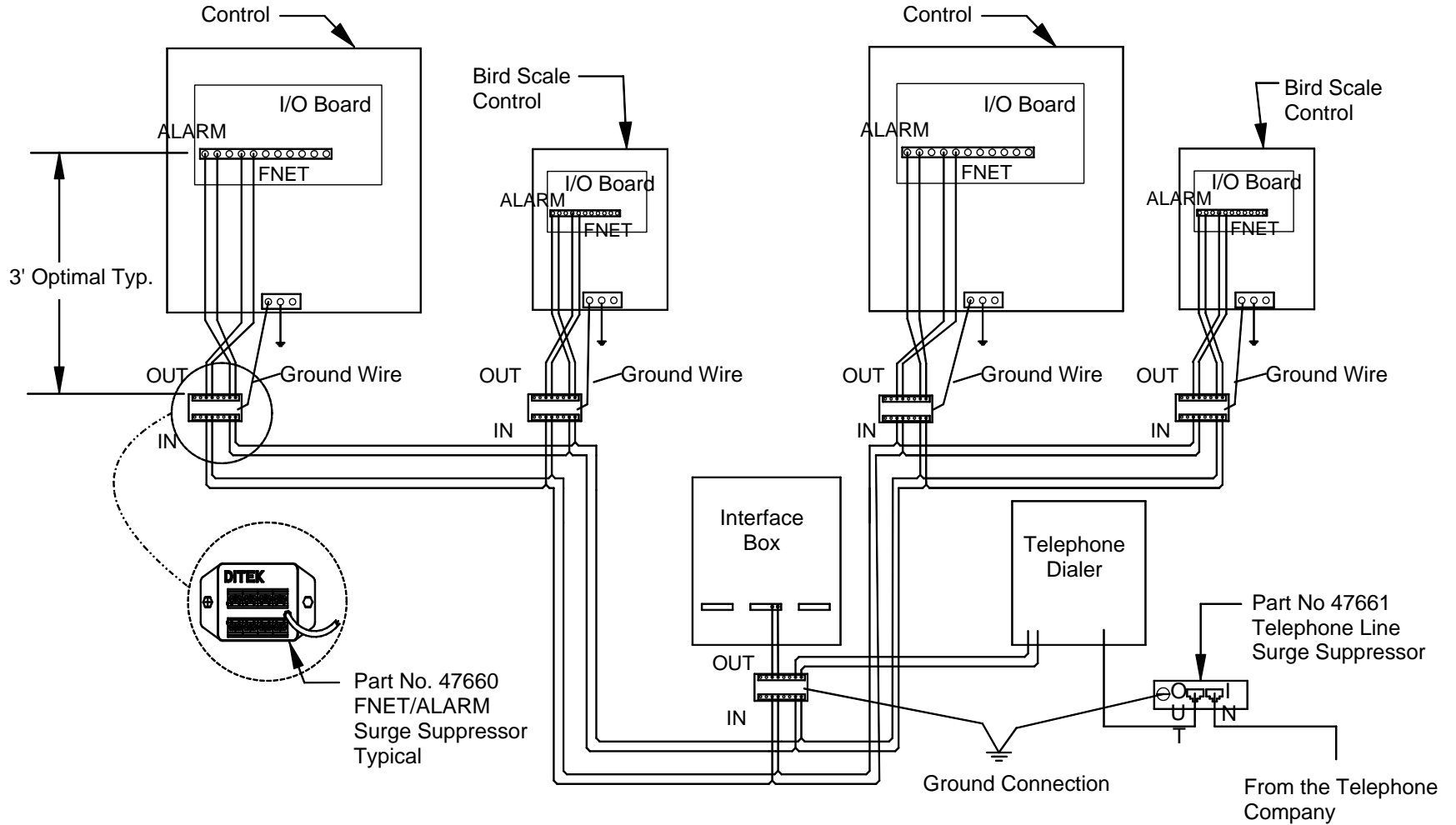Black
Blue
Brown
Red
White
Green
Shield

# PC Connection

The Controls in each house are connected together at the FNET Terminal Connectors as shown below. Use only Twisted Pair Wire (Chore-Time Part No. 42208). The Interface Box can be wired in anywhere either at the beginning of your string, at the end, or between Controls; but not to more than one Control as **shown below**.

Interface Box

FNET Connection Typical

9 Pin Serial Cord to PC

I/O Board Typical

PC    or Modem

Bird Scale Control

Ventilation Control

Twisted Pair Wire Typical

Interface Box

FNET Connection Typical

9 Pin Serial Cord to PC or Modem

I/O Board Typical

PC

Twisted Pair Wire Typical

## Incorrect Installation

PC    or Modem

**MT1767C**

## 47660 FNET/ALARM & 47661 Telephone Line Surge Suppressor Wiring

Control

Bird Scale Control

Control

Bird Scale Control

I/O Board

ALARM

FNET

I/O Board

ALARM

FNET

I/O Board

ALARM

FNET

I/O Board

ALARM

FNET

3' Optimal Typ.

OUT — Ground Wire

IN

OUT — Ground Wire

IN

OUT — Ground Wire

IN

OUT — Ground Wire

IN

DITEK

Part No. 47660
FNET/ALARM
Surge Suppressor
Typical

Interface
Box

Telephone
Dialer

Part No 47661
Telephone Line
Surge Suppressor

OUT

IN

O U T   I N

Ground Connection

From the Telephone
Company

Note: There must be a ground rod within 10 ft. of the Ground Terminal of each
Surge Suppressor. The wire size from the Suppressor to the ground rod should
be 12 gauge or larger.

# Technical Specifications

Ambient Operating Temperature Range...14°F (-10°C) to 122°F (50°C)
Supply Voltage.........................85-264 Vac 50-60hz
Maximum Power Consumption...
External Power Output
        Voltage...............................24 Vdc +/- 1.5V
        Load...................................500 mA max.
Sensor Wire / PC Wire.....20 gauge single Twisted Pair Wire, 1 twist every 2 inches, unshielded wire. Use of
    Chore-Time part number 42208 is strongly recommended.
Load Cell Wire: 22 gauge 6-conductor shielded wire. Use of Chore-Time part no 42208 is strongly recommended.
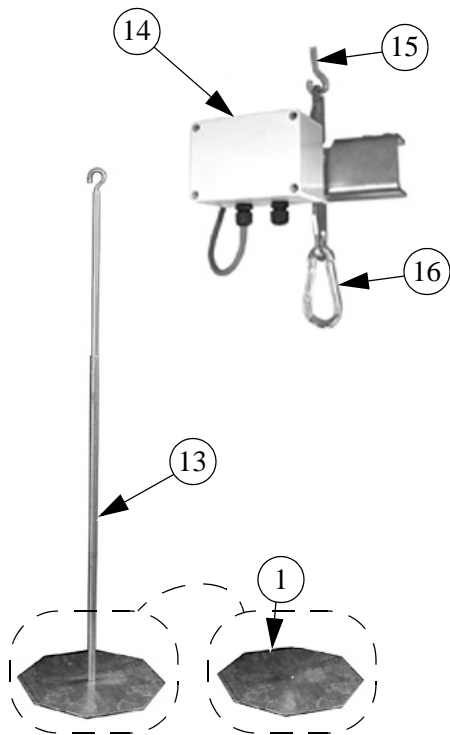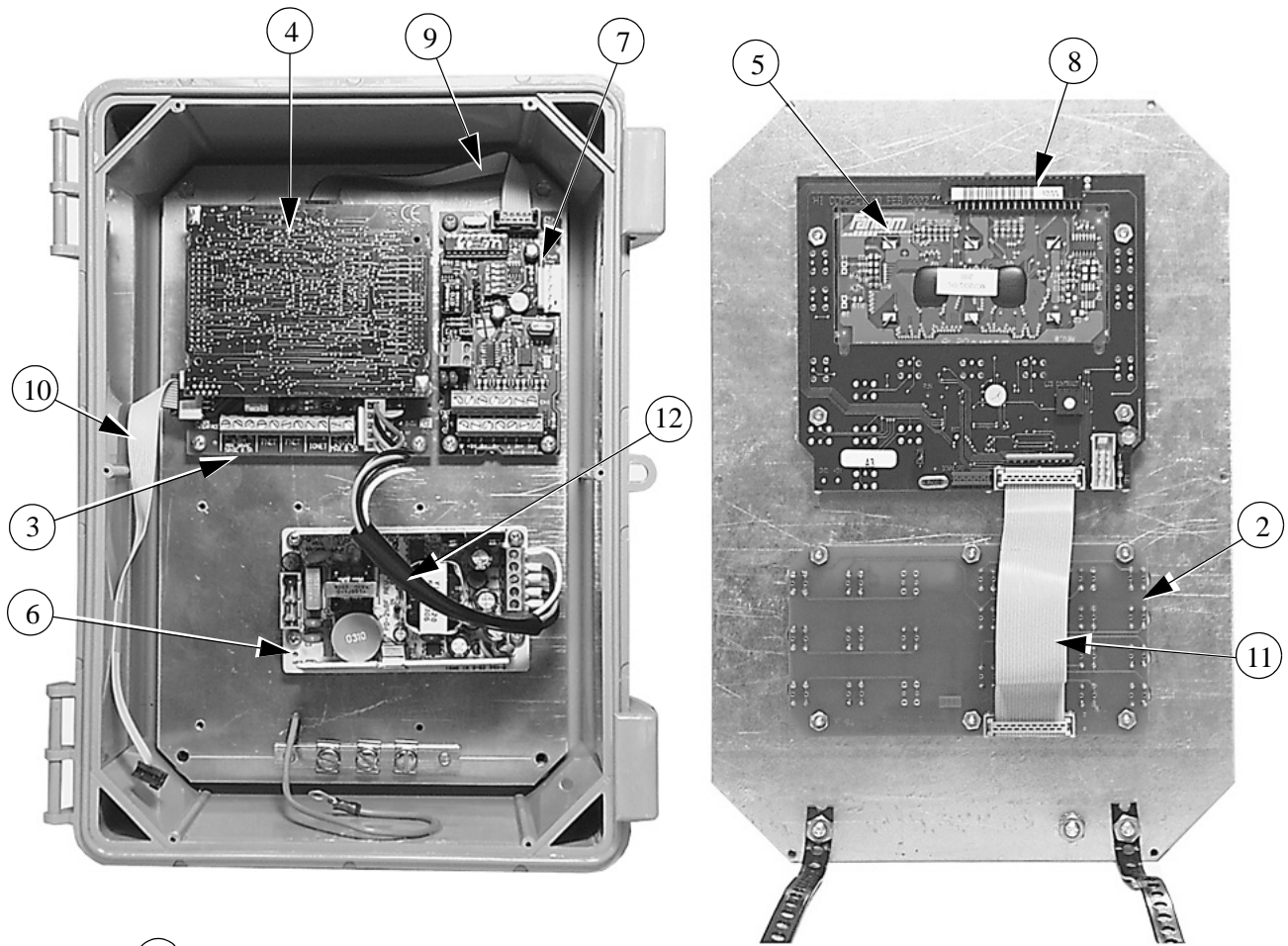FNET Data Voltage Range (C-Central).....+/- 5 V
Alarm Relay
    Voltage.....30 Vac
       50 Vdc
    Current    .5A @ 250 Vac
       .5A @ 30 Vdc

# Parts List

| Item | Description | Part No. |
|------|-------------|----------|
| 1 | Base, Bird Weigher | 47674 |
| 2 | Board, Numeric Key Pad | 48730 |
| 3 | Board, I/O | 48731 |
| 4 | Board, Bird Scale Function | 48834 |
| 5 | Display, 32 x 122 | 48920 |
| 6 | Supply, Power 25W | 48861 |
| 7 | Board, LLC | 48735 |
| 8 | Board, Soft Key | 48736 |
| 9 | Cable, 10P-130 MM Flat | 48737 |
| 10 | Cable, 10P-380 MM Flat | 48738 |
| 11 | Cable, 20P-135 MM Flat | 48739 |
| 12 | Cable, Power Supply | 48740 |
| 13 | Bird Platform Support | 47671 |
| 14 | Load Cell | 48724 |
| 15 | J-Hook | 1214 |
| 16 | Hook, 5/16" Spring Clip | 48729 |

# C-Collect®
## by CTB Inc.

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## Revisions to this Manual

| Page No. | Description of Change |
|---|---|
| Various | Several updates including: added dipswitch settings, added surge supression and pc connection, several additions to Control setup section |
| 20 | Added Note: |

**Contact your nearby C-Collect® distributor or representative for additional parts and information.**