

# IntelliSORCE™

*Access Point*

*Installation Manual*



Val-Co logo is a trademark of Val-Co, Inc.  
Deadbolt is a trademark of Blue Earth, LLC.  
Copyright © 1999 - 2006 Blue Earth, LLC. All rights reserved.

Printed in the USA

## Table of Contents

OVERVIEW .....	4
SYMBOLS.....	4
BEFORE YOU BEGIN .....	4
COMPONENT DESCRIPTION .....	5
MOUNTING AND WIRING .....	6
INTELLISORCE .....	6
YOU’VE HEARD IT BEFORE.....	6
CIRCUIT PROTECTION .....	8
CONDUIT AND CONNECTIONS .....	8
POWER SUPPLY .....	9
POWERING UP THE INTELLISORCE.....	10
ANTENNA CONNECTION .....	11
LIGHTNING PROTECTION .....	12
WIRING THE CONTROLLERS AND COMM STATION .....	13
TERMINATING THE INTELLISORCE .....	13
INITIAL START UP .....	15
SERVICE.....	16
INSTALLATION CHECKLIST .....	17
WIRING DIAGRAM.....	19
PROVISIONING .....	20-23
SETTING TIME/DATE.....	24
POINTING THE YAGI ANTENNA.....	25
CHECKING THE VOLTAGE .....	27
USING LINK.....	28
PRE-TRIP TOOLS AND HARDWARE CHECKLIST .....	31

**AS WITH ANY SOPHISTICATED ELECTRONIC SYSTEM, THIS ACCESS POINT CANNOT BE GUARANTEED TO PERFORM WITHOUT INCIDENT FOREVER. THERE ARE MANY CONDITIONS SUCH AS LIGHTNING STRIKES AND EQUIPMENT FAILURE THAT COULD RESULT IN THIS ACCESS POINT FAILING TO PERFORM ITS INTENDED FUNCTION. YOU MUST BE AWARE OF THIS AND BE WILLING TO TAKE THE NECESSARY PRECAUTIONS TO PREVENT FINANCIAL LOSS.**

**TO PROTECT AGAINST LOSS RELATED TO THE FAILURE OR MALFUNCTION OF EITHER THE ACCESS POINT OR THE VENTILATION CONTROLLER, THE FOLLOWING SAFEGUARDS ARE REQUIRED:**

- 1. A MANUAL BACKUP SYSTEM MUST BE INSTALLED. THIS SYSTEM MUST TAKE OVER IN THE EVENT OF A CONTROL SYSTEM MALFUNCTION.**
- 2. AN ALARM SYSTEM MUST BE INSTALLED. THIS SYSTEM MUST PROVIDE A VISUAL INDICATION AND AUDIBLE WARNING OF ABNORMAL CONDITIONS.**
- 3. A WEEKLY TEST OF THE MANUAL BACKUP SYSTEM AND ALARM SYSTEM MUST BE PERFORMED. THIS TEST CONFIRMS THAT THESE SYSTEMS ARE FUNCTIONING PROPERLY.**
- 4. A DAILY CHECK OF THE CONTROL SYSTEM MUST BE PERFORMED. THIS CHECK CONFIRMS THAT THE SYSTEM IS OPERATING PROPERLY.**
- 5. NON-FUNCTIONAL ALARM OR BACKUP SYSTEM COMPONENTS MUST BE REPAIRED IMMEDIATELY.**

**NOTE: INTELLISORCE PROVIDES ALARMS AND ALERTS BASED ON MONITORED ENVIRONMENTAL CONDITIONS IN YOUR BUILDING AS A COMPLEMENT TO YOUR EXISTING CONTROLLER. ALARMS ON BOTH YOUR CONTROLLER AND INTELLISORCE MUST BE ACTIVE FOR THE BEST PROTECTION.**

## Overview

This manual covers only the mounting and wiring of an IntelliSORCE. Anyone responsible for operating the unit should also read the *Operation Manual*.

IntelliSORCE's advanced microprocessor-based design has made it possible to monitor the environments of livestock facilities with great precision. The IntelliSORCE achieves this by carefully monitoring temperature, air speed, humidity, static pressure, feed use and water use.

IntelliSORCE is intended for environmental data collection as management tool for growers and integrators. IntelliSORCE also provides alarm alerts remotely via the GrowTRAC service to a wide range of devices such as PC, cell phone and pager.

## Symbols

There are two symbols commonly used throughout this manual.



This symbol means the text describes steps that involve going near terminals with potentially deadly voltage. Always shut off power to the IntelliSORCE and all attached devices before opening the cover.



This symbol means the text has extra importance since it is describing the importance of a feature or explaining a step to which you should pay close attention to avoid problems.



## Before You Begin

1. **Read through this manual in its entirety to ensure that you are comfortable with all steps before beginning work.**
2. **Go through the Pre-install and tools/equipment needed checklists found on pages 17-18 and 31 of this manual.**

## Component Description

### IntelliSORCE

The IntelliSORCE is an access point, a device that connects wired and wireless communication devices together to form a wireless network.

A wired or wireless serial data connection (RS-485) is made to a ventilation control which provides current and historical data on air temperature, humidity, feeder run time, static pressure and water usage, etc. The IntelliSORCE access point uploads this data to an internet web server so the information can be easily accessed from a PC having high speed internet access and a GrowTrac account.



**Warning:** A qualified electrician should install the IntelliSORCE. Failure to comply with all national and local electrical codes may void the warranty. Failure to seal all electrical conduit openings and cable entry points may also void the warranty.

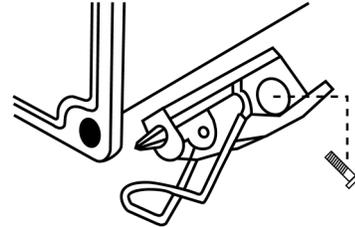
## Mounting and Wiring

### IntelliSORCE



The IntelliSORCE must be mounted within 10 feet of the Communication station (Val-Co part number RD-005-101) and as close as possible to the outside wall where the antenna mast is mounted. Mount the IntelliSORCE indoors where the temperature remains between 30 degrees Fahrenheit (- 1 degree Celsius) and 110 degrees Fahrenheit (43 degrees Celsius). Do not mount the IntelliSORCE in direct sunlight. Place the IntelliSORCE away from motors and relays/contactors that switch high current. Do not install it in the same room where the animals live since the air tends to be corrosive to electronic circuits. A separate room or control office is a preferred location.

#### High Voltage Inside Enclosure!



Controllers are shipped with a bolt and nut to hold the quick release latch closed. You can remove the bolt and nut during the installation process. You must replace these after installation to protect against accidental exposure to the high voltage inside the enclosure.

Mounting brackets for the IntelliSORCE are enclosed with the unit. Attach these to the back of the IntelliSORCE before mounting it in the building.

Before you drill holes into the enclosure, mark their locations and make sure that you do not drill into circuit boards and cables.



Unless absolutely necessary, do not remove the circuit boards. They are static sensitive and should always be handled with appropriate grounding and electrostatic precautions.

### You've Heard It Before...

Never connect or disconnect wires while the power is on. The warranty does not cover damage caused by improper handling.

Always touch a grounded surface before working on electronic equipment. Static shocks can destroy sensitive electronic circuits.

A good ground for your electrical system and the IntelliSORCE is essential. An alternative ground could be a water pipe or a buried copper rod. Electrical conduit is often **not** grounded.

When attaching wires to terminals, first strip off about ¼" of insulation. If you attach more than one wire to a terminal, twist the leads together before

securing them to the terminal. Tighten terminal screws securely, being careful not to over tighten them. Gently tug on the wires to make sure they are secure.

## **IntelliSORCE Connection**

An IntelliSORCE using GrowTRAC service enables remote access from a personal computer using a standard web browser. Required connections are 12 VDC power input, control bus (data communication) and antenna.

## Circuit Protection

### Power Surges

#### **Deadbolt™**

The IntelliSORCE is protected against *normal* voltage surges, but lightning induced surges could damage the equipment. We recommend use of a Deadbolt™ surge suppressor to reduce damage from lightning and other types of power surges. Lightning damage is not covered by the warranty.

## Conduit and Connections

Wires should enter the IntelliSORCE enclosure from the bottom. Make sure there are no frayed wires because the control board may press against the wires when the IntelliSORCE's cover is closed.

To avoid electrical shorts or damage due to moisture, you should never run conduit openings through the top of the box. Conduit and hubs should be corrosion resistant plastic or fiberglass. Use only UL approved NEMA 4X rated conduit hubs. Connect hubs to conduit before connecting to the control enclosure. Use only liquid-tight strain-relief connectors to bring cables into the box.

### Clearance Holes for Standard Conduit

Trade Size (inches)	Hole Size (inches)
1/2	0.875
3/4	1.125
1	1.375
1 1/4	1.750
1 1/2	2.000
2	2.500
2 1/2	3.000
3	3.625

Conduit Hole Sizes.eps

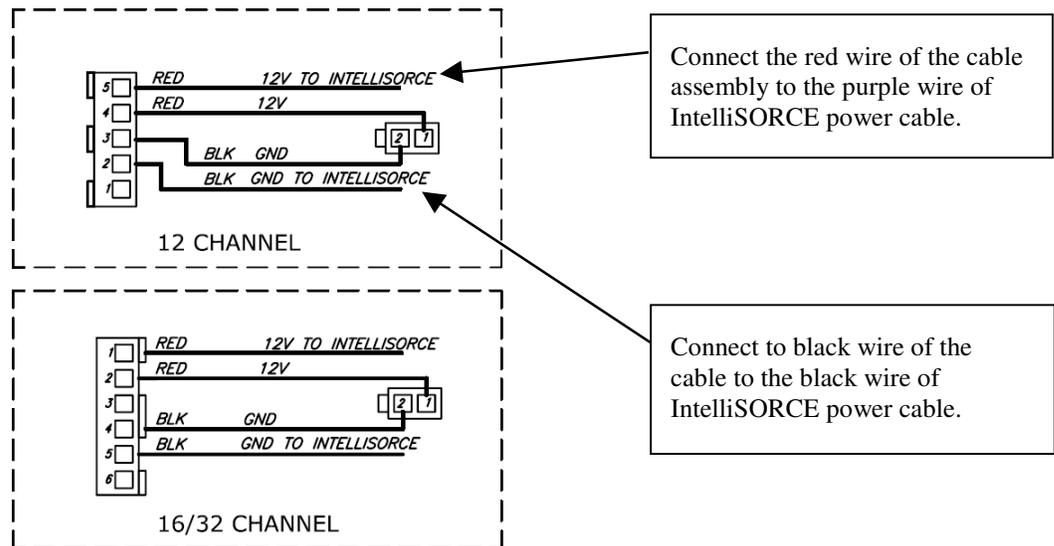
## Power Supply

The IntelliSORCE comes with two different cable assemblies for tapping 12 VDC power from an existing GainTRAC, Ventra or SenSORCE Val-Co control. Diagrams of the two cable assemblies are shown below. Also included is a power supply cord for connecting the cable assemblies from the controller power supply to the IntelliSORCE unit. The cable connecting the IntelliSORCE has two sets of wires, one set of purple and black wires twisted together and one set of white and black wires. **Ignore the white and black pair of twisted wire attached to the IntelliSORCE power cord**, using only the purple and black pair, with purple corresponding to “+” and black corresponding to “-”.



Disconnect power to your control, so it is safe to work on. Locate the power supply cable in your control, one with a red and a black wire and identify the corresponding cable assembly that came with the IntelliSORCE. You will be replacing the existing power supply cable with one of the cable assemblies provided with the IntelliSORCE. Terminate the wires of the new cable assembly providing 12 volt power to the IntelliSORCE using approved splice connectors or wire nuts. Be sure to terminate the wires to the IntelliSORCE: red (“+”) on the cable assembly from the controller to purple (“+”) on the wire to the IntelliSORCE and black (“-”) on the cable assembly from the controller to black (“-”) on the wire to the IntelliSORCE. Now unplug the existing cable in the control and replace it with the new one. Discard unused cable assemblies. **DO NOT** apply power to the IntelliSORCE yet!

- 12 Volt connections require 22 to 18 gauge wire.
- You may also tap off power for a ComSORCE, if required, but nothing else.



Above: Cable assemblies for tapping power from existing Val-Co controller.



If an optional universal power supply is used:

- 110/220 Volt to the IntelliSORCE requires a main power disconnect provided by the installer to allow the unit to be shut off.
- 110/220 Volt connections should be 14 gauge wire.

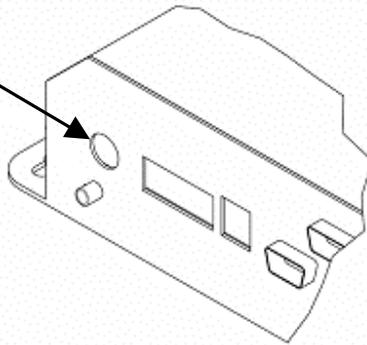


## Powering up the IntelliSORCE

DO NOT PLUG THE POWER CORD INTO THE INTELLISORCE WITHOUT FIRST COMPLETING ALL OTHER PARTS OF THIS INSTALL, GOING THROUGH ALL STEPS OF THE INSTALL CHECKLIST FOUND ON PAGES 17-18 OF THIS MANUAL.

When all steps have been performed and checked, plug the end of the purple and black power cable into the IntelliSORCE and verify power by checking the LED labeled POWER on the front of the enclosure.

Power connection

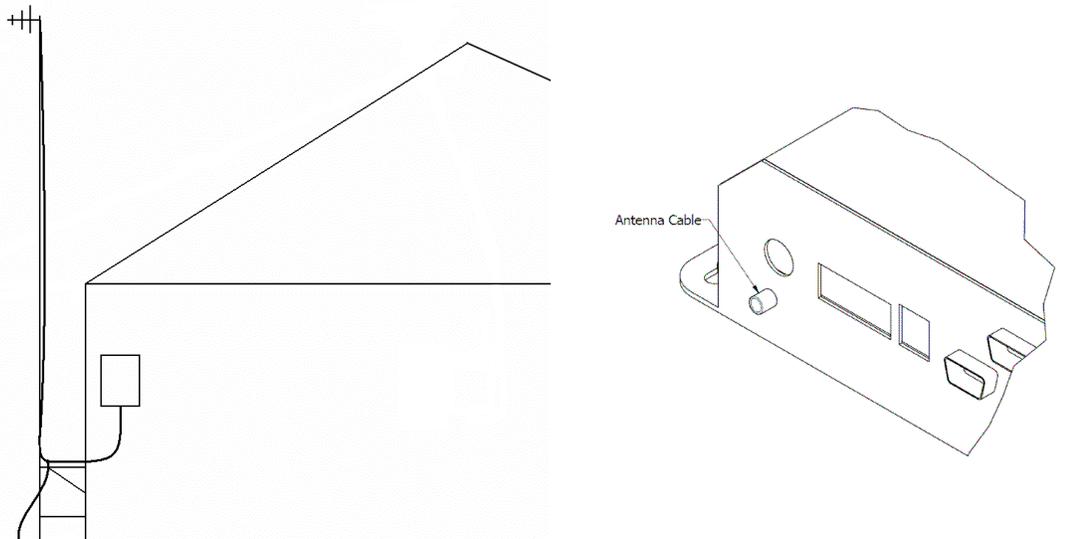


## Antenna Connection

The antenna kit includes the following:

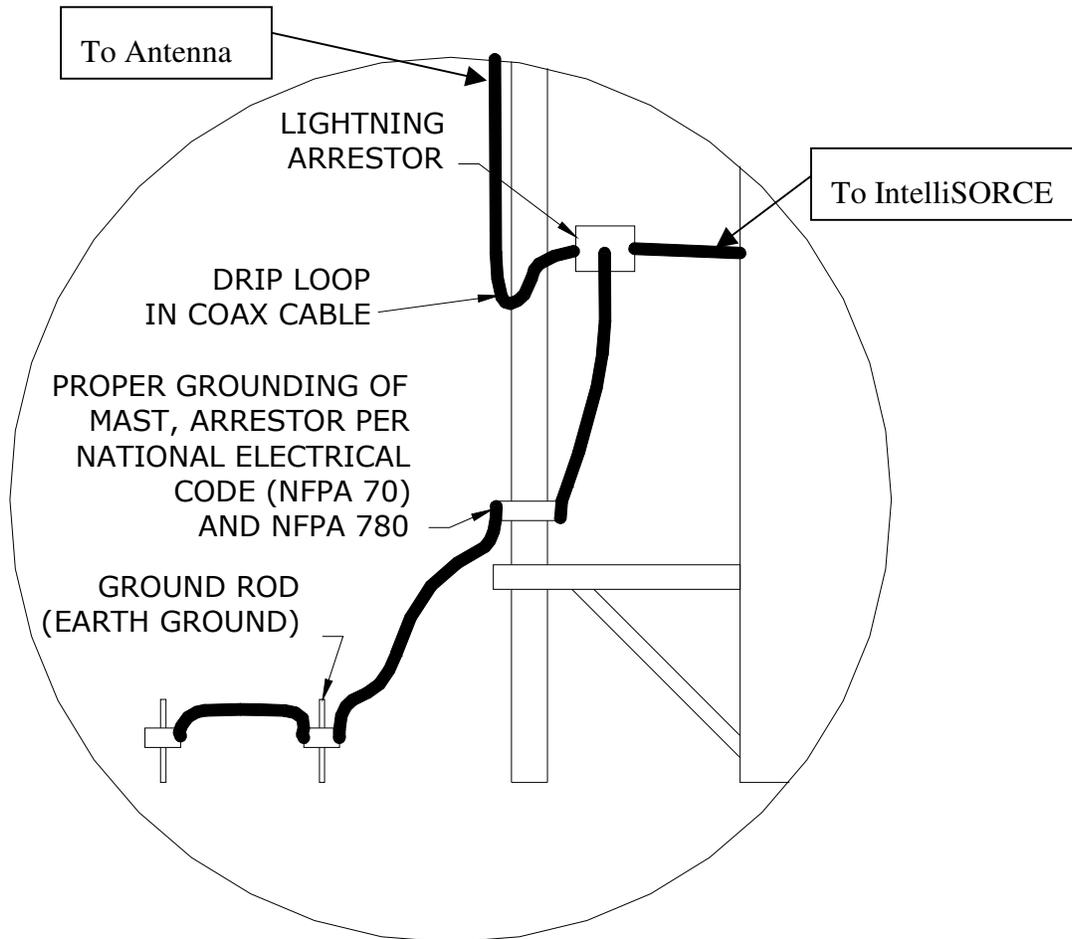
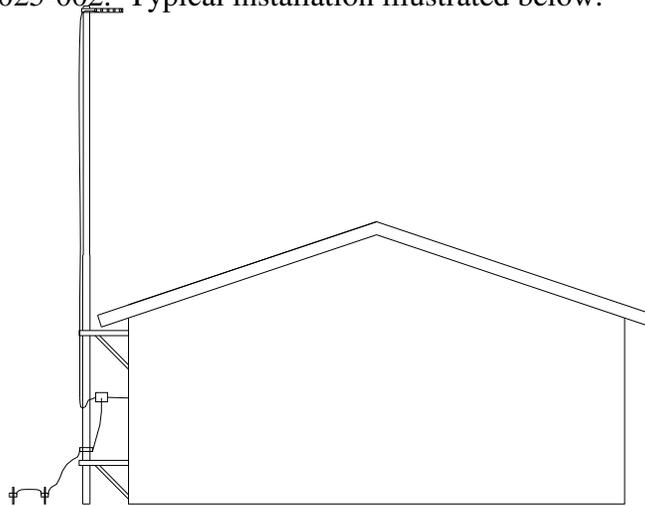
1. Yagi antenna
2. 30' expandable mast with mounting hardware
3. Lightning Arrestor (Val-Co strongly recommends the use of a lightning arrester properly grounded to an existing ground rod)
4. 25' of coaxial cable to run from the antenna to the lightning arrester
5. 10, 20 or 40 feet of coaxial cable to run from the lightning arrester to the IntelliSORCE
6. Zip-ties

First determine the best location to mount the antenna, usually as close to the IntelliSORCE as possible on the outside of the building. Attach the mast vertically to the wall of the building with the attached mounting hardware, making sure to anchor the hardware solidly into studs for strength. Attach the Yagi to the mast with the included U-bolt, do not over-tighten as this will distort the antenna. Attach the 25' cable to the Yagi, wrapping the connection with a layer of electrical tape, then sealant putty, then again in electrical tape to ensure a watertight connection. Raise the mast 20 to 30 feet into the air, depending on signal strength, and aim the antenna before tightening down the mast (see page 25 for instructions on aiming the Yagi antenna). Use the zip ties to secure the cable to the mast. Attach the lightning arrester to the coaxial cable as shown on page 12 (if using an arrester), then run the 10, 20 or 40 foot length of cable from the lightning arrester through the wall of the building to the IntelliSORCE, being sure to seal all holes with outdoor silicone to prevent leaking. Route the antenna cable into the IntelliSORCE enclosure through the larger strain relief and carefully mate to the gold antenna connector.



## Lightning Protection

We strongly recommend proper grounding in accord with NFPA 70: National Electrical Code and NFPA 780: Standard for the Installation of Lightning Protection Systems. Antenna cable gas tube lightning arrestors are available from Val-Co, part number TS-025-001. Replacement gas tube is part number TS-025-002. Typical installation illustrated below.

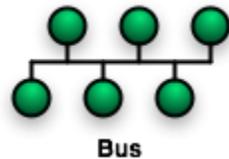


Arrestor must be properly grounded to an earth ground rod. Do not use water lines or conduit as ground.

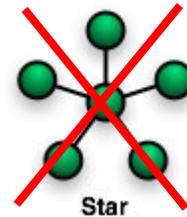
## Wiring the controllers and Communication Station

The controllers are wired together in a bus topology, where one is connected to the next and then to the Communication Station and finally the IntelliSORCE as illustrated below. Do NOT wire in a star topology.

Like this:



NOT like this:



See the Sample Wiring Diagram found at the back of this manual on page 19 for an example of how to wire the controllers together. Connect the Communication Station to the IntelliSORCE with the provided 9 pin D-sub cable. Make sure that the cable is connected at the bottom of the Communication Station and to the port labeled COM 2 on the IntelliSORCE.

## Communication Wiring

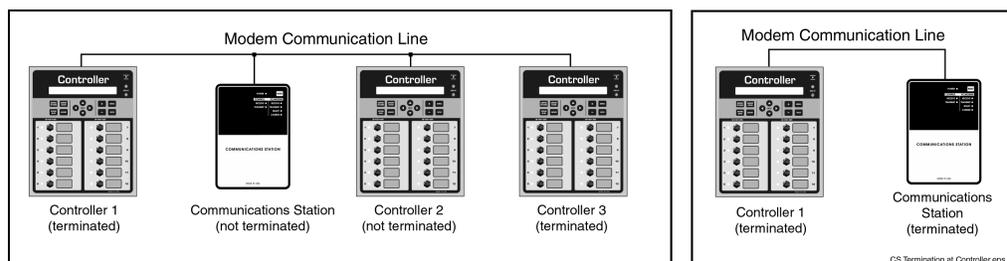
Use shielded 16 to 24 gauge (or .5mm to 1.2mm for metric users) stranded wire, such as Carol<sup>®</sup> AWM style 2426. Wire can be twisted pair or straight type. The shielding should be grounded to SHIELD at the controller’s terminal blocks.

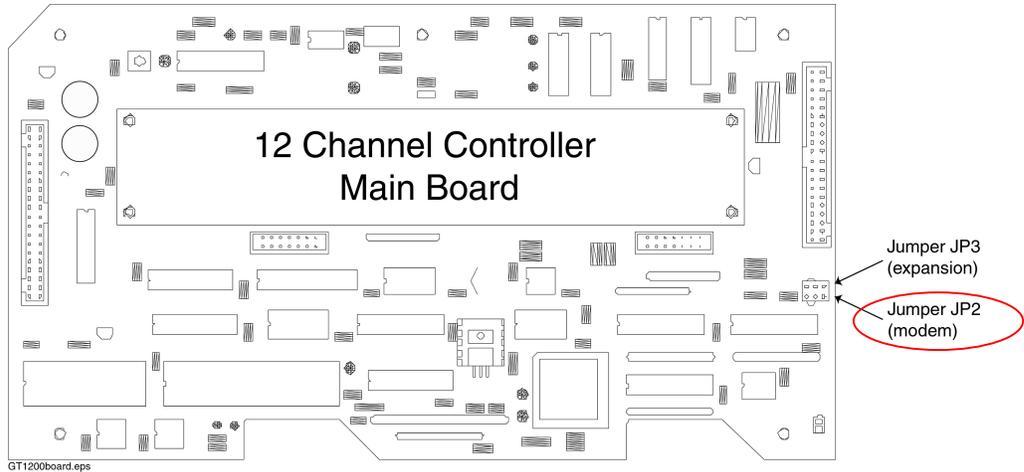
## Wire Spacing

If a communication cable runs parallel to power cables, allow a separation of at least 12” (30cm) to avoid interference. Do not run communication cables through conduit with power wires.

## Terminating the IntelliSORCE

The controllers, communication station and IntelliSORCE form a long chain, with each controller being either at one end of the chain or in the middle. Controllers at the end of the chain need to have their jumpers set as “Terminated” while controllers in the middle of the chain need to have their jumpers set as “Non-terminated”.

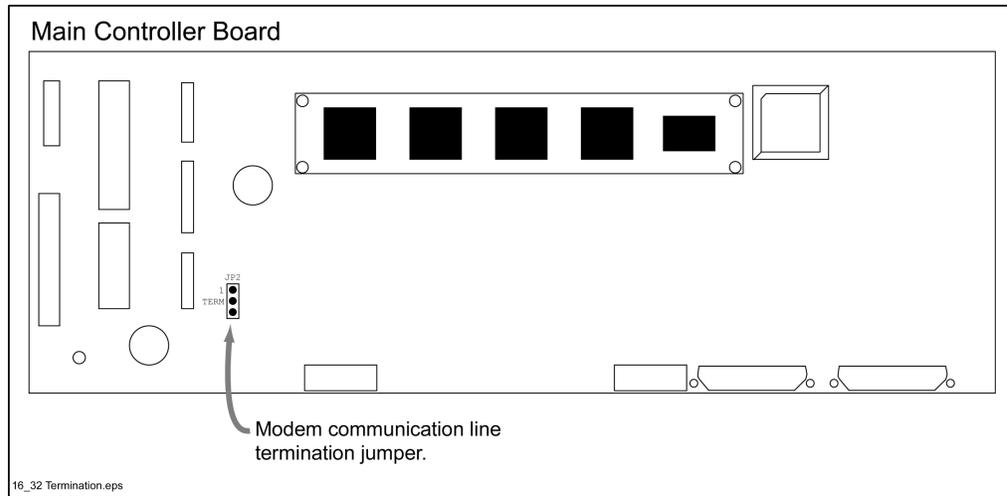




Above: Typical 12 Channel Board (Ventra and Ventium).

Jumper left two pins (pins 1-2) ..... Terminated  
 Jumper right two pins (pins 2-3) ..... Not Terminated

Below: Typical 16 or 32 Channel Board (Ventra and GainTRAC).



Jumper top two pins (pins 1-2) ..... Terminated  
 Jumper bottom two pins (pins 2-3) ..... Not Terminated

If the controller is **not** at the terminal end of a group of controllers and a communications station, the modem communications line needs to be un-terminated.

If the controller is **is** at the terminal end of a group of controllers and a communications station, or no communications station is attached, the modem communication line needs to be terminated.

## Initial Start Up

Once all connections have been made you are ready to apply power and test operation. Please follow these steps:

1. Double check all connections then turn the power on to the controls and IntelliSORCE.
2. Go through the Install Checklist found on pages 17-18 of this manual.
3. Go to each control or SenSORCE, press cancel three times and arrow down twice then write down the serial number shown and barn number or name. Also note from the IntelliSORCE label “SN”. Space to make these notes is provided in the back of this manual. Have this information ready when calling Val-Co Technical Support.
4. While still on site call Val-Co Technical Support at 1-800-328-3813. They will make sure the IntelliSORCE is communicating to the GrowTRAC platform.

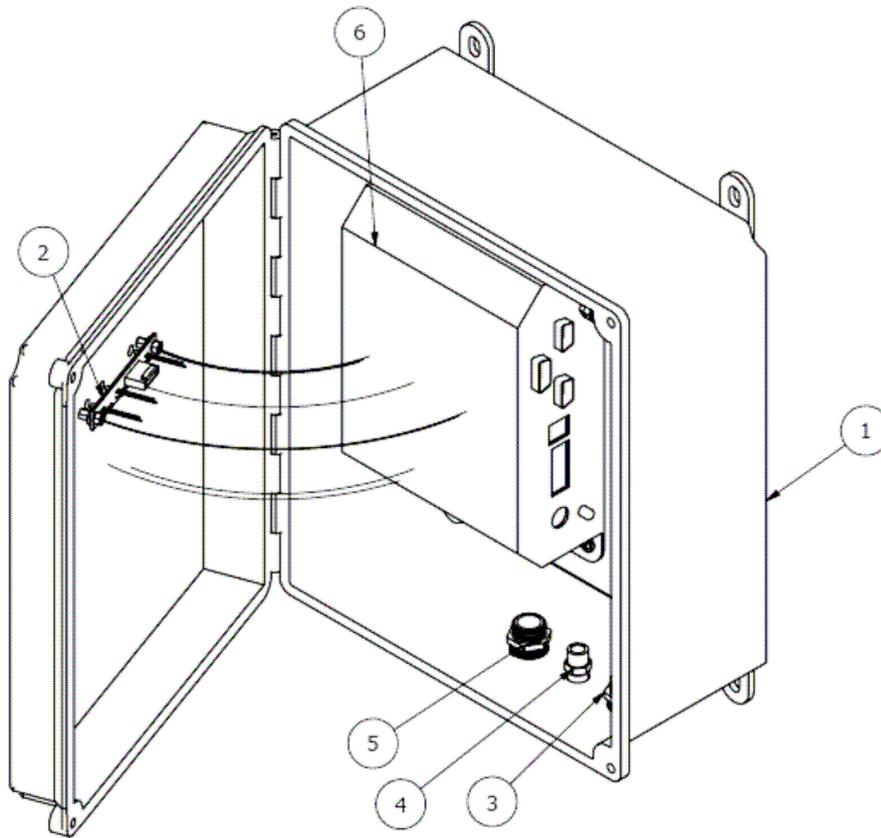


# Service

For assistance, first review the appropriate sections of this manual.

**IF YOU STILL NEED ASSISTANCE, CONTACT: 1-800-328-3813**

A replacement parts is provided below.



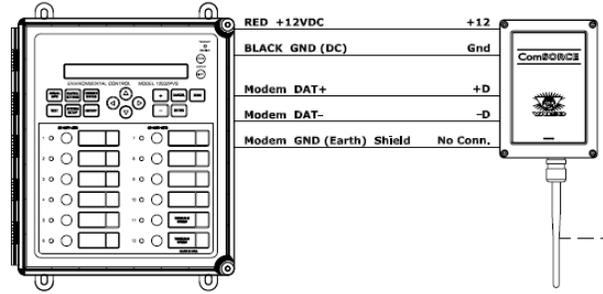
Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	EN-047-4	ENCLOSURE COVER/BASE MACHINED
2	1	PA-130-101	LED PCB ASSY
3	1	HW-71-011	1/2" WATERTIGHT STRAIN RELIEF
4	2	HW-40	3/8" WATERTIGHT STRAIN RELIEF
5	1	HW-071-505	1/2" LRG WATERTIGHT STRAIN RELIEF
6	1	PC-001-002	ZEUS ACCESS POINT
7	1	LD-146-001	DECAL INTELLISORCE
8	1	CA-055-001	CABLE ASSY DB9 - RJ45 (NOT SHOWN)
9	1	CA-055-002	ADAPTER RJ45 - DB9 (NOT SHOWN)
10	1	WS-040-002	WIRE ASSY 12VDC FROM 16/32 CHL CONTROL
11	1	WS-043-003	WIRE ASSY 12VDC FROM 12 CHL CONTROL

## GrowTRAC Installation —Pre-Trip & Final Checklist

- Bring laptop with Link v 5.3 or higher program.
- Are the wires routed correctly? See Appendix A
- Are the holes leading to the outside of the buildings all caulked?
- Are all holes made in enclosure sealed?
- Are the wires firmly secured at the terminals/wire nuts? Pull-test each connection.
- Are all grommets tightened securely?
- Are the jumper settings correct for terminated versus non-terminated at the controllers? See pages 13-14
- Have you recorded the controller locations, types, serial #'s, inputs and outputs on the forms provided? Appendix B
- Are the dates/times correct on all the controllers? Appendix C
- Are the ComSORCEs turned on? Check for the red LED inside the box on the end opposite the wiring connection.

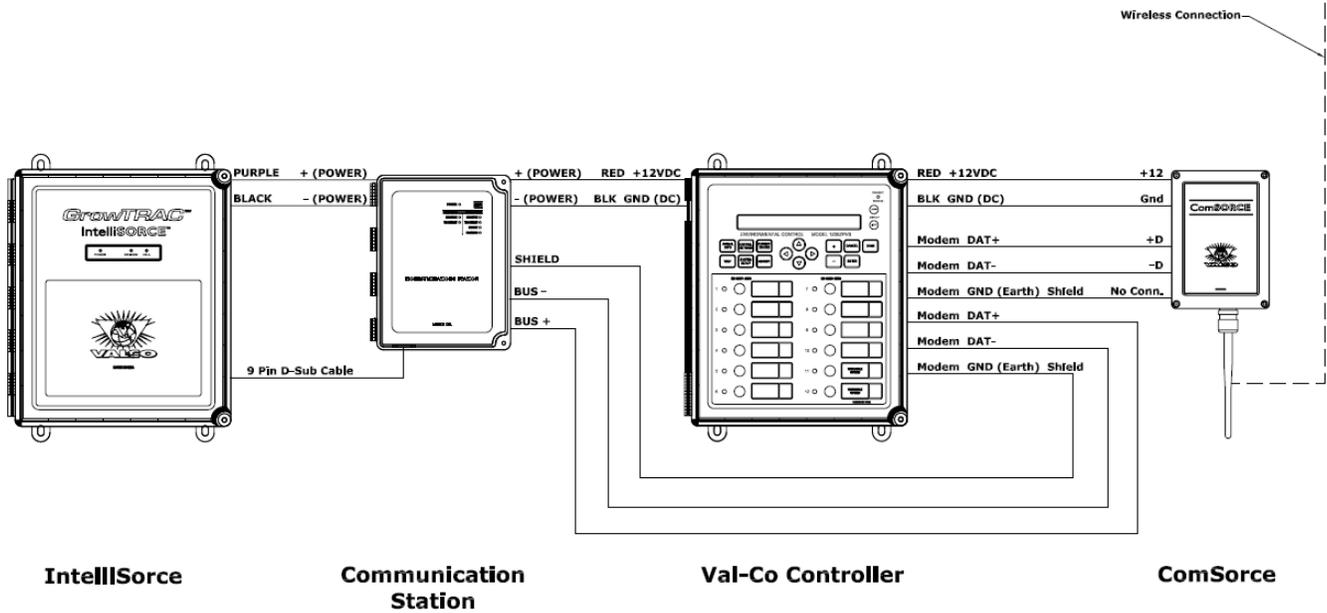
- Are the ComSORCES all closed securely to keep out the weather?
  
- Are all communication antennas aimed and tightened down securely?  
Pages Appendix D
  
- Is GSM/GPRS coverage verified? Appendix D
  
- Is the antenna cable attached to the IntelliSORCE? Page 9
  
- Check the voltage going to the Communication board and the IntelliSORCE; is it correct (9-10VDC)? Appendix E
  
- Use LINK software to check if the controllers are reporting to the Communication board. Appendix F
  
- Is the Communication board connected with the ribbon (and null modem) cable to the COM 2 port of the IntelliSORCE?
  
- Are all LED's functional on the IntelliSORCE?
  
- Call into Tech Support to see if the site is reporting to the platform. 1-800-328-3813 x6010 before leaving the site.**

## APPENDIX A—Sample Wire Routing



**Val-Co Controller**

**ComSorce**



**IntelliSorce**

**Communication Station**

**Val-Co Controller**

**ComSorce**

*Note that the ComSorce does not have a place to attach the shield wire. Simply wrap that wire back over the wire sheath to keep it from contacting any other wires and secure it with electrical tape.*

## APPENDIX B—Controller Provisioning Forms

Site identification NAME or # \_\_\_\_\_

Zone Description \_\_\_\_\_ Controller Make & Model \_\_\_\_\_

Serial Number \_\_\_\_\_ Software Version \_\_\_\_\_

Number of Feed Bins \_\_\_\_\_ Total Capacity \_\_\_\_\_

Diameter of Feed Bins \_\_\_\_\_ Rings \_\_\_\_\_ Tons \_\_\_\_\_

Heating Type (if applicable) InfraRed, Gas or Electric \_\_\_\_\_

Cost per kWh \_\_\_\_\_ Cost per Gallon \_\_\_\_\_ Cost per 100 cu ft \_\_\_\_\_

Device		Channel_#	Group_#	Zone_#	Voltage	Amps or Power	BTU Rating	Pulses per Gallon	Feed lbs per minute
Ex	Heater, Furnace		1	1	220		250,000		
Ex	Sidewall Fan		3	2	220	1HP			
Ex	Water Sensor		1	1				25	
Ex	Feed Sensor		1	1					50
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

## APPENDIX B—Controller Provisioning Forms

Site identification NAME or # \_\_\_\_\_

Zone Description \_\_\_\_\_ Controller Make & Model \_\_\_\_\_

Serial Number \_\_\_\_\_ Software Version \_\_\_\_\_

Number of Feed Bins \_\_\_\_\_ Total Capacity \_\_\_\_\_

Diameter of Feed Bins \_\_\_\_\_ Rings \_\_\_\_\_ Tons \_\_\_\_\_

Heating Type (if applicable) InfraRed, Gas or Electric \_\_\_\_\_

Cost per kWh \_\_\_\_\_ Cost per Gallon \_\_\_\_\_ Cost per 100 cu ft \_\_\_\_\_

Device	Channel_#	Group_#	Zone_#	Voltage	Amps or Power	BTU Rating	Pulses per Gallon	Feed lbs per minute
Ex Heater, Furnace		1	1	220		250,000		
Ex Sidewall Fan		3	2	220	1HP			
Ex Water Sensor		1	1				25	
Ex Feed Sensor		1	1					50
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

## APPENDIX B—Controller Provisioning Forms

Site identification NAME or # \_\_\_\_\_

Zone Description \_\_\_\_\_ Controller Make & Model \_\_\_\_\_

Serial Number \_\_\_\_\_ Software Version \_\_\_\_\_

Number of Feed Bins \_\_\_\_\_ Total Capacity \_\_\_\_\_

Diameter of Feed Bins \_\_\_\_\_ Rings \_\_\_\_\_ Tons \_\_\_\_\_

Heating Type (if applicable) InfraRed, Gas or Electric \_\_\_\_\_

Cost per kWh \_\_\_\_\_ Cost per Gallon \_\_\_\_\_ Cost per 100 cu ft \_\_\_\_\_

Device	Channel_#	Group_#	Zone_#	Voltage	Amps or Power	BTU Rating	Pulses per Gallon	Feed lbs per minute
Ex Heater, Furnace		1	1	220		250,000		
Ex Sidewall Fan		3	2	220	1HP			
Ex Water Sensor		1	1				25	
Ex Feed Sensor		1	1					50
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

## APPENDIX B—Controller Provisioning Forms

Site identification NAME or # \_\_\_\_\_

Zone Description \_\_\_\_\_ Controller Make & Model \_\_\_\_\_

Serial Number \_\_\_\_\_ Software Version \_\_\_\_\_

Number of Feed Bins \_\_\_\_\_ Total Capacity \_\_\_\_\_

Diameter of Feed Bins \_\_\_\_\_ Rings \_\_\_\_\_ Tons \_\_\_\_\_

Heating Type (if applicable) InfraRed, Gas or Electric \_\_\_\_\_

Cost per kWh \_\_\_\_\_ Cost per Gallon \_\_\_\_\_ Cost per 100 cu ft \_\_\_\_\_

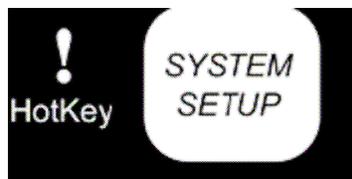
Device	Channel_#	Group_#	Zone_#	Voltage	Amps or Power	BTU Rating	Pulses per Gallon	Feed lbs per minute
Ex Heater, Furnace		1	1	220		250,000		
Ex Sidewall Fan		3	2	220	1HP			
Ex Water Sensor		1	1				25	
Ex Feed Sensor		1	1					50
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

## APPENDIX C—Setting the Time/Date

### All Val-Co Controllers:

1. Press the LEFT ARROW navigation key to find “Device/Equipment Setting”.
2. Press ENTER.
3. Use the LEFT ARROW key to find “System & Control Device Set-Up”.
4. Press ENTER to change the time.
5. Use the PLUS and MINUS keys to adjust the time, pressing ENTER after each correct section.
6. Repeat for the date.

### New Val-Co Controllers With HotKey:



1. Press the SYSTEM SETUP hotkey.
2. Press ENTER to change the time/date.
3. Use the PLUS and MINUS keys to adjust the time, pressing ENTER after each correct section.
4. Repeat for the date

**NOTE:** *The controller does not adjust itself for Daylight Savings Time as not all areas recognize this adjustment.*

## APPENDIX D—Pointing the Yagi Antenna

**NOTE: Software must be loaded onto an MDA or GrowTRAC compatible phone before going to the installation site.**

**To check compatibility of a phone, call GrowTRAC Technical Support at 1-800-328-3813.**

**Need Antenna adaptor** 359909 from WPS antennas or similar as well as N-Male to FME female cable (20'—Val-Co part no. WS-055-001) and FME male to SMA male adaptor (Val-Co part no. CR-081-001) for IntelliSORCE. Attach Cable to antenna, phone adaptor to antenna, MDA to phone adaptor. The plug-in for the phone adaptor is found on the back of the MDA towards the top left under a ¼" round plug. The plug may be removed with a pushpin or similar item. Carefully insert the phone adaptor into the MDA, being careful not to damage the phone board; **do not twist the adaptor!** On the MDA, open the Engineering Field Test Mode.

### **To open the Engineering Field Test Mode on the MDA:**

Most MDA's are not set up for Engineering Test Mode out of the box. You must change a setting in the registry, first downloading an appropriate registry hack program. One possible program is **Total Commander**, from [www.ghisler.com/pocketpc.htm](http://www.ghisler.com/pocketpc.htm)

Download the File **tcmdpocketarm**, found at the bottom of the website.

Sync this program to the MDA using the USB to phone cord and the software provided on the CD included with the MDA.

Once the program has been loaded onto the MDA, open Total Commander and perform the following:

1. Enter \\ into the search bar, tap enter.
2. Select registry
3. Select HKLM
4. Select SOFTWARE
5. Select HTC
6. Select Engineer Mode
7. Select Built in Engineer
8. Select Value

9. Enter 1
10. Tap OK
11. Exit Total Commander
12. Turn MDA off for one minute then power back on.

(The device will now enable Field Test Mode when the command `***#364***` send is entered into the phone tool.)

Open the phone application, then dial `***#364***` and press call.

In the Field Test Mode, the fourth box from the top of the screen on the left indicates **RSSI**, this will be a number between 0 and 31. The higher the number the better, with 10 being the minimum threshold needed for a good signal.

**With the Yagi antenna installed** on the mast but not yet tightened down, turn the antenna in 10° increments while checking the RSSI strength on the MDA. After each turn you should pause a few seconds to allow the RSSI reading to update. Once the strongest signal is found, test the signal for both GSM and GPRS by first making a test phone call on the MDA and second opening Internet Explorer and verifying the ability to connect to the web (go to [www.google.com](http://www.google.com) to test). If GSM and GPRS are functioning, tighten down the antenna to lock it into position and remove the phone adaptor from the cable.

If GPRS or GSM is not functioning, call Tech support at **800.328.3813 x 6010**.

## Appendix E—Checking the Voltage at the Communication Board, the IntelliSORCE and ComSORCE

**CAUTION!** This step is performed with power running to the units, be cautious to not make contact with any internal parts of the IntelliSORCE or ComSORCE!

**IF YOU ARE NOT COMFORTABLE WITH THIS STEP CONTACT A QUALIFIED ELECTRICIAN TO PERFORM THIS TASK.**

With power provided to the units, observe the outside face of the IntelliSORCE and Communication Station enclosures. A red LED should be visible and glowing in the front decal under the label “Power.” If the Communication Station LED is not glowing, double check that there is power to the Communication Board by opening the enclosure and using a multi-meter set to DC Volts to check the voltage at the screw terminals labeled Power Input + and – on the Communication Board. **DO NOT TOUCH THE WIRES OR SCREW TERMINALS WITH ANYTHING OTHER THAN THE MULTI-METER TEST LEADS!** IF YOU ARE NOT COMFORTABLE WITH THIS STEP CONTACT A QUALIFIED ELECTRICIAN. The voltage should be between 10 and 30 Volts DC. If the red LED on the IntelliSORCE is not glowing, double check that the power cord is plugged into the IntelliSORCE on one end and wired to a 12 VDC power source on the other.

If power is present at the screw terminals but the LED is not glowing, the LED board may not be connected completely or the Communication Board may be defective and should be exchanged. If power is **not** present at the screw terminals, trace the problem back to determine the source.

Open the ComSORCE unit by removing the four screws holding the cover to the body of the ComSORCE. A red LED should be visible and glowing in the ComSORCE on the end opposite the antenna. If the red light is not glowing, check the black power dipswitch near the LED to ensure that it is in the correct position. If the LED is not glowing with the dipswitch in the ON position, use a multi-meter set to DC Volts to check the voltage at the screw terminals labeled + pwr and – on the end opposite the antenna. **DO NOT TOUCH THE WIRES OR SCREW TERMINALS WITH ANYTHING OTHER THAN THE MULTI-METER TEST LEADS!** IF YOU ARE NOT COMFORTABLE WITH THIS STEP CONTACT A QUALIFIED ELECTRICIAN. The voltage should be between 10 and 30 Volts DC.

If power is present at the screw terminals and the power dipswitch is set to ON but the LED is not glowing, the ComSORCE may be defective and should be exchanged. If power is **not** present at the screw terminals, trace the problem back to determine the source.

## APPENDIX F—Using LINK to check the controllers reporting

**NOTE: Software must be loaded onto the PC before going to the installation site.**

LINK software is available from the Val-Co Sales Support team, 1-800-328-3813 x 6010.

Disconnect the cable from the COM 2 port on the blue box inside the IntelliSORCE and plug it into the serial port on your laptop.

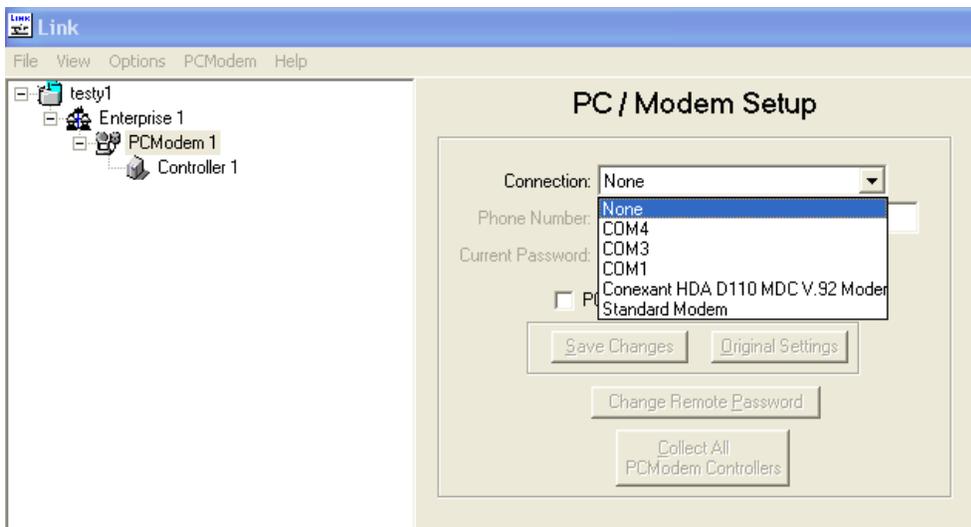
Once LINK has been installed on your laptop, open the file LINK.exe and follow the prompts.

The first time you run this application, you will need to create a new database to store the information as it is collected from your controller. You are prompted to Create New Database or Open Existing Database. To create a new database:

1. Click the **Create New Database** button. The Enter New Database Name dialogue box opens.
2. Type a name for the database in the file name box.
3. Click the **Open** button. The Getting Started dialogue box appears. It contains information about what you need to do when creating a new database.

Now that the database is created, you are ready to identify the equipment being used and set up the communications needed to communicate with the controller. You can set up multiple controllers within a single database.

The Getting Started box will offer you the option to **Close** or **Add Configuration**. Select **Add Configuration**. This will create a generic Enterprise, PCModem and Controller. Select the PCModem 1 in the left pane and assign a Connection to it from the drop down box. See example next page.



If you know which COM port you are using, select it from this list. If there is more than one COM number, you may need to try them all until you find the one that works. Or check which COM port you are using by looking it up under the **Device Manager** screen of Windows. Refer to your Windows help file to find this.

Once you have selected your COM port, click **Save Changes**. Now select Controller 1 and set up the controller information

### Setting up Controller Information

The Controller Information work area appears in the right pane when you click a controller icon in the configuration tree (left pane). This work area allows you to set up information needed for communication with the controller. It also allows you to manually collect information and send information from and to the controller.

### Entering a Serial Number

You must enter a serial number for each controller in the database. This application uses the serial number to locate the correct controller. The serial number is entered in the Controller Information work area for each controller. This work area appears when you click any controller icon in the configuration tree. Type the controller's serial number in the Serial Number box. You can find a controller's serial number by going to the controller, pressing the **CANCEL** key three times and then pressing the **DOWN ARROW** two times. If the serial number ends with a letter, you will not need to type the letter in the Serial Number box.

After you have typed the serial number into the serial number box, click **Save Changes** at the bottom of the right pane then click **Collect Information** at the top right of the right pane, a confirmation box will appear, select **Collect Information** again. If the controller is reporting correctly, the devices will populate in the left pane under the controller within a minute or two. Identify carrier LED during download attempt. If this information does not populate, try a different COM port for the PC Modem and select Collect Information again under the controller. If no information appears after trying all the COM ports, double check the controller serial number. If the controller serial number is correct there is a problem with the wiring, routing, or ComSORCE, if applicable. Begin troubleshooting to determine the problem or call Technical Support at 1-800-328-3813 x 6010.

# GrowTRAC Installation Checklist

## Tools/Hardware

Revised 7-25-07

### Tools

- #1 Flathead screwdriver for controller screw terminals
- #1, #2 Phillips head screwdriver
- Cordless drill, drill bits
- 12" long 5/8" drill bit
- Wire strippers/nippers
- Crimpers RF coax RG-58
- Stripper RF coax RG-58
- Extension ladder
- Crescent wrench
- Wrenches
- Tape measure
- 3/8" dowel or fish tape for running wire through walls/ceilings
- Hammer
- Multi-meter
- RG-58 to MDA cable adaptor
- Laptop with LINK 5.03 software installed
- T-mobile MDA phone with Field Test Mode (for testing signal strength/aiming Yagi antenna)

## Hardware

- PWR SPLY UNIV 25W WATERPRF BRK
- ANTENNA YAGI 900 MHZ
- ANTENNA YAGI 1900 MHZ
- WIRE ASSY, RG58
- COMSOURCE, WIRELESS B2B
- GROWTRAC INTELLISORCE, CELL MOD
- WALL BRKT, 24", FOR ANT. MAST
- MAXSTREAM WIRELESS MODEM
- ANTENNA MAST
- LIGHTNING ARRESTOR
- GROUND RODS
- SOLID COPPER WIRE SPOOL FOR GROUNDING
- GROUNDING CLAMPS FOR GROUND RODS
- LED BOARD FOR INTELLISORCE WITH WIRE ASSEMBLY
- Silicone caulk or RTV sealant
- Coax sealant for antenna connections
- Connectors for RF coax RG-58 (N, SMA, FME, F)
- P Clamps for Coax Cable and wire mounting
- 18-4 wire with shield
- 18-2 wire with shield
- DB-9 Null Modem cable
- Electrical tape
- Zip ties—medium size
- ½" strain relief nut-*optional*
- ½" wire staples
- Self-tapping metal screws—1 ½" to 2 ½"
- Washers for self-tapping screws—¾" to 1"
- Drywall screws—1" to 2"