AMERICAN LUBRICATION EQUIPMENT CORPORATION

AMERICAN EQUIPMENT - WEST

TIM-2002
BIG ALEC IV

Installation and Operators Manual

Constant beep, probably a stuck key.

Order: TIM-2002-CON or TIM-2002-OVLY

Error codes that happen ONLY on startup. The unit will beep and the led will flash the corresponding number of times

* ERROR CODES: 02= BAD RAM, 03= BAD EPROM, 04= STUCK KEYPAD

Warning - Pressure Relief Kits

American Lubrication Equipment Corporation requires the use of pressure relief kits (TIM-2000-4 or TIM-2000-4A) with the Big Alec IV Fluid Inventory Control Systems.

Pressure relief kits prevent problems caused by thermal expansion of the fluids in the system. Thermal expansion can cause pressure build-up in excess of the rated working pressure of many of the systems components.

American Lubrication Equipment Corporation will not warranty any problems caused by thermal expansion.

Pressure Relief Kits

TIM-2000-4	**600 P.S.I. pressure relief kit**. Relieves pressure build up in the fluid line due to thermal expansion. Must be plumbed back to oil supply tank. Use on 3:1, 4:1, and 5:1 pumps.
TIM-2000-4A	**900 P.S.I. pressure relief kit.** Relieves pressure build up in the fluid line due to thermal expansion. Must be plumbed back to oil supply tank. Use on pumps with ratios of 5:1 and above.

Warning - Fluid Pulse Meter Connections

When making connections to the pulse meter, a wrench must be placed on the "gold" adapters to prevent them from being driven into the meter body. The body of the pulse meter is aluminum, and will crack if excessive pressure is applied. The "gold" adapters are tightened at the factory and require no further adjustments.

Warning - All "TIM-2000-37"

Fluid Solenoid Valves

The fluid inlet on these valves is marked with a "2" and the fluid outlet is marked with a "1".

If these valves are installed backward they will always be open and defeat the purpose of having a Fluid Inventory Control System.

TIM-2000-37

INLET = "2"

OUTLET = "1"

BIG ALEC IV
Installation Instructions

WARNING

Never run the wiring near heaters or heat. Heat can melt the cable's jacket and cause the system to fail

1. Determine where the console is to be mounted. The console comes with rubber feet for desktop mounting and has "keyholes" in the back for wall mounting *(see diagram A, p.7)*. Remember to take into consideration where the power supply is to be mounted. Make sure that you plan for the junction box mounting location before choosing the final keypad mounting location.

   Note: *The mounting screws must not protrude more than ¼" from the wall when wall-mounting the console. Anything exceeding this measurement can damage the unit.*

   Note: *Junction Boxes are designed to be hidden out of the way in ceilings or other remote locations. They can be located up to 30' from the console. Make sure that you plan for the Junction box location when determining the console location.*

2. Place the fluid solenoid (*TIM-2000-37*) in the fluid line as close to the reel or oil bar as possible.

   Note: *The fluid **inlet** is marked with a **"2"** and the fluid **outlet** is marked with a **"1"**. If these valves are installed backward they will always be open and defeat the purpose of having a fluid inventory control system.*

3. Mount the ready light (*TIM-2000-36*) where the operator can easily see it. The side of the reel support bracket is a good location.
4. Splice one of the ready light wires to one of the solenoid wires. Splice the other ready light wire to the other solenoid wire (*see diagram B, p.8*). Run each spliced wire to the junction box and connect one spliced wire into a station number terminal (labeled 1-12) and the other spliced wire into a common terminal (*labeled VALVE COMMON*)

Note: *Never wire more than one ready light/solenoid valve to each station number terminal*

5. Repeat steps 1-3 for each dispensing point (reel, oil bar, etc.) used with this product.

Note: *Never wire more than one ready light/solenoid valve to each station number terminal.*

6. Make sure to place the properly sized pressure relief kit on the outlet side of the pump between the pulse meter and the pump. A properly sized pressure relief kit is a requirement of this system. Pressure relief kits prevent problems caused by thermal expansion of the fluids in the system. Thermal expansion can cause pressure build-up in excess of the rated working pressure of many of the systems components.

7. Install the pulse meter on the fluid outlet side of the pump, after the pressure relief kit. Connect one pulse meter wire to one of the two meter terminals on the junction box (*labeled FLOW METER*). Connect the other pulse meter wire to the other meter terminal on the junction box.

Warning-Fluid Pulse Meter Connections

When making connections to the pulse meter, a wrench must be placed on the "gold" adapters to prevent them from being driven into the meter body. The body of the pulse meter is aluminum, and will crack if excessive pressure is applied. The "gold" adapters are tightened at the factory and require no further adjustments.

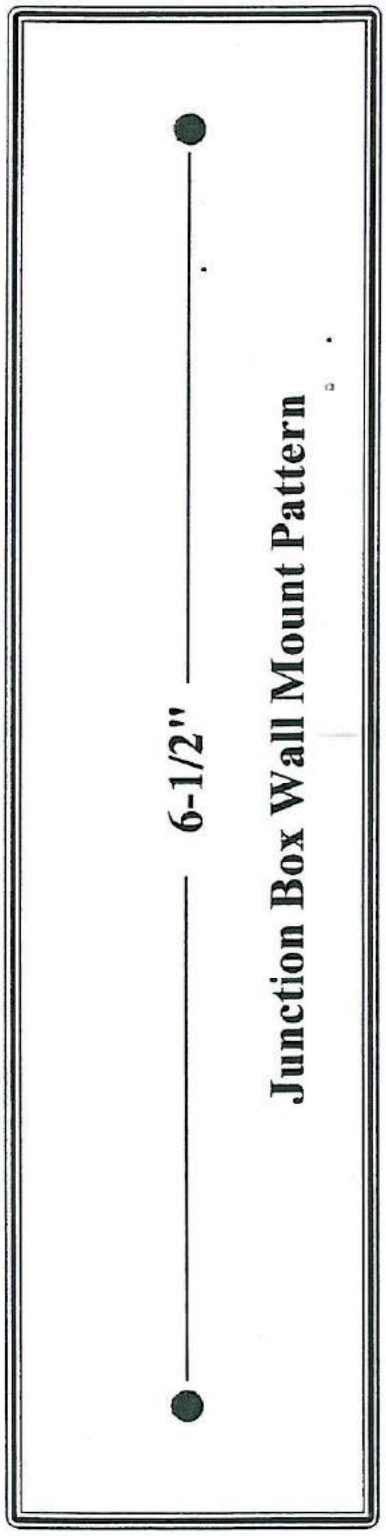
8. The system is designed to work with an optional air solenoid safety kit (*TIM-2000-2 or TIM-2000-2A*). If used, place the air solenoid between the air regulator and the air inlet side of the pump.

   Note: *On TIM-2000-2 (1/4") air valves the air* ***inlet*** *is marked with a* ***"1"*** *and the air* ***outlet*** *is marked with a* ***"2"****.* ***This is the opposite of the fluid valve!!***

   On TIM-2000-2A (1/2") air valves the flow direction is ***indicated by an arrow*** *on the valve body.*

   Run the air solenoid wires to the junction box, placing one wire in the air terminal (*labeled "AIR"*) and the other wire into a valve common terminal (*labeled "VALVE COMMON"*).

DIAGRAM A


6-1/2"
Junction Box Wall Mount Pattern

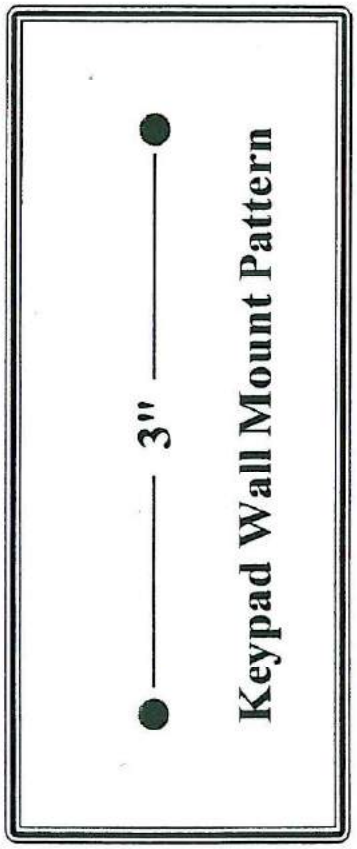
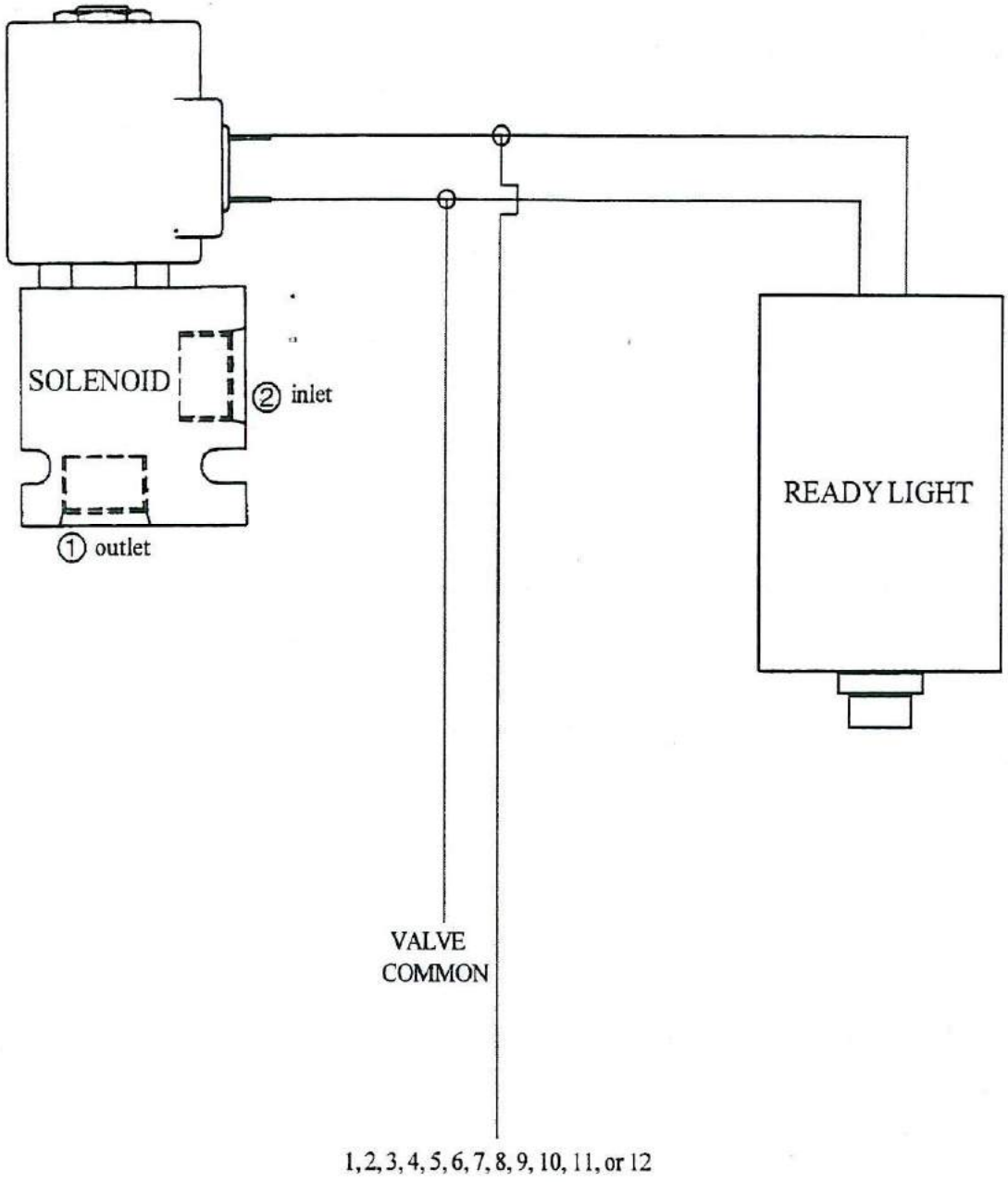

3"
Keypad Wall Mount Pattern

DIAGRAM B

Solenoid/Ready Light Wiring Diagram



BIG ALEC IV
System Setup Instructions

The BIG ALEC IV is a state-of the-art computer controlled fluid inventory system. It includes custom features that can be changed by the installer. These features are:

1) Password Protection (2 levels)
2) Programmable Product Description
3) Programmable Unit of Measure (Pint, Quarts, Gallons, and Liters)
4) System Calibration (2 Modes)
5) Re-Settable Totalizer

Please read the following directions carefully before performing any of the programming changes.

A. Entering the Administrative Program Mode

Disconnect the power cord from the *Big Alec IV* keypad. Once the display is no longer illuminated, press and hold the "LOGON/LOGOFF" button while reconnecting the power cord back into the unit.

If you have previously set up a passcode you will be prompted to "Enter passcode?" Enter your pass code on the keypad and press, "ENTER". You will then be brought to the administrative menu.

If you do not have a pass code set, you will be brought directly to the administrative menu.

B. Adding a Passcode to the System

Note: Only select this option if the user wishes to passcode protect the system. Read this entire section before proceeding.

1) Enter the Administrative Program Mode (*see Section A, p.9*).

2) Press the "1" key while in the administrative options menu.

3) You will be prompted to "Enter passcode?" At this time you can enter a 1-8 numeric password into the system.

4) Press the "ENTER" key.

5) You will be asked to "Verify passcode?" Enter the same passcode as entered in step 2.

6) Press the "ENTER" key.

7) Next you will be asked "Logon option: 1 or 2?" Press the "1" or the "2" key, depending on which option you wish to select.

Note: *Option 1*
Pressing the "1" key will activate the "Logon Before Each Dispense" feature. In this mode, the passcode will be required to be entered by the user before each dispense.

Option 2
Pressing the "2" key will activate the "Manual Logon/Logoff" feature. In this mode, the passcode acts like a key switch. A passcode will be required to turn the unit "on". Once the unit is turned "on", it will operate without a passcode. To turn the unit back "off", the user will have to hit the "LOGON/LOGOFF" button and enters a passcode. This will disable the unit until someone logs-on again.

8) Once the password and logon option is set you will be put back into the administrative option menu. If you are done press the "CLEAR RESET" button to begin operating the *Big Alec IV*.

C. Changing the Product Descriptions

1) Enter the Administrative Program Mode (*see Section A, p.9*).

2) Press the "2" key while in the administrative options menu.

1a) Enter customer passcode.

3) You can now scroll through the various products programmed into the *Big Alec IV* using the "1"and "2" buttons on the keypad ("1"= Previous, "2"=Next).

4) Select the product description you would like and press the "ENTER" key.

5) You will now be back at the administrative option menu. If you are done press the "CLEAR RESET" button to begin operating the *Big Alec IV*.

D. Changing the Unit of Measure

1) Enter the Administrative Program Mode (*see Section A, p.9*).

2) To change the units being dispensed press the "3" key while in the administrative options menu.

3) Select the unit of measure by pressing the corresponding button on the keypad.

4) You will now be back at the administrative option menu. If you are done press the "CLEAR RESET" button to begin operating the *Big Alec IV*.

TIM-2000-5 Pulse Meter:
378 pulses per Gallon

E. Calibrating the System

Note: There are two ways to calibrate the system. Read this entire section before proceeding.

Option 1

"KEYPAD ENTRY" feature: Keypad entry is used if you know the PPG (Pulses Per Gallon) for the pulse meter at your location. If you don't know the PPG for the meter, go to the next page (p.12) and use Option 2. If you know the meter's PPG's then:

1) Enter the Administrative Program Mode (*see Section A, p.9*).

2) To recalibrate the Big Alec IV press the "4" key while in the administrative options menu.

3) Press the "1" key to go into calibration mode.

4) Press the "1" key to enter "KEYPAD ENTRY" mode

5) Enter the pulses per gallon (or pulses per liter if using liters).

6) Press the "Enter" key.

7) You will now be back at the administrative option menu. If you are done press the "CLEAR RESET" button to begin operating the *Big Alec IV*.

This does not actually "clear" or "reset", it actually gets you out of the administrative mode.

Option 2

"CERTIFIED MEASURE" feature: Use this feature to calibrate the system if you do not know the pulse meter's PPG's. You will need a 1-gallon measuring container (4 liters for certifying liters).

1) Enter the Administrative Program Mode (see Section A, p.9).

2) To recalibrate the Big Alec IV press the "4" key while in the administrative options menu.

3) Press the "1" key to go into calibration mode.

4) Press the "2" key to enter "Certified Measure" mode.

5) Press the "Start" button.

6) Go to station number one, and dispense exactly 1 gallon (4 liters for liter measuring) of product into an accurate measuring container. Do not trickle the flow while dispensing!

7) Stop dispensing when you have reached the exact amount in the container.

8) Go back to the keypad and press the "STOP" button.

9) Hit the "ENTER" button to calibrate or the "CLEAR RESET" button to abort the process.

10) You will now be back at the administrative option menu. If you are done press the "CLEAR RESET" button to begin operating the *Big Alec IV*.

Note: Only station one *can be* calibrated. Stations 2-12 do NOT calibrate. For best calibration accuracy, install station one farthest from pump. One pulse meter and a maximum of 12 solenoids per system.

F. Resetting the Totalizer

1) Enter the Administrative Program Mode (see Section A, p.9).

2) To reset the totalizer press the "4" key while in the administrative options menu.

3) Press the "2" key on the keypad.

4) Press the "1" key to reset the totalizer or the "0" key to abort.

5) You will now be back at the administrative option menu. If you are done press the "CLEAR RESET" button to begin operating the *Big Alec IV*.

BIG ALEC IV
Operating Instructions

1) Press the "START" button.

2) Enter the amount to be dispensed using the keypad (.1- 99.9) and press, "ENTER".

   Note: Pay close attention to how the data is entered. In order to enter 2 quarts you must enter a "2" followed by a "0". The display will read "2.0"

3) Select the station number (1-12) using the keypad and press "ENTER"

4) You may go back and redo any of steps 2 and 3 by pressing the "CLEAR RESET" button.

5) Press the "Start" button to begin dispensing.

6) The ready light will come on at the dispense station letting the operator know that he/she can now dispense the product. When the operator begins to dispense, the "Sent" readout on the display will begin to count up as product is being dispensed.

   Note: Pressing the "STOP" button will stop the system from dispensing. To resume the dispensing process, press the "START" button. To cancel the dispensing process, push the "CLEAR RESET" button.

7) When the operator has finished dispensing, the dispensed quantity will be displayed.

8) To reset the system, press the "CLEAR RESET" button.

Big ALEC 4 Tips

1. Very susceptible to dirty line power
    a. Has any new electronic equipment been added recently?
    b. Electric company power surges?
    c. Try plugging into another circuit temporarily
    d. Error message: "low power down and progress"
    e. Recommendation: Use protector/arrestor
2. Big ALEC IV flashing message: "Stuck keypad" and beeping
    a. Needs new keypad, part number TIM-2002-OVLY
    b. unplug power supply
    c. Remove 6 screws from back
    d. rip off self-adhesive keypad
    e. install new overlay
3. Alternating Current (AC) output voltage
    a. 24VAC to solenoid, etc.
    b. TIM-2000-2 and TIM-2000-2A solenoids are 24VAC
4. ELECTRICAL FAILURE – bypassing
    a. There is *not* an electronic bypass function that allows the customer to bypass the solenoids if the unit fails electrically
    b. Customer must physically bypass the fluid solenoid to the station and must physically bypass the air solenoid to pump

Caution: customer must shut down the air supply to the pump overnight due to the potential for fluid leakage.

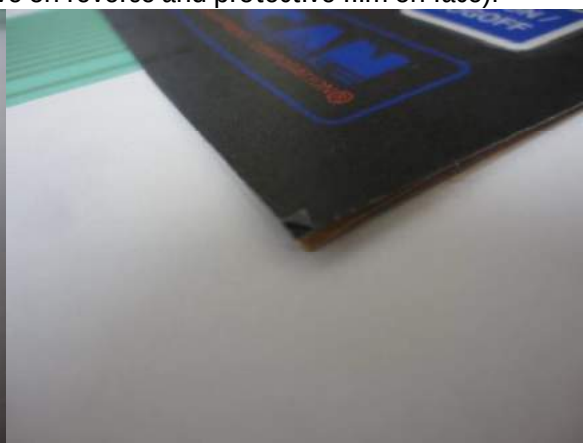
TIM-2002-OVLY Replacement

Replacement procedure:

1. Open the TIM-2002-CON control box by removing four screws on reverse.

2. Disconnect the overlay connector.
3. Peel off the defective overlay.

4. Overlay
5. Install new overlay (double-sided Scotch adhesive on reverse and protective film on face).



6. Reconnect and close.

Note: Solid copper wire is not recommended because it is prone to internal breaks.

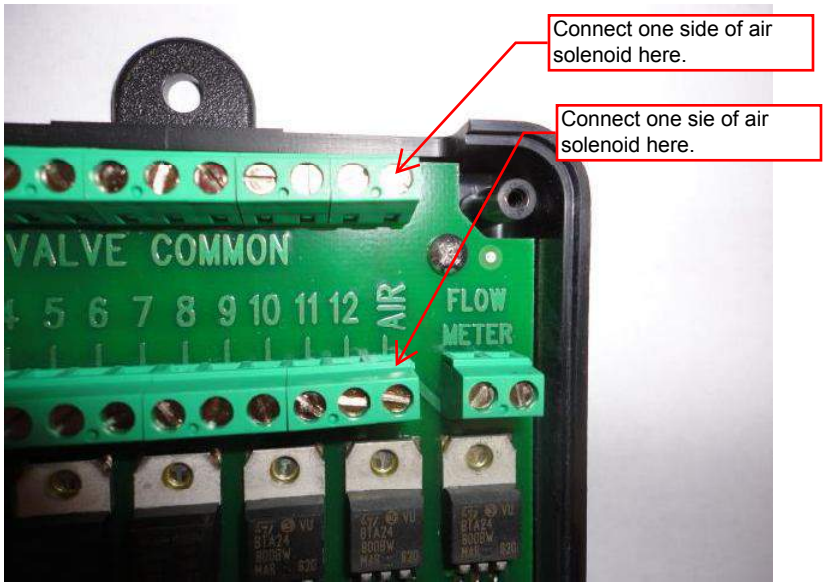
TIM-2000-5 Pulse Meter Wiring (Connects to TIM-2002-BOX)

Note: The TIM-2000-5 pulse meter is a passive device. A 'pulse' is actually a resistive change. The pulse meter does *not* output a voltage.

Procedure:

1. Open the TIM-2002-BOX. See below.

2. Connect the two wires from the TIM-2000-5 Pulse Meter to the two terminals labeled "Flow Meter". Note: The wires/connections are reversible.



3. Close TIM-2002-BOX.

The TIM-2000-37 is directional, the fluid line from the pump must be connected to the solenoid inlet port (inlet has filter screen).

TIM-2000-5 Pulse Meter is *not* directional (It is bidirectional. It will count flow in either direction).

TIM-2002-CON Keypad

TIM-2000-5 Pulse Meter

TIM-2000-36 Ready Light

TIM-2002

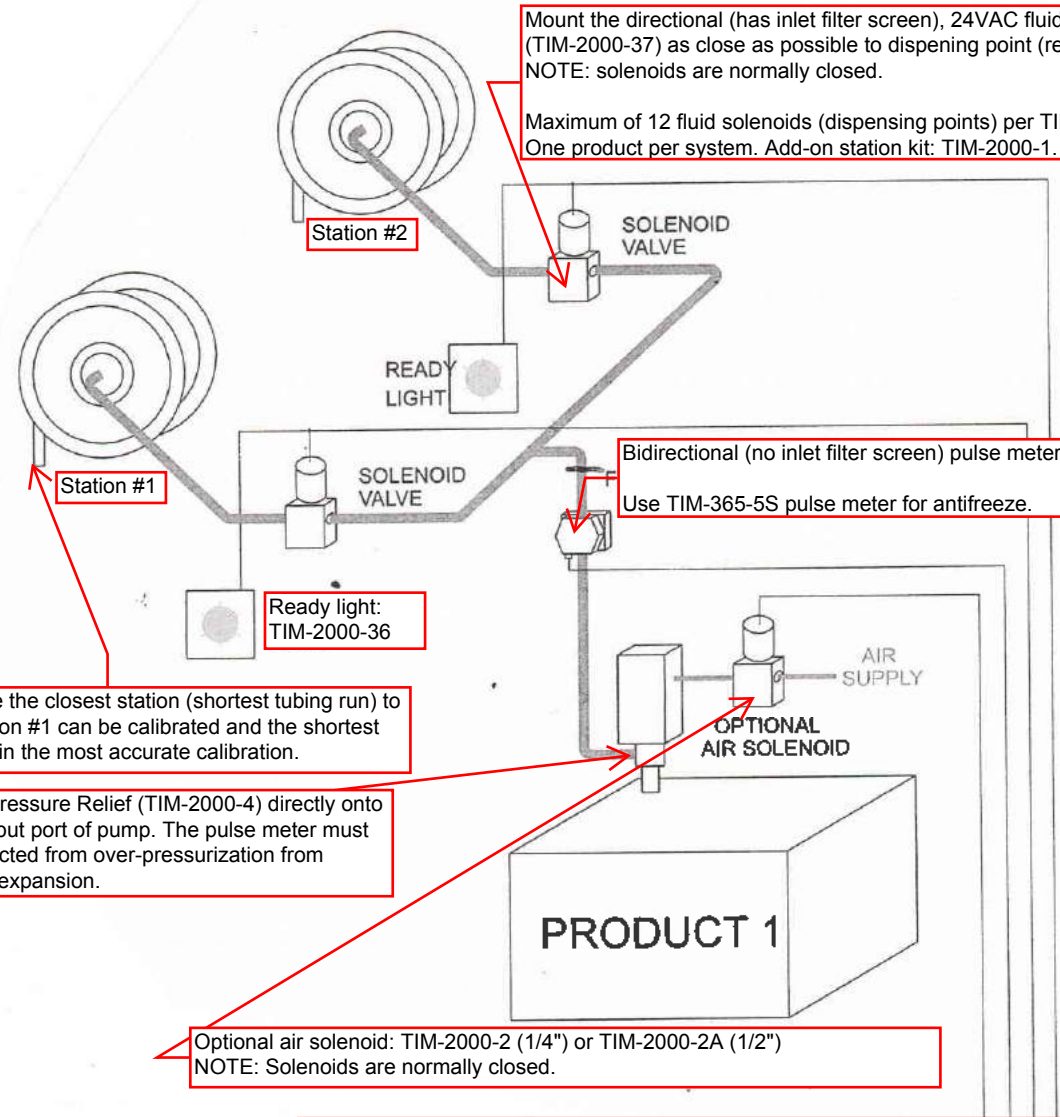
TIM-2002-BOX Junction Box

TIM-2000-37 Fluid Solenoid Valve

TIM-2000-24AC Power Pack

TIM-2002 Illustrated Parts Breakdown

Sample Big ALEC IV (TIM-2002) System Layout



Mount the directional (has inlet filter screen), 24VAC fluid solenoid valves (TIM-2000-37) as close as possible to dispening point (reel, oil bar, etc.). NOTE: solenoids are normally closed.

Maximum of 12 fluid solenoids (dispensing points) per TIM-2002 system. One product per system. Add-on station kit: TIM-2000-1.

Bidirectional (no inlet filter screen) pulse meter: TIM-2000-5.

Use TIM-365-5S pulse meter for antifreeze.

Station #1 should be the closest station (shortest tubing run) to the pump. Only station #1 can be calibrated and the shortest possible run results in the most accurate calibration.

Mount Pressure Relief (TIM-2000-4) directly onto fluid output port of pump. The pulse meter must be protected from over-pressurization from thermal expansion.

Optional air solenoid: TIM-2000-2 (1/4") or TIM-2000-2A (1/2")
NOTE: Solenoids are normally closed.

Console (aka: Keypad): TIM-2002-CON; Replacement keypad overlay: TIM-2002-OVLY (atached to plastic box via double-sided adhesive tape).

Junction Box: TIM-2002-BOX

Console/Junction-Box connector cable: TIM-2000-8 (6' long) or TIM-2000-8 (10' long).

Power Pack: TIM-2000-24AC

Replacement Console/Junction-Box/Power-Pack: TIM-2002-REP

EASY TO OPERATE
Two-line alpha-numeric LED display prompts the user with operating instructions

PRODUCT NAME DISPLAY
Keypad can be set up to display any of 24 pre-programmed product descriptions

PASSWORD PROTECTION
Programmable password protection (three levels) prevents unauthorized use

EXTREMELY ACCURATE
Field calibrateable (two different methods) for the highest level of accuracy

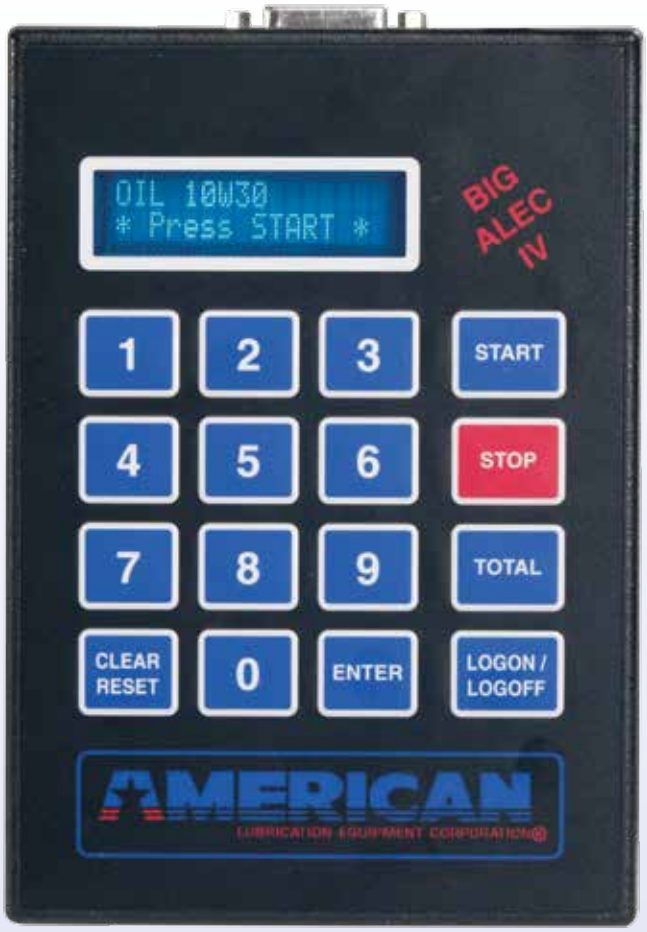
CHANGEABLE UNIT OF MEASURE
Can be programmed in the field for Pints, Quarts, Gallons or Liters

USER RE-SETTABLE TOTALIZER
Allows more inventory tracking options for the end user

WALL MOUNTABLE
Keypad and junction box include built-in wall mount bracket for ease of installation

COMPACT DESIGN
Small keypad with remote mounted wiring junction box takes up less space and gets wiring out of the way of the user

FULL NUMERIC KEYPAD
Allows direct entry of preset amount. Competitive models have only three buttons to accomplish this task



TIM-2002-REP

TIM-2000-3x, p.63,83

Specifications

System Capacity ..... Single Product, 1 to 12 Dispensing Points
System Requirements .. Properly Sized Thermal Relief Kit Required
Electrical Requirements ..... 120 VAC, 60HZ
Pulse Meter ..... 1,000 PSI Max, 1/2" NPT (F)
Fluid Solenoid ..... 3,000 PSI Max, 1/2" NPT (F)
Wiring Requirements ..... 22 Ga = <150'
..... 18 Ga = 151' - 250'
..... 16 Ga = 251' - 500'

TIM-18-WIRE

buy locally

Fluid Compatibility

- Antifreeze Mixtures
- Automatic Transmission Fluid
- Gear Oil
- Hydraulic Oil
- Motor Oil
- Synthetic Oil

TIM-2002

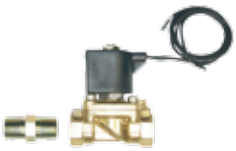
Fluid Inventory Control System
Includes keypad unit, junction wiring box, 6' connection cable (not shown), pulse meter, 1/2" fluid solenoid valve, ready light assembly and 1/2" union adapter. Handles one product to one dispensing point. Expandable to handle up to twelve dispensing points by ordering additional TIM-2000-1 add-on station kits. Can be connected to an air solenoid safety kit (order separately). Control console can be wall mounted using built-in mounting feature.

Requires either TIM-2000-4 or TIM-2000-4A pressure relief kit (order separately)

Accessories

TIM-2000-1	**Add-On Station Kit** For adding additional dispensing stations to the control console. Includes 3,000 PSI 1/2" fluid solenoid valve with inlet filter, 1/2" union adapter and ready light assembly.
TIM-2000-2	**1/4" Air Solenoid Safety Kit** For pumps with 1/4" air inlets. Shuts off air flow to the pump when fluid inventory control system is inactive. Helps prevent potential oil spills. Must be connected to junction wiring box.
TIM-2000-2A	**1/2" Air Solenoid Safety Kit** For pumps with 1/2" air inlets. Shuts off air flow to the pump when fluid inventory control system is inactive. Helps prevent potential oil spills. Must be connected to junction wiring box.
TIM-2000-3A	**Wire Spool** 500' spool of 2-conductor 22-gauge wire *See page 83 for additional wire options.*
TIM-2000-4	**600 PSI Pressure Relief Kit** Relieves pressure build-up in the fluid line due to thermal expansion. Must be plumbed back to oil supply tank. Use on 3:1 and 5:1 pumps. *A pressure relief kit is required on all TIM-2002 fluid inventory control systems*
TIM-2000-4A	**900 PSI Pressure Relief Kit** Relieves pressure build-up in the fluid line due to thermal expansion. Must be plumbed back to oil supply tank. Use on pumps with ratios above 5:1. *A pressure relief kit is required on all TIM-2002 fluid inventory control systems*
TIM-2000-5	**Replacement Pulse Meter** 1,000 PSI maximum working pressure, 1/2" NPT (F) *Big ALEC III and Big ALEC IV F.I.C. systems only. Not for use with antifreeze.*
TIM-2000-6A	**1/2" Y-Strainer** 600 PSI maximum working pressure @ 100°F. Used for keeping contaminants out of the system.
TIM-2000-7	**6' Connector Cable** Used to connect the keypad unit to the wiring junction box. Cables can be connected together for runs up to 30'.
TIM-2000-8	**10' Connector Cable** Used to connect the keypad unit to the wiring junction box. Cables can be connected together for runs up to 30'.
TIM-2002-OVLY	**Overlay Kit** Replacement overlay for TIM-2002 keypad
TIM-2002-REP	**Replacement Keypad** Includes TIM-2002-CON keypad unit, junction wiring box and power source
TIM-365-5S	**Pulse Meter** 1,000 PSI maximum working pressure, 1/2" NPT (F). 40 pulse per gallon old style mechanical pulse meter for older Big ALEC and Little ALEC systems. Will also work on many competitive systems which use mechanical pulse meters. Handles antifreeze and antifreeze solutions as well as oils. *Should be used in place of standard pulse meter when pumping antifreeze*
TIM-6	**Oil Bar Adapter Kit** Used to connect fluid dispensing system solenoid valve to an oil bar. Use one kit per outlet.

TIM-2000-1



TIM-2000-2
TIM-2000-2A

this wire can be used for ready lights, air and fluid solenoids.

TIM-2000-3A

TIM-2000-4
TIM-2000-4A

replace if axle shafts are loose.

TIM-2000-5

TIM-2000-6A

TIM-2000-7
TIM-2000-8

TIM-365-5S

TIM-6