Pro48 & Pro48K

Multi-Function Irrigation Tester

Instruction Manual

INTRODUCTION

This guide is intended to acquaint you with the safe operation and maintenance procedures for the Armada Technologies Models Pro48 and Pro48K multi-function irrigation tester kit. Read this entire guide before operating the Pro48 or Pro 210F tone probe found in the kit. Keep this guide available to anyone who may be required to use these products.

DESCRIPTION

The Pro48K consists of a Pro48 multi-function irrigation tester, a Pro210F advanced tone probe, and a soft carrying case. The functions of the Pro48 include:

- Testing voltage/output from the clock/controller.
- Activating solenoids.
- Testing a solenoid or wiring for continuity.
- Chattering a solenoid for lost valve locating.
- Sending tone to identify wires.

The Pro210F Tone Probe is an advanced tone sensing probe for identifying wires in conjunction with the Pro48 in tone sending mode.

Safety

Safety is essential in the use and maintenance of Armada tools and equipment. This instruction manual and any markings on the tool provide information for avoiding hazards and unsafe practices related to the use of this tool. Observe all of the safety information provided.

NEVER CONNECT THE PRO48 TO 120 VOLT POWER SUPPLY OR HIGHER. THE UNIT WILL BE DAMAGED AND PERSONAL INJURY OR DEATH MAY OCCUR.

THE PRO48 EMITS A 36 VOLT POWER SOURCE FROM THE ALLIGATOR CLIPS. DO NOT TOUCH THEM WHILE UNIT IS IN OPERATION.

OPERATION

NOTE: *Sections A-E apply to the Pro48 multi-function irrigation tester by itself. Sections F and G will incorporate the Pro210F advanced tone probe.*

A. Battery Test
1. Connect the red and black alligator clips together.
2. Place the top switch to the SOLENOID ACTIVATE mode.
3. If the batteries are good (at least 15 volts) the SHORT LED will turn on. If batteries are weak, the short light may only stay on briefly or not at all.

B. Clock Test
1. Place the Pro48 in the OFF mode. Connect the red alligator clip to the station wire to be tested and the black alligator clip to the common wire.
2. Turn on the clock station to be tested.
3. If the proper voltage is detected, the CLOCK 24V AC LED will turn on.

C. Activating/Testing a Solenoid at the Clock
NOTE: *The Pro48 cannot activate solenoids that run on AC voltage only (i.e., capacitor coupled solenoids).*

1. To activate solenoids from the clock, turn the clock off and place the top switch of the Pro48 to OFF.
2. Connect the Pro48 by attaching the red lead to the station wire and the black lead to the common wire.
3. Place the side sliding switch to ACTIVATE and the top switch to SOLENOID.
4. The solenoid under test should activate and the GOOD LED (see display on the front of the Pro48) should turn on.
   If the solenoid does not activate, one of the following conditions may exist:
   • Short: SHORT LED is on (< 10 Ohm)
   • Open: OPEN LED is on (> 200 Ohm)
5. The Pro48 must be turned off to reset the unit after the solenoid is activated.

NOTE: *If the GOOD LED does not illuminate, the solenoid should be tested at the valve. The wires may be the problem.*

D. Activating/testing a solenoid at the valve
1. Put the top switch to the OFF mode.
2. Disconnect the solenoid from the station and common wires.
3. Attach the red and black leads to the solenoid wires.
4. Switch to SOLENOID mode and select side switch to ACTIVATE.
5. The solenoid should activate and the GOOD LED (see display on front of unit) should turn on.
6. If the solenoid does not activate, one of the following conditions may exist:
   - Short: SHORT LED is on (< 10 Ohm)
   - Open: OPEN LED is on (> 200 Ohm)

NOTE: *If the GOOD LED is on and the solenoid does not activate, it may be due to a mechanical failure in the valve.*

E. Chatter the solenoid valve
NOTE: *The GOOD LED must illuminate under the "Solenoid and Activate mode" before using the chatter mode.*

1. To chatter the solenoid for the purpose of locating the valve from the clock, turn the clock off and switch the Pro48 to OFF mode.
2. TURN OFF THE WATER to irrigation system.
3. Disconnect both the station and common wire from the controller.
4. Connect the Pro48 by attaching the red lead to the station wire and the black lead to the common.
5. Select side switch to CHATTER and top Switch to SOLENOID mode.
6. Proceed to the field and listen for the chattering sound at the solenoid valve.

F. Sending Tone and Tracing
The tone function is used for identifying the route and end point of a wire. For the tone function to be useful, a tone probe like the Pro210F is required. If you purchased the Pro48 multi-function irrigation tester separately, a tone probe will need to be purchased to use this function.

1. Connect the red lead to the station wire and the black lead to earth ground.
2. Place the top switch to the SEND TONE mode.
3. Proceed to opposite end of wire and locate the tone with the Pro210F tone probe. Reception of the tone is strongest on the target wire.

G. Using the Tone Tracing Probe

The Pro210F tone probe included in the Pro48K kit is used to receive the tone signal from the Pro48 multi-function irrigation tester (it is not included if you purchased just the Pro48). The tone receiving function is turned on by holding down the black button on the unit top. The Pro210F has a bright LED headlight that comes on when the button is down.

The volume control is located on the right side of the probe. Adjust it to a level appropriate to your surroundings and comfort. Rolling the control forward increases the volume.

Pressing the main button, move the probe near the wire or wires you are trying to identify. The wire that emits the loudest signal is the one connected to the Pro48. If the tone seems obscured by other noises, briefly lift and re-press the main button to enter the Noise Filtered mode.

A strong signal will cause the front signal LED to glow green. If the probe battery is low, the battery LED will glow red.

SPECIFICATIONS

Electrical Connections

- Minimum Voltage for Clock LED is 18 Vac.
- Minimum Battery while Testing is 15 Vdc.
- Maximum Input Voltage between Test Leads is 28 Vac. Solenoid Circuit Recharge Time is 0.5 sec
- Peak output voltage is 36 Vdc.

Solenoid activation Range
NOTE: Depends on battery condition.
- 12 AWG Loop …… 3000-13000 feet
- 14 AWG Loop …… 2000-8500 feet

- 18 AWG Loop …… 500-3000 feet

Physical Size

Pro48 Multi-Function Irrigation Tester
Length ………….. 160 mm (6.0")
Width ……………. 80 mm (3.0")
Depth …………… 35 mm (1.5")
Weight…………... 0.27 kg (9.6 oz)

Pro210F Tone Probe
Length …………….. 240 mm (9.5")
Width ……………… 50 mm (1.9")
Depth ……………... 50 mm (1.9")
Weight ……………. 0.12 kg (4.5 oz)

Temperature
Operation and storage
0° C to 50° C (32° F to 122° F)

MAINTENANCE
Battery Installation or Replacement

WARNING BEFORE REPLACING BATTERIES, BE SURE THE Pro48 IS OFF AND NOT CONNECTED TO A VOLTAGE SOURCE.

Pro 48 Batteries
Two 9 V (NEDA1604 or 6LR61)
1. Turn the Pro48 off.
2. Disconnect the Pro48 from any power source.
3. Remove the battery cover by pushing in and sliding down.
4. Install two (2) 9 V batteries (observe polarity).
5. Replace the battery cover.

Pro210F Tone Probe Batteries
Four AA (LR6)

1. Remove the screw securing the battery cover and the remove the cover.
2. Install four (4) AA alkaline batteries, taking care to observe the polarity markings.
3. Replace and secure the battery cover.

One-Year Limited Warranty
Armada Technologies warrants all products will be free from defects in material and/or workmanship for a period of 12 months from the date of retail purchase. Abuse or misuse is not covered by warranty and is determined at the sole discretion of Armada Technologies.
For all test instrument repairs, you must first request a Return Material Authorization Number (RMA) by contacting Armada at (616) 803-1080 or if international, through your local dealer who can be found at www.Armadatech.com.

This RMA number must be clearly marked on the shipping label.
Ship units Freight Prepaid to:

Armada Technologies
3596 76th St. SE
Caledonia, MI 49316

Note: *Prior to returning any test instrument, please check to make sure batteries are fully charged. The biggest reason for test failure is bad batteries. Additionally, it requires a significant amount of battery power to activate solenoids. Consequently, battery drain is relatively rapid and therefore battery life relatively short (approx. 4 hours) in this mode.*