

# **Analog Condensate Monitor Instruction & Maintenance Manual**

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**Analog  
Condensate Monitor  
Instruction & Maintenance Manual  
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## I. Introduction

Analog condensate monitors continuously maintains the conductivity in the condensate line. When the condensate conductivity rises above a preset limit, the unit will activate a normally open relay. This relay can be used to activate a valve and/or alarm device to notify the operator of a system upset. The relay provides both Normally Open and Normally Closed power so it can be used with a motorized diverter type valve.

There are two basic styles of analog condensate monitors differentiated by the style of display used.

1. **Analog Dial Display** - Analog dial display units have a dial display for setting and control of the conductivity. Model Numbers begin with **B-CM-1** or **2-B-CM-1M**
2. **Analog Needle Meter Display** - Analog needle meter display units provide continuous needle meter for setting and displaying the conductivity. Needle meter models covered in this manual include: **B-CM-1M** and **2-B-CM-1M**.

### Model Numbering

Standard analog condensate monitors have several optional features available. Your unit may be supplied with one or more of the options that are described in this manual. To determine what features apply to your unit, check the model number label located on the controller enclosure.

#### Optional Features

1	230 Volt 50/60 Hz	8D	Same as 8A with both cords for N.O. operation
2	Recorder Output (0-1 mA)	A	High Temperature scaling
3	High / Low Alarm relay	K	Dry contact (N.O. and N.C. outputs)
4	4-20 mA non-isolated output	Q	Additional Scales
5	Dry contact for alarm output	R	Molex connector on electrode
8	Unit Prewired - 8" Power Cord with Male plug, 11" output cord	S	NEMA 1 Heavy Duty Steel Enclosure for conduit wiring
8A	Prewired with 2 - 11" output cords for motorized ball valve	S-1	NEMA 1 Heavy Duty Steel Enclosure - Prewired
8B	Same as 8A with additional output cord for pump	T	Switch for Power On/Off
8C	Conduit wiring except for power cord	W-1	25 Ap power relay on main control output.

## II. Installation

### Mounting Instructions

Select a mounting location that provides the operator easy access to the unit and a clear view of the controls through the cover of the controller. The location should be convenient to grounded electrical connections, the required sample line plumbing, and installed on a stable vertical surface.

The electrode is designed for mounting in the skimmer(surface) blowdown line. For a successful installation, it is critical to observe the recommended distances and pipe sizes provided in the installation drawing.

**WARNING:**

**Avoid locations that expose the controller to direct sunlight, vapors, vibration, liquid spills or extreme temperatures; less than 0°F (-17.8°C) or greater than 120°F (50°C). EMI (electromagnetic interference) from radio transmissions and electric motors can also cause damage or interference and should be avoided.**

**Electrical Wiring**

Standard analog controllers have an internal regulated power supply that will operate in the range of approximately 105 to 135 VAC on the incoming wiring. Units are protected with a replaceable 12 amp fuse. Relay outputs voltage will equal incoming line voltage.

Standard conduit units are predrilled at the factory and supplied with conduit knockouts for easy wiring to supplied connectors located in the lower section of the controller. Remove the screws of the panel for access and to view wiring diagram. Optional prewired units are supplied with a 16 AWG cable with 3-wire grounded USA 115 volt plug for incoming power and 16 AWG 3-wire grounded receptacle cords for all control relay outputs.

**NOTES:**

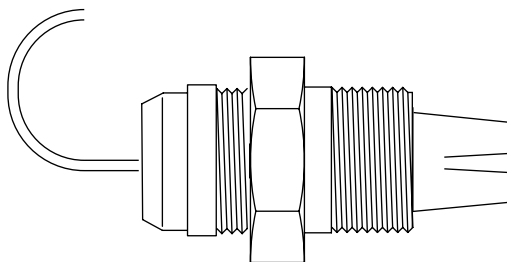
1. The conductivity probe two wire lead run between the controller and the probe should be approximately 22 gauge wire twisted pair.
2. Incoming line voltage and relay output wire should be approximately 16 gauge.

**WARNINGS:**

1. The controller should be connected to its own isolated circuit breaker and for best results the ground should be a true earth ground, not shared. Wiring must be done according to all applicable local codes.
2. Power (line voltage) must be disconnected while making any connections. If power is supplied to the unit, line voltage will be present on the relay card.
3. Low voltage signal wires (probes, flow switch, water meter, etc.) should never be run in conduit with high voltage wires.

**Electrode Installation**

The Model AH-1B electrode furnished with this system has an 1" MNPT fitting. The electrode is designed for insertion directly into the condensate line but must be in water.

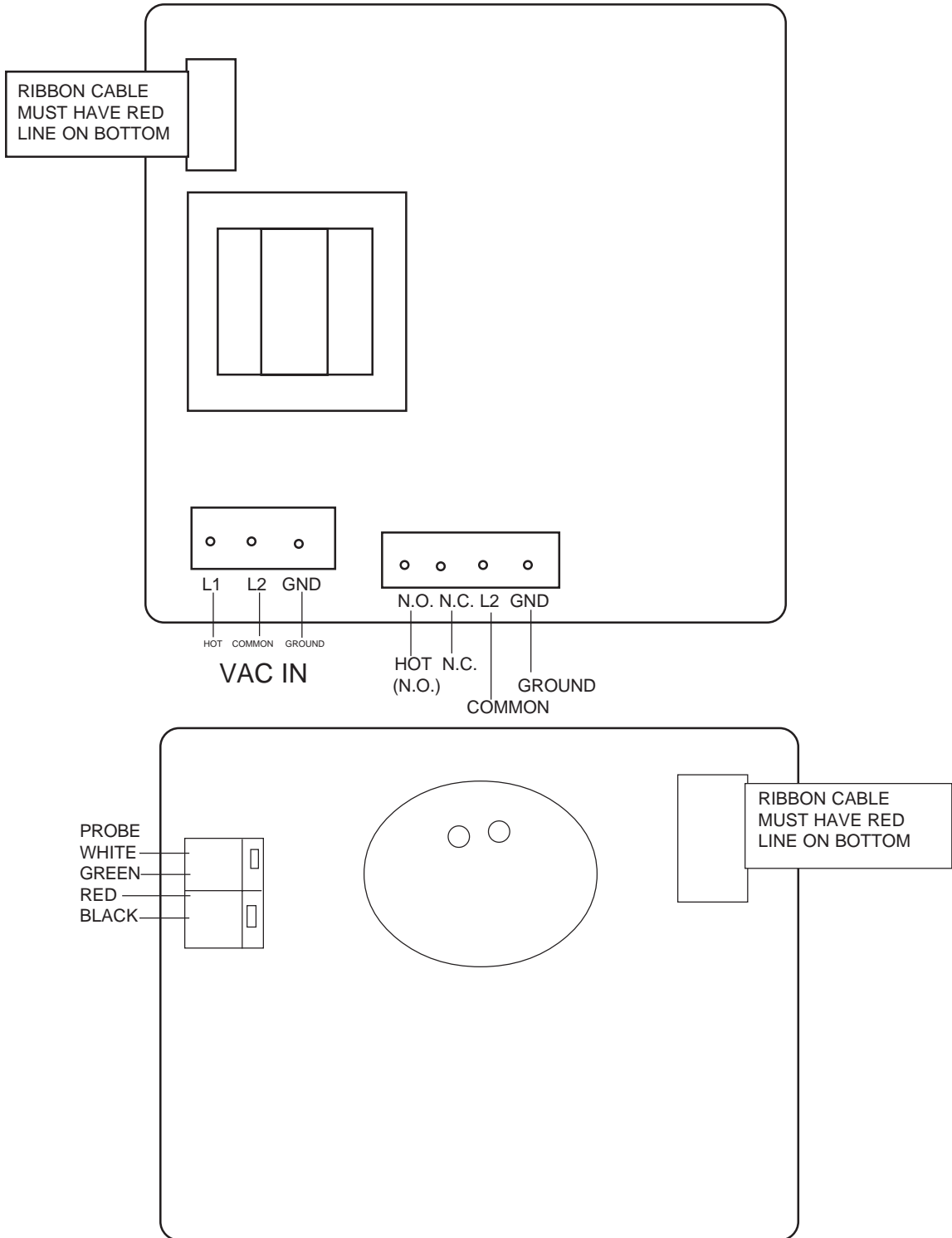


**Specifications**

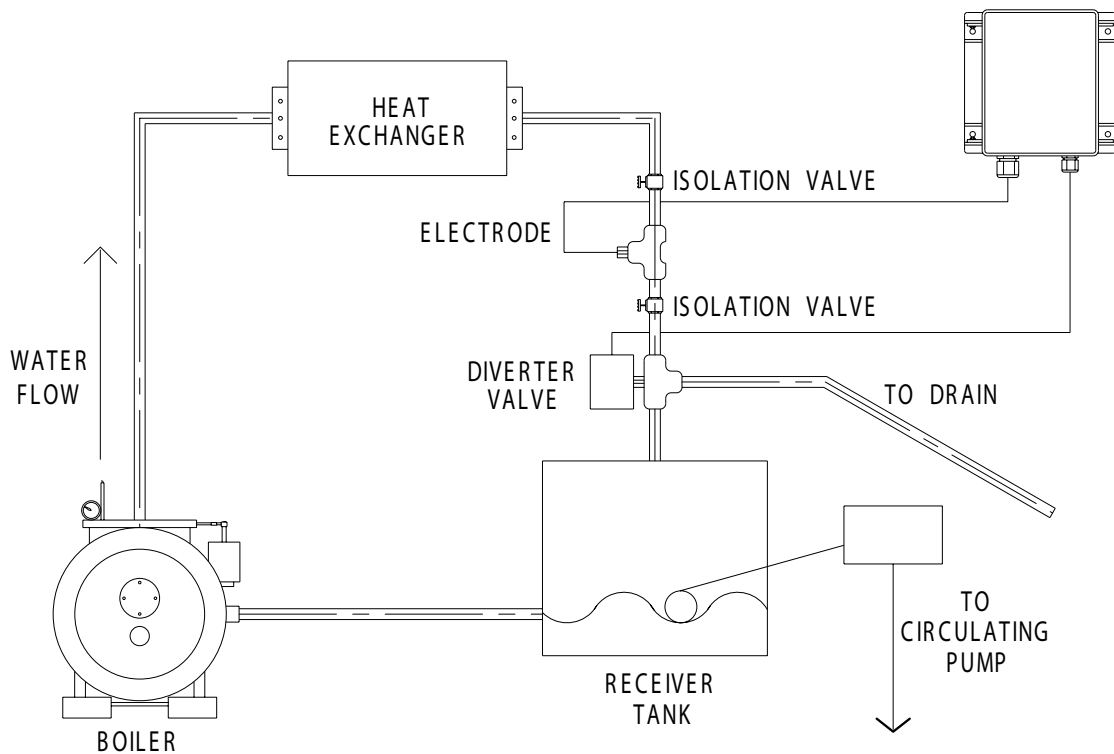
1" NPT Stainless Steel Bushing  
Insertion Type Construction ..... SS and Ryton  
Electrodes ..... Stainless Steel  
Pressure maximum ..... 300psi  
Temp. Max. .... 212°F  
B range Temperature Compensation ..... 32-212°F.

# CONDUIT LAYOUT

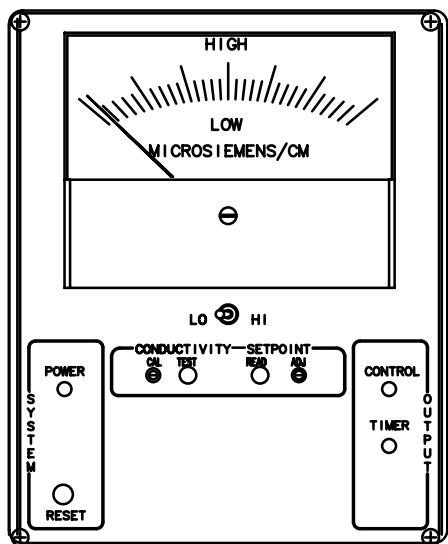
## Terminal Block Connections for 2-B-CM



## Typical Installation Drawing



## Section III - Front Panel Description



CONDUCTIVITY DISPLAY ... Used to read and set the conductivity set point and to determine the current conductivity level.

CALIBRATION ADJUST ..... Used to change the current conductivity reading. To use, adjust the screw to the left or right to achieve the conductivity you desire.

SET POINT ADJUST ..... Used in conjunction with READ switch to adjust set point of controller.

HI/LO SCALE ..... Used to select the high scale (0-500  $\mu$ S) or the low scale (0-100  $\mu$ S).

CONTROL LED ..... Lights whenever the conductivity exceeds the set point.

POWER LED ..... Lights whenever power is supplied to the controller.

OPERATE/TEST SWITCH .. Holding the switch in the test position activates the control relay.

## IV. Start-Up

### A. Calibration Instructions

Be sure the electrode is clean before calibration.

- 1) Use a reliable test method to determine the conductivity of the condensate.
- 2) With controller powered up, and the electrode installed in the line, adjust the calibration potentiometer until the meter reading matches the reading achieved in step 1 above.
- 3) Adjust the set point on the controller. This is the level at which you want the relay to activate. Depress the HOLD DOWN TO READ SET POINT switch and adjust set point on meter to desired control setting. The alarm points will automatically be set at approximately +/- 20% of the set point.

## V. Maintenance

### Electrode Cleaning Procedure

1. Record the current conductivity reading.
2. Remove electrode.
3. Remove protective guard from electrode tip.
4. Use a clean cloth and a mild cleaning solution to remove loose dirt, etc., from the flat surface of the electrode.
5. If deposits such as scale are attached to the electrode surface, use a more aggressive cleaning approach. There are several ways to do this, the preferred method is the one that is easiest for the user.
  - a. Use mild acid solution to dissolve deposits.
  - b. Use pocket knife to scrape across the probe surface *perpendicular* to the electrodes.
  - c. Lay a piece of sandpaper (200 grit or finer) on a flat surface such as a bench top. "Sand" the electrode to remove stubborn deposits.
6. Reinstall the electrode in the system. After the reading stabilizes, calibrate the unit to a reliable test reading.

## VII. Troubleshooting

Advantage controllers are designed for many years of trouble-free operation. Should a problem occur, refer to the following chart to help identify the problem. If replacement is required, follow the procedures listed in the Warranty and Factory Service portion of this manual.

SYMPTOM	POSSIBLE CAUSE	SOLUTION
False reading	Bad or dirty electrode Out of calibration	Clean as needed Calibrate unit.
Will not calibrate	Dirty electrode Faulty electrode Faulty wiring to electrode Defective unit	Replace unit.  Replace electrode.
No system power	Check power source Check fuse	Replace unit Replace as needed.

## VII. Warranty

Advantage Controls, Inc. warrants control systems of its manufacture to be free of defects in material or workmanship. Liability under this policy extends for 24 months from date of shipment. Liability is limited to repair or replacement of any failed equipment or part proven defective in material or workmanship upon manufacturer's examination. Removal and installation costs are not included under this warranty. Manufacturer's liability shall never exceed the selling price of equipment or part in question.

Advantage disclaims all liability for damage its products caused by improper installation, maintenance, use or attempts to operate products beyond their intended functionality, intentionally or otherwise, or any unauthorized repair. Advantage is not responsible for damages, injuries or expense incurred through the use of its products.

The above warranty is in lieu of other warranties, either expressed or implied. No agent of ours is authorized to provide any warranty other than the above.

### 30 Day Billing Memo Policy

Advantage Controls, Inc. maintains a unique factory exchange program to ensure uninterrupted service with minimum downtime. If your controller malfunctions, call 1-800-743-7431, provide our technician with Model and Serial Number information. If he is unable to diagnose and solve your problem over the phone, a fully warranted replacement panel will be shipped, usually within 48 hours, on a 30 Day Billing Memo.

This service requires a purchase order and the replacement panel is billed to your regular account for payment. The replacement panel will be billed at current list price for that model less any applicable resale discount. Upon return of your old panel, credit will be issued to your account at either 100% if your unit is in warranty or at 50% if your unit was out of warranty. The total charge for this exchange is 50% of the current list price for that panel with all resale discounts applying. The exchange covers only the panel. Electrode and enclosure are not included.