

CONDUCTIVITY MONITOR/CONTROLLERS

Installation • Operation • Maintenance

User Manual for Models: 755, 756, 757, 758, 767



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Accuracy • Reliability • Simplicity

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SECTION 1

Introduction

1.1 SCOPE

This manual provides the user with the necessary information to install, operate and maintain the Myron L® Company's 750/760 Series Conductivity Monitors. Sections 1 through 3 provide Monitor applicational descriptions, mounting, wiring and operational procedures. Section 4 identifies their primary components and provides the user with easy-to-use calibration and preventive care procedures.

Section 5 (Appendix A) provides the 750/760 Series Monitor's Replaceable Components Chart.

1.1.1 FUNCTIONAL DESCRIPTIONS

All models have drip/weather-proof housings suitable for panel, bench or surface mounting. The 750 models are a compact 6.0" (152mm) x 4.8" (122mm). The 767 model is 6.0" (152mm) x 10.8" (275mm).

Bright green/red LEDs indicate below/above set point readings. All models except 756 feature a heavy-duty 10 amp output relay, operating on either increasing or decreasing readings.

For specific Monitor configurations, reference the following individual model descriptions.

Model 755

Small controller only. Provides a front panel accessible set point adjustment knob in place of an analog or digital meter readout display.

Model 756

Small monitor only. Standard front panel is equipped with a linear analog meter display only (no relay, LED indicators or set point check switch).

Model 757

Small analog monitor/controller. Single set point is internal to discourage unauthorized adjustments. Standard front panel is equipped with a linear analog meter display and a "SET POINT CHECK" switch.

Model 758

Small digital monitor/controller. Single set point is internal to discourage unauthorized adjustments. Standard front panel is equipped with a digital LCD meter display and a "SET POINT CHECK" switch.

Model 767

Large analog monitor/controller. Single set point is internal to discourage unauthorized adjustments. Standard front panel is equipped with a three (3) range select switch, analog meter display and a "SET POINT CHECK" switch. Options include three (3) cell input capability and dual set point control.

1.1.2 APPLICATIONS

- 1 Reverse Osmosis
- 2 Process Control
- 3 Seawater Desalinization
- 4 Waste Treatment
- 5 Food Processing
- 6 Power Plants
- 7 Laboratories

1.2 SPECIFICATIONS

RANGES:

Refer to Conductivity/ppm Ranges sheet on Page 3 for Conductivity Ranges.

READOUT:

Model 756: 2 1/2" (63 mm) analog meter
Model 757: 2 1/2" (63 mm) analog meter
Model 758: 1/2" (13 mm) 3 1/2 digit LCD
Model 767: 4 1/2" (114 mm) analog meter

ACCURACY:

Model 758: ± 1 % of span
Other Models: ± 2% of span

SENSITIVITY:

0.05% of span

STABILITY:

0.05% of span

REPEATABILITY:

0.1% of span

CALIBRATION CHECK:

Built in

RECORDER OUTPUT:

0-10 VDC @ 5 mA max. (linear); standard on all models

CELL INPUT:

1 (optional 3 Cell Input available on Model 767)

RELAY FUNCTION:

Models 755, 757, 758 and 767:

Single set point control continuously adjustable 0-100% of span

Indicators:

"ABOVE" (red) and "BELOW" (green) set point LEDs

Contact Rating:

SPDT 10 amp @ 250 VAC, 30 VDC. Relay operates increasing or decreasing reading (selectable).

Optional on Model 767 only:

Dual set point control, with above specifications

POWER SPECIFICATIONS:

115 VAC ± 15%, 50/60 Hz, 25 mA

220 VAC (User changeable)

DIMENSIONS 750 SERIES:

6.0" (152 mm) H x 4.8" (122 mm) W x 3.8" (96 mm) D

DIMENSIONS 760 SERIES:

6.0" (152 mm) H x 10.8" (275 mm) W x 3.9" (99 mm) D

AMBIENT TEMPERATURE RANGE:

-22°F (- 30°C) to 140°F (60°C)

HOUSING CONSTRUCTION:

Fully gasketed heavy-duty ABS for corrosion resistance. Rated NEMA type 3.

WEIGHT:

750 Series: 2 lbs. (0.9 kg)

760 Series: 3 lbs. (1.4 kg)

1.3 CONDUCTIVITY CELLS

Both 750 and 760 series conductivity models use the CS51 or CS52 Series cell. The 1.0 cell constant CS51 model is recommended for ranges of 0-20 through 20,000 μ S. Its compact size allows mounting in the top of a standard 3/4" tee. The sturdy polypropylene bushing is modular for easy, inexpensive replacement.

CS52 cells have a 10.0 constant and are used for conductivity values above 20,000 μ S.

1.3.1 CELL SPECIFICATIONS

CONSTANT:

CS51LC: 0.1
CS51: 1.0
CS52: 10.0

TEMPERATURE COMPENSATION:

Automatic to 25°C, between 32-212°F (0-100°C)

PRESSURE/TEMPERATURE LIMITS:

100 psi (689.6 kPa) at 212°F (100°C)

BUSHING:

CS51 (LC): Modular Polypropylene threaded 3/4" NPT
CS52: 316 stainless steel 3/4" NPT internal to cell body

CABLE:

Shielded; 10' (3 meters) standard; 25' (7 meters) and 100' (30 meters) lengths also available.

DIMENSIONS:

CS51 (LC): Metal portion 1.2" (30mm) L; 0.5" (13mm) DIA
CS52: Contact factory for specifications

1.4 OPTIONAL FEATURES

-03: 3 cell input (767 only)
-420: 4-20 mA isolated output (758 only)
-420D: 4-20 mA self powered isolated output (758, 767 only)
-DP: Dual set point (767 only)
-RM: Remote meter (767 only)

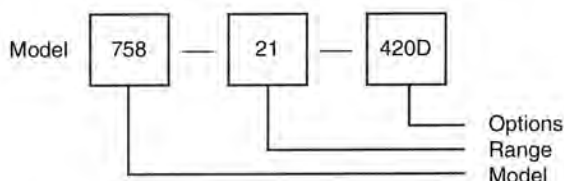
1.4.1 ACCESSORIES

MODEL TYPE

PC: 110V Power cord (8 foot with plug and strain relief fitting)
SMP50: Surface mounting plate for 750 series
SMP60: Surface mounting plate for 760 series
60AM: 4 1/2" analog meter for 767-RM (specify range)
3CE: 3 cell switch with enclosure and trimplate

1.5 HOW TO ORDER MONITOR/CONTROLLERS

EXAMPLE:



This is a small digital monitor/controller with a 0-2000 μ S range and 4-20mA output.

NOTE:

Monitor model number does not include cell. Please specify cell required when ordering.

MODEL TYPES:

755: Small controller only
756: Small analog monitor only (no relay)
757: Small analog monitor/controller
758: Small digital monitor/controller
767: Large 3-range analog monitor/controller

RANGE SUFFIXES:

See CONDUCTIVITY/ppm RANGES sheet, Page 3.

1.5.1 HOW TO ORDER CELLS

CS51 LC: For 0-2 μ S range
CS51: For ranges 20 to 20,000 μ S or ppm
CS52: For ranges above 20,000 μ S or ppm see CONDUCTIVITY/ppm RANGES sheet, Page 3.

CELL CABLE SUFFIX

-25: 25' (7 meters) shielded cell cable
-100: 100' (30 meters) shielded cell cable

Conductivity/ppm Ranges

CS51 SERIES CELLS SUITABLE FOR ALL EXCEPT THOSE NOTED

RANGE	SUFFIX TO INSTRUMENT MODEL NO.	755 CONTROL ONLY	756 ANALOG MONITOR	757 ANALOG MONITOR/ CONTROL	758 DIGITAL MONITOR/ CONTROL	767 LG. ANALOG MONITOR/ CONTROL
0-2 μ S ***	-6				X	
0-20 μ S	-9	X	X	X	X	
0-20 ppm	-10	X	X	X	X	
0-50 μ S	-11		X	X	X	
0-50 ppm	-12		X	X	X	
0-100 μ S	-13	X	X	X	X	
0-100 ppm	-14	X	X	X	X	
0-200 μ S	-15		X	X	X	
0-200 ppm	-16		X	X	X	
0-500 μ S	-17	X	X	X	X	
0-500 ppm	-18	X	X	X	X	
0-1000 μ S	-19	X	X	X	X	
0-1000 ppm	-20	X	X	X	X	
0-2000 μ S	-21	X	X	X	X	
0-2000 ppm	-22	X	X	X	X	
0-5000 μ S	-23		X	X	X**	
0-5000 ppm	-24		X	X		
0-10,000 μ S	-25		X	X	X**	
0-10,000 ppm	-26		X	X		
0-20,000 μ S	-27		X	X	use-29**	
0-20,000 ppm	-28		X	X		
0-20 mS	-29				X	
0-20, 200, 2,000 μ S	-30					X
0-20, 200, 2,000 ppm	-31					X
0-50, 500, 5,000 μ S	-32					X
0-50, 500, 5,000 ppm	-33					X
0-100, 1,000, 10,000 μ S	-34					X
0-100, 1,000, 10,000 ppm	-35					X
0-200, 2,000, 20,000 μ S	-36					X
0-200, 2,000, 20,000 ppm	-37					X
0-500, 5,000, *50,000 μ S	-38					X
0-500, 5,000, *50,000 ppm	-39					X
*0-50,000 μ S	-40		X	X		
*0-50,000 ppm	-41		X	X		
*0-100,000 μ S	-42		X	X		
*0-200,000 μ S	-44		X	X		
*0-200 mS	-46				X	

*CS52 SERIES CONDUCTIVITY CELLS REQUIRED FOR THESE RANGES

** READS IN MILLISIEMENS (mS)

*** CS51LC CELL (0.1 constant) REQUIRED FOR THIS RANGE

NOTE: UNLESS ppm/NaCl is specified with order, ppm type conductivity instruments will be calibrated on the Myron L® "442" Natural Water™ standard

SECTION 2

Installation

2.1 GENERAL

This section provides the recommended procedures for properly installing the 750/760 Series Conductivity Monitors and cells.

WARNING!

The Myron L® Company recommends that all mounting and electrical installation procedures be performed by trained and authorized personnel ONLY! Failure to do so could result in personal injury or loss of life. In addition, damage to the equipment and/or property may occur.

2.2 MECHANICAL INSTALLATION

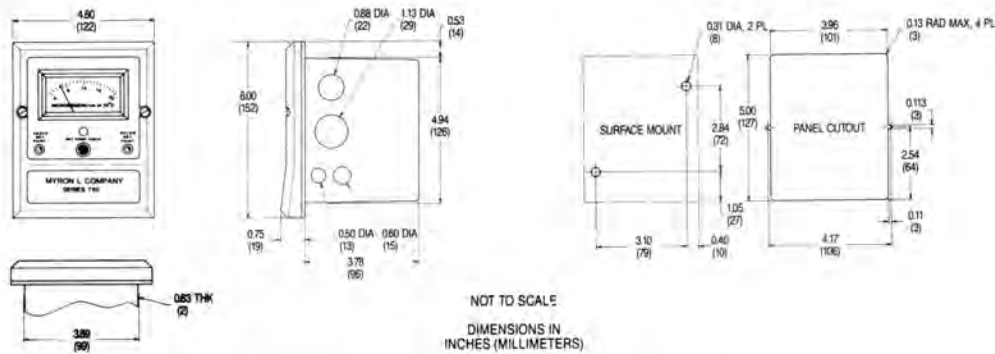
All Monitor electronics are packaged inside drip/weather-proof housings. The physical dimensions of both small and large housings are suitable for panel, bench or surface mounting.

There are three basic guidelines to consider when selecting a Monitor's mounting location:

STEP 1 Select a site that limits the Monitor's exposure to excessive moisture and corrosive fumes.

STEP 2 For best results, position your control area as close as possible to the point(s) being controlled.

750 SERIES



MODEL 767

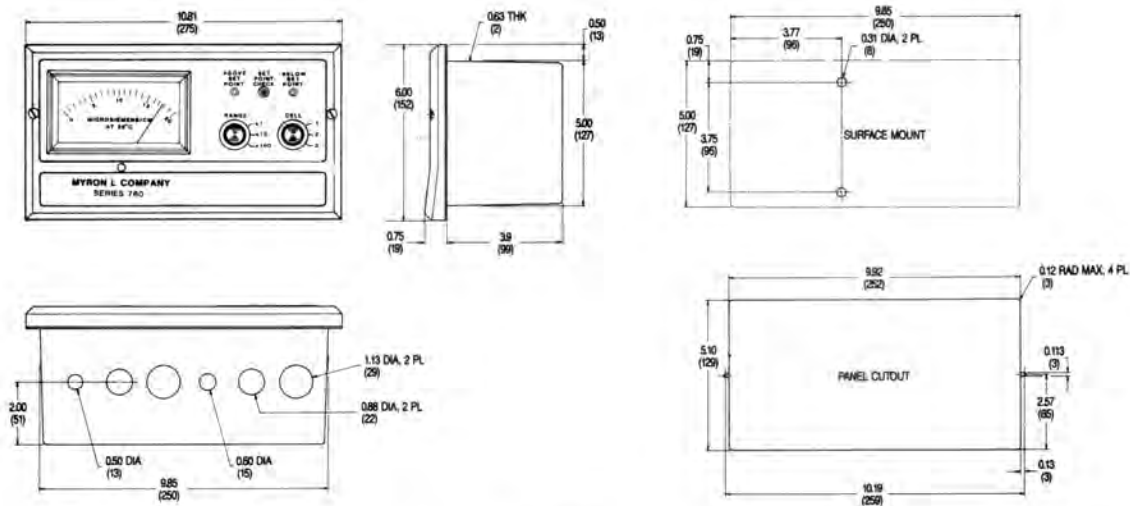


FIG. 2-1
SURFACE AND PANEL MOUNTING DIAGRAMS

NOTE:

The 750/760 Series Conductivity Monitors are not designed to operate with a Cell cable length that exceeds 100' (30 meters).

STEP 3 If at all possible, mount the Monitor at eye level for viewing convenience.

2.2.1 SURFACE MOUNTING WITH SMP ASSEMBLY

NOTE:

A Surface Mounting Plate (SMP) will be required when access to the far side of the mounting site is impractical. For 750 series monitors, use the SMP-50 and for 760 series monitors, use the SMP-60. Surface mounting will require two (2) 1/4" X 20 mounting screws. (The mounting screws are packaged with the SMP assemblies.) If an SMP is being used, the user must supply four (4) additional screws or bolts. Their size is to be determined by the user.

STEP 1 Select your mounting location. Mark and drill the four (4) required mounting holes. For hole locations, use the SMP as a template. Install any lags or threads required.

STEP 2 Drill the corner holes in the SMP according to the size of the screws or bolts selected.

STEP 3 Attach and securely fasten the SMP to the Monitor using the 1/4" X 20 X 3/8" screws provided.

STEP 4 Mount the SMP to the prepared site using the selected screws or bolts.

2.2.2 SURFACE MOUNTING WITHOUT SMP ASSEMBLY

NOTE:

Surface mounting will require two (2) 1/4" X 20 screws of a length equal to the thickness of the mounting site plus 3/8"

STEP 1 Select mounting site location. Mark and drill the required mounting holes. For hole drilling locations, see Fig. 2-1.

STEP 2 Insert the 1/4" X 20 screws into the holes from the side opposite the mounting site.

STEP 3 Hold the Monitor in place while starting and tightening the mounting screws.

2.2.3 PANEL MOUNTING

A panel mounting fastening kit is provided with all Conductivity Monitors. Panel mounting will require the use of the fastening kit's two (2) 4-40 mounting screws/nuts or two (2) #4 x 1/2" sheet metal screws. See Fig. 2-1 for panel cutout dimensions.

STEP 1 Select your mounting location. Mark the appropriate panel cutout and complete the necessary panel cut.

STEP 2 Carefully unfasten and separate the Monitor's front panel from its enclosure.

STEP 3 Disconnect all panel cable(s)/wires from the Monitor's Control board.

STEP 4 Slide the enclosure through the panel cutout until its flange contacts the panel.

STEP 5 Insert mounting screws through the flange mounting holes and tightly secure.

STEP 6 Reconnect all panel cable(s)/wires and re-secure the front panel.

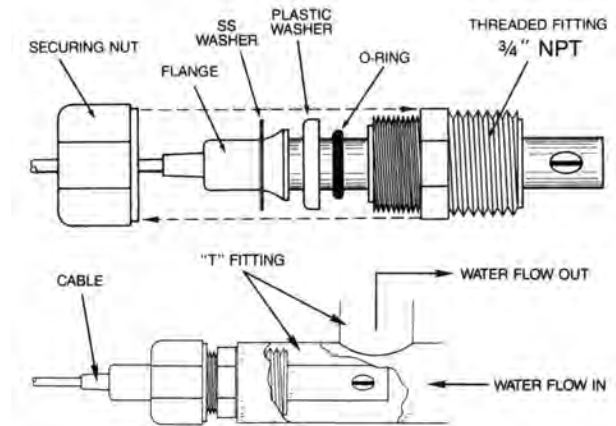
2.3 CELL INSERTION/DIP MOUNT ASSEMBLIES

A CS51 Cell's mounting orientation must provide a continuous and adequate circulation flow to prevent the trapping of air bubbles within the Cell's electrode area. Failure to do so will result in conditions that will prevent the Cell from functioning properly.

2.3.1 INSERTION MODE ASSEMBLY

STEP 1 Verify that the Cell's Fitting assembly is properly assembled as shown in Fig. 2-2.

STEP 2 Insert the Cell Fitting assembly into the "T" fitting as shown in Fig 2-2 and tightly secure.

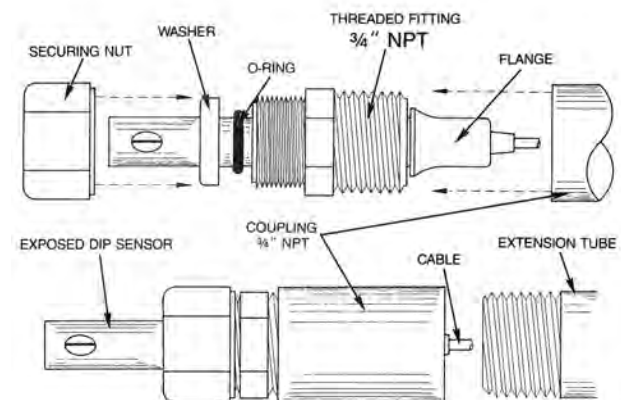


**FIG. 2-2
CELL FITTING ASSEMBLY AND "T" MOUNT**

2.3.2 ALTERNATE DIP CELL ASSEMBLY

STEP 1 Verify that the Cell's Fitting assembly is properly assembled as shown in Fig. 2-3.

STEP 2 Insert and pull the Cell's cable through the extension tube and then tightly attach extension tube to Cell assembly as shown in Fig. 2-3.



**FIG. 2-3
ALTERNATE DIP CELL ASSEMBLY**

2.4 ELECTRICAL INSTALLATION

The electrical installation procedures provided in this manual are common to all Conductivity Monitors. See Fig. 2-1 for the hole dimensions of the enclosure's cable access holes. Unless otherwise instructed, refer to Fig. 2-4 and 2-5 for the 750/760 Series Monitor's terminal block (TB) connector wiring designations.

NOTE:

After removing an enclosure's access hole plug, it is suggested that the user mount a watertight restraint fixture prior to installing a cable.

2.4.1 MAIN AC POWER INSTALLATION

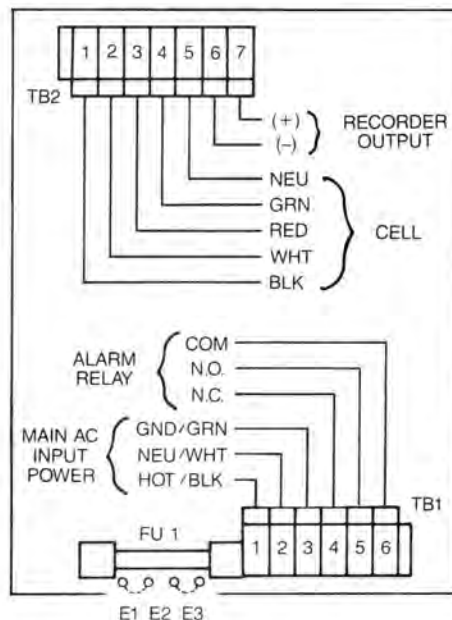
The following procedures are to be used to install a standard 115 VAC main power source. For the procedures to install the optional 220 VAC main power source, the user must first complete the conversion procedures in Section 2.4.2.

STEP 1 Verify that the facility's main AC power source is turned "OFF" or disconnected.

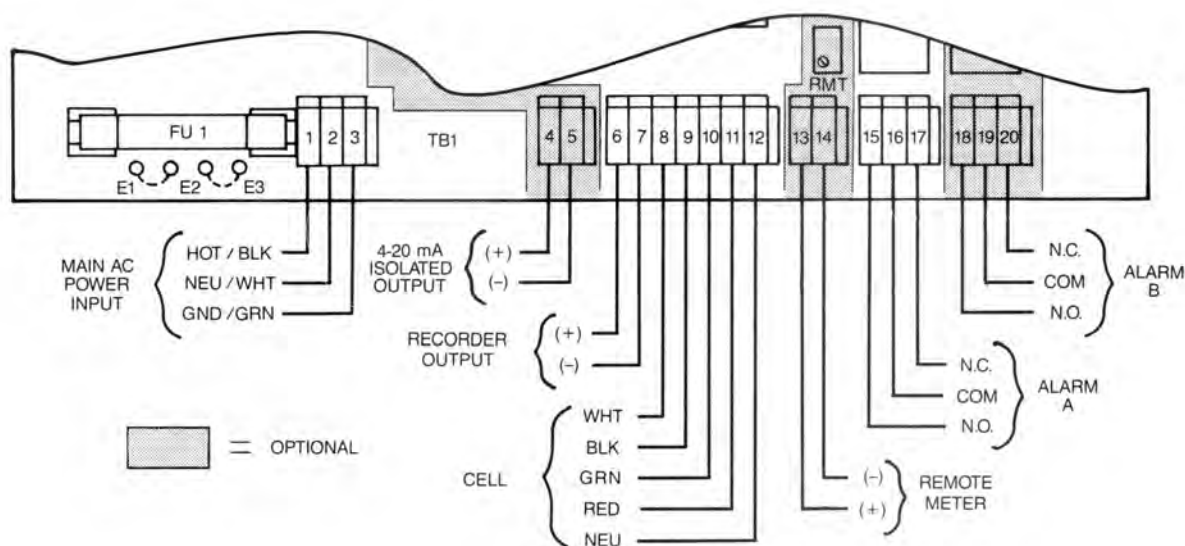
STEP 2 Carefully remove front panel, leaving the cable and wires connected.

STEP 3 Place the facility's AC power cord and user supplied watertight cable restraint into the enclosure's appropriate access hole.

STEP 4 Neatly connect cable wires to the Monitor's TB connectors, as shown in Fig. 2-4 and 2-5.



**FIG. 2-4
750 SERIES INSTALLATION DIAGRAM**



**FIG. 2-5
MODEL 767 INSTALLATION DIAGRAM**

2.4.2 220 VAC CONVERSION

- STEP 1 Verify that the facility's main AC power source is turned "OFF" or disconnected.
- STEP 2 Locate and remove the Control board jumpers E1 and E3. (See Fig. 2-6.)
- STEP 3 Using one of the removed jumpers, insert it into jumper E2's connection holes as shown in Fig. 2-6.

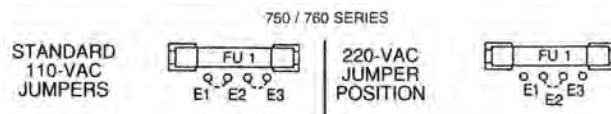


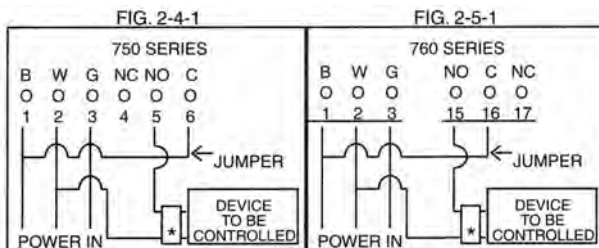
FIG. 2-6
220 VAC CONVERSION JUMPER DIAGRAM

2.4.3 CONNECTING THE CELL CABLE

- STEP 1 Place the Cell's interface cable and user supplied watertight cable restraint into the enclosure's appropriate access hole.
- STEP 2 Neatly connect the Cell's cable wires to the Monitor's appropriate TB connectors. (See Fig. 2-4 or 2-5.)

2.4.4 ALARM RELAY INSTALLATION

- STEP 1 Place the user supplied Alarm relay interface cable and watertight cable restraint into the enclosure's appropriate access hole.
- STEP 2 Neatly connect the Relay cable wires to the Monitor's TB connectors (See Fig 2-4-1 or 2-5-1) as explained below. All Myron L Company Conductivity Monitor/Controllers (except Model 756) are equipped with a relay which is designed to energize/de-energize when the set point is crossed. (See P.10, sec 3.3.2 for set point adjustment procedure) The relay energizes on increasing readings. The easiest method of connecting the relay is shown below in FIGs 2-4-1 and 2-5-1. These show how the dry contact relay can use incoming power to activate a controlled device (alarm, solenoid valve, etc.) of 10 amps or less. A user-supplied transformer is necessary if the controlled device operates on a voltage different from the voltage which powers your Myron L monitor/controller. An alternative (necessary if the device is DC powered) is to connect a separate, second power source to the relay.



When energized (above set point), the Common (COM) will disconnect from the Normally Closed NC contact and connect to the Normally Open (NO) contact. Devices may be operated using either the Normally Open contact or Normally Closed contact; or both relay contacts may be used to activate two devices of the same voltage.

2.5 0-10 VDC RECORDER OUTPUT

- STEP 1 Place the user supplied interface cable and watertight cable restraint into the enclosure's appropriate access hole.
- STEP 2 Connect the Recorder's plus (+) and minus (-) terminal wires to the Recorder output's TB connectors. (See Fig. 2-4 or 2-5)
- STEP 3 Refer to Section 4.3.2 for the procedures to calibrate the 0-10 VDC voltage output

2.6 CONNECTING THE MODEL 758 4-20mA AND 420D OPTIONS

- STEP 1 Place the user supplied cable and watertight cable restraint into the enclosure's appropriate access hole.
- STEP 2 Neatly insert cable wires into the 758 Panel board's plus (+) and minus (-) TB1 terminal block connectors as shown in Fig. 2-7.
- STEP 3 See Section 4.3.3 to calibrate the 4-20mA minimum and maximum current outputs.

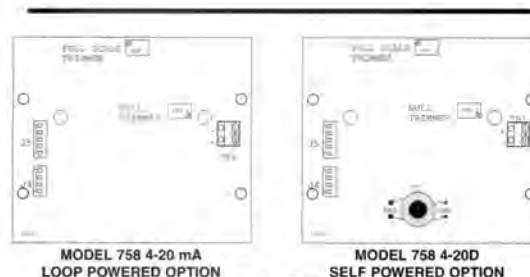


FIG. 2-7
MODEL 758 4-20 mA ISOLATED OUTPUT OPTIONS

2.7 INSTALLATION OF THE MODEL 767 OPTIONS

The Model 767 Conductivity Monitor/Controller can be configured with a combination of options. Based upon user requirements, the electrical installation of one or more of the following options may be required.

2.7.1 CONNECTING THE 767-420D OPTIONS

- STEP 1 Place the user supplied cable and watertight cable restraint into the enclosure's appropriate access hole.
- STEP 2 Neatly connect the cable wires to the Monitor's plus (+) and minus (-) terminals TB1-4 & 5. (See Fig. 2-5.)
- STEP 3 Refer to Section 4.3.5 for the procedures to calibrate the Model 767's 4-20mA minimum and maximum current outputs.

NOTE:

The maximum impedance of the user's current sensor should not exceed 400 ohms.

2.7.2 CONNECTING THE REMOTE METER OPTION

- STEP 1 Connect the Remote Meter cable and user supplied restraint into the enclosure's appropriate access hole.
- STEP 2 Neatly connect the Remote Meter's positive (+) and minus (-) wires to terminals TB1-13 & 14. (See Fig. 2-5.)
- STEP 3 Refer to Section 4.3 for the procedures to calibrate the Model 767's Remote Meter output.

SECTION 3

Operating Procedures

3.1 SWITCH AND INDICATOR CONTROLS

The front panel illustrations, switch and indicator operational descriptions have been provided to assist the user in identifying and operating the 750/760 Series Conductivity Monitors.

Refer to Section 3.3 for a Monitor's Setup procedures and Section 3.4 for Check-Out procedures.

3.1.1 RED "ABOVE SET POINT" LED INDICATOR

Standard on all models except the 756 small Monitor.

The red LED indicator light is ON only when the water's conductivity reading is ABOVE the Monitor's set point adjustment.

3.1.2 GREEN "BELOW SET POINT" LED INDICATOR

Standard on all models except the 756 small Monitor.

The green LED indicator light is ON only when the water's conductivity reading is BELOW the Monitor's set point adjustment.

3.1.3 SET POINT ADJUSTMENT KNOB

Available on the 755 controller only.

Front panel adjustment knob provides immediate access for adjusting the Monitor's set point setting and to verify its full scale reading.

3.1.4 "SET POINT CHECK" SWITCH

Available on the 757, 758 and 767 Monitor/Controllers only.

When the "SET POINT CHECK" switch is depressed, the internal set point reading is immediately displayed on the front panel display.

3.1.5 ANALOG/DIGITAL METER READOUTS

Models 756, 757 and 767 equipped with analog meters only.

Model 758 equipped with 1/2" digital meter only.

Front panel analog or digital meters provide a continuous readout of the water being monitored.

3.1.6 3 "RANGE" SELECT SWITCH 767

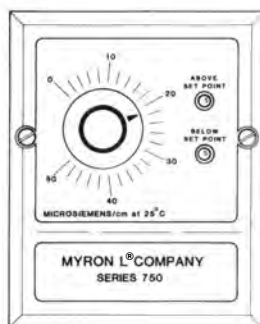
Monitor/Controller only.

The "RANGE" select switch provides three (3) decades of indication corresponding to 1, 10, or 100 times the meter reading.

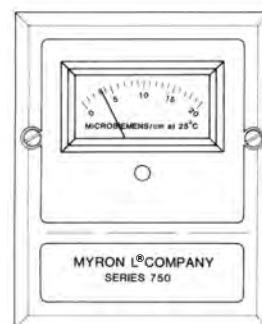
3.1.7 3 "CELL" INPUT SELECT SWITCH

Available as an optional feature on the 767 Monitor/Controller only.

"CELL" input switch selects one (1) of three (3) Cells as the active monitoring Cell input.



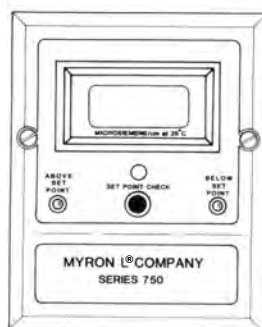
MODEL 755



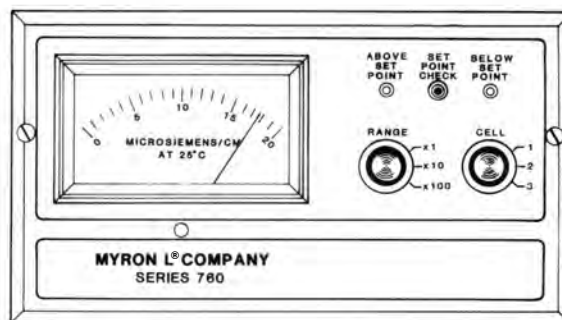
MODEL 756



MODEL 757



MODEL 758



MODEL 767

(Shown with the optional 3 Cell Input select switch)

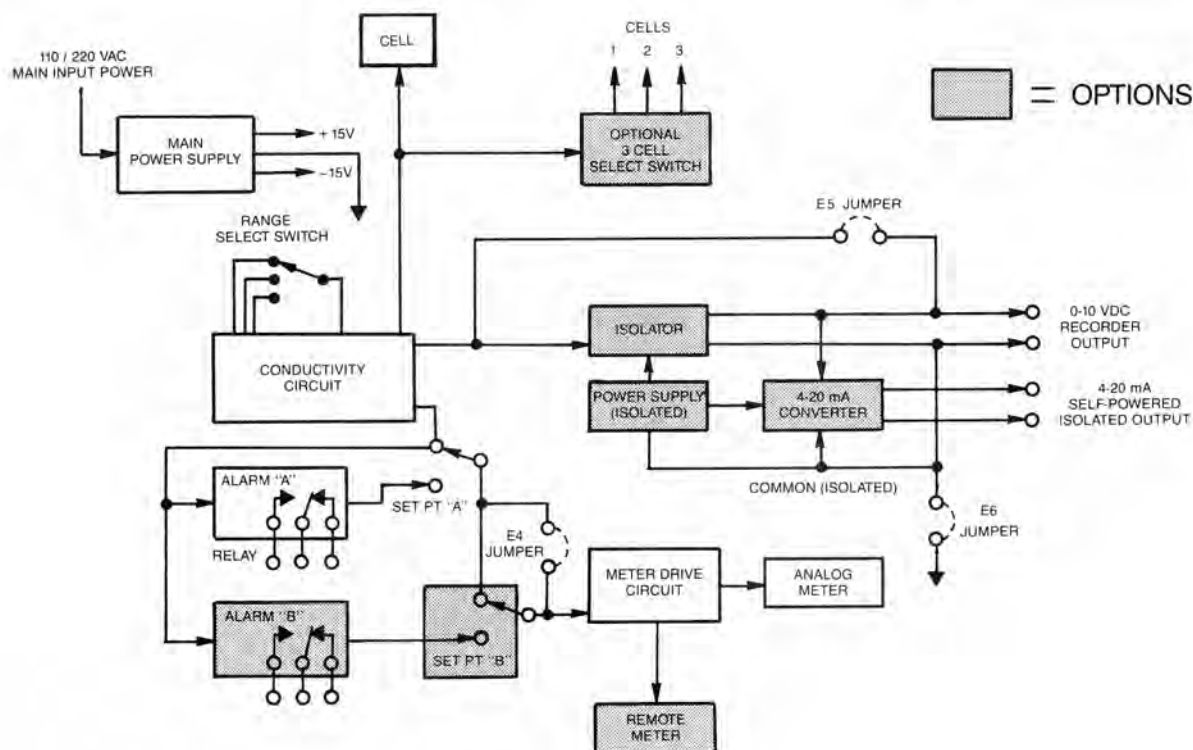


FIG. 3-1
MODEL 767 BLOCK DIAGRAM

3.2 MODEL 767 STANDARD AND OPTIONAL FEATURES

This section describes the standard and optional features of the Model 767 Conductivity Monitor/Controller. (Refer to Fig. 3-1.)

Power Supply

The standard Monitor/Controller has a single power supply that provides voltages for all circuit functions. It may be configured for either a 110 VAC or a 220 VAC supply.

Conductivity

The conductivity circuit is designed as a three range device with extremely accurate tracking between ranges. It receives raw conductivity and temperature information from the Cell and translates this into a voltage that may range from 0 to + 10 VDC. This is the Recorder output. The Recorder output signal represents the conductivity of the fluid at 25°C. This signal is available at terminals TB1-6 & 7

Meter Drive Section

The 0-10 V signal is also taken to the display section where it is used to drive the analog meter.

Alarm Section and Relay

The alarm circuit compares the signal from the conductivity circuit with a "set point" signal controlled by the user. The user may check the current set point by pressing the "SET POINT CHECK" switch on the front panel. This feeds the set point signal to the Meter Drive section, which then displays the set point on the meter.

Normally, if the conductivity signal becomes greater than the set point signal, the alarm relay will be energized. The user may adjust two jumpers that will cause the alarm relay to be energized when the conductivity signal is less than the set point signal.

Options:

03: the "03" option replaces the single Cell with three separate Cells and a switch that allows you to switch between each Cell.

420D: The "420D" option replaces the standard 0-10 V Recorder output with a completely isolated 0-10 V output. In addition, a 4-20 mA current loop output is available at terminals TB1-4 & 5. These circuits have their own completely separate power supply.

DP: The "DP" option adds a second alarm circuit (Alarm B), which is identical to the first.

RM: The "RM" option adds circuitry to drive a remote 1 mA analog meter movement.

3.3 SETUP PROCEDURES

These Setup procedures cover (1) setting the alarm circuit set point(s), and (2) converting the alarm circuit to trigger on a decreasing reading.

3.3.1 DECREASING SET POINT CONVERSION

The alarm circuit(s) on all 750/760 Series Conductivity Monitors are configured to trigger the alarm relay as the conductivity (or ppm) reading increases. If the user's application requires it, the alarm circuit may be easily reconfigured to trigger the alarm relay as the conductivity (or ppm) reading decreases. Refer to Fig. 4-1 for the locations of the jumpers referred to in this section.

NOTE:

These instructions describe the general procedures for converting the Monitor without reference to jumper numbers or orientation. Refer to Fig. 3-2 or 3-3 for the specifics on your Monitor.

- STEP 1 Turn OFF or disconnect the Monitor's main AC power.
- STEP 2 Locate the jumper block for the alarm to be configured.
- STEP 3 Make a note of the current orientation of the jumpers.
- STEP 4 Remove both jumpers. This is easily done by hand. Take care not to crush the jumpers if using pliers.
- STEP 5 Rotate the jumpers and reinstall them on their posts.

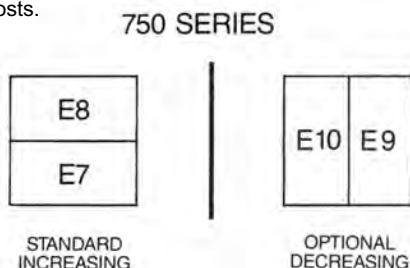


FIG. 3-2
750 SERIES DECREASING JUMPER CONVERSION

3.3.2 SET POINT ADJUSTMENT

NOTE:

Because the Model 755 is equipped with a standard front panel Set Point trimmer adjustment knob, it does not have an internal set point adjustment setting. Refer to Section 3.4.1 for procedures to adjust the 755's set point.

- STEP 1 Being careful not to strain the cable, unfasten and remove the Monitor's front panel.
- STEP 2 While depressing the "SET POINT CHECK" switch, turn the Monitor's Set Point trimmer adjustment screw (See Fig. 4-1) until the desired set point value is indicated on the meter display.

NOTE:

The Monitor's set point setting is based upon the user's particular water purity specifications.

- STEP 3 After successfully completing STEP 2, remount the front panel and tightly secure both retaining screws.

3.4 CHECK-OUT PROCEDURES

The following check-out procedures are used to verify that a 750/760 Series Conductivity Monitor is operating properly. It is assumed that the Monitor is powered ON, that it is connected to a CS51 or CS52 Cell, and that the Cell is immersed in water within the range that the Monitor will be required to read. Refer to Fig. 4-1 for the locations of the components referred to in this section.

3.4.1 MODEL 755 (Only)

- STEP 1 Turn the front panel adjustment knob to its full scale setting. The green "BELOW SET POINT" light should be ON indicating that the water being monitored is BELOW the controller's monitoring set point.
- STEP 2 Turn the front panel adjustment knob to its zero scale setting. The red "ABOVE SET POINT" light should be ON indicating that the water being monitored is ABOVE the controller's monitoring set point.
- STEP 3 Turn the adjustment knob back and forth and note the reading where the ABOVE and BELOW LED indicator lights switch. Also note an audible click as the relay picks up and drops out. This reading corresponds to the actual water purity.
- STEP 4 Reset the Set Point trimmer adjustment knob to the desired set point.

3.4.2 MODELS 756, 757, 758, & 767

NOTE:

A small screwdriver will be required.

- STEP 1 Make a note of the reading on the Monitor's display.
- STEP 2 Being careful not to strain the connecting cable(s), unfasten and remove the Monitor's front panel.
- STEP 3 (For the Model 767 only!) Place the "RANGE" select switch to its "X1" setting.
- STEP 4 While holding the Calibration Test switch (SW1) to its TEST position, verify that the front panel meter is indicating a full scale reading.
- STEP 5 Press and hold the "SET POINT CHECK" switch on the front panel. Using the small screwdriver, adjust the Set Point trimmer adjustment screw on the circuit board to sweep the display from zero to full scale. (A digital display may be blank at the full scale end. This is normal.) Listen for the alarm relay to click on and off as the alarm set point moves past the water reading.
- STEP 6 Adjust the alarm to the desired set point. Release the "SET POINT CHECK" switch.

NOTE:

For Model 767-DP, repeat STEPS 5 & 6 to check out Alarm B.

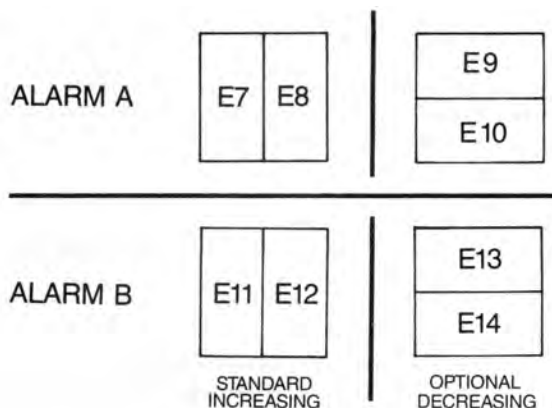


FIG. 3-3
MODEL 767 DECREASING JUMPER CONVERSION

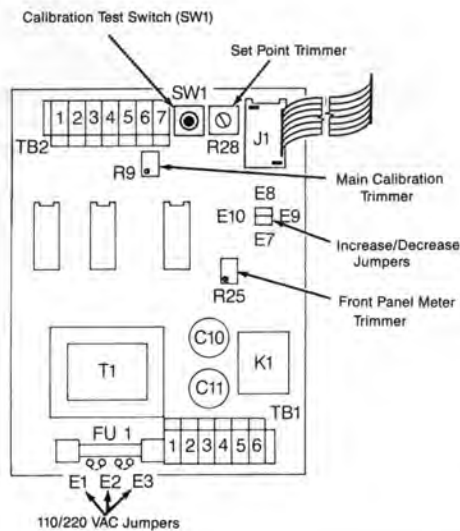
SECTION 4

Component Identification/Calibration and Preventive Maintenance

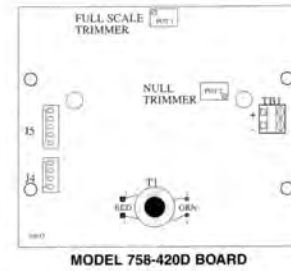
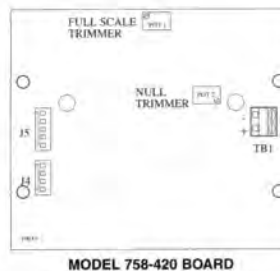
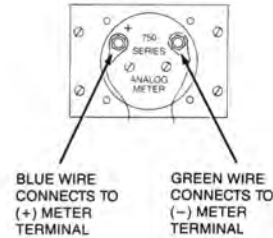
4.1 PRIMARY COMPONENT IDENTIFICATION

As identified in Section 3, the Conductivity Monitors' switch and indicator components are mounted directly to the front panel.

750 SERIES



The Conductivity Monitors' Control boards are contained within and mounted to the back of the enclosure. The 767 Monitor, when equipped with the 3 Cell Input option, has a second component board mounted on the back of the front panel. Model 758-420 and 758-420D have an additional board mounted behind the front panel.



MODEL 767

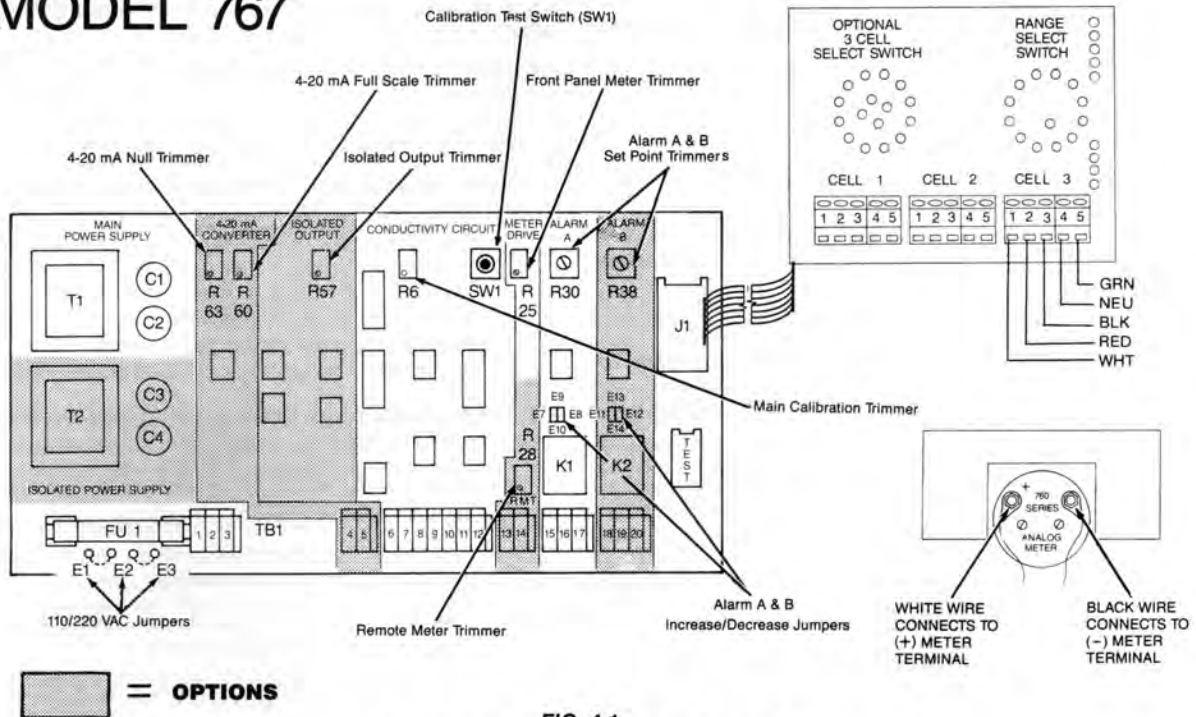


FIG. 4-1
PRIMARY COMPONENT IDENTIFICATION

4.2 METER MECHANICAL ZERO PROCEDURES

Models 756, 757 & 767 (Analog Meters Only)

- STEP 1 Turn OFF or disconnect the Monitor's main AC power.
- STEP 2 Note the position of the meter needle. If it has come to rest pointing at the zero mark on the scale, turn the Monitor back ON and continue on the Section 4.3.
- STEP 3 Locate the small (approx. $\frac{1}{4}$ "), black plastic button directly below the center of the meter. Use a small screwdriver or a fingernail to gently pry it loose and remove it from the access hole.
- STEP 4 Insert a small standard screwdriver into the access hole and carefully locate the slot in the mechanical adjustment plug.
- STEP 5 Turn the adjustment plug slightly until the needle rests on zero.
- STEP 6 Insert the small plastic button into the access hole.
- STEP 7 Turn ON or reconnect the Monitor's main AC power.

4.3 CALIBRATION PROCEDURES

All Myron L[®] Conductivity Monitors/Controllers are factory calibrated prior to shipping and are ready to install without further calibration. Calibration should be checked occasionally with the internal Calibration Test switch (SW1) to ensure continued accuracy. The following procedures are provided in the event that re-calibration becomes necessary. The only equipment required are a small screwdriver, standard solution, and an accurate multimeter. Calibration should be accomplished by a qualified technician.

Refer to Fig. 4-1 to locate the components described in this section.

CAUTION!

When performing calibration procedures, the technician must take extreme care to avoid contacting the fuse or control circuitry other than trimmer calibration screws. Failure to do so could result in damage to the equipment and/or property.

4.3.1 CALIBRATION PROCEDURES USING STANDARD SOLUTION

The best method of recalibrating your conductivity monitor/controller is with NIST traceable Standard Solution (available from your Myron L Company distributor, or elsewhere). Because it includes the sensor, the entire instrument is recalibrated.

- Step 1 Obtain a standard solution which is 60-90% of full scale of the instrument.
- Step 2 Adjust the temperature of the standard solution to 25°C. This may be accomplished by using a warm or cool bath for the bottle.
- Step 3 Obtain a clean glass beaker. Rinse beaker thoroughly with the standard solution. Place cell (sensor) of instrument in the beaker of standard solution. Level of standard solution should be high enough to cover $\frac{1}{2}$ " above bore hole. Slowly shake the sensor to remove air bubbles from inside the sensor bore hole.
- Step 4 Allow 3-4 minutes for temperature to equilibrate. Read the display of the instrument. The display should match the value and units of measure located on the bottle of standard solution. If the reading is different, adjust R25 on the main circuit board until the reading matches the solution value. This will require removal of the front cover. NOTE: Remove front cover with care; a ribbon cable connects the front panel and main board.

4.3.2 CALIBRATION PROCEDURES (CIRCUIT ONLY)

This method is faster than the method using standard solution, but it does not include the sensor. Therefore, it should be used only in applications where the chance of sensor contamination or damage are slight.

4.3.2.1 MODEL 755

- STEP 1 Connect a voltmeter (0-10 VDC) to the Recorder output terminals TB2-6 & 7 with the positive (+) lead on TB2-7.
- STEP 2 Press and hold the Calibration Test switch (SW1). The voltmeter should indicate +10 volts. If not, set to +10 volts with the Main Calibration trimmer (R9).
- STEP 3 Set the front panel control knob to the full scale setting. With the Calibration Test switch (SW1) still depressed, rotate the front panel control knob above and below the full scale setting several times to locate the setting at which the front panel LEDs switch. You should find one upper setting where the LEDs switch from red to green and one lower setting where they switch from green to red. The full scale index mark should be halfway between these two settings. If necessary, loosen the control knob set screws and reposition the knob. This completes the calibration.

4.3.2.2 MODELS 756, 757 & 758

- STEP 1 Connect a voltmeter (0-10 VDC) to the Recorder output terminals TB2-6 & 7 with the positive (+) lead on TB2-7.
- STEP 2 Press and hold the Calibration Test switch (SW1). The voltmeter should indicate +10 volts. If not, set to +10 volts with the Main Calibration trimmer (R9).
- STEP 3 With the Calibration Test switch (SW1) still depressed, set the Front Panel Meter trimmer (R25) for a full scale indication on the panel meter. If you have a digital readout (model 758), set it to 1999 (decimal point omitted) for ranges 0-20, 200 or 2000. For all other ranges, set it to read the range maximum. If not known, this can be determined by looking up the range suffix on the enclosure's model label in the list on page 3 of this manual.

Example: For model 758-11 (0-50 μ S), set front panel LCD to indicated 50.0 μ S.

4.3.3 MODEL 758 WITH 4-20 mA OR 4-20D OPTION

NOTE: FOR 4-20D, PROCEED TO STEP 1.

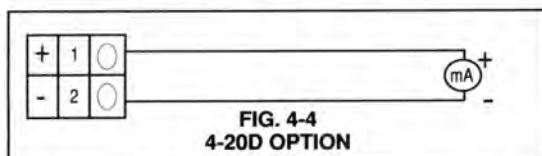
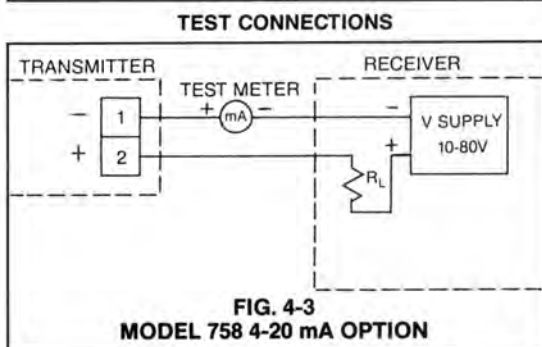
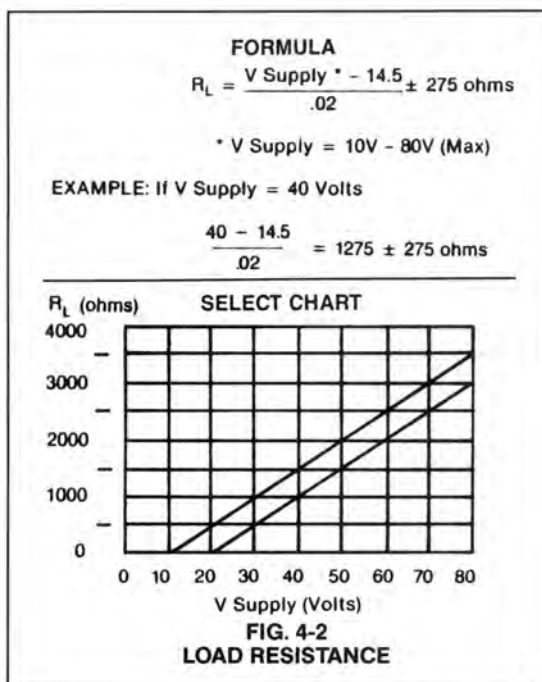
CAUTION! FOR 4-20mA OPTION ONLY

The proper supply voltage (V Supply) and load resistance (R) must be selected. Failure to do so could result in damage to the 758 optional panel board.

NOTE:

The proper load resistance (in ohms) is found by using the formula and/or chart as shown in Fig. 4-2.

- STEP 1 Set the controls of a test meter to read at least 20mA and connect it between the positive terminals of the Transmitter and Receiver as shown in Fig. 4-3 (4-20 mA option) and Fig. 4-4 (4-20D option).
- STEP 2 Press and hold the "SET POINT CHECK" switch. It must be depressed during all the following adjustment steps.
- STEP 3 Turn the Set Point trimmer (R28) until the meter displays a reading 0.00.
- STEP 4 Turn the 4-20 mA Null trimmer (R23) (see Fig. 4-1) until the test meter indicates 4 mA.
- STEP 5 Readjust the Set Point trimmer (R28) until the meter displays 1999 (decimal point omitted).
- STEP 6 Turn the 4-20 mA Full Scale trimmer (R20) (See Fig. 4-1) until the test meter indicates 20 mA.
- STEP 7 Repeat STEP 3 through STEP 6, readjusting as required.
- STEP 8 Reset the set point to the desired setting. Release the "SET POINT CHECK" switch.



4.3.4 MODEL 767

NOTE:

The following procedures are for the standard Model 767 Refer to Section 4.3.5 for the procedures to calibrate a Model 767 which is equipped with the 420D self-powered isolated output option.

- STEP 1** Set the "RANGE" select switch to its "X1" position.
- STEP 2** Connect an accurate DC voltmeter to the Recorder output terminals TB1-6 & 7 with the positive (+) lead on TB1 -6.
- STEP 3** While holding the Calibration Test switch to its TEST position, set the Main Calibration trimmer to indicate a +10 volt reading on the test meter.

- STEP 4** While holding the Calibration Test switch to its TEST position, set the Front Panel Meter trimmer (R25) to indicate a full scale reading on the front panel meter. If the Monitor/Controller is equipped with the Remote Meter option, adjust the Remote Meter trimmer (R28) in the same manner.

4.3.5 MODEL 767 EQUIPPED WITH THE 420D OPTION

For this calibration procedure, the Monitor/Controller must be connected to a conductivity sensor with the white and black wires disconnected. If a sensor is not available, it can be simulated with a 10,000 ohm resistor connected between terminals TB1-10 and TB1-11.

- STEP 1** Set the "RANGE" select switch to its "X1" setting.
- STEP 2** While holding the Calibration Test switch (SW1) to its TEST position, set the Main Calibration trimmer (R6) to indicate a full scale setting on the front panel meter.
- STEP 3** Connect an accurate DC voltmeter to the Recorder Output terminals TB1-6 & 7 with the positive (+) lead on TB1-6.
- STEP 4** While holding the Calibration Test switch (SW1) to its TEST position, set the Isolated Output trimmer (R57) to indicate a +10 volt reading on the test meter.
- STEP 5** Connect an accurate DC milliammeter to the 4-20 mA output terminals TB1-4 & 5 with the positive (+) lead on TB1-4.
- STEP 6** Leaving the Calibration Test switch (SW1) at its OPERATE position, set the 4-20 mA Null trimmer (R63) to indicate 4 mA on the test meter.
- STEP 7** While holding the Calibration Test switch (SW1) to its TEST position, set the 4-20 mA Full Scale trimmer (R60) to indicate 20 mA on the test meter.
- STEP 8** If your Model 767 is equipped with the Remote Meter option (RM), hold the Calibration Test switch (SW1) to its TEST position and set the Remote Meter trimmer (R28) to indicate a full scale reading on the remote meter.

4.4 PREVENTIVE CARE

The Myron L® Company recommends that the following Preventive Care procedures be observed.

- STEP 1** Try to prevent exposure to excessive heat and moisture.
- STEP 2** The Monitor's main AC power source must be protected against excessive voltage "spikes."
- STEP 3** Take care not to damage the Monitor during handling.
- NOTE:**
Daily, weekly or monthly maintenance schedules are based upon the frequency of use and the severity of the Monitor's environment and operating conditions.
- STEP 4** Repeat the Monitor's Check-Out procedures to verify satisfactory operation and/or isolate possible troubleshooting symptoms.
- STEP 5** Check all cable connections to ensure that they are free of moisture and contamination.
- STEP 6** Inspect and replace damaged component boards and cable assemblies.
- STEP 7** Periodically remove and clean and inspect the conductivity Cell.

WARRANTY

All Myron L® monitors and cells have a two-year warranty. If any monitor or cell fails to function normally, return the faulty unit to the factory prepaid. If, in the opinion of the factory, failure was due to materials or workmanship, repair or replacement will be made without charge. A reasonable service charge will be made for diagnosis or repairs due to normal wear, abuse or tampering. Warranty is limited to the repair or replacement of monitor or cell only. The Myron L Company assumes no other responsibility or liability.

SECTION 5

REPLACEABLE

Appendix

COMPONENTS CHART

DESCRIPTION	MLC PART NO.)
755 Control Board	55RM*
755 Panel Cable Assembly	55RCA
756 Control Board	56RM*
756 Panel Cable Assembly	56RCA
756 2 1/2" Analog Meter	50AM*
757 Control Board	57RM*
757 Panel Cable Assembly	57RCA
757 2 1/2" Analog Meter	50AM*
758 Control Board	58RM*
758 Panel Digital Assembly	58RCA
758 Digital Panel Meter	58DPM*
758 Digital Panel Meter with -420 Option	420MO1*
758 Digital Panel Meter with -420D Option	420DMO1*
750 Series Enclosure	50EC
750 Series Front Panel w/Lbl., Gasket and Screws	50FP
767 Control Board	67RM*
767 Control Board with -420D Option	674RM*
767 Control Board with -DP Option	67DPRM*
767 Control Board with -RM Option	67MRM*
767 Control Board with -420D-DP Options	674DPRM*
767 Control Board with -420D-RM Options	674MRM*
767 Control Board with -DP-RM Options	67DPMRM*
767 Control Board with -420D-DP-RM Options	674DPMRM*
767 Panel Cable Assembly	67RCA
767 Panel Cable Assembly for -DP Option Model	67DPRCA
767 3 Cell (-03) Option Board w/Cable Assembly	6703RCA
767 3 Cell (-03) Board for -DP Models w/Cable Assembly	6703DPRCA
767 4 1/2" Analog Meter	60AM*
760 Series Enclosure w/Gasket	60EC
760 Series Front Panel w/Labels and Screws	60FP
Control Board Fuse	
1/8 AMP AGC 1/8 (all models)	FUSE

WHEN ORDERING **ANY PART**, COMPLETE MODEL NUMBER MUST BE SPECIFIED.

* WHEN ORDERING **THESE PARTS**, RANGE SHOULD ALSO BE SPECIFIED.

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