New Product

RELAY CONTROLLER
Spec. Sht.

ABM SENSOR TECHNOLOGY INC.

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Tel: (705) 740 – 2010   Web: www.abmsensor.com
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FEATURES

The ABM Relay Controller provides a simple and low cost means of monitoring radar and ultrasonic level measurement devices and controlling pumps and alarms according to the level measured.

The controller has one input to measure 4-20mA current from a level transducer and provide 24VDC to a level device.

Current is displayed as a percentage. There are two settings: 4mA=100% and 20mA=0% or 4mA=0% and 20mA=100%. The setting is made with a movable link on the circuit board.

The controller has the option of Three or Six Relays as required for the application, which can be set to control pumps or alarms. The transducer current and set points, which are programmed into the controller, independently, for each relay control the relay operations.

CATALOGUE # - Refer to catalogue Numbering below for ordering information.

#ABMXXX - XRCON -TST ◄── 33 Point "Tank Strapping Table"
430 - 230 Vac
400 - 115 Vac
300 - 12 - 30 Vdc
3 Three Relays
6 Six   Relays

Specification

Power   AC version 120V or 240V, 50/60Hz, 6VA
DC version 12- 30V DC, 0.25A
Mechanical
Enclosure: Polycarbonate UL94-2
Ingress Protection : Nema 4X , IP65
Wall Mount

Environmental:
Temperature: - 5 to 122°F (-20 to 50°C)
Humidity;   0 to 95% Non-Condensing
Inputs:
Resistance   10 Ohm
Current   0 to 25mA (max. overload 70mA)
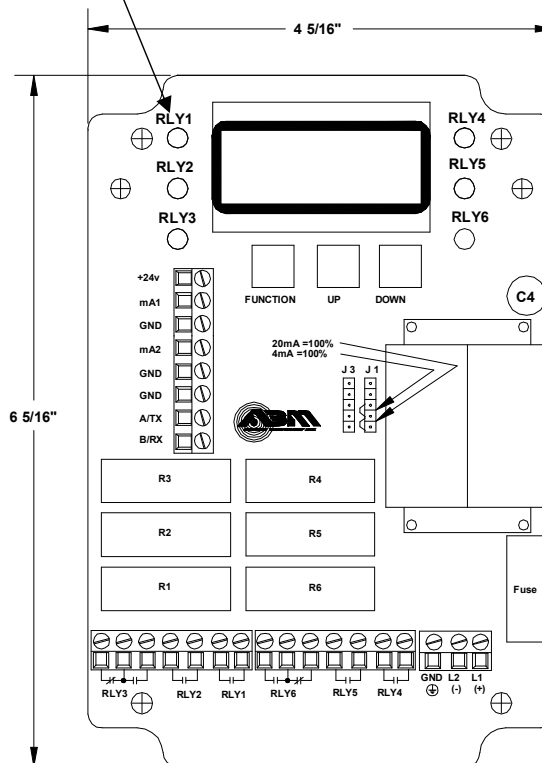
Outputs:
Display : Range +112%(21mA) to -14%(0mA)
100%= 20mA,   0%= 4mA
or 0%= 20mA, 100%= 4mA
>22mA = LOE (Loss of Echo)
DC Supply: 24V, 100mA (AC version)

Model 3RCON :Three Relays - 2 relays each with a form A normally open contact
- 1 relay with a form C contact.
Contact rating: 8A at 240 VAC non-inductive
Model 6RCON :Six   Relays - 4 relays each with a form A normally open contact
- 2 relay with a form C contact.
Contact rating: 8A at 240 VAC non –inductive

Model - #ABMXXX –6RCON
Relay Controller

LED is "on" when Relay Energized
(Typ. Of 3or 6)

6 Relay Controller PCB

Relay Controller
User Instruction Manual

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Fig.#1) Inter- Connection Diagram For Relay Controller to ABM 2 Wire Level Transmitter
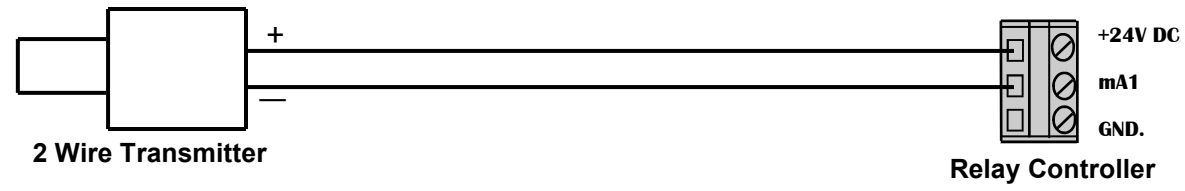
+

—

2 Wire Transmitter

+24V DC

mA1

GND.

Relay Controller

Fig.#2 a) Inter- Connection Diagram For Relay Controller to ABM 3 Wire Level Transmitter

+24V
8
4– 20 mA
5
GND.
4 or 7

+24V DC
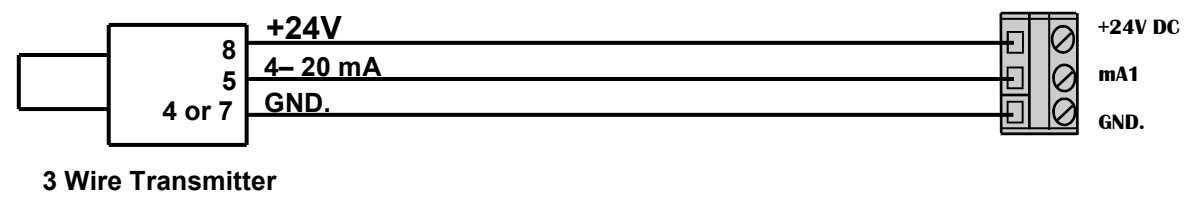
mA1

GND.

3 Wire Transmitter

Fig.#2 b) Inter- Connection Diagram For Relay Controller to ABM 3 Wire Level Transmitter and re-transmission to a PLC or other device with 4-20 mA Current input
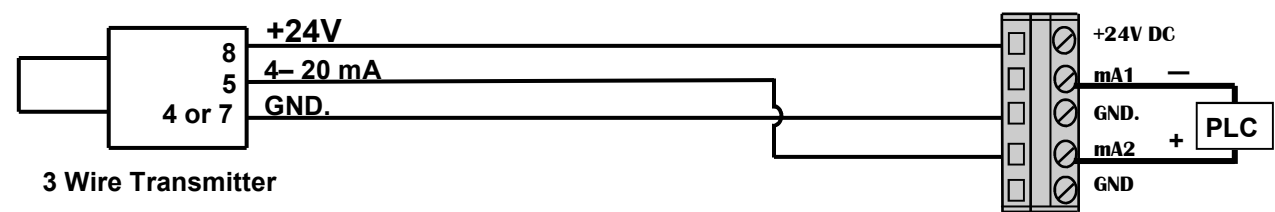
+24V
8
4– 20 mA
5
GND.
4 or 7

+24V DC

mA1   —

GND.

mA2   +   **PLC**

GND

3 Wire Transmitter

Fig.#3 a) Inter- Connection Diagram For Relay Controller to ABM 4 Wire Level Transmitter

4-20 mA
5   + TB5
4   - TB4

+24V DC

mA1

GND.

8   L
7   N
6   G

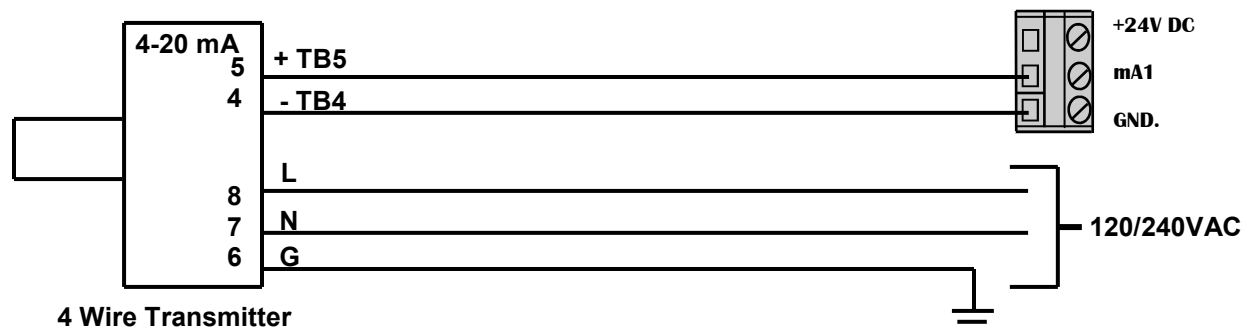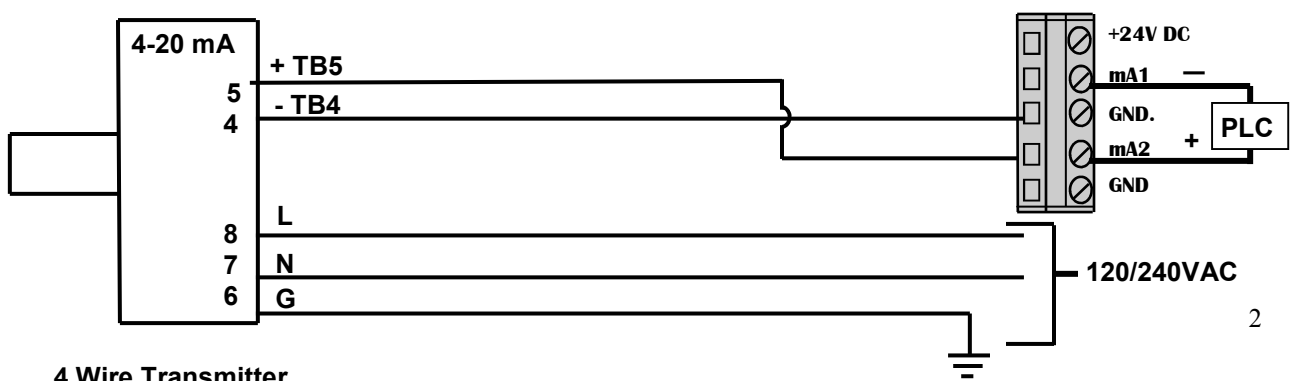**120/240VAC**

4 Wire Transmitter

Fig.#3 b) Inter- Connection Diagram For Relay Controller to ABM 4 Wire Level Transmitter and current loop re-transmission to a PLC or other device with 4-20 mA Current input

4-20 mA
+ TB5
5   - TB4
4

+24V DC

mA1   —

GND.

mA2   +   **PLC**

GND

8   L
7   N
6   G

120/240VAC

2

4 Wire Transmitter

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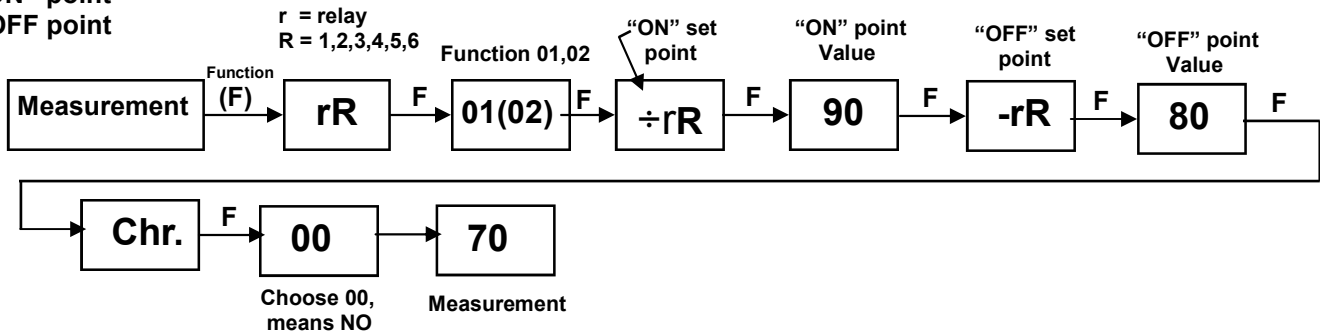**Fax: (705) 740 — 2563   E-mail: info@abmsensor.com**

PROGRAMMING THE SET POINTS

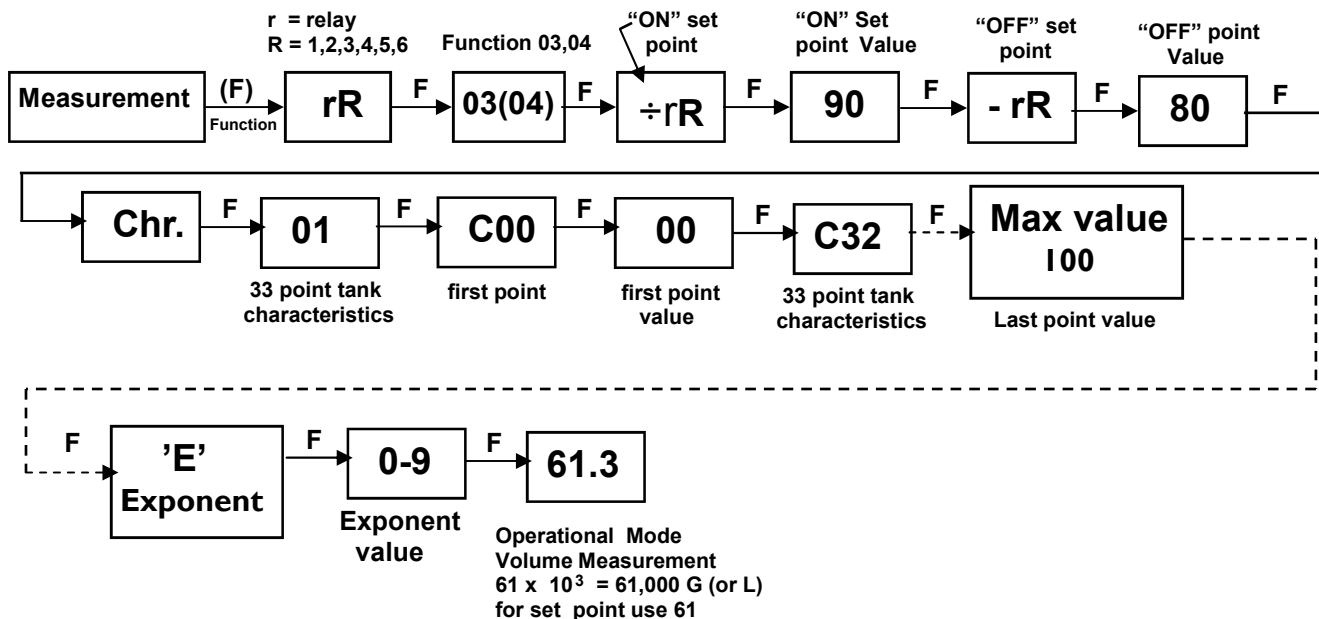**Pressing the FUNCTION button places the controller in program mode from measurement mode.**

Where :
  R - Relay Number 1 , 2 and 3   (for 3 RCON)
  R - Relay Number 1 , 2 , 3 , 4 , 5 and 6 (for 6RCON)
  L - Function , use "UP" or "DOWN" key to select
  L = 01 is level "Alarm" control (-14% to 112%) Note - Relays in the alarm   state are always de-energized.
    = 02 is level "Pump" control (-14% to 112%) Note - Relays in the pump control are always energized.
    = 03 is non - linear volume "Alarm" control based on 33 point tank characteristics (Chr. 0 ÷ 100)
    = 04 is non - linear volume "Pump" control based on 33 point tank characteristics (Chr. 0 ÷ 100)

For functions 1 and 2 the programming is: R = 1, 2, 3,4,5 and 6   L = 1,2 ,"ON" point is 90% ,"OFF" point is 80%
÷ ON   point
- OFF point

For functions 3 and 4 the programming is: R = 1, 2, 3,4,5,6   L = 3 (4) ,"ON" point is 90% ,"OFF" point is 80%

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RELAY SETTINGS

The Controller has three relays or six . RELAY 1 and 2 have "FORM A" normally open contacts.
Relay 3 has "FORM C" SPDT contacts . RELAY 4 and 5 have "FORM A" normally open contacts.
Relay 6 has "FORM C " SPDT contacts . Each relay may be set independently to control a pump or an alarm.

Alarms

Each relay can be set to control a high level or a low level alarm. Relays in the alarm state are always De-energized.

> **Example 1. Set relay 1 for High alarm.**
> **Alarm ON   90 %**
> **Alarm OFF 80 %**

Step 1. Press and hold the FUNCTION button until the display shows :
> **r1**

Step 2. Use the UP and DOWN buttons to select the relay function i.e. 1 for alarm.
> **01**

Step 3. Press and hold the FUNCTION button until the display shows:
> **÷ r1**

Step 4. Use the UP and DOWN buttons to set the HIGH alarm ON point to 90%
> **90**

Step 5. Press and hold the FUNCTION button until the display shows:
> **- r1**

Step 6. Use the UP and DOWN buttons to set the HIGH alarm OFF point to 80%
> **80**

Step 7. Press the Function button until R2 appears. Go to Example 2 below.

Example 2. Set relay 2 for LOW alarm.
> **Alarm on 10 %**
> **Alarm off 20 %**

Step 1. Press and hold the FUNCTION button until the display for relay 2 shows.
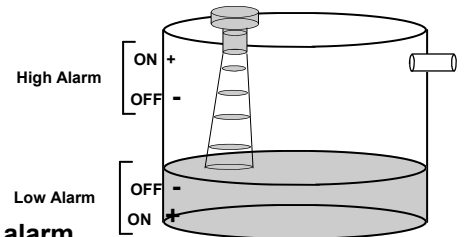> **r2**

Step 2. Use the UP and DOWN buttons to select the relay function i.e. 1 for alarm.
> **01**

Step 3. Press and hold the FUNCTION button until the display shows:
> **÷ r2**

Step 4. Use the UP and DOWN buttons to set the LOW alarm ON point to 10%.
> **10**

Step 5. Press the FUNCTION button once until display shows.
> **- r2**

Step 6. Use the UP and DOWN buttons to set the LOW alarm OFF point to 20%
> **20**

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PUMP CONTROL

Each relay may be set to control a pump to fill (pump up) or empty (pump down) a tank. Relays are always energized to enable pumping. Relays programmed to control pumps do not energize until 10 seconds after the controller powers up or within 10 seconds of each other.

Example 1. Set relay 3 to pump up (fill) a tank.
Pump turns "ON"   when the level drops to 10 %
Pump turns "OFF" when the level rises   to 90 %

Step 1. Press and hold the FUNCTION button until the display for relay 3 shows.
r3
Step 2. Use the UP and DOWN buttons to select the relay function i.e. 2 for pump.
02
Step 3. Press and release the FUNCTION button once until display shows.
÷ r3
Step 4. Use the UP and DOWN buttons to set the pump ON point to 10%.
10
Step 5. Press FUNCTION button once (display shows).
- r3
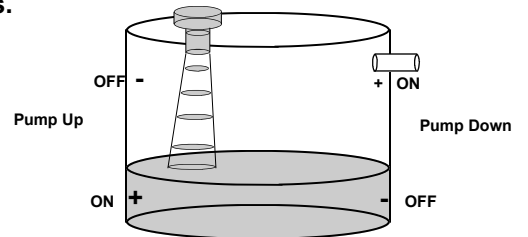**Step 6. Use the UP and DOWN buttons to set the pump OFF to 90%**
90
Step 7. Press and release the FUNCTION button (display shows).
Chr
Step 8. Press FUNCTION button once. Use UP and DOWN buttons, display shows.
00 For Operation Mode
01 For Strapping Table

OFF **-**   **+** ON
Pump Up   **Pump Down**
ON **+**   **-** OFF

Example 2. Set relay 1 to pump DOWN (empty) a tank.
Pump turns ON   when the level rises to 85 %
Pump turns OFF when the level drops to   5 %

Step 1.   Press and release the FUNCTION button until the display for relay 1 shows.
r1
Step 2. Use the UP and DOWN buttons to select the relay function i.e. 2 for pump.
02
Step 3. Press and hold the FUNCTION button until the display shows:
÷ r1
Step 4. Use the UP and DOWN buttons to set the pump ON point to 85%, display shows.
85
Step 5. Press and hold the FUNCTION button until the function display shows.
- r1
Step 6. Use the UP and DOWN buttons to set the pump OFF point to 5%, display shows.
5
Step 7. Press and release the FUNCTION button (display shows).
Chr.
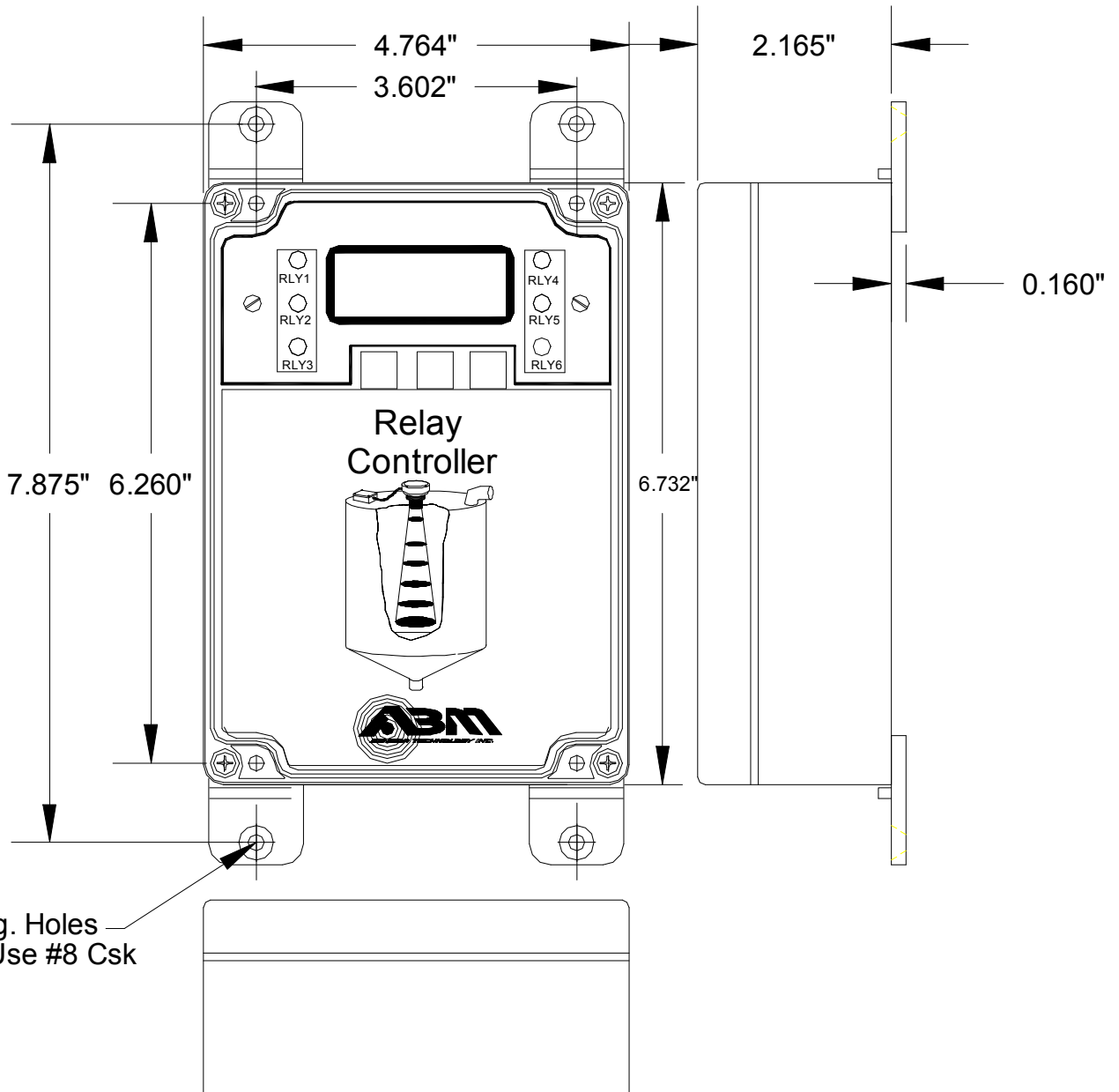**Step 8 . Press FUNCTION button once. Use UP and DOWN buttons, display shows.**
00 For Operation Mode
01 For Strapping Table

Relay Controller
Outline Dimensional Dtl.

4.764"

3.602"

2.165"

0.160"

RLY1
RLY2
RLY3

RLY4
RLY5
RLY6

Relay
Controller

7.875"   6.260"

6.732"

0.180"Ø Mtg. Holes
(Typ. of 4) Use #8 Csk
Hardware

Relay Controller Outline Dtl.