



3300 Series Rugged Seal Meter Relay

- Wide Variety of Control, Alarm, and Limit Use
- Calibration Not Affected by Steel Panel Mounting
- Rugged Metal Case for Rigorous Environments
- Two Sizes: 3-1/2" and 4-1/2"
- Commercially Sealed, Moisture and Dust Proof
- Amplifier Input



The 3300 Series meter relays offer a wide variety of applications in control, alarm, and limit use. Photo conductor sensing eliminates all interference with the indicating meter. These relays incorporate an amplifier input which drives a rugged high-torque pivot and jewel meter. Metal-cased "Rugged Seal" construction withstands rigorous environmental conditions. The die cast metal case with a drawn steel plated rear case gives complete magnetic isolation for steel panel mounting. In addition, each controller is moisture, dust, and dirt proof for use in wash-down areas. Fail-safe circuitry opens output relays in the event of power failure. Two different sizes, 3-1/2" and 4-1/2", are available in

Model Number	Size	Meter Movement
3323AIXA	3-1/2"	Annular/Self-Shielding
3324AIXA	4-1/2"	Annular/Self-Shielding

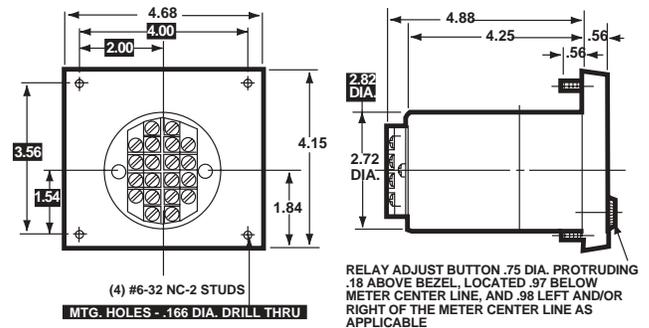
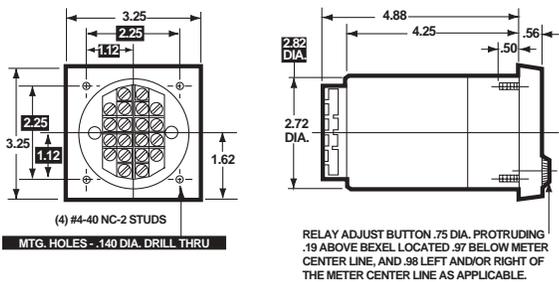
both single and dual set point models. High-gain transistor switch circuitry provides accurate switching with a "dead band" of no more than 0.5% of full scale (F.S.). All DC current meters offer $\pm 2\%$ of full scale accuracy. This style meter is ideal for many other electrical functions. See the "Function Reference Table."

Dimensions and Compatibility

3-1/2"-Model 3323AIXA

1 = Panel Meter Cut-out Dimensions

4-1/2"-Model 3324AIXA



Compatibility Reference Table

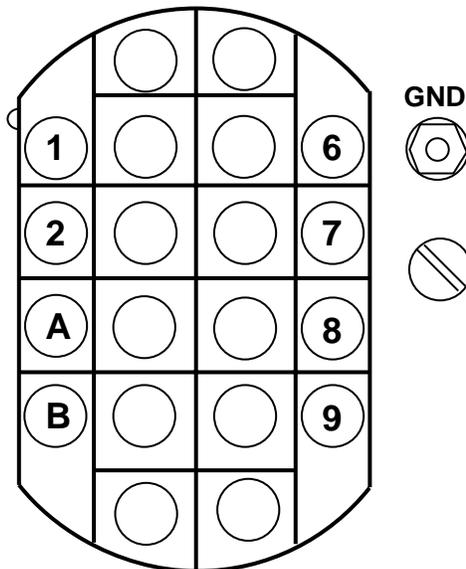
Manufacturer	Size/Model	
	3-1/2"	4-1/2"
Modutec		
YS Series	YS3	YS4
YD Series	YD3	YD4

Specifications

Accuracy:	±2% F.S.	Control Point(s)	
Movement:	Annular, self-shielding	Adjustments:	Single, high limit, 0-100% of arc; double, low limit 0-95% of arc; high limit 5-100% of arc
Suspension:	Pivot and jewel	Switching:	Adjustable to within 4° of each other
Tracking:	±3%	Differential:	Within 1% of indication
Repeatability:	Within 0.5% F.S.	Auto/Manual Reset:	"On," "Off" difference is within 0.5% of F.S.
Shielding:	Calibration is unaffected by magnetic panel mounting.		Latching function can be enabled independently for each relay by removing jumpers on terminal block.
Response Time:	1.5 seconds maximum above 10mA	Contacts/Output Relay:	DPDT relay contacts for each control point; Each set of contacts rated at 5 amps, 120/240 VAC resistive.
Overload (1 sec.):	10 times F.S.	Frequency Response:	50-1000Hz
Overload(Continuous):	1.5 times F.S.	Power:	108-132 VAC, 50-400Hz
Dial:	Sharp clear scale. Each dial arc is calibrated to track the specific type of movement used.	Operating Temperature:	+41°F to +122°F (+5°C to +50°C)
Case:	Sealed metal, plastic window	Circuit-to-Ground Voltage:	250V rms maximum
Voltage Drop:	50mV	NOTE:	Meters meet ANSI specification C-39.1
Pointer:	Black, knife-edge		
Scale Length:	4.05" (103.0mm)		
Net Weight:	17oz (0.48kg)		

Wiring Diagram

REAR VIEW OF HEADER



TERMINAL DESIGNATIONS

- A. - SIGNAL INPUT
- B. + SIGNAL INPUT
- 1. AUTO/MAN. RESET
- HI SET POINT
- 2. SHORT FOR AUTO
- 6. AUTO/MAN. RESET
- LO SET POINT
- 7. SHORT FOR AUTO
- 8. 120 VAC ±10%
- 50-400 Hz
- 9. 4 VA

RATED CIRCUIT TO GROUND VOLTAGE: 250V AC RMS MAX.
ALL RELAY CONTACT POSITIONS SHOWN WITH RELAYS DE-ENERGIZED

Input Signal: Input to be monitored is connected to terminals A (+) and B (-).

Input Power: The power source used is 120VAC ±10%, 50 to 400Hz. The power requirement is nominally 5VA. Connect power source to terminals 8 and 9.

Auto/Manual Reset

There are two modes of relay logic available in the 33 Series: Auto Reset and Manual Reset. Auto Reset is a simple on-off action in which the high set point relay is de-energized when the pointer exceeds the high set point, and is automatically energized when the pointer again drops below the set point. The low set point relay is de-energized when the pointer drops below the low set point, and is automatically energized again when the pointer rises above the low set point.

Manual Reset is a latching action. When the pointer exceeds the high set point, the high set point relay de-energizes and is latched out. It can only

pull in after the pointer drops below the high set point and the operator presses a reset button. In the manual reset mode the low set point relay is likewise latched out until the pointer is above the low set point and the operator presses a reset button.

Installing Auto/Manual Reset

If Auto Reset is desired, simply connect a jumper between terminals 1 and 2 for the high set point or 6 and 7 for the low set point.

If Manual Reset is desired, connect a normally-open SPST push button switch to the terminals as shown in the terminal designation diagram.

On a dual set point unit, the Auto or Manual mode may be selected for either set point independent of the mode used for the other set point. If both set points of a dual set point unit are connected for Manual Reset, two independent push buttons are usually used. However, one master reset button may be used for both set points provided it is a DPDT switch with no electrical connection between poles.

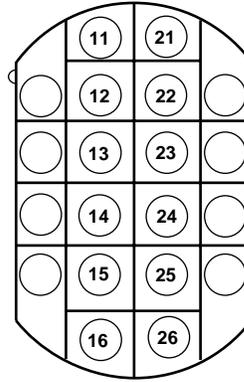
Relays

Relays can be used to turn on or turn off power to a process that Simpson's Rugged Seal controller is monitoring. A light can be turned on when a set point is exceeded, alerting the operator to change a condition in the process. The controller's relays for both single and dual set point meters are double pole, double throw relays.

High Set Point: The high set point relay contacts (both single and dual set point meters) are de-energized when the pointer is above the desired set point. For normally open relay connection use terminals 11 and 14. Terminals 12 and 15 are moving contacts or common. Terminals 13 and 16 are normally closed.

Low Set Point Connection: The low set point relay contacts (dual set point meters only) are de-energized when the pointer is below desired set point. For normally open relay connection use terminals 21 and 24. Terminals 22 and 25 are moving contacts or common. Use terminals 23 and 26 for normally closed relays.

REAR VIEW OF HEADER

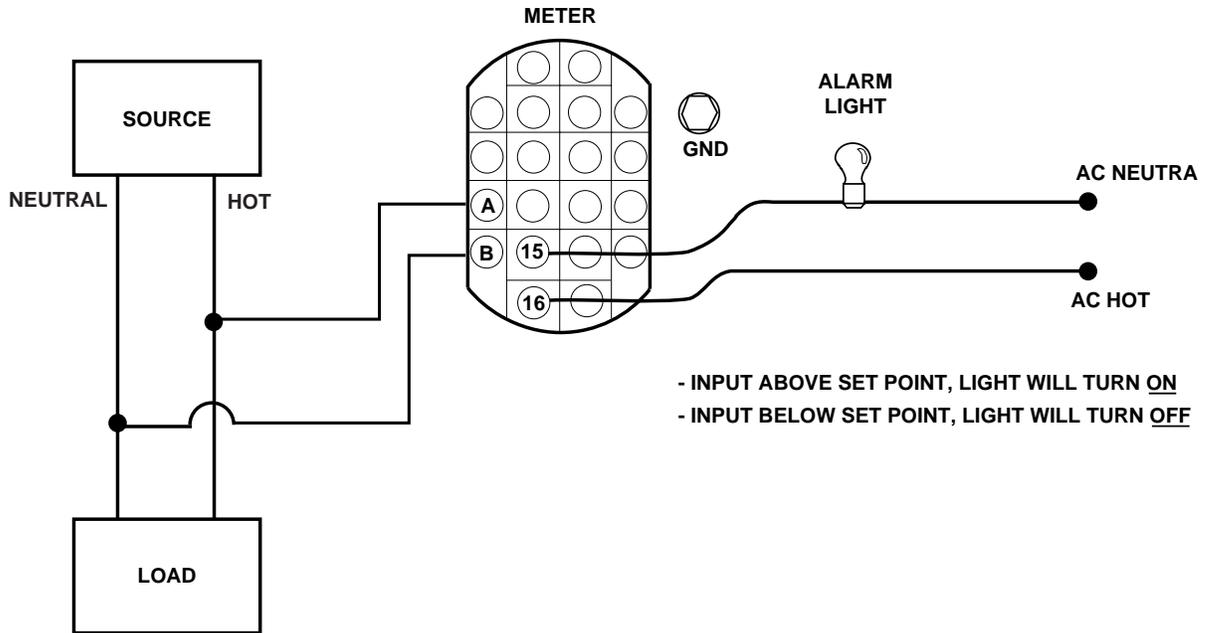


TERMINAL DESIGNATIONS

- | | | |
|--------|---|---|
| 11. NO | } | HIGH SET POINT.
RELAY IS
DE - ENERGIZED
WITH POWER POINTER
ABOVE SET POINT. |
| 12. C | | |
| 13. NC | | |
| 14. NO | } | LOW SET POINT.
RELAY IS
DE - ENERGIZED
WITH POWER POINTER
BELOW SET POINT. |
| 15. C | | |
| 16. NC | | |
| 21. NO | } | HIGH SET POINT.
RELAY IS
DE - ENERGIZED
WITH POWER POINTER
ABOVE SET POINT. |
| 22. C | | |
| 23. NC | | |
| 24. NO | } | LOW SET POINT.
RELAY IS
DE - ENERGIZED
WITH POWER POINTER
BELOW SET POINT. |
| 25. C | | |
| 26. NC | | |

RATED CIRCUIT TO GROUND VOLTAGE: 250V AC RMS MAX.
ALL RELAY CONTACT POSITIONS SHOWN WITH RELAYS DE-ENERGIZED

Application Example



There is a need to control the DC current being drawn by a load. If the current rises above 3 amperes, there is a problem with the generator, and the operator must be alerted.

A Model 3326AIXA (5 amps) single set point relay can monitor the current and switch on a warning light. The meter is installed in series between the source and the load on the negative leg, and the wiring connected to

the A(+) and B(-) terminals. Terminal #15 is connected to a warning sign (the negative post) to notify the operator of an overload situation.

The set point will be adjusted to 3 amps. If the current goes above the set point, the relay will de-energize and will turn on a light, alerting the operator to a change in condition in the process.

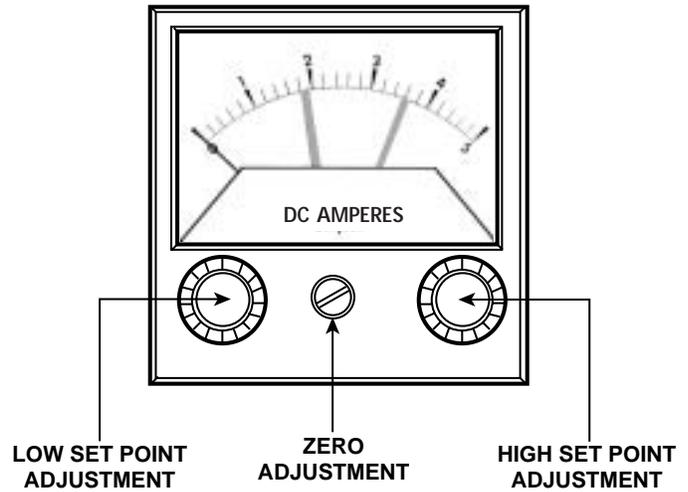
Adjustments

Set Point Adjustment

Low and High Set Point — To adjust dual set point units for low range, turn the adjustment knob at the left on the front face of the meter until the wide, red pointer indicates the desired reading (low from 0-95% of arc). High range adjustments are made by turning the black knob at the right on the front face of the meter (Hi from 5-100% of arc).

Zero Adjustment

Make sure that all power to the meter has been shut down. For zero adjustment, simply turn the slotted adjustment knob that is flush with the front panel. After zeroing the pointer, turn the knob back a few degrees in the direction opposite from your final adjustment. This frees the zero adjust from the pointer mechanism.



Ordering Information

3300 Series Meter Relays

DC Microamperes

Range	Approx. Resistance (ohms)	Model/Size and Catalog Number			
		3-1/2" Model 3323A1XA		4-1/2" Model 3324A1XA	
		Single Set point (High Limit)	Dual Set point	Single Set point (High Limit)	Dual Set point
0-25	2 k	21658	21618	<>	<>
0-50	1 k	21659	21619	21666	21626
0-100	500	21660	21620	21667	21627

<> Available on special order.

DC Milliamperes

Range	Approx. Resistance (ohms)	Model/Size and Catalog Number			
		3-1/2" Model 3323A1XA		4-1/2" Model 3324A1XA	
		Single Set point (High Limit)	Dual Set point	Single Set point (High Limit)	Dual Set point
0-1	50	21661	21621	21668	21628

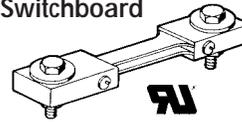
DC Amperes

Range	Approx. Resistance (ohms)	Model/Size and Catalog Number			
		3-1/2" Model 3323A1XA		4-1/2" Model 3324A1XA	
		Single Set point (High Limit)	Dual Set point	Single Set point (High Limit)	Dual Set point
0-5	.01	21662	21622	21669	21629

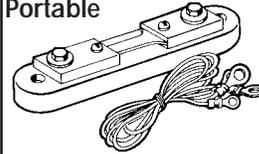
Accessories

External Portable and Switchboard Shunts

Switchboard



Portable



These shunts are adjusted for a 50 millivolt drop for use with switchboard and panel current meters where external shunts are required. Portable shunts have a phenolic base and supply up to 200 amperes. Accuracy $\pm 1\%$, 5" leads (0.065 Ω resistance) included.

Portable 100mV Shunts

Amps	Cat. Number
10	06716
100	06717

5' leads not included

Portable 50mV Shunts

Amps	Cat. Number
1	06700
5	06703
10	06704
15	06705
25	06707
30	06708
50	06709
75	06711
100	06713
150	06714
200	06715

Switchboard 50 mV Shunts

Amps	Cat. Number
100	06500
150	06503
200	06504
250	06505
300	06506
400	06507
500	06508

Function Reference Table

For your convenience, the table below lists Rugged Seal Controller models for other electrical monitoring functions and page reference.

Function	Section	Page
AC Current	E	27
AC Voltage	E	47
DC Voltage	E	87
Temperature	E	93
Percent Motor Load	E	101