SKAN-A-MATIC®

CLAROSTAT SENSORS AND CONTROLS GROUP

CONTROLS

LED Modulating Amplifier R43/T43 Series SUPER PULSER®

Features:

- Increased range
- Enhanced ambient light immunity
- Two sensitivity ranges
- Relay or open collector output
- Total photoelectric control
- 115 or 230 VAC input

Description:

R43 and T43 Series controls expand sensor capability by means of LED modulation and phase sensitive detection. These controls increase operating distance 2 to 5 times, provide ambient light immunity and increase beam penetration. The difference between the two units is that the R43 Series has an output relay while the T43 Series has an open collector transistor.

These controls provide modulated light source power to operate a single LED reflective skanner or an LED thrubeam pair. Incandescent light sources may *not* be used with R43 or T43 controls. Photodetector signal amplification and output switching functions are integral to both units. The R43 and T43 can be ordered for either "LIGHT energize" or "DARK energize" operation. Phase and sensitivity adjustments and indicators are located on top of the modules.

Typical Applications:

- Penetrate dusty atmosphere
- Increase operating distance
- Reject ambient light
- Sense single vs. multiple layers

Specifications:

R43 Series

POWER INPUT	115 or 230 VAC ± 10%, 50–400 Hz, 4VA
LED POWER	Supplied by unit. Internal resistor included for 100 mA LED.
SENSOR VOLTAGE	± 5 VDC supplied by unit
OUTPUT	Relay, SPDT, 5 amp 115 VAC, 3 amp 230 VAC or 28 VDC resistive load. .5A minimum load.
Life	100,000 operations at rated load, with a cycle rate = 2 seconds ON/2 seconds OFF, 1 million at 1/5 rated load.
RESPONSE TIME	25 milliseconds max. Counting rate 40 cps max.
ADJUSTMENTS	15 turn
TEMPERATURE	Operating: 0° to 50°C Storage: –40° to 70°C
ENCLOSURE	12 pin plug-in module, black molded plastic case. Socket is included.

T43 Series

Specifications same as R43 except as follows:

OUTPUT	
Open Collector	NPN transistor to switch up to 25 VDC at 100 mA max.
Analog	DC voltage proportional to sensor signal and sensitivity setting. 0 to –3V range from Pin 5. 10K ohm min. load.
RESPONSE TIME	1 millisecond max. Counting rate 400 cps max.

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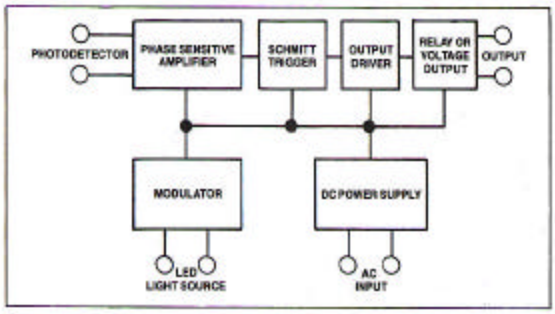
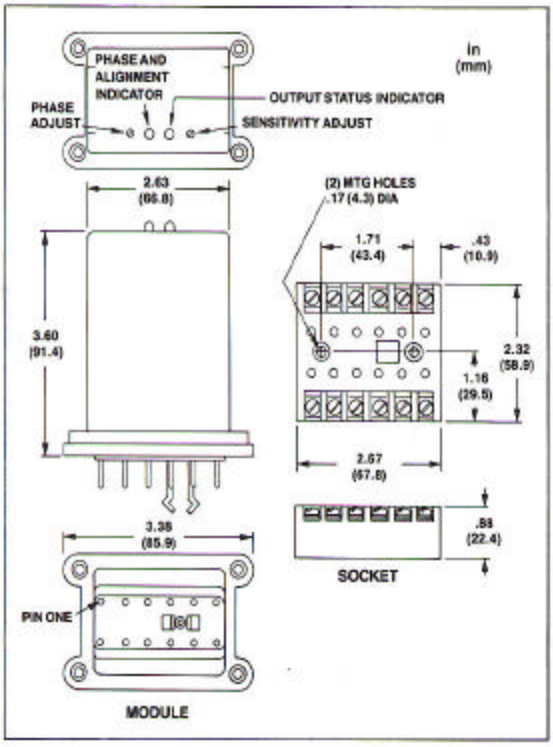
R43/T43 Series

Block Diagram:



Dimensions:



Compatibility with Sensors:

An R43 or T43 Series control can operate any LED thrubeam pair or skanner except the S111, S20, S22 and S27 Series skanners. A 100 mA LED can be wired directly across terminals 11 and 12. Others require an external 1/4 W resistor between the blue (+) lead and terminal 12. For a 60 mA LED use a 6.8 ohm resistor; for a 40 mA LED, use a 27 ohm resistor. Both a 6.8 ohm and 27 ohm resistor are included with each R43 or T43 Series control. These controls should not be used to operate an incandescent lamp device.

Model Selection Guide:

Part #	Output	Mode
R43007	Relay	LIGHT Energize
R43008	Relay	DARK Energize
T43007	Transistor	LIGHT Energize
T43008	Transistor	DARK Energize

230 VAC models available. Add the suffix "230 VAC" to Part #.
Example: R43007-230 VAC

Accessories:

RELAYS

The T43 Series control may be used to drive an external relay or solid state relay. The following are available:

R02003 Solid State Relay rated 2.0 amps at 20–140VAC. Life is 10 million operations at rated load.

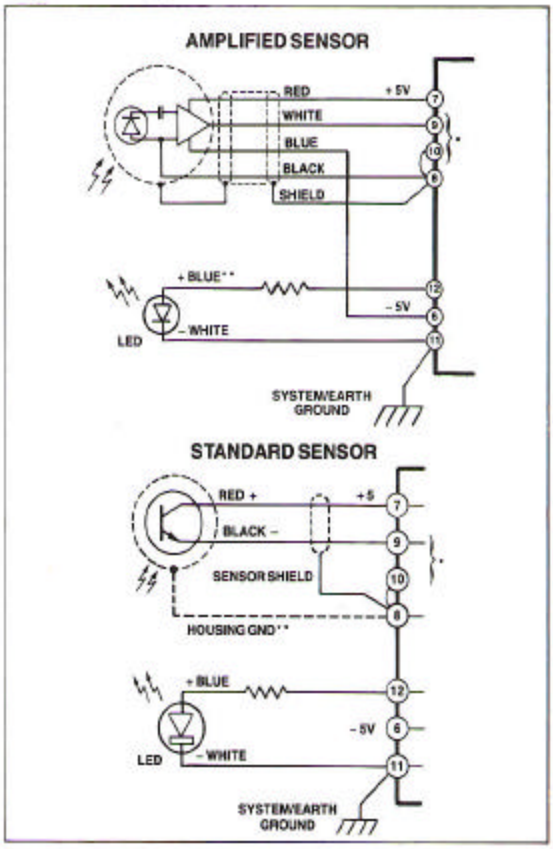
R00030 DPDT Relay rated 5 amps at 115VAC or 28 VDC resistive load. Life is 100,000 operations at rated load.

R00031 DPDT Relay rated 10 amps at 115VAC or 28VDC resistive load. Life is 25,000 operations at rated load.

All are 8 pin, plug-in modules. Sockets are not included.

Wiring Diagram:

Input Wiring:



*See Input Connections

**For additional noise immunity, connect sensor body to terminal 8

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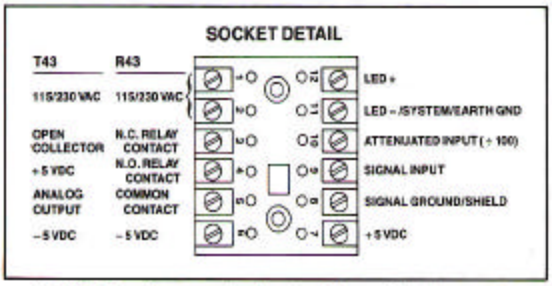
R43/T43

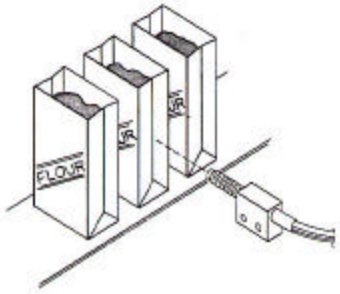
Input Connections:

Two types of sensor connections are shown in the diagram, the amplified sensor and the standard sensor. The amplified sensor requires both ±5 VDC connections, while the standard sensor connects only to +5 VDC. All amplified sensors have S43 or P43 Series numbers, all others are standard sensors. The diagram shows both types of sensors wired in the high sensitivity mode. Connect input to pin 9, jumper from pin 8 to 10. To wire in the low sensitivity mode connect input to pin 10, jumper from pin 8 to 9. The "HI" mode should be used for all long range and most other applications. The "LO" mode should be used when too high a sensor signal makes sensitivity adjustment difficult (i.e. when sensitivity pot operates in the first two turns from full CCW). With standard sensors and, if an extremely high level of ambient light exists, a 100 ohm to 1000 ohm resistor may be wired between signal input and ground. A lower value resistor will provide more light immunity but less gain, and vice verse.

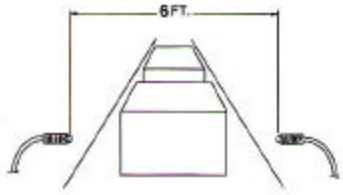


NOTE: Photodetector leads should be shielded and electrically isolated from LED leads.

Typical Applications:

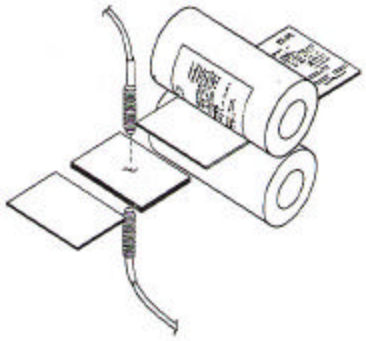


1. PENETRATE DUSTY ENVIRONMENT.



2. INCREASE OPERATING DISTANCE.

3. REJECT AMBIENT LIGHT.



4. SENSE SINGLE VS. MULTIPLE LAYERS.