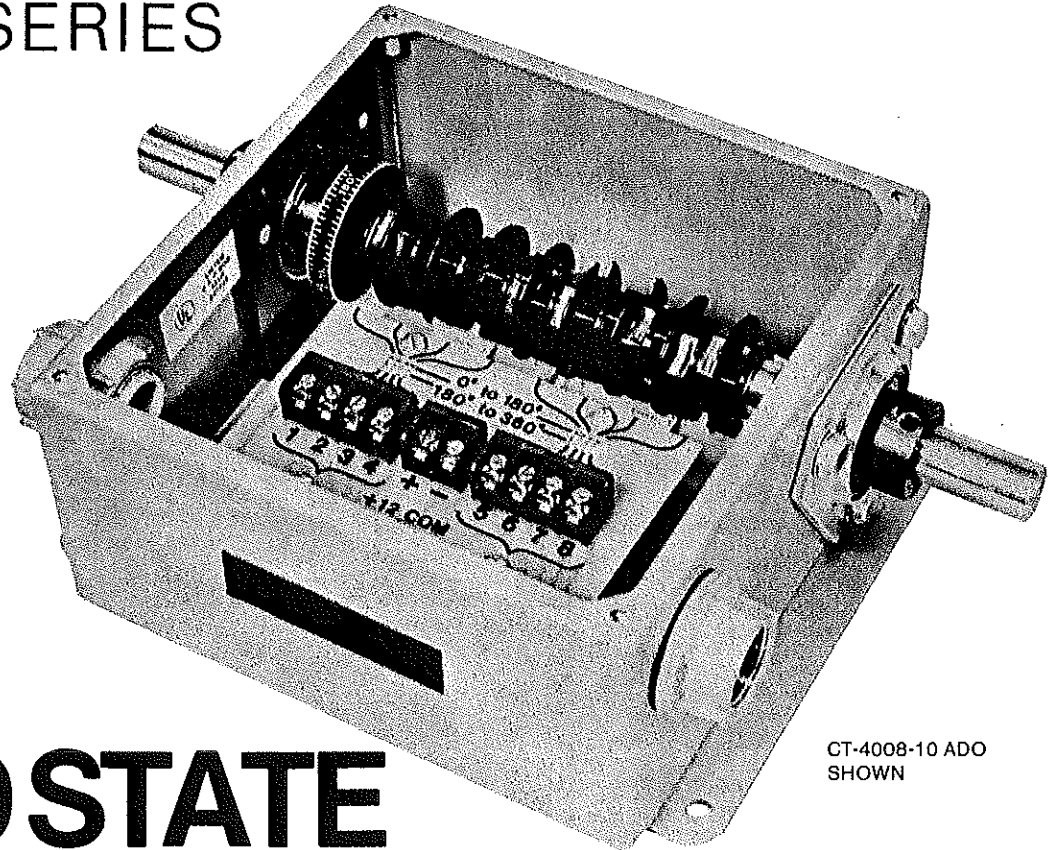


CAMCO

CAMTRONICS CT-4000 SERIES



CT-4008-10 ADO
SHOWN

SOLID STATE ROTARY CAM LIMIT SWITCHES

APPLICATIONS:

Assembly Machines
Packaging Machines
Production Machines
Material Handling Equipment
Where Sequential Operations
Are Required

FEATURES:

4, 8, 12, 16, & 24 Solid State Outputs
Precision Switching
Rugged Construction
Light To Indicate if Output
is "ON"

FEATURES:

Ease of Adjustment
Long Term Reliability
No Electrical Contacts
Fully Gasketed Enclosure
Sealed Ball Bearings
NEMA 4 Stainless Steel
Shafts & Enclosures Available



DESCRIPTION:

The CT-4000 series units are solid state rotary cam limit switches using photoelectric interrupter modules as the sensing elements. This non-contacting sensing provides for extremely long life and high speed without contact bounce. The CT-4004 has four switches. The CT-4008 has eight switches while the CT-4012 has twelve, the CT-4016 has 16 and the CT-4024 has 24 switches. All have operating speeds of 0 to 1,000 RPM.

The CT-4000's are housed in a fully gasketed JIC type enclosure with sealed ball bearings. A sealed 1/2" conduit entrance is provided on the CT-4004. A sealed 3/4" conduit entrance is provided on the end opposite the shaft extension on both ends of double-ended shaft units of CT-4008 & CT-4012. The CT-4016 and CT-4024, sixteen and twenty-four switch devices, utilize two sets of CT-4008 and CT-4012 circuitry respectively. They come standard with double-ended shafts and have dual 1" conduit entrances.

These units are also available with Nema 4 housings. The CT-4400 series units utilize the same electronics as the CT-4000 series but are housed in stainless steel Nema 4 enclosures with double-ended stainless steel shafts standard. Write for composite Nema 4 brochure.

Adjustment of the CT-4000's is made by rotating interrupter discs on the shaft. The interrupter discs are easily adjustable and have a 1" hex to allow use of a wrench for adjustment.

Since the interrupter discs would normally allow only operation over a range of 0° to 180°, switches are provided which allow for the inversion of the interrupter disc signal so operation over a full 360° can be obtained.

Multi-output pulse generating discs are now available as an option. With 6, 10, 20, or 60 pulses per revolution these discs can be used to generate timing pulses for tachometers, motion detection, glue stitching, or where multiple outputs per revolution are needed. This disc takes the place of one cam and is normally mounted on the farthest right position. Consult factory for more information on these standard or special discs.

Indicator lights are provided for each section and are lit when the output stage is "on".

The outputs of these units are open collector transistors capable of sinking 200 ma. DC. The input is a 12 to 30 V DC voltage. 110 ma. for CT-4004, 220 ma. for the CT-4008 and 330ma. for the CT-4012.

Note that for AC outputs the CT-6000 series units offer plug-in modules for either AC or DC outputs. Write factory for complete CT-6000 series brochure for more information.

The CT-4000's have 3/4" shafts and can be ordered with either left, right, or double ended shaft extensions. The CT-4016 and CT-4024 as well as all Nema 4 units come standard with double-ended shafts. The shaft has a provision for #606 Woodruff key. Special shafts can be supplied under special order.

INSTALLATION:

The CT-4000's should be mounted securely to the machine using the holes on the mounting feet.

Connections should be made through the conduit entrance provided, with the input power to the two connector terminal strip. The sinking outputs are connected to the four connection terminal strips. Each output connection is numbered on the top printed circuit board with lines going to the indicator lights and inversion switches.

The conduit entrance should be sealed to prevent the entrance of contaminants to the interior of the unit. The gasketed cover plate should be in place at all times and only removed when adjusting the unit.

ADJUSTMENT:

The interrupter discs may be adjusted using the 1" wrench supplied. By locking the shaft the discs may be rotated to the desired setting with the wrench or the wrench may be used to hold the discs and the shaft may be rotated. The now standard internal degree wheel and pointer can aid in ease of adjustment and setting accuracy.

With a switch in the 0° to 180° position the output transistor in "on" when there is a gap in the interrupter discs. By placing the switch in the 180° to 360° position this function is inverted and the output transistor is "on" during the opaque portion of the interrupter disc. In this way operation over a full 360° can be obtained.

Replace covers after making adjustments.

MAINTENANCE:

The fact that the unit is solid state and has no contacting parts means that extensive maintenance is not normally required. However, certain considerations will ensure a long life.

The interior of the unit should be kept clean and free of contaminants such as dirt, oil, grease, etc. Never operate any longer than necessary with the covers off. If a problem arises return the unit to the factory for fast analysis and repair.

SPECIFICATIONS

Max. Speed	1000 RPM. (limited only by the 1° phase shift per 1000 RPM)
Max. Phase Shift	1° @ 1000 RPM
Ambient Temp.	0° to 50° C
Input Voltage	12 to 30 VDC
Input Current	110 ma. max on CT-4004 220 ma. max for CT-4008 330 ma. max for CT-4012
Max. Load Current	200 ma. per channel
Output Voltage Drop	0.5 VDC @ 200 ma.
Output Configuration	Open Collector
Number of Channels	4 on CT-4004 8 on CT-4008 12 on CT-4012

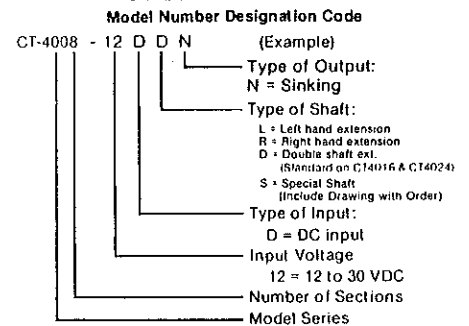
Shaft
3/4" shaft extensions (shaft mat'l. is rated at 32,000 psi yield and is necked down to .500" internally. Power transmission thru the shaft should be based on these figures.) Special shafts and shaft material may be special ordered.

CAUTION: Attempt to remove or reverse shaft will void warranty and may result in failure of unit. Consult factory with questions.

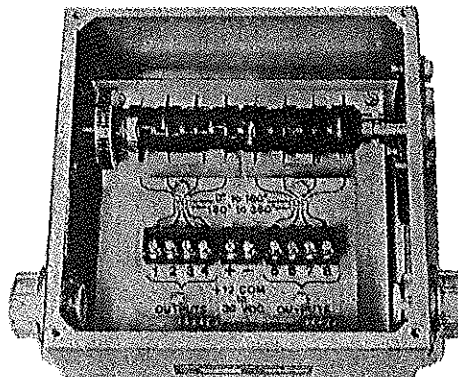
Housing & Weight

Sheet metal, fully gasketed, JIC type enclosure
CT-4004 - 8 lbs.
CT-4008 - 12 3/4 lbs.
CT-4012 - 14 lbs.
CT-4016 - 24 lbs.
CT-4024 - 30 lbs.

ORDERING INFORMATION



A complete Model Number is derived as shown in the example above. When ordering a special shaft be sure to include a drawing of the shaft with the order.

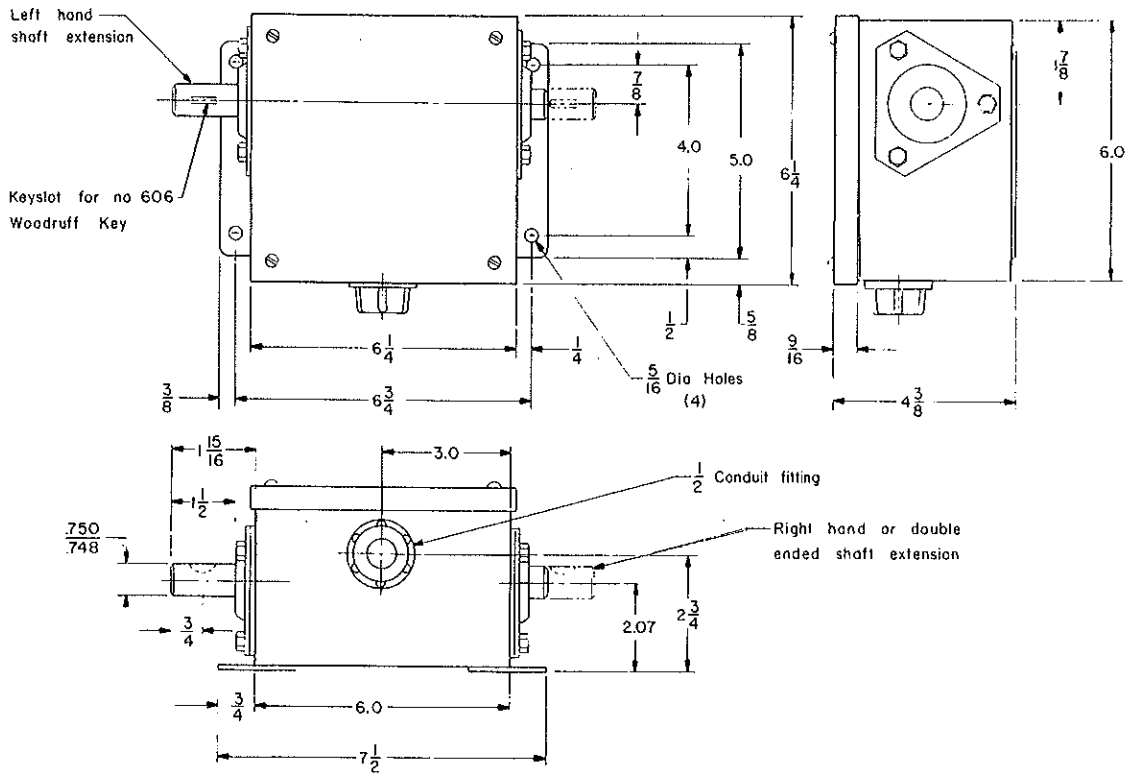


MODEL CT-4008-12DDN SHOWN

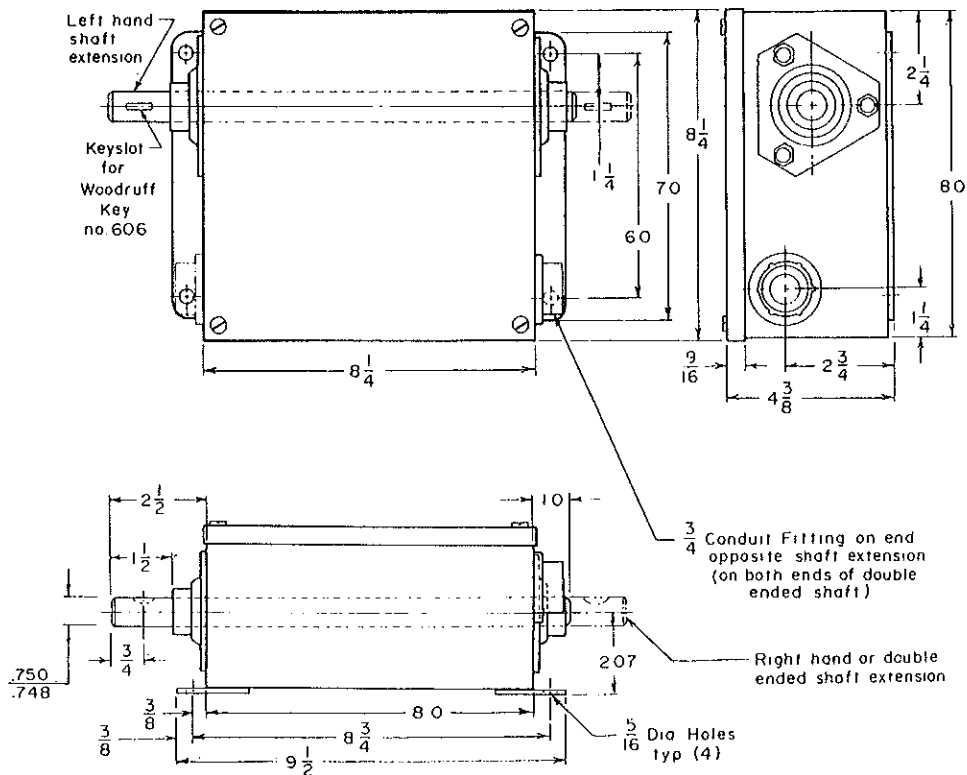
NOTE: CT-4016 CONSISTS OF TWO SETS OF CT-4008 ELECTRONICS AND THE CT-4024 CONSISTS OF TWO SETS OF CT-4012 ELECTRONICS.

MOUNTING DIMENSIONS

CT-4004 (4 Channel Unit)

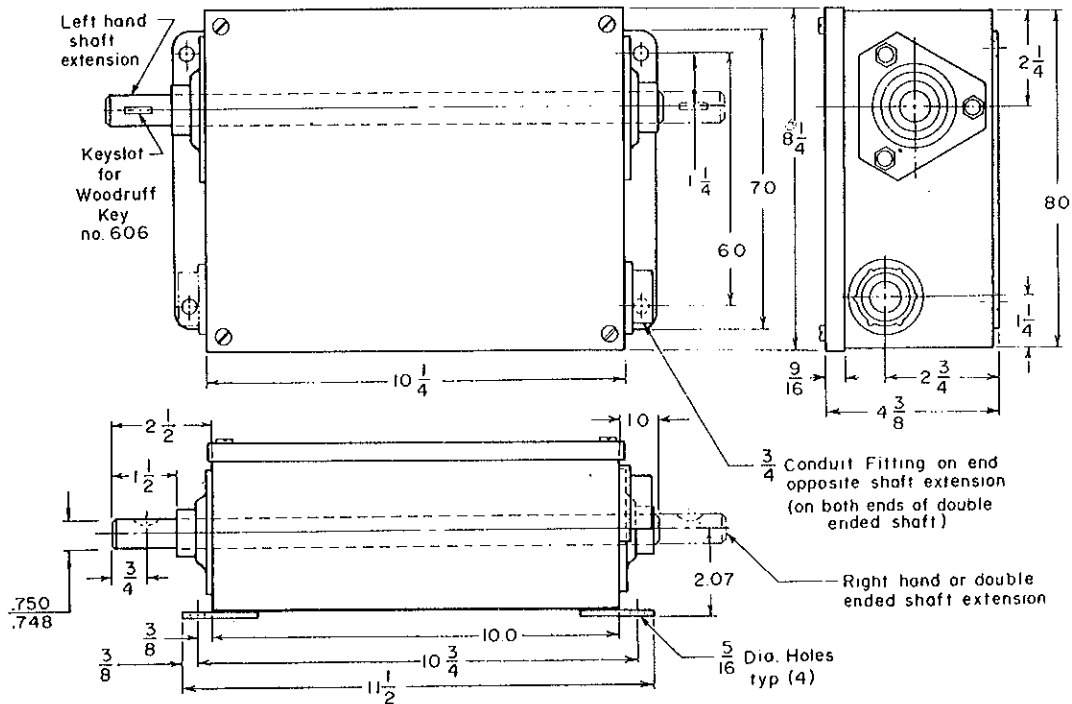


CT-4008 (8 Channel Unit)

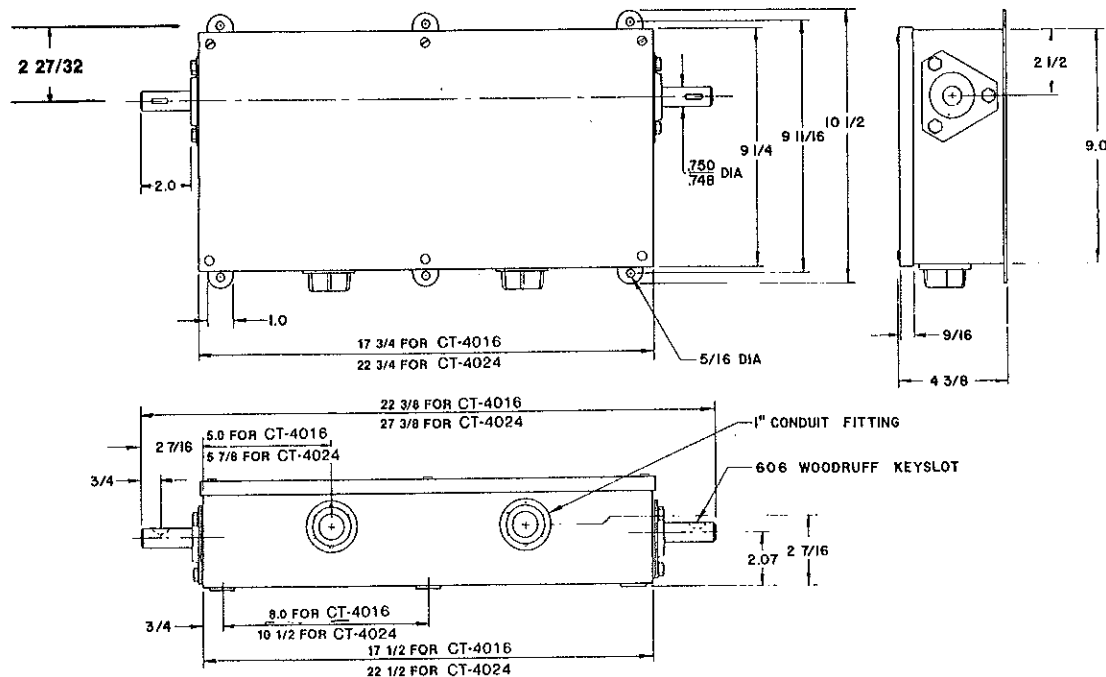


MOUNTING DIMENSIONS

CT-4012 (12 Channel Unit)

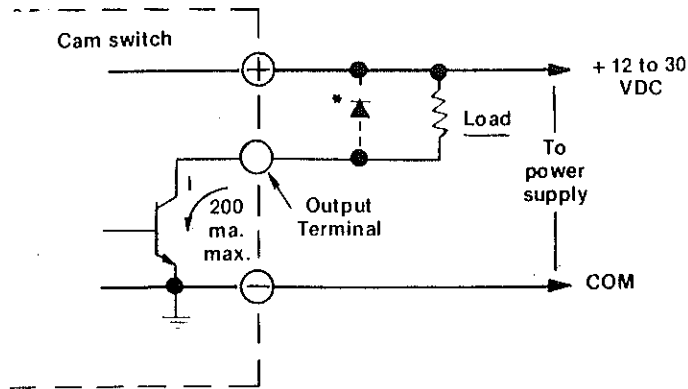


CT-4016 & CT-4024



ELECTRICAL CONNECTIONS:

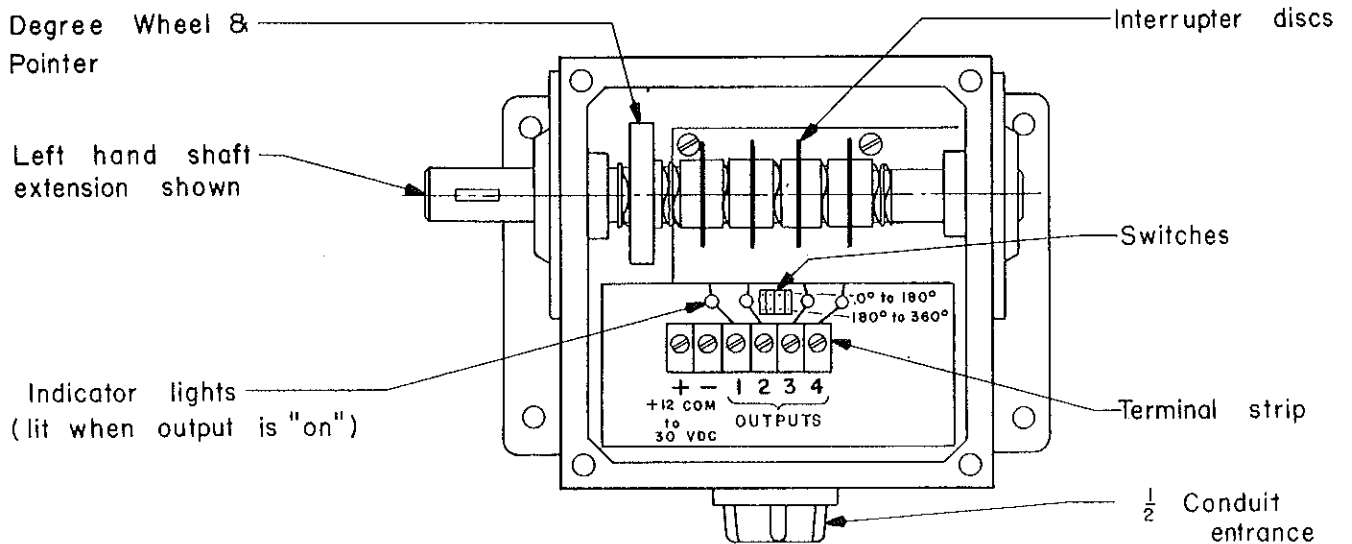
OUTPUT CONFIGURATION



*Place inductive spike suppression diode as shown on all inductive loads (relays, solenoids, etc.)

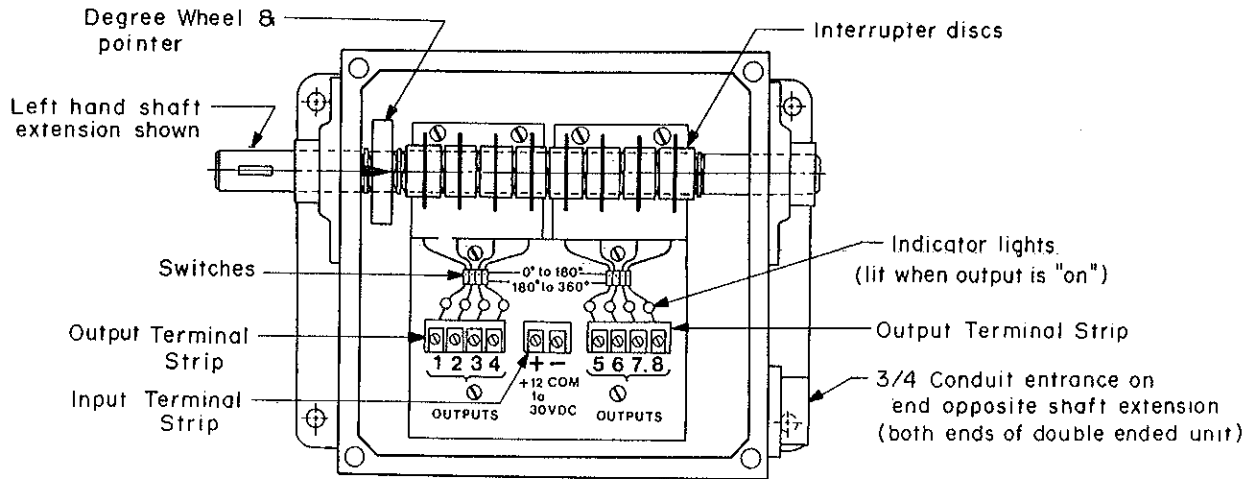
Note:
 Diode Symbol = Actual part
 Connection in reverse can permanently damage limit switch.
 IN4004 Diode is one choice.

CT-4004 (4 Channel Unit)



ELECTRICAL CONNECTIONS:

CT-4008 (8 Channel Unit)



CT-4012 (12 Channel Unit)

