TOYO

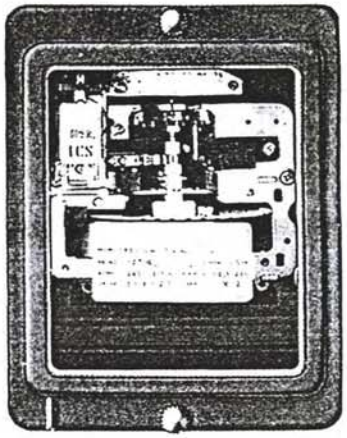
選擇地絡繼電器
Selective Ground Relay

■TYPE TSG－C

This relay select the fault distribution line by zero phase voltage(Vo) and zero phase current(Io), and operates with circuit breaker for grounding protection of high voltage distribution lines.

Note 1 : When use relay, zero phase current transformer is used to the ZC type, ZCM type which is produced acordance with the JEC-190. zero phase current transformer is the rating zero phase pimary current 200mA and rating zero phase secondary current 1.5mA.

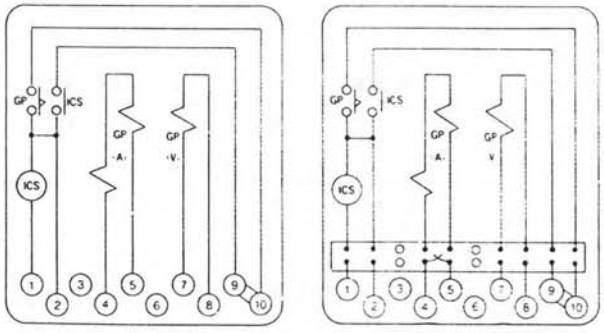
Note 2 : And it is good for mis-operation prevention from the vibration, the shock to supply at electric power board that use with the O.V.G.R type of ground over voltage relay.



■ OPERATING TIME

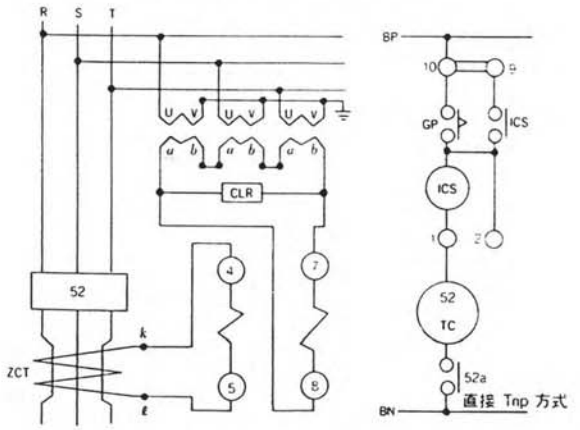
When the rated voltage is 190V, zero phase primary current is 200mA and maximum sensitivity phase angle is LEAD 37° the operating time is about 16 sec.

■ INTERNAL WIRING DIAGRAM



Non-drawout Type　　Drawout Type

■ EXTERNAL WIRING DIAGRAM

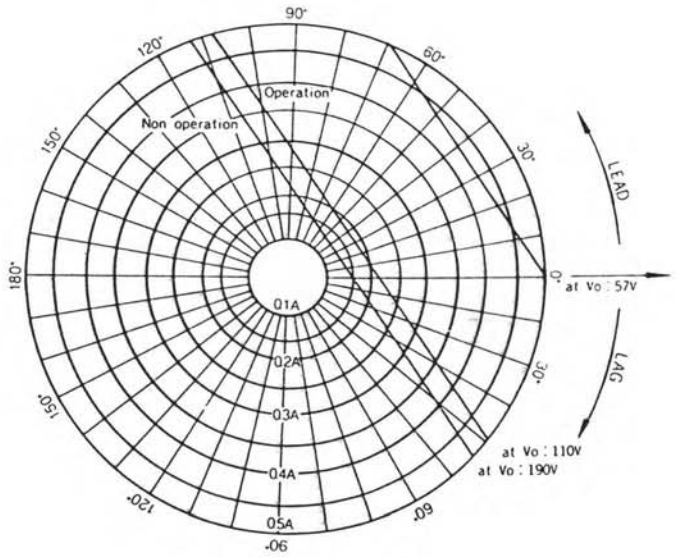


■ SPECIFICATION

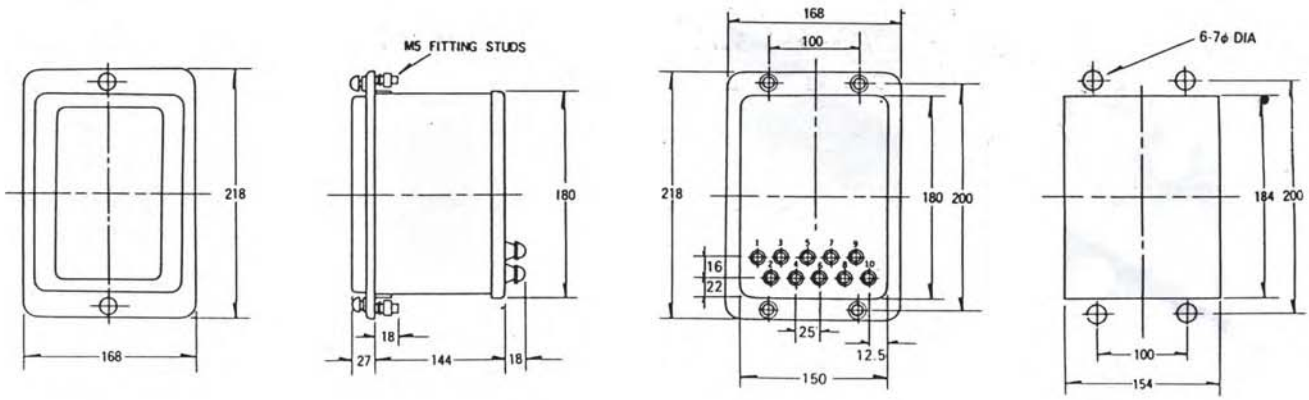
(Values at 60Hz)

Type	Rating (V)	min P.U Current	ICS Unit(DC)	Figure	Weight (kg)
TSG-C1	110V	150mA	0.5A	Non-drawout	3.7
TSG-C1V			AC110V		
TSG-C9	190V		0.5A		
TSG-C9V			AC110V		
TSG-CD1	110V		0.5-2.0A	Drawout	4.6
TSG-CD1V			AC110V		
TSG-CD9	190V		0.5-2.0A		
TSG-CD9V			AC110V		

■ PHASE CHARACTERISTICS



■ DIMENSIONS



■ CLR

This resistor for Current limiting
It makes the current for operating the S.G.R., and D.G.R., and restrains the 3rd harmonic voltage in phase to phase voltage of open delta circuit. It need to restrain the abnormal reposition of neutral point and unstable phenomena at neutral.

190V	25Ω	at	6.6KV	Limit time 1 min.
110V	8Ω	at	6.6KV	Limit time 1 min.
190V	50Ω	at	3.3KV	Limit time 1 min.
110V	16Ω	at	3.3KV	Limit time 1 min.

- The equation of the resistor for current limiting.

$$R=\frac{E}{\sqrt{3}} \times \frac{9}{Ig\times n^2}$$

- The equation for the Zero phase Current

$$Ig=\frac{E}{\sqrt{3}} \times \frac{9}{n^2\times R}$$

- The equation for the Zero phase voltage.

$$Vo=\frac{\frac{E}{\sqrt{3}}\times 3}{n}$$

ex) If the resistive current is 380mA at 6.6KV, 190V.

$$R=\frac{E}{\sqrt{3}} \times \frac{9}{Ig\times n^2}=\frac{6600}{\sqrt{3}} \times \frac{9}{0.38\times 60^2}=25(\Omega)$$

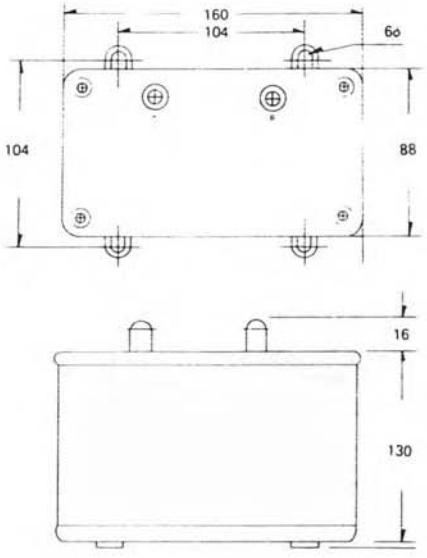
If the resistive current is 380mA at 6.6KV, 110V.

$$R=\frac{E}{\sqrt{3}} \times \frac{3}{Ig\times n^2}=\frac{6600}{\sqrt{3}} \times \frac{3}{0.38\times 60^2}=8(\Omega)$$

Vo : Zero Phase Voltage
Ig : Grounding fault Current
R : Limiting resistor
n : Turn ratio of G.P.T.

CLR

■ DIMENSION (unit : mm)



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