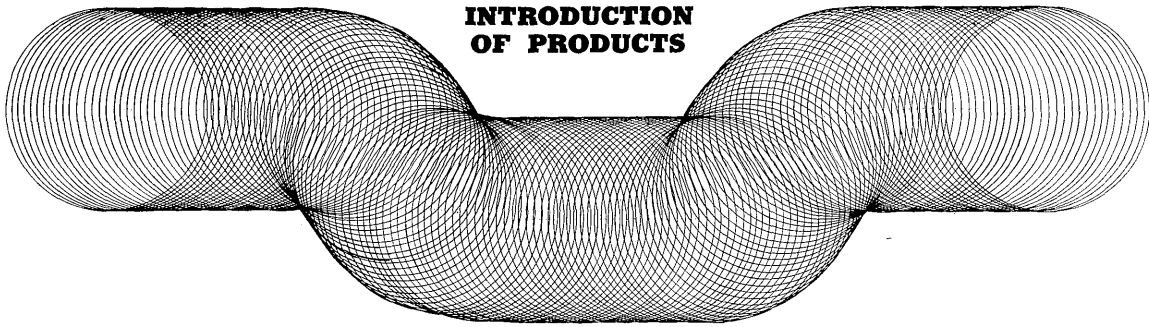


INTRODUCTION OF PRODUCTS



SELF-BALANCING INDICATING CONTROLLER (TYPE SZ) MINIATURE CONTROLLER (TYPE BZII)

Economical and simplified instrumentation technics has recently become popular and interest in the technics has increased. Consequently, the demand for the simplified controllers has increased and these controllers have become more and more significant.

Controllers such as TRANZET (TZ II) and MINIZET (BZ) are widely used in various fields and play the important roles.

Realization of simplified controllers with higher performance was desirable in order to cope with the demand of users due to recent development of technology.

In complying with demands, the self-balancing indicating controller (TYPE SZ) and miniature controller (TYPE BZII) were developed. Both controllers have higher sensitivity, input impedance, and shock and vibration resisting mechanism, therefore, can be utilized in broader fields. They have unique design which permit use even under low voltage input such as that of a thermocouple and provide functions of upper and lower limit alarm, reset action, etc. New products with modern sense and unique panel design shown in the photograph have been realized.

Features of Self-balancing Indicating Controller

- 1) Through adoption of the self-balancing system, the controller has much higher torque to drive the pointer. Consequently, stable performance is obtained even under shock and vibration.
- 2) Due to design principles, high input impedance is obtained and adjustment of external resistance is not required.
- 3) Partial scaling is accomplished with ease.
- 4) The controller is equipped with a burn-out safety circuit. Failures such as those due to open thermocouple and similar causes do not exist.
- 5) A stop is not used and hence indication is

possible throughout the scale range at any set point.

6) Compactness and light weight are realized.

7) Performance changes due to differences in the installation angle are completely eliminated. Thus, installation can be inclined or vertical without additional readjustment.

8) Due to action of the potentiometer system, detection of control deviation is accomplished with ample stability.

9) Correction of offset is made by means of a variable resistor. Automatic offset correction is also possible due to the addition of reset action.

Features of Miniature Controller

- 1) Moving parts are completely eliminated, and the amplifier is completely solid state.
- 2) Reading of set values is readily made.
- 3) The panel area is reduced and the front panel is designed so that well balanced installation is possible even when only a few controllers are mounted side by side.
- 4) In addition to On-Off and proportional operation, installation of upper and lower limit alarm (HL) is possible within the range of 2 to 10% (variable) from the set value.
- 5) In the case of proportional operation, the addition of reset action to eliminate offset is possible.

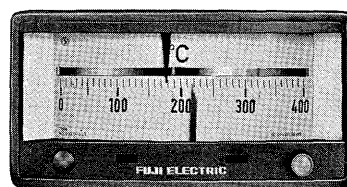


Fig. 1 Self-balancing indicating controller

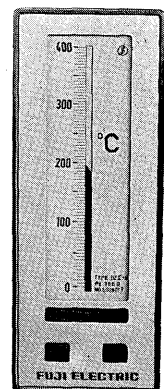


Fig. 2 Miniature controller

Specifications of Self-balancing Indicating Controller

Indicating accuracy :	$\pm 1\%$
Scale length :	115 mm
Input :	Above 10 mv dc Resistance variation more than 20 ohms
Sensitivity :	Less than 0.25 % of full scale
Response time :	Full scale travelling speed : approx. 5 sec
Power source :	100/200 v ac $\pm 15\%$, 50/60 cps
Ambient temperature :	-10 to $+60^{\circ}\text{C}$
Setting accuracy :	$\pm 0.5\%$ of full scale
Proportional band :	Approx. 3.5% of full scale
Proportional cycle :	Approx. 60 sec (30 to 60 seconds, continuously variable by means of variable resistor in amplifier)
On-Off operation gap :	Less than 0.5% of full scale (in On-Off action)
Output contact capacity :	Max. 200 v ac, 8 amp 1 kva (resistance load)
Reset action :	Approx. 2 min
Power consumption :	16 va (indicator), 18 va (indicating controller)
Weight :	Approx. 3.5 kg

Specifications of Miniature Controller

Setting scale length :	100 mm
Measuring range :	Above 10 mv dc Resistance variation more than 20 ohms
Setting accuracy :	$\pm 2\%$ of full scale
Proportional band :	Approx. 2% of full scale
Proportional cycle :	Approx. 30 sec (15 to 45 sec, continuously variable by means of variable resistor in amplifier)
On-Off operation gap :	Less than 0.5% of full scale (in On-Off action)
Power source :	100/200 v ac $\pm 15\%$, 50/60 cps
Ambient temperature :	-10 to 60°C
Power consumption :	Approx. 7 va
Output contact capacity :	Max. 200 v ac, 8 amp, 1 kva (resistance load)
Reset action :	Approx. 2 min
Weight :	Approx. 2 kg
Accessory equipment :	Upper and lower limit alarm (HL) (Setting width 2 to 10%)
Upper and lower limit alarm contact capacity :	Max. 200 v ac, 0.3 amperes, 30 va (resistance load)