

WATER SUPPLIES DEPARTMENT
STANDARD SPECIFICATION E-81-04
EDGEWISE INDICATOR

1. **GENERAL**

Indicators are used in plants to give the operator a quick view of the measured signal such as level, flow and pressure etc and its control set points. It shall be of edgewise type solid-state design in vertical frontal presentation for flush panel mounting without front fastenings. The overall dimensions of the indicator at the front shall be 36 x 144 mm (w x h) according to IEC 61554. A series of indicators if provided shall be suitable for stacking in a row with the long sides touching one another.

The indicator shall have a frontal flat glass surface. It shall not protrude more than 10 mm from the panel face at the front. The indicator enclosure shall be of tough polyfibre or robust sheet steel in epoxy paint finish. Unless otherwise specified, the degree of protection shall be IP30 to IEC 60529.

The indicator shall comply with the latest version of relevant international standards currently enforced on the date of tender invitation where applicable:

IEC 60051	Direct acting indicating analogue electrical measuring instruments and their accessories
IEC 60529	Degrees of protection provided by enclosures (IP code)
IEC 61554	Panel mounted equipment – Electrical measuring instruments – Dimensions for panel mounting

2. **DESIGN**

The inputs to the indicator shall be 4-20 mA d.c. with input resistance of not more than 100 ohms unless otherwise specified. The indicator shall be of Accuracy Class 1.0 to IEC 60051.

3. **CONSTRUCTION**

The power supply to the indicator shall be 24V d.c. The resolution of the indicator shall be better than 1% with 101-segment LED.

Indicators shall be provided in separate housing unless otherwise specified in the Particular Specification. Where two indications are provided within the same housing, the two channels shall be electrically isolated from each other to avoid interference associated with common signal loops.

4. SCALE

The length of indicator scale shall be 100 mm nominal. The scale shall be in white colour lettering on black background. Bargraph display shall be either red, amber or green in colour. Markings of the indication scales shall not be subject to fading, peeling or discolouration with age under the conditions of service.

Indicators for water level shall each have a red line with the inscription "T.W.L." marked on the scale to indicate the top water level.

5. SIGNAL LIMIT ALARMS

High and low alarm set points shall be provided for the indicators where specified. Set points shall be clearly visible and continuously adjustable over the length of the whole scale. The accuracy of the indicator shall be independent of the settings. Set point adjustment shall be made by screwdriver from the indicator front or by built-in physical button on the indicator. The minimum alarm separation shall be 1% with switching hysteresis less than 1% of the range.

The alarm relays shall operate with a nominal time delay of 0.5 sec. after the set point has been reached. Each relay shall have volt-free changeover contacts rated at 2A, 24V d.c. nominal.

6. EQUIPMENT PARTICULARS

The contractor should refer to the Particular Specification for the following particulars of the equipment :-

- (a) Scale and special marking;
- (b) Signal limit alarms (optional).

- End of this Specification -