Application
Type K-241 & 261 instruments have been designed to achieve the ultimate in reliability and performance. Instruments of this class are recommended for use on electric utility switchboards and process control panels for similar industrial service.

Navy HI-Shock instruments were developed to meet the special needs of the U.S. Navy. These instruments are used almost universally for military shipboard applications. They may be used to advantage on commercial marine and industrial applications or wherever humid conditions or severe mechanical shocks are sustained.

Selection of Type K-241 & 261 instruments is indicated whenever there is a need for frequent, accurate, quick readings and where failure in an instrument circuit could affect an associated critical circuit.

Standards
Type K-241 & 261 commercial instruments comply with ANSI Standard C39.1 for 1% class switchboard instruments. HI-Shock instruments meet the stringent requirements of their associated standards (see table 1).

Features
Taut-Band Suspension
All Type K-241 & 261 instruments, except those which rotate continuously, use taut-band suspension. Instruments incorporating this feature are identified by the trademark tbs. The taut-band suspension instrument has certain unique advantages over the conventional pivot and jewel types:

1. It eliminates friction, giving better accuracy and almost perfect repeatability.
2. It gives top performance under adverse conditions of shock and vibration.
3. It reduces maintenance, thereby saving money throughout the lifetime of the instrument.
4. It assures longer life, reducing annual depreciation and replacement costs.
5. It has greater sensitivity, reducing power burdens on circuits being measured.

Enclosures
The window of 241 types is shatterproof polycarbonate.

The window of HI-Shock instruments is shatterproof and 241 types are chemical and scratch resistant. Bases are made from a high strength plastic with nontoxic combustion products.

Cases and hardware for all types are heavily plated to resist harsh environments.

Mechanisms
Type K-241 and 261 instruments are built with permanent-magnet moving-coil mechanisms for all direct current and rectifier types, as well as for those employing self-contained or external transducers. For RMS measurement of alternating current, the mechanisms use iron-vane principles. Both types are built with taut-band suspensions. The power factor meter and the synchroscope are of the rotating vane type with pivot and jewel bearings.

Full View Design
To facilitate quick, accurate reading, even under adverse conditions, all K-241 instruments feature the Westinghouse “full view” design. The window is flat, reducing light reflection to minimize the need for a non-glare surface. The dial scale is beveled so that there is no dial shadow, making it possible to read the instrument from a 60-degree angle.

High Overload Capacity
While the exact overload capacities vary with ratings, the K-241 and 261 instruments generally will withstand momentary overloads in excess of industry standards without sustaining damage. For ac instruments this overload capacity is in excess of 35 times normal current, and for dc it is in excess of 150 times. Therefore, it is permissible to select instruments to read at a preferred three-quarters scale at normal current and yet permit “pegging” the instrument during high-current transient conditions.

Sensitivity
DC instruments are available in ratings from 100 microamps up. All tbs mechanisms have much lower resistance than their pivot and jewel counterparts and most competitive mechanisms.
Notes:
1) For readout and bridge circuit.

Specifications

Accuracy:
1% accuracy class. See AD 43-200 for accuracy of specific instruments

Case Size:
4 1/2-inch class (4 27/61 inches (11.2 cm) square).

Insulation Rating:
300 V

Shielding:
DC - 1 % influence at 50-200 gauss.
AC - 1 % influence at 15 gauss.

Scale Length:
7.1 inches (18.0 cm) for 250° rotation.

Net Weight:
3 to 5 pounds (1.4 to 2.2 kg), exclusive of accessories.

AC Burdens:
5A ac ammeter - .375 VA
AC wattmeter - 2.0 VA (current coil)
AC wattmeter - 2.5 W (potential coil)
150V ac voltmeter - 2.4 W
For details, see Application Data 43-200.

Wiring Diagrams:
See Application Data 43-200

Further Information
Ordering Information, Styles & Ratings:
See index of this catalog
Instructions: IL 43-241
Renewal Parts: RPD 43-241

Modifications

Mechanism Dials:
Black with white marking
Fluorescent
Dual scale
Special colors, trademarks, legends etc.

Windows:
Non-glare, Shatterproof

Electrical:
Intermediate ratings
Special calibrations
Offset or suppressed Zero
Multiple rating
Special sensitivity

Mechanical:
Pusher or index pointers, Weatherproof, Hi-Shock (MIL-S-901C)
Type K-241 and K-261

<table>
<thead>
<tr>
<th>Type</th>
<th>Instrument</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>KX-241</td>
<td>Dc Instruments</td>
<td>2.813 (71)</td>
</tr>
<tr>
<td>KC-241</td>
<td>Rectifier Instruments, Except Transducer Type</td>
<td>2.813 (71)</td>
</tr>
<tr>
<td>KA-241</td>
<td>Ac Voltmeters and Ammeters</td>
<td>2.813 (71)</td>
</tr>
<tr>
<td>KC-241</td>
<td>Transformer Type Rectifier Ammeter</td>
<td>3.750 (95)</td>
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<tr>
<td>KR-241</td>
<td>Frequency Meter</td>
<td>3.750 (95)</td>
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<tr>
<td>KX-241</td>
<td>Electrical Resistance Thermometer</td>
<td>3.750 (95)</td>
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<tr>
<td>KL-241</td>
<td>Synchroscope, Single Phase</td>
<td>5.312 (135)</td>
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<tr>
<td>KE-241</td>
<td>Power Factor Meters</td>
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<td>KP-241</td>
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<td>KV-241</td>
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<tr>
<td>KJ-241</td>
<td>Power Factor Meters</td>
<td>5.312 (135)</td>
</tr>
</tbody>
</table>

Note 1 - Potentiometer for factory adjustment of 150, 300 and 600 Vac voltmeters.
Note 2 - Tubular resistor on single phase 50 and 60 Hz synchroscopes and power factor meters (commercial grade)
Note 3 - Resistor cage used with 400 Hz synchroscopes and power factor meters.
3 phase power factor meters, high shock power factor meters & high shock synchroscopes.