Series 239 meter relays combine a highly accurate indicator with High and Low set point relays. The relays can operate alarm and control devices when the monitored signal value moves outside the chosen set point limits shown by adjustable red index pointers.

A single compact case houses the unit which requires only the input signal and power supply thus saving space and installation time.

### Features
- Monitors and controls any variable which can be converted into an A.C. or D.C. signal
- Rugged shock and vibration resistant design
- Indicator, relays and power unit in one housing
- Control function continues if the indicator becomes damaged
- Stable electronic switching circuit does not use lamps, photocells, inductors or capacitors
- Taut band, fluid damped indicator
- Isolated input signal
- LED relay state indicators

### Applications
- Voltage monitoring/control current monitoring
- Overload alarm
- Battery monitoring/charging
- Temperature indication
- Temperature control
- Load shedding
- Power factor correction
- Frequency monitoring
- Level control

### Meter Relays

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>One relay, two setpoints</td>
<td>239-300</td>
</tr>
<tr>
<td>Upscale de-energised, down scale energised. Typical applications: Liquid level control, load shedding &amp; power factor correction.</td>
<td></td>
</tr>
<tr>
<td>One relay, one set point</td>
<td>239-301</td>
</tr>
<tr>
<td>Upscale energised, downscale de-energised. Typical application: High alarm.</td>
<td></td>
</tr>
<tr>
<td>Two relays, two set points</td>
<td>239-302</td>
</tr>
<tr>
<td>Mid band de-energised, outside band energised. Typical applications: High and Low alarm, High alarm plus shut down.</td>
<td></td>
</tr>
<tr>
<td>Two relays, two setpoints</td>
<td>239-303</td>
</tr>
<tr>
<td>Both upscale energised, downscale de-energised Typical application: High alarm plus shutdown.</td>
<td></td>
</tr>
<tr>
<td>Two relays, two setpoints</td>
<td>239-304</td>
</tr>
<tr>
<td>High and low midband energised, outside band de-energised. No time delay. Typical application: High alarm plus shutdown.</td>
<td></td>
</tr>
<tr>
<td>Two relays, two set points</td>
<td>239-305</td>
</tr>
<tr>
<td>Both upscale de-energised,downscale energised. Typical application: Frequency monitoring.</td>
<td></td>
</tr>
<tr>
<td>One relay, one set point</td>
<td>239-307</td>
</tr>
<tr>
<td>Upscale de-energised, downscale energised. Typical application: Low alarm.</td>
<td></td>
</tr>
<tr>
<td>Two relays, two set points</td>
<td>239-30R</td>
</tr>
<tr>
<td>Midband de-energised, outside band energised. Operates from from 2, 3 or 4 wire resistance temperature detector (RTD). Typical application: Temperature indication / control.</td>
<td></td>
</tr>
<tr>
<td>Two relays, two set points</td>
<td>239-30T</td>
</tr>
<tr>
<td>Midband de-energised, outside band energised. Operates from thermocouple input. Cold junction compensation and thermocouple break protection are standard features. Typical application: Temperature indication / control.</td>
<td></td>
</tr>
</tbody>
</table>
Meter Relays
239 Series Analogue Meter Relays

Specification

Adjustments

Front panel comprises set-point potentiometer(s), one per setpoint
Rear panel comprises delay potentiometer(s), one per setpoint

Measuring Input:

- **Note:** All inputs are average sensing, but RMS calibrated

  - **A.C. Voltage:** 10V to 600V RMS
  - **A.C. Current:** 1mA to 15A RMS
  - **D.C. Voltage:** 10mV to 600V RMS
  - **D.C. Current:** 100µA to 15A

  - Measuring input:
    - **A.C. Voltage:** 10V to 600V RMS
    - **A.C. Current:** 1mA to 15A RMS
    - **D.C. Voltage:** 10mV to 600V RMS
    - **D.C. Current:** 100µA to 15A

  - Maximum continuous input:
    - **input voltage:** 1.2 x rating continuously (600V max.)

  - Maximum continuous input current:
    - 1.2 x nominal (15A max.)

  - Maximum short duration input current:
    - 6 x nominal for 6 seconds (30A max.)

  - Frequency monitoring:
    - 50Hz to 60Hz ±10%

  - Burden:
    - <0.5VA

  - Damping time:
    - 1 second

  - 4" Scale:
    - 100° deflection

  - Panel material:
    - Ferrous or non-ferrous

  - Dielectric test:
    - 2600V r.m.s. for 1 minute

  - Auxiliary supply:
    - Aux. voltage A.C.: 110, 120, 220, 230, 240, 277, 480V A.C. (±20%)
    - Aux. voltage D.C.: 12, 24, 48, 120, or 135V maximum 156V D.C.
    - Aux. frequency: 50 to 60Hz ±10%

  - Burden:
    - <1.5W

Adjustments and Accuracy

- Indicator accuracy:
  - Class 1.5

- Set-point range:
  - 98% of scale

- Set-point accuracy:
  - 1% of range

- Set-point hysteresis:
  - 1% of range

- Trip repeatability:
  - 0.5% of range

Relay tripping time:
- <1 second

Time delay:
- 0 to 20 seconds, adjustable by potentiometer on rear panel

Indication:
- Single red LED, per set-point, to indicate trip condition

Outputs

- **Relays:** DPCO contacts rated 5A @ 250V A.C. 5A @ 30V D.C. resistive electrical life >1x10^6 operations @ 5A, 250V A.C. contact class IIB (IEC 60255-0-20)

- **Relay logic:** Configurable to energise or de-energise on trip

Options

- **Relay latching:** When the measured signal reaches the set-point, the relay changes state and stays in this condition until the auxiliary supply is interrupted

Environmental and Mechanical

- **Ambient temperature:**
  - Reference range: +15°C to +30°C
  - Nominal range of use: 0°C to +60°C

- **Storage temperature:**
  - -20°C to +70°C

- **Relative humidity:**
  - <90%, non condensing

- **Shock:**
  - 15g/11ms (EN 60068-2-27)

- **Bumping:**
  - 40g/6ms (EN 60068-2-29)

- **Vibration:**
  - 10 to 300Hz (EN 60068-2-6)

- **Protection class:**
  - Terminals to IP20
  - Enclosure to IP50

- **Enclosure Material:**
  - UL94V1

- **Terminal capacities:**
  - 1 to 4mm² solid or stranded conductors

- **Weight:**
  - <1kg

EU Directives

- **Low Voltage Directive:** 73/23/EEC amended by 93/68/EEC
- **EMC Directive:** 89/336/EEC amended by 93/68/EEC
- **CE Mark Directive:** 93/68/EEC

Options

- **CT:** Calibrated at °C
- **EB:** Both relays latch, external switch to reset
- **EH:** High relay latch, external switch to reset
- **EL:** Low relay latch, external switch to reset
- **FK:** Finger knob setpoint adjusters
- **KV:** Sensitivity 100k/volt for A.C. input
- **KW:** Sensitivity 1k/volt for D.C. input
- **KX:** Sensitivity 100k/volt for D.C. input
- **LB:** Both relays latch, remove auxiliary supply to reset
- **LL:** High relays latch, remove auxiliary supply to reset
- **MC:** Clamp band fixing
- **NH:** Hysteresis
- **PD:** Electrical heavily damped movements
- **PG:** Panel mounting gasket
- **RP:** Retro-fit plate 237 meter relay
- **SL:** Red line on instrument dial
- **SM:** Customer logo on instrument dial (Note: one off setup charge may apply)
- **SZ:** Coloured band on instrument dial
- **TP:** TPC-Time proportional control (proportional plus derivative control)
Meter Relays
239 Series Analogue Meter Relays

Dimensions and Panel cut-out

Connections

Measuring Input

<table>
<thead>
<tr>
<th>Terminal</th>
</tr>
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<tbody>
<tr>
<td>1. Meter N or -VE</td>
</tr>
<tr>
<td>2. Meter L or +VE</td>
</tr>
<tr>
<td>3. RTD or Thermocouple input</td>
</tr>
<tr>
<td>4. Auxiliary supply neutral (+ve if D.C.)</td>
</tr>
<tr>
<td>5. Auxiliary supply live (+ve if D.C.)</td>
</tr>
<tr>
<td>6. Auxiliary supply tap for dual supply models</td>
</tr>
</tbody>
</table>