# Meter Relays

## 077 Series Analogue Meter Relays

### Features

- *Monitors and controls any variable which can be converted to an A.C. or D.C. signal.*
- *Rugged, shock and vibration resistant design*
- *Indicator, relays and power unit in one housing*
- *Stable electronic switching circuit does not use lamps, photocells, inductors or capacitors*
- *Taut band, fluid damped indicator*
- *Isolated input signal*
- *LED relay state indicators*
- *Built-in 0 - 10 second adjustable time delays*
- *UL Approved File No. E75911SP*

### Applications

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


***Series 077 meter relays combine a highly accurate indicator with High and Low set point relay. 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.***

| Meter Relays | Product Code |
|---|---|
| **One relay, two setpoints**<br>Upscale de-energized, down scale energized.<br>Typical applications: Liquid level control, load shedding and power factor correction. | 077-300 |
| **One relay, one set point**<br>Upscale energized, downscale de-energized.<br>Typical application: High alarm. | 077-301 |
| **Two relays, two set points**<br>Mid band de-energized, outside band energized.<br>Typical applications: High and Low alarm, High alarm plus shut down. | 077-302 |
| **Two relays, two setpoints**<br>Both upscale energized, downscale de-energized.<br>Typical application: High alarm plus shutdown. | 077-303 |
| **Two relays, two setpoints**<br>High and low midband energized,<br>outside band de-energized. No time delay.<br>Typical application: High alarm plus shutdown. | 077-304 |
| **Two relays, two set points**<br>Both upscale de-energized,downscale energized.<br>Typical application: Frequency monitoring. | 077-305 |
| **One relay, one set point**<br>Upscale de-energized, downscale energized.<br>Typical application: Low alarm. | 077-307 |
| **Two relays, two set points**<br>Midband de-energized, outside band energized.<br>Operates from from 2, 3 or 4 wire resistance temperature detector (RTD).<br>Typical application: Temperature indication / control. | 077-30R |
| **Two relays, two set points**<br>Midband de-energized, outside band energized.<br>Operates from thermocouple input.<br>Cold junction compensation and thermocouple break protection are standard features.<br>Typical application: Temperature indication / control. | 077-30T |

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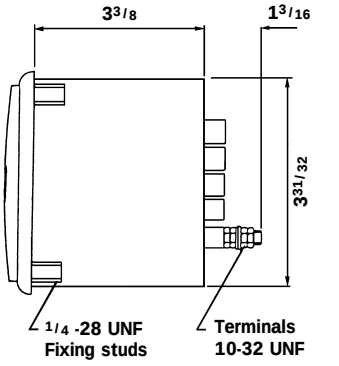
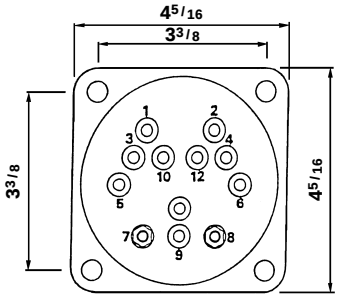
## 077 Series Analogue Meter Relays

### Dimensions and panel cut-out




### Approvals

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### Specification

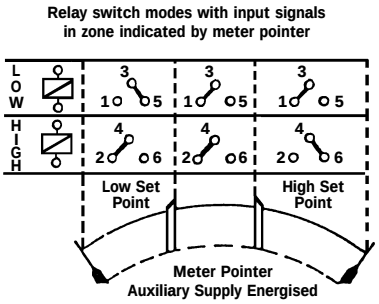
**Input signal ratings:**

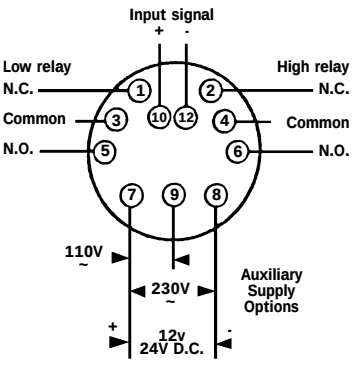
| | |
|---|---|
| Frequency monitoring: | 45/65Hz or 55/65Hz<br>100/125 V, 200/250V<br>380/440V or 480V system |
| D.C. Voltage: | 10mV to 500V - 10kΩ/V |
| D.C. Current: | 10µA to 500mA - 20mV drop<br>4/20mA |
| A.C. Voltage: | 6V to 600V - 1000 Ω/V |
| A.C. Current: | 100µA to 1A - 1V drop<br>5A CT operation - 0.5VA |
| **Thermocouples:** | Standard outputs |
| **RTD Operation:** | 10Ω Copper<br>100Ω Platinum<br>0-200°C, 0-150°C<br>or 20 - 140°C |
| **Overloads:** | 1.2 x continuous, up to 200V<br>or 100mA - 10 x for 10 secs. |
| **Indicator Accuracy:** | Max error 1.5% |
| **Damping time:** | 1 second |
| **4" Scale:** | 100° deflection |
| **Set point accuracy:** | Max error 1.5% |
| **Repeatability:** | 0.5% |
| **Differential:** | 1% of span |
| **Operating time:** | 250m sec to 10 sec adjustable |
| **Set-point Adjustments:** | Single - 100% of scale<br>Double - 98% of scale |
| **Minimum span:** | 2% between setpoints |
| **Colour:** | Red |
| **Output Relay:** | Mounted internally |
| **Operation:** | SPDT contacts on each setpoint<br>Optional latching on either or<br>both relays (077-301, 077-302<br>or 077-307 only) |
| **Contact Rating:** | 5A, 250V, 1000W non-<br>inductive |
| **Ambient TemperatureRange:** | -10°C to +60°C<br>(+14°F to 140°F) |
| **Standard calibration:** | 20°C (68°F) |
| **Panel Material:** | Ferrous or non-ferrous |
| **Dielectric test:** | 2600V r.m.s. for 1 minute |
| **Auxiliary power requirement:** | |
| A.C.: | Dual rating - 120/240, 50/60Hz |
| D.C.: | 12V, 24V or 125V DC |
| Burden: | 3W maximum |

### Options

| | |
|---|---|
| BR | Non reflecting window |
| CT | Calibrated at customer specified temperature |
| 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 |
| LB | Both relays latch, remove auxiliary supply to reset |
| LH | High relays latch, remove auxiliary supply to reset |
| LL | Low relays latch, remove auxiliary supply to reset |
| PD | Electrical heavily damped movements |
| PG | Panel mounting gasket |
| 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) |

### Connections




Crompton INSTRUMENTS

Meter Relays

# Meter Relays

## 239 Series Analogue Meter Relays

### Features

- *Monitors and controls any variable which can be converted in to 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*

***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.***

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

Crompton INSTRUMENTS

# Meter Relays

## 244 Series Analogue Meter Relays


***244 series meter relays combine a highly accurate indicator with high and low set-points which can operate alarm and control circuits when the monitored signal value moves outside the set-point limits indicated by the adjustable red index pointers.***

***These relays monitor and control any parameter which can be converted into an A.C. or D.C. signal.***

***The indicator, relays and power unit are in one housing and the control function continues should the indicator become damaged. A time delay is available as an optional extra.***

### Applications

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

### Approvals

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| Meter Relays | Product Code |
|---|---|
| **1 relay, 2 set-points**<br>Upscale de-energised, downscale energised | 244-300 |
| **1 relay, 1 set-point**<br>Upscale de-energised, downscale energised | 244-301 |
| **2 relays, 2 set-points**<br>Mid-band de-energised, outside band energised | 244-302 |
| **2 relays, 2 set-points**<br>Both upscale energised, downscale de-energised | 244-303 |
| **2 relays, 2 set-points**<br>High & low mid-band energised, outside band de-energised | 244-304 |
| **2 relays, 2 set-points**<br>Both upscale de-energised, downscale energised | 244-305 |
| **1 relay, 1 set-point**<br>Upscale de-energised, downscale energised | 244-307 |
| **2 relays, 2 set-points**<br>High and high upscale de-energised | 244-308 |
| **1 relay, 2 set-points**<br>Low de-energised, high energised | 244-309 |
| **RDT operated 2 relays, 2 set-points**<br>Mid-band de-energised, outside band energised | 244-30R |
| **Thermo couple 2 relays, 2 set-points**<br>Mid-band de-energised, outside band energised | 244-30T |

### Options

| | |
|---|---|
| BP | Polycarbonate window |
| CT | Calibrated at customer specified temperature |
| DS | Dual scale |
| FK | Finger knob adjustment |
| LB | Both relays latch, remove auxiliary supply to reset |
| LH | High relays latch, remove auxiliary supply to reset |
| LL | Low relays latch, remove auxiliary supply to reset |
| PD | Heavily damped movement |
| PG | Panel gasket |
| SL | Red line on dial |
| SM | Customer logo on dial |
| SN | No logo on dial |
| SR | Red index line on dial |
| SZ | Coloured band on dial |
| TB | Time delay 0.3 - 10 sec |
| TC | Time delay 0.3 - 30 sec |
| TD | Time delay 0.3 - 20 sec |
| TH | Time delay 0.3 - 10 sec high relay |
| TI | Time delay 0.3 - 30 sec high relay |
| TL | Time delay 0.3 - 10 sec low relay |
| TM | Time delay 0.3 - 30 sec low relay |
| TP | Time proportional control |

Crompton INSTRUMENTS

# Meter Relays

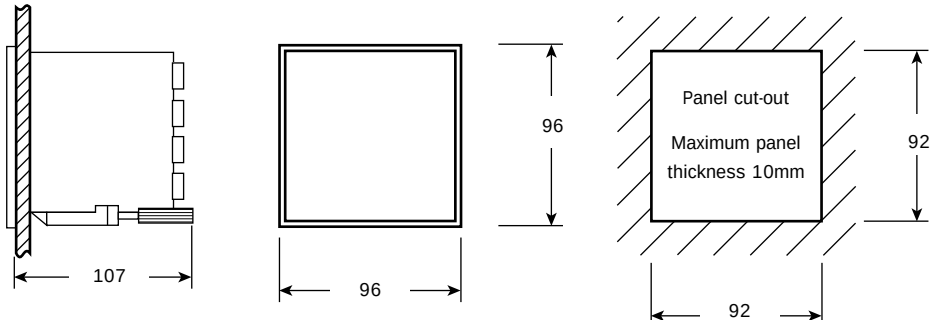
## 244 Series Analogue Meter Relays

### Specification

| | |
|---|---|
| **Accuracy Indicator:** | Class 1.5 |
| **Set-point:** | Class 1.5 |
| **Repeatability:** | 0.5% |
| **Differential:** | 1% of span |
| **Set-point adjustment:** | 98% of scale |
| **Minimum span:** | 2% between set points |
| **Ratings:** | |
| A.C. Volts: | 6V to 500V (1KΩ/V) 50/60Hz |
| Single Frequencies: | 25Hz to 3kHz on request |
| A.C. Current: | 100µA to 1A (1V drop) 1A & 5A C.T. operation (0.5VA) 50/60Hz. |
| Frequencies: | 25Hz to 3kHz on request |
| Time delay: | 0.3 to 10 or 0.3 to 30 seconds |

| | |
|---|---|
| **Optional Ratings:** | |
| D.C. Volts: | 20mV to 500V (10KΩ/V) |
| D.C. Current: | 10µA to 15A (20mV drop) |
| Thermocouple: | Types J, K, R, S, T minimum 10mV span |
| RTD: | 2 wire 10Ω copper 100Ω platinum, 120Ω nickel |
| **Auxiliary Supply:** | |
| A.C.: | Dual rating 100/125V or 200/250V 50/60Hz. |
| D.C.: | 12V or 24V. +/-14% Maximum 15% ripple on unregulated supplies |
| **Burden:** | 3VA maximum |
| **Fixing:** | Screw clamps |
| **Enclosure:** | IP52 |

### Dimensions




### Connections