

**MERCURY USE IN EUROPE**

On 13 February 2003, 2 directives of the European Parliament and of the Council appeared in the official Journal of the European Union :

Directive 2002/95/EC of January 27, 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (ROHS)

And

Directive 2002/96/EC of January 27, 2003 on waste electrical and electronic equipment (WEEE)

Directive 2002/95/EC stipulates that, from 1 July 2006, new electrical and electronic equipment put on the European market may not contain lead, mercury, cadmium, hexavalent chromium and PBB (polybrominated diphenyls) or PBDE (polybrominated diphenyl ethers).

This applies only to the following categories of electrical and electronic equipment, which are mainly consumer products :

- Large household appliances
- Small household appliances
- IT and Telecommunication equipment
- Consumer equipment
- Lighting equipment
- Electrical and electronic tools
- Toys
- Automatic dispensers
- Electric light bulbs and luminaires in households

This directive does not apply to industrial or professional equipment :

- Medical equipment systems
- and
- Monitoring and control instruments

This directive also does not apply to spare parts for the repair, or to the reuse, of electrical and electronic equipment put on the European market before 1 July 2006.

This directive does not apply to the applications listed in the Annex of this directive.

This annex specifies applications of lead, mercury, cadmium and so on, which are exempted from the requirements, because their substitution is technically not feasible or their substitution creates a negative impact on people or the environment (decreased safety or other waste, environmental or technical problems).

The European member states have to bring in force the laws, regulations and administrative provisions necessary to comply with this directive before 13 August 2004.

**Conclusion**  
Mercury wetted relays, switches and sensors still may be used in professional systems, as in monitoring and control instruments and medical equipment systems, and be sold on the European market after 1 July 2006.

Also, mercury wetted relays, switches and sensors can always be used as spare parts for repair or reuse of every electric or electronic equipment.

The Comus Group of Companies will, together with the sector organisations, define and communicate the necessary arguments to defend the use of mercury contained products for these applications where there is no technical alternative without effecting the safety and the environment in any other negative way.

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We also have a large network of worldwide agents. These can be seen on any of our websites, or on our company profile brochure.

# Mercury Switches



**DESCRIPTION**

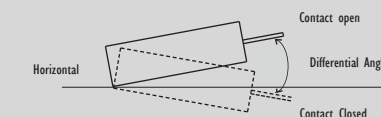
The products included in this catalogue are all designed to detect motion or movement. Forms of movement are: Tilt, Rotation, Vibration, Shock or Acceleration. Many of these can also be supplied for surface mount applications.

**Tilt Switches**

These operate when tilted from the horizontal position. The switch movement required to cause contact change is called the differential angle. It is very important when designing a tilt switch to allow for the differential angle and understand that when in the horizontal position the switch contact may be open or closed.

**Tilt Switch Modules**

A Tilt Switch located inside a sealed (usually plastic) enclosure. Flying leads are provided for easy connection.

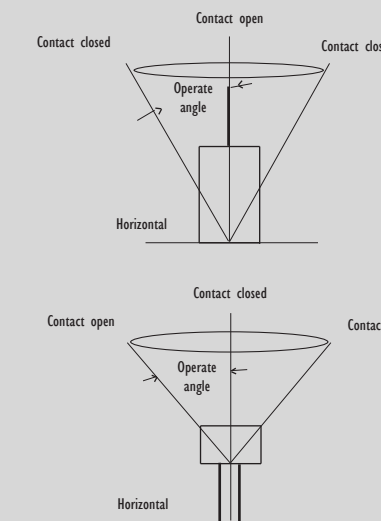


**Tip-Over Switches**

These operate when the switch is tilted from the vertical position. The angle through which the switch has to move before operating is called the operating angle. Many of these switches are omni-directional

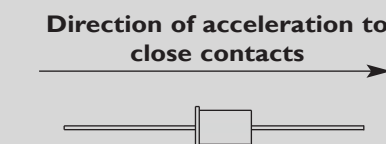
**Tip-Over Switch Modules**

A Tip-Over Switch located inside a sealed (usually plastic) enclosure. Flying leads are provided for easy connection.



**Acceleration and Shock Sensors**

These switches have a normally open contact which closes when the switch reaches the acceleration activation level.



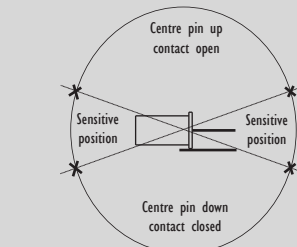
**Movement and Vibration Switches**

When correctly positioned the switch contacts will react by giving a fleeting change of state when subjected to movement or vibration.

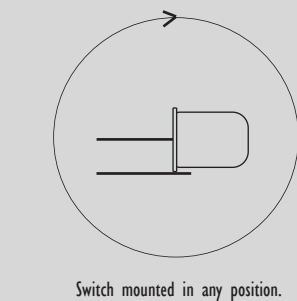
**Movement and Vibration Switch Modules**

A Movement or Vibration switch located in a sealed (usually plastic) housing.

**Position Sensitive**



**Non Position Sensitive**



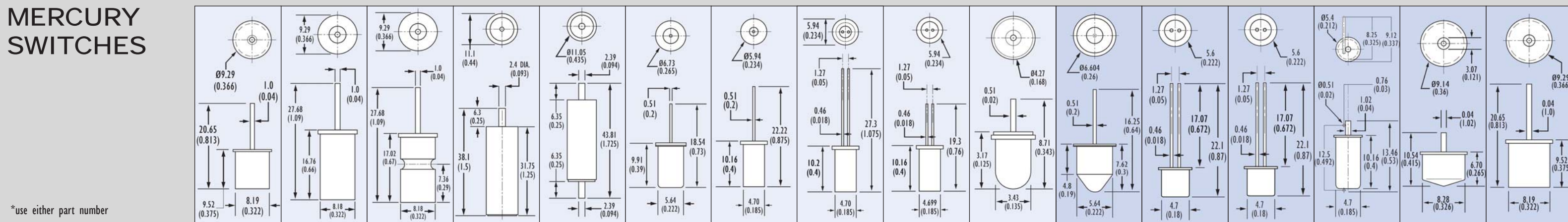
All dimensions are nominal, in millimetres unless otherwise stated. If further information is required, individual datasheets are available on our websites, and on CD. As part of the group's policy of continued product improvement, specifications may change without notice. Our sales office will be pleased to help you with the latest information on our products.

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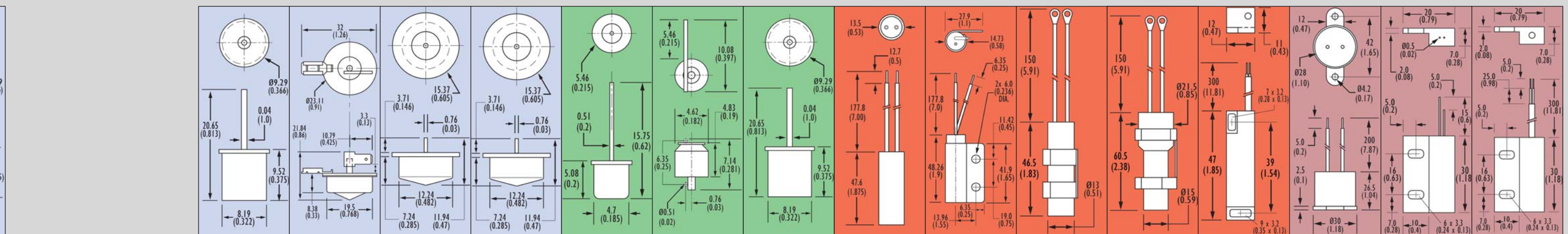
MERCURY SWITCHES

\*use either part number



Options / Features	• Compact 1 Amp switching	• Wide Angle	• 10 Amp Switching	• SPDT Form C	• General Purpose	• General Purpose	• General Purpose	• General Purpose	• Sub Miniature	• Miniature	• Miniature	• Low Angle	• Omni-Directional • CM1425-0 (1 Electrode) • CM1425-1 (2 Electrodes)				
Description	Tilt Switch												Tip-Over Switch				Options / Features

Type	CM100-0	CM200-0	CM225-0	CM1000-0	CM1020-0	CM1200-0	CM1300-0	CM1320-0	CM1323-0	CM1600-0	CM1260-0	CM1360-0	CM1365-0	CM1370-12	CM1415-0	CM1425-0
Contact Form / Style	Dependent on mounting	Dependent on mounting	Dependent on mounting	Dependent on mounting	Dependent on mounting	Dependent on mounting	Dependent on mounting	Dependent on mounting	Dependent on mounting	Dependent on mounting	Normally Open	Normally Open	Normally Open	Dependent on mounting	Normally Closed	Normally Open
Switching Voltage Max.	120 VAC	120VAC	120VAC	120VAC	120VAC	120VAC	120VAC	120VAC	240VAC	24VDC	120VAC	120VAC	120VAC	120VAC	120VAC	120VAC
Switching Current Max. A	1.0A at 120VAC	2.0A at 120VAC	2.0A at 120VAC	10.0A at 120VAC	10.0A at 120VAC	0.2A at 120VAC	0.5A at 120VAC	0.25A at 120VAC	0.2A at 240VAC	0.15	0.2A at 120VAC	0.25A at 120VAC	0.25A at 120VAC	0.25A at 120VAC	1A at 120VAC	1A at 120VAC
Switching Capacity Max. VA	120	240	240	1200	1200	24	60	48	48	3.6	24	30	30	60	120	120
Differential Angle (Tilt Switches) Max.°	10	10	25	10	10	10	10	10	10	2	60 +/- 10	15	45 - 75	60 +/- 10	15 +/- 4	25 +/- 10
Operating Angle (Tip-Over Switches) Min-Max.°																
Contact Resistance Max. Ohms	3	3	3	3	3	1	3	1	1	5	3	10	3	3	2	3
Operating Temperature Max. °C	-37 +100	-37 +100	-37 +100	-37 +100	-37 +100	-37 +100	-37 +100	-37 +100	-37 +100	-37 +100	-37 +100	-37 +100	-37 +100	-37 +100	-37 +100	-37 +100
Storage Temperature Max. °C	-40 +125	-40 +125	-40 +125	-40 +125	-40 +125	-40 +125	-40 +125	-40 +125	-40 +125	-40 +125	-40 +125	-40 +125	-40 +125	-40 +125	-40 +125	-40 +125
Case Material	Steel Tin Plated	Steel Tin Plated	Steel Tin Plated	Steel Tin Plated	Steel Tin Plated	Steel Tin Plated	Steel Tin Plated	Steel Tin Plated	Steel Tin Plated	Steel Tin Plated	Steel Tin Plated	Steel Tin Plated	Steel Tin Plated	Steel Tin Plated	Steel Tin Plated	Steel Tin Plated
Mounting Clip / Cable	3BH	3BH	3BH	-	-	3BH	1A	1A	1A	1A	-	1A	-	-	-	-



Options / Features	• General Purpose • U.I. Approved	• Heavy Duty • U.I. Approved	• Low Angle • Omni-Directional	• Low Angle • Omni-Directional	• Non-Position Sensitive • CM1344-0 (1 Electrode) • CM1344-1 (2 Electrodes)	• Compact • CM400-0 (1 Electrode) • CM400-1 (2 Electrodes)	• High Switching Current • Encapsulated	• High Switching Current • Supplied with mounting clip	• High Switching Current • Supplied with mounting clip	• High Switching Current • Supplied with mounting clip	• Robust Construction	• Heavy Duty Switching	• Clear Housing • Also available in cylindrical housing (TSM 4/240, and 20° Vertical / 5° Horizontal angle 110V TSM 40/110)
Description	Tip-Over Switch				Movement / Vibration			Tilt Module				Tip-Over Module	

Type	CM1445-0	CM1535-5	CM1715-0	CM1745-0	CM1344-0	CM1800-1	CM4400-0	CM1000-70	CM1000-90	S1016	S1017	CM1320-90 / S1039*	CM1535-70 / S1116*	TSM 4/240	TSM 10/240
Contact Form / Style	Normally Open	Normally Closed	Normally Closed	Normally Closed	Normally Open	Dependent on mounting	Normally Open	Dependent on mounting	Dependent on mounting	Dependent on mounting	Dependent on mounting	Dependent on mounting	Normally Closed	Dependent on mounting	Dependent on mounting
Switching Voltage Max.	120VAC	120VAC	120VAC	120VAC	60VAC	120VAC/DC	120VAC	240VAC	240VAC	240VAC	240VAC	240VAC	240VAC	240VAC	240VAC
Switching Current Max. A	1.0A at 120VAC	12.5A at 120VAC	1.5A at 120VAC	1.5A at 120VAC	0.1	0.1 at 120VAC 0.2 at 120VDC	0.1	5.0 at 240VAC 10.0 at 120VAC	10.0 at 120VAC	10 at 240VAC 14 at 120VAC	15 at 240VAC 19 at 120VAC	1 at 240VAC 1.8 at 120VAC	12.5 at 120VAC	0.55	0.5
Switching Capacity Max. VA	120	1500	180	180	3	-	-	1200	1200	2400	3600	100	1500	10	50
Differential Angle (Tilt Switches) Max.°	45 +/- 10	35 +/- 10	15 +/- 3	45 +/- 10	N/A	N/A	N/A	10	10	15	15	10	35	4	10
Operating Angle (Tip-Over Switches) Min-Max.°															
Contact Resistance Max. Ohms	3	5	5	5	-	5	-	5	5	0.3	0.3	0.3	5	0.25	0.25
Operating Temperature Max. °C	-37 +100	-37 +100	-37 +100	-37 +100	-37 +100	-37 +100	-37 +100	-37 +100	-37 +100	-20 +70	-20 +70	-20 +70	-20 +105	-20 +70	-20 +85
Storage Temperature Max. °C	-40 +125	-40 +125	-40 +125	-40 +125	-40 +125	-40 +125	-40 +125	-40 +125	-40 +125	-25 +75	-25 +75	-25 +70	-25 +115	-25 +70	-20 +90
Case Material	Steel Tin Plated	Steel Tin Plated	Steel Tin Plated	Steel Tin Plated	Steel Tin Plated	Steel Tin Plated	Steel Tin Plated	ABS	ABS	ABS	ABS	ABS	Polypropylene	Clear Polystyrene	Nylon 66
Mounting Clip / Cable	3BH	-	-	-	3BH	1A	3BH	2 x 18 AWG Neoprene insulated	2 x 18 AWG Neoprene insulated	2 x 0.52mm <sup>2</sup> round Silicone (with eyelets)	2 x 17 AWG Silicone insulated (with eyelets)	2 x 0.22mm <sup>2</sup> PVC insulated	2 x 17 AWG Silicone insulated	-	2 x 0.22mm <sup>2</sup> PVC insulated

