



Technical Letters

Mercury Displacement Relays/Contactors: Glossary Of Terms & Expressions

AMBIENT: The temperature of air or liquid surrounding any electrical part or Device.

CONSTANT DUTY: If the contactor will remain "on" in normal use for indefinite periods of time, in excess of 100 hours.

CONTACTOR: (1) A device for the purpose of repeatedly establishing or interrupting an electric power circuit.
(2) A heavy duty relay used to control electrical circuits. Relays rated at 15 to 30 amps and up are generally referred to as contactors.

CONTACT: (1) One of the current-carrying parts of a relay, switch or connector that is engaged or disengaged to open or close the associated electrical circuits.
(2) To join two conductors or conducting objects in order to provide a complete path for current flow.
(3) The juncture point to provide the complete path.

CONTACTS: Mercury to Metal: The contacts of a standard mercury displacement relay or contactor. The upper contact is metal and stationary. The lower contact is a pool of mercury that gets displaced by the plunger assembly, thereby coming in contact with the metal electrode during operation. (See page 4.)

Mercury to Mercury: The contacts of a standard mercury timer relay. This contact arrangement utilizes a cup, which has the electrode in it, and is filled with mercury. When the mercury at the bottom of the unit is displaced, it floods over the sides of the cup, completing the circuit. This provides a clean make and break with no chatter and little erosion. (See page 15,)

CONTINUITY: A continuous path for the flow of current in an electric circuit.

DERATE: To reduce the voltage, current, or power rating of a device to improve its reliability or to permit operation at high ambient temperatures.

DIELECTRIC: The insulating material between the metallic elements of an electronic component.

DROP-OUT: The current, voltage, or power value that will cause an energized relays contacts to return to their normal deenergized condition.

GAUSS: The centimeter-gram-second electromagnetic unit of magnetic induction. One gauss represents one Maxwell per square centimeter.

HEAT RISE: In a mercury displacement relay; The heat developed from the coil and contacts as a unit.

HERMETIC SEAL: A mechanical or physical closure that is impervious to moisture or gas, including air.

HERTZ: Cycles per second.

INRUSH CURRENT: In a solenoid or coil, the steady-state current drawn from the line with the armature, or plunger, in its maximum open position.

LOAD, CONTACT: The electrical power encountered by a contact set in any particular application.

MAXWELL: The cgs electromagnetic unit of magnetic flux, equal to one gauss per square centimeter, or one magnetic line of force.

OPERATE TIME: In a mercury displacement relay; the amount of time that passes when power is applied to the coil, or when the contacts open in a normally closed set of contacts. Quick Operate is when the operate time is less than the stated release time. Slow operate is when the operate time is longer than the stated release time.

PLUNGER: In a mercury displacement relay; The device used to displace mercury. The plunger is lighter than mercury so it floats on the mercury. The plunger also contains a magnetic shell or sleeve, so it can be pulled down into the mercury with a magnetic field. The plunger does the same job in a mercury displacement relay as an armature in a mechanical relay.

POLE: (1) Output terminals on a switch.

(2) A single set of contacts; (i.e., three sets of contacts equal three poles.)

POWER FACTOR: Ratio of the actual power of an alternating or pulsating current to the apparent power.

PULL- IN (Pick-up): The minimum current, voltage, power or other value which will trip a relay or cause it to operate.

RELAY: An electromechanical or electronic device in which continuity is established or interrupted in one circuit by a control circuit. Typically used to switch large currents by supplying relatively small currents to the control circuit. Also see Contactor.

RELEASE TIME: In a mercury displacement relay; The amount of time that passes when power is removed from the coil, until the contacts of a normally open unit reopen, or when contacts of a normally closed unit recloses. Quick Release is when the release time is less than the stated operate time. Slow Release is when the release time is longer than the stated operate time.

STEADY - STATE: A condition in which circuit values remain essentially constant, occurring after all initial transients or fluctuating conditions have settled down.

TRANSIENT (Transient Phenomena): Rapidly changing action occurring in a circuit during the interval between closing of a switch and settling to steady-state conditions. Or any other temporary actions occurring after some change in a circuit or its constants.

VOLT - AMPERE: A unit of apparent power in an AC circuit containing reactance. It is equal to the potential in volts multiplied by the current, in amperes, without taking phase into consideration.

VOLTAGE SPIKES: An abrupt transient which comprises part of a pulse but exceeds its average amplitude considerably.

VOLTAGE WITHSTAND: The amount of electromotive force (volts) that can be applied to two points before a current will flow (leakage or breakdown.)

WATT: A unit of electrical power. One watt is expended when one ampere of direct current flows through a resistance of one ohm. In an AC circuit, the true power in watts is effective volt- amperes multiplied by the circuit power factor. There are 746 watts in one horsepower.

ABBREVIATIONS

A.C.	Alternating Current	N.O.	Normally Open
D.C.	Direct Current	D.P.S.T.	Double Pole Single Throw
Hg	Mercury	S.P.S.T.	Single Pole Single Throw
Hz	Hertz	T.P.S.T.	Triple Pole Single Throw
M.D.R.	Mercury Displacement Relay	Q	Quick
N.C.	Normally Closed	S	Slow



National Plastic Heater, Sensor and Control Inc.

sales@nphheaters.com

www.nph-processheaters.com

Toll Free: 1-877-674-9744

Tel: 905-859-8225 Fax: 905-859-4691

Terms and conditions posted below apply:

www.nph-processheaters.com

