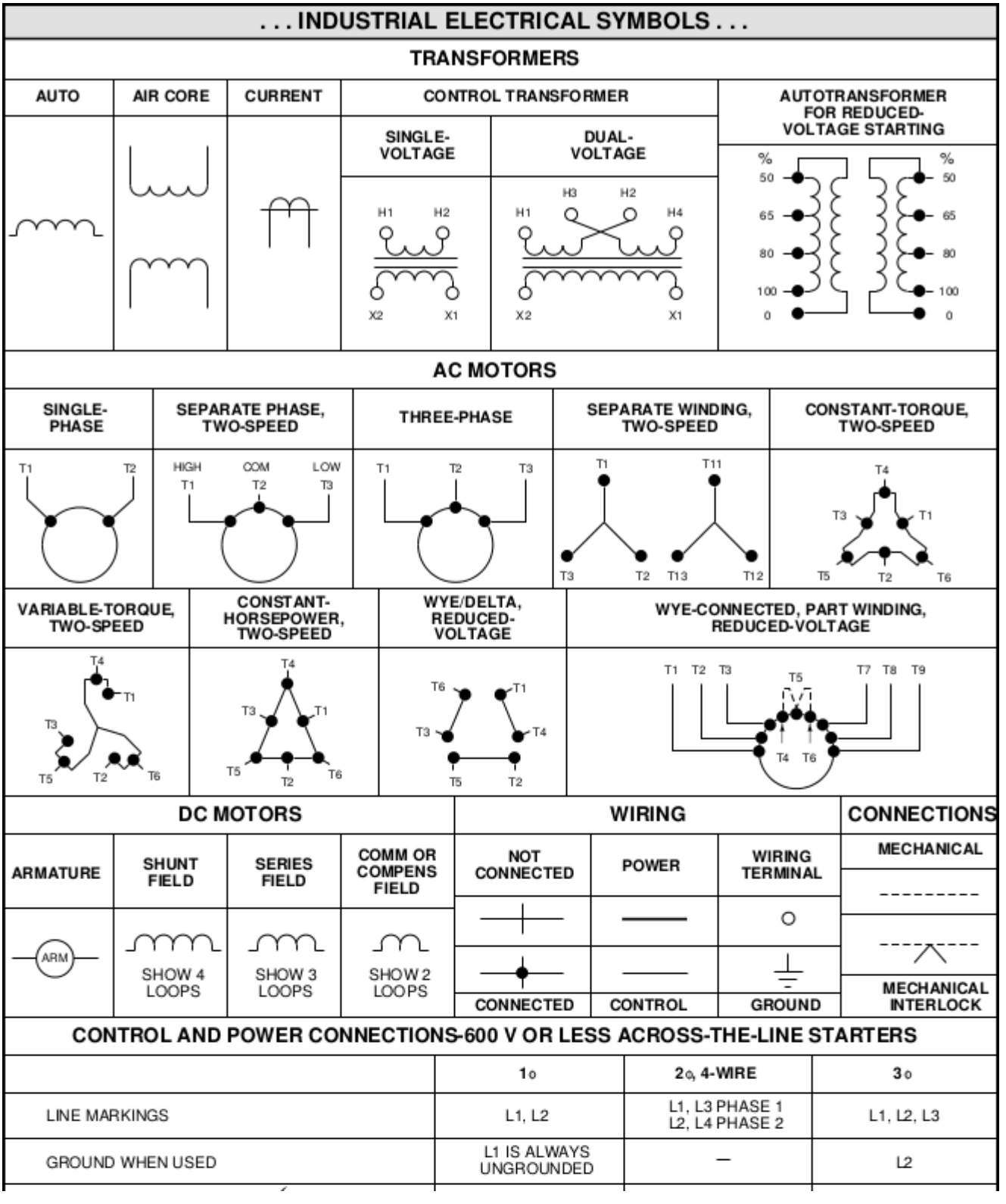
BARISH
PUMP COMPANY

Industrial Electrical Symbols

Contact Us

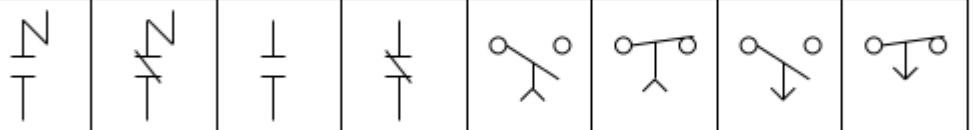
Barish Pump Company Inc. offers this guide to common industrial electrical symbols to help you correctly identify components and spot potential hazards. Bookmark this page as a handy reference for future electrical projects. Safety first!



MOTOR RUNNING OVERCURRENT UNITS IN	1 ELEMENT	L1	—	—
	2 ELEMENT	—	L1, L4	—
	3 ELEMENT	—	—	L1, L2, L3
CONTROL CIRCUIT CONNECTED TO		L1, L2	L1, L3	L1, L2
FOR REVERSING INTERCHANGE LINES		—	L1, L3	L1, L3

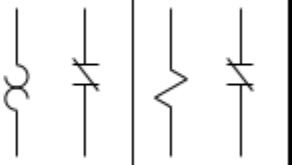
CONTACTS

INSTANT OPERATING				TIMED CONTACTS - CONTACT ACTION RETARDED AFTER COIL IS:			
WITH BLOWOUT		WITHOUT BLOWOUT		ENERGIZED		DE-ENERGIZED	
NO	NC	NO	NC	NOTC	NCTO	NOTO	NCTC



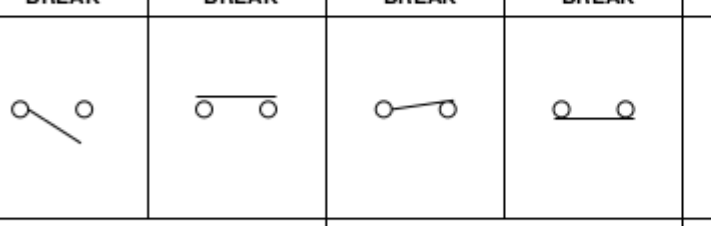
OVERLOAD RELAYS

THERMAL	MAGNETIC

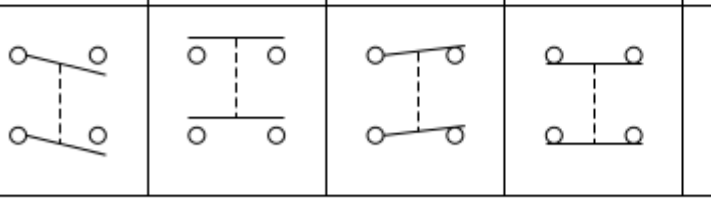


SUPPLEMENTARY CONTACT SYMBOLS

SPST NO		SPST NC		SPDT		TERMS
SINGLE BREAK	DOUBLE BREAK	SINGLE BREAK	DOUBLE BREAK	SINGLE BREAK	DOUBLE BREAK	SPST SINGLE-POLE, SINGLE-THROW SPDT SINGLE-POLE, DOUBLE-THROW DPST DOUBLE-POLE, SINGLE-THROW DPDT DOUBLE-POLE, DOUBLE-THROW NO NORMALLY OPEN NC NORMALLY CLOSED

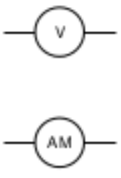


DPST, 2NO		DPST, 2NC		DPDT	
SINGLE BREAK	DOUBLE BREAK	SINGLE BREAK	DOUBLE BREAK	SINGLE BREAK	DOUBLE BREAK



METER (INSTRUMENT)

INDICATE TYPE BY LETTER



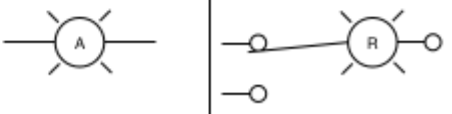
TO INDICATE FUNCTION OF METER OR INSTRUMENT, PLACE SPECIFIED LETTER OR LETTERS WITHIN SYMBOL.

AM or A	AMMETER	VA	VOLTMETER
AH	AMPERE HOUR	VAR	VARMETER
μA	MICROAMMETER	VARH	VARHOUR METER
mA	MILLAMMETER	W	WATTMETER
PF	POWER FACTOR	WH	WATTHOUR METER
V	VOLTMETER		

PILOT LIGHTS

INDICATE COLOR BY LETTER

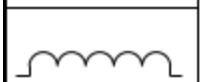
NON PUSH-TO-TEST	PUSH-TO-TEST

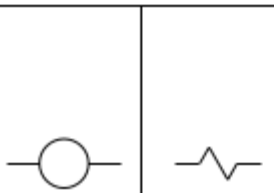


INDUCTORS

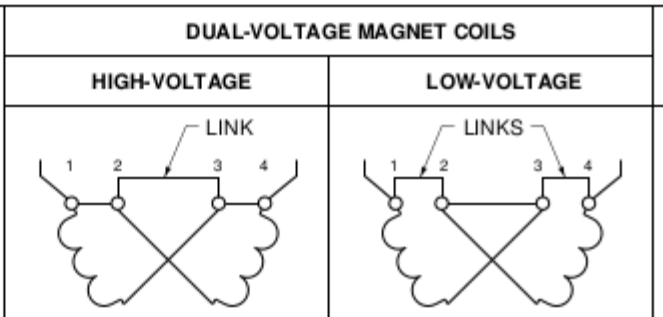
IRON CORE

AIR CORE

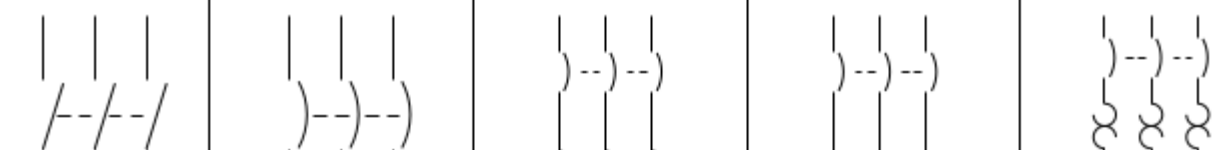




COILS



DISCONNECT	CIRCUIT INTERRUPTER	CIRCUIT BREAKER WITH THERMAL OL	CIRCUIT BREAKER WITH MAGNETIC OL	CIRCUIT BREAKER W/ THERMAL AND MAGNETIC OL



LIMIT SWITCHES

NORMALLY OPEN	NORMALLY CLOSED
HELD CLOSED	HELD OPEN

FOOT SWITCHES

NO

NC

PRESSURE AND VACUUM SWITCHES

NO

NC

LIQUID LEVEL SWITCH

NO

NC

TEMPERATURE-ACTUATED SWITCH

NO

NC

FLOW SWITCH (AIR, WATER, ETC.)

NO

NC

SPEED (PLUGGING)

F

F

R

ANTI-PLUG

F

R

SYMBOLS FOR STATIC SWITCHING CONTROL DEVICES

STATIC SWITCHING CONTROL IS A METHOD OF SWITCHING ELECTRICAL CIRCUITS WITHOUT USE OF CONTACTS, PRIMARILY BY SOLID-STATE DEVICES. USE SYMBOLS SHOWN IN TABLE AND ENCLOSE THEM IN A DIAMOND.

INPUT COIL

OUTPUT NO

LIMIT SWITCH NO

LIMIT SWITCH NC

SELECTOR

TWO-POSITION

J K A1 A2

	J	K
A1	X	
A2		X

X-CONTACT CLOSED

THREE-POSITION

J K L A1 A2

	J	K	L
A1	X		
A2			X

X-CONTACT CLOSED

TWO-POSITION SELECTOR PUSHBUTTON

A B 1 2 3 4

CONTACTS	SELECTOR POSITION			
	A		B	
	BUTTON		BUTTON	
	FREE	DEPRESSED	FREE	DEPRESSED
1-2	X			
3-4		X	X	X

X - CONTACT CLOSED

PUSHBUTTONS

MOMENTARY CONTACT

SINGLE CIRCUIT

NO

NC

DOUBLE CIRCUIT

NO AND NC

MUSHROOM HEAD

WOBBLE STICK

MAINTAINED CONTACT

TWO SINGLE CIRCUIT

ONE DOUBLE CIRCUIT

ILLUMINATED

R

RESISTORS

FIXED

RES

H

HEATING ELEMENT

ADJUSTABLE BY FIXED TAPS

RES

RHEOSTAT, POT, OR ADJUSTABLE TAP

RES

CAPACITORS

FIXED

ADJUSTABLE

POLARIZED

+ –

FUSE

POWER OR CONTROL

BELL

BUZZER

HORN, SIREN, ETC.

HALF-WAVE RECTIFIER

FULL-WAVE RECTIFIER

AC

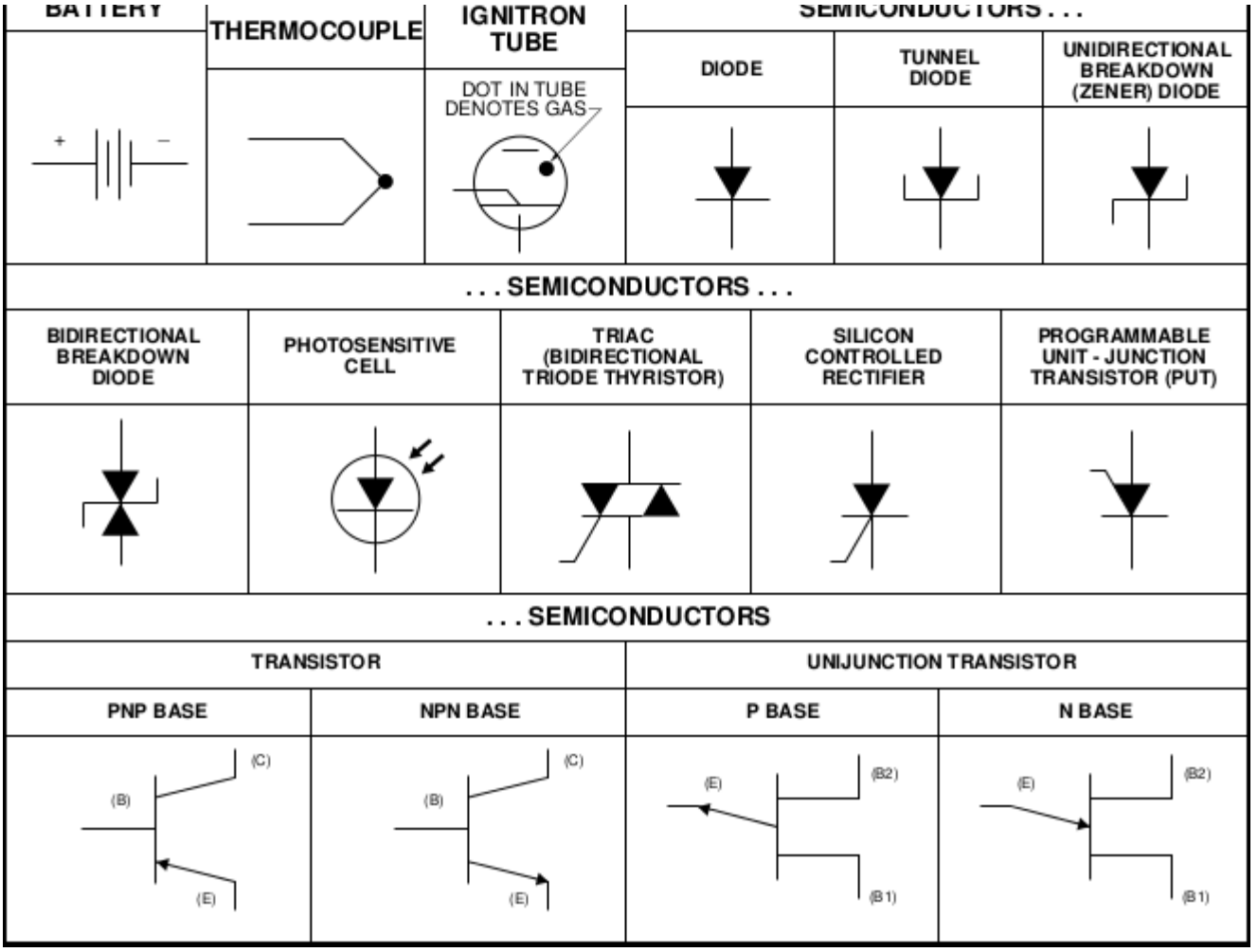
+ DC

– DC

AC

BATTERY

SEMICONDUCTORS



Partial Glossary

Resistor: Resistors restrict the flow of current. Used with a capacitor in a timing circuit.

Ground: Connection to the actual ground or other “grounding” structure. Used to provide electrical shock protection and for zero potential reference.

Capacitor: Stores electric charge. Can be used to filter or block DC signals while passing AC signals. Used with a resistor in a timing circuit.

Battery: Generates constant voltage and supplies electrical energy.

Fuse: Sacrificial overcurrent protection device. This symbol represents low power/low voltage fuses.

Inductor: Coil of wire that generates a magnetic field when electrical current is passed through it. Passive two-terminal electrical component used to store energy in the resulting magnetic field. Can also be used as a transducer to convert electrical energy into mechanical energy.

Iron Core Inductor: Same as above, but with an iron core beneath the coiled wire.

Circuit Breaker: Automatically operated electrical switch that protects electrical circuits from damage caused by short circuits or overloads.

Voltmeter: Very high resistance device used to measure electrical voltage. Must be connected in parallel.

Ammeter: Zero resistance device used to measure electrical current. Must be connected serially.

Wattmeter: Device used to measure electric power.

Bell: Electric bell, makes a single tone or repeated ringing sound when activated.

Buzzer: Similar to an electric bell, an electric buzzer makes a constant buzz when activated.

SPST (Single-Pole, Single-Throw): A simple switch with one input and one output. Switch will be either closed or completely disconnected. Requires only two terminals. Ideal for on/off switching.

SPDT (Single-Pole, Double-Throw): A switch utilizing three terminals: one common pin, two pins vying for connection to the common (only one can be connected at a time). Ideal for selecting between two power sources or swapping inputs. Can be made into an SPST switch by simply leaving one of the throw pins unconnected.

DPST (Double-Pole, Single-Throw): Essentially a doubled SPST. A switch with two inputs and two outputs; each input corresponds to one of the outputs. DPST switches provide versatility, as they can accept two inputs and drive two different outputs to the same circuit.

DPDT (Double-Pole, Double-Throw): Essentially two SPDT switches, controlling two different circuits, and always switched on together from a single actuator. Require six terminals.

NO (Normally Open): The "normal" state for a switch is its nonactuated position. Depending on its construction, a switch’s normal state can produce an open circuit or a short circuit. When open until actuated, a switch is a normally open (NO) switch; when activated, a NO switch closes the circuit.

NC (Normally Closed): Essentially the "opposite" of an NO switch. A switch that creates a short circuit when not actuated. Normally closed (NC) switches create a short circuit when actuated.

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