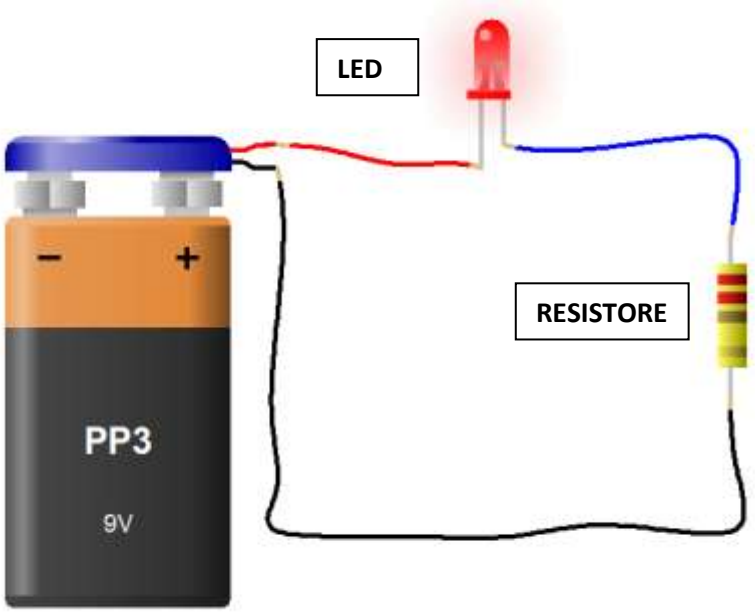
CIRCUITI IN TENSIONE CONTINUA

Tensione $V = R \times I$ **[Volt]**

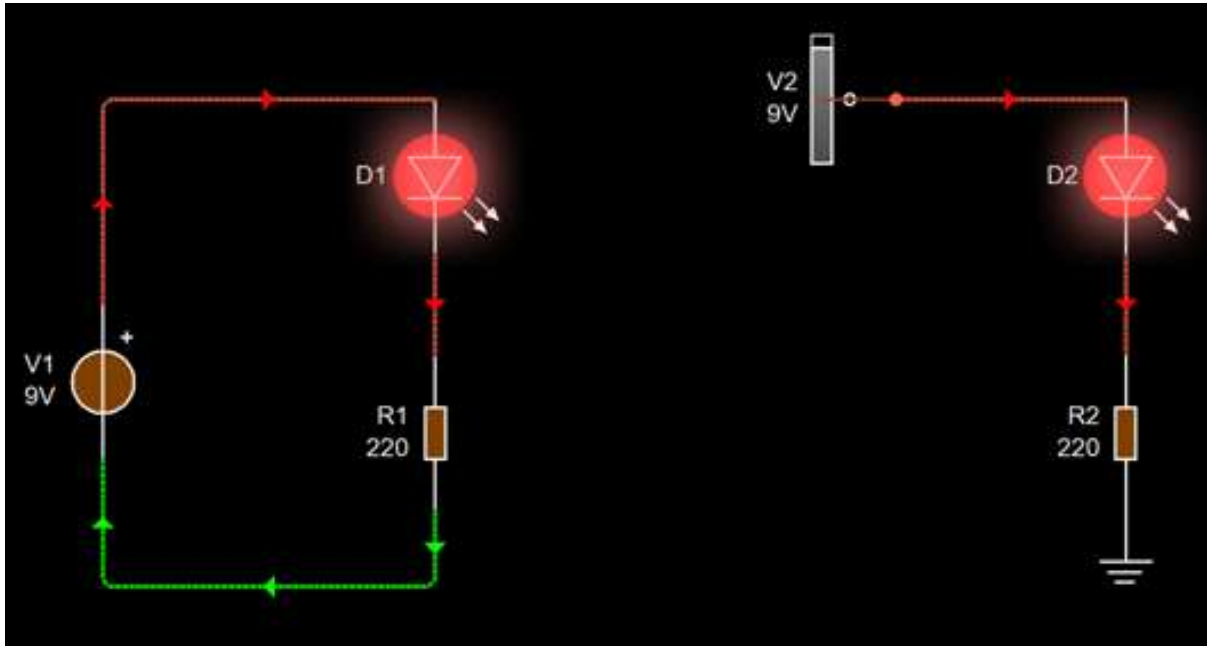
con I= corrente [Amper] e R= resistenza [Ohm]

Potenza $P = V \times I = R \times I^2$ **[Watt]**

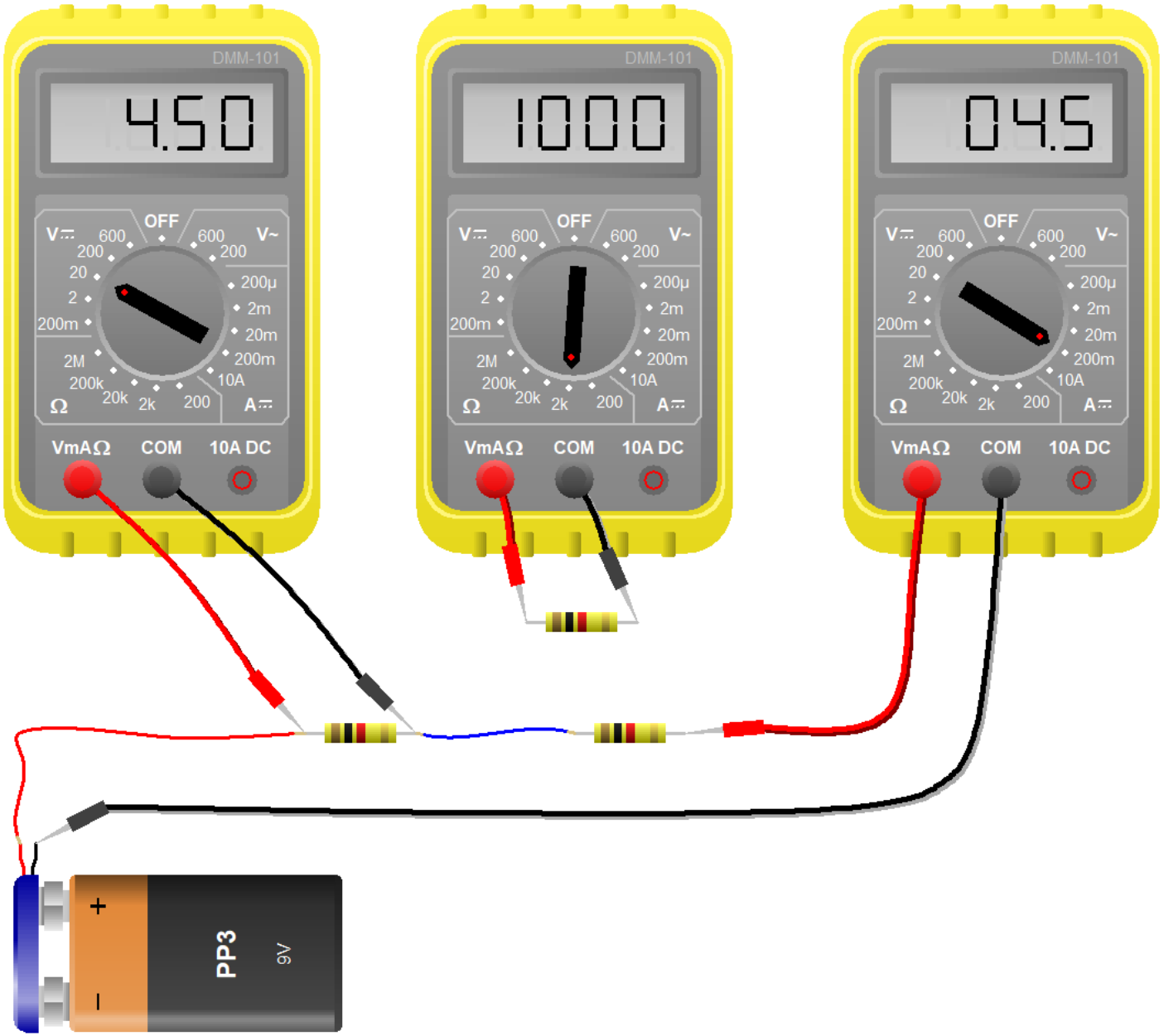
CIRCUITO REALE

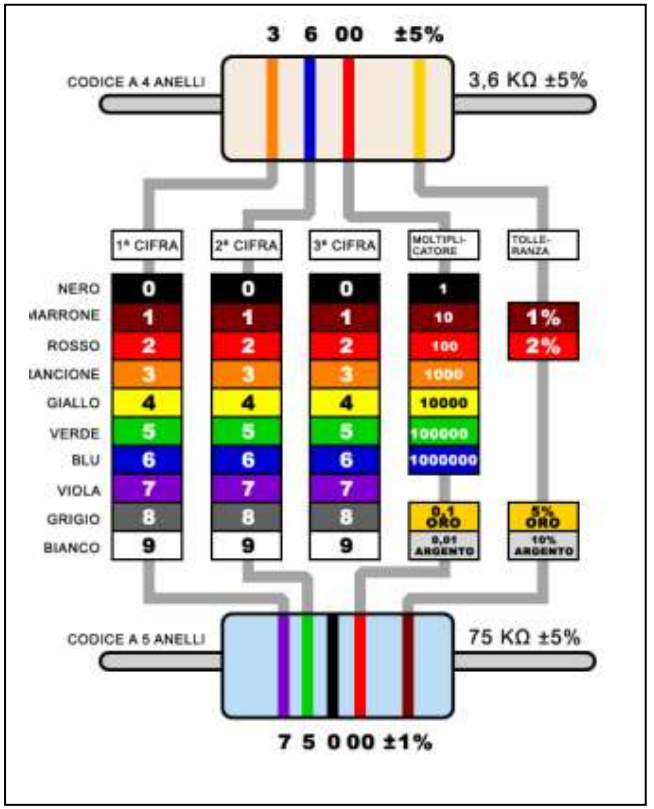


RAPPRESENTAZIONE SCHEMATICA



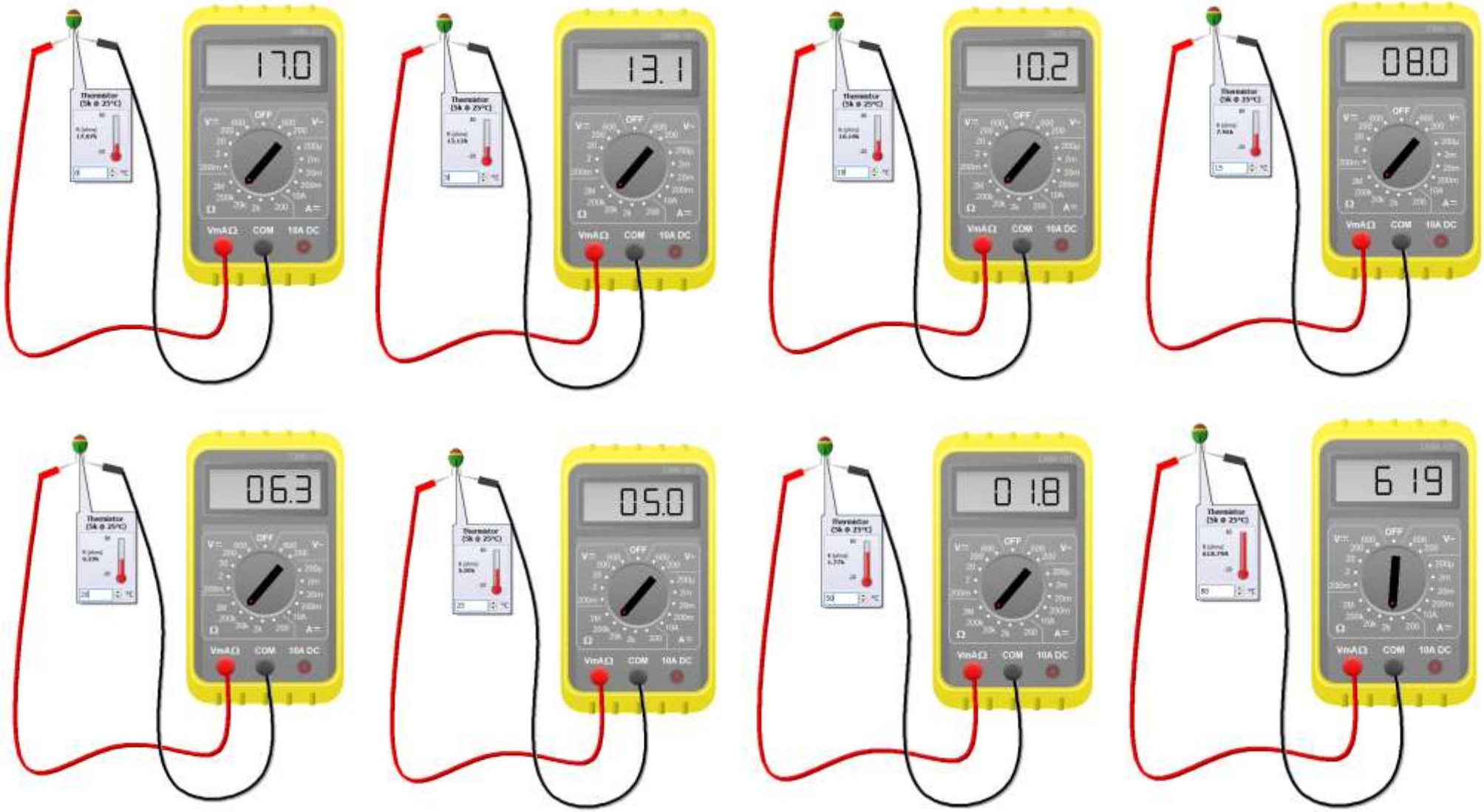
MULTIMETRO DIGITALE: tensione, corrente e resistenza





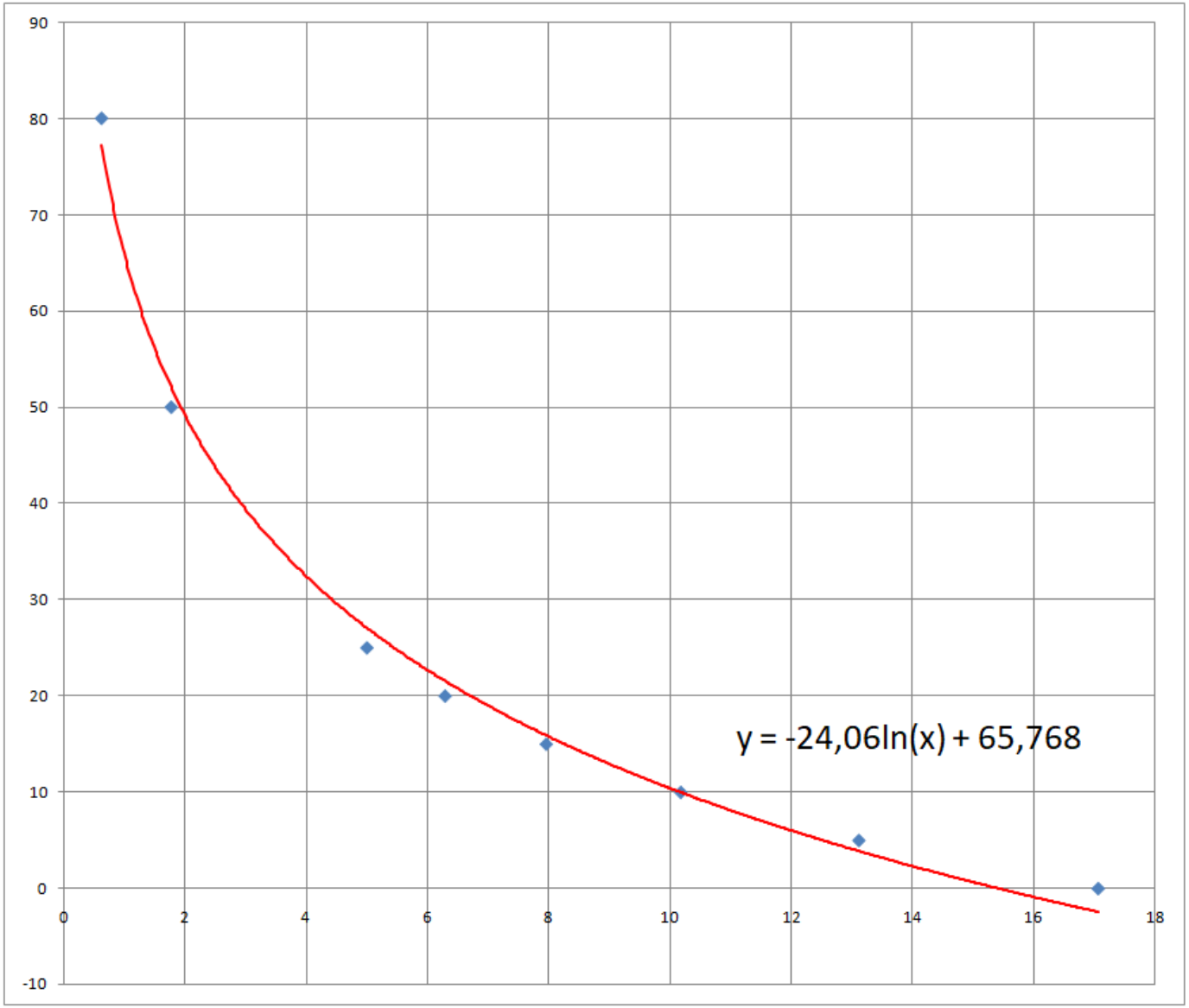
NON EFFETTUARE MISURE DI RESISTENZA CON MULTIMETRO NEL CIRCUITO IN FUNZIONE!!

MISURE DI RESISTENZA TERMISTORE

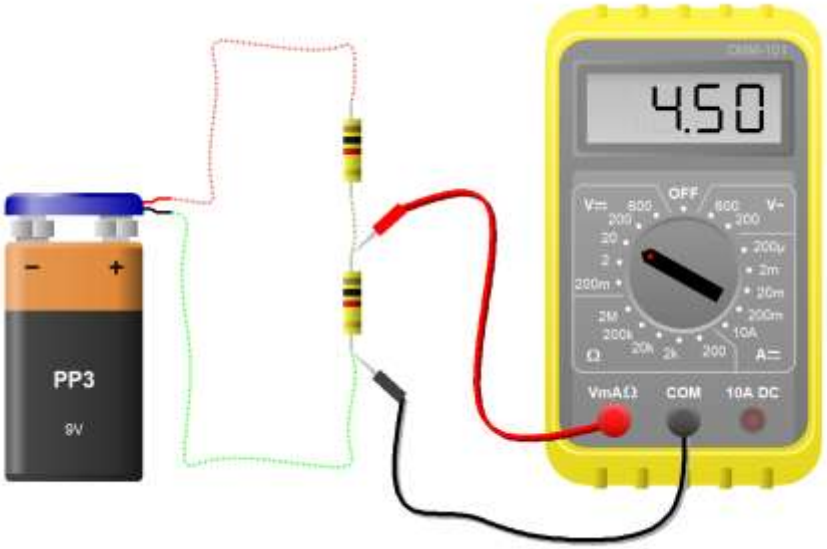


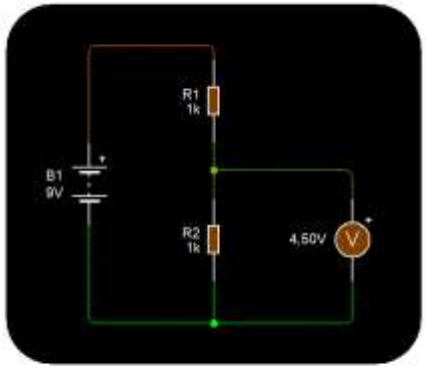
CURVA CARATTERISTICA R-T DEL TERMISTORE

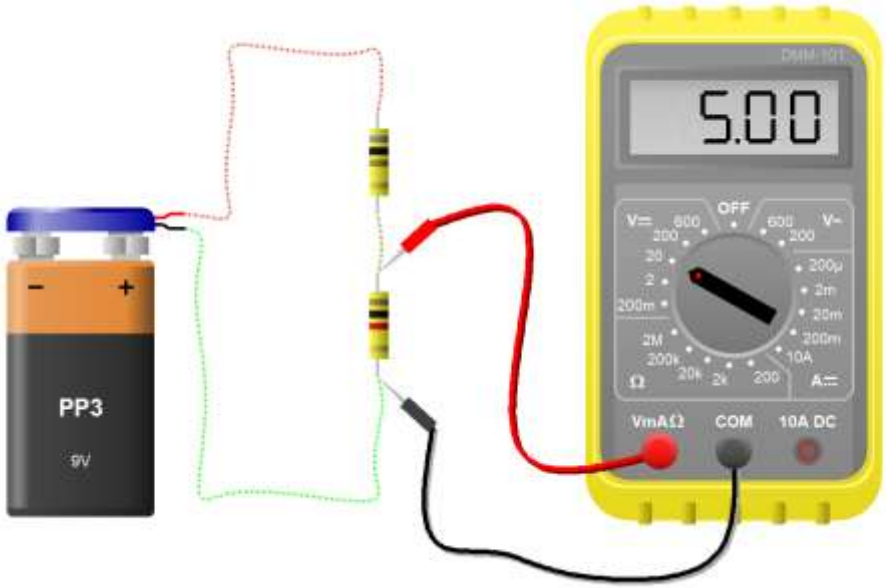
R (k ohm)	T (°C)
17,07	0
13,12	5
10,18	10
7,96	15
6,29	20
5	25
1,77	50
0,619	80

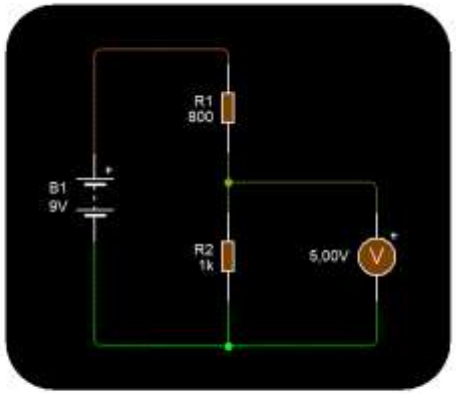


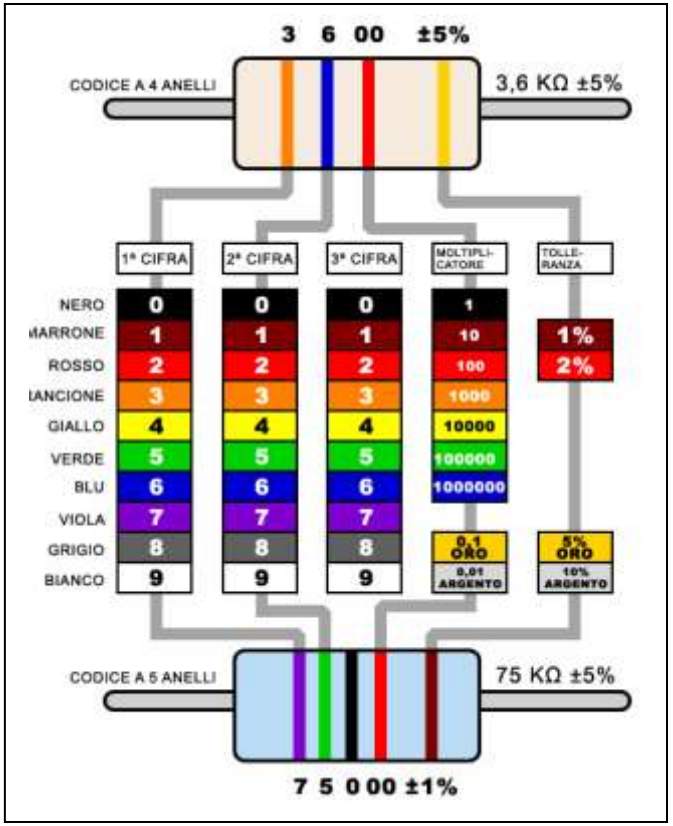
MISURE DI TENSIONE



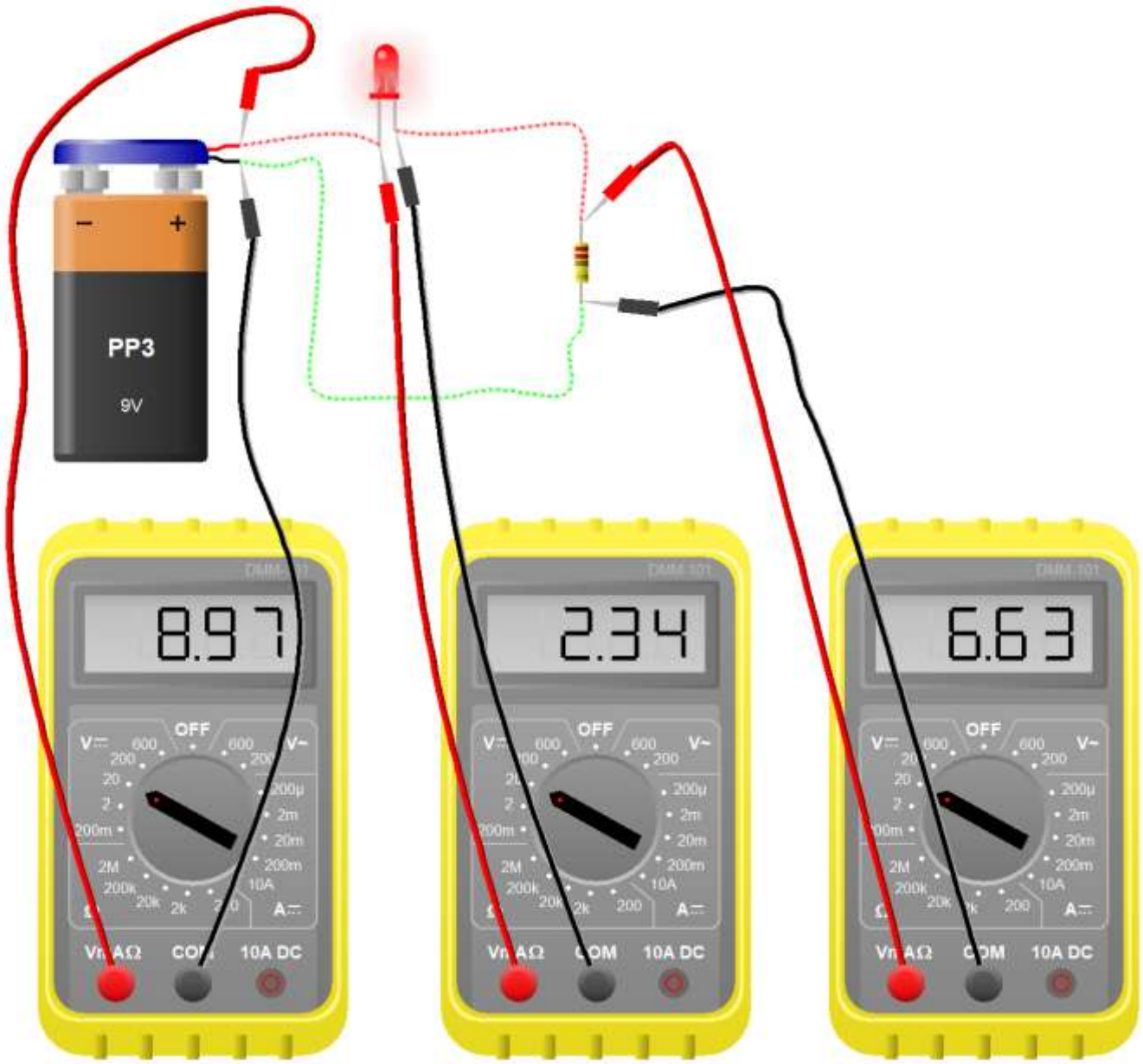




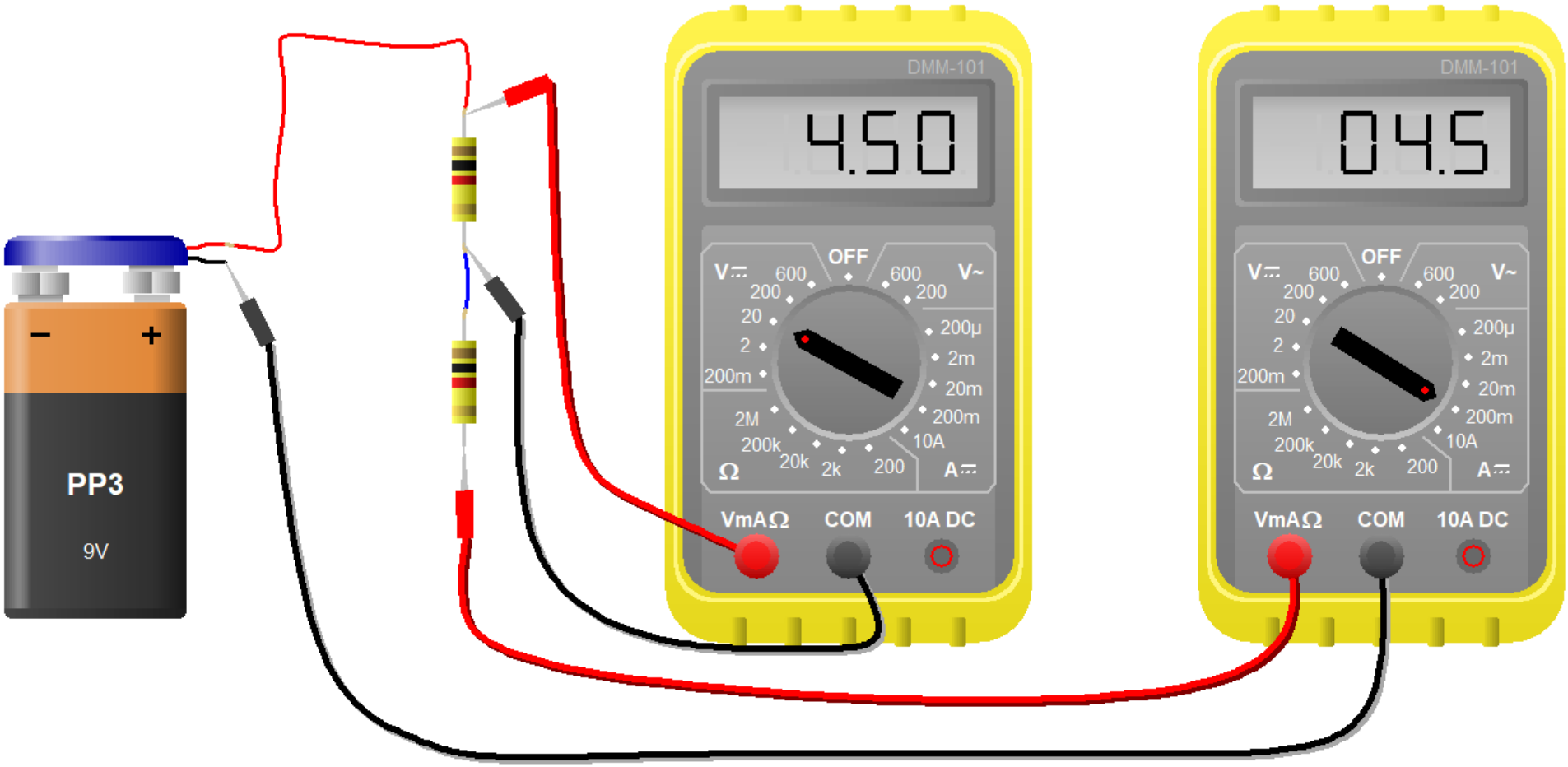




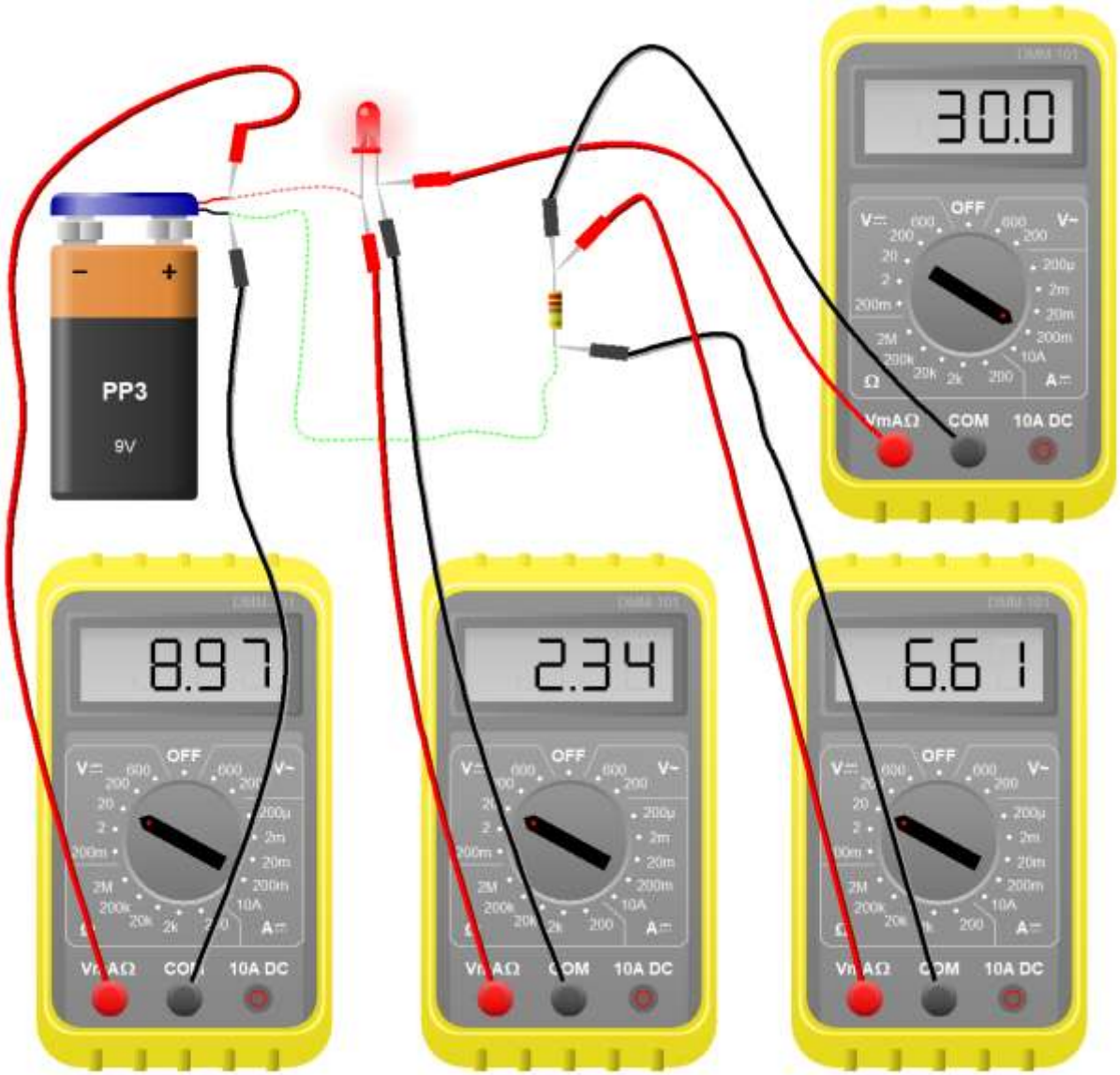
MISURE DI TENSIONE



MISURE DI CORRENTE



MISURE DI TENSIONE E CORRENTE

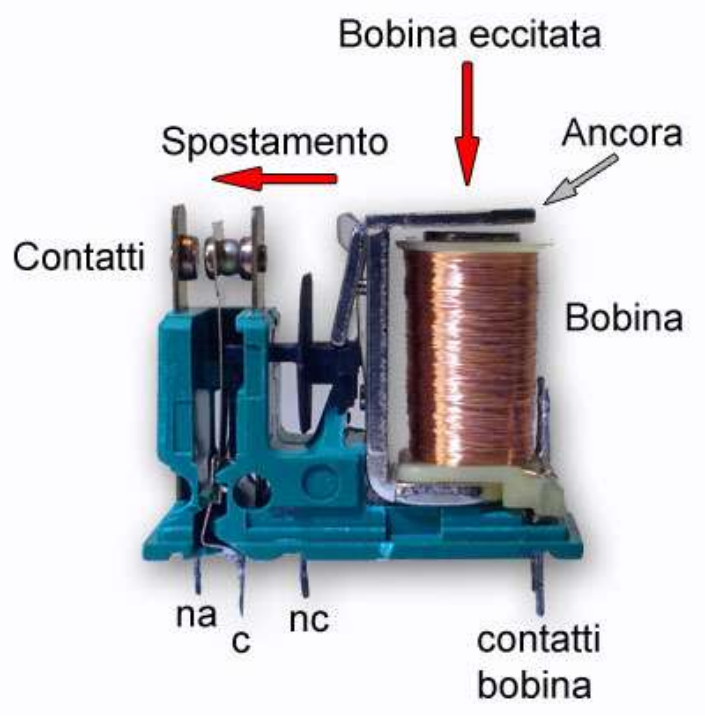


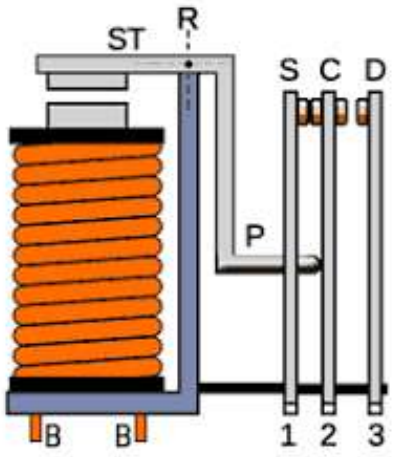
IL RELE’

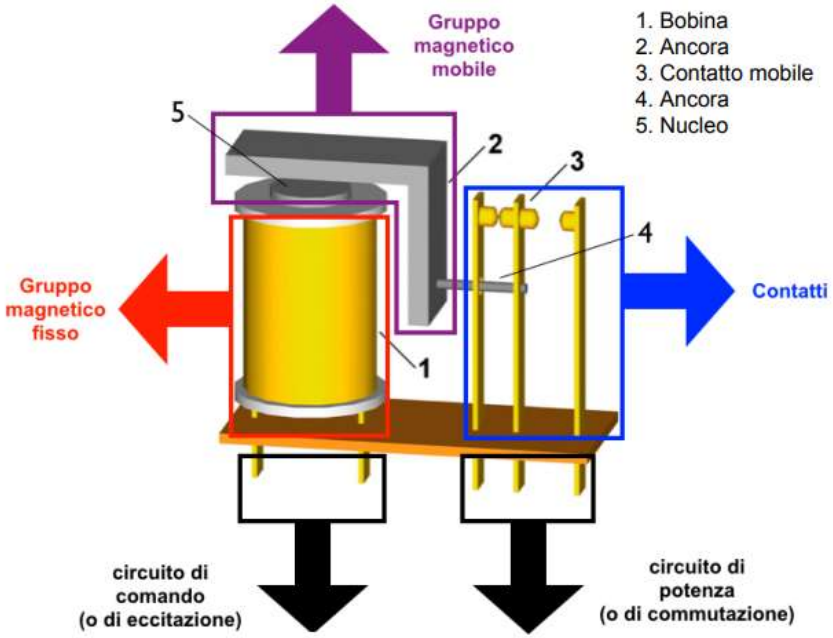
inventato da Joseph Henry nel 1885, il relè è un dispositivo pilotato a distanza che consente di commutare più circuiti, sia separatamente, sia in gruppo o in sequenza.
Il relè è un componente elettrico che viene azionato da un elettromagnete che apre o chiude uno o più gruppi di contatti.
Questo dispositivo è, quindi, in grado di pilotare in uscita un circuito di potenza superiore rispetto al circuito di ingresso.
Quando la corrente passa nella bobina, si crea un campo magnetico che attira l'ancora, come indicato dalla freccia rossa verticale (relè eccitato).
L'ancora resta "attaccata" alla testa del magnete fino a quando viene interrotta la tensione nella bobina, e spinge il contatto centrale (C) come indicato dalla freccia orizzontale.

In questo modo il relè commuta i contatti, (NC) si apre e di conseguenza (NA) si chiude. La definizione dei contatti è la seguente:
C = Comune NC = Normalmente chiuso NA = Normalmente aperto

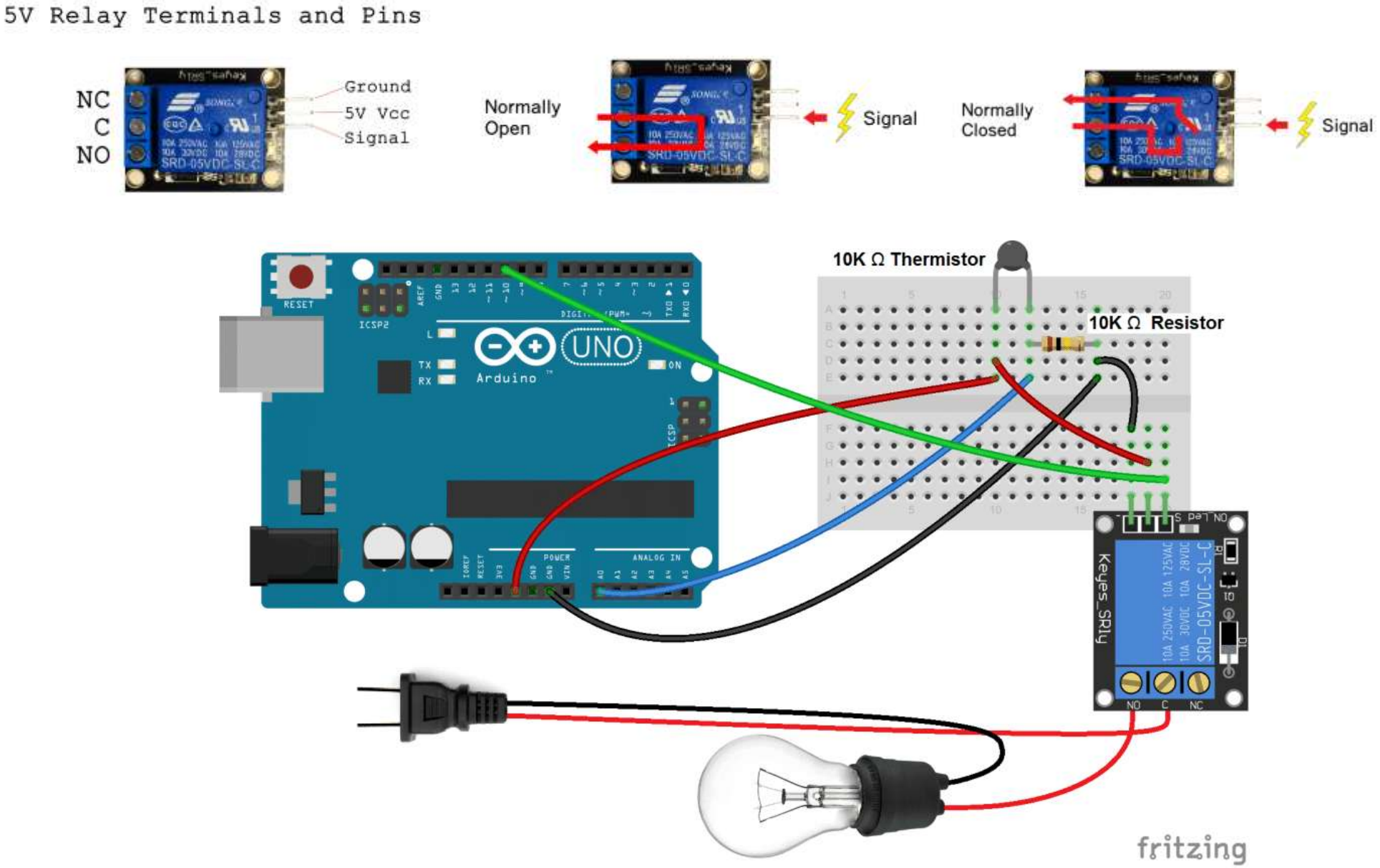
Quando viene a mancare la tensione di alimentazione della bobina tutto il meccanismo torna allo stato iniziale.
Nell'immagine è rappresentato un relè diseccitato, ovvero con la bobina NON alimentata.



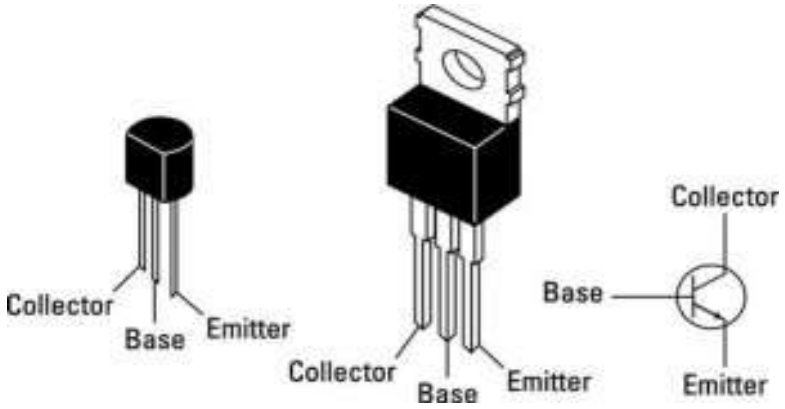




SHIELD RELE' PER ARDUINO



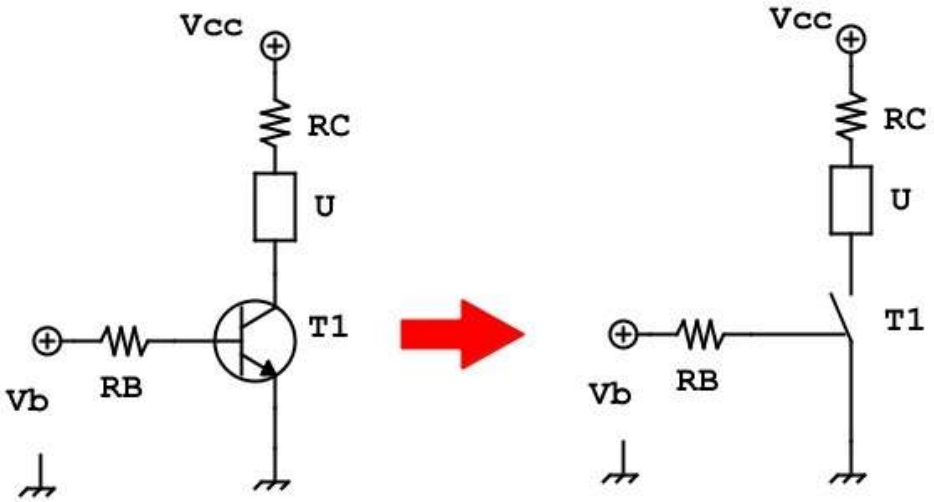
TRANSISTOR BJT (NPN)



Interruttore aperto

IB=0 IC=0

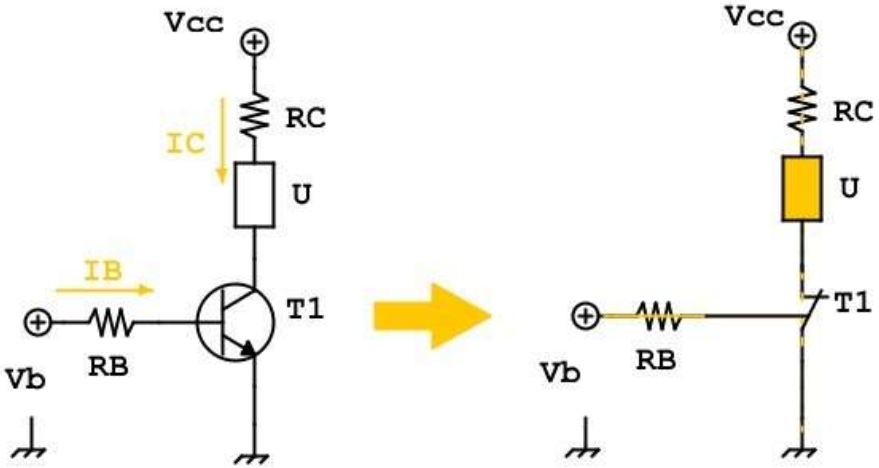
schema di principio



Interruttore chiuso (saturazione)

IB>IC/βF

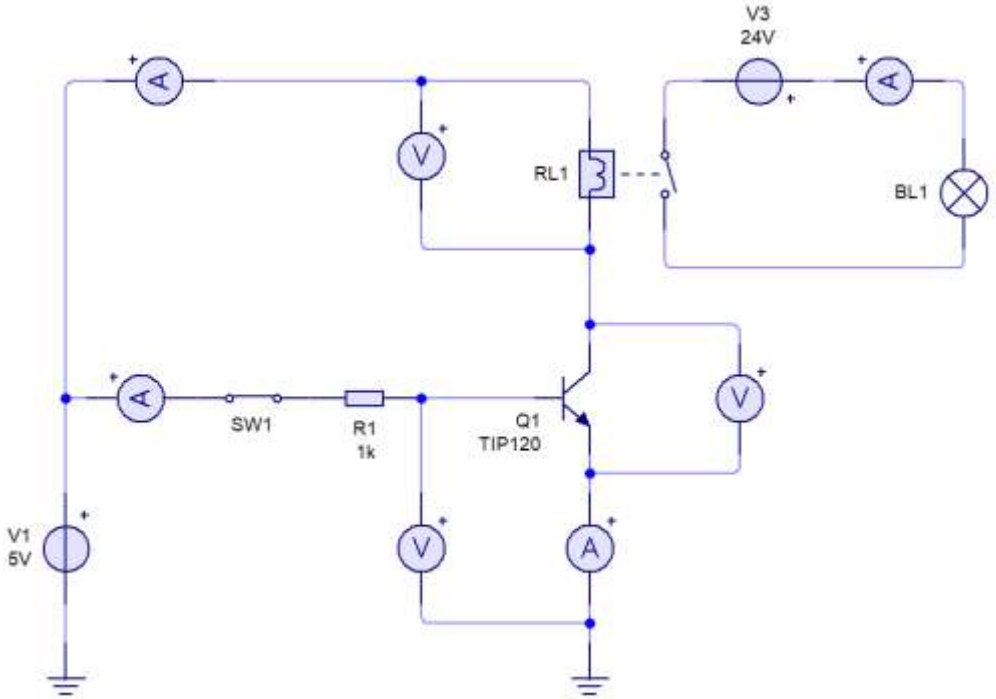
schema di principio



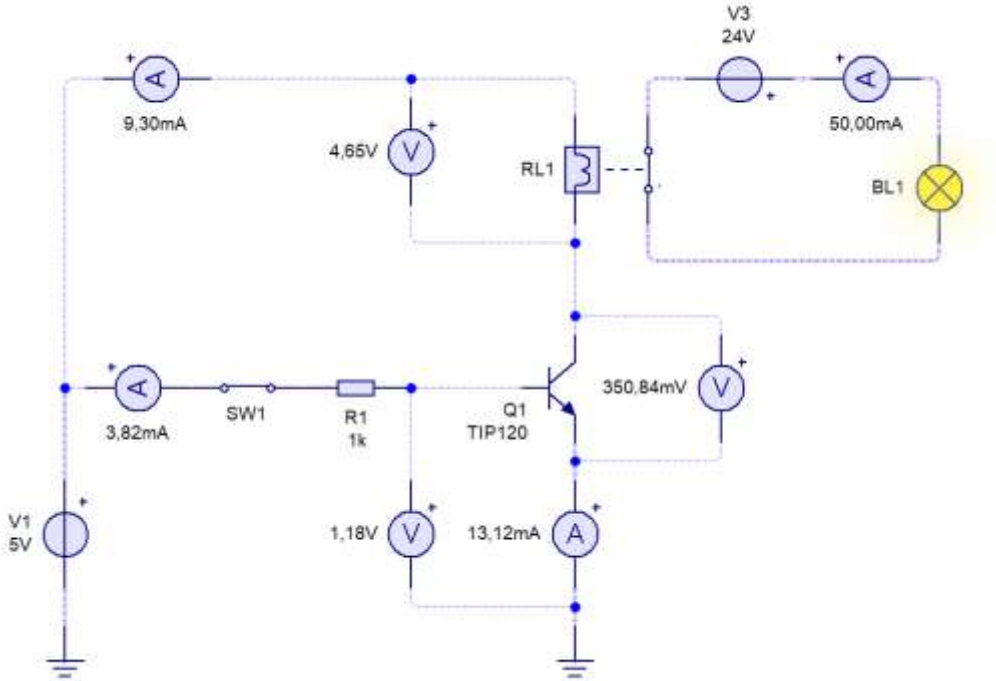
Se la Ib < Ic/BF allora il transistor si comporta da amplificatore di corrente: Ic = Ib * BF

TRANSITOR 5V + RELE’ 5V + LAMPADA 24V

Spento

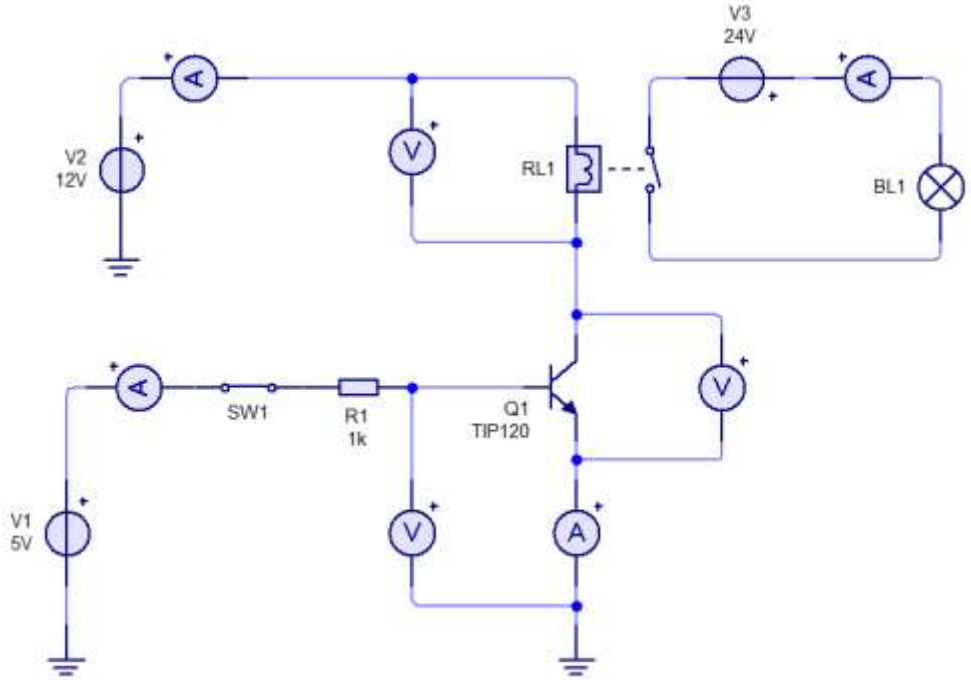


Acceso

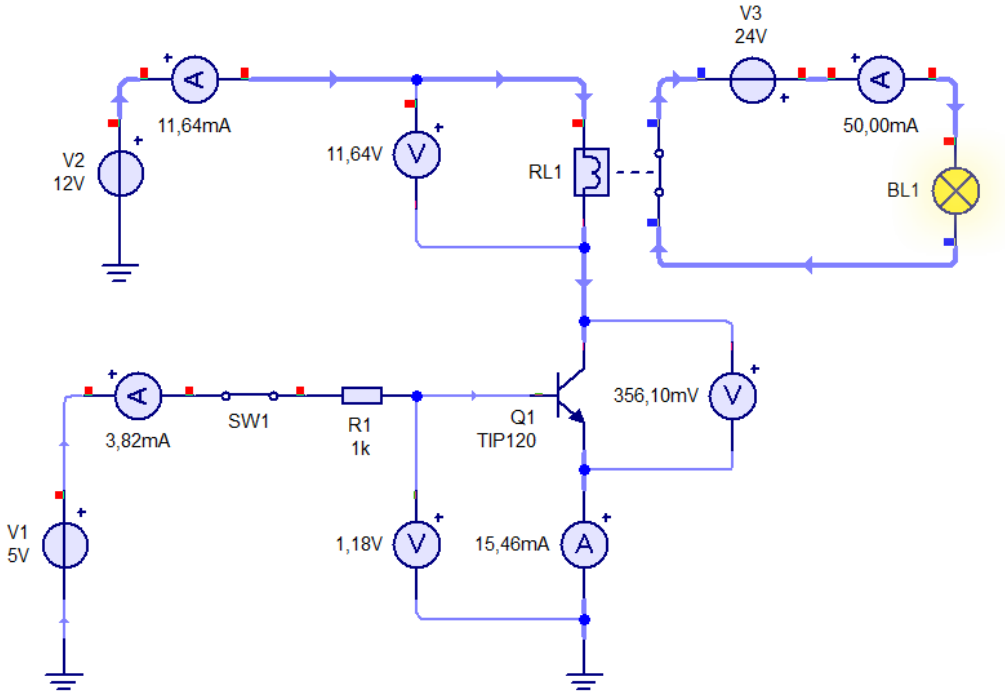


TRANSITOR CON BASE A 5V + RELE’ 12V + LAMPADA 24V

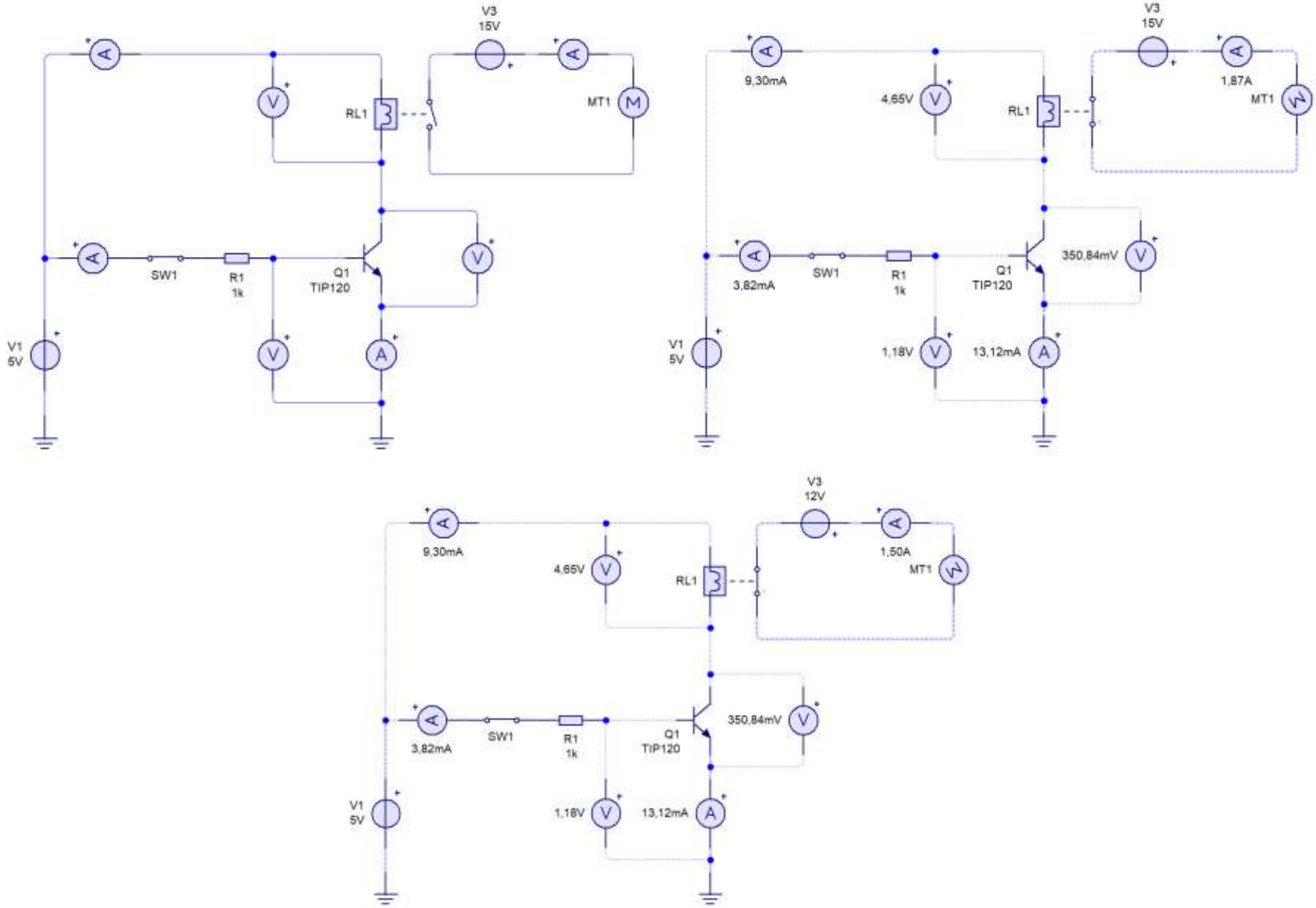
Spento



Acceso

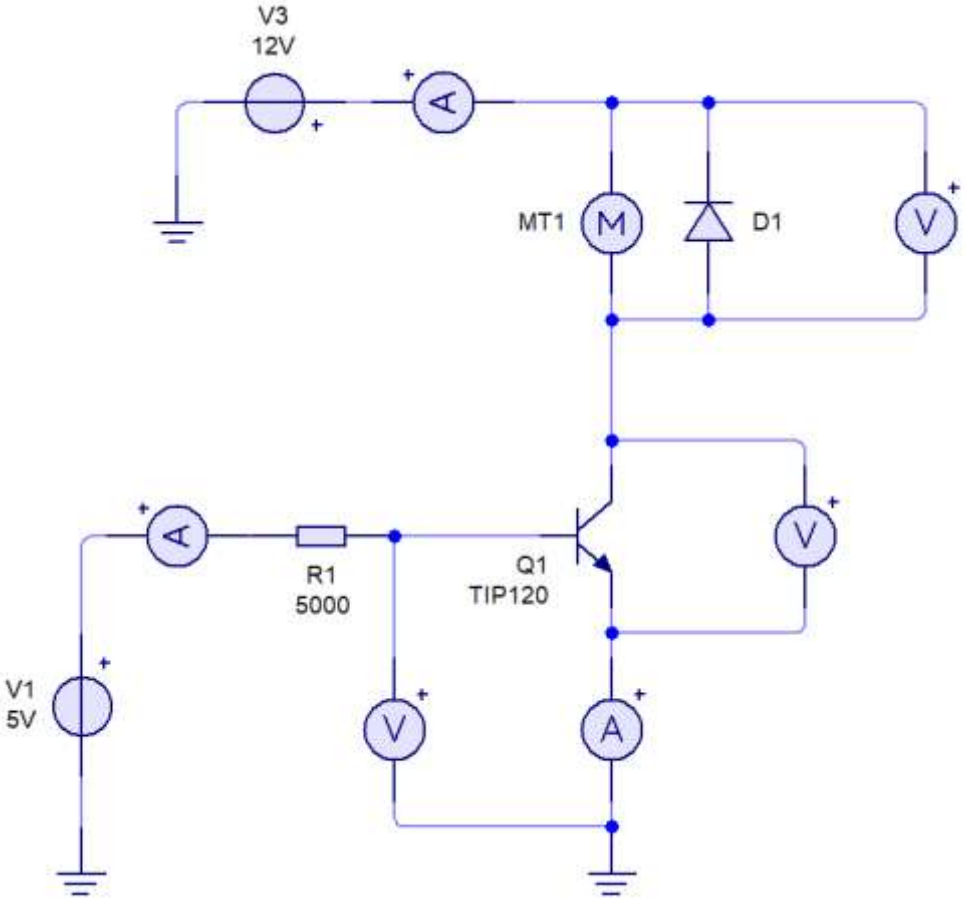


TRANSITOR CON BASE A 5V + RELE’ 5V + MOTORE 12-15V

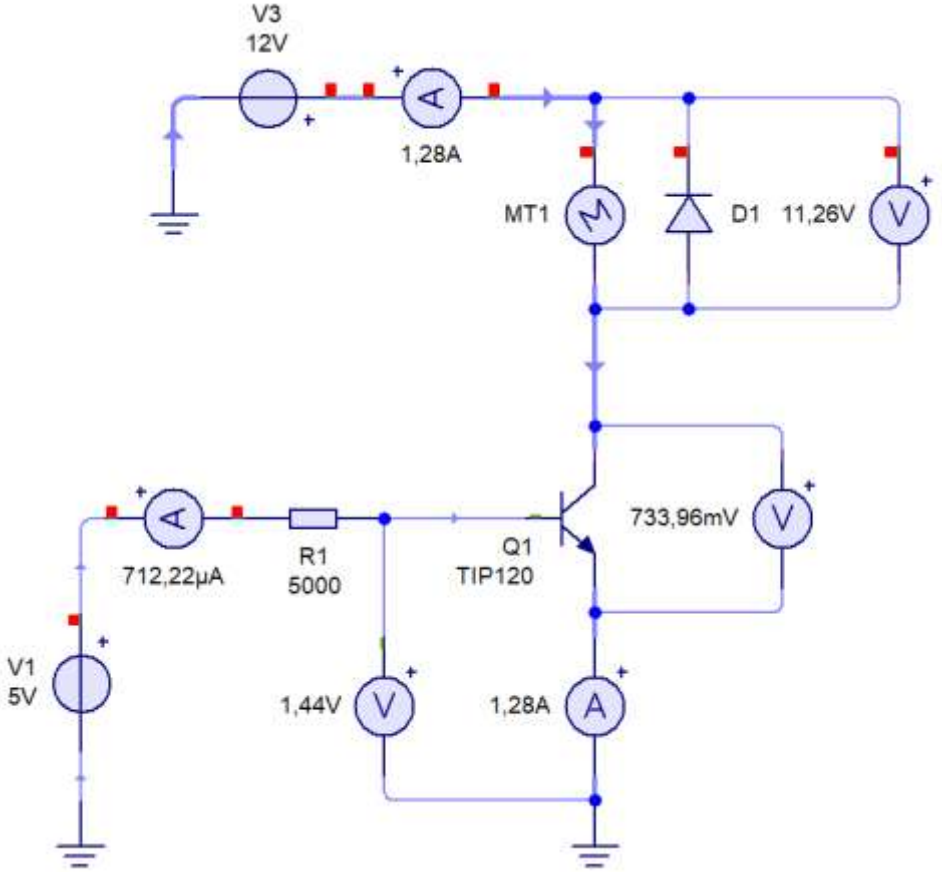


TRANSITOR CON BASE A 5V + MOTORE 12V

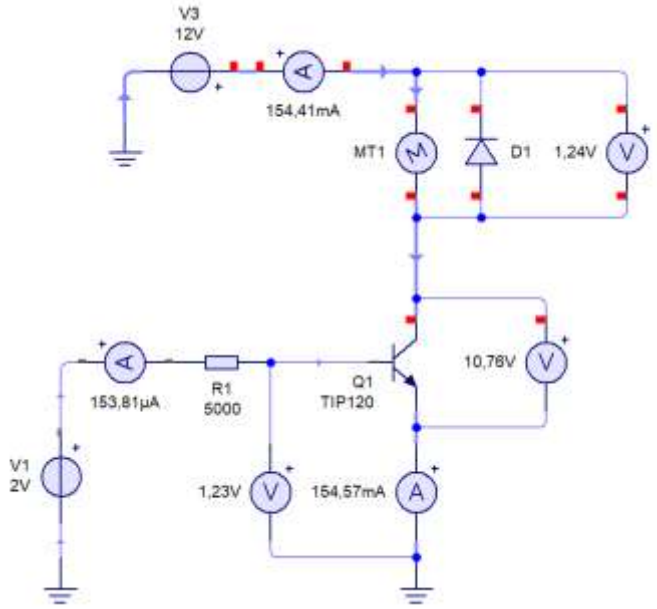
Spento

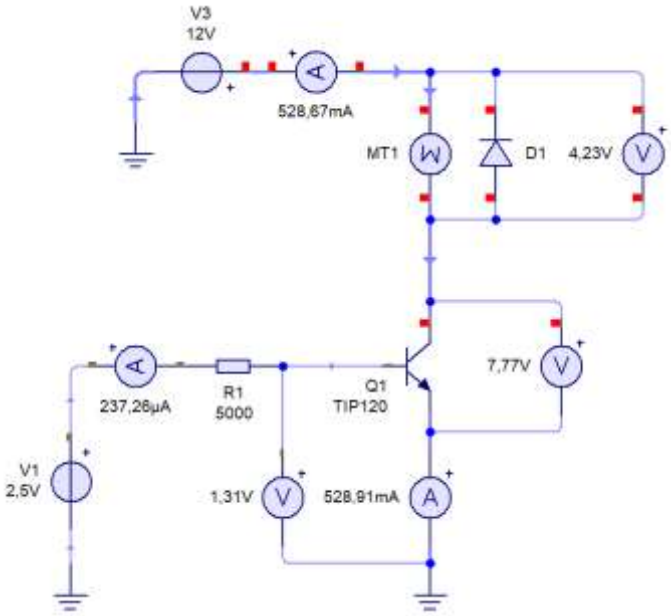


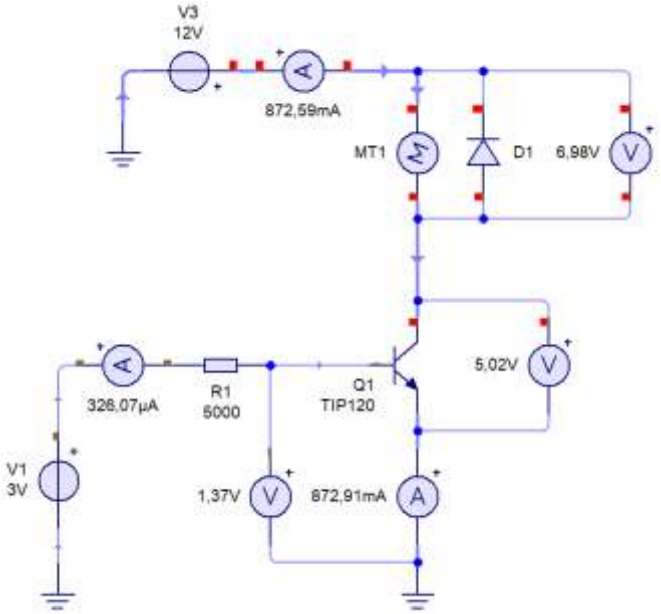
Acceso

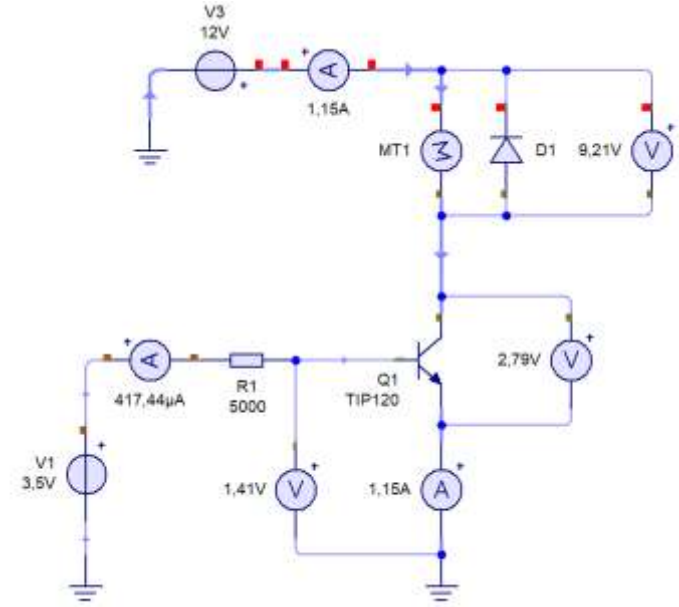


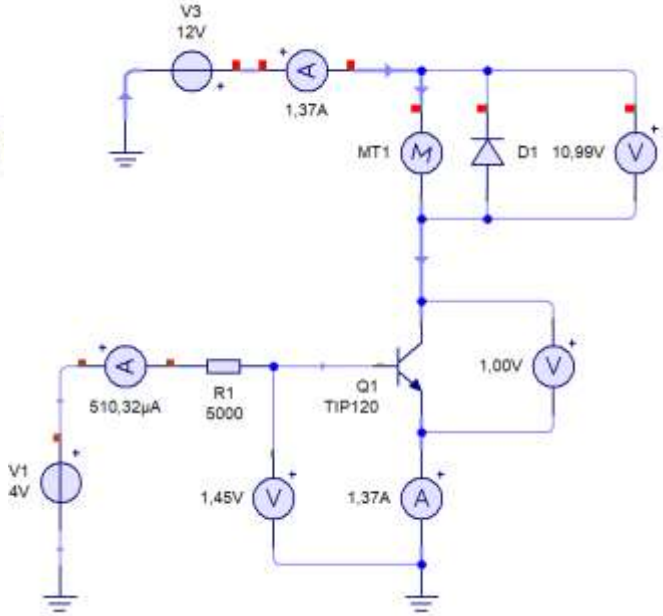
VARIAZIONE NUMERO GIRI MOTORE DC 12V: RICAVARE CURVA V1-Vmotore

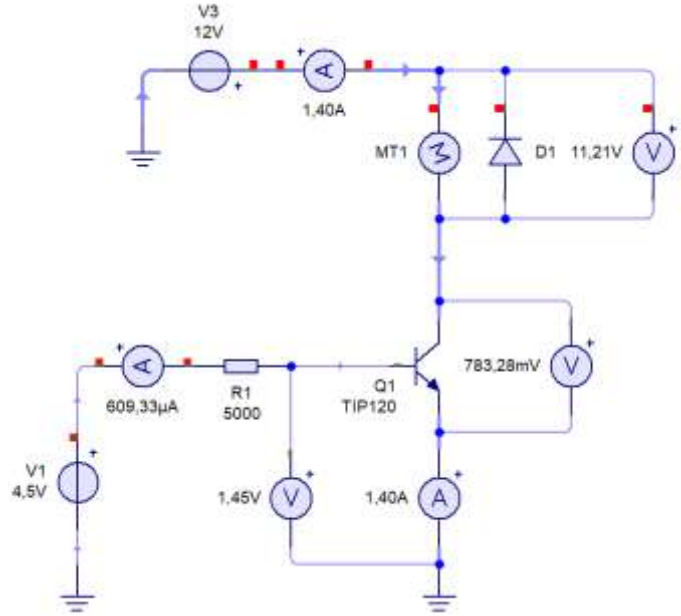




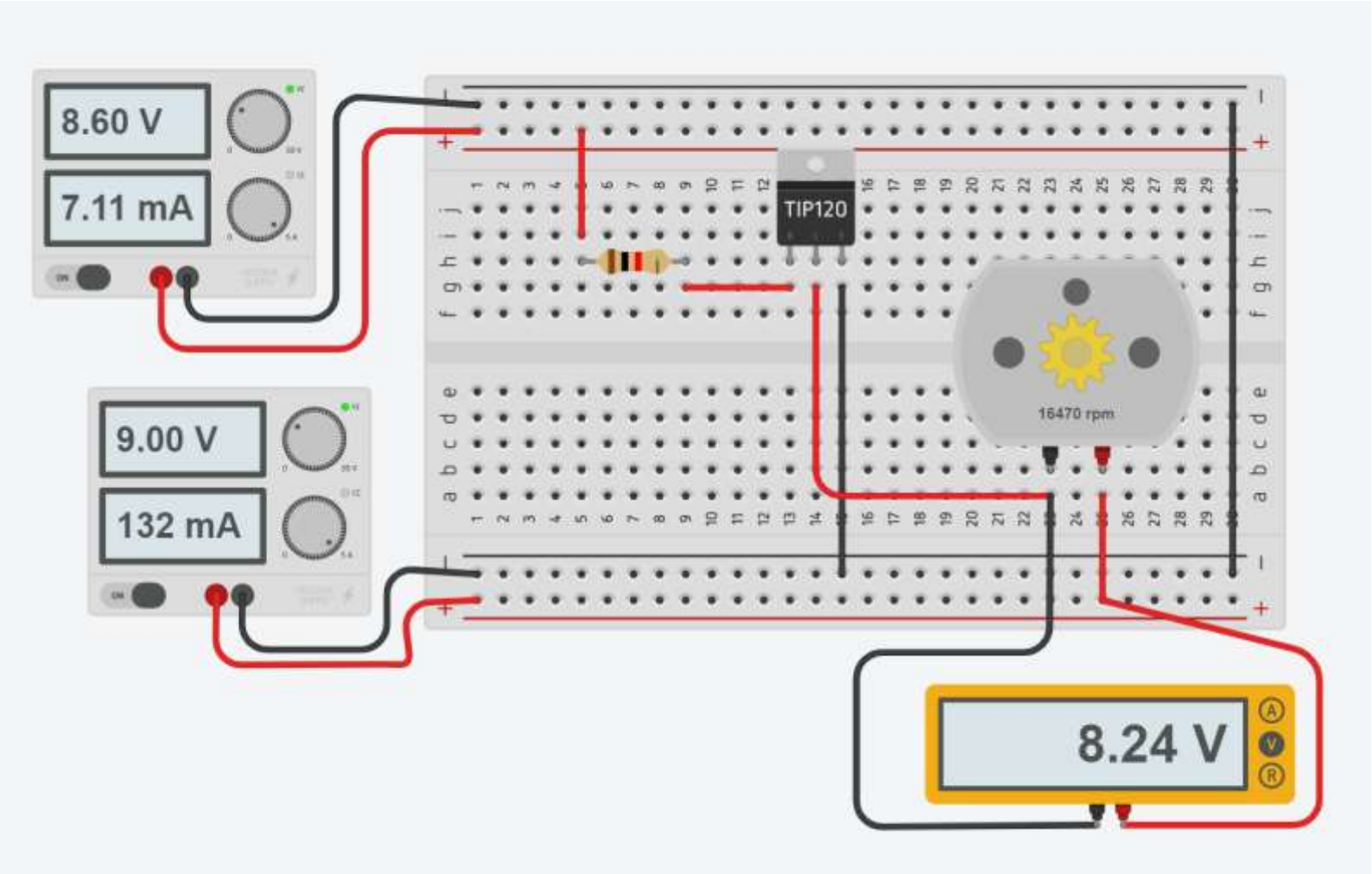




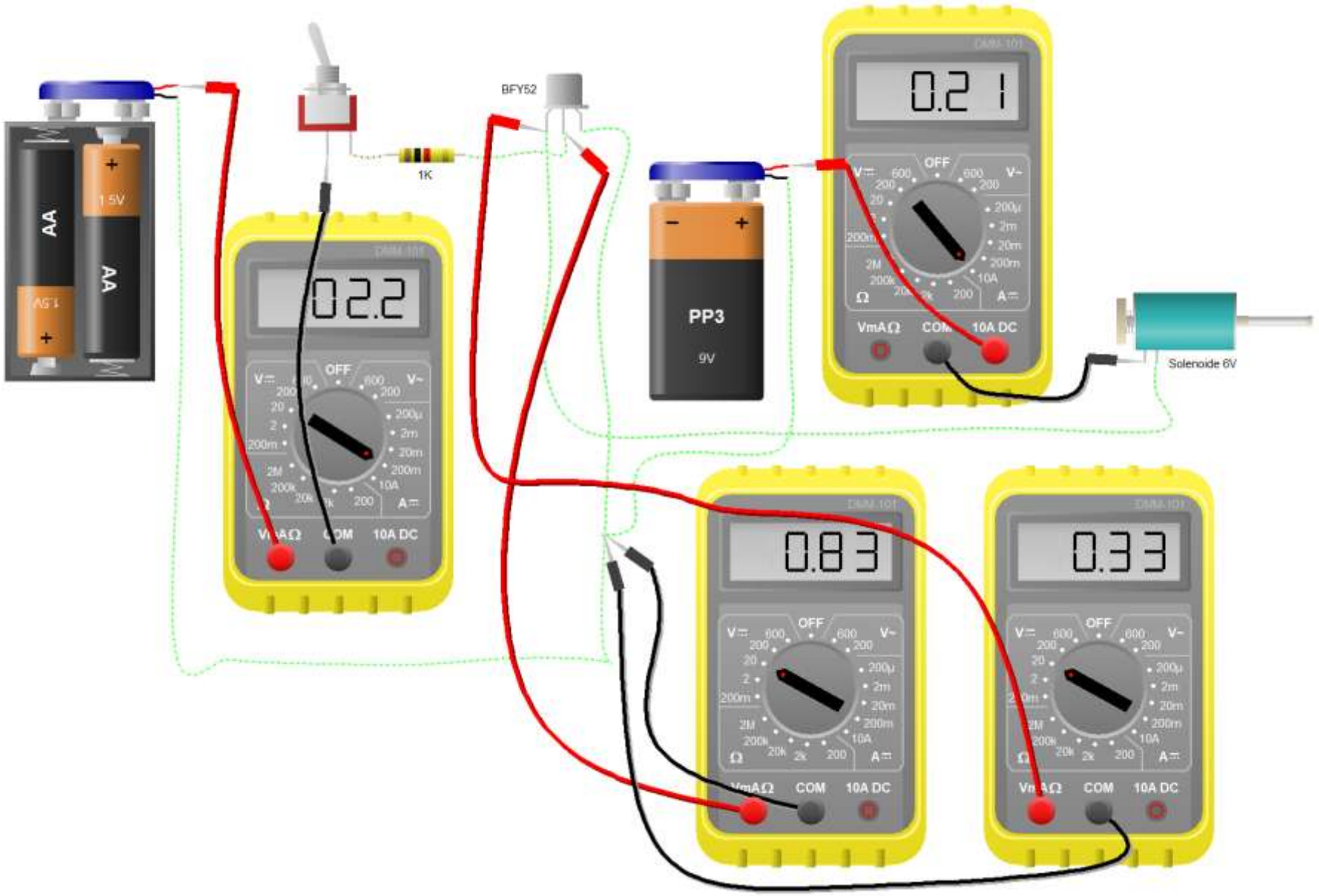




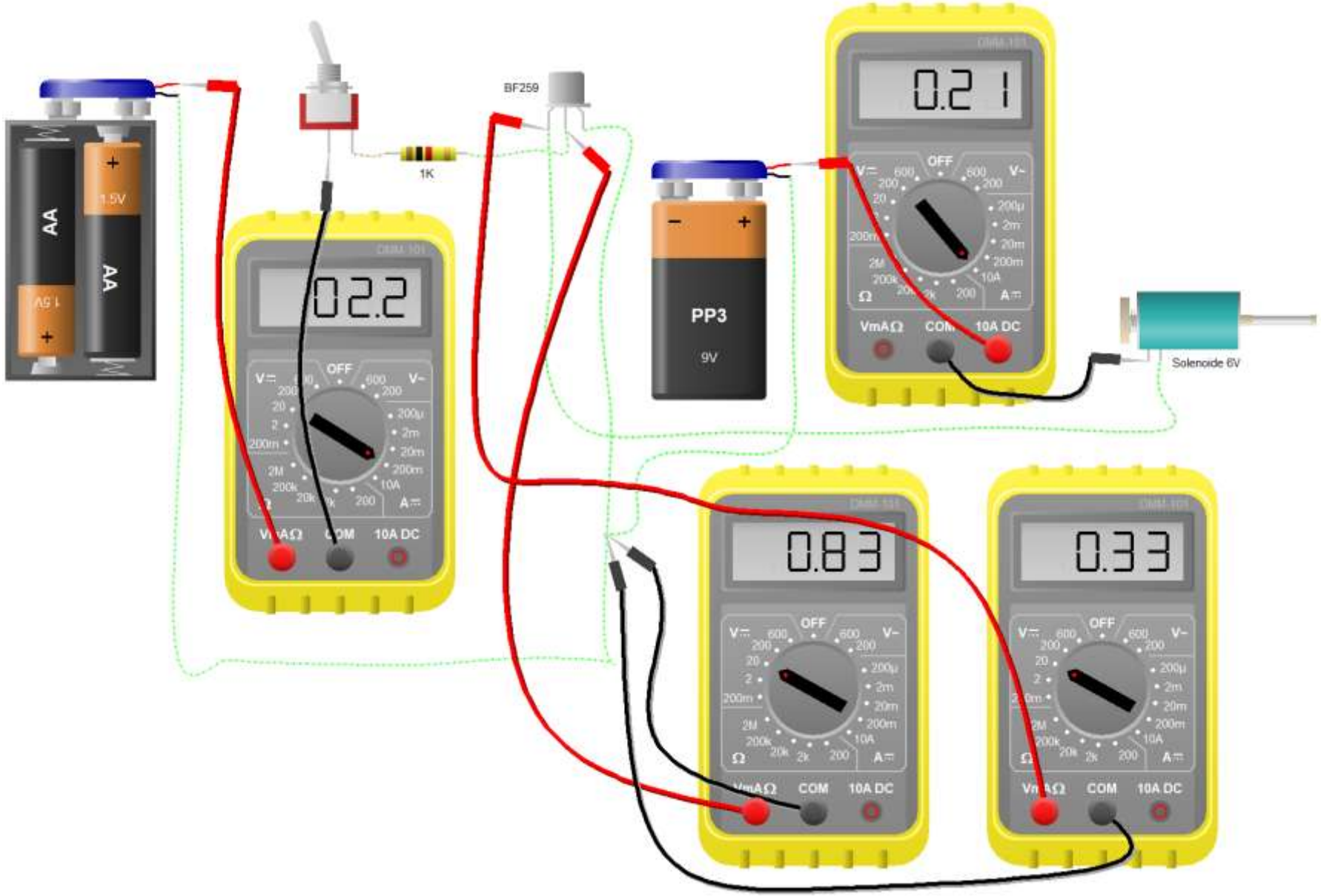
VARIAZIONE NUMERO GIRI MOTORE DC 6-9V CON TIP120



COMANDO SOLENODIDE CON TRANSISTOR: RICAVARE SCHEMA ELETTRICO



COMANDO SOLENODIDE CON TRANSISTOR: RICAVARE SCHEMA ELETTRICO



NPN medium power transistors BFY50; BFY51; BFY52

FEATURES

- High current (max. 1 A)
- Low voltage (max. 35 V).

APPLICATIONS

- General purpose industrial applications.

DESCRIPTION

NPN medium power transistor in a TO-39 metal package.

PINNING

PIN	DESCRIPTION
1	emitter
2	base
3	collector, connected to case

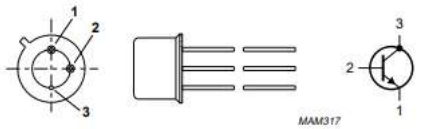


Fig.1 Simplified outline (TO-39) and symbol.

QUICK REFERENCE DATA

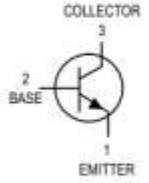
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter				
	BFY50		–	–	80	V
	BFY51		–	–	60	V
	BFY52		–	–	40	V
V_{CEO}	collector-emitter voltage	open base				
	BFY50		–	–	35	V
	BFY51		–	–	30	V
	BFY52		–	–	20	V
I_{CM}	peak collector current		–	–	1	A
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C	–	–	800	mW
		$T_{case} \leq 100$ °C	–	–	2.86	W
h_{FE}	DC current gain	I_C = 150 mA; V_{CE} = 10 V				
	BFY50		30	112	–	
	BFY51		40	123	–	
	BFY52		60	142	–	
f_T	transition frequency	I_C = 50 mA; V_{CE} = 10 V; f = 100 MHz				
	BFY50		60	–	–	MHz
	BFY51; BFY52		50	–	–	MHz

MOTOROLA
SEMICONDUCTOR TECHNICAL DATA

Order this document by PBF259/D

High Voltage Transistors
NPN Silicon

PBF259
PBF259S



CASE 29–04, STYLE 1
TO–92 (TO–226AA)

MAXIMUM RATINGS

Rating	Symbol	PBF259,S	Unit
Collector–Emitter Voltage	V_{CEO}	300	Vdc
Collector–Base Voltage	V_{CBO}	300	Vdc
Emitter–Base Voltage	V_{EBO}	5.0	Vdc
Collector Current — Continuous	I_C	500	mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	625 5.0	Watts mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	1.5 12	Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	–55 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	200	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	83.3	°C/W

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector–Emitter Breakdown Voltage[1] (I_C = 1.0 mAdc, I_B = 0)	$V_{(BR)CEO}$	300	—	Vdc
Collector–Base Breakdown Voltage (I_C = 10 μAdc, I_E = 0)	$V_{(BR)CBO}$	300	—	Vdc
Emitter–Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)	$V_{(BR)EBO}$	5.0	—	Vdc
Collector Cutoff Current (V_{CB} = 250 Vdc, I_E = 0)	I_{CBO}	—	50	nAdc
Emitter Cutoff Current (V_{EB} = 3.0 Vdc)	I_{EBO}	—	20	nAdc
Collector Cutoff Current (V_{CE} = 10 Vdc)	I_{CEO}	—	50	nAdc

1. Pulse Test: Pulse Width ≤ 300 μs; Duty Cycle ≤ 2.0%.