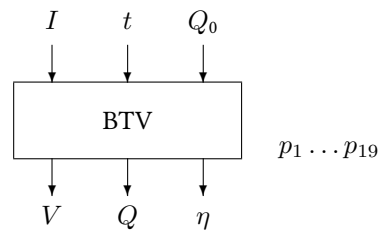


Block BTV

The BTV block calculates the output voltage of a battery, depending on current and state of charge.



Name	BTV
Function	se0019
Inputs	2 ... 3
Outputs	3
Parameters	19
Strings	0
Group	S

Inputs

- 1 Current I / A
- 2 Time t / s (not evaluated in mode 2)
- 3 Capacity Q_0 / A h (used in mode 2 only)

Outputs

- 1 Voltage V / V
- 2 New capacity Q / A h
- 3 Charging efficiency η

Parameters

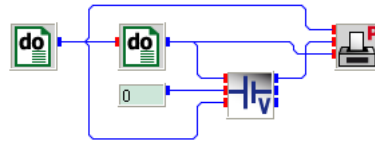
- 1 Mode
 - 0 The battery capacity depends on the battery parameters and the inputs of the block; initial value of the battery capacity is given by parameter number 5 (default).
 - 1 The battery capacity is given by input 3.
- 2 Number of cells in series N_s
- 3 Number of cells in parallel N_p
- 4 Nominal capacity Q_n A h

- 5 Initial value of battery capacity Q_0 / A h
- 6 Open circuit voltage charge V_{0c} / V
- 7 Electrolyte coefficient (charge) g_c / V
- 8 Inner resistance parameter (charge) ρ_c / Ω A h
- 9 Battery type coefficient (charge) M_c
- 10 Capacity coefficient (charge) C_c
- 11 Open circuit voltage (discharge) V_{0d} / V
- 12 Electrolyte coefficient (discharge) g_d / V
- 13 Inner resistance parameter (discharge) ρ_d / Ω A h
- 14 Battery type coefficient (discharge) M_d
- 15 Capacity coefficient (discharge) C_d
- 16 Wood parameter a_w
- 17 Wood parameter b_w
- 18 Wood parameter F_ℓ
- 19 Self discharge coefficient q_s / % of capacity per day

Strings

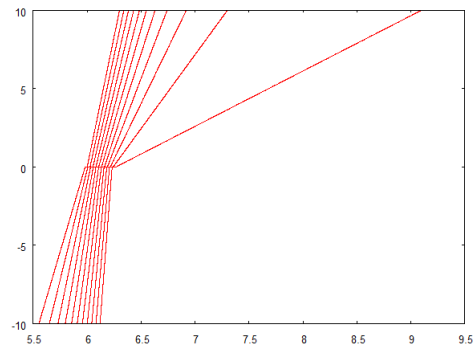
None

btv.vseit



Two nested **DO** blocks vary battery capacity (outer block) and current (inner block) from 0 to 100 Ah in steps of 10 Ah and -10 to 10 A in steps of 0.01 A, respectively. The time input of the **BTI** block is set to zero by a **CONST** block and is not evaluated because the capacity mode of the **BTI** block is set to “Battery capacity is given by input 3”.

A parametric plot block **PLOTP** is used to display the voltage-current characteristic of the battery.



See also Block **BTI**, **BCR**.