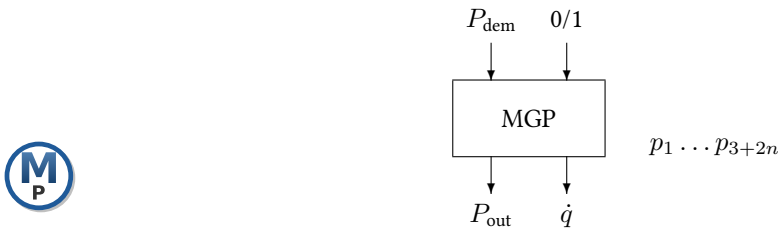
Block MGP

The MGP block returns the power output and fuel consumption of a Motor / Generator set.



Name	MGP
Function	se0020
Inputs	2
Outputs	2
Parameters	$3 + 2n$
Strings	0
Group	S

Inputs

1	Power demand P_{dem} / W
2	Switch s, which characterises the state of the motor ($s = 0$ off, $s = 1$ on)

Outputs

1	Actual power P_{out} / W of the motor
2	Actual fuel consumption $\dot{q}$ / ml s^{-1} of the motor

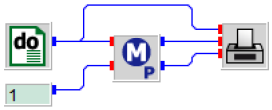
Parameters

1	Nominal power output of the motor P_{N} / W
2	Nominal fuel consumption $\dot{q}_{\text{n}}$ / ml s^{-1}
3	Number n of tabulated values of fuel consumption $y(x)$, where x represents the relative motor / generator power (normalized with the nominal power)
2i+2	Tabulated values x of normalised motor / generator power $i = \{1 \dots n\}$; the values must be given in ascending order, ie $2i + 2 < 2i + 4$ etc
2i+3	Tabulated values of fuel consumption $y(x)$ ml s^{-1}

Strings

None

mgp.vseit



A motor normalized to a power of 1 W is simulated by an MGP block with a fuel consumption of 1 at nominal power and 0.25 at idle speed. A DO block varies the demand between -0.1 W to $+1.1$ W to demonstrate the behavior of the MGP block when operated out of range.

The PLOT block shows that on overload the motor power is restricted to its nominal power. For negative demand values output power and fuel consumption are set to zero.

