

Data Sheet

Propel Application Software

Best Point Control (BPC)

Danfoss Best Point Control (BPC) is an innovative propel application software that can dramatically increase the efficiency of a machine.

By detecting the power required for the operating conditions and automatically adjusting the engine speed to meet optimum efficiency points, BPC adds instant value to virtually any application.

As a PLUS+1® compliant software block, BPC offers plug-and-perform integration into existing work flows.

Regardless of the application, BPC helps to reduce development time and almost instantly increases machine control.

Target applications:

- Telehandler, wheel-loader, dumper, sweeper, forklift trucks, forestry machines etc.
- Mobile machines demanding better fuel efficiency and require a high level of controllability.

Features

Basic functions

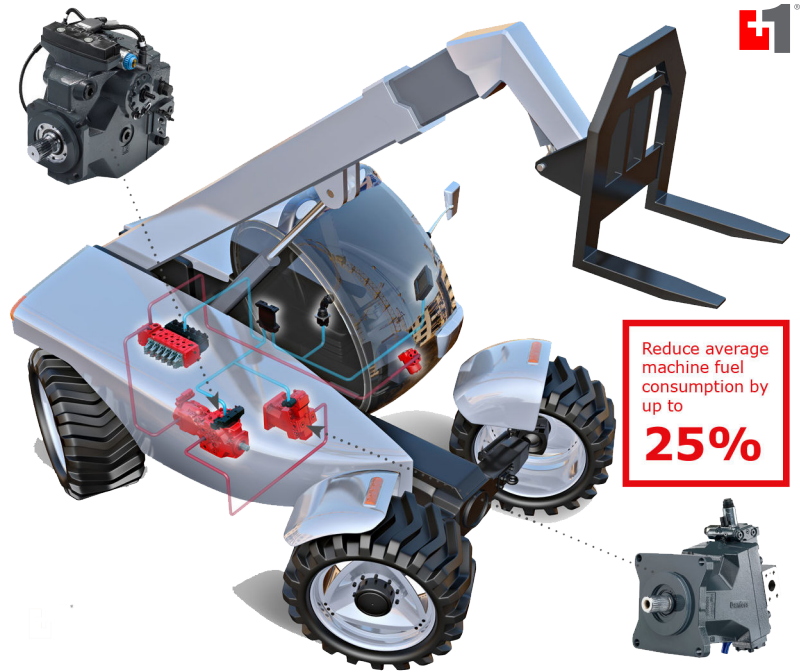
- One drive mode for all operating points and use cases
- Machine and engine overspeed protection
- *Hydrostatic ratio control*: intelligent adjustment of hydraulic pump and hydraulic motor depending on the load
- *Drive pedal scaling*: operator can adjust the pedal resolution to achieve better machine controllability and performance
- *Minimum engine speed adjustment*: to ensure high machine performance and to provide the oil flow, required for other sub-systems like work functions
- Calibration routines to simplify machine start-up
- *No Engine PPU*: accepts J1939 standard message, no need for additional PPU.
- Vehicle speed limitation

Flexibility

- *Transmission control*: flexible integration of multiple different final drive solutions (e.g. 2MT)
- *Modular software design*: fit to a variety of application types
- *Work hydraulic pressure sensor*: works in conjunction with other sub-systems like Work Function Control
- *Functional safety*: designed according to safety standards for shorter time to market

Performance and Fuel Economy

- *Best Point Control*: depending on the machine's load situation, the diesel engine and the hydrostatic drivetrain are controlled at their best efficiency points
- *Vehicle speed control*: driver is controlling the machine movement and software controls the diesel engine and hydrostatic ratio
- *Power management functions*: electronic pressure limiter and antistall for more machine performance
- Temperature compensation for predictable performance



Reduce average machine fuel consumption by up to

25%

Comprehensive technical literature online at powersolutions.danfoss.com

System Requirements

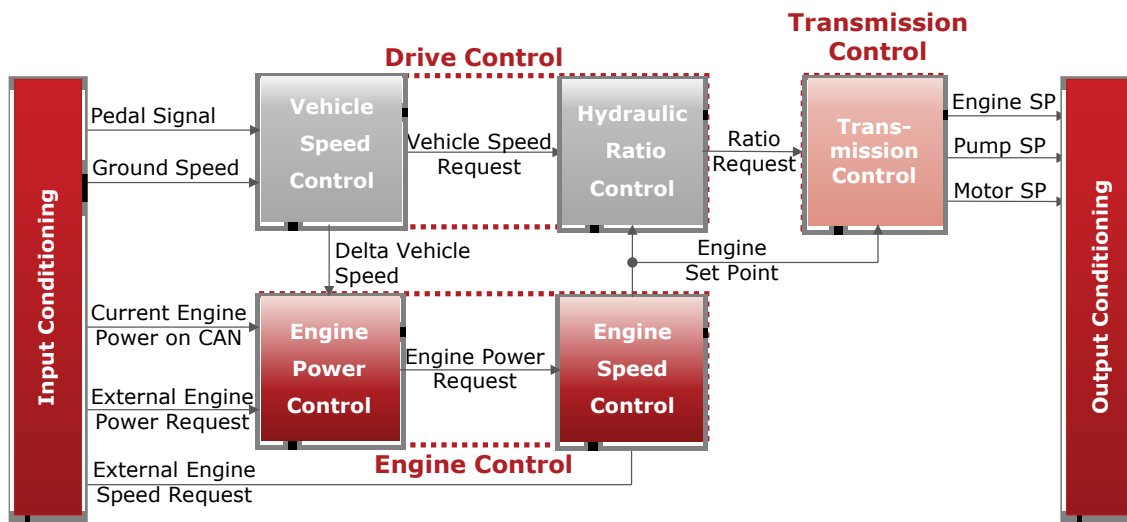
- CAN controlled Diesel engine
- H1 pump with embedded controller incl. swashplate angle sensor
- H1 bent axis motor with electric proportional control
- Final drive configuration e.g. dropbox or dual motor gearbox

Other available Danfoss literature

- H1 Axial Piston Pumps – Product Line Overview, **L1012919**
- H1 Axial Piston Motors – Product Line Overview, **L1019304**

BPC Block Diagram

Modular software structure for flexible adaption to customer specific requirements



System Inputs and Outputs

The following inputs and outputs to be considered for a typical BPC baseline configuration

- Drive direction switch (FNR) optional via CAN
- Drive pedal (redundant)
- Drive enable optional via CAN
- Manual engine speed setpoint
- Drive pedal scaling
- Inch pedal (redundant)
- Park brake switch
- Seat switch
- CAN connection to the engine controller, CAN messages according J1939
- Engine speed signal, optional via CAN
- Hydro motor speed signal
- Pump control (pre-configured on embedded controller)
- Hydro motor proportional control
- Park Brake control
- Feedback signal Park Brake released
- Work hydraulic pressure sensor