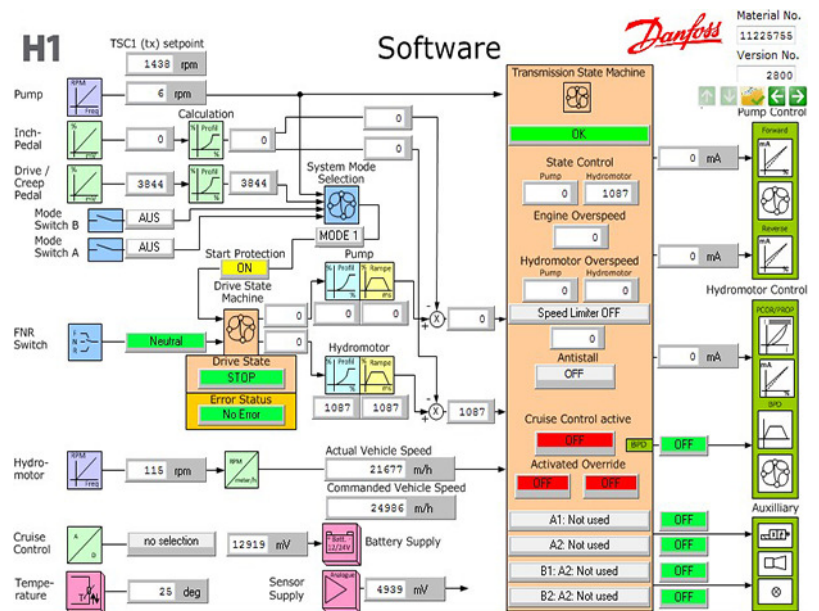


Data Sheet

Integrated Automotive Control for MP1 and H1P single pumps

The Automotive Control (AC) is an electric NFPE control with an integrated micro-controller, installed on the pump. The integrated micro-controller enhances control performance with a flexible, configurable control scheme for an entire single path propel transmission. It can be used in combination with fixed and variable displacement hydraulic motors. The propel system can be used with mechanical controlled or CAN controlled engines. With the pre-installed application software and easily changeable control parameters, it is possible to tailor the vehicle's driving behavior to the individual requirements of the customer. Target applications with a load dependent driving behavior:

- Wheel loader, telehandler, dumper (torque controlled)
- Sweeper, snow blower, forestry machines (speed controlled)



Features

Basic functions

- Four system modes, selectable by the driver for different drive behaviour
- Independent pump/motor profiling and ramping for each system mode
- Electric drive pedal
- Electric inching
- Electric creep mode potentiometer
- Hand throttle for engine speed control
- Reversing in all possible driving conditions
- Load dependent pump displacement control (automotive)
- Load independent pump displacement control with integrated swash-plate angle sensor (optional)
- Two position and proportional motor displacement control
- System status (errors) by LED

Protection and safety functions

- Safety controlled vehicle start protection
- Operator presence detection
- Hydraulic system overheat and low temperature protection
- Hydraulic motor overspeed protection
- Safety functions according EN1459, ISO20474, ISO 25119 and ISO 13849 up to performance level d

Engine control and protection

- CAN J1939 and Kubota engine protocol
- Engine speed control via drive pedal or hand throttle with safety controlled monitoring function
- Engine over speed and cold start protection
- Engine anti-stall and speed-dependent retarder control

Performance functions

- ECO fuel saving mode
- Cruise control in work mode
- Vehicle constant speed control by drive pedal
- Vehicle speed limitation
- Digital outputs for:
 - dynamic brake light
 - automatic park brake
 - reverse buzzer
 - vehicle speed controlled output functions
- Temperature compensation for predictable performance
- Advanced CAN J1939 interface

AC controller



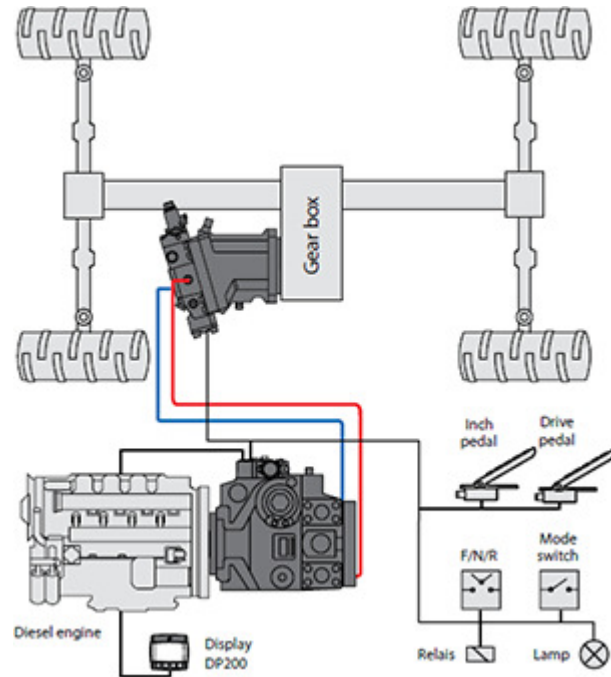
Specifications

Controller

Rated supply voltage 12 V system	9 – 16 V
Rated supply voltage 24 V system	18 – 36 V
Digital and PWM outputs	3000 mA
Sensor supply (internal)	5 V / 1 A
Ambient temperature	-40 to 104°C
IP rating with attached connectors	IP69k
EMC immunity	100 V/m
Vibration and shock tested	IEC 60068

Comprehensive technical literature is online at www.danfoss.com

Telehandler system schematic



Input configuration

Input	Function
6 x digital	FNR (direction selection), seat switch, system mode switches
7 x analog	Inch pedal, drive pedal, creep potentiometer, hand throttle, engine speed set-up point, pressure sensors
2 x frequency	Pump/engine, hydro-motor rpm

Output configuration

Output	Function
3 x PWM	Pump and hydro-motor displacement control
5 x digital	Hydraulic motor brake pressure defeat, dynamic brake light, hand brake, reverse buzzer, retarder control, vehicle speed dependent output, status LED