

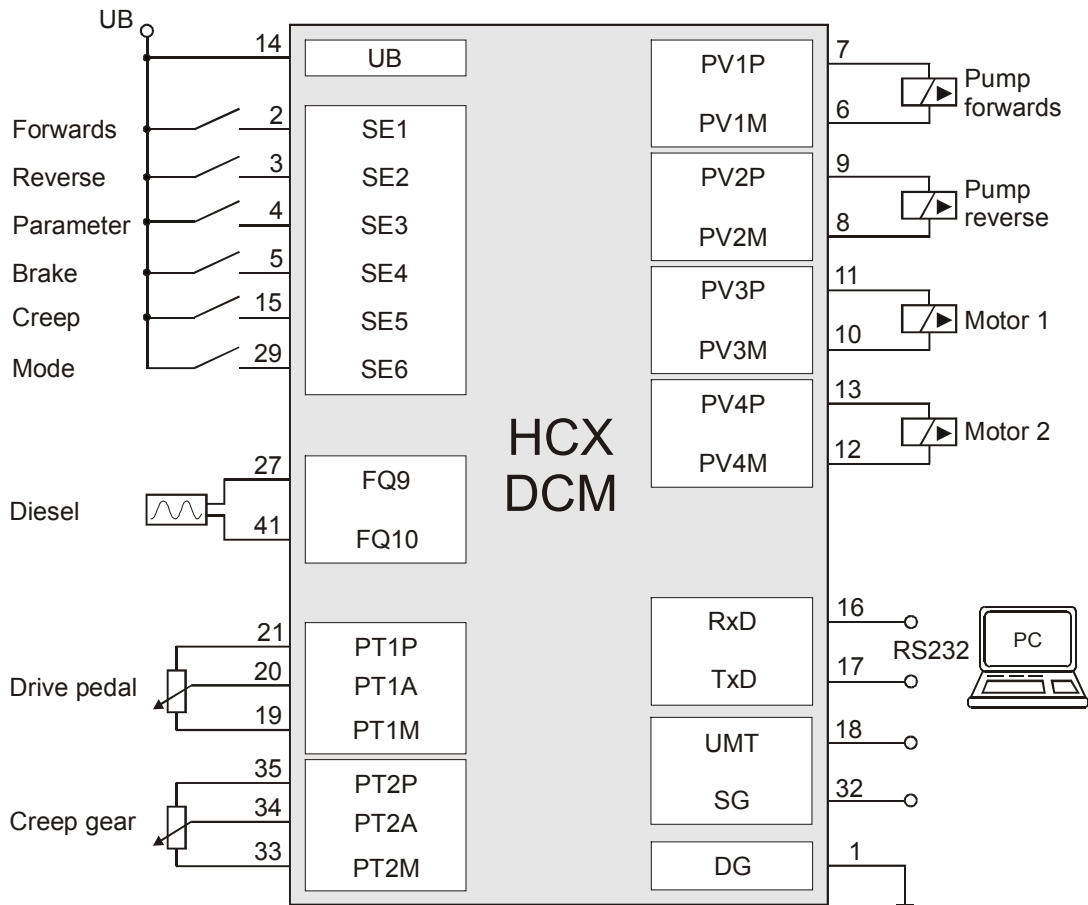


DriveControl DCM

The DCM is a control system for hydrostatic drives with electrical adjustment of the pump and the motor. It is possible either to drive at a constant diesel rotary frequency or using rev dependent pump and hydraulic engine actuation. This makes the control system usable for a large number of machines. DCM is based on the hardware platform HCX.

The hand terminal MT and the PC program ConDoc - Control& Document® serve to adapt and input the machine-specific data.

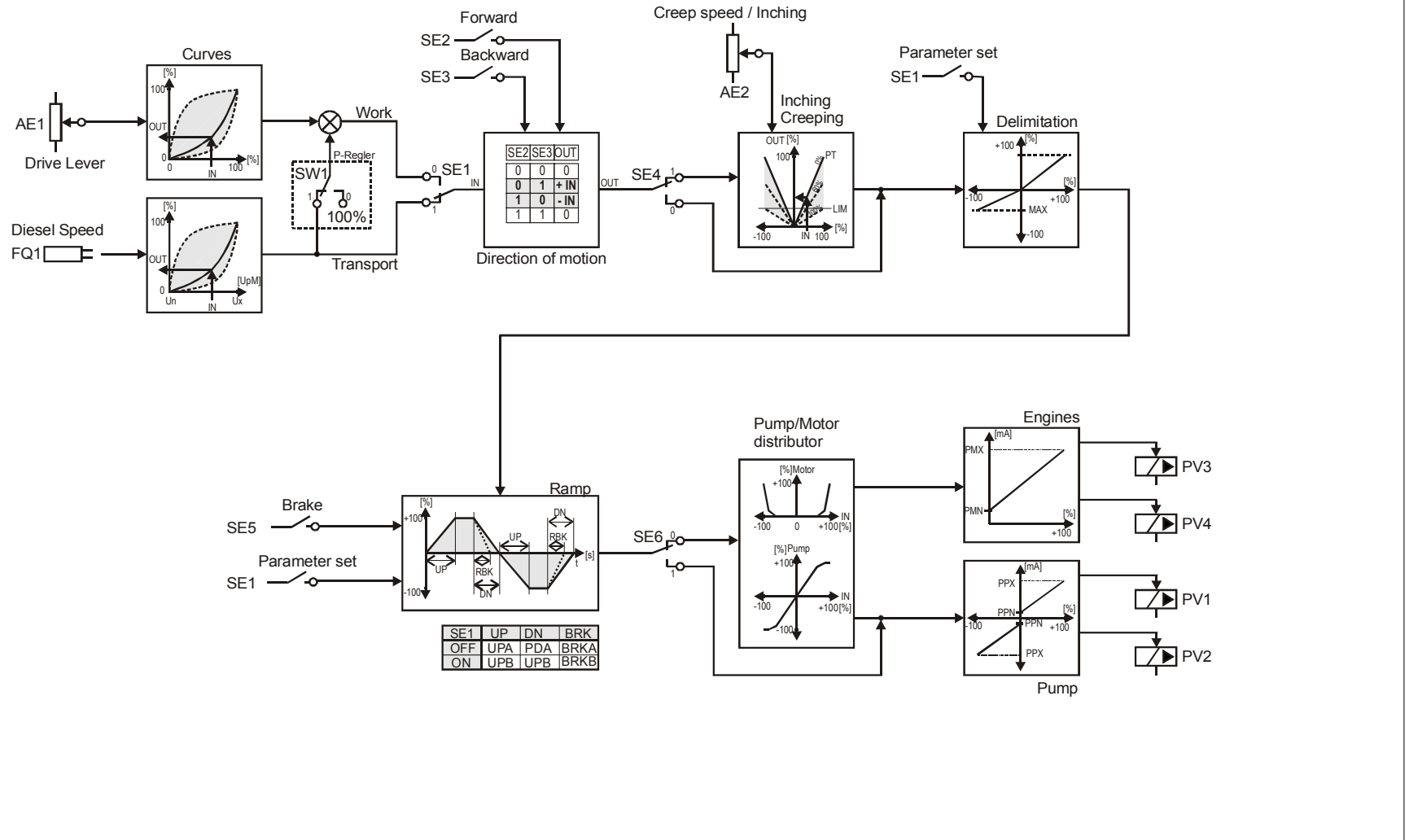
DCM Connection Diagram





DCM Block diagram

DC-M DriveControl MEDIUM





DCM Function Description

Operation mode work /transport

- Operating mode selection by switches

Working mode

- Driving at a fixed diesel rotary frequency
- Actuation of the hydrostat using a control lever or a pedal

Transport mode

- Driving the hydrostat dependent on the diesel rotary frequency

Characteristic curves

- The desired value generation for the hydrostat can be made linear or by the hyperbolic function and can be set separately for each operation mode
⇒ leads to sensitive starting
- Transport mode: start and stop function for the hydrostat can be set separately, dependent on the diesel rotary frequency
⇒ driving at the lowest diesel rotary frequency necessary (minimum noise development and consumption)

Selection of drive direction

- Selection of drive direction with two switches

Creep gear or inching

- Option 1: Reduction of the driving speed using the inch pedal
- Option 2: Limitation of the maximum speed using a creep gear potentiometer or a fixed value
⇒ improvement of sensitive driving at the lower speed range without loss of the pedal range.
- Function can be activated via a switch

Speed control

- Speed limitation per operating mode and direction

Ramps

- Damping the hydrostat adjustment
- Separate acceleration, reduction and braking ramp times according to the operating mode

Safety functions

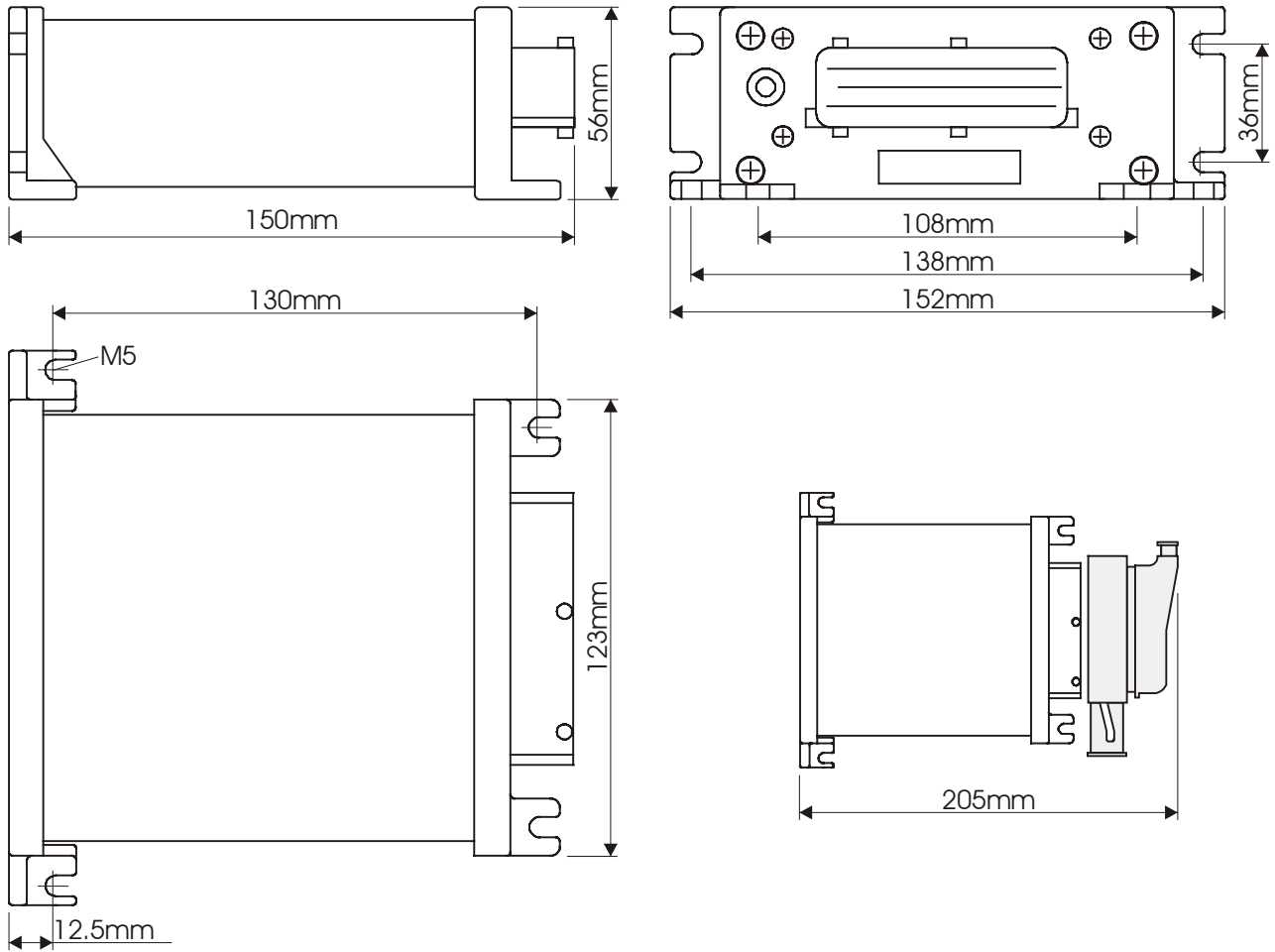
- Protection against undesired changes in direction
- Protection against undesired change of the operating mode
- Starting lock after braking manoeuvre until still, dependent on the setting value source
- Starting lock for setting value errors during switch-on time

Functionality when sensors are defective

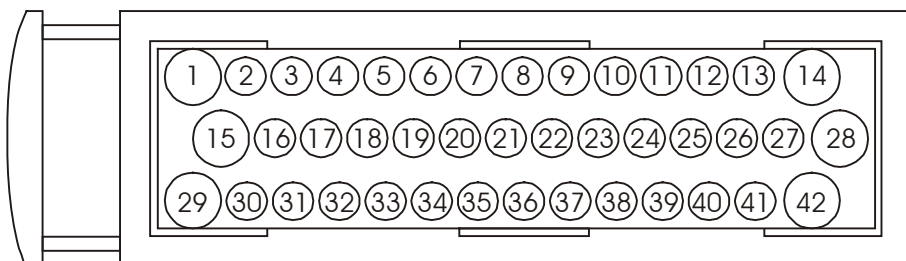
- Limited functionality when the diesel rotary frequency sensor is defective



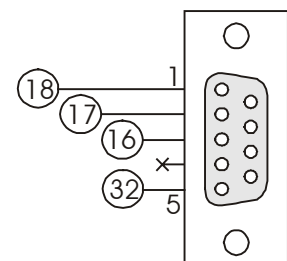
HCX Housing Dimensions



HCX Connector



Diagnosis



**DCM Pin Assignment**

1	DG	Supply, minus (earth)
14	UB	Supply, plus
2	SE1	Switch input 1
3	SE2	Switch input 2
4	SE3	Switch input 3
5	SE4	Switch input 4
15	SE5	Switch input 5
29	SE6	Switch input 6
27	FQ9	Pickup H / Clamp W
41	FQ10	Magnetic pickup L
21	PT1P	Potentiometer 1, plus
20	PT1A / AE1	Potentiometer 1, Pickup / Analogue input 1
19	PT1M	Potentiometer 1, minus
35	PT2P	Potentiometer 2, plus
34	PT2A / AE2	Potentiometer 2, Pickup / Analogue input 2
33	PT2M	Potentiometer 2, minus
7	PV1P	Proportional output 1, plus
6	PV1M	Proportional output 1, minus
9	PV2P	Proportional output 2, plus
8	PV2M	Proportional output 2, minus
11	PV3P	Proportional output 3, plus
10	PV3M	Proportional output 3, minus
13	PV4P	Proportional output 4, plus
12	PV4M	Proportional output 4, minus
16	RXD	RS232 Receive cable for the hand terminal or PC
17	TXD	RS232 Send cable for the hand terminal or PC
18	UMT	Supply output (12V) for hand terminal
32	SG	Signal earth

**DCM Technical Data**

Dimensions:	152mm x 150mm x 56mm
Weight:	650g
Plug connections:	AMP 1-0967280-1, 42 pins
Power supply:	UB = 8 ... 32V
Current consumption:	Approx. 60mA at 24V
Parameter settings:	Using the hand terminal MT or a PC (RS232)
Microcontroller:	C167CR, 20 MHz
Program memory:	1Mbyte flash EPROM
Data memory:	128kByte RAM
Parameter memory:	64kBit EEPROM
Interfaces:	RS232
Inputs:	<ul style="list-style-type: none">6 Digital switch entries with 4.7kΩ pull-down resistors, switching thresholds U_{on} approx. 5.8V, U_{off} approx. 3.7V1 As rotary frequency sensor input, pickup, differential input, up to 10kHz, U_{ss} sensitivity approx. 400mV at 1kHz, sensitivity reduction at higher frequencies or: frequency input clamp W, up to 2kHz, switching thresholds U_{on} approx. 75% of UB, U_{off} 25% of UB2 Analogue inputs, 10bit, 0 ... 10V, 1kΩ ... 10kΩ potentiometer with error recognition
Outputs:	<ul style="list-style-type: none">1 12V power supply for UB > 15V, maximum 50mA for hand terminal MT4 Proportional solenoid outputs, maximum 3A
Safety:	Microcontroller watchdog No terminals with sockets used Ventilation membrane Protection category IP65, IP69K
Temperature range:	-25 ... 70°C, new version: -40 ... 85°C
EMV:	Meets the limits values according to <ul style="list-style-type: none">- EN 50081-2 and EN 50082-2 for industrial application- DIN 40839 for application in road vehicles

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