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Electrical Installation

Series 51 Motor

# Electrohydraulic Two-Position Controls T1, T2



**Revision history***Table of revisions*

| <b>Date</b> | <b>Changed</b>              | <b>Rev</b> |
|-------------|-----------------------------|------------|
| August 2015 | Converted to Danfoss layout | BA         |
| April 2007  | First edition               | AA         |

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**Electrical Installation      S51 Electrohydraulic Two-Position Controls T1, T2**

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**Literature references****S51 electrohydraulic two-position controls T1, T2 literature references**

| <b>Literature title</b>  | <b>Description</b>  | <b>Literature number</b> |
|--|---|--------------------------|
| <i>S51 and 51-1 Bent Axis Variable Displacement Motors<br/>Technical Information</i> | Complete product electrical<br>and mechanical<br>specifications | 520L0440                 |
| <i>On/Off Functions Function Block User Manual</i>                                   | Compliant function block<br>set-up information                  | 11022918                 |

**Latest version of technical literature**

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Danfoss product literature is online at: <http://powersolutions.danfoss.com/literature/>

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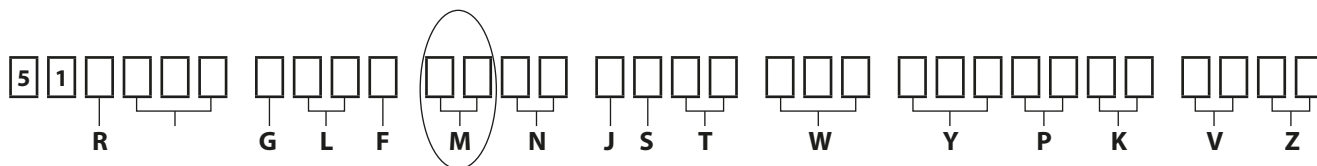
**Product overview**

**Product image**

*S51 electrohydraulic two-position controls T1, T2*



**Nomenclature**



*Code M options*

| <b>M</b> | <b>Description</b>   |
|----------|--|
| T1       | Electrohydraulic two-position control, 12 Vdc, DIN connector |
| T2       | Electrohydraulic two-position control, 24 Vdc, DIN connector |

Only certain control options for the S51 motor utilize the Electrohydraulic Two-Position Control. Please refer to the motor's nomenclature to determine if the motor is equipped with the proper option. The nomenclature can be found on the motor's nametag.

Product overview

Theory of operation

**S51 electrohydraulic two-position controls T1, T2**

Displacement can be changed electrohydraulically under load from minimum displacement to maximum displacement and vice versa, by using a solenoid. When the solenoid is energized the motor has maximum displacement and the pressure compensator does not function.

- Solenoid not energized = minimum displacement
- Solenoid energized = maximum displacement

**PCOR**

The control can be overridden by Pressure Compensator Override (PCOR) using high loop pressure. When the PCOR activates, the motor displacement increases toward maximum. Pressure ramp from PCOR start pressure (with motor at minimum displacement) until maximum displacement is reached is less than 10 bar [145 psi]. This ensures optimal power utilization throughout the entire displacement range of the motor. PCOR start pressure is adjustable from 110 to 370 bar [1600 to 5370 psi].

**T\*C0**

Pressure compensator configuration: T\*C0 with hydraulic brake pressure defeat.

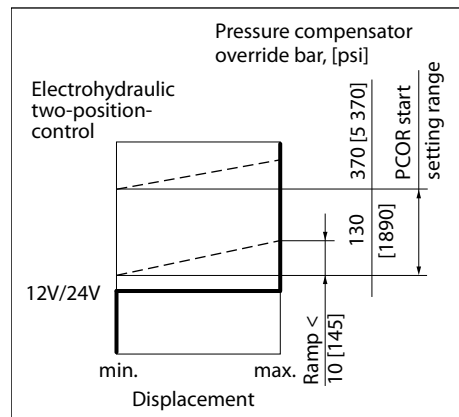
A shuttle valve ahead of the pressure compensator prevents operation in the deceleration direction (when motor is running in pump mode). This is designed to prevent rapid or uncontrolled deceleration while the vehicle/machine is slowing down. The shuttle valve must be controlled by a 2-line external signal. Pressure compensator override with brake pressure defeat is mainly used in systems with pumps having electric or hydraulic proportional controls or automotive controls.

**T\*C2**

Pressure compensator configuration: T\*C2 without brake pressure defeat

Pressure compensator functions when the motor is running in motor mode as well as in pump (deceleration) mode.

**Control operation T1\*\*, T2\*\***



P001 872E

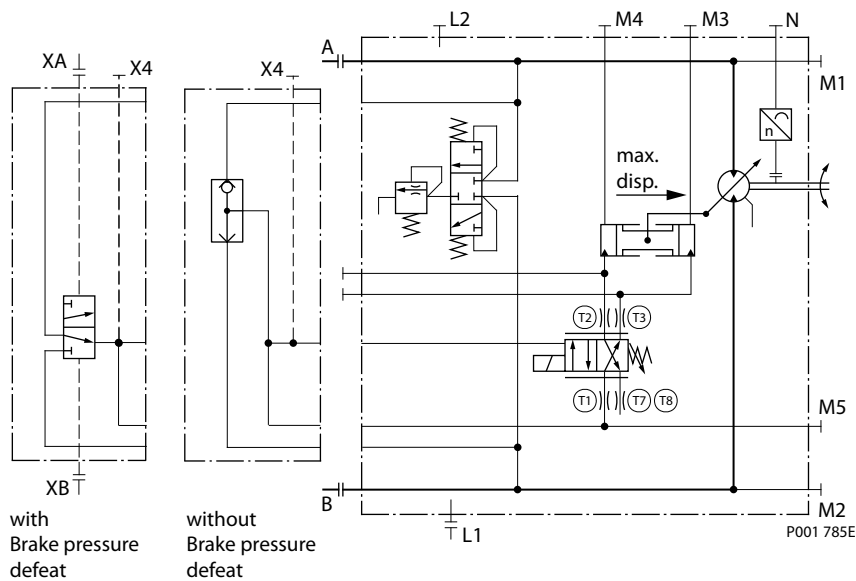
**Warning**

Unintended vehicle or machine movement hazard. The loss of hydrostatic drive line power, in any mode of operation (forward, neutral, or reverse) may cause the system to lose hydrostatic braking capacity. You must provide a braking system, redundant to the hydrostatic transmission, sufficient to stop and hold the vehicle or machine in the event of hydrostatic drive power loss.

**Product overview**

**Hydraulic schematics**

*Circuit diagram – motor with electrohydraulic two-position control T1\*\*, T2\*\**



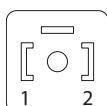
Ports:

- A, B** = Main pressure lines
- L1, L2** = Drain lines
- M1, M2** = Gauge port for A and B
- M3, M4** = Gauge port servo pressure
- M5** = Gauge port servo supply
- XA, XB** = Control pressure ports, brake pressure defeat
- T1, T2, T3, T7, T8** = Optional orifices
- N** = Speed sensor

**Electrical specifications**

*Two-position solenoid*

| M-option           | T1     | T2     |
|--------------------|--------|--------|
| <b>Voltage</b>     | 12 Vdc | 24 Vdc |
| <b>Rated power</b> | 34 W   | 34 W   |

**Electrical installation**
**Pinout**
**DIN 43650 connector**
*Pin location*

*Pinout*

| Pin | Function   |
|-----|------------|
| 1   | PWM signal |
| 2   | Ground     |

*Pinout (alternative)*

| Pin | Function   |
|-----|------------|
| 1   | Ground     |
| 2   | PWM signal |

**Pin compatibility**
*PLUS+1® module pin type*

| Pin | Function                     |
|-----|------------------------------|
| 1,2 | DOUT                         |
| 1,2 | DOUT/PVG Power               |
| 1,2 | PWMOUT/DOUT/PVG Power supply |
| 1,2 | PWMOUT/DOUT/PVGOUT           |
| 1,2 | Power ground -               |

**Mating connector**
**DIN 43650 connector parts list**

| Description          | Quantity | Ordering Number        |
|----------------------|----------|------------------------|
| DIN 43650 connector  | 1        | Hirschmann 932 106-100 |
| Mating connector kit | 1        | Danfoss K09129         |











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