



Electrical Installation

Series 51-1 Motor

Electrohydraulic Two-position Control with PCOR P7, P8



Revision history*Table of revisions*

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

Contents**Literature references**

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Electrical installation

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Literature references**S51-1 Two-position Control with PCOR P7, P8 literature references**

| Literature title | Description | Literature number |
|--|---|-------------------|
| <i>S51 and 51-1 Bent Axis Variable Displacement Motors Technical Information</i> | Complete product electrical and mechanical specifications | 520L0440 |
| <i>S51-1 Proportional PCOR Function Block User Manual</i> | Compliant function block set-up information | 11022917 |

Latest version of technical literature

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

Product overview

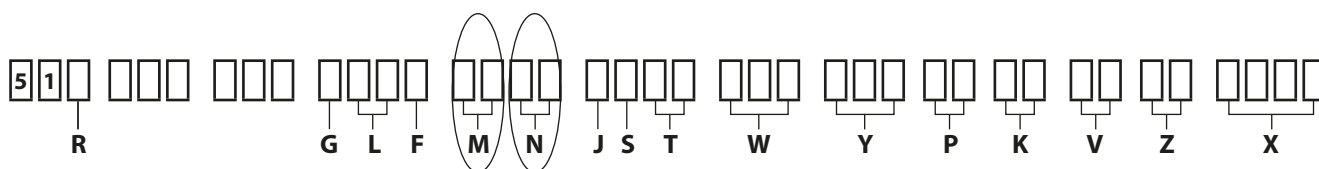
Product image

S51-1 Two-position Control with PCOR P7, P8



Nomenclature

S51-1 model code



Code M and N options

| M | Description | N | Description |
|----------|--|----------|--|
| P7 | Electrohydraulic two-position control with electric proportional pressure compensator override, 12 Vdc | P7 | Electric brake pressure defeat, 12 Vdc |
| | | C2 | Without brake pressure defeat |
| P8 | Electrohydraulic two-position control with electric proportional pressure compensator override, 24 Vdc | P8 | Electric brake pressure defeat, 24 Vdc |
| | | C2 | Without brake pressure defeat |

Only certain control options for the S51-1 motors utilize the Electrohydraulic 2 Position Control w/Electric Proportional Pressure Compensator Override to Maximum Angle. The combination of the M and N modules define the motor control's functionality. Please refer to the motor's nomenclature to determine if the motor is equipped with the proper options. The nomenclature can be found on the motor's nametag.

Product overview

Theory of operation

Proportional displacement control

Displacement can be changed electrohydraulically under load in response to an electrical signal from minimum displacement to maximum displacement and vice versa by controlling the PCOR setting proportional to the current of a solenoid.

- Solenoid not energized = maximum displacement

Override to maximum angle

To shift the unit under all conditions to maximum angle, supply the spool with 1600 mA (12 Vdc) or 800 mA (24 Vdc).

P7, P8

Pressure compensator configuration: P7, P8 with electric brake pressure defeat.

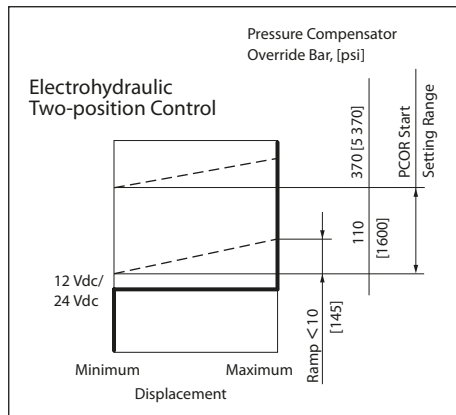
A solenoid-switched valve, ahead of the pressure compensator, prevents operation in the deceleration direction (when the motor is running in pump mode). This is designed to prevent rapid or uncontrolled deceleration while the vehicle/machine is slowing down.

C2

Pressure compensator configuration: 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



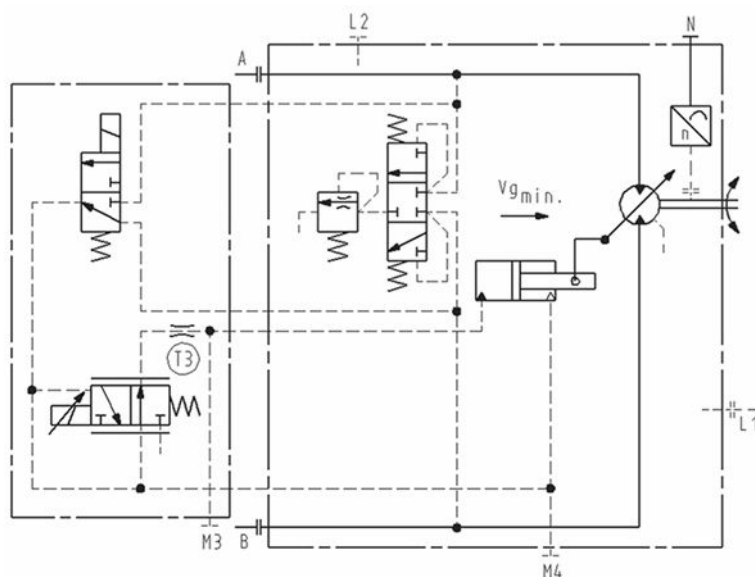
⚠ Warning

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.

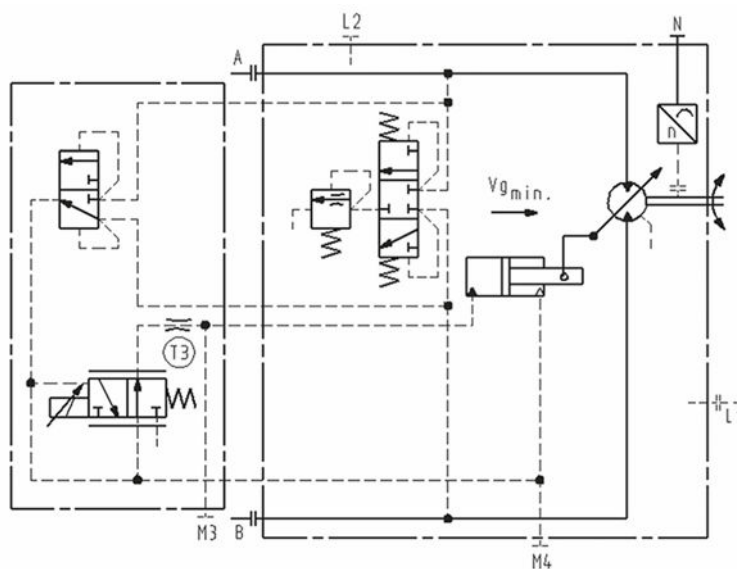
Product overview

Hydraulic schematics

Circuit diagram - Motor with Electrohydraulic Two-position Control P7P7, P8P8 with Pressure Compensator Override (PCOR) to maximum angle and with electric brake pressure defeat



Circuit diagram - Motor with Electrohydraulic Two-position Control P7C2, P8C2 with Pressure Compensator Override (PCOR) to maximum angle



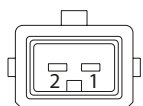
Product overview
Electrical specifications
Proportional PCOR solenoid

| M-option | P7 | P8 |
|--|---------------|---------------|
| Voltage | 12 Vdc | 24 Vdc |
| Minimum Proportional PCOR Start Current | 255 mA | 127 mA |
| Maximum Proportional PCOR End Current | 1370 mA | 685 mA |
| Minimum Angle Override Current | 1600 mA | 800 mA |
| Nominal Resistance at 20° C [68° F] | 5.7 Ω | 21.2 Ω |
| PWM frequency range* | 100 to 200 Hz | 100 to 200 Hz |
| Recommended PWM frequency | 100 Hz | 100 Hz |

* Verify the PWM frequency is set correctly in the PLUS+1® controller. The default is set at 4000 Hz which will significantly reduce performance.

Electric brake pressure defeat solenoid

| N-option | P7 | P8 |
|--------------------|-----------|-----------|
| Voltage | 12 Vdc | 24 Vdc |
| Rated power | 34 W | 34 W |

Electrical installation
Pinout
AMP Junior Power Timer 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/ Electric proportional solenoid pin compatibility

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

* Use output pins with configurable PWM frequency.

PLUS+1® module pin type/ Electric brake pressure defeat solenoid

| 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 - |

Pressure compensator logic
Electric brake pressure defeat

| Rotation | High pressure port | Solenoid | PCOR function |
|----------|--------------------|---------------|---------------|
| CW | A | Energized | Yes |
| CW | A | Non-energized | No |
| CCW | B | Energized | No |
| CCW | B | Non-energized | Yes |

Electrical installation**Mating connector****AMP connector parts list**

| Description | Quantity | Ordering number |
|----------------------|----------|---------------------------|
| Two pin connector | 1 | Tyco Electronics 282189-1 |
| Contacts | 2 | Tyco Electronics 929940-1 |
| Seal plugs | 2 | Tyco Electronics 828904-1 |
| Mating connector kit | 1 | Danfoss K19815 |



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