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

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

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

Latest version of technical literature

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

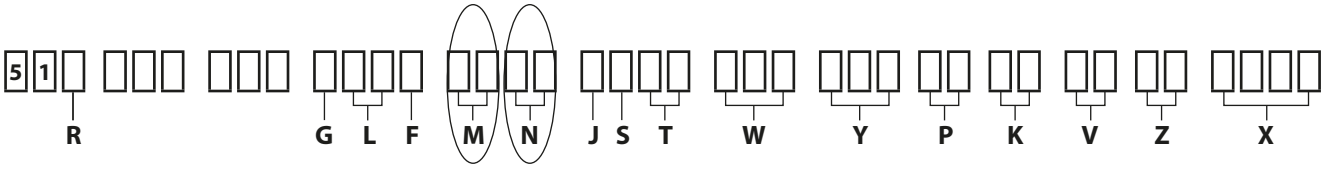
Product overview

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.

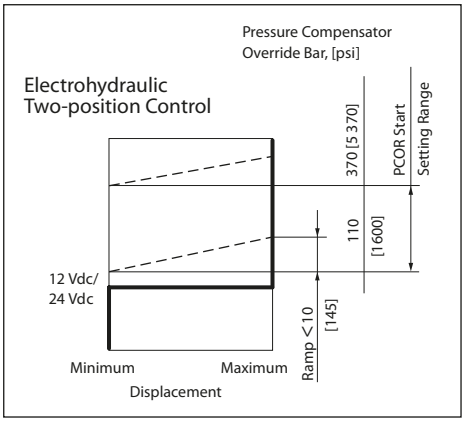
A solenoid-switched valve, ahead of the pressure compensator, prevents operation in the deceleration direction (when the motor is running in pump mode). This is designed to prevent rapid or uncontrolled deceleration while the vehicle/machine is slowing down.

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



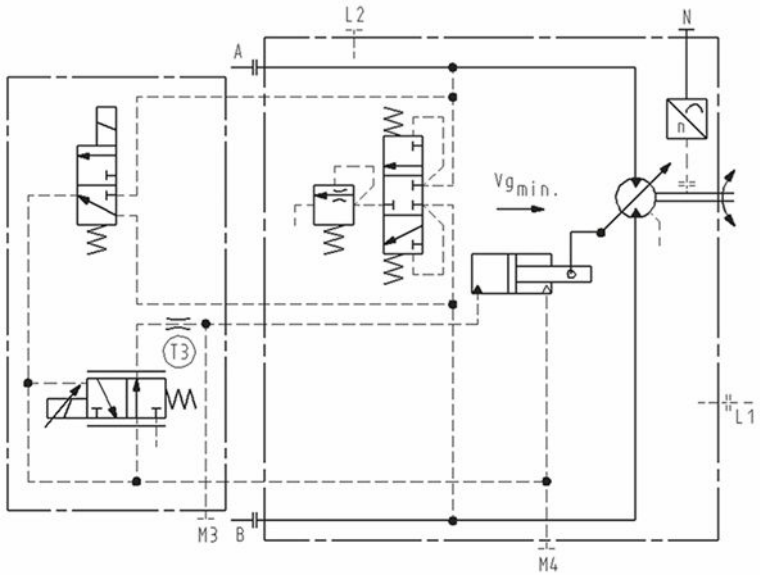
Warning

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.

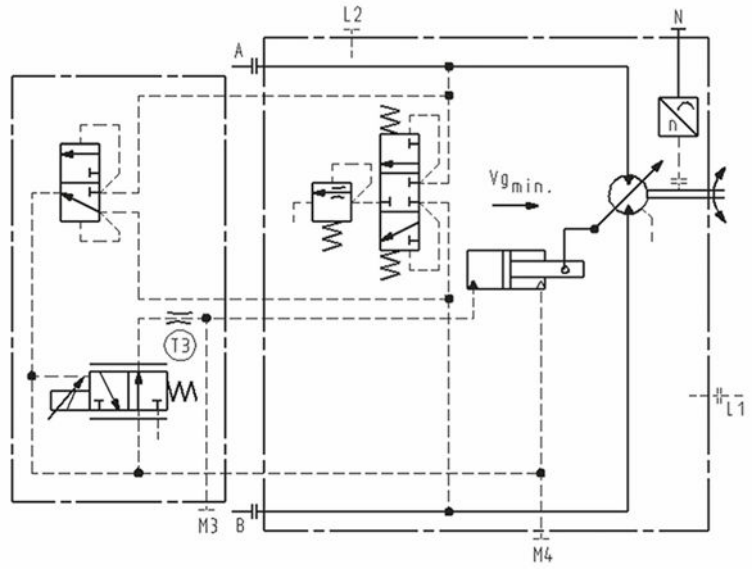
Product overview

Hydraulic schematics

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



Circuit diagram - Motor with Electrohydraulic Two-positon 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

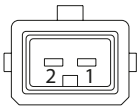
N-option	P7	P8
Voltage	12 Vdc	24 Vdc
Rated power	34 W	34 W

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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