



Electrical Installation

Series 51 Motor

# Electrohydraulic Proportional Control L1, L2, L3, L7



**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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**Literature references****S51 electrohydraulic proportional control L1, L2, L3, L7 literature references**

<b>Literature title</b>	<b>Description</b>	<b>Literature number</b>
<i>S51 and 51-1 Bent Axis Variable Displacement Motors Technical Information</i>	Complete product electrical and mechanical specifications	520L0440
<i>S51 L Proportional Controls Function Block User Manual</i>	Compliant function block set-up information	11022922

**Latest version of technical literature**

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

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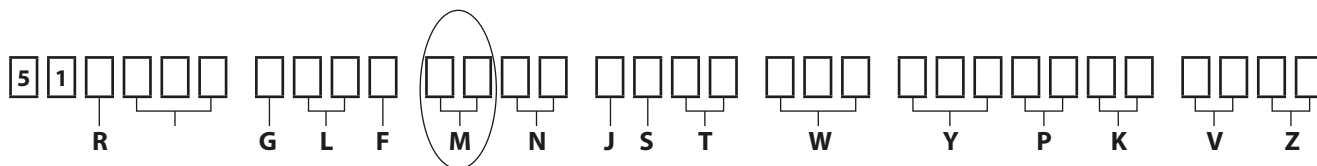
**Product overview**

**Product image**

*S51 electrohydraulic proportional control L1, L2, L3, L7*



**Nomenclature**



*Code M options*

<b>M</b>	<b>Description</b>
L1	Electrohydraulic proportional control, 12 Vdc, DIN connector
L2	Electrohydraulic proportional control, 24 Vdc, DIN connector
L3	Electrohydraulic proportional control, 12 Vdc, DEUTSCH Connector
L7	Electrohydraulic proportional control, 12 Vdc, AMP Junior Power Timer Connector

Only certain control options for the S51 motor utilize the Electrohydraulic Proportional 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.

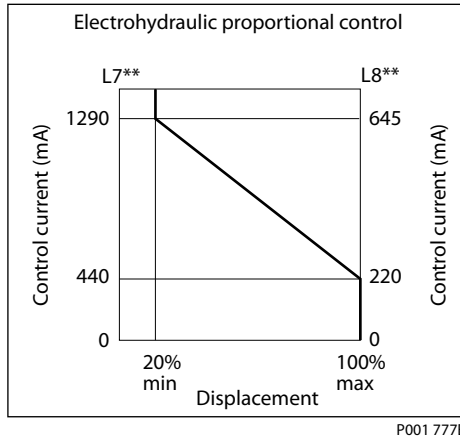
**Product overview**

**Theory of operation**

Displacement can be changed electrohydraulically under load in response to an electrical signal from minimum displacement to maximum displacement and vice versa. The displacement changes proportional to the electrical signal.

- Control start = maximum displacement
- Control end = minimum displacement

*Control operation L1\*\*, L2\*\*, L7\*\**

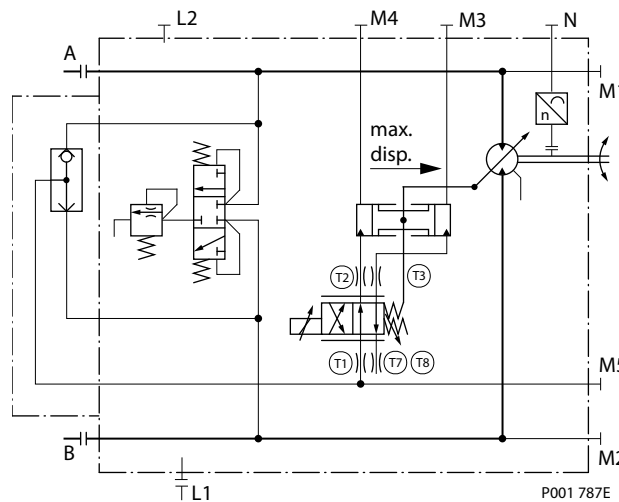


**Warning**

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.

**Hydraulic schematics**

*Circuit diagram – motor with electrohydraulic propor. control L1B1, L2B1, L7B1*



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 pressure internal
- T1, T2, T3, T7, T8** = Optional orifices
- N** = Speed sensor

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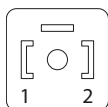
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**Product overview**
**Electrical specifications**
*Electrohydraulic proportional solenoid*

<b>M-option</b>	<b>L1, L3, L7</b>	<b>L2</b>
<b>Voltage</b>	12 Vdc	24 Vdc
<b>Start Current</b>	440 mA	220 mA
<b>End Current</b>	1290 mA	645 mA
<b>Maximum Current</b>	1500 mA	750 ma
<b>Nominal Resistance at 20°C [68°F]</b>	5.7 Ω	21.3 Ω
<b>PWM frequency range*</b>	100 to 200 Hz	100 to 200 Hz
<b>Recommended PWM frequency</b>	100 Hz	100 Hz

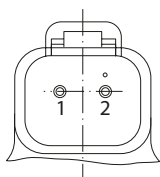
\* Verify the PWM frequency is set correctly in the PLUS+1® controller. The default is set at 4000 Hz which will significantly reduce performance.

**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

**DEUTSCH connector**
*Pin location*

*Pinout*

Pin	Function
1	PWM signal
2	Ground

*Pinout (alternative)*

Pin	Function
1	Ground
2	PWM signal

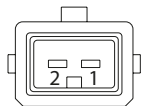


## Electrical Installation S51 Electrohydraulic Proportional Control L1, L2, L3, L7

### Electrical installation

#### 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<sup>®</sup> module pin type

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

#### Warning

Unintended vehicle or machine movement hazard. Verify the wiring harness to ensure the correct PLUS +1<sup>®</sup> pin is properly connected to each control pin.

### 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

#### DEUTSCH connector parts list

Description	Quantity	Ordering number
Connector	1	DEUTSCH DT06-2S
Wedge lock	1	DEUTSCH W2S
Socket contact (16 and 18 AWG)	2	DEUTSCH 0462-201-16141
Mating connector kit	1	Danfoss K29657

**Electrical installation****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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