

Electronic control type SRB 3100

Datasheet

6-1993

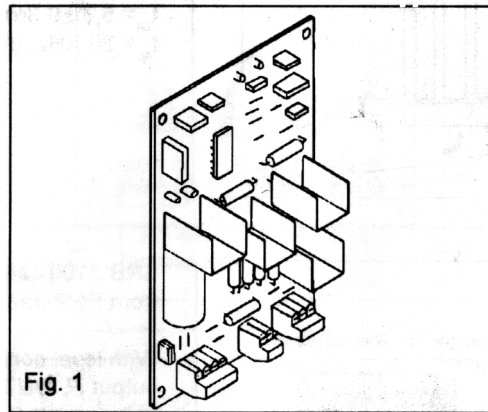


Fig. 1

The Electronic control unit SRB 3100 is designed for driving the Laurence, Scott & Electromotors, Precision Step System fast linear actuator type FLA. The SRB 3100 can also be used to control the clutch/brake unit SRA 10.

The SRB 3100 electronic control unit has the following features:

- Signals for forward/backward motion of the piston rod from the same signal source.
- Status signal for Piston rod forward backward function.
- Timer control of the piston rod return motion.

Ordering number

Type	Ordering Code
SRB 3100	080B1047

Level Control

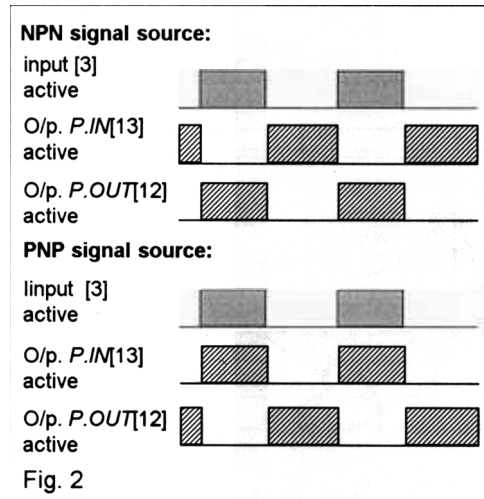


Fig. 2

Level control is selected by connecting jumper MK2 across 2-3 (Fig. 6).

Input terminal [3] is set to respond to NPN or PNP signal sources by using jumper MK 1 (see fig. 5).

When Input [3] is active, then output *P. OUT* [13] is activated with a NPN signal source, and *P. IN* [12] when a PNP source is used.

Output *P.IN* [13] is connected to FLA piston rod 'in' valve.

Output *P.OUT* [12] is connected to FLA piston rod 'out' valve.

Timer Control

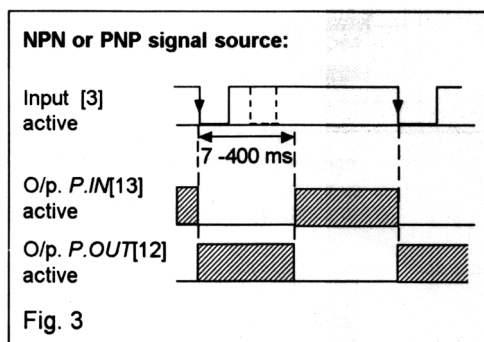


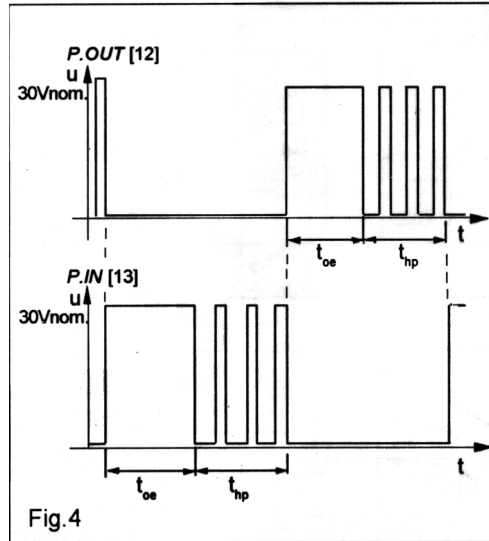
Fig. 3

The timer function is selected by connecting jumper MK2 across 1-2 (fig.6 fig. 6), with input terminal [3] by pulse control.

The input becomes active on a negative signal edge irrespective of whether the signal is PNP or NPN. The input then suppresses any further signals during the timing period.

By adjusting the potentiometer P1 the timing of the piston rod return signal can be set between 7 ms and 400 ms.

Valve driver signal



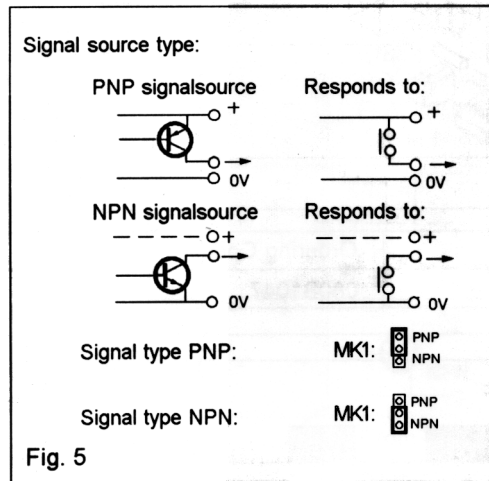
The solenoid valve driver signal consists of a pick-up pulse (t_{oe}) and a holding period (t_{hp}). The pick-up pulse ensures fast activation of the solenoid valves.

The duration of this holding period is dependent on the cycling frequency of the FLA/ SRA.

The output signals of the two solenoid valves interact as indicated in fig. 4.

$t_{oe} = 5,3 \pm 0,3ms$
 $t_{hp} = 20 KHz, dutycycle= 0,28$

Input selection



SRB 3100 can be set to respond to signals from PNP and NPN signal sources.

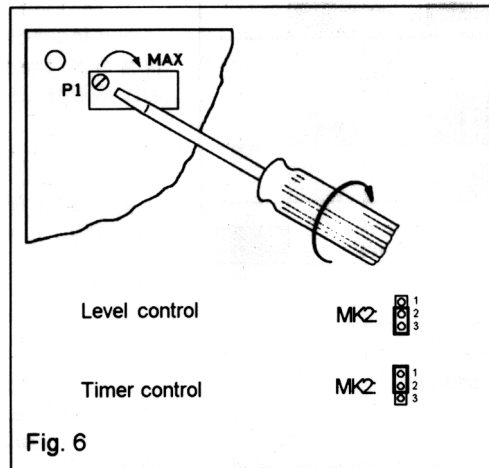
With level control selected on input [3] output *P. OUT* [13] activated by NPN signal source, and *P. IN* [12] by PNP signal source.

Signal source type is selected by jumper MK1.

Setting of jumpers must be carried out before voltage is applied.

The SRB 3100 is factory set to respond to NPN signal sources.

Function selection

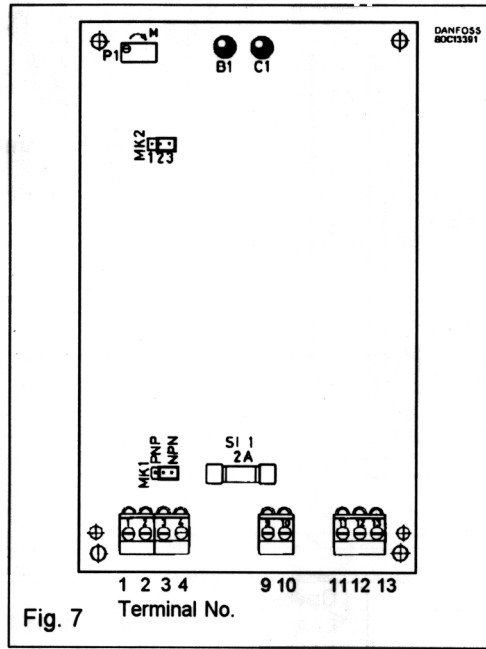


Selection between level control and timer control is by way of the jumper MK 2, see fig. 6.

Timing is set on the potetiometer (P1) to give a piston rod return signal 7 - 400ms (depending on setting of P1) after the piston rod out signal on terminal [3].

The SRB 3100 is factory set for level control.

Terminals and LED's

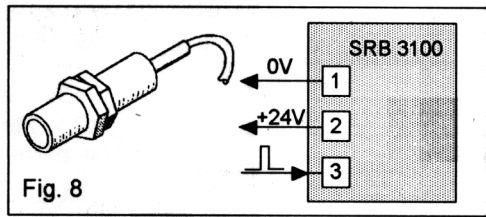


Terminal	Function
1	0V
2	+24V
3	Input
4	Status
9	24Vac
10	24Vac
11	IN/OUT
12	P.OUT
13	P.IN

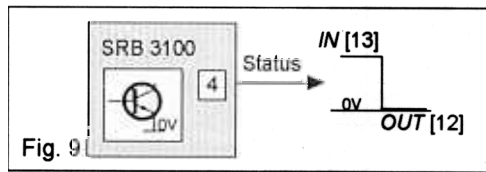
LED:

C1 lights if output P.OUT [12] is active.
 B1 lights if output P.IN [13] is active.
 Both LEDs light if when a short circuit in the valve outputs.
 Reset: Disconnect supply for 10 seconds.

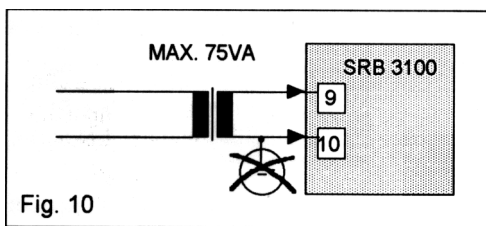
Connection.



Connection of signal source.
 Input signal is connected to terminal Input [3], the signal source supply is connected via terminals [1] and [2].
 Max. current 100 mA.

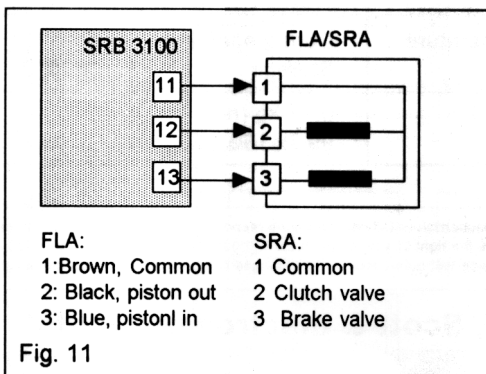


Status signal is NPN, open collector type, Transistor is "on" (connected to 0V) when output P.OUT [12] is active.
 Max. current 100 mA.



Recommended transformer sizes are shown in the table below. **Avoid joining terminals 9 and 10 to chassis or earth.**

Cycling Frequency	Transformer
1 - 10 Hz	20 VA
15 - 20 Hz	25 VA
25 - 30 Hz	30 VA



Terminals [11], [12], and [13] are electrically protected against short circuit..
 A short circuit lights both LED B1 and C1.
 Reset is by disconnecting the voltage supply for min. 10 seconds.

When SRB 3100 is used to control of SRA, connections are as shown in fig. 11.

SRA functions would be as follows:
 Piston-out corresponds to the clutch function.
 Piston-in corresponds to the brake function.

Dimensions

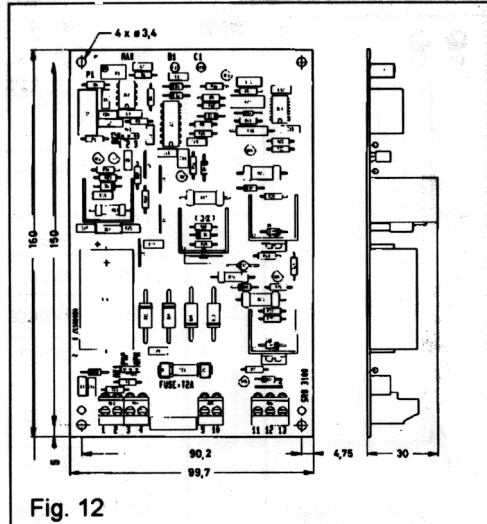


Fig. 12

The SRB 3100 is designed to be mounted into a control cabinet. It comes with four fixing holes and associated bosses.
Note: The SRB 3100 must not be connected to earth or the cabinet chassis.

Technical data

Valve driver Output	<p>Drives:</p> <p>FLA 6041 6081 2551 0551</p> <p>SRA 10</p> <p>Max. cycling frequency:</p> <p>FLA, SRA 10 30 Hz at 40°C ambient temperature.</p> <p>Cable: Min. 0.5 mm², Max. 0.25Ω per. lead.</p>
Input Signal	<p>$U_{high} > 16V$. Max. 30V $R_{in} = 5,6k\Omega$</p> <p>$U_{Low} < 2V$. Min 0 v</p> <p>a: Min. pulse length 100μs</p>
Status signal	<p>NPN</p> <p>$U_{low} < 2V$, $I_{max} 100mA$</p> <p>$I_{leak} < 1mA$</p>
Response time	From input signal to output signal: $t_r < 100\mu s$
Output voltage	24 V d.c. $\pm 1V$ at nominal supply Max. : 100 mA. current load.
Supply voltage	24V a.c. 50/60 Hz +10%, -15% Fuse: 1 piece 2Amp
Power consumption	Max. 35 W. See transformer table page 3
Noise immunity	In accordance with EF's EMC directive: Generic Standard pr EN 50082 Class Industrial environment
Humidity -static -cyclic	In accordance with IEC 68-2-3 Ca In accordance with IEC 68-2-30 Db
Operating temperature	During operation: 0°C til 40°C Storage : -40° til 70°C
Weight Dimensions	0,17 kg (nett) 99,7x 160 x 30 mm



**Precision
Step Systems**

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Laurence, Scott & Electromotors Ltd

P. O. Box 25
Kerrison Rd
Norwich
NR1 1JD
Tel: 0603 612604 Fax: 0603 610604