REGENT'S

ForeRunner™

ForeRunner120 **for 120 VAC Logic**
ForeRunner32 **for DC Logic**
ForeRunnerV12 **for external switch**

Features

• Provides power directly to clutch/brake. No interfacing relays needed (less wiring).

• Flexible, versatile control interface. PLC compatible.

• Increases clutch/brake life with adjustable switching time delay.

• Fast response time for high-speed machines.

• Compact size. DIN rail or panel mount.

• LED status indicator for each load.

• Regent's 2 Year Warranty.

Ideal for:

► Material handling

► Indexing tables

► Winding machines

► Automatic cutoff

► Conveyor control

► Packaging machines

► Film feed

► Label feed

► Alternate clutch/brake drive or twin clutch applications (2 speed and reversing)

The *ForeRunner* is an all-solid-state power supply relay for 24 VDC magnetic clutches and brakes. Its advanced features offer the ability to operate clutches and brakes at very high speeds, with less mechanical wear.

Logic level input permits direct interface with PLC output modules, photoelectric controls, proximity sensors, contacts, transistors, etc.

Adjustable switching time delay lets you minimize overlap between the clutch and brake, which means longer mechanical life.

PART NUMBER BUILDER

ForeRunner – 120

Control Logic
- *120* for 120 VAC logic
- *32* for DC logic
- *V12* for external switch

Series Name
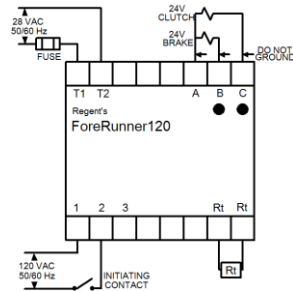*ForeRunner* for 24V Clutch and Brake

Regent's *ForeRunner*™
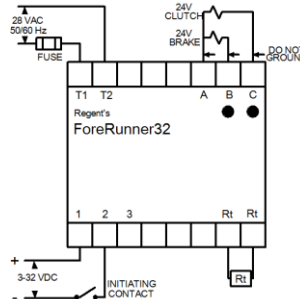## Clutch/Brake Control

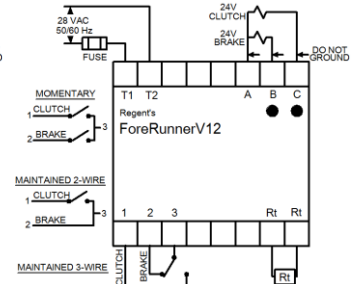## DIMENSIONS
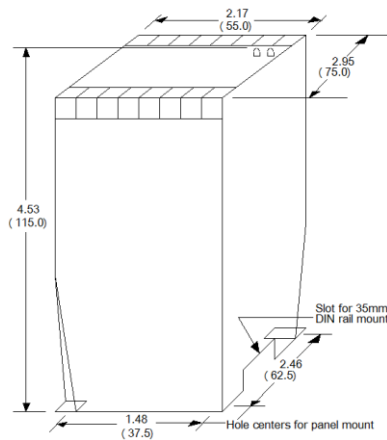
WIRING DIAGRAMS

ForeRunner120

ForeRunner32

ForeRunnerV12

NOTES

1. Logic terminals 1,2 on the *ForeRunner120* and *ForeRunner32* are isolated. Terminal T2 and/or 2 may be grounded.
2. Logic terminals 1,2,3 on the *ForeRunnerV12* are not isolated and must not be grounded.
3. Load terminals A,B,C and terminal 3 are not isolated from line terminals T1,T2 and must not be connected to ground or the ground side of the line.
4. Do not place switches or mechanical contacts between clutch and brake and their terminals A,B,C. Opening these circuits while current is flowing may damage the control.

SPECIFICATIONS	*ForeRunner120*	*ForeRunner32*	*ForeRunnerV12*
Line Input (T1,T2)	24 VDC +/- 2 VDC or 28 VAC +/- 20%, 50/60 Hz 35 mA burden (excluding load)	24 VDC +/- 2 VDC or 28 VAC +/- 20%, 50/60 Hz 35 mA burden (excluding load)	24 VDC +/- 2 VDC or 28 VAC +/- 20%, 50/60 Hz 35 mA burden (excluding load)
Logic Input (1,2)	120 VAC +/- 20%, 50/60 Hz, 25 mA burden (will not operate on leakage current below 10 mA)	3-32 VDC, 1-35 mA burden	Contact closure; contacts must be able to switch 12 VDC, 1mA
Logic Response Time (exc. Switching Time Delay)	1-9 msec	<1 msec	<1 msec

Load Rating (A,B,C)
  Steady-state output
  Current rating
  Recommended Fuse
	24 VDC at 28 VAC line input
	1.5 A maximum
	Buss PCB2
		24 VDC at 28 VAC line input
		1.5 A maximum
		Buss PCB2
			24 VDC at 28 VAC line input
			1.5 A maximum
			Buss PCB2

Switching Time Delay	Adj. from less than 1 to 100 msec	Adj. from less than 1 to 100 msec	Adj. from less than 1 to 100 msec
Recommended Line Fuse	Littelfuse 322005	Littelfuse 322005	Littelfuse 322005
Temperature	0 to 65°C (32 to 149°F)	0 to 65°C (32 to 149°F)	0 to 65°C (32 to 149°F)

Note: A step-down transformer (120/230 VAC to 28 VAC) is available from Regent.

Regent's *ForeRunner*™
Clutch/Brake Control

OPERATION (refer to TIMING DIAGRAM)

ForeRunner120 and *ForeRunner32*

a. When power is applied to T1,T2 with no logic voltage present, the brake energizes.

b. When logic voltage is applied to 1,2 brake immediately de-energizes. Clutch is energized following preset Switching Time Delay.

c. When logic voltage is removed, clutch de-energizes and, following Switching Time Delay, brake energizes.

ForeRunnerV12

Maintained 2-wire (1 SPST switch)

a. When power is applied to T1,T2 with 1,3 contacts open, brake energizes.

b. Maintained closure of 1,3 contacts causes brake to de-energize. Clutch is energized following Switching Time Delay.

c. When 1,3 contacts open, clutch de-energizes and, following Switching Time Delay, brake energizes

Maintained 3-wire (1SPDT switch)

a. When power is applied to T1,T2 with 2,3 contacts closed, brake energizes.

b. When 2,3 contacts open and 1,3 contacts close, brake de-energizes. Clutch is energized following Switching Time Delay.

c. When 1,3 contacts open and 2,3 contacts close, clutch de-energizes and, following Switching Time Delay, brake energizes.

Momentary (2 SPST switches)

a. When power is applied to T1,T2 with 1,3 and 2,3 contacts open, brake energizes.

b. Momentary closure of 1,3 contacts causes brake to de-energize. Clutch is energized following Switching Time Delay.

c. Momentary closure of 2,3 contacts causes clutch to de-energize. Brake is energized following Switching Time Delay.

d. With 1,3 and 2,3 contacts closed, 1,3 contacts override and clutch energizes.
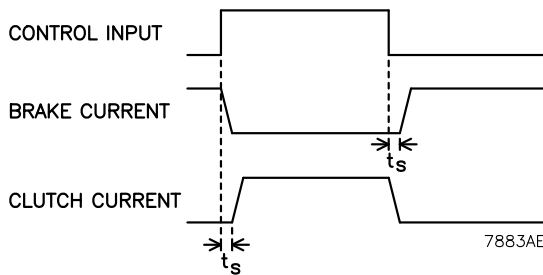
SWITCHING TIME DELAY

Regent's *ForeRunner* features adjustable Switching Time Delay. Switching Time Delay is a delay between clutch turn-off and brake turn-on, and vice versa, to reduce overlap. By adjusting this delay, you can obtain the fastest cycle time and the least wear on your mechanical system.

If a clutch/brake switches too quickly, there may be mechanical overlap between the clutch and brake. Switching time delay can reduce or eliminate this overlap increasing the useful life of the clutch and brake.

The *ForeRunner* is ordinarily supplied with an 8.2 K ohm resistor providing 82 msec switching time delay (i.e. 1K = 10 msec). Correct setting depends upon clutch/brake size, response time, and load inertia (see table below for sample values). Flux rise time in clutch or brake coil is independent of Switching Time Delay.

Size (in)	Torque (lb ft)	Coil Res. (ohms)	Coil Current (amps)	Flux Rise Time (msec)	Suggested Switching Time Res. (ohms)
2 5/8	8	1150	0.09	50	2.7 K
4 1/4	20	820	0.13	60	3.3 K
5 5/8	50	270	0.39	90	3.3 K
8 1/2	125	225	0.47	180	8.2 K
12 1/4	465	245	0.43	350	12 or 15 K
15 1/4	700	305	0.34	510	18 or 22 K

TIMING DIAGRAM

CONTROL INPUT

BRAKE CURRENT

t_S

CLUTCH CURRENT

7883AE

t_S

t_S = Switching Time Delay

FOR MORE INFORMATION CALL 203-732-6200   **e-mail: sales@regentcontrols.com**   REGENT

OR VISIT US ONLINE AT www.regentcontrols.com