

RATE OF CHANGE LOAD CONTROL SYSTEM MODELS ROC-50V & UPC-FR

The Rate of Change Load Control Model ROC-50V along with the Fast Response Universal Power Cell Model UPC-FR is used where the motor is being powered by an Electronic Variable Speed Drive. The UPC-FR monitors the motor power and the 0-10 volt output from the UPC-FR is used as the input to the ROC-50V. The ROC-50V has two adjustable set points.

Rate - Limits sudden increases in load regardless of total load.

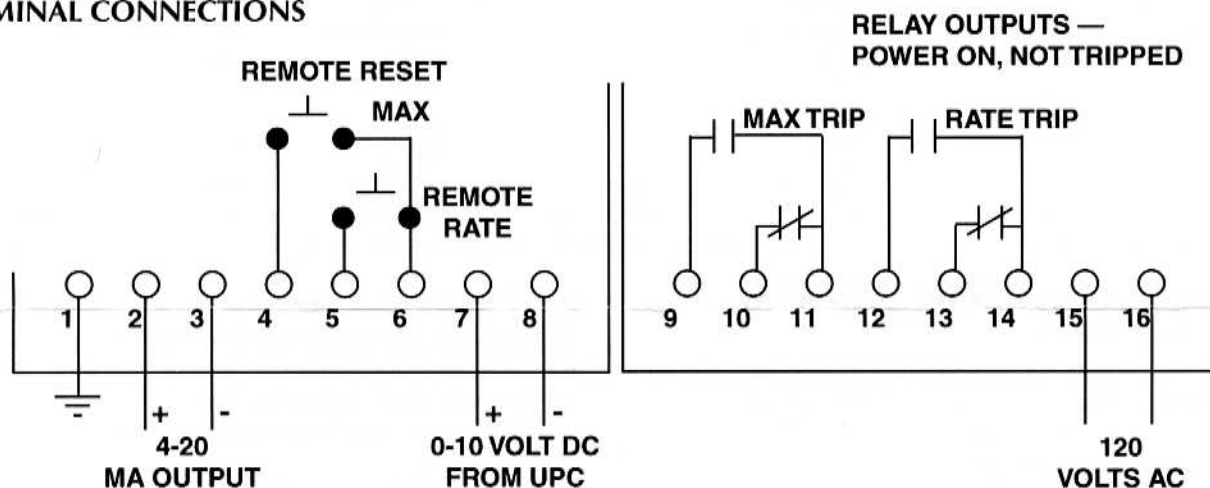
Max - Limits the total load.

MOUNTING

Wiring is done to un-pluggable terminal strips on the rear of the unit. Three ways to mount:

- On door or raceway - use cutout template
- Panel Mount - use template + optional Bezel Kit (\$10)
- On wall - on standard outdoor junction box + optional Outlet Box Adapter (\$10)

TERMINAL CONNECTIONS



INSTALLING THE UNIVERSAL POWER CELL MODEL UPC-FR

Install the UPC as shown on the 1 page UPC Data/Installation sheet.

Set the UPC Capacity to match your motor. The UPC measures power INPUT to the motor. For simplicity, adjust the capacity of the UPC upward by the motor efficiency factor found on the motor nameplate.

EXAMPLE: 10HP motor .83 nameplate efficiency
Set input = 10HP/.83 = 12HP

HOOKING UP THE RESET

Control can be reset three ways:

- Manually with the Reset button on the control.
- Remotely with a remotely located reset button or relay.
- Automatic with a jumper.

Remote Reset-

Momentarily connect Terminal 4 to Terminal 6 for max.
Momentarily connect Terminal 5 to Terminal 6 for rate.

Automatic Reset-

Jumper Terminal 4 or 5 to Terminal 6.

The terminals for Reset generate a small amount of current (8-12 milliamps). To reset, you just need to connect the terminal to the circuit common (Terminal 6).

The switches or relays that you use must be suitable for low current (Gold flashed contacts, Reed Relays, Mercury Switches).

**DO NOT USE 10 AMP SWITCHES.
THEY WON'T BE RELIABLE.**

**DON'T PUT 120V ON TERMINALS 1-8.
IT WILL DESTROY THE CONTROL.**

4-20 MILLIAMPER ANALOG OUTPUT

The Analog Output is directly proportional to Full Scale capacity. It is always active. 500 ohm maximum connected impedance.

| | | |
|------------|--------|----------|
| Terminal 2 | 4-20mA | Positive |
| Terminal 3 | 4-20mA | Negative |

Use twisted pair, or, in noisy environments, use shielded cable. Ground shield at other end.

Use the Full Scale capacity from the chart to scale external meter, chart recorders or computers.



TO SET FULL SCALE

The Full Scale Capacity of your system is the capacity you set for the UPC Power Cell. It is best to set a capacity greater than your motor size to give you headroom.





- To set %: Calculate your "Ratio"










$$\text{Ratio} = \frac{\text{Capacity of UPC}}{\text{Your Motor Size}} \times 100$$

Enter this value. Display will read 100% when your motor reaches Full Load.


- To set HP or KW: Enter the capacity you set for the UPC.
- The  cycles through the choices shown below and blinks slowly for each choice. Each press of  moves you to the next choice.



FRONT PANEL SET-UP TIPS

- 1) None of the settings will be changed until you hold down  and the fast blinking stops.
- 2) Five seconds after you have pressed a button, the Control will return to normal operation.
- 3) If you hold down the   digits will continue to change.
- 4) You only need to do  when you install the Control (or if you change the hook-up).

| DIGITS → | DECIMAL → | DECIMAL → | DECIMAL → | HP → | % → | KW |
|--|---|---|---|---|---|---|
|  | XXX. | XX.X | X.XX | | | |
| to change | if this is your choice, press | if this is your choice, press | if this is your choice, press | if this is your choice, press | if this is your choice, press | if this is your choice, press |
|  | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
|  |  |  |  |  |  |  |
| until fast blink stops | until fast blink stops | until fast blink stops | until fast blink stops | until fast blink stops | until fast blink stops | until fast blink stops |

TO VIEW AND CHANGE THE SET POINTS AND DELAY TIMES

 cycles through the choices. The LED for each choice will turn ON.

To change a setting, use  

Press ENTER until quick blinking stops to store your new choice.

After 5 seconds if you haven't pressed any buttons, control will return to normal operation.

Start-up Timer

The Start-up Timer bypasses the Control during motor start-up to avoid false trips because of current inrush. For convenience, the TIMING BEGINS WHEN THE MOTOR STARTS. The Start-up LED stays lit until the start-up period is over.

The start-up time should be:

- Long enough so that the load has stabilized.

To bypass Start-up Timer set time to zero seconds.

Delay Timer (Max Set Point)

To avoid nuisance trips from short overloads, Delay Timers bypass the Control for the selected time. The relays won't trip until the time is exceeded. If the trip condition goes away before the time is up, the timer resets to zero.

- Start with minimum Delay. If you are getting trips where you don't want them, increase the Delay Time.

Adjusting Rate Set Point

The Rate Set Point limits sudden load changes.

- 1 = Fastest (most sensitive)
- 40 = Slowest (least sensitive)

Start at about 15. Go slower if you get nuisance trips. Go faster for more sensitivity.

 **LOAD CONTROLS
INCORPORATED**

1/2007

53 Technology Park Road
Sturbridge, MA 01566

888-600-3247
508-347-2606
FAX 508-347-2064