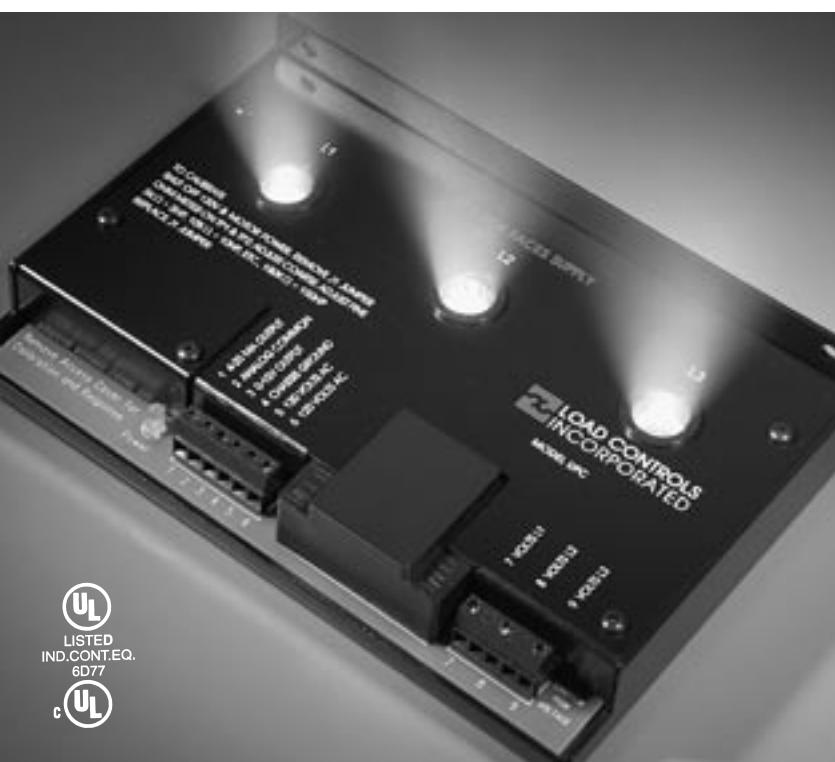


# UNIVERSAL POWER CELL – MODEL UPC



**GIVES YOU VALUABLE INFORMATION ABOUT  
MACHINE AND PROCESS PERFORMANCE BY  
MONITORING MOTOR LOAD**

- Mixture Viscosity
- Tool Condition
- Optimum Feed Rate
- Pump or Fan Flow
- Beginning or End Process
- Obstructions
- Overloads
- Loss of Load

**THE UNIVERSAL POWER CELL  
SENSES TRUE MOTOR POWER  
THREE PHASE, VARIABLE  
FREQUENCY, SINGLE PHASE OR DC**

#### FULLY SELF CONTAINED

- Easy to install
- No Current Transformers
- No Voltage Transformers

#### COMPACT

- Only 1 3/4" x 5 3/8" x 8"

#### YOU CAN ADJUST FULL SCALE TO MATCH YOUR MOTOR

- Coarse and Fine Adjustment Pots
- 5HP to 150HP
- Take extra turns for small motors

#### VERSATILE

- Works on both Fixed and Variable Frequency Power
- ALSO Single Phase & Betrig DC

#### THREE BALANCED HALL EFFECT SENSORS

#### SAMPLE VOLTAGE DIRECTLY

- Up to 600 Volts

#### BUILT-IN POWER SUPPLY

- Powers the Analog Signals

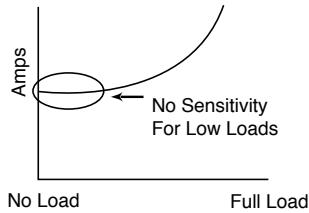
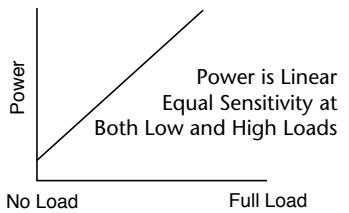
#### BUILT-IN RESPONSE ADJUSTMENT

- Lets you slow the response of the Power Cell to average the readings

#### TWO ANALOG OUTPUTS

- 4-20 MA
- 0-10 Volts DC
- Electrically isolated

#### WHY MONITOR POWER INSTEAD OF JUST AMPS?



**LOAD CONTROLS  
INCORPORATED**

# INSTALLATION – MODEL UPC

The Universal Power Cell is a Motor Load Sensor that monitors power (HP or KW). It works on both fixed and variable frequency power and has two analog outputs. It also works on single phase, DC, and brushless DC. The Universal Power Cell has Three Balanced Hall Effect Sensors, each with a flux concentrator. Each phase passes through a window. A voltage sample for each phase is also taken. The Hall Effect Semiconductor does a vector multiplication of the current flow and voltage which also calculates the power factor. The output is proportional to power (HP or KW).

## MOUNTING

The Universal Power Cell is direction sensitive. Locate the Power Cell so that the motor electrical supply lines can be passed through the Cell. The Terminal side of the Cell faces the Supply. (It is convenient to adjust the Full Scale before installing the unit.)

## INPUT CONNECTIONS

Pass each of the phases through the L1, L2, L3 holes in the Cell. Be certain direction is correct. The Terminal side of the Cell faces the supply. Provide a voltage sample for each phase with 20 gauge or larger wire. When a Variable Frequency Drive is being used, locate the Power Cell on the output side of the drive. Take the voltage samples on the output side also. It doesn't matter which phase goes through each hole. But, the Voltage sample from the wire that goes through the L1 hole must go to Terminal 7, L2 hole to Terminal 8, and L3 hole to Terminal 9.

L1 Volts to Terminal 7

L2 Volts to Terminal 8

L3 Volts to Terminal 9

## ANALOG OUTPUTS

The Analog Output is powered by the Power Cell. Use shielded cable 20 gauge or larger for the analog output. Shield is ungrounded at Power Cell, grounded at device.

4-20 Milliamp

Terminal 1

0-10 Volts DC

Terminal 3

Analog Common

Terminal 2

## 120 VOLT SUPPLY

Terminals 5 and 6

## GROUND

Terminal 4

## TO ADJUST FULL SCALE

The Full Scale can be adjusted to match your motor with the Coarse and Fine Pots located under the Access Cover.

### Convenient Scaling

5K Ohm = 5HP (This is the minimum setting)

10K Ohm = 10HP

Etc.

150K Ohm = 150HP (This is the maximum setting)

(KW=HP x .746)

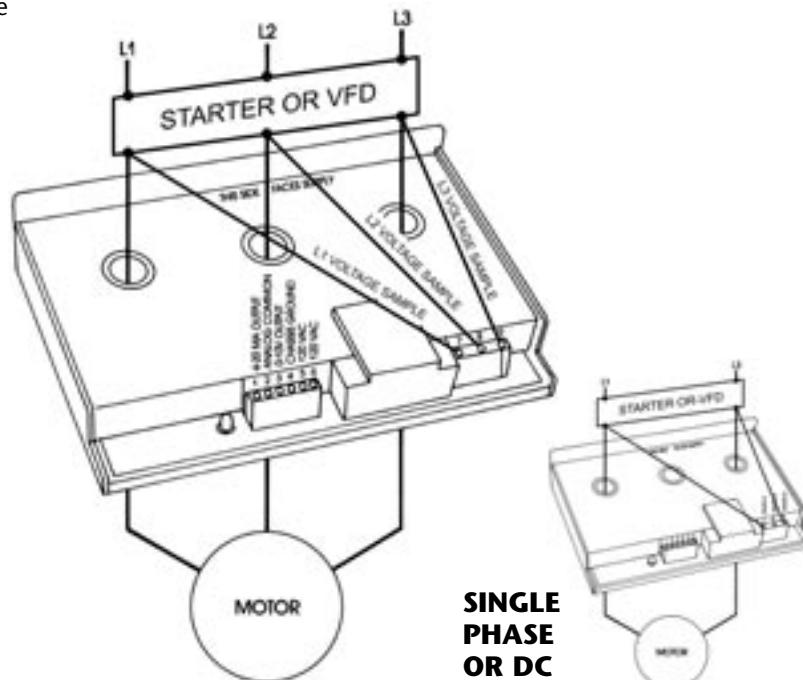
1. Turn off 120 Volt power and motor power
2. Remove access cover
3. Remove J1 jumper
4. Ohm meter leads on Test Points TP1 and TP2
5. Adjust Full Scale Coarse Pot then Fine 20 Turn Pot
6. Replace J1 jumper

## FOR SMALL MOTORS

Reduce the capacity by taking additional "Turns" through each hole for each phase (mount the Power Cell on standoffs). Example: 5HP Full Scale is reduced to 1HP with 5 Turns.

## RESPONSE ADJUSTMENT

In some cases, the average power signal may be more useful than instantaneous power. The Response Adjustment slows the response of the Universal Power Cell. Pot is located under Access Cover. Clockwise is fastest.



## SPECIFICATIONS

### ACCURACY

- .5% Full Scale

### ANALOG OUTPUT

- 4-20 Milliamp, 500 Ohm maximum connected impedance
- 0-10 Volt DC, 2000 Ohm minimum load

### RESPONSE-ADJUSTABLE

- .5 seconds to 3 seconds

### FREQUENCY

- 3Hz to 1KHz

### TEMPERATURE

- 60°C maximum

### POWER CONSUMPTION

- 6VA @ 120 Volts

## DIMENSIONS

