

## TIME DELAYS

### Adjustable Delay on Break Timer

Adjusts from 6 seconds to 8 minutes. Spin-proof knob. Works with 24, 120 or 240 VAC control circuits. Supports up to 1.0 Amps. Two wire hookup for easy installation. Solid state with quick disconnect terminals. Mounts with one self-tapping screw. Conformal coated circuitry protects against moisture and shock. UR recognized for USA and Canada. Works with anticipator type thermostats.

**HOW IT WORKS:** Immediately upon application of power, the Delay on Break timer enables circuit operation. Once power is interrupted, the circuit opens for the time set on the dial. After the time period elapses, the circuit closes, allowing the protected motor or compressor to start. For typical HVAC applications, the operation of the timer is transparent and will go unnoticed.



### Adjustable Delay on Make Timer

Ideal for random starting of multiple units. Adjusts from 6 seconds to 8 minutes. Spin proof knob. Works with 24, 120 or 240 VAC control circuits. Supports up to 1.0 Amps. Two wire hookup for easy installation. Solid state with quick-disconnect terminals. Mounts with one self-tapping screw. Conformal coated circuitry protects against moisture and shock. UR recognized for US and Canada. Works with anticipator type thermostats.

**HOW IT WORKS:** These timers delay circuit closure upon application of power. Only after the set time period elapses and power remains ON will the circuit close, allowing the protected motor or compressor to start. For typical HVAC installations, timers are adjusted to random times to prevent power circuit overloads, thus are often called random start timers.



CATALOG NO.	DESCRIPTION	UOM	ORDER MULTIPLE
<b>ADB-1</b>	Adjustable Delay on Break	EA	1
<b>ADB-2</b>	Adjustable Delay on Break w/Wire Leads	EA	1

CATALOG NO.	DESCRIPTION	UOM	ORDER MULTIPLE
<b>ADM-1</b>	Adjustable Delay on Make	EA	1
<b>ADM-2</b>	Adjustable Delay on Make w/Wire Leads	EA	1

## MONITORS

### Digital Three Phase Line Voltage Monitor

Offers continuous protection against voltage anomalies which can damage compressors, motors and other sensitive electrically operated devices.

**PROTECTION:** Loss of Phase, Phase Reversal, Voltage Imbalance, Low Voltage, High Voltage

**DISPLAY:** Large custom LCD display indicates all operating conditions at a glance. Three large sets of digits provide easy system troubleshooting.

**VOLTMETER:** Three independent voltmeters read both line and contactor load (backside) voltages.

**MONITORED VOLTAGE:** 160 to 600 Volts 50-60 Hz.

**POWER SUPPLY:** Power for the WPC-500 is automatically derived from any active phase. System operation is not dependent on the control voltage or a specific phase for power.

**CONTROL VOLTAGE:** 19-277 VAC. Anticipator load is provided for operation with 24 volt electronic and mechanical thermostats.

**OPERATING VOLTAGE SET POINT:** 175 to 650 VAC. Digitally adjustable in one volt increments.

**VOLTAGE TRIP POINT:** Adjustable in 1% increments between 6% and 18% of selected operating voltage. Restart voltage set point (hysteresis) fixed at cutout voltage + 3%.

**VOLTAGE SYMMETRY:** Adjustable imbalance trip point from 2% to 25% of selected operating voltage.

**RESPONSE TIMES:**

Phase Loss/Reversal: 100 mS max.

Imbalance: Adjustable Response Timer

Over or Under Voltage: Adjustable Response Timer  
**LOCKOUT DELAY TIMER:** Fully adjustable 0 to 720 Seconds (0 to 12 minutes). Digital display shows re-remaining time and user set points.

**SEQUENTIAL START TIMER:** 0 to 30 seconds in one second increments.

**RESPONSE TIMER:** 0.1 to 20 Seconds. Digital display shows remaining time and user set points.

**MEMORY:** Up to 25 past fault conditions are stored for later retrieval and analysis. The faults may be displayed or cleared by the front panel buttons.



### Digital Single Phase Line Voltage Monitor

Automatic voltage monitor and control system. Continuously measures incoming line voltage, allowing detection of any voltage outside the tolerances that you set. If these limits are exceeded, the response timer begins counting. You may also set response time – a short time for a quick response or a long time to avoid nuisance tripping. If the voltage remains outside the tolerance after the time has elapsed, the DSP-1 will turn off its output relay and protect your device. While output is off, an additional delay timer activates to avoid rapid restarts.

**FEATURES:**

Digital voltmeter displays instantaneous line voltage;

Automatic voltage tester adjusts from 90 to 300 volts;

Adjustable response timer (0.1 to 10 sec.) prevents nuisance tripping;

Adjustable delay timer (1 to 720 sec.) prevents rapid restarts;

Digital display makes for easy viewing and operation

**SPECIFICATIONS:**

Voltmeter: 70 to 325 Volts

Voltage Set Point: 90 to 300 Volts

Tolerance Limits: 6 to 18%

Response Timer: 0.1 to 10 seconds

Delay Timer: 1 to 720 seconds

Output Relay: 10 Amps, 250 VAC resistive, single-pole/double-throw

Control Input: 18 to 250 VAC with anticipator load for 24 volt thermostats



CATALOG NO.	DESCRIPTION	UOM	ORDER MULTIPLE
<b>DTP-3</b>	Digital 3-Phase Motor Protector	EA	1

CATALOG NO.	DESCRIPTION	UOM	ORDER MULTIPLE
<b>DSP-1</b>	Digital Single Phase Motor Protector	EA	1