

# TOTALINE® CAPACITORS

## General Information



This capacitor series is designed specifically for the motor run applications where the capacitors are used in conjunction with permanent split capacitor type motors. They may be used on either 50 or 60-Hertz systems but should not be used at higher frequencies or in applications where higher frequency harmonics are present. For those types of applications the General Purpose AC Capacitors should be used.

### Features And Benefits

- Reliability tested to meet 60,000 service hours, per United Technologies application parameters
- High grade metallized Polypropylene Film (5 to 12 microns thick)
- RoHS Compliant
- UL Approved with Pressure Sensitive interrupter of 1000 AFC
- Performance tested per United Technologies reliability requirements for capacitance ratings, power factor, dissipation factor and high voltage testing

### Product Range

- Capacitance: 5uF to 80uF
- Tolerance: +/- 6%
- Voltage: 370 to 440 VAC
- Op Temp: -29o to +68o C

**Note:** Distributors that have historically stocked 440 volt and 370 volt capacitors round and / or oval designs can standardize inventory to use a 440 volt capacitors as replacement for a 370 volt capacitor provided the capacitance in (Mfd.) stays exactly the same.

**Warning Note:** Under no circumstances are we recommending usage of a 370 vdt capacitor to replace a 440 volt capacitor. Also our capacitor straps are designed to secure and ground the capacitor, so we don't recommend mixing oval or round capacitor designs.

# TOTALINE® CAPACITORS

## Oval Motor Run Capacitor - Dual

Part Number	Cap Grp	Voltage (VAC)	Capacitance (µF ) MFD	Dia	Height
P291-0553	Oval Dual	370	5/5	1.8	2.6
P291-0773	Oval Dual	370	7.5/7.5	1.8	3.1
P291-1013	Oval Dual	370	10/10	1.8	3.3
P291-1513	Oval Dual	370	15/10	1.8	3.3
P291-1543	Oval Dual	370	15/4	1.8	3.1
P291-1554	Oval Dual	440	15/5	1.8	3.1
P291-1573	Oval Dual	370	15/7.5	1.8	3.3
P291-2053	Oval Dual	370	20/5	1.8	3.3
P291-2054	Oval Dual	440	20/5	1.8	3.5
P291-2074	Oval Dual	440	20/7.5	1.8	3.9
P291-2513	Oval Dual	370	25/10	1.8	3.7
P291-2543	Oval Dual	370	25/4	1.8	3.5
P291-2553	Oval Dual	370	25/5	1.8	3.5
P291-2554	Oval Dual	440	25/5	1.8	3.9
P291-2573	Oval Dual	370	25/7.5	1.8	3.5
P291-2574	Oval Dual	440	25/7.5	1.9	3.7
P291-3013	Oval Dual	370	30/10	1.9	3.5
P291-3014	Oval Dual	440	30/10	1.9	4.1
P291-3053	Oval Dual	370	30/5	1.8	3.7
P291-3054	Oval Dual	440	30/5	1.9	4.1
P291-3073	Oval Dual	370	30/7.5	1.8	3.7
P291-3074	Oval Dual	440	30/7.5	1.9	4.1
P291-3514	Oval Dual	440	35/10	1.9	4.5
P291-3523	Oval Dual	370	35/12.5	1.9	3.7
P291-3543	Oval Dual	370	35/4	1.9	3.7
P291-3553	Oval Dual	370	35/5	1.9	3.7
P291-3554	Oval Dual	440	35/5	1.9	4.5
P291-3554S	Oval Dual	440	35/5	1.8	4.9
P291-3573	Oval Dual	370	35/7.5	1.9	3.7
P291-3574	Oval Dual	440	35/7.5	1.9	4.5
P291-4014	Oval Dual	440	40/10	1.9	4.7
P291-4053	Oval Dual	370	40/5	1.9	4.1
P291-4053S	Oval Dual	370	40/5	1.9	4.3
P291-4054	Oval Dual	440	40/5	1.9	4.5
P291-4073	Oval Dual	370	40/7.5	1.9	4.1
P291-4074	Oval Dual	440	40/7.5	1.9	4.7
P291-4513	Oval Dual	370	45/10	1.9	4.3
P291-4553	Oval Dual	370	45/5	1.9	4.3
P291-4554	Oval Dual	440	45/5	1.9	4.7
P291-4554S	Oval Dual	440	45/5	1.9	5.5
P291-4573	Oval Dual	370	45/7.5	1.9	4.3
P291-4574	Oval Dual	440	45/7.5	1.9	4.9
P291-5014	Oval Dual	440	50/10	1.9	5.1
P291-5053	Oval Dual	370	50/5	1.9	4.7
P291-5054	Oval Dual	440	50/5	1.9	4.9
P291-5074	Oval Dual	440	50/7.5	1.9	4.9
P291-5513	Oval Dual	370	55/10	1.9	5.3
P291-5553	Oval Dual	370	55/5	1.9	5.3
P291-5554	Oval Dual	440	55/5	1.9	5.3
P291-5574	Oval Dual	440	55/7.5	1.9	5.3
P291-6013	Oval Dual	370	60/10	1.9	5.5
P291-6014	Oval Dual	440	60/10	1.9	5.5

P291-6053	Oval Dual	370	60/5	1.9	5.3
P291-7053	Oval Dual	370	70/5	1.9	5.7
P291-8013	Oval Dual	370	80/10	1.9	6.3
P291-8053	Oval Dual	370	80/5	1.9	6.3
P291-8054	Oval Dual	440	80/5	1.9	6.3
P291-8073	Oval Dual	370	80/7.5	1.9	6.3

# TOTALINE® CAPACITORS

## Oval Motor Run Capacitor - Single

Electrical

Part Number	Cap Grp	Voltage (VAC)	Capacitance (µF ) MFD	Dia	Height
P291-0203	Oval Single	370	2	1.2	2.6
P291-0303	Oval Single	370	3	1.2	2.6
P291-0304	Oval Single	440	3	1.2	2.6
P291-0403	Oval Single	370	4	1.2	2.8
P291-0404	Oval Single	440	4	1.2	2.8
P291-0503	Oval Single	370	5	1.2	2.8
P291-0504	Oval Single	440	5	1.2	3.1
P291-0603	Oval Single	370	6	1.2	3.1
P291-0604	Oval Single	440	6	1.2	3.1
P291-0753	Oval Single	370	7.5	1.2	3.5
P291-0754	Oval Single	440	7.5	1.2	3.5
P291-1003	Oval Single	370	10	1.2	3.5
P291-1004	Oval Single	440	10	1.2	4.1
P291-1253	Oval Single	370	12.5	1.2	3.5
P291-1254	Oval Single	440	12.5	1.2	4.5
P291-1503	Oval Single	370	15	1.2	3.7
P291-1504	Oval Single	440	15	1.2	4.5
P291-1753	Oval Single	370	17.5	1.2	4.1
P291-1754	Oval Single	440	17.5	1.8	3.1
P291-2003	Oval Single	370	20	1.2	4.3
P291-2004	Oval Single	440	20	1.8	3.1
P291-2503	Oval Single	370	25	1.8	3.1
P291-2503S	Oval Single	370	25	1.2	4.9
P291-2504	Oval Single	440	25	1.8	3.5
P291-3003	Oval Single	370	30	1.8	3.3
P291-3003S	Oval Single	370	30	1.2	5.3
P291-3004	Oval Single	440	30	1.8	3.9
P291-3503	Oval Single	370	35	1.8	3.7
P291-3504	Oval Single	440	35	1.8	4.3
P291-4003	Oval Single	370	40	1.8	3.9
P291-4004	Oval Single	440	40	1.9	3.5
P291-4503	Oval Single	370	45	1.9	3.5
P291-4504	Oval Single	440	45	1.9	3.7
P291-5003	Oval Single	370	50	1.9	3.5
P291-5004	Oval Single	440	50	1.9	3.9
P291-5503	Oval Single	370	55	1.9	3.5
P291-5504	Oval Single	440	55	1.9	4.1
P291-6003	Oval Single	370	60	1.9	3.7
P291-6004	Oval Single	440	60	1.9	4.3
P291-6503	Oval Single	370	65	1.9	3.7
P291-6504	Oval Single	440	65	1.9	4.5
P291-7003	Oval Single	370	70	1.9	3.9
P291-7004	Oval Single	440	70	1.9	4.7
P291-8003	Oval Single	370	80	1.9	4.3
P291-8004	Oval Single	440	80	1.9	4.9

# TOTALINE® CAPACITORS

## Round Motor Run Capacitor - Dual

Part Number	Cap Grp	Voltage (VAC)	Capacitance (µF ) MFD	Dia	Height
P291-1553RS	Round Dual	370	15/5	2.0	3.5
P291-1554RS	Round Dual	440	15/5	2.0	4.3
P291-2053R	Round Dual	370	20/5	2.0	3.7
P291-2054RS	Round Dual	440	20/5	2.0	4.6
P291-2513R	Round Dual	370	25/10	2.5	4.3
P291-2534R	Round Dual	440	25/3	2.0	4.4
P291-2553RS	Round Dual	370	25/5	2.0	3.9
P291-2554R	Round Dual	440	25/5	2.5	4.3
P291-2554RS	Round Dual	440	25/5	2.0	4.8
P291-2573R	Round Dual	370	25/7.5	2.5	3.7
P291-2573RS	Round Dual	370	25/7.5	2.0	4.3
P291-3013RS	Round Dual	370	30/10	2.0	4.4
P291-3033R	Round Dual	370	30/3	2.0	4.1
P291-3053RS	Round Dual	370	30/5	2.0	4.1
P291-3054R	Round Dual	440	30/5	2.5	4.3
P291-3054RS	Round Dual	440	30/7.5	2.0	5.2
P291-3073R	Round Dual	370	30/7.5	2.5	3.7
P291-3073RS	Round Dual	370	35/10	2.0	4.4
P291-3513RS	Round Dual	370	35/3	2.0	4.8
P291-3533R	Round Dual	370	35/3	2.0	4.4
P291-3534R	Round Dual	440	35/5	2.5	4.3
P291-3553RS	Round Dual	370	35/5	2.0	4.4
P291-3554RS	Round Dual	440	35/7.5	2.0	5.2
P291-3573R	Round Dual	370	35/7.5	2.5	3.7
P291-3573RS	Round Dual	370	35/7.5	2.0	4.8
P291-3574RS	Round Dual	440	35/7.5	2.0	5.2
P291-4033R	Round Dual	370	40/3	2.0	4.6
P291-4034R	Round Dual	440	40/3	2.5	4.3
P291-4053RS	Round Dual	370	40/5	2.0	4.6
P291-4054RS	Round Dual	440	40/5	2.0	5.8
P291-4073RS	Round Dual	370	40/7.5	2.0	5.0
P291-4074RS	Round Dual	440	40/7.5	2.0	5.6
P291-4513RS	Round Dual	370	45/10	2.0	5.2
P291-4533R	Round Dual	370	45/3	2.0	4.8
P291-4553RS	Round Dual	370	45/5	2.0	4.8
P291-4554RS	Round Dual	440	45/5	2.5	4.4
P291-4573RS	Round Dual	370	45/7.5	2.0	5.2
P291-4574RS	Round Dual	440	45/7.5	2.5	4.8
P291-5053RS	Round Dual	370	50/5	2.0	5.2
P291-5054RS	Round Dual	440	50/5	2.5	4.8
P291-5073RS	Round Dual	370	50/7.5	2.0	5.4
P291-5513R	Round Dual	370	55/10	2.5	4.6
P291-5514RS	Round Dual	440	55/10	2.5	5.2
P291-5553RS	Round Dual	370	55/5	2.5	4.3
P291-5554RS	Round Dual	440	55/5	2.5	4.4
P291-5573RS	Round Dual	370	55/7.5	2.5	4.3
P291-5574RS	Round Dual	440	55/7.5	2.5	5.2
P291-6013R	Round Dual	370	60/10	2.5	4.8
P291-6053RS	Round Dual	370	60/5	2.5	4.6
P291-6054R	Round Dual	440	60/5	2.5	5.2
P291-6073RS	Round Dual	370	60/7.5	2.5	4.6
P291-6074R	Round Dual	440	60/7.5	2.5	5.2

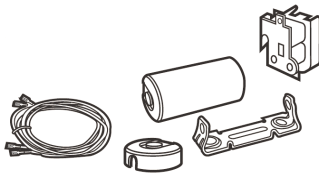
P291-7013RS	Round Dual	370	70/10	2.5	5.2
P291-7053RS	Round Dual	370	70/5	2.5	4.8
P291-7054R	Round Dual	440	70/5	2.5	5.4
P291-7073RS	Round Dual	370	70/7.5	2.5	4.8
P291-7554R	Round Dual	440	75/5	2.5	5.6
P291-8013RS	Round Dual	370	80/10	2.5	5.4
P291-8053RS	Round Dual	370	80/5	2.5	5.2
P291-8054RS	Round Dual	440	80/5	2.5	5.8
P291-8073RS	Round Dual	370	80/7.5	2.5	5.2

## Round Motor Run Capacitor - Single

Part Number	Cap Grp	Voltage (VAC)	Capacitance (µF ) MFD	Dia	Height
P291-0503R	Round Single	370	5	1.8	2.9
P291-0753R	Round Single	370	7.5	1.8	2.9
P291-1003R	Round Single	370	10	1.8	2.9
P291-1004R	Round Single	440	10	1.8	2.9
P291-1253R	Round Single	370	12.5	1.8	2.9
P291-1503R	Round Single	370	15	1.8	3.3
P291-1504R	Round Single	440	15	1.8	3.3
P291-2003R	Round Single	370	20	1.8	3.5
P291-2004R	Round Single	440	20	1.8	3.5
P291-2503R	Round Single	370	25	1.8	3.5
P291-2503RS	Round Single	370	25	1.8	3.5
P291-2504R	Round Single	440	25	1.8	4.1
P291-3003R	Round Single	370	30	1.8	4.3
P291-3004R	Round Single	440	30	1.8	4.3
P291-3504R	Round Single	440	35	1.8	4.6
P291-4003R	Round Single	370	40	2.0	3.9
P291-4004R	Round Single	440	40	1.8	5.2
P291-4503R	Round Single	370	45	2.5	4.3
P291-4504RS	Round Single	440	45	2.0	4.8
P291-5003R	Round Single	370	50	2.5	4.3
P291-5004R	Round Single	440	50	2.5	4.3
P291-5504R	Round Single	440	55	2.5	4.4
P291-6004R	Round Single	440	60	2.5	4.4
P291-6503R	Round Single	370	65	2.5	4.3
P291-8003R	Round Single	370	80	2.5	5.2

# TOTALINE® CAPACITOR ACCESSORIES

## Start Kit



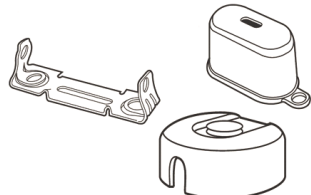
Totaline Start Kits are for use with PSC compressors requiring additional starting torque. Totaline Start Kits are available for the most popular Copeland, Tecumseh, Bristol, and Carlyle compressors.

**The Kit contains the following:**

- Start Capacitor
- Start Relay
- Wire Kit
  - (1) Black Wire 54" Long
  - (1) Brown Wire 16" Long
  - (1) Blue Wire 38" Long
  - (1) Brown Wire 30" Long
- End Cap
- Bracket
- Instruction Sheet

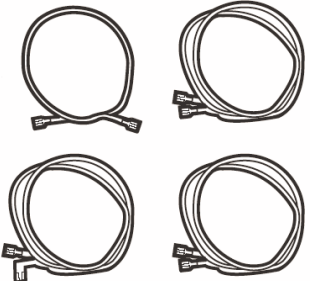
Part Number	Start Capacitor		Start Relay			
	Mfd Range	Volts	Contact Rating	Max Oper Volts	Pickup Volts	Dropout Volts
P296-0007	21-25	330	50 AMP	336	162-175	55-115
P296-0006	43-53	320	35 AMP	336	162-175	40-90
P296-0001	43-53	320	50 AMP	395	180-195	40-105
P296-0012	72-88	330	35 AMP	336	162-175	40-90
P296-0005	88-108	330	35 AMP	336	162-175	40-90
P296-0002	88-108	330	50 AMP	420	195-224	60-123
P296-0004	88-108	330	50 AMP	395	180-195	40-105
P296-0009	88-108	330	50 AMP	336	162-175	55-115
P296-0010	108-130	330	50 AMP	420	195-224	70-140
P296-0003	135-155	320	50 AMP	420	195-224	60-123
P296-0008	145-175	330	50 AMP	395	180-195	40-105
P296-0011	189-227	330	50 AMP	420	262-290	60-121

## Bracket, End Cap, Boot



Part Number	Part Name	Use With Capacitor
P281-0017	Start Capacitor Bracket	3-3/8" Long
P281-0016	Start Capacitor Bracket	4-3/8" Long
P281-0011	Capacitor End Cap	1-13/16" Diameter
P281-0012	Capacitor End Cap	2-1/16" Diameter
P281-0013	Capacitor End Cap	2-9/16" Diameter
P281-0002	Terminal Boot	Single Oval Top Outlet
P281-0003	Terminal Boot	Single Oval (2) Side Outlets
P281-0006	Terminal Boot	Single Round
P281-0004	Terminal Boot	Dual Oval

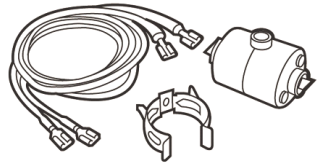
## Wire Kit



An assortment of wires to be used to connect a Start Relay and Start Capacitor to a unit for hard start capability.

Part Number	Description
P421-4012	(1) Black Wire 44 IN. Long, (1) Blue Wire 22 IN. Long, (1) Black Wire 14 IN. Long, (1) Yellow Wire 29 IN. Long
P421-4013	(1) Black Wire 54 IN. Long, (1) Brown Wire 16 IN. Long, (1) Blue Wire 38 IN. Long, (1) Brown Wire 30 IN. Long

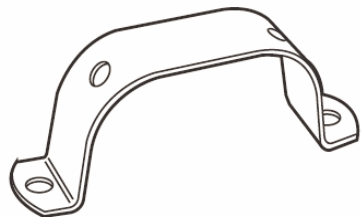
## Start Thermistor



This 25 ohm PTC device provides additional starting torque for compressors. Connects in parallel to run capacitor.

Part Number	Part Name
P421-4006	Start Thermistor

## Strap



Part Number	Part Name	Use With Capacitor
P281-0031	Mounting Strap	1.21 x 2.06 Oval
P281-0021	Mounting Strap	1.81 x 2.81 Oval
P281-0028	Mounting Strap	1.87 x 3.56 Oval
P281-0025	Mounting Strap	15 Fit All

# TOTALINE® RELAYS

## Relay Application Data - Control Relays

The main function of any relay is switching electrical circuits. Selection depends on load characteristics which should be matched closely to the rating of the relay to avoid contact point deterioration. Relay ratings in amperes are listed in this brochure as inductive or resistive.

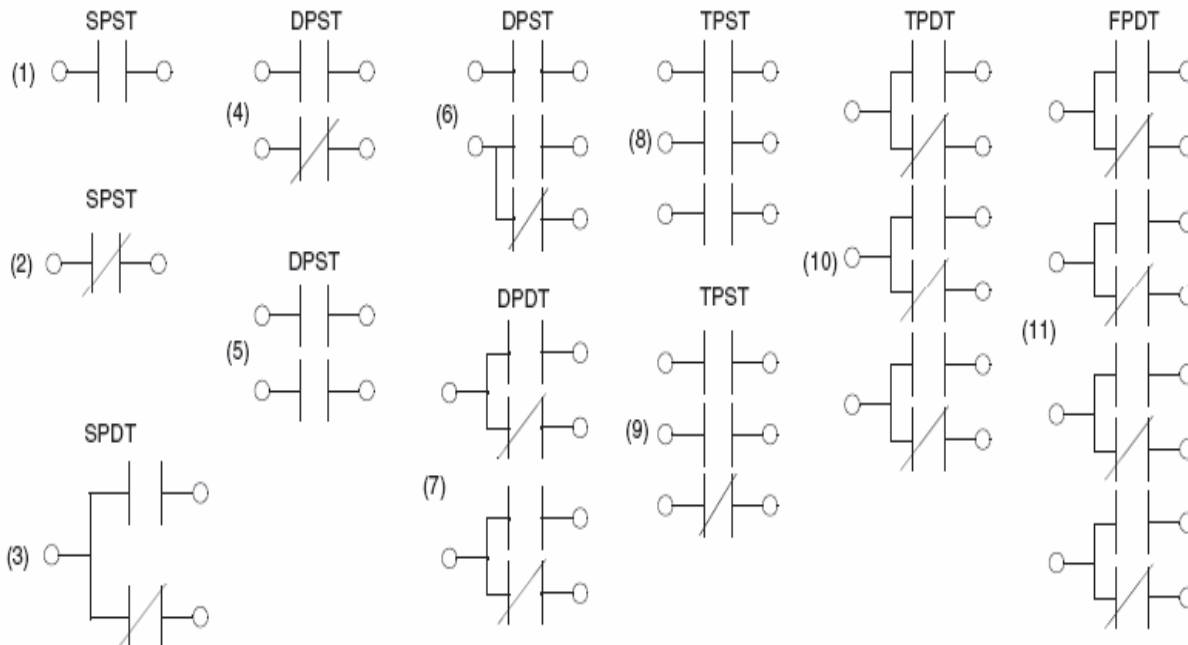
**Inductive Rating** - applies to switching of motors and coils for contactors and relays.

**Resistive Rating** - applies to switching of electric resistance heating elements. The relays shown on the following pages have been classified into two major categories, power rated relays for intermediate loads and pilot duty relays for low level switching.

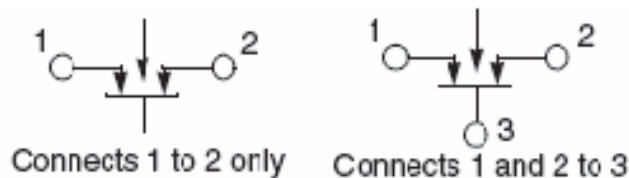
**Pilot duty relays:** Contacts are made of a fine silver alloy and are shaped and sized for low level current switching. The fine silver alloy contact provides a very low surface resistance for the best possible contact life. Use on higher or intermediate loads would melt the relay points causing a welded contact.

**Power Rated Relays:** Contacts are generally made of silver cadmium oxide with a very high surface resistance. They are sized larger than pilot duty contacts to handle switching of intermediate loads during which a slight arc may occur. Due to being larger in size, they must operate with a lower unit pressure on the contacts and, for satisfactory performance, depend on the makebreak arc process to break down the resistance of deposits formed on the contacts. Use of this type relay to switch low level loads is not recommended by Carrier or its suppliers due to the lower contact pressure, the high surface resistance of the contacts and the absence of the slight arc during switching. A continuing build-up of deposits on contact points will cause a nonconductive surface and a failed relay. In some instances a power rated relay will fail to switch a pilot duty load on initial use. For reliable relay operation, it's advisable not to use a power rated relay for a pilot duty relay or vice versa.

### CONTACT ARRANGEMENT DIAGRAMS



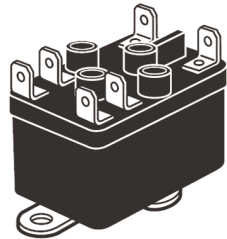
**DB** - Indicates contacts are Double Break type in which stationary contacts are connected by a bridging bar. Two examples of a double break arrangement are shown with contacts #1 and #2 stationary. Both are SPST, normally closed, double break arrangements.



# TOTALINE® RELAYS

## Fan & Power Relays

### General Purpose Relay

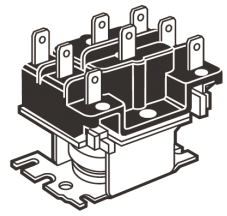


Dependable, low cost solution for air conditioning and heating switching.  
**Insulating Material** - Constructed of UL recognized Class B insulating material  
**Temperature Range** - -40° to 150° Fahrenheit  
**Single Pole Fan Relays- Similar To Type 84 Fan Relays**

- Fan control
- Appliances
- Business Machines
- Photoelectric control and general purpose switching

Part Number	Contact Rating 125/250 Vac	Description
P283-0290	8 Amps (Ind.) 16 Amps (Res.)	SPST, 24 V Coil
P283-0291	Continuous	SPST, 110 V/120 V Coil
P283-0292	25 Amps Inrush	SPST, 208/240 V Coil
P283-0293	8 Amps (ind.) 8 Amps (res.)	SPDT, 24 V Coil
P283-0294	Continuous	SPDT, 110/120 V Coil
P283-0295	18 Amp Inrush	SPDT, 208/240 V Coil

### Two Pole Fan Relays



**Features:**

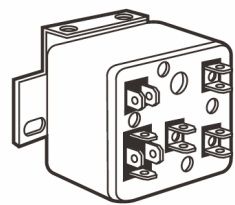
- Vending machines
- Appliances
- Safety control
- Fan control
- Heating
- Air conditioning and general purpose switching

Part Number	Terminals		Description
	1-2-3	4-5-6	
P283-0340	Power	Power	24 V Coil
P283-0341	Power	Power	110 V/120 V Coil
P283-0342	Power	Power	208/240 V Coil
P283-0343	Power	Pilot	24 V Coil
P283-0344	Power	Pilot	110 V/120 V Coil
P283-0345	Power	Pilot	208/240 V Coil
P283-0346	Pilot	Pilot	24 V Coil
P283-0347	Pilot	Pilot	110 V/120 V Coil
P283-0348	Pilot	Pilot	208/240 V Coil

### Heavy Duty Fan Relays

Part Number	Contact Arrangement	Description
P283-0360	SPDT - NO	24 V Coil
P283-0370	SPDT - NO	24 V Coil
P283-0380	SPNO - SPNC	24 V Coil

## Start Relays

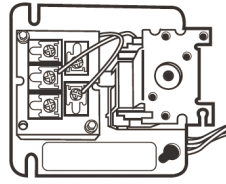


**Features:**

- Single pole, NC relays
- Totally Enclosed
- Contacts rated for a max. arc rupturing capacity at 600 vac and under.
- 1/4" Quick connects
- G.E. 3arr3 type & rbm 12800 type
- 50/60 hz

Part Number	Contact Rating	Volts		
		Pickup	Dropout	Max Oper
P283-9924	35 Amp	162 -175	40 - 90	336
P283-9928	15 Amp	180 -195	40 - 105	375
P283-9926	25 Amp	111 -124	20 - 45	170
P283-9916	50 Amp	140 -152	33 - 77	253
P283-9917	50 Amp	162 -175	55 - 115	336
P283-9919	50 Amp	171 -184	40 - 90	336
P283-9921	50 Amp	180 -193	55 - 115	336
P283-9923	50 Amp	180 -195	40 - 105	395
P283-9915	50 Amp	195 -224	60 - 123	420
P283-9913	50 Amp	204 -233	60 - 121	420
P283-9922	50 Amp	223 -254	60 - 140	395
P283-9918	50 Amp	239 -268	60 - 135	495
P283-9914	50 Amp	262 -290	60 - 121	420
P283-9912	50 Amp	277 -305	75 - 150	495
P283-9911	50 Amp	295 -324	60 - 135	495

## Fan Control Center Relays



**Features:**

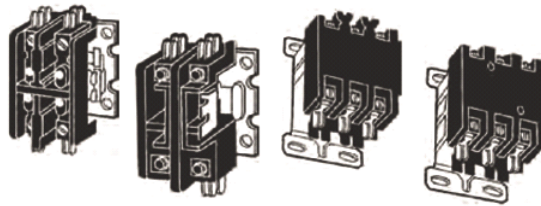
- 40 VA transformer
- 24 volt secondary
- Fits standard 4" Junction box.
- Self-contained unit requires no additional closure.
- Unit imprinted with wiring diagram

**Resistive contact rating:** 15a @ 277v  
**Relay coil volts:** 24  
**Inductive contact rating:** 3/4 h.p., 12a @ 120v; 3/4 h.p., 6a @ 240v

Part Number	Contact Arrangement	Transformer Primary	Plug-In Relay
P211-4010	DPDT	120/208/240	Semi-Enclosed
P211-4012	SPNO/SPNC	120	Semi-Enclosed
P211-4013	SPDT	120	Semi-Enclosed
P211-4014	SPST	120	Semi-Enclosed
P211-4015	SPDT	240	Semi-Enclosed
P211-4020	SPDT	120	Semi-Enclosed

# TOTALINE® CONTACTORS

## General Information



**Design Construction:** 50/60 Hz

Meets specifications for devices up to 600 VAC in accordance with U/L bulletin no. 508 "Industrial Control Equipment"

**Coil Insulation:** Standard Class B insulation.

**Terminals:**

Power #10-32 combination hex washer head screw, #10-32 combination hex head with pressure plate or box lug for 4 - 14 CU/AL wire.

**Quick Connects** - 2) 0.250 male push-ons available on each pole

**Coil** - (2) 0.250 male push-ons.

**Covers:** Standard on 40 amp and larger.

**Mounting** Panel mount and straight thru wiring.

**Application:** Designed for use in residential and commercial refrigeration, air conditioning, & heating applications.

**Also:**

- Water pump motors
- Blower or fans
- Compressor motors
- Resistance heating & other similar applications.

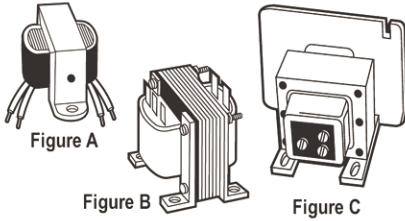
**UL / CSA recognized**

Part Number	Pole	Amps	Terminal Type	Coil Vac	Aux Contact	Length In	Height In
P282-0311	Single Pole	30	(Screw Term. & Shunt)	24	-	3.3 (8.38)	2.3 (5.84)
P282-0312	Single Pole	30	(Screw Term. & Shunt)	120	-	3.3 (8.38)	2.3 (5.84)
P282-0313	Single Pole	30	(Screw Term. & Shunt)	208/240	-	3.3 (8.38)	2.3 (5.84)
P282-0321	Two Pole	30	(Screw Terminals)	24	-	3.3 (8.38)	2.5 (6.35)
P282-0322	Two Pole	30	(Screw Terminals)	120	-	3.3 (8.38)	2.5 (6.35)
P282-0323	Two Pole	30	(Screw Terminals)	208/240	-	3.3 (8.38)	2.5 (6.35)
P282-0421	Two Pole	40	(Lug Terminals)	24	-	3.3 (8.38)	2.6 (6.60)
P282-0422	Two Pole	40	(Lug Terminals)	120	-	3.3 (8.38)	2.6 (6.60)
P282-0423	Two Pole	40	(Lug Terminals)	208/240	-	3.3 (8.38)	2.6 (6.60)-
P282-0331A	Three Pole	30	(Screw Terminals)	24	P282-X98220	3.4 (8.64)	2.6 (6.60)
P282-0332A	Three Pole	30	(Screw Terminals)	120	P282-X98220	3.4 (8.64)	2.6 (6.60)
P282-0333A	Three Pole	30	(Screw Terminals)	208/240	P282-X98220	3.4 (8.64)	2.6 (6.60)
P282-0431A	Three Pole	40	(Lug Terminals)	24	P282-X98220	3.4 (8.64)	2.6 (6.60)
P282-0432A	Three Pole	40	(Lug Terminals)	120	P282-X98220	3.4 (8.64)	2.6 (6.60)
P282-0433A	Three Pole	40	(Lug Terminals)	208/240	P282-X98220	3.4 (8.64)	2.6 (6.60)
P282-0531	Three Pole	50	(Lug Terminals)	24	P282-X34300	4.2 (10.67)	3.6 (9.14)
P282-0532	Three Pole	50	(Lug Terminals)	120	P282-X34300	4.2 (10.67)	3.6 (9.14)
P282-0533	Three Pole	50	(Lug Terminals)	208/240	P282-X34300	4.2 (10.67)	3.6 (9.14)
P282-0631	Three Pole	60	(Lug Terminals)	24	P282-X34300	4.2 (10.67)	3.6 (9.14)
P282-0632	Three Pole	60	(Lug Terminals)	120	P282-X34300	4.2 (10.67)	3.6 (9.14)
P282-0633	Three Pole	60	(Lug Terminals)	208/240	P282-X34300	4.2 (10.67)	3.6 (9.14)
P282-0731	Three Pole	75	(Lug Terminals)	24	P282-X34300	5	4.06
P282-0732	Three Pole	75	(Lug Terminals)	120	P282-X34300	5	4.06
P282-0733	Three Pole	75	(Lug Terminals)	208/240	P282-X34300	5	4.06
P282-0931	Three Pole	90	(Lug Terminals)	24	P282-X34300	5	4.06
P282-0932	Three Pole	90	(Lug Terminals)	120	P282-X34300	5	4.06
P282-0933	Three Pole	90	(Lug Terminals)	208/240	P282-X34300	5	4.06



# TOTALINE® CONTROL TRANSFORMERS

## General Information



**Features:**

- For low and medium VA requirements.
- Use to step down voltage for control circuits.
- Large selection of ratings and mounting.

Part Number	Fig	VA Rating	Primary Volts	Hz	Secondary Volts
P201-2201*	A	20	120	50/60	24
P201-3401*	A	40	120/208/240	50/60	24
P201-3402*	C	40	120/208/240	50/60	27/12/2.5
P201-3403*	C	40	120/208/240	50/60	24
P201-35150*	C	50	120/208/240	50/60	12/24
P201-4701	B	75	120/208/240/480	50/60	24
P201-4901	B	100	120/208/240/480	50/60	24

\*Supplied with 9 inch leads.

# TOTALINE® PROTECTION CONTROLS

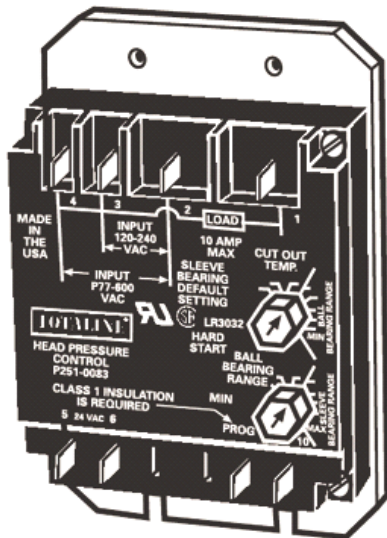
## Head Pressure Control With Optional Heat Pump Override

**Head Pressure Controls** - Temperature sensitive fan motor control which regulates head pressure at low ambients by varying the air volume through the condenser. Its unique construction permits exceptionally quick response times to changes in liquid line temperatures.

**Application**

Ideal for low ambient conditions found in:

- Supermarkets - Frozen Storage
- Computer rooms
- Temperature/ Humidity Sensitive Environments



**FEATURES / APPLICATIONS**

- Integral Heat Pump Bypass circuitry allows electronic bypass of speed control during heat pump operation.
- Eliminates overshoots common to on/off and pressure switch controls.
- Helps prevent evaporator freeze-ups, low pressure cut-outs and liquid-slugged compressors in low ambient conditions.
- One model covers 120-480 VAC
- Features: hard start, low temperature cutoff, high temperature bypass, isolated 24VAC supply.
- Controls up to 3 refrigerant circuits.
- Typical application: heat pumps.

**Specs**

Input Control: 18-30 VAC  
 Line Input: 120-480 VAC  
 Output: Triac  
 max: 10 amps  
 min: 100 ma  
 Output Range: 120-480 VAC

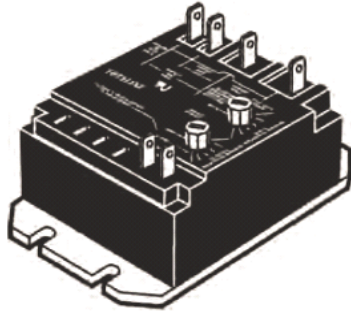
**Replaces**

Hoffman:  
 800/800A/800ASA/814-50  
 RANCO: E31 Series  
 Johnson Controls: P66  
 ACT: FM2000

Part Number	Volts	Description
P251-0083H	120-480 VAC	HPC w/optional,HP override
P251-0083C	120-600 VAC	HPC (Canada)

# TOTALINE® PROTECTION CONTROLS

## Head Pressure Control With Optional Heat Pump Override-line Voltage



**P251-0094H, P251-0095H FEATURES / APPLICATIONS**

- Built-in transformer eliminates cost, reduces installation time and simplifies wiring. Direct set up from line voltage.
- Helps prevent evaporator freezeups, low pressure cut-outs and liquid-slugged compressors in low ambient conditions.
- Features: hard start, low temperature cutoff, high temperature bypass, isolated 24 VAC supply is built into the control.
- Mechanical dimensions: 4.5" L x 3" W x 2" H.
- Ideal for heat pumps, line voltage, air conditioning and refrigeration

**SPECS**

Input Frequency: 50/60 Hz  
 Power Consumption: 4 VA @ 24 VAC  
 Output Type: Triac  
 Output Voltage:  
 P251-0094H: 120 or 208/240 VAC  
 P251-0095H: 480 VAC  
 Output Current:  
 max: 10 amps  
 min: 100 ma

**REPLACES**

Hoffman:  
 800/800A/800ASA/814-50  
 RANCO: E31 Series  
 Johnson Controls: P66  
 Integral transformer reduces inventory

Part Number	Volts	Description
P251-0094H	120 or 240 VAC	Line Voltage,HPC w/Optional,HP Override
P251-0095H	480 VAC	Line Voltage,HPC w/Optional,HP Override

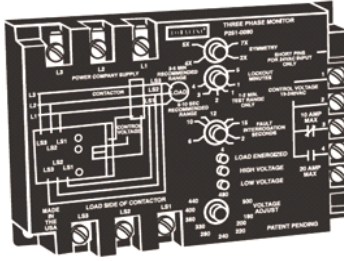
\*Supplied with 9 inch leads.

# TOTALINE® PROTECTION CONTROLS

## Monitors

### Three Phase Monitor

Electrical



#### Features / Application

- Lower cost, full performance protection.
- Monitors front and back sides of system.
- 190-630 VAC operation.
- Bright LED indicators.
- Identifies front and back side faults.
- Knob-adjustable features.
- Reset-auto or manual (1 trial).
- Built-in short cycle protection.
- Monitors: voltage unbalance, high/low voltage, phase loss, reversal, incorrect sequencing, rapid short cycling.

#### Specs

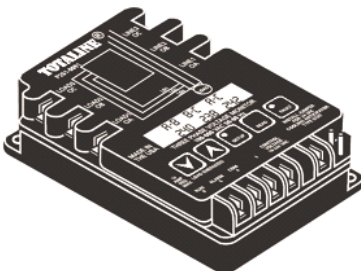
**Input:**  
 Line Voltage: 190-630 VAC  
 Unbalance: adj. 2-25%  
 Control: 18-240 VAC  
 Frequency: 50/60 Hz

**Output:**  
 Relay, SPDT  
 n.o.: 10amps  
 n.c.: 6 amp

**Replaces**  
 Diversified: AC-2020 AC-301, 302  
 Motorsaver: 455  
 SSAC: QLM/QLV  
 TmeMark: 265  
 Wagoner: WPC-800  
 WATSCO: EAC-800, EAC-8000

Part Number	Volts	Control Voltage
P251-0090	190-630	18 - 240 VAC

### Three Phase Programmable Monitor



#### P251-0091 Features / Application

- Monitors front and back side of system.
- Programmable-25-fault memory storage.
- Independent high/low voltage settings for dual voltage compressor applications.
- Identifies front & back side faults.
- High temperature LCD to 167° F
- 190-630 VAC operation
- Simultaneous voltage display-no scrolling.
- Line voltage programmable.
- Reset-auto or manual.
- Non-volatile memory.
- Monitors: voltage unbalance, high/low voltage, phase loss, reversal, incorrect sequencing, rapid short cycling.
- Does not require control voltage for operation.

#### Specs

**INPUT:**  
 Voltage: 190-630VACI  
 Frequency: 50/60 Hz  
 Voltage Unbalance: adj. 2-25%  
 Control: 18-240 VAC

**OUTPUT:**  
 Relay, SPDT  
 n.o.: 10 amps  
 n.c.: 6 amps

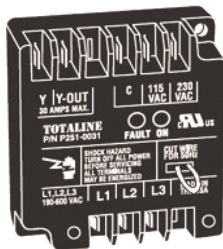
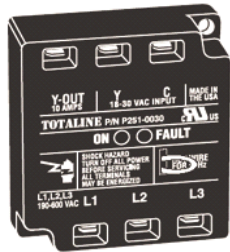
**Replaces**  
 Diversified: AC-2020, AC-301, 302  
 Motorsaver: 455  
 SSAC: QLM / QLV  
 TimeMark: 265  
 Wagner: WPC-800  
 Watsco: EAC-800, EAC-8000

Part Number	Volts	Description
P251-0091	190-630	Programmable Three Phase 18-240VAC

# TOTALINE® PROTECTION CONTROLS

## Monitors

### Three Phase Line Voltage Monitor



#### P251-0030 & P251-0031 Features / Application

- Low cost, single side 3-phase protection
- Bright LED indications for faults and loads energized
- Easy to install, no adjustments
- Wide operating range: 190-600 VAC
- Less than 1 second phase loss response
- Automatic reset from a fault condition
- Compact packaging: fits almost anywhere
- Rugged, epoxy-encapsulation for extreme conditions
- Works great with the Totaline P251-0091 for load side monitoring of part winding start and multiple compressor systems.

#### Specs

Line Voltage: 190-600 VAC  
 Frequency: 50/60 Hz  
 Control Voltage:  
 P251-0030: 18-30 VAC  
 P251-0031: 115- 230 VAC  
**Output:**  
 Relay: SPST  
 P251-0030: N.O. 10 amps  
 P251-0031: N.O. 30 amps  
 Case Dimensions: 3.1" x 3.2" x 1.4" h

Part Number	Volts	Control Voltage	Description
P251-0030	190-600	18 - 30 VAC	Low Cost Three Phase
P251-0031	190-600	115 - 230 VAC	Low Cost Three Phase

### Single Phase Monitor

#### Features / Application

- Low cost single phase motor protection.
- Built-in anti-short cycle protection.
- Detects high/low voltage conditions.
- Helps prevent rapid system recycling.
- LED indicator: red for fault, green for normal conditions.
- Heavy duty SPDT, isolated relay output.
- 5-second interrogation delay prevents nuisance trips.

#### Specs

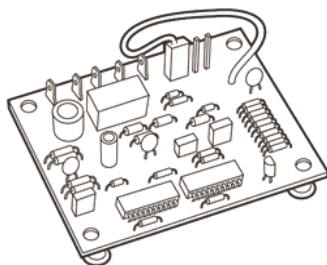
**Input:**  
 Line: 95-270 VAC  
**Output:**  
 Relay, SPDT  
 n.o.: 5 amps  
 n.c.: 5 amps  
**Time delay**  
 Range: adj. 0-600 sec.

#### Replaces

Diversified:  
 CV-100-RS  
 CV-200-RS15  
 CV-200-RS20  
 WATSCO:  
 EAC-40 1  
 EAC-402  
 EAC-403  
 EAC-404

Part Number	Volts	Description
P251-0092-B	95-270	95-270 VAC Single Phase Monitor

### Defrost Control



#### Features / Application

- Direct replacement for OEM type 621
- Low cost, time/temperature defrost
- 24 VAC operation (18-30 VAC).
- 10 min. defrost interval. Pin-selectable interval times (30/60/90).
- Test pins reduce test time by 256x.
- HOLD input accumulates actual compressor run times.
- Sensor input for defrost terminate.
- Conformally coated.

#### Specs

18-30 VAC  
 50/60 Hz  
**Output:**  
 Relay, output  
 Form: SPDT  
 n.o.: 2 amps  
 Defrost: 10min. fixed  
**Time delay**  
 Interval times:  
 Pin selectable  
 30/60/90 min.

#### Replaces

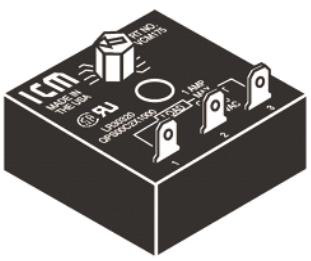
Amana C643 1001  
 ARCO 343214  
 Avion DFT 100  
 Coleman 30130B3741  
 ICM DFOS  
 Intertherm 6208800  
 Janitrol B 12260-06  
 Lennox 66G950  
 Ranco DT2-1000  
 Rheem/Ruud  
 47-21776-02-00  
 Snyder General  
 1052757, 1395-329  
 Weatherking 840-5548

Part Number	Description
P284-2590	18-30 Vac Defrost Control

# TOTALINE® PROTECTION CONTROLS

## Timers and Delays

### Bypass Timer



Designed to bypass a control or device during startup. Typically used to bypass a low pressure switch during compressor heat pump startup or to bypass an oil pressure switch upon startup. Helps to eliminate nuisance lockouts.

**Features / Application**

- Designed to bypass a low pressure switch or other device during startup.
- Ideal for low ambient startups. Integral component for “winter start” kits.
- Helps to reduce nuisance lockouts.
- Universal AC voltage operation.
- Knob-adjustable time delays. Epoxy-encapsulated circuitry.

**Specs**

18-240 VAC  
1 Amp  
10 Amp inrush  
Knob-adjustable time  
Delays: 10-1,000 sec.

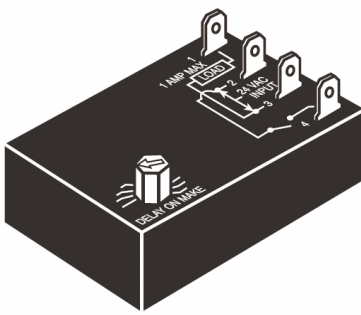
**Replaces**

Mars: 32395  
Supco: TDP68

Part Number	Description
P284-2397	18-240 VAC, 1 Amp Bypass Timer

### Post Purge Fan Delay Timers

#### Model P284-2395



Controls the circulating fan in heat pump, air conditioning and forced air systems. OFF delay timing function continues to run the fan at the end of the heating/cooling cycle, thereby purging ducts of residual air and increasing system efficiency.

**Features / Application**

- Designed to bypass a low pressure switch and other device during startup
- Ideal for low ambient startups. Integral component for “winter start” kits
- Helps to reduce nuisance lockouts
- Universal AC voltage operation
- Knob-adjustable time delays
- Epoxy-encapsulated circuitry

**Specs**

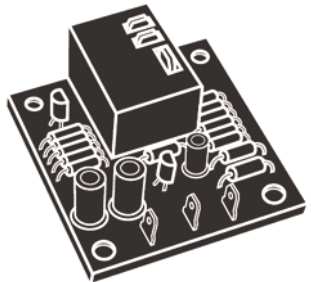
Input: 18-30 VAC  
1 Amp, 10 Amp inrush  
SPST, N.O.  
Time Delays: fixed or adj  
ON: 1-180 sec  
OFF: 12-390 sec

**Replaces**

Mars: 32393  
Gemline: 1C216

Part Number	Description
P284-2395	18-30 VAC, 1 Amp, 10 Amp Inrush

#### Model P284-1216



Controls the circulating fan in heat pump, air conditioning and forced air systems. OFF delay timing function continues to run the fan at the end of the heating/cooling cycle, thereby purging ducts of residual air and increasing system efficiency.

**Features / Application**

- Low cost open board design.
- High power, relay output.
- Dual function fan delay timer.
- Controls the circulating fan in heat pump and A/C and forced systems.
- OFF delay purges ducts of residual air.
- ON delay allows air to reach the proper comfort level prior to energizing the fan.

**Specs**

Input: 18-30 VAC  
N.O. -20 amps @240 VAC  
N.C. - 10 amps @240 VAC  
Time delays fixed at:  
ON: 1 sec.  
OFF: 60 sec.

**Replaces**

EMI  
WATSCO: AHBC-060, AHBC-090

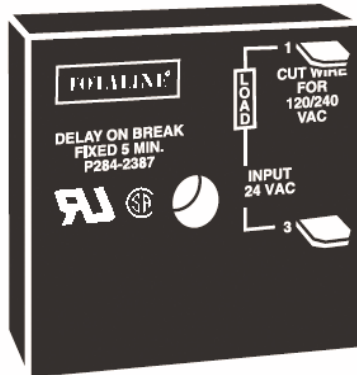
Part Number	Description
P284-1216	18-240 VAC, 1 Amp Post Purge Fan Delay Timer

Electrical

# TOTALINE® PROTECTION CONTROLS

## Timers and Delays

### Delay-On-Break Timer - Not Adjustable



Helps to protect air conditioning, refrigeration and heat pump equipment from damage which may be caused by the rapid short-cycling of compressor.

#### Features / Application

- Higher 1.5 amp power rating.
- Compressor lockout/anti-short cycle timer.
- Helps to protect compressors from damage caused by rapid short cycling
- Simple, 2-wire hookup.
- Compact 2" x 2" package.

#### Specs

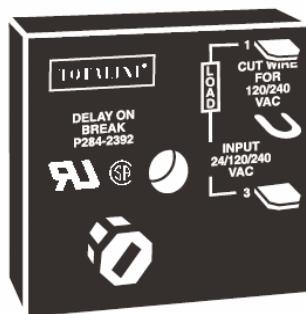
Input: 18-30 VAC  
1.5 amps  
15 amp inrush  
Voltage drop  
3.5 V typical  
4.5 V max

#### Replaces

Diversified:  
ASC-500, SC 501,  
SC 505-5  
Gemline: IC321, IC322  
WATSCO: EAC-500,  
EAC501-180-W,  
EAC501-300-W

Part Number	Description
P284-2387	18-30 VAC, 1.5 amps, Delay-On-Break Timers

### Delay-On-Break Timer - Adjustable Delay



Helps to protect air conditioning, refrigeration and heat pump equipment from damage which may be caused by the rapid short-cycling of compressor.

#### Features / Application

- Universal voltage operation.
- Higher 1.5 amp power rating.
- Compressor lockout/anti-short cycle timer.
- Helps to protect compressors from damage caused by rapid short cycling.
- Simple, 2-wire hookup.
- Compact 2" x 2" package.

#### Specs

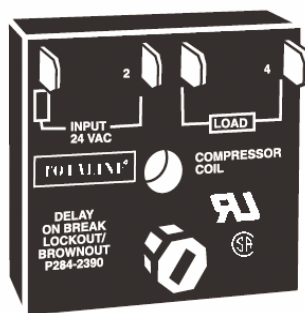
Input: 18-240 VAC  
1.5 amps  
15 amp inrush  
Voltage drop  
3.5 V typical  
4.5 V max  
knob adjustable  
delays .03-10 min

#### Replaces

Diversified: ASC-500,  
ASC 501 ASC502,  
ASC 505-5  
Gemline: IC320  
WATSCO: EAC501-ADJ,  
EAC501-ADJ-X  
MARS: 32392  
Robertshaw: 3310-072  
Supco: TD-73

Part Number	Description
P284-2392	18-30 VAC, 1.5 amps, Delay-On-Break Timers

### Delay-On-Break Timer - Fixed and Adjustable Delay



Helps to protect air conditioning, refrigeration and heat pump equipment from damage which may be caused by the rapid short-cycling of compressor.

#### Features / Application

- UL 873 recognition as compressor controller.
- Help to prevent scroll compressors from reversing.
- Fast response time: 16 ms.
- Compressor lockout/anti-short cycle timer.
- Prevents low voltage starts.
- Eliminates relay chatter due to thermostat bounce or tampering.
- Works with anticipator-type thermostats.

#### Specs

Input: 18-30 VAC  
1.5 amps  
15 amp inrush  
3 or 5 min. fixed or 10 min. adjustable time  
delays

#### Replaces

Gemline: IC243  
MARS: 32381 & 32382  
Robertshaw: 3310-183, 3310-305  
WATSCO: EAC-511, EAC-426-180, EAC-426-180, EAC-426-300, EAC-426-ADJ

Part Number	Description
P284-2390	18-30 VAC, 1.5 amps, Delay-On-Break Timers

# TOTALINE® PROTECTION CONTROLS

## Timers and Delays

### Delay-On-Make Timer



Helps to protect air conditioning, refrigeration and heat pump equipment from damage which may be caused by the rapid short-cycling of compressor.

#### Features / Application

- Universal voltage operation.
- Higher 1.5 amp power rating.
- Knob-adjustable time delays.
- Work with anticipator-type thermostats.
- One model replaces many in field. Ideal for compressor staging.
- Simple 2-wire hookup.
- Compact 2" x 2" package.

#### Specs

Input: 18-240 VAC  
 1.5 amps  
 15 amp inrush  
 SPST, N.O.  
 Adjustable delays  
 .03-10 min. (1.8-600 sec.)  
 Voltage drop:  
 2.5V @ 1.5 amps

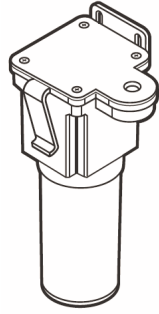
#### Replaces

Diversified: AC-800 fixed volt: ASC-00/601  
 Gemline: IC310/CS213  
 Mars: 32391/32367  
 Robertshaw: 3310-068  
 Supco: TD-68 D-69  
 WATSCO: EAC-701-ADJ., X, EAC-700-A

Part Number	Description
P284-2391	18-240 VAC, 1.5 amps, Delay-On-Break Timers

### Start Kits

#### Smart Start Kits - "Current Sensing"

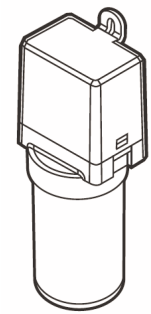


By monitoring the compressor "current" upon start-up, the Smart Start is able to engage the hard start capacitor for precisely the correct amount of time, ensuring maximum starting torque without the risk of supplying too much current into the start winding.

- A timed safety circuit is provided in the event the motor fails to start within 600ms.
- Current sensing Hard Start precisely increases starting torque.
- Operates from 95 - 288 VAC
- Max Input Voltage: 502 VAC
- Patented current sensing circuitry
- Self-Adjusting to voltage fluctuation
- Easy to install, 2 wires, clips or screws
- Bos starting torque
- Disengages upon start

Part Number	HP Rating	Replaces
P290-0803	1/2 - 3 HP	Supco : SPP-8 Kickstart : TO-5 A-1 : WSX-1
P290-0805	3 - 5 HP	Kickstart : KS1
P290-0810	5 - 10 HP	--

#### Smart Start Kits - "Voltage Sensing"



Products employ patented circuitry which monitors differential compressor auxiliary voltage, determines the state of the motor and precisely engages and disengages the start capacitor.

- Not Effected by Ambient temperature
- Recycles instantly (less than 1 second)
- Multi-voltage operation - either 115 or 230 VAC Ideally suited for:
- Water Coolers
- Vending Machines
- Household Refrigerators (115 or 230 VAC)
- Commercial Refrigeration (115 or 230 VAC)
- Air Conditioners and Heat Pumps

Part Number	Voltage	Replaces	Voltagages	MFD	Oper Temp Range	Max Input Voltage	Range	Recommended Range
P290-0850	90-277 VAC	Supco : SPP-5 MARS : 32701 A-1 : WSX-5	330 capacitor	44-52	-40° C to + 65° C	390 VAC	1/12 - 10 HP	1/12 - 1 HP
P290-0860	90-277 VAC	Supco : SPP-6 MARS : 32703 A-1 : WSX-6	330 capacitor	88-106	-40° C to + 65° C	390 VAC	1/12 - 10 HP	1/2 - 1 HP

Electrical

# FUSES AND ACCESSORIES

## Fuses

### ATO TYPE - 32V AC



PATOFUSE

Part Number	Min Order	Description
0ATO003.V	100	Auto Blade3 AMP
0ATO004.V	5	Auto Blade4 AMP
0ATO005.V	100	Auto Blade5 AMP
ATO 7-1/2	5	Auto Blade7.5 AMP
0ATO010.V	5	Auto Blade10 AMP
0ATO015.V	5	Auto Blade15 AMP
ATO20	5	Auto Blade20 AMP
ATO25	5	Auto Blade25 AMP
ATO30	5	Auto Blade30 AMP

### FLNR-ID TYPE - 250V



PFLNR-ID

Part Number	Min Order	Description RK5 Dual Elem.
FLNR035.TXID	10	35 AMP
FLNR040.TXID	10	40 AMP
FLNR045.TXID	10	45 AMP
FLNR050.TXID	10	50 AMP
FLNR060.TXID	10	60 AMP
FLNR 70 ID	5	70 AMP
FLNR 80 ID	5	80 AMP
FLNR 90 ID	5	90 AMP
FLNR100.VXID	5	100 AMP
FLNR 200 ID	0	200 AMP

### FLM TYPE - 250V



PFLMFUSE

Part Number	Min Order	Description
FLM 3/10	10	Midget TD 3/10 AMP
0FLM.600T	10	Midget TD 6/10 AMP
FLM 1	10	Midget TD 1 AMP
FLM 2	10	Midget TD 2 AMP
FLM 3	10	Midget TD 3 AMP
FLM 5	10	Midget TD 5 AMP
0FLM008.T	10	Midget TD 8 AMP
0FLM010.T	10	Midget TD 10 AMP
0FLM015.T	10	FUSETRON 15A
0FLM020.T	10	Midget TD 20 AMP
0FLM030.T	10	Midget TD 30 AMP

### FLQ TYPE - 500V



PFLQFUSE

Part Number	Min Order	Description Time Delay Midget
FLQ 1/2	10	1/2 AMP
0FLQ02.5T	10	2 1/2 A
0FLQ003.T	10	3 AMP
FLQ 4	10	4 AMP
0FLQ005.T	10	5 AMP
FLQ 7	10	7 AMP
0FLQ008.T	10	8 AMP
0FLQ010.T	10	10 AMP
0FLQ015.T	10	15 AMP
0FLQ020.T	10	20 AMP
FLQ 25	10	25 AMP
0FLQ030.T	10	30 AMP

### FLNR TYPE - 250V



PFLNRFUS

Part Number	Min Order	Description RK5 Dual Elem.
FLNR3	10	3 AMP
FLNR04.5T	10	4 1/2 AMP
FLNR005.T	10	5 AMP
FLNR010.T	10	10 AMP
FLNR015.T	10	15 AMP
FLNR020.T	10	20 AMP
FLNR025.T	10	25 AMP
FLNR030.T	10	30AMP
FLNR035.T	10	35 AMP
FLNR040.T	10	40AMP
FLNR045.T	10	45 AMP
FLNR050.T	10	50 AMP
FLNR060.T	10	60 AMP
FLNR70	10	70 AMP
FLNR90	10	90 AMP
FLNR100.V	10	100 AMP

### 312 TYPE - 250V



P312FUSE

Part Number	Min Order	Description
312.100	5	3AG Glass 1/10 AMP
312.250	5	3AG Glass 1/4 AMP
312.500	5	3AG Glass 1/2 AMP
312.750	5	3AG Glass 3/4 AMP
31201.5	5	3AG Glass 1.5 AMP
0312001.VXP	5	3AG Glass 1 AMP
031202.5VXP	5	3AG Glass 2.5 AMP
0312002.VXP	5	3AG Glass 2 AMP
0312004.VXP	5	3AG Glass 4 AMP
0312005.VXP	5	3AG Glass 5 AMP
0312006.VXP	5	3AG Glass 6 AMP
0312007.VXP	5	3AG Glass 7 AMP
0312008.VXP	5	3AG Glass 8 AMP
0312010.VXP	5	3AG Glass 10 AMP



# FUSES AND ACCESSORIES

## Fuses

Electrical

### 312 TYPE - 32V



P312FUSE

Part Number	Min Order	Description
312012	5	3AG Glass 12 AMP
0312015.VXP	5	3AG Glass 15 AMP
0312020.VXP	5	3AG Glass 20 AMP
031202.5VXP	5	3AG Glass 25 AMP
312030	5	3AG Glass 30 AMP

### 313 TYPE - 250V



P313FUSE

Part Number	Min Order	Description 3AG Glass
313.100	5	3AG Glass 1/10 AMP
0313.125VXP	5	3AG Glass 1/8 AMP
313.200	5	3AG Glass 2/10 AMP
313.250	5	3AG Glass 1/4 AMP
313.400	5	3AG Glass 4/10 AMP
313.600	5	3AG Glass 6/10 AMP
313.700	5	3AG Glass 7/10 AMP
313.750	5	3AG Glass 3/4 AMP
0313001.VXP	5	3AG Glass 1 AMP
031301.5VXP	5	3AG Glass 1.5 AMP
031302.5VXP	5	3AG Glass 2.5 AMP
313002	5	3AG Glass 2 AMP
0313003.VXP	5	3AG Glass 3 AMP
313004	5	3AG Glass 4 AMP
0313005.VXP	5	3AG Glass 5 AMP
313007	5	3AG Glass 7 AMP
313008	5	3AG Glass 8 AMP

### 313 TYPE - 32V



P313FUSE

Part Number	Min Order	Description
0313010.VXIDP	5	3AG Glass 10 AMP
313015	5	3AG Glass 15 AMP

### 314 TYPE - 250V



P314FUSE

Part Number	Min Order	Description
314001	5	3AB Ceramic 1 AMP
314002	5	3AB Ceramic 2 AMP
0314003.VXP	5	3AB Ceramic 3 AMP
0314004.VXP	5	3AB Ceramic 4 AMP
0314005.VXP	5	3AB Ceramic 5 AMP
0314006.VXP	5	3AB Ceramic 6 AMP
0314008.VXP	5	3AB Ceramic 8 AMP
0314010.VXP	5	3AB Ceramic 10 AMP
0314015.VXP	5	3AB Ceramic 15 AMP
0314020.VXP	5	3AB Ceramic 20 AMP

### 362 TYPE - 250V



P362FUSE

Part Number	Min Order	Description
362.250	5	8AG Glass 1/8 AMP
362.400	5	8AG Glass 3/16 AMP
362.500	5	8AG Glass 1/4 AMP
036201.5V	5	8AG Glass 1/2 AMP
MDA2	5	8AG Glass 1 AMP
036202.5V	5	8AG Glass 2.5 AMP
0362005.V	5	8AG Glass 3 AMP

### FLSR-ID TYPE - 600V



PFLSR-ID

Part Number	Min Order	Description RK5 Dual Elem.
FLSR 10 ID	10	10 AMP
FLSR015.TXID	10	15 AMP
FLSR020.TXID	10	20 AMP
FLSR025.TXID	10	25 AMP
FLSR030.TXID	10	30 AMP
FLSR035.TXID	10	35 AMP
FLSR040.TXID	10	40 AMP
FLSR045.TXID	10	45 AMP
FLSR050.TXID	10	50 AMP
FLSR060.TXID	10	60 AMP
FLSR070.VXID	5	70 AMP
FLSR080.VXID	5	80 AMP
FLSR090.VXID	5	90 AMP

# FUSES AND ACCESSORIES

## Fuses

### FLSR TYPE - 600V



PFLSRFUS

Part Number	Min Order	Description RK5 Dual Element
FLSR010.T	10	10 AMP
FLSR015.T	10	15 AMP
FLSR020.T	10	20 AMP
FLSR025.T	10	25 AMP
FLSR030.T	10	30 AMP
FLSR035.T	10	35 AMP
FLSR040.T	10	40 AMP
FLSR 45	10	45 AMP
FLSR050.T	10	50 AMP
FLSR060.T	10	60 AMP
FLSR070.V	5	70 AMP
FLSR 80	5	80 AMP
FLSR 100	5	100 AMP

### KLK TYPE - 600V



PKLKFUSE

Part Number	Min Order	Description
OKLK.300T	10	Midget 3/10 AMP
KLK 1/2	10	Midget 1/2 AMP
KLK 1	10	Midget 1 AM.
OKLK01.5T	10	Midget 1-1/2 AMP
KLK 2	10	Midget 2 AMP
OKLK02.5T	10	Midget 2-1/2 AMP
OKLK003.T	10	Midget 3 AMP
OKLK03.5T	10	Midget 3-1/2 AMP
OKLK004.T	10	Midget 4 AMP
OKLK005.T	10	Midget 5 AMP
OKLK007.T	10	Midget 7 AMP
OKLK008.T	10	Midget 8 AMP
OKLK010.T	10	Midget 10 AMP
OKLK020.T	10	Midget 20 AMP
KLK 25	10	Midget 25 AMP
OKLK030.T	10	Midget 30 AMP

### JLLS TYPE - 600V AC



PJLLSFUS

Part Number	Min Order	Description
JLLS015.T	10	15 AMP
JLLS025.T	10	25 AMP
JLLS030.T	10	30 AMP
JLLS035.T	10	35 AMP
JLLS050.T	10	50 AMP
JLLS060.T	10	60 AMP

### KLKR TYPE - 600 V



PKLKR FUS

Part Number	Min Order	Description
KLKR 1-1/2	10	Midget 1-1/2 AMP
KLKR002.T	10	Midget 2 AMP
KLKR 3-1/2	10	Midget 3-1/2 AMP
KLKR 5	10	Midget 2 AMP
KLKR006.T	10	Midget 3-1/2 AMP
KLKR010.T	10	Midget 4 AMP
KLKR015.T	10	Midget 5 AMP
KLKR020.T	10	Midget 6 AMP
KLKR030.T	10	Midget 10 AMP

### KLDR TYPE - 600V



PKLDRFUS

Part Number	Min Order	Descriptionn UL Glass
KLDR.250T	10	1/4A
KLDR.500T	10	1/2A
KLDR 1	10	1A
KLDR 1-1/2	10	1.5A
KLDR002.T	10	2A
KLDR02.5T	10	2.5A
KLDR003.T	10	3A
KLDR03.5T	10	3.5A
KLDR 4	10	4A
KLDR005.T	10	5A
KLDR008.T	10	8A
KLDR010.T	10	10A

### LGR TYPE - 300V



PLGRFUSE

Part Number	Min Order	Description Knob Assm
0LGR003.V	5	3 AMP
0LGR004.V	5	4 AMP
LGR 10	5	10 AMP

### NLN TYPE - 250V



PNLNFUSE

Part Number	Min Order	Description UL Class K5
ONLN010.T	10	10 AMP
NLN 15	10	15 AMP
NLN030	10	30 AMP
NLN 40	10	40 AMP
ONLN060.T	10	60 AMP

# FUSES AND ACCESSORIES

## Fuses

### SLC TYPE - 600V



PSLCFUSE

Part Number	Min Order	Description Class G Medium TD
0SLC002.T	10	2 AMP
0SLC003.T	10	3 AMP
0SLC005.T	10	5 AMP
0SLC006.T	10	6 AMP
SLC 8	10	8 AMP
0SLC010.T	10	10 AMP
0SLC015.T	10	15 AMP
0SLC020.T	10	20 AMP

### SLC TYPE - 480V



PSLCFUSE

Part Number	Min Order	Description Class G Medium TD
0SLC025.T	10	25 AMP
0SLC030.T	10	30 AMP
0SLC035.T	10	35 AMP
0SLC040.T	10	40 AMP

### SLO TYPE

Part Number	Min Order	Description Medium Time Delay
0SLO015.Z	4	15 AMP

### SOO TYPE

Part Number	Min Order	Description Dual Element TD
0SOO010.Z	4	10 AMP
SOO 1-1/4	4	1 1/4 AMP
0SOO012.Z	4	12 AMP
0SOO015.Z	4	15 AMP
0SOO020.Z	4	20 AMP
SOO 30	4	30 AMP
SOO 5	4	5 AMP
0SOO6.25Z	4	6 1/4 A
SOO 8	4	8 AMP

### TLO TYPE

Part Number	Min Order	Description Medium Time Delay
TLO 15	4	20 AMP
TLO 20	4	25 AMP
TLO 30	4	15 AMP

### TOO TYPE

Part Number	Min Order	Description Dual Element TD
TOO 10	4	10 AMP
TOO 12	4	12 AMP
OTOO015.Z	4	15 AMP
OTOO020.Z	4	20 AMP
TOO 25	4	25 AMP
OTOO030.Z	4	30 AMP
TOO 3-1/2	4	3-1/2 AMP
TOO 5	4	5 AMP
TOO 6-1/4	4	6-1/4 AMP

### Littelfuse Fuse Accessories

#### Panel Mounted Fuse Holders

*Standard For 1-13/32" - 1-1/2" Diameter Midget And Class CC Fuses*

Part Number	Fuse Length Range	For Use With
057100CCL	1-1/2"	Class CC Fuses

*Standard For 13/32" Diameter Midget And Class CC Fuses*

Part Number	Fuse Length Range	For Use With
571027	1-5/16 - 1-3/8	Midget Fuses
571007	1-13/32 - 1-1/2	Midget Fuses

*Standard For 3AG 1-1/4" x 1/4" Fuses With Low Profile Fingertip Knob*

Part Number	AMPS	VOLTS
03453LF8X	15	250

#### In-Line Fuse Holders

*Model 155 020U*

For Type Sfe Fuses  
Unassembled: For Assembly to #14 AWG Wire

Part Number	For Fuse Size
155020U	1/4 in. x 1-1/4 in. 20A

\*Comes with GLQ 10A fuse.  
\*\*Comes with GMQ 3-1/2A fuse.

*Model 01550020ZXA*

ASSEMBLED: Includes SFE 20 and 19" LOOP of #14 AWG Red Vinyl Insulated Wire

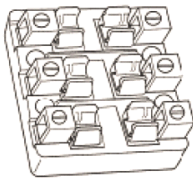
Part Number	Fuse Installed
01550020ZXA	SFE 20

Electrical

# FUSES AND ACCESSORIES

## Littelfuse Fuse Accessories

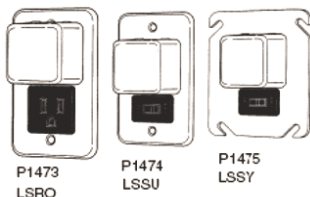
### Midget Fuse Blocks



- 3 Poles
- Pressure plate/Q. C. terminals
- Max wire size of #10 CU
- Rated for 30 Amperes, 600 Volts (Amperage Range: 2/10–60)

Part Number	Amperage Range:
L60030M-3PQ	2/10–60

### Box Cover Units For Plug Fuses



Part Number	Features	To Be Mounted On
LSRU	One Edison-Base Fuse Holder & Grounding Receptacle	2-1/4 in. Handy Box
LSSU	One Edison-Base Fuse Holder & Single Pole Switch	2-1/4 in. Handy Box
LSSY*	One Edison-Base Fuse Holder & Single Pole Switch	4 in. Square Box

\* Do not use on DC.

### Universal In-Line Fuseholder

Supplied with 15" loop of #14 AWG wire and 3 springs to accommodate SFE sized fuses.

Part Number
01500145Z

### Heavy Duty In-line Fuseholder For ATO Fuses

Use with ATO 25 and 30 amp fuses. Supplied with two 4" wire leads of 12 gauge orange wire.

Part Number	Description
FHA 2	Heavy Duty In-line Fuseholder

### Fuse Pullers Midget Fuse Pullers

For use with 3/16" to 1/2" diameter Fuses.

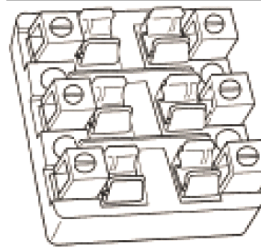
Part Number	Description
MFP	Midget Fuse Puller

### Pocket Fuse Puller

For use with:  
 0 – 200 A 250V  
 0 – 100 A 600V  
 (9/16" – 1-19/32" diameter Fuses)

Part Number	Description
LPFP	Pocket Fuse Puller

### Class T Fuse Blocks



- For use with JLLS (600 V) type fuses
- 3 Poles
- Box lug connector type
- Max wire size of #2 CU-AL

Part Number	Amp rating
LT600303CR	30
LT600603CR	60

### 3 AG Omni Blok

- Molded base type fuse block
- 1 Pole
- NEMA Style 1/4" Q.C. terminal
- Anti-rotation boss
- Rated for 30 A, 300 V

Part Number	Description
354921BL	300V, 3 Ag Omni Blok

### Class H Fuse Blocks

- For use with NLN (600 V) Type uses
- 3 Poles

Part Number	Amp rating	Connecror Type	Max Wire Size
LH25030-3S	30	SCREW	#10 CU
LH25060-3S	60	SCREW	#10 CU
LH60060-3C	30	BOX LUG	#2 CU-AL

# TOTALINE® WIRING ACCESSORIES

## Terminal Kits

### Terminal & Tool Organizer



**A 21 compartment, metal box with a sturdy plastic tray insert and a metal latch.** This Terminal Kit Box provides organized storage for solder less terminals, connectors and your crimping tool. The lid features a matrix chart for part number identification.

Part Number	Color	Size	Description
P298-TKBOX	Black	13.5" x 9.5" x 2"	Terminal Kit Box

### HVAC Electrical Repair Kit

**TOTALINE HVAC Electrical Repair Kit contains 400 of the most popular terminals & connectors as well as a crimping tool** for the 22-10 AWG wire ranges. The terminals are stored in a metal terminal box with a sturdy plastic 21 compartment insert and a metal latch for securing the lid. TOTALINE graphics appear on the label set, with a matrix chart on the inside lid describing the parts, including illustrations and individual TOTALINE re-order part numbers.

Part Number	Color	Size	Description
P298-HVACKIT	Black	13.75" x 9" x 2.25"	AC Electrical Repair Kit

## Cable Ties - Natural Color

### Standard Ties



- Versatile, multiple purpose
- Extra Strong For Move Demanding Application

Part Number	Minimum Tensile Unlocking Strength	Maximum Bundle Diameter	Width	Length	Qty/Pkg
P298-TF3	18 lbs. (8.2 kg)	7/8" (22.2 mm)	.095" (2.4 mm)	4.1" (10.4 cm)	100
P298-TF3B	18 lbs. (8.2 kg)	7/8" (22.2 mm)	.095" (2.4 mm)	4.1" (10.4 cm)	1000
P298-TF4	40 lbs. (18.1 kg)	1-7/16" (36.5 mm)	.140" (3.5 mm)	5.8" (14.8 cm)	100
P298-TF4B	40 lbs. (18.1 kg)	1-7/16" (36.5 mm)	.140" (3.5 mm)	5.8" (14.8 cm)	1000
P298-TF5	50 lbs. (22.7 kg)	1-7/8" (47.6 mm)	.180" (4.5 mm)	7.5" (19.2 cm)	100
P298-TF5B	50 lbs. (22.7 kg)	1-7/8" (47.6 mm)	.180" (4.5 mm)	7.5" (19.2 cm)	1000
P298-TF6	50 lbs. (22.7 kg)	3-1/16" (77.7 mm)	.180" (4.5 mm)	11.3" (28.5 cm)	50
P298-TF6B	50 lbs. (22.7 kg)	3-1/16" (77.7 mm)	.180" (4.5 mm)	11.3" (28.5 cm)	1000
P298-TF8	50 lbs. (22.7 kg)	4-1/8" (104.7 mm)	.180" (4.5 mm)	14.5" (36.9 cm)	50
P298-TF8B	50 lbs. (22.7 kg)	4-1/8" (104.7 mm)	.180" (4.5 mm)	14.5" (36.9 cm)	1000

### Heavy Duty Ties

Part Number	Minimum Tensile Unlocking Strength	Maximum Bundle Diameter	Width	Length	Qty/Pkg
P298-TF7	120 lbs. (54.4 kg)	4-1/16" (103.1 mm)	.300" (7.6 mm)	15" (38.3 cm)	25
P298-TF7B	120 lbs. (54.4 kg)	4-1/16" (103.1 mm)	.300" (7.6 mm)	15" (38.3 cm)	500

# TOTALINE® WIRING ACCESSORIES

## Cable Ties - Natural Color

### Heavy Duty Duct Straps



- For use with flexible air ducts and air connectors

Part Number	Minimum Tensile Unlocking Strength	Maximum Bundle Diameter	Width	Length	Qty/Pkg
P298-TF12	175 lbs. (79.3 kg)	11" (279.4 mm)	.340" (8.6 mm)	37.3" (94.6 cm)	25
P298-TF48	175 lbs. (79.3 kg)	14.5" (368.3mm)	.340" (8.6 mm)	48.5" (123.1 cm)	25
P298-TF488	175 lbs. (79.3 kg)	14.5" (368.3mm)	.340" (8.6 mm)	48.5" (123.1 cm)	(Gray)25

### Mounting Cable Ties One Piece

Part Number	Minimum Tensile Unlocking Strength	Maximum Bundle Diameter	Width	Length	Qty/Pkg
P298-TF3H	30 lbs. (13.6 kg)	1-1/4" (31.7 mm)	.138" (3.5 mm)	5.8" (14.9 cm)	100
P298-TF3HB	30 lbs. (13.6 kg)	1-1/4" (31.7 mm)	.138" (3.5 mm)	5.8" (14.9 cm)	1000
P298-TF5H	50 lbs. (22.7 kg)	1-3/4" (44.4 mm)	.177" (4.4 mm)	8.0" (20.3 cm)	50
P298-TF5HB	50 lbs. (22.7 kg)	1-3/4" (44.4 mm)	.177" (4.4 mm)	8.0" (20.3 cm)	1000
P298-TF7H	120 lbs. (54.4 kg)	4-1/16" (103.1 mm)	.298" (7.5 mm)	15.7" (39.8 cm)	50
P298-TF7HB	120 lbs. (54.4 kg)	4-1/16" (103.1 mm)	.298" (7.5 mm)	15.7" (39.8 cm)	500

## Cable Ties - Black

### Standard Ties



- Versatile, multiple purpose

Part Number	Minimum Tensile Unlocking Strength	Maximum Bundle Diameter	Width	Length	Qty/Pkg
P298-TF3X	18 lbs. (8.2 kg)	7/8" (22.2 mm)	.095" (2.4 mm)	4.1" (10.4 cm)	100
P298-TF3XB	18 lbs. (8.2 kg)	7/8" (22.2 mm)	.095" (2.4 mm)	4.1" (10.4 cm)	1000
P298-TF4X	40 lbs. (18.1 kg)	1-7/16" (36.5 mm)	.140" (3.5 mm)	5.8" (14.8 cm)	100
P298-TF4XB	40 lbs. (18.1 kg)	1-7/16" (36.5 mm)	.140" (3.5 mm)	5.8" (14.8 cm)	1000
P298-TF5X	50 lbs. (22.7 kg)	1-7/8" (47.6 mm)	.180" (4.5 mm)	7.5" (19.2 cm)	100
P298-TF5XB	50 lbs. (22.7 kg)	1-7/8" (47.6 mm)	.180" (4.5 mm)	7.5" (19.2 cm)	1000
P298-TF6X	50 lbs. (22.7 kg)	3-1/16" (77.7 mm)	.180" (4.5 mm)	11.3" (28.5 cm)	50
P298-TF6XB	50 lbs. (22.7 kg)	3-1/16" (77.7 mm)	.180" (4.5 mm)	11.3" (28.5 cm)	1000
P298-TF8X	50 lbs. (22.7 kg)	4-1/8" (104.7 mm)	.180" (4.5 mm)	14.5" (36.9 cm)	50
P298-TF8XB	50 lbs. (22.7 kg)	4-1/8" (104.7 mm)	.180" (4.5 mm)	14.5" (36.9 cm)	1000

### Heavy Duty Ties



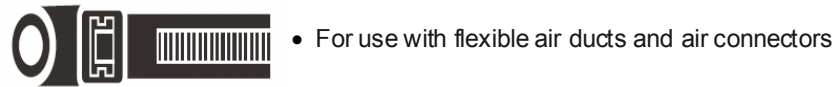
- For use with flexible air ducts and air connectors

Part Number	Minimum Tensile Unlocking Strength	Maximum Bundle Diameter	Width	Length	Qty/Pkg
P298-TF7X	120 lbs. (54.4 kg)	4-1/16" (103.1 mm)	.300" (7.6 mm)	15" (38.3 cm)	25
P298-TF7XB	120 lbs. (54.4 kg)	4-1/16" (103.1 mm)	.300" (7.6 mm)	15" (38.3 cm)	500

# TOTALINE® WIRING ACCESSORIES

## Cable Ties - Black

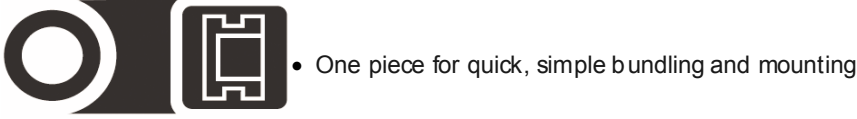
### Heavy Duty Duct Straps



• For use with flexible air ducts and air connectors

Part Number	Minimum Tensile Unlocking Strength	Maximum Bundle Diameter	Width	Length	Qty/Pkg
P298-TF12X	175 lbs. (79.3 kg)	11" (279.4 mm)	.340" (8.63 mm)	37.3" (94.6 cm)	25
P298-TF48X	175 lbs. (79.3 kg)	14.5" (368.3 mm)	.340" (8.63 mm)	48.5" (123.1 cm)	25

### Mounting Cable Ties

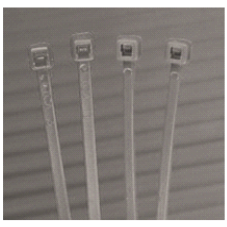


• One piece for quick, simple bundling and mounting

Part Number	Minimum Tensile Unlocking Strength	Maximum Bundle Diameter	Width	Length	Qty/Pkg
P298-TF3HX	30 lbs. (13.6 kg)	1-1/4" (31.7 mm)	.138" (3.50 mm)	5.8" (14.9 cm)	100
P298-TF3HXB	30 lbs. (13.6 kg)	1-1/4" (31.7 mm)	.138" (3.50 mm)	5.8" (14.9 cm)	1000
P298-TF5HX	50 lbs. (22.7 kg)	1-3/4" (44.4 mm)	.177" (4.49 mm)	8.0" (20.3 cm)	50
P298-TF5HXB	50 lbs. (22.7 kg)	1-3/4" (44.4 mm)	.177" (4.49 mm)	8.0" (20.3 cm)	1000
P298-TF7HX	120 lbs. (54.4 kg)	4-1/16" (103.1 mm)	.298" (7.56 mm)	15.7" (39.8 cm)	50
P298-TF7HXB	120 lbs. (54.4 kg)	4-1/16" (103.1 mm)	.298" (7.56 mm)	15.7" (39.8 cm)	500

### Other Wiring Accessories

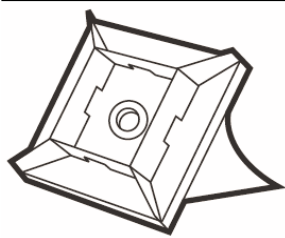
#### Halar & Tefzel Cable Ties



**HALAR TIES** feature low smoke density and high flame resistance and are ideal for plenum areas where smoke generation is a concern.

Part Number	Minimum Tensile Unlocking Strength	Maximum Bundle Diameter	Width	Length	Qty/Pkg
P298-CT0418HL	18 lbs. (8.2 kg)	7/8" (22.2 mm)	.094" (2.4 mm)	4.0" (10.1 cm)	100
P298-CT0750HL	50 lbs. (22.7 kg)	2.0" (50.8 mm)	.178" (4.5 mm)	8.0" (20.3 cm)	100
P298-CT0418TZ	12 lbs. (5.4 kg)	7/8" (22.2 mm)	.094" (2.4 mm)	4.0" (10.1 cm)	100
P298-CT0750TZ	50 lbs. (22.7 kg)	1-7/8" (47.6 mm)	.178" (4.5 mm)	7.0" (17.7 cm)	100

#### Cable Tie Mounting Base



Part Number	Dimensions In (mm)	Qty/Pkg
P298-CTMB	1" x 1"(25.1 x 25.1)	25

Electrical

# TOTALINE® WIRING ACCESSORIES

## Other Wiring Accessories

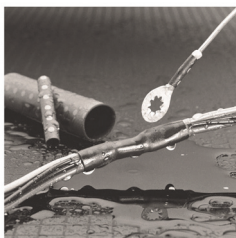
### Cable Clamps • Natural Nylon



Part Number	Maximum Bundle dia.		Qty/Pkg
	(in)	(mm)	
P298-CC0125	1/8"	-3.18	50
P298-CC01875	3/16"	-4.76	50
P298-CC0250	1/4"	-6.35	45
P298-CC0375	3/8"	-9.53	40
P298-CC0500	1/2"	-12.7	35
P298-CC0750	3/4"	-19.1	20
P298-CC01000	1"	-25.4	15

## Shrink Tubing

### DWA Dual Wall Heat Shrinkable Tubing



**Flame-retardant, adhesive-lined, (semi-rigid) Olyoletin**

**Features / Benefits**

- Tubing environmentally seals and protects components and splices
- DWA has a high shrink ratio, only a few sizes are needed to cover a wide range of splice and component diameters
- Adhesive bonds to a wide variety of plastics, rubber, & metals, including polyethylene, neoprene, & steel
- Offers rugged protection against abrasion, vibration, and flexing
- Extended temperature range

**Product Characteristics**

Shrink Ratio Approximately: 4:1

Minimum shrink temperature: 230°F (110°C)

Continuous operating temperature: -40°F to 266°F (-40°C to 130°C)

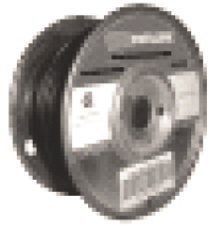
Part Number	Diameter Before Shrinking	Suitable For This Diameter Range	Length	Qty/Pkg
P298-DWA1	.225"	(1/16"-3/16")	6"	6
P298-DWA2	.293"	(3/16"-1/4")	6"	6
P298-DWA3	.427"	(1/4"-3/8")	6"	4
P298-DWA4	.700"	(1/2"-5/8")	6"	2



# TOTALINE® WIRING ACCESSORIES

## TEW Thermoplastic Equipment Wire

### 18 AWG (16 Strands) TEW Wire 100' Spools



**Features:**

- Material is TEW bare copper strand voltage: 600 volts
- Temperature rating: -22°F to 221°F (-30°C to 105°C)
- UL Listed & CSA approved
- Spooled on metal spools
- Totaline label with part description and part nomenclature

Part Number	Description
P298-TEW18/16-BLACK	18 AWG TEW Wire - Black
P298-TEW18/16-WHITE	18 AWG TEW Wire - White
P298-TEW18/16-RED	18 AWG TEW Wire - Red
P298-TEW18/16-BLUE	18 AWG TEW Wire - Blue
P298-TEW18/16-GREEN	18 AWG TEW Wire - Green

### 16AWG (26 Strands) TEW Wire 100' Spools

Part Number	Description
P298-TEW16/26-BLACK	16 AWG TEW Wire - Black
P298-TEW16/26-WHITE	16 AWG TEW Wire - White
P298-TEW16/26-RED	16 AWG TEW Wire - Red
P298-TEW16/26-BLUE	16 AWG TEW Wire - Blue
P298-TEW16/26-GREEN	16 AWG TEW Wire - Green

### 14 AWG (41Strands) TEW Wire 100' Spools

Part Number	Description
P298-TEW14/41-BLACK	14 AWG TEW Wire - Black
P298-TEW14/41-WHITE	14 AWG TEW Wire - White
P298-TEW14/41-RED	14 AWG TEW Wire - Red
P298-TEW14/41-BLUE	14 AWG TEW Wire - Blue
P298-TEW14/41-GREEN	14 AWG TEW Wire - Green

### 12 AWG (65 Strands) TEW Wire 100' Spools

Part Number	Description
P298-TEW12/65-BLACK	12 AWG TEW Wire - Black
P298-TEW12/65-WHITE	12 AWG TEW Wire - White
P298-TEW12/65-RED	12 AWG TEW Wire - Red
P298-TEW12/65-BLUE	12 AWG TEW Wire - Blue
P298-TEW12/65-GREEN	12 AWG TEW Wire - Green

### 10 AWG (104 Strands) TEW Wire 100' Spools

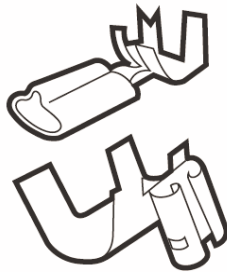
Part Number	Description
P298-TEW10/104-BLACK	10 AWG TEW Wire - Black
P298-TEW10/104-WHITE	10 AWG TEW Wire - White
P298-TEW10/104-RED	10 AWG TEW Wire - Red
P298-TEW10/104-BLUE	10 AWG TEW Wire - Blue
P298-TEW10/104-GREEN	10 AWG TEW Wire - Green

Electrical

# TOTALINE® WIRING ACCESSORIES

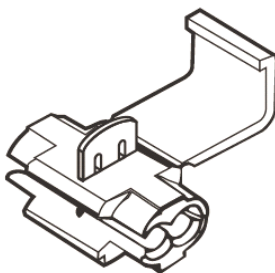
## Terminals And Connectors

### Compressor Terminal



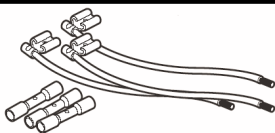
Part Number	Tab Width In (mm)	Wire Range AWG (mm2)	Qty/Pkg
P298-COM1208	.250 (6.35)	12-8 (4.0-6.75)	20

### Self-Stripping Tap Connectors



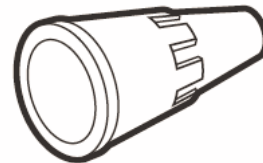
Part Number	Wire Range AWG (mm2)	Qty/Pkg
P298-SSTCR	22-16 (0.5-1.0) Red	25
P298-SSTCB	18-14 (.75-2.5) Blue	25
P298-SSTCY	12-10 (4.0-6.0) Yellow	20

### Compressor Hook-up Lead Kit



Part Number	Tab Width In (mm)	Wire Range AWG (mm2)	Qty/Pkg
P298-LEADS-10	.250 (6.35)	10 (6.0)	3-8" Leads With Flags 3-Heat Shrinkable Butt Connectors

### Closed End Connectors - Nylon Insulated



Part Number	Wire Range-AWG	Qty/Pkg
P298-CES2214	22-14 (0.5-2.5)	50
P298-CES1810	18-10 (1.0-6.0)	40

### Twist-On Wire Connectors



UL Listed/CSA Approved 221°F/105°C (Available in Blister Boxes, TOTALINE Boxes or Bulk Packs)

Part Number	AWG	(mm2)	Color/Voltage	Qty/Pkg
P298-WC/GREY	22-14 (0.5-2.5)	Min. 2 #22	Grey	100 (Blister Box)
P298-WC/GREY/M	22-14 (0.5-2.5)	Max. 2 #16	300 Volt	1,000 (Bulk Pack)
P298-29	22-14 (0.5-2.5)	Min. 2 #18	Blue	100 (Blister Box)
P298-29B	22-14 (0.5-2.5)	Max. 3 #16	300 Volt	100 (Totaline Box)
P298-WC/BLUE/M	22-14 (0.5-2.5)	--	--	1,000 (Bulk Pack)
P298-31	22-14 (0.5-2.5)	Min. 2 #18	Orange	75 (Blister Box)
P298-31B	22-14 (0.5-2.5)	Max. 2 #14	600 Volt	100 (Totaline Box)
P298-WC/ORANGE/D	22-14 (0.5-2.5)	--	--	500 (Bulk Pack)
P298-33	18-10 (1.0-6.0)	Min. 3 #18	Yellow	
P298-33B	18-10 (1.0-6.0)	Max. 4 #14 and 1 #18	600 Volt	100 (Totaline Box)
P298-WC/YELLOW/D	18-10 (1.0-6.0)	--	--	500 (Bulk Pack)
P298-35	18-8 (1.0-8.0)	Min. 2 #14	Red	35 (Blister Box)
P298-35B	18-8 (1.0-8.0)	Max. 4 #12	600 VOLT	100 (Totaline Box)
P298-WC/RED/D	18-8 (1.0-8.0)	--	--	500 (Bulk Pack)

# TOTALINE® WIRING ACCESSORIES

## Terminals And Connectors

### Ring Terminals



- Vinyl Insulated

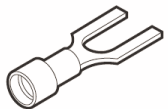
Part Number	Wire Range AWG (mm2)	In / Ga	(mm)	Qty/Pkg
P298-RR6	22-18 (0.5-1.0) Red	#6	-3.5	100
P298-RR8	22-18 (0.5-1.0) Red	#8	-4.16	100
P298-RR10	22-18 (0.5-1.0) Red	#10	-4.82	100
P298-RR0250	22-18 (0.5-1.0) Red	1/4"	-6.35	75
P298-RR0375	22-18 (0.5-1.0) Red	3/8"	-9.53	65
P298-BR6	16-14 (1.5-2.5) Blue	#6	-3.5	100
P298-BR8	16-14 (1.5-2.5) Blue	#8	-4.16	100
P298-BR10	16-14 (1.5-2.5) Blue	#10	-4.82	100
P298-BR0250	16-14 (1.5-2.5) Blue	1/4"	-6.35	75
P298-BR0315	16-14 (1.5-2.5) Blue	5/16"	-7.94	65
P298-BR0375	16-14 (1.5-2.5) Blue	3/8"	-9.53	65
P298-YR6	12-10 (4.0-6.0) Yellow	#6	-3.5	75
P298-YR8	12-10 (4.0-6.0) Yellow	#8	-4.16	75
P298-YR10	12-10 (4.0-6.0) Yellow	#10	-4.82	75
P298-YR0250	12-10 (4.0-6.0) Yellow	1/4"	-6.35	60
P298-YR0315	12-10 (4.0-6.0) Yellow	5/16"	-7.94	60
P298-YR0375	12-10 (4.0-6.0) Yellow	3/8"	-9.53	60
P298-YR0500	12-10 (4.0-6.0) Yellow	1/2"	-12.7	40

### Heavy Duty Ring Terminals

- Vinyl Insulated

Part Number	Wire Range Awg (mm2)	In / Ga	(mm)	Qty/Pkg
P298-8R0250	8 (8.0) Red	1/4"	-6.35	20
P298-8R0315	8 (8.0) Red	5/16"	-7.94	20
P298-8R0375	8 (8.0) Red	3/8"	-9.53	20
P298-8R0500	8 (8.0) Red	1/2"	-12.7	15
P298-6R0250	6 (14.0) Blue	1/4"	-6.35	15
P298-6R0315	6 (14.0) Blue	5/16"	-7.94	15
P298-6R0375	6 (14.0) Blue	3/8"	-9.53	15
P298-6R0500	6 (14.0) Blue	1/2"	-12.7	10

### Block Spade Terminals

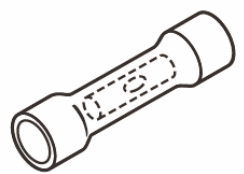


- Vinyl Insulated

Part Number	Wire Range Awg (mm2)	In / Ga	(mm)	Qty/Pkg
P298-RS6	22-18 (0.5-1.0) Red	#6	-3.5	100
P298-RS8	22-18 (0.5-1.0) Red	#8	-4.16	100
P298-RS10	22-18 (0.5-1.0) Red	#10	-4.82	100
P298-BS6	16-14 (1.5-2.5) Blue	#6	-3.5	100
P298-BS8	16-14 (1.5-2.5) Blue	#8	-4.16	100
P298-BS10	16-14 (1.5-2.5) Blue	#10	-4.82	100

P298-YS6	12-10 (4.0-6.0) Yellow	#6	-3.5	75
P298-YS8	12-10 (4.0-6.0) Yellow	#8	-4.16	75
P298-YS10	12-10 (4.0-6.0) Yellow	#10	-4.82	75

### Butt Connectors



- Vinyl Insulated

Part Number	Wire Range Awg (mm2)	Qty/Pkg
P298-RBS	22-18 (0.5-1.0) Red	100
P298-BBS	16-14 (1.5-2.5) Blue	100
P298-YBS	12-10 (4.0-6.0) Yellow	75

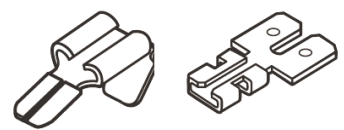
### Heat Shrinkable Butt Connectors



- Environmentally Sealed

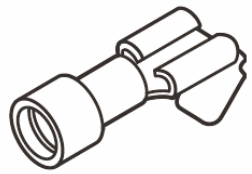
Part Number	Wire Range Awg (mm2)	Qty/Pkg
P298-HSRBS	22-18 (0.5-1.0) Red	10
P298-HSBBS	16-14 (1.5-2.5) Blue	10
P298-HSYBS	12-10 (4.0-6.0) Yellow	8

### Double Male-Female Adapters



Part Number	Tab Width In (mm)	Qty/Pkg
P298-77250	.250 (6.35) (Piggyback)	30
P298-7MMF187	.187 (4.75) (Flat)	40
P298-7MMF250	.250 (6.35) (Flat)	40

### Multi-Stack Disconnects



- Vinyl Insulated

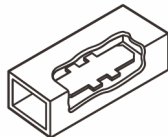
Part Number	Tab Width In (mm)	Wire Range Awg (mm2)	Qty/Pkg
P298-RQDFM	.250 (6.35)	22-18 (0.5-1.0) Red	30
P298-BQDFM	.250 (6.35)	16-14 (1.5-2.5) Blue	30

# TOTALINE® WIRING ACCESSORIES

## Terminals And Connectors

P298-HTYR6	12-10 (4.0-6.0)	#6	-3.5	75
P298-HTYR10	12-10 (4.0-6.0)	#10	-4.82	75
P298-HTYR0250	12-10 (4.0-6.0)	1/4"	-6.35	60

### Double Male Quick Disconnects

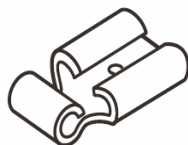


- Vinyl Insulated

Part Number	Tab Width In (mm)	Qty/Pkg
P298-DMD250	.250 (6.35)	10

### Female Flag Quick Disconnects

*Uninsulated*



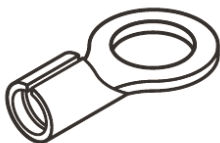
Part Number	Tab Width In (mm)	Wire Range AWG (mm2)	Qty/Pkg
P298-RF187	.187 (4.75)	22-18 (0.5-1.0)	50
P298-RF250	.250 (6.35)	22-18 (0.5-1.0)	50
P298-BF187	.187 (4.75)	16-14 (1.5-2.5)	50
P298-BF250	.250 (6.35)	16-14 (1.5-2.5)	50
P298-YF250	.250 (6.35)	12-10 (4.0-6.0)	40

*Fully Insulated Nylon*



Part Number	Tab Width In (mm)	Wire Range AWG (mm2)	Qty/Pkg
P298-RFFI187	.187 (4.75)	22-18 (0.5-1.0)	30
P298-RFFI250	.250 (6.35)	Red	30
P298-BFFI187	.187 (4.75)	16-14 (1.5-2.5)	30
P298-BFFI250	.250 (6.35)	Blue	30

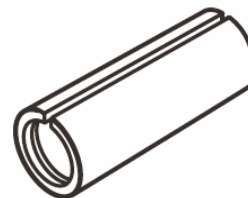
### High Temperature Ring Terminals



900°F / 482°C Continuous Temperature Rating. Steel Construction. Nickel Plating

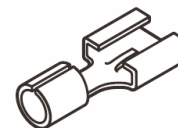
Part Number	Wire Range AWG (mm2)	In / Ga	(mm)	Qty/Pkg
P298-HTRR6	22-18 (0.5-1.0)	#6	-3.5	100
P298-HTRR10	22-18 (0.5-1.0)	#10	-4.82	100
P298-HTBR6	16-14 (1.5-2.5)	#6	-3.5	100
P298-HTBR10	16-14 (1.5-2.5)	#10	-4.82	100
P298-HTBR0250	16-14 (1.5-2.5)	1/4"	-6.35	75

### High Temperature Butt Connectors



Part Number	Wire Range AWG (mm2)	Qty/Pkg
P298-HTRBS	22-18 (0.5-1.0)	100
P298-HTBBS	16-14 (1.5-2.5)	100
P298-HTYBS	12-10 (4.0-6.0)	75

### High Temperature Female Quick Disconnect

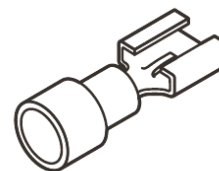


- Vinyl Insulated

Part Number	Wire Range AWG (mm2)	In / Ga	(mm)	Qty/Pkg
P298-HTBQDF250	16-14 (1.5-2.5)	0.25	-6.35	100

### Quick Disconnect Terminals

*Female*



- Vinyl Insulated
- Female

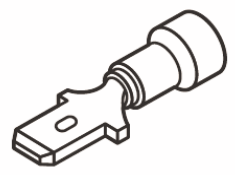
Part Number	Tab Width In (mm)	Wire Range AWG (mm2)	Qty/Pkg
P298-RQDF110	.110 (2.79)	22-18 (0.5-1.0) Red	100
P298-RQDF187	.187 (4.75)	22-18 (0.5-1.0) Red	100
P298-RQDF250	.250 (6.35)	22-18 (0.5-1.0) Red	100
P298-BQDF110	.110 (2.79)	16-14 (1.5-2.5) Blue	100
P298-BQDF187	.187 (4.75)	16-14 (1.5-2.5) Blue	100
P298-BQDF250	.250 (6.35)	16-14 (1.5-2.5) Blue	100
P298-YQDF250	.250 (6.35)	12-10 (4.0-6.0) Yellow	75

# TOTALINE® WIRING ACCESSORIES

## Terminals And Connectors

### Quick Disconnect Terminals

Male



- Vinyl Insulated
- Male

Part Number	Tab Width In (mm)	Wire Range AWG (mm2)	Qty/Pkg
P298-RQDM187	.187 (4.75)	22-18 (0.5-1.0) Red	100
P298-RQDM250	.250 (6.35)	22-18 (0.5-1.0) Red	100
P298-BQDM187	.187 (4.75)	16-14 (1.5-2.5) Blue	100
P298-BQDM250	.250 (6.35)	16-14 (1.5-2.5) Blue	100
P298-YQDM250	.250 (6.35)	12-10 (4.0-6.0) Yellow	75

### Mating Fully Insulated Quick Disconnects

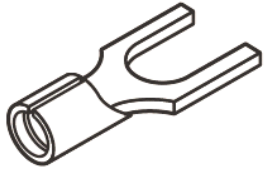
Female



- Nylon Insulated
- Female

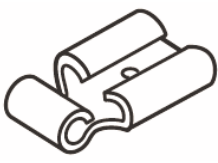
Part Number	Tab Width In (mm)	Wire Range AWG (mm2)	Qty/Pkg
P298-RQDFFI187	.187 (4.75)	22-18 (0.5-1.0) Red	40
P298-RQDFFI250	.250 (6.35)	22-18 (0.5-1.0) Red	40
P298-BQDFFI187	.187 (4.75)	16-14 (1.5-2.5) Blue	40
P298-BQDFFI250	.250 (6.35)	16-14 (1.5-2.5) Blue	40
P298-YQDFFI250	.250 (6.35)	12-10 (4.0-6.0) Yellow	30

### High Temperature Spade Terminals



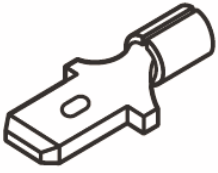
Part Number	Wire Range AWG (mm2)	In / Ga	(mm)	Qty/Pkg
P298-HTRS10	22-18 (0.5-1.0)	#10	-4.82	100
P298-HTBS10	16-14 (1.5-2.5)	#10	-4.82	100
P298-HTYS10	12-10 (4.0-6.0)	#10	-4.82	75

### High Temperature Female Flag Disconnect



Part Number	Wire Range AWG (mm2)	In / Ga	(mm)	Qty/Pkg
P298-HTBFF250	16-14 (1.5-2.5)	0.25	-6.35	75

### High Temperature Male Quick Disconnect



Part Number	Wire Range AWG (mm2)	In / Ga	(mm)	Qty/Pkg
P298-HTBQDM250	16-14 (1.5-2.5)	0.25	-6.35	100

### Mating Fully Insulated Quick Disconnects



- Nylon Insulated
- Male

Part Number	Tab Width In (mm)	Wire Range AWG (mm2)	Qty/Pkg
P298-RQDMFI187	.187 (4.75)	22-18 (0.5-1.0) Red	40
P298-RQDMFI250	.250 (6.35)	22-18 (0.5-1.0) Red	40
P298-BQDMFI187	.187 (4.75)	16-14 (1.5-2.5) Blue	40
P298-BQDMFI250	.250 (6.35)	16-14 (1.5-2.5) Blue	40
P298-YQDMFI250	.250 (6.35)	12-10 (4.0-6.0) Yellow	30

### Snap Plugs



- Vinyl Insulated

Part Number	Wire Range AWG (mm2)	in	(mm)	Qty/Pkg
P298-RBM157	22-18 (0.5-1.0) Red	0.157	3.99	80
P298-RBM176	22-18 (0.5-1.0) Red	0.176	4.47	80
P298-BBM157	16-14 (1.5-2.5) Blue	0.157	3.99	80
P298-BBM176	16-14 (1.5-2.5) Blue	0.176	4.47	80
P298-YBM157	12-10 (4.0-6.0) Yellow	0.157	3.99	60
P298-YBM176	12-10 (4.0-6.0) Yellow	0.176	4.47	60

Electrical

# TOTALINE® WIRING ACCESSORIES

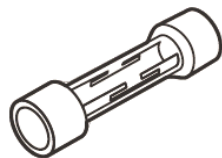
## Terminals And Connectors

### Snap Plug Receptacles



Part Number	Wire Range AWG (mm2)	in	(mm)	Qty/Pkg
P298-RBFFI157	22-18 (0.5-1.0) Red	0.157	3.99	40
P298-RBFFI176	22-18 (0.5-1.0) Red	0.176	4.47	40
P298-BBFFI157	16-14 (1.5-2.5) Blue	0.157	3.99	40
P298-BBFFI176	16-14 (1.5-2.5) Blue	0.176	4.47	40
P298-YBFFI157	12-10 (4.0-6.0) Yellow	0.157	3.99	30
P298-YBFFI176	12-10 (4.0-6.0) Yellow	0.176	4.47	30

### Double Female Snap Plug Receptacles



Part Number	Dia.in	(mm)	Qty/Pkg
P298-DBR157	0.157	3.99	40
P298-DBR176	0.176	4.47	40

## Kits And Application Tools

### Twist on Wire Connector Kit - 22-8 AWG



This six section kit is a convenient way to store the complete assortment of color coded twist on connectors and cable ties used daily by HVC/R technicians. Fixed square spring in the connector provides a more secure grip on conductors. CSA and UL approved.

Part Number	Description
P298-TWISTONKIT	22-8 AWG (.33 mm2 to 8.36 mm2) 375 pieces

### Solderless Terminal Kit - 22-10 AWG



An economical 18 compartment, plastic kit box contains 450 of the most popular TOTALINE solderless terminals and connectors.

TOTALINE graphics appear on the label set, with a matrix chart on the inside lid describing the parts, illustrations & individual TOTALINE re-order part numbers.

Part Number	Description
P298-TERMKIT450	22-10 AWG (.33 mm2 to 5.26 mm2) 450 pieces

### Ratchet Action Crimp Tool Kit With 4 Interchangeable Dies



This kit was designed for the professional that insists a high quality commercial grade full cycle crimp tool. System integrity is maintained when components are terminated with this tool. An ergonomic progressive pivoting design provides maximum crimping force with reasonable hand pressure. The ratcheted design eliminates variability from crimp to crimp. This kit includes four interchangeable dies to crimp a variety of solderless terminals.

- Crimp Die "A" for 22-16 AWG (.33 mm2 to 5.26 mm2) insulated Terminals
- Crimp Die "C" for 22-10 AWG (.33 mm2 to 5.26 mm2) insulated Quick Disconnected Terminals
- Crimp Die "22-18/8" for 22-8 AWG (.33 mm2 to 8.36 mm2) uninsulated and high temperature Terminals
- Crimp Die "F" for 22-14 AWG (.33 mm2 to 2.08 mm2) fully insulated flag Terminals

Part Number	Description
P298-25000	Ratchet Action Crimp Tool Kit With 4 Interchangeable Dies

### Repair and Maintenance of HVAC/R Electronic Wiring



This kit was designed as a sales tool for branch sales counters. The kit comes with three totaline application tool as well as solderless Terminals and 5" lengths of wire. Contractors at the sales counters can physically crimp a terminal on a wire or strip a wire to witness firsthand the quality of these tools. The kit includes:

- P298-WS Heavy Duty wire Stripper & Cutter
- P298-RACT Ratchet Action Crimp Tool for 22-10 AWG insulated Terminals
- P298-RACTF Ratchet Action Crimp Tool for 22-14 AWG insulated Flag Terminals

Part Number	Description
P298-DEMOKIT	Application Tool Kit for the Repair and Maintenance of HVAC/R Electronic Wiring

# TOTALINE® WIRING ACCESSORIES

## Kits And Application Tools

### Heavy Duty Tension Tool for installing Duct Straps



- Features:**
- 120 lb to 175 lb duct straps
  - Manual tension control
  - Neatly cuts off straps
  - Metal construction
  - Packaged individual box

Part Number	Description
P298-CT300	Manual Cut Off Heavy Duty Tension Tool For 120-175 lb Ties

### Crimping & Stripping Tool 22-12 AWG (.33 mm<sup>2</sup> to 3.308 mm<sup>2</sup>)

This economical crimp tool crimps 22-12 AWG (.33 mm<sup>2</sup> to 3.08 mm<sup>2</sup>) insulated and uninsulated terminals. It strips 22-8 AWG (.33 mm<sup>2</sup> to 8.36 mm<sup>2</sup>) solid or stranded wire; cuts and rethreads five common sizes of bolts. Adjustable machined nut and bolt for precise pivoting. Made from heat treated tool steel with cushioned grip handles.

Part Number
P298-CT

### Heavy Duty Wire Stripper Cutter & Crimping Tool

24-10 AWG (.204 mm<sup>2</sup> to 5.26 mm<sup>2</sup>)



Crimps insulated and uninsulated 22-10 AWG(.33 mm<sup>2</sup> to 5.26 mm<sup>2</sup>) terminals strips 24-10 AWG (.204mm<sup>2</sup> to 5.26 mm<sup>2</sup>) wire includes built in cutter adjustable stopper enables user to pre to pre-determine the required strip length and can be swiveled if user does not require this function.

Part Number	Description
P298-WS	24-10 AWG (.204 mm <sup>2</sup> to 5.26 mm <sup>2</sup> )

### Ratchet Action Crimp Tool for Insulated and Insulated Flag Terminals

Ratcheted design eliminates variability from crimp to crimp. System integrity is maintained when components are terminated with this tool.

Part Number	Description
P298-RACT	22-10 AWG (.32 mm <sup>2</sup> to 5.26 mm <sup>2</sup> )
P298-RACTF	22-14 AWG (.32 mm <sup>2</sup> to 2.08 mm <sup>2</sup> )