

PAYNE ENGINEERING

LIST PRICE SCHEDULE PC-6

EFFECTIVE DATE 9/1/2007

SCR POWER CONTROLS

Variable Voltage Controls

- Phase Angle
- Zero Fired

On/Off Controls

Product Range

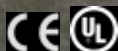
- 120 to 600 VAC
- 10-1200 Amps
- Manual or Automatic Control
- Open or Enclosed

Typical Applications

- Replace Variable Transformers
- Replace Mercury Relays
- Impulse Sealing
- Heat Treating
- Electric Ovens and Furnaces
- Injection Molding
- Packaging
- Plastic Extruders
- Infrared Ink and Paint Drying
- Autoclaves



GENERAL: 304/757-7353
APPLICATIONS: 304/757-7354
ORDER ENTRY: 800/331-1345
24 Hr. FAX: 304/757-7305
E-mail: sales@payneng.com
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**Technical Leadership in Solid State
Motor Controls and Power Controls
since 1959**

Load Type	Load Characteristics	Line Power Configuration	Load Configuration	Phase-Angle Control	Zero-Fire Control	On/Off Control
Constant Resistance Elements: nichrome, KANTHAL, CALROD	Resistance nominally constant. <50% change versus temperature.	Single Phase	Line-to-line or line-to neutral	18D 18D-N 18TB 18TBP	18DZ 11DZ-P	11D
		Three Phase	Balanced Y-or Δ connected load, isolated ground	18E	18EZ 11DZ-P	11E
			Grounded and/or unbalanced loads	18E-SW		
Variable Resistance Elements: quartz tubes, T3 lamps, some infrared panels	High hot:cold resistance ratio causes high inrush currents when elements are cold.	Single Phase	Line-to-line or line-to neutral	18D-H		
		Three Phase	Balanced Y-or Δ connected load, isolated ground	18E-H		
			Grounded and/or unbalanced loads	18E-SW		
Silicon-Carbide Elements: "GLO-BAR" (direct-coupled)	Resistance increases as elements age.	Single Phase	Line-to-line or line-to neutral	18D-H		
		Three Phase	Balanced Y-or Δ connected load, isolated ground	18E-H		
			Grounded and/or unbalanced loads	18E-SW		
Transformer-Coupled Loads (heating elements driven from secondary winding of transformer)	Inductive Load with initial current inrush.	Single Phase	Line-to-line or line-to neutral	18D-SW		
		Three Phase	Balanced Y-or Δ connected load, isolated ground	18E-SW		
			Grounded and/or unbalanced loads			
Inductive or Resistive D.C. Loads: magnets, fields electrolytic cells.	Resistive: load resistance constant. Inductive and D.C. fields.	Single Phase	D.C. Power required	36D		36D
		Three Phase	D.C. Power required	36E		36E

Application	Type of Control	Load Configuration	Product
Replace Mercury Relays Replace SSRs Extruders Molding Machines	On/Off Control of Constant Resistance Electric Heating Elements	Single Phase Constant Resistance Loads	Model 11DZ
		Three Phase Constant Resistance Loads	Model 11EZ

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How to order: Our order desk is open from 8:00 a.m. to 5:00 p.m. Eastern Time, Monday - Friday, excluding Holidays.

Order-Entry: 800/331-1345 for the 48 contiguous states (304/757-7353 for Alaska, Hawaii, and other countries)

24 Hour Fax: 304/757-7305. Our fax line is open 24 hours/day, 7 days/week.

Sales and Marketing: 304/757-7353

Technical Support: 304/757-7354

E-mail: sales@payneng.com

Internet Home page: <http://www.payneng.com>

Product Selection: Select products for specific applications from product catalogs, bulletins, and technical publications. Technical applications support is readily available by calling 304/757-7354. Customers have direct access to experienced, qualified engineers to assist with alternatives to application questions. Payne Engineering also offers, FREE OF CHARGE, many technical publications and application notes on all standard products. Our Marketing Services Department is pleased to forward published information within 24 hours of customer requests. You may also obtain FREE literature through your local sales representative or distributor.

Confirming Orders: Confirming purchase orders may be sent by mail or fax.

Payment: Customers with approved credit may order on open account (Net 30 day payment terms). Customers who do not have approved credit may prepay by check, use Visa, MasterCard, or COD basis. COD payments must be made in cash or by company check. Shipments will be suspended on delinquent accounts unless satisfactory arrangements have been made and accepted in writing.

New Accounts: New customers requesting open-account status must submit three trade credit references and one bank reference (name, address, phone number, and FAX number) to our Accounting Department. We will contact the submitted references in writing to request credit information. Open account status will be granted upon approval of credit information. Note: allow 7 to 10 working days additional lead time to complete approval process on initial order.

Shipments: Shipment will be made by common carrier, FOB factory. Alternate shipping methods should be specified when the order is placed. All shipping charges will be made to the purchaser's account unless other specific arrangements have been made in advance of shipment. Charges for UPS shipments are prepaid and added to the invoice; charges for Federal Express, Emery Worldwide, etc. and for all motor freight shipments are billed to the recipient.

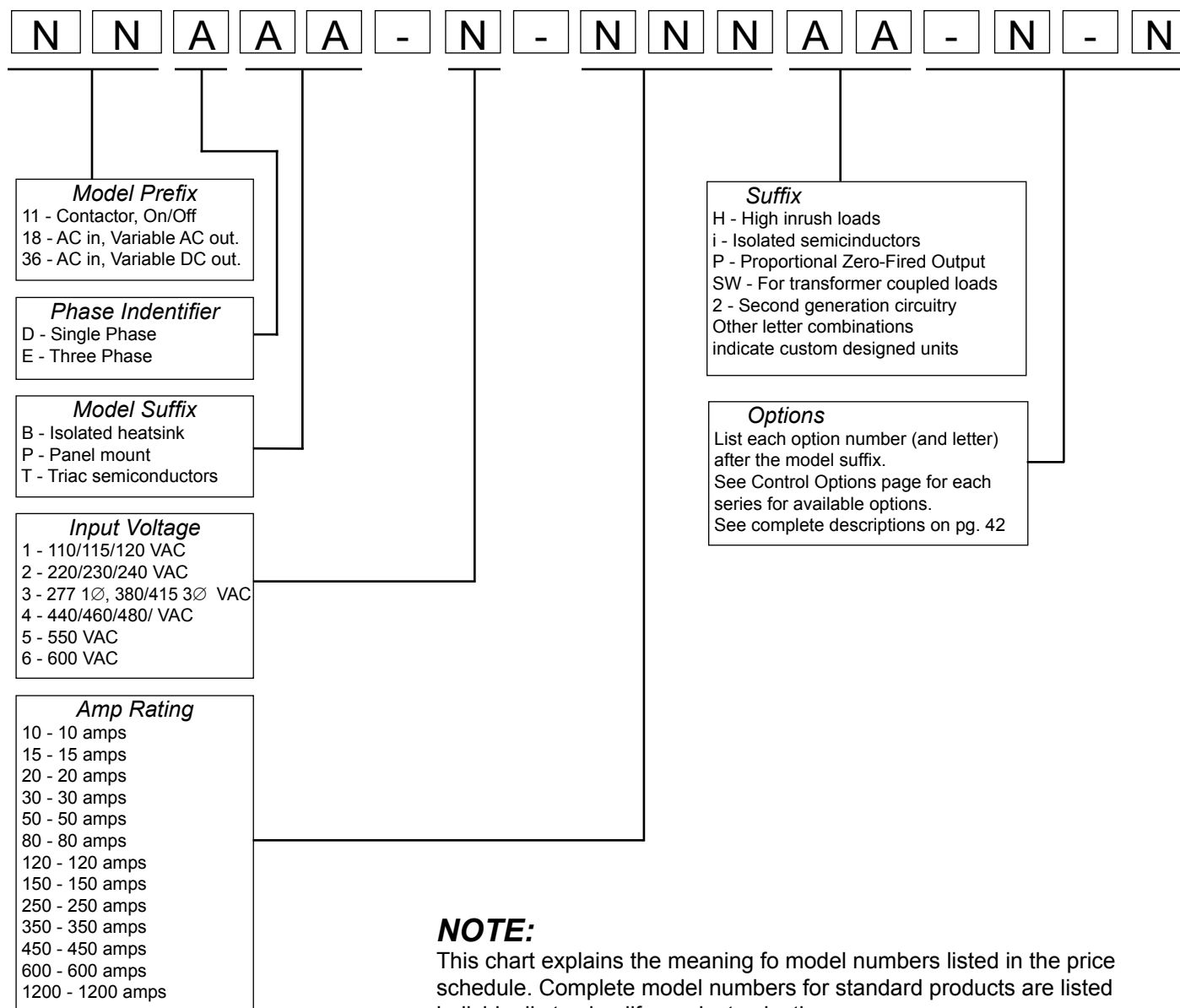
Delivery: All standard catalog items are manufactured to order. Projected lead-times will be quoted at the time the order placed and indicated on the order acknowledgement. Two lead-time options are available:

Express Delivery: The current standard lead-time for the product(s) being ordered. Typical lead-time for standard catalog items is 2-3 weeks for unit quantities of 10 or less, not including time in transit.

Premium Delivery: Open-chassis standard catalog items in quantities of 5 pcs. or less are assembled, tested, and shipped within 5 working days after receipt of the written order, contact factory for pricing. Orders received after 11:00 a.m. Eastern Time will be entered the following working day.

Sales Support: Payne Engineering has sales representatives throughout the U.S., who are qualified to assist you in the selection and application of your products. Please contact the factory sales department or see our web site, for the name of the representative in your area.

Distributors: In many regions of the U.S. there are authorized stocking distributors for Payne Engineering SCR control products. Please contact the factory for the names of distributors in your area.



NOTE:

This chart explains the meaning fo model numbers listed in the price schedule. Complete model numbers for standard products are listed individually to simplify product selection.

ENCLOSURES

The enclosure sizes listed throughout this price list are the sizes normally supplied. Enclosure prices include mounting the unit in the enclosure, venting and covering the vents with screens, mounting any ordered options or accessories, and mounting the manual control pot in the door (if applicable).

Options, accessories, multiple units, or other production requirements may necessitate an enclosure of different dimensions. Invoicing will be for the enclosure supplied.

Contact factory with questions or specific requirements.

DESCRIPTION: Single Phase, On/Off Control

APPLICATION: Constant Resistance Loads

Model Number	Fuse Amps	kVA @ Max Rated Volts	Open Chassis Dimensions Inches			Open Chassis List Price	Ventilated Dimensions H x W x D	Enclosure List Price Adder
			Height	Width	Depth			
SINGLE POLE, SINGLE PHASE, 120 VAC INPUT, 118 VAC OUTPUT, 10-400Hz								
11D-1-10i	10	1.2	6.25	3.5	3	53.00	10 6 6	Contact Factory
11D-1-20i	20	2.4	6.25	3.5	3	74.00	10 6 6	***
11D-1-30i	30	3.6	6.25	3.5	4	78.00	10 6 6	***
11D-1-50	50	6.0	12	5.5	6	172.00	14 12 8	***
11D-1-80	80	9.6	12	5.5	6	216.00	14 12 8	***
11D-1-120	120	14.4	12.5	6.5	8	434.00	20 16 9	***
11D-1-150	150	18.0	15	9.5	8	456.00	20 16 9	***
11D-1-250	250	30.0	25	9.5	8	608.00	30 20 9	***
11D-1-350	350	42.0	21	13	10.5	687.00	36 24 12	***
SINGLE POLE, SINGLE PHASE, 240 VAC INPUT, 238 VAC OUTPUT, 10-400Hz (ALSO FOR 208/220/230 VAC INPUT)								
11D-2-10i	10	2.4	6.25	3.5	3	56.00	10 6 6	Contact Factory
11D-2-15i	15	3.6	6.25	3.5	3	59.00	10 6 6	***
11D-2-20i	20	4.8	6.25	3.5	3	74.00	10 6 6	***
11D-2-30i	30	7.2	6.25	3.5	4	78.00	10 6 6	***
11D-2-50	50	12.0	12	5.5	6	172.00	14 12 8	***
11D-2-80	80	19.2	12	5.5	6	216.00	14 12 8	***
11D-2-120	120	28.8	12.5	6.5	8	434.00	20 16 9	***
11D-2-150	150	36.0	15	9.5	8	456.00	20 16 9	***
11D-2-250	250	60.0	25	9.5	8	608.00	30 20 9	***
11D-2-350	350	84.0	21	13	10.5	687.00	36 24 12	***
SINGLE POLE, SINGLE PHASE, 480 VAC INPUT, 478 VAC OUTPUT, 10-400Hz (ALSO FOR 380/415/440 VAC INPUT)								
11D-4-10	10	4.8	7	5.5	4.5	96.00	12 10 8	Contact Factory
11D-4-20	20	9.6	7	5.5	4.5	107.00	12 10 8	***
11D-4-30	30	14.4	7	5.5	5.5	116.00	12 10 8	***
11D-4-50	50	24.0	12	5.5	6	187.00	14 12 8	***
11D-4-80	80	38.4	12	5.5	6	216.00	14 12 8	***
11D-4-120	120	57.6	12.5	6.5	8	434.00	20 16 9	***
11D-4-150	150	72.0	15	9.5	8	456.00	20 16 9	***
11D-4-250	250	120	25	9.5	8	608.00	30 20 9	***
11D-4-350	350	168	21	13	10.5	687.00	36 24 12	***
11D-4-450	450	215	27	17	10.5	826.00	36 24 12	***
11D-4-600	600	288	27	17	10.5	1046.00	42 30 12	***
11D-4-1200	1200	576	30	24	11	2304.00	42 30 12	***

NOTES:

- Standard units actuated by external maintained contact closure (line voltage rated). For actuation by external voltage signal, see Option 27
- Standard units supplied with Factory installed 2-millisecond fuses.
- Effective 8/90, 10-30 Amp sizes at 120 and 240 VAC are replaced by 11Di version (suffix "i" in Model number)
- For recommended spare fuses, see FUSE CHART, page 39. Use of any other fuse voids all warranties.
- For multiple-pole mounting on common baseplate, multiply the list price for the required size by the number of poles and add Option 27 to each pole.
- Enclosures supplied by others must be properly ventilated. See VENT SCHEDULE, Page 43.
- Dimensions are approximate, refer to unit drawing for construction.
List prices may be subject to trade classification discounts contact your local Payne Engineering

OPTION NAME	OPTION ORDER No.	OPTION DESCRIPTION	LIST PRICE ADDER
ISOLATED CHASSIS	14A 14B	Electrically Isolated Chassis for installation in non-vented enclosures. 10-30A, 480 VAC only. (Std. on 10-30 A, 120/240 VAC)	65.00 97.00
RETROFIT	22	To physically replace units built prior to 8/90. 120, 240 VAC, 10-30 Amps only.	38.00
HEATSINK OVERTEMP SWITCH	24A 24B	Overtemp trip of controller. For external indicating circuit or alarm.	55.00
ALTERNATE CONTROL VOLTAGE	27A 27B 27C 27D	12 VAC/VDC 24 VAC/VDC 120 VAC 220 VAC	25.00
277 VAC INPUT	11D- 3 -etc..	Rated for 277 VAC Input. 10-30 amp units also require adding Option 22. (Change Model No. from 11D-2-etc. to 11D-3-etc.)	38.00
550 VAC INPUT	11D- 5 -etc.	Rated for 550 VAC (nominal) Input. (Change Model No. from 11D-4-etc. to 11D-5-etc.)	38.00
600 VAC INPUT	11D- 6 -etc.	Rated for 600 VAC (nominal) Input. (May require size increase of base model) (Change Model No. from 11D-4-etc. to 11D-6-etc.)	210.00

11D OPTION NOTES:

1. To order, specify option number separately, and add option price to control list price.
2. See page 46 for detailed option description.
3. Options must be order with control.
4. Certain combinations of options may not be compatible. See PAGE 47 or consult local representative or factory.
5. Consult factory for option requirements not shown.

DESCRIPTION: Three Phase, On/Off Control

APPLICATION: Constant Resistance Loads

Model Number	Fuse Amps	kVA @ Max Rated Volts	Open Chassis Dimensions Inches			Open Chassis List Price	Ventilated Dimensions H x W x D	Enclosure List Price Adder
			Height	Width	Depth			
THREE POLE, THREE PHASE, 240 VAC INPUT, 238 VAC OUTPUT, 10-400Hz (ALSO FOR 208/220/230 VAC INPUT)								
11E-2-20	20	8.3	12.62	10.25	5.37	352.00	16 14 8	Contact Factory
11E-2-30	30	12.5	15.12	12.87	6.37	374.00	20 16 9	***
11E-2-50	50	20.6	15	13	6.25	507.00	20 16 9	***
11E-2-80	80	33.0	21	13	6.25	651.00	30 20 9	***
11E-2-120	120	50.0	21	13	8.25	1212.00	30 20 9	***
11E-2-150	150	62.0	27	17	8.25	1261.00	36 24 12	***
11E-2-250	250	103	27	21	9	1905.00	36 24 12	***
11E-2-350	350	144	27	27	10.5	2081.00	42 36 12	***
11E-2-450	450	185	33	27	10.5	2267.00	42 36 12	***
11E-2-600	600	247	39	27	10.5	2986.00	60 36 12	***
THREE POLE, THREE PHASE, 480 VAC INPUT, 238 VAC OUTPUT, 10-400Hz (ALSO FOR 380/415/440 VAC INPUT)								
11E-4-20	20	16.6	12.62	10.25	5.37	417.00	16 14 8	Contact Factory
11E-4-30	30	25.0	15.12	12.87	6.37	518.00	20 16 9	***
11E-4-50	50	41.1	15	13	6.25	604.00	20 16 9	***
11E-4-80	80	66.0	21	13	6.25	690.00	30 20 9	***
11E-4-120	120	99.0	21	13	8.25	1233.00	30 20 9	***
11E-4-150	150	124	27	17	8.25	1312.00	36 24 12	***
11E-4-250	250	207	27	21	9	1905.00	36 24 12	***
11E-4-350	350	290	27	27	10.5	2082.00	42 36 12	***
11E-4-450	450	372	33	27	10.5	2267.00	42 36 12	***
11E-4-600	600	496	39	27	10.5	2986.00	60 36 12	***

NOTES:

- Standard 11E controls require external 120 VAC control voltage for control operation
- Standard units supplied with Factory installed 2-millisecond fuses.
- For recommended spare fuses, see FUSE CHART, page 39. Use of any other fuse voids all warranties.
- Enclosures supplied by others must be properly ventilated. See VENT SCHEDULE, Page 43.
- Dimensions are approximate, refer to unit drawing for construction.

List prices may be subject to trade classification discounts contact your local Payne Engineering Authorized Distributor or representative.

Prices shown are subject to change without notice.

OPTION NAME	OPTION ORDER No.	OPTION DESCRIPTION	LIST PRICE ADDER
ISOLATED CHASSIS	14A 14B	For installation in non-vented enclosures. Electrically Isolated Chassis, 10-30A Electrically Isolated Chassis, 50-80A	195.00 291.00
HEATSINK OVERTEMP SWITCH	24A 24B	Overtemp trip of controller. For external indicating circuit or alarm.	55.00
ALTERNATE CONTROL VOLTAGE	27A 27B 27D	12 VAC/VDC 24 VAC/VDC 220 VAC	25.00
120 VAC INPUT	11E- 1 -etc..	Rated for 120 VAC (nominal) Input. (Change Model No. from 11E-2-etc. to 11E-1-etc.)	N/C
550 VAC INPUT	11E- 5 -etc.	Rated for 550 VAC (nominal) Input. (Change Model No. from 11E-4-etc. to 11E-5-etc.)	66.00
600 VAC INPUT	11E- 6 -etc.	Rated for 600 VAC (nominal) Input. (May require size increase of base model) (Change Model No. from 11E-4-etc. to 11E-6-etc.)	270.00

11E OPTION NOTES:

1. To order, specify option number seperately, and add option price to control list price.
2. See page 46 for detailed option description.
3. Options must be order with control.
4. Certain combinations of options may not be compatible. See PAGE 47 or consult local representative or factory.
5. Consult factory for option requirements not shown.

DESCRIPTION: Single Phase Solid State Relay (SSR)

APPLICATION: Constant Resistance Loads

Model Number	Fuse Amps	kVA @ Max Rated Volts	Open Chassis Dimensions Inches Height Width Depth			Recommended 2 ms Fuse (see Notes 3,4)	Open Chassis List Price
SINGLE POLE, SINGLE PHASE, 120 VAC INPUT, 0-118 VAC OUTPUT, 50/60Hz (ALSO FOR 110/115 VAC INPUT)							
11DZ-1-30N	30	3.6	4.25	2	4.375	49A25-30	69.00
11DZ-1-50N	50	6.0	6 ⁸	2.182	7.9	49A50-50	168.00
11DZ-1-80N	80	9.6	9 ⁸	2.182	7.9	49A50-80	211.00
11DZ-1-120N	120	14.4	13.125 ⁸	2.182	7.9	49A50-120	314.00
11DZ-1-15	15	1.8	3.5	4	2.12	49A25-15	56.00
11DZ-1-30	30	3.6	4.25	4	3.87	49A25-30	64.00
11DZ-1-50	50	6.0	5	4	4.56	49A50-50	157.00
11DZ-1-80	80	9.6	8	4	4.56	49A50-80	211.00
SINGLE POLE, SINGLE PHASE, 240 VAC INPUT, 0-238 VAC OUTPUT, 50/60Hz (ALSO FOR 208/220/230 VAC INPUT)							
11DZ-2-30N	30	7.2	4.25	2	4.375	49A25-30	69.00
11DZ-2-50N	50	12.0	6 ⁸	2.182	7.9	49A50-50	168.00
11DZ-2-80N	80	19.2	9 ⁸	2.182	7.9	49A50-80	211.00
11DZ-2-120N	120	28.8	13.125 ⁸	2.182	7.9	49A50-120	314.00
11DZ-2-15	15	3.6	3.5	4	2.12	49A25-15	56.00
11DZ-2-30	30	7.2	4.25	4	3.87	49A25-30	64.00
11DZ-2-50	50	12.0	5	4	4.56	49A50-50	157.00
11DZ-2-80	80	19.2	8	4	4.56	49A50-80	211.00
SINGLE POLE, SINGLE PHASE, 480 VAC INPUT, 0-478 VAC OUTPUT, 50-60Hz (ALSO FOR 380/415/440 VAC INPUT)							
11DZ-4-30N	30	14.4	4.25	2	4.375	49B70-30	93.00
11DZ-4-50N	50	24.0	6 ⁸	2.182	7.9	49A50-50	168.00
11DZ-4-80N	80	38.4	9 ⁸	2.182	7.9	49A50-80	211.00
11DZ-4-120N	120	57.6	13.125 ⁸	2.182	7.9	49A50-120	314.00
11DZ-4-15	15	7.2	3.5	4	2.12	49B70-20	69.00
11DZ-4-30	30	14.4	4.25	4	3.87	49B70-30	107.00
11DZ-4-50	50	24.0	5	4	4.56	49A50-50	157.00
11DZ-4-80	80	38.4	8	4	4.56	49A50-80	211.00

NOTES:

- Standard units supplied with:
 - Integral heatsinks
 - Easy-access terminals
- Standard 11DZ/DZ-N Controls require maintained external 120 VAC control signal for operation. For other control voltages, see Option 27.
- Fuse kits (fuses and fuse blocks) are shipped loose with the units for remote mounting. They do not mount directly to 11DZ/DZ-N units.
- For recommended spare fuses, see FUSE CHART, Page 39. Use of any other fuse voids all warranties.
- Enclosures supplied by others must be properly ventilated. See VENT SCHEDULE, page 43.
- Dimensions are approximate, refer to unit drawing for construction.
- 11DZ-N units are nominally 2 inches wide and must be in ventilated enclosures, 11DZ units are nominally 4 inches wide and may be installed in non-vented enclosures, provided internal enclosure temperature remains below 50°C.
- Subtract 1/2 inch from height with DIN clip option 34.

List prices may be subject to trade classification discounts. Contact your local Payne Engineering Authorized Distributor or representative.

Prices shown are subject to change without notice.

OPTION NAME	OPTION ORDER No.	OPTION DESCRIPTION	LIST PRICE ADDER
HEATSINK OVERTEMP SWITCH	24A 24B	Overtemp trip of controller. For external indicating circuit or alarm.	55.00
ALTERNATE CONTROL VOLTAGE	27A 27B 27D	12 VAC/VDC 24 VAC/VDC 220 VAC	25.00
70-400Hz	30	For operation on power frequencies from 70-400Hz, and 16-2/3 or 25Hz.	Contact Factory
ZERO-FIRED INITIAL TURN-ON	31	Forces initial turn-on at zero crossover point. All 11DZ/11DZ-N units are zero fired on all subsequent cycles.	25.00 >50 N/C
FUSE KIT	FK 15-1 FK 30-1 FK 50-1 FK 80-1 FK 120-1	For 15 amp units For 30 amp units For 50 amp units For 80 amp units For 120 amp units	30.00 40.00 45.00 50.00 60.00
PROPORTIONAL	11DZ-x-xxPV 11DZ-x-xxPM	Includes separate control transformer (shipped loose for customer mounting on panel) Converts relay to automatic proportional controller in response to a 2-10 VDC signal. Converts relay to automatic proportional controller in response to a 4-20mA. signal.	75.00
277 VAC INPUT	11DZ- <u>3</u> -etc.	Rated for 277 VAC Input. (Change Model No. from 11DZ-4-etc. to 11DZ-3-etc.)	38.00
550 VAC INPUT	11DZ- <u>5</u> -etc.	Rated for 550 VAC Input. (Change Model No. from 11DZ-4-etc. to 11DZ-5-etc.)	38.00

11DZ OPTION NOTES:

1. To order, specify option number separately, and add option price to control list price.
2. See catalog for detailed option description.
3. Options must be order with control.
4. Consult factory for option requirements not shown.



DESCRIPTION: Three Phase Solid State Relay (SSR)

APPLICATION: Constant Resistance Loads

Model Number	Fuse Amps	kVA @ Max Rated Volts	Open Chassis Dimensions Inches Height Width Depth			Recommended 2 ms Fuse (see Notes 3,4)	Open Chassis List Price
TWO POLE, THREE PHASE, 240 VAC INPUT, 0-238 VAC OUTPUT, 50/60Hz (ALSO FOR 208/220/230 VAC INPUT)							
11EZ-2-15	15	6	5.25	4	4.25	49A25-15	122.00
11EZ-2-30	30	12	8	4	4.25	49A50-30	131.00
11EZ-2-50	50	20	9.5	4	4.25	49A50-50	303.00
11EZ-2-80	80	32	9	9	4.69	49A50-80	349.00
11EZ-2-120	120	48	14	14	9	49A50-125	787.00
11EZ-2-150	150	60	15	19	9	49A50-150	861.00
TWO POLE, THREE PHASE, 480 VAC INPUT, 0-478 VAC OUTPUT, 50-60Hz (ALSO FOR 380/415/440 VAC INPUT)							
11EZ-4-15	30	12	5.25	4	4.25	49B70-20	131.00
11EZ-4-30	50	24	8	4	4.25	49A50-30	146.00
11EZ-4-50	80	40	9.5	4	4.25	49A50-50	308.00
11EZ-4-80	120	64	9	9	4.69	49A50-80	349.00
11EZ-4-120	15	96	14	14	9	49A50-125	787.00
11EZ-4-150	30	120	15	19	9	49A50-150	861.00

NOTES:

- Standard units supplied with:
 - Integral heatsinks
 - Easy-access terminals
- Standard 11EZ controls require maintained external 120 VAC control signal for operation.
- Fuse kits (fuses and fuse blocks) are shipped loose with the units for remote mounting. They do not mount directly to 11EZ units.
- To order spare fuses, list part number from FUSE CHART, Page 39, and price from page 38.

- Enclosures supplied by others must be properly ventilated. See VENT SCHEDULE, page 43.
- Dimensions are approximate, refer to unit drawing for construction.

List prices may be subject to trade classification discounts. Contact your local Payne Engineering Authorized Distributor or representative.

Prices shown are subject to change without notice.

OPTION NAME	OPTION ORDER No.	OPTION DESCRIPTION	LIST PRICE ADDER
HEATSINK OVERTEMP SWITCH	24A 24B	Overtemp trip of controller. For external indicating circuit or alarm.	55.00
ALTERNATE CONTROL VOLTAGE	27A 27B 27D	12 VAC/VDC 24 VAC/VDC 220 VAC	25.00
70-400Hz	30	For operation on power frequencies from 70-400Hz, and 16-2/3 or 25Hz.	Contact Factory
ZERO-FIRED INITIAL TURN-ON	31	Forces initial turn-on at zero crossover point. All 11DZ/11DZ-N units are zero fired on all subsequent cycles.	25.00 >50 N/C
FUSE KIT	FK 15-2 FK 30-2 FK 50-2 FK 80-2 FK 120-2	For 15 amp three phase units For 30 amp three phase units For 50 amp three phase units For 80 amp three phase units For 120 amp three phase units	64.00 84.00 94.00 104.00 129.00
PROPORTIONAL	11EZ-x-xxPV 11EZ-x-xxPM	Includes separate control transformer (shipped loose for customer mounting on panel) Converts relay to automatic proportional controller in response to a 2-10 VDC signal. Converts relay to automatic proportional controller in response to a 4-20mA. signal.	75.00
120 VAC INPUT	11EZ- 1 -etc.	Rated for 120 VAC (nominal) input. (Change Model No. from 11EZ-2-etc. to 11EZ-1-etc.)	N/C
550 VAC INPUT	11EZ- 5 -etc.	Rated for 550 VAC Input. (Change Model No. from 11EZ-4-etc. to 11EZ-5-etc.)	38.00

11EZ OPTION NOTES:

- To order, specify option number separately, and add option price to control list price.
- See page 46 for detailed option description.
- Options must be order with control.
- Fuse kits (fuses and fuse blocks) are shipped loose with the units for remote mounting. They do not mount directly to 11EZ units.
- Certain combinations of options may not be compatible. See page 47 or consult local representative or factory.
- Consult factory for option requirements not shown.

DESCRIPTION: Single Phase, Phase Angle Control

APPLICATION: Constant Resistance Loads

Model Number	Fuse Amps	kVA @ Max Rated Volts	Open Chassis Dimensions Inches			Open Chassis List Price	Ventilated Dimensions H x W x D	Enclosure List Price Adder
			Height	Width	Depth			
SINGLE PHASE, 120 VAC INPUT, 0-118 VAC OUTPUT, 50/60Hz								
18D-1-10i	10	1.2	6.25	3.5	3	107.00	10 6 6	Contact Factory
18D-1-20i	20	2.4	6.25	3.5	3	129.00	10 6 6	***
18D-1-30i	30	3.6	6.25	3.5	4.1	146.00	10 6 6	***
18D-1-50	50	5.9	12	5.5	6	290.00	14 12 8	***
18D-1-80	80	9.4	12	5.5	6	313.00	14 12 8	***
18D-1-120	120	14.1	12.5	6.5	8	521.00	20 16 9	***
18D-1-150	150	17.7	15	9.5	8	532.00	20 16 9	***
18D-1-250	250	30.0	25	9.5	8	759.00	30 20 9	***
18D-1-350	350	41.3	21	13	10.5	852.00	36 24 12	***
SINGLE PHASE, 240 VAC INPUT, 0-238 VAC OUTPUT, 50/60Hz (ALSO FOR 208/220/230 VAC INPUT)								
18D-2-10i	10	2.4	6.25	3.5	3	130.00	10 6 6	Contact Factory
18D-2-15i	15	3.6	6.25	3.5	3	137.00	10 6 6	***
18D-2-20i	20	4.8	6.25	3.5	3	155.00	10 6 6	***
18D-2-30i	30	7.2	6.25	3.5	4.1	190.00	10 6 6	***
18D-2-50	50	11.9	12	5.5	6	279.00	14 12 8	***
18D-2-80	80	19.0	12	5.5	6	313.00	14 12 8	***
18D-2-120	120	28.5	12.5	6.5	8	521.00	20 16 9	***
18D-2-150	150	35.7	15	9.5	8	532.00	20 16 9	***
18D-2-250	250	60.0	25	9.5	8	759.00	30 20 9	***
18D-2-350	350	83.3	21	13	10.5	852.00	36 24 12	***
SINGLE PHASE, 480 VAC INPUT, 0-478 VAC OUTPUT, 50/60Hz (ALSO FOR 380/415/440 VAC INPUT)								
18D-4-10	10	4.8	7	5.5	4.5	194.00	12 10 8	Contact Factory
18D-4-20	20	9.6	7	5.5	4.5	204.00	12 10 8	***
18D-4-30	30	14.4	7	5.5	5.5	211.00	12 10 8	***
18D-4-50	50	24.0	12	5.5	6	315.00	14 12 8	***
18D-4-80	80	38.4	12	5.5	6	373.00	14 12 8	***
18D-4-120	120	57.6	12.5	6.5	8	521.00	20 16 9	***
18D-4-150	150	72.0	15	9.5	8	604.00	20 16 9	***
18D-4-250	250	120	25	9.5	8	759.00	30 20 9	***
18D-4-350	350	168	21	13	10.5	852.00	36 24 12	***
18D-4-450	450	215	27	17	10.5	944.00	36 24 12	***
18D-4-600	600	288	33	17	10.5	1168.00	42 30 12	***
18D-4-1200	1200	576	30	24	11	2485.00	42 30 12	***

NOTES:

- Standard units supplied with:
 - Manual control potentiometer on 2 feet of cable
 - Control isolation transformer (except where noted †)
 - Factory installed 2-millisecond fuses
- For recommended spare fuses, see FUSE CHART, Page 39. Use of any other fuse voids all warranties.
- Effective 8/90, 10-30 Amp sizes at 120 and 240 VAC replaced by 18D-i version (suffix "i" in Model number). 18D-i controls feature electrically isolated heatsink. To retrofit former 18D version, see Option 22.

- Enclosures supplied by others must be properly ventilated. See VENT SCHEDULE, Page 43.
- Dimensions are approximate, refer to unit drawing for construction.

List prices may be subject to trade classification discounts. Contact your local Payne Engineering Authorized Distributor or representative.

Prices shown are subject to change without notice.

OPTION NAME	OPTION ORDER No.	OPTION DESCRIPTION			LIST PRICE ADDER
VOLTAGE LIMIT	9	RMS Output Voltage Limit (Field adjustable)			25.00
MILLIAMP CONTROL	11A	closed-loop apps only 1-5 ma., ≤1000 Ω	option 21A	Optically-isolated input. open- or closed-loop apps. 1-5 ma., ≤1000 Ω	38.00
	11B	2-10ma., ≤1000 Ω	21B	2-10 ma., ≤1000 Ω	
	11C	4-20 ma., ≤600 Ω	21C	4-20 ma., ≤600 Ω	
	11D	12-20 ma., ≤600 Ω	21D	12-20 ma., ≤600 Ω	
	11E	10-50 ma., ≤300 Ω	21E	10-50 ma., ≤300 Ω	
	11F	1-5 volts DC			
	11G	2-10 volts DC			
	11H	Other. Specify ma. range and input impedance.			
CURRENT LIMIT	12	RMS Output Current Limit (Field Adjustable, includes current transformer)			115.00
VOLTAGE REGULATION	13	RMS Output Voltage Regulation. ± 1 % output variation with ± 10% input voltage variation			215.00
ISOLATED CHASSIS	14A	For installation in non-vented enclosures.			65.00
	14B	Electrically Isolated Chassis, 10-30A, 480 VAC only. (Std. on 10-30A, 120/240 VAC) Electrically Isolated Chassis, 50-80A			97.00
THERMISTOR TEMPERATURE CONTROL	15A 15B	Thermistor Bridge, Proportional, Automatic Temperature Control. Temperature Range 0-90°C Temperature Range 90-240°C			90.00
SOFT START	19	1/2 second voltage ramp, to reduce inrush current.			25.00
OPTICALLY ISOLATED ma. <u>EXTERNAL CONTROL CARD</u>	20A	Optically isolated. May be field installed. Suitable for open-loop control.			65.00
	20B	1-5 ma., ≤1000 Ω			
	20C	2-10ma., ≤1000 Ω			
	20D	4-20 ma., ≤600 Ω			
	20E	12-20 ma., ≤600 Ω			
	20F	10-50 ma., ≤300 Ω			
	20H	Other. Specify ma. range and input impedance.			
RETROFIT	22	To physically replace units built prior to 8/90. 120, 240 VAC, 10-30 Amps only			38.00
HEATSINK OVERTEMP SWITCH	24A	Overtemp trip of controller.			55.00
	24B	For external indicating circuit or alarm.			
120V PILOT	28	120 VAC On/Off Pilot Control			38.00
70-400Hz	30	For operation on power frequencies from 70-400Hz, and 16-2/3 or 25Hz.			Contact Factory
EXTERNAL POWER	33	External trigger circuit power. Specify voltage to be supplied.			38.00
277 VAC INPUT	18D- 3 -etc.	Rated for 277 VAC Input. (Change Model No. from 18D-4-etc. to 18D-3-etc.)			38.00
550 VAC INPUT	18D- 5 -etc.	Rated for 550 VAC Input. (Change Model No. from 18D-4-etc. to 18D-5-etc.)			38.00
600 VAC INPUT	18D- 6 -etc.	Rated for 600 VAC Input. (May require size increase of base model.) (Change Model No. from 18D-4-etc. to 18D-6-etc.)			210.00

18D OPTION NOTES:

- To order, specify option number separately, and add option price to control list price.
- See page 46 for detailed option description.
- Options must be ordered with control (except Option 20)
- Certain combinations of options may not be compatible. See page 47 or consult local representative or factory.
- Consult factory for option requirements not shown.

DESCRIPTION: Single Phase, Phase Angle Control

APPLICATION: Constant Resistance Loads

Model Number	Fuse Amps	kVA @ Max Rated Volts	Open Chassis Dimensions Inches			Open Chassis List Price	Ventilated Dimensions	Enclosure List Price
			Height	Width	Depth		H x W x D	Adder
SINGLE PHASE, 120 VAC INPUT, 0-118 VAC OUTPUT, 50/60Hz								
18D-1-50N	50	5.9	6	2.18	7.9	309.00	14 12 8	***
18D-1-80N	80	9.4	9	2.18	7.9	350.00	14 12 8	***
18D-1-120N	120	14.1	13.125	2.18	7.9	523.00	20 16 9	***
SINGLE PHASE, 240 VAC INPUT, 0-238 VAC OUTPUT, 50/60Hz (ALSO FOR 208/220/230 VAC INPUT)								
18D-2-50N	50	11.9	6	2.18	7.9	309.00	14 12 8	***
18D-2-80N	80	19.0	9	2.18	7.9	350.00	14 12 8	***
18D-2-120N	120	28.5	13.125	2.18	7.9	523.00	20 16 9	***
SINGLE PHASE, 480 VAC INPUT, 0-478 VAC OUTPUT, 50/60Hz (ALSO FOR 380/415/440 VAC INPUT)								
18D-4-50N	50	24.0	6	2.18	7.9	352.00	14 12 8	***
18D-4-80N	80	38.4	9	2.18	7.9	405.00	14 12 8	***
18D-4-120N	120	57.6	13.125	2.18	7.9	531.00	20 16 9	***

NOTES:

- Standard units supplied with:
 - Manual control potentiometer on 2 feet of cable
- For recommended spare fuses, see FUSE CHART, Page 39. Use of any other fuse voids all warranties.
- Enclosures supplied by others must be properly ventilated. See VENT SCHEDULE, Page 43.

- Dimensions are approximate, refer to unit drawing for construction.

List prices may be subject to trade classification discounts. Contact your local Payne Engineering Authorized Distributor or representative.

Prices shown are subject to change without notice.

OPTION NAME	OPTION ORDER No.	OPTION DESCRIPTION			LIST PRICE ADDER
MILLIAMPER CONTROL	11A	closed-loop apps only	option	Optically-isolated input. open- or closed-loop apps.	38.00
	11B	1-5 ma., ≤1000 Ω	21A	1-5 ma., ≤1000 Ω	
	11C	2-10ma., ≤1000 Ω	21B	2-10 ma., ≤1000 Ω	
	11D	4-20 ma., ≤600 Ω	21C	4-20 ma., ≤600 Ω	
	11E	12-20 ma., ≤600 Ω	21D	12-20 ma., ≤600 Ω	
	11F	10-50 ma., ≤300 Ω	21E	10-50 ma., ≤300 Ω	
	11G	1-5 volts DC			
	11H	2-10 volts DC			
		Other. Specify ma. range and input impedance.			

18D-N OPTION NOTES:

1. To order, specify option number seperately, and add option price to control list price.
2. See page 46 for detailed option description.
3. Options must be ordered with control (except Option 20)
4. Certain combinations of options may not be compatible. See page 47 or consult local representative or factory.
5. Consult factory for option requirements not shown.



DESCRIPTION: Three Phase, Variable Voltage Control

APPLICATION: Constant Resistance Loads

Model Number	Fuse Amps	kVA @ Max Rated Volts	Open Chassis Dimensions Inches			Open Chassis List Price	Ventilated Dimensions H x W x D	Enclosure List Price Adder
			Height	Width	Depth			
THREE PHASE, 240 VAC INPUT, 0-238 VAC OUTPUT, 50 or 60Hz ⁵ (ALSO FOR 208/220/230 VAC INPUT)								
18E-2-10	10	4	10.62	8.25	5.37	399.00	14 12 8	Contact Factory
18E-2-20	20	8	12.62	10.25	5.37	428.00	16 14 8	***
18E-2-30	30	12	15.12	12.87	6.37	450.00	20 16 9	***
18E-2-50	50	20	15	13	6.25	588.00	20 16 9	***
18E-2-80	80	32	21	13	6.25	727.00	30 20 9	***
18E-2-120	120	48	21	13	8.25	1301.00	30 20 9	***
18E-2-150	150	60	27	17	8.25	1428.00	36 24 12	***
18E-2-250	250	100	27	21	9	1929.00	36 24 12	***
18E-2-350	350	139	27	27	10.5	2163.00	42 36 12	***
18E-2-450	450	180	33	27	10.5	2551.00	42 36 12	***
18E-2-600	600	239	39	27	10.5	3043.00	48 36 12	***
18E-2-1200	1200	478	57	33	11	5603.00	72 36 12	***
THREE PHASE, 480 VAC INPUT, 0-460 VAC OUTPUT, 50 or 60Hz ⁵ (ALSO FOR 380/415/440 VAC INPUT)								
18E-4-10	10	8	10.62	8.25	5.37	458.00	14 12 8	Contact Factory
18E-4-20	20	16	12.62	10.25	5.37	493.00	16 14 8	***
18E-4-30	30	24	15.12	12.87	6.37	536.00	20 16 9	***
18E-4-50	50	40	15	13	6.25	680.00	20 16 9	***
18E-4-80	80	64	21	13	6.25	766.00	30 20 9	***
18E-4-120	120	96	21	13	8.25	1306.00	30 20 9	***
18E-4-150	150	120	27	17	8.25	1428.00	36 24 12	***
18E-4-250	250	200	27	21	9	1929.00	36 24 12	***
18E-4-350	350	278	27	27	10.5	2163.00	42 36 12	***
18E-4-450	450	359	33	27	10.5	2551.00	42 36 12	***
18E-4-600	600	478	39	27	10.5	3043.00	48 36 12	***
18E-4-1200	1200	965	57	33	11	5603.00	72 36 12	***

NOTES:

- Standard units supplied with:
 - Manual control potentiometer on 2 feet of cable
 - Control isolation transformer (except where noted †)
 - Factory installed 2-millisecond fuses
- For recommended spare fuses, see FUSE CHART, Page 39. Use of any other fuse voids all warranties.
- Enclosures supplied by others must be properly ventilated. See VENT SCHEDULE, Page 43.
- Dimensions are approximate, refer to unit drawing for construction.
- Factory set for 60Hz. Must specify if for 50 Hz usage.

List prices may be subject to trade classification discounts. Contact your local Payne Engineering Authorized Distributor or representative.

Prices shown are subject to change without notice.

OPTION NAME	OPTION ORDER No.	OPTION DESCRIPTION	LIST PRICE ADDER
VOLTAGE LIMIT	9	RMS Output Voltage Limit (Field adjustable)	25.00
MILLIAMPERE CONTROL	11A 11B 11C 11D 11E 11F 11G 11H	For closed-loop applications only. (See Option 20 for open-loop applications) 1-5 ma., $\leq 1000 \Omega$ 2-10ma., $\leq 1000 \Omega$ 4-20 ma., $\leq 600 \Omega$ 12-20 ma., $\leq 600 \Omega$ 10-50 ma., $\leq 300 \Omega$ 1-5 volts DC 2-10 volts DC Other. Specify ma. range and input impedance.	38.00
CURRENT LIMIT	12	RMS Output Current Limit (Field Adjustable, includes current transformer)	115.00
VOLTAGE REGULATION	13	RMS Output Voltage Regulation. $\pm 1\%$ output variation with $\pm 10\%$ input voltage variation	215.00
ISOLATED CHASSIS	14A 14B	For installation in non-vented enclosures. Electrically Isolated Chassis, 10-30A, 480 VAC only. (Std. on 10-30A, 120/240 VAC) Electrically Isolated Chassis, 50-80A	65.00 97.00
THERMISTOR TEMPERATURE CONTROL	15A 15B	Thermistor Bridge, Proportional, Automatic Temperature Control. Temperature Range 0-90°C Temperature Range 90-240°C	90.00
SOFT START	19	1/2 second voltage ramp, to reduce inrush current.	25.00
OPTICALLY ISOLATED ma. <u>EXTERNAL CONTROL CARD</u>	20A 20B 20C 20D 20E 20H	Optically isolated. May be field installed. Suitable for open-loop control. 1-5 ma., $\leq 1000 \Omega$ 2-10ma., $\leq 1000 \Omega$ 4-20 ma., $\leq 600 \Omega$ 12-20 ma., $\leq 600 \Omega$ 10-50 ma., $\leq 300 \Omega$ Other. Specify ma. range and input impedance.	65.00
HEATSINK OVERTEMP SWITCH	24A 24B	Overtemp trip of controller. For external indicating circuit or alarm.	55.00
120V PILOT	28	120 VAC On/Off Pilot Control	38.00
70-400Hz	30	For operation on power frequencies from 70-400Hz, and 16-2/3 or 25Hz.	Contact Factory
EXTERNAL POWER	33	External trigger circuit power. Specify voltage to be supplied.	38.00
120 VAC INPUT	18E-1-etc.	Rated for 120 VAC Input. (Change Model No. from 18E-2-etc. to 18E-1-etc.)	38.00
550 VAC INPUT	18E-5-etc.	Rated for 550 VAC Input. (Change Model No. from 18E-4-etc. to 18E-5-etc.)	38.00
600 VAC INPUT	18E-6-etc.	Rated for 600 VAC Input. (May require size increase of base model.) (Change Model No. from 18E-4-etc. to 18E-6-etc.)	210.00

18E OPTION NOTES:

- To order, specify option number separately, and add option price to control list price.
- See page 46 for detailed option description.
- Options must be ordered with control (except Option 20)
- Certain combinations of options may not be compatible. See page 47 or consult local representative or factory.
- Consult factory for option requirements not shown.

DESCRIPTION: Single Phase, Phase Angle Control

APPLICATION: High Inrush, Variable Resistance Loads

Model Number	Max Amps	kVA @ Max Rated Volts	Open Chassis Dimensions Inches			Open Chassis List Price	Ventilated Dimensions H x W x D	Enclosure List Price Adder
Height Width Depth								
SINGLE PHASE, 120 VAC INPUT, 0-118 VAC OUTPUT, 50/60Hz								
18D-1-10Hi	10	1.2	6.25	3.5	3	155.00	10 6 6	Contact Factory
18D-1-30H	30	3.6	7	5.5	6	259.00	12 10 8	***
18D-1-80H	80	9.4	12	6	7	464.00	14 12 8	***
18D-1-150H	150	17.7	15	9.5	8	750.00	24 20 9	***
18D-1-350H	350	41.3	21	13	10.5	887.00	36 24 12	***
18D-1-600H	600	70.8	33	17	11	1562.00	42 30 12	***
SINGLE PHASE, 240 VAC INPUT, 0-238 VAC OUTPUT, 50/60Hz (ALSO FOR 208/220/230 VAC INPUT)								
18D-2-10Hi	10	2.4	6.25	3.5	3	168.00	10 6 6	Contact Factory
18D-2-30H	30	7.2	7	5.5	6	259.00	12 10 8	***
18D-2-80H	80	19.0	12	6	7	464.00	14 12 8	***
18D-2-150H	150	35.7	15	9.5	8	750.00	24 20 9	***
18D-2-350H	350	83.3	21	13	10.5	887.00	36 24 12	***
18D-2-600H	600	142.8	33	17	11	1562.00	42 30 12	***
SINGLE PHASE, 480 VAC INPUT, 0-478 VAC OUTPUT, 50/60Hz (ALSO FOR 380/415/440 VAC INPUT)								
18D-4-10H	10	4.8	7	5.5	4.5	196.00	12 10 8	Contact Factory
18D-4-30H	30	14.4	7	5.5	6	281.00	12 10 8	***
18D-4-80H	80	38.2	12	6	7	464.00	14 12 8	***
18D-4-150H	150	71.7	15	9.5	8	750.00	24 20 9	***
18D-4-350H	350	167	21	13	10.5	887.00	36 24 12	***
18D-4-600H	600	287	33	17	11	1562.00	42 30 12	***

NOTES:

- Standard units supplied with:
 - Manual control potentiometer on 2 feet of cable
 - Control isolation transformer (except where noted †)
 - Factory installed 2-millisecond fuses
 - 1/2 second soft start
 - Oversized SCR's
- For recommended spare fuses, see FUSE CHART, Page 39. Use of any other fuse voids all warranties.
- Enclosures supplied by others must be properly ventilated. See VENT SCHEDULE, Page 43.
- Dimensions are approximate, refer to unit drawing for construction.

List prices may be subject to trade classification discounts. Contact your local Payne Engineering Authorized Distributor or representative.

Prices shown are subject to change without notice.

OPTION NAME	OPTION ORDER No.	OPTION DESCRIPTION			LIST PRICE ADDER
VOLTAGE LIMIT	9	RMS Output Voltage Limit (Field adjustable)			25.00
MILLIAMPERE CONTROL	11A	closed-loop apps only	option	Optically-isolated input. open- or closed-loop apps.	38.00
	11B	1-5 ma., ≤1000 Ω	21A	1-5 ma., ≤1000 Ω	
	11C	2-10ma., ≤1000 Ω	21B	2-10 ma., ≤1000 Ω	
	11D	4-20 ma., ≤600 Ω	21C	4-20 ma., ≤600 Ω	
	11E	12-20 ma., ≤600 Ω	21D	12-20 ma., ≤600 Ω	
	11F	10-50 ma., ≤300 Ω	21E	10-50 ma., ≤300 Ω	
	11G	1-5 volts DC			
	11H	2-10 volts DC			
		Other. Specify ma. range and input impedance.			
CURRENT LIMIT	12	RMS Output Current Limit (Field Adjustable, includes current transformer)			115.00
VOLTAGE REGULATION	13	RMS Output Voltage Regulation. ± 1 % output variation with ± 10% input voltage variation			215.00
ISOLATED CHASSIS	14A	For installation in non-vented enclosures.			65.00
	14B	Electrically Isolated Chassis, 10-30A, 480 VAC only. (Std. on 10-30A, 120/240 VAC) Electrically Isolated Chassis, 50-80A			97.00
THERMISTOR TEMPERATURE CONTROL	15A 15B	Thermistor Bridge, Proportional, Automatic Temperature Control. Temperature Range 0-90°C Temperature Range 90-240°C			90.00
OPTICALLY ISOLATED ma. EXTERNAL CONTROL CARD	20A	Optically isolated. May be field installed. Suitable for open-loop control.			65.00
	20B	1-5 ma., ≤1000 Ω			
	20C	2-10ma., ≤1000 Ω			
	20D	4-20 ma., ≤600 Ω			
	20E	12-20 ma., ≤600 Ω			
	20F	10-50 ma., ≤300 Ω			
	20H	Other. Specify ma. range and input impedance.			
RETROFIT	22	To physically replace units built prior to 8/90. 120, 240 VAC, 10-30 Amps only			38.00
HEATSINK OVERTEMP SWITCH	24A	Overtemp trip of controller.			55.00
	24B	For external indicating circuit or alarm.			
120V PILOT	28	120 VAC On/Off Pilot Control			38.00
70-400Hz	30	For operation on power frequencies from 70-400Hz, and 16-2/3 or 25Hz.			Contact Factory
EXTERNAL POWER	33	External trigger circuit power. Specify voltage to be supplied.			38.00
277 VAC INPUT	18D- 3 -etc.	Rated for 277 VAC Input. (Change Model No. from 18D-4-etc. to 18D-3-etc.)			38.00
550 VAC INPUT	18D- 5 -etc.	Rated for 550 VAC Input. (Change Model No. from 18D-4-etc. to 18D-5-etc.)			38.00
600 VAC INPUT	18D- 6 -etc.	Rated for 600 VAC Input. (May require size increase of base model.) (Change Model No. from 18D-4-etc. to 18D-6-etc.)			210.00

18D-H OPTION NOTES:

- To order, specify option number separately, and add option price to control list price.
- See page 46 for detailed option description.
- Options must be ordered with control (except Option 20)
- Certain combinations of options may not be compatible. See page 47 or consult local representative or factory.
- Consult factory for option requirements not shown.

DESCRIPTION: Three Phase, Variable Voltage Control

APPLICATION: High Inrush, Variable Resistance Loads

Model Number	Max Amps	kVA @ Max Rated Volts	Open Chassis Dimensions Inches			Open Chassis List Price	Ventilated Dimensions H x W x D	Enclosure List Price Adder
			Height	Width	Depth			
THREE PHASE, 240 VAC INPUT, 0-238 VAC OUTPUT, 50 or 60Hz ⁵ (ALSO FOR 208/220/230 VAC INPUT)								
18E-2-10H	10	4	10.62	8.25	5.37	423.00	14 12 8	Contact Factory
18E-2-30H	30	12	15.12	12.87	6.37	538.00	20 16 9	***
18E-2-80H	80	32	21	13	6.25	1086.00	30 20 9	***
18E-2-150H	150	60	27	17	9	1929.00	36 24 12	***
18E-2-350H	350	139	27	27	10.5	2907.00	42 36 12	***
18E-2-600H	600	240	39	27	11	4077.00	48 36 12	***
THREE PHASE, 480 VAC INPUT, 0-460 VAC OUTPUT, 50 or 60Hz ⁵ (ALSO FOR 380/415/440 VAC INPUT)								
18E-4-10H	10	8	10.62	8.25	5.37	495.00	14 12 8	Contact Factory
18E-4-30H	30	24	15.12	12.87	6.37	631.00	20 16 9	***
18E-4-80H	80	64	21	13	6.25	1140.00	30 20 9	***
18E-4-150H	150	120	27	17	9	1991.00	36 24 12	***
18E-4-350H	350	278	27	27	10.5	2907.00	42 36 12	***
18E-4-600H	600	480	39	27	11	4077.00	48 36 12	***

NOTES:

- Standard units supplied with:
 - Manual control potentiometer on 2 feet of cable
 - Control isolation transformer (except where noted †)
 - Factory installed 2-millisecond fuses
 - 1/2 second soft start
 - Oversized SCR's
- For recommended spare fuses, see FUSE CHART, Page 39. Use of any other fuse voids all warranties.
- Enclosures supplied by others must be properly ventilated. See VENT SCHEDULE, Page 43.
- Dimensions are approximate, refer to unit drawing for construction.
- Factory set for 60Hz. Must specify if for 50Hz usage.

List prices may be subject to trade classification discounts. Contact your local Payne Engineering Authorized Distributor or representative.

Prices shown are subject to change without notice.

OPTION NAME	OPTION ORDER No.	OPTION DESCRIPTION	LIST PRICE ADDER
VOLTAGE LIMIT	9	RMS Output Voltage Limit (Field adjustable)	25.00
MILLIAMP CONTROL	11A 11B 11C 11D 11E 11F 11G 11H	For closed-loop applications only. (See Option 20 for open-loop applications) 1-5 ma., $\leq 1000 \Omega$ 2-10ma., $\leq 1000 \Omega$ 4-20 ma., $\leq 600 \Omega$ 12-20 ma., $\leq 600 \Omega$ 10-50 ma., $\leq 300 \Omega$ 1-5 volts DC 2-10 volts DC Other. Specify ma. range and input impedance.	38.00
CURRENT LIMIT	12	RMS Output Current Limit (Field Adjustable, includes current transformer)	115.00
VOLTAGE REGULATION	13	RMS Output Voltage Regulation. $\pm 1\%$ output variation with $\pm 10\%$ input voltage variation	215.00
ISOLATED CHASSIS	14A 14B	For installation in non-vented enclosures. Electrically Isolated Chassis, 10-30A, 480 VAC only. (Std. on 10-30A, 120/240 VAC) Electrically Isolated Chassis, 50-80A	65.00 97.00
THERMISTOR TEMPERATURE CONTROL	15A 15B	Thermistor Bridge, Proportional, Automatic Temperature Control. Temperature Range 0-90°C Temperature Range 90-240°C	90.00
OPTICALLY ISOLATED ma. EXTERNAL CONTROL CARD	20A 20B 20C 20D 20E 20H	Optically isolated. May be field installed. Suitable for open-loop control. 1-5 ma., $\leq 1000 \Omega$ 2-10ma., $\leq 1000 \Omega$ 4-20 ma., $\leq 600 \Omega$ 12-20 ma., $\leq 600 \Omega$ 10-50 ma., $\leq 300 \Omega$ Other. Specify ma. range and input impedance.	65.00
HEATSINK OVERTEMP SWITCH	24A 24B	Overtemp trip of controller. For external indicating circuit or alarm.	55.00
120V PILOT	28	120 VAC On/Off Pilot Control	38.00
70-400Hz	30	For operation on power frequencies from 70-400Hz, and 16-2/3 or 25Hz.	Contact Factory
EXTERNAL POWER	33	External trigger circuit power. Specify voltage to be supplied.	38.00
120 VAC INPUT	18E- <u>1</u> -etc.	Rated for 120 VAC Input. (Change Model No. from 18E-2-etc. to 18E-1-etc.)	38.00
550 VAC INPUT	18E- <u>5</u> -etc.	Rated for 550 VAC Input. (Change Model No. from 18E-4-etc. to 18E-5-etc.)	38.00
600 VAC INPUT	18E- <u>6</u> -etc.	Rated for 600 VAC Input. (May require size increase of base model.) (Change Model No. from 18E-4-etc. to 18E-6-etc.)	210.00

18E-H OPTION NOTES:

- To order, specify option number separately, and add option price to control list price.
- See page 46 for detailed option description.
- Options must be ordered with control (except Option 20)
- Certain combinations of options may not be compatible. See page 47 or consult local representative or factory.
- Consult factory for option requirements not shown.

DESCRIPTION: Single Phase, Zero Fired Control
APPLICATION: Constant Resistance Loads

100% Power Factor
No Harmonics

Model Number	Fuse Amps	kVA @ Max Rated Volts	Open Chassis Dimensions Inches			Open Chassis List Price	Ventilated Dimensions H x W x D	Enclosure List Price Adder
			Height	Width	Depth			
SINGLE POLE, SINGLE PHASE, 120 VAC INPUT, 118 VAC OUTPUT, 10-400Hz								
18DZ-1-10i	10	1.2	6.25	3.5	3	173.00	10 6 6	Contact Factory
18DZ-1-20i	20	2.4	6.25	3.5	3	181.00	10 6 6	***
18DZ-1-30i	30	3.6	6.25	3.5	4.1	201.00	10 6 6	***
18DZ-1-50	50	5.9	10	5.5	7	319.00	14 12 8	***
18DZ-1-80	80	9.4	12	5.5	7	345.00	14 12 8	***
18DZ-1-120	120	14.1	12.5	6.5	8	567.00	20 16 9	***
18DZ-1-150	150	17.7	15	9.5	8	593.00	20 16 9	***
18DZ-1-250	250	30.0	25	9.5	8	705.00	30 20 9	***
18DZ-1-350	350	41.3	21	13	10.5	787.00	36 24 12	***
SINGLE POLE, SINGLE PHASE, 240 VAC INPUT, 238 VAC OUTPUT, 10-400Hz (ALSO FOR 208/220/230 VAC INPUT)								
18DZ-2-10i	10	2.4	6.25	3.5	3	173.00	10 6 6	Contact Factory
18DZ-2-15i	15	3.6	6.25	3.5	3	181.00	10 6 6	***
18DZ-2-20i	20	4.8	6.25	3.5	3	188.00	10 6 6	***
18DZ-2-30i	30	7.2	6.25	3.5	4.1	201.00	10 6 6	***
18DZ-2-50	50	11.9	10	5.5	7	319.00	14 12 8	***
18DZ-2-80	80	19.0	12	5.5	7	345.00	14 12 8	***
18DZ-2-120	120	28.5	12.5	6.5	8	579.00	20 16 9	***
18DZ-2-150	150	35.7	15	9.5	8	593.00	20 16 9	***
18DZ-2-250	250	60.0	25	9.5	8	705.00	30 20 9	***
18DZ-2-350	350	83.3	21	13	10.5	787.00	36 24 12	***
SINGLE POLE, SINGLE PHASE, 480 VAC INPUT, 478 VAC OUTPUT, 10-400Hz (ALSO FOR 380/415/440 VAC INPUT)								
18DZ-4-10i	10	4.8	7	5.5	4.5	238.00	12 10 8	Contact Factory
18DZ-4-20i	20	9.6	7	5.5	4.5	245.00	12 10 8	***
18DZ-4-30i	30	14.4	7	5.5	5.5	254.00	12 10 8	***
18DZ-4-50	50	24.0	10	5.5	7	325.00	14 12 8	***
18DZ-4-80	80	38.4	12	5.5	7	373.00	14 12 8	***
18DZ-4-120	120	57.6	12.5	6.5	8	590.00	20 16 9	***
18DZ-4-150	150	72.0	15	9.5	8	604.00	20 16 9	***
18DZ-4-250	250	120	25	9.5	8	705.00	30 20 9	***
18DZ-4-350	350	168	21	13	10.5	787.00	36 24 12	***
18DZ-4-450	450	215	27	17	10.5	976.00	36 24 12	***
18DZ-4-600	600	288	33	17	10.5	1169.00	42 30 12	***
18DZ-4-1200	1200	576	47	21	10.5	2377.00	72 36 12	***

NOTES:

- Standard units supplied with:
 - Manual control potentiometer on 2 feet of cable
 - Control isolation transformer (except where noted †)
 - Factory installed 2-millisecond fuses
- For recommended spare fuses, see FUSE CHART, Page 39. Use of any other fuse voids all warranties.
- effective 11/96
- Enclosures supplied by others must be properly ventilated. See VENT SCHEDULE, Page 43.

- Dimensions are approximate, refer to unit drawing for construction.

List prices may be subject to trade classification discounts. Contact your local Payne Engineering Authorized Distributor or representative.

Prices shown are subject to change without notice.

OPTION NAME	OPTION ORDER No.	OPTION DESCRIPTION	LIST PRICE ADDER
ISOLATED CHASSIS	14A 14B	For installation in non-vented enclosures. Electrically Isolated Chassis, 10-30A, 480 VAC only. (Std. on 10-30A, 120/240 VAC) Electrically Isolated Chassis, 50-80A	65.00 97.00
THERMISTOR TEMPERATURE CONTROL	15A 15B	Thermistor Bridge, Proportional, Automatic Temperature Control. Temperature Range 0-90°C Temperature Range 90-240°C	90.00
OPTICALLY ISOLATED ma. CONTROL	21A 21B 21C 21D 21E 21H	For closed-loop applications only. (See Option 20 for open-loop applications) 1-5 ma., ≤1000 Ω 2-10ma., ≤1000 Ω 4-20 ma., ≤600 Ω 12-20 ma., ≤600 Ω 10-50 ma., ≤300 Ω Other. Specify ma. range and input impedance.	38.00
RETROFIT	22	To physically replace units built prior to 8/90. 120, 240 VAC, 10-30 Amps only	38.00
HEATSINK OVERTEMP SWITCH	24A 24B	Overtemp trip of controller. For external indicating circuit or alarm.	55.00
120V PILOT	28	120 VAC On/Off Pilot Control	38.00
70-400Hz	30	For operation on power frequencies from 70-400Hz, and 16-2/3 or 25Hz.	Contact Factory
EXTERNAL POWER	33	External trigger circuit power. Specify voltage to be supplied.	38.00
277 VAC INPUT	18DZ- 3 -etc.	Rated for 277 VAC Input. (Change Model No. from 18DZ-2-etc. to 18DZ-3-etc.)	38.00
550 VAC INPUT	18DZ- 5 -etc.	Rated for 550 VAC Input. (Change Model No. from 18DZ-4-etc. to 18DZ-5-etc.)	38.00
600 VAC INPUT	18DZ- 6 -etc.	Rated for 600 VAC Input. (May require size increase of base model.) (Change Model No. from 18DZ-4-etc. to 18DZ-6-etc.)	210.00

18DZ OPTION NOTES:

1. To order, specify option number separately, and add option price to control list price.
2. See page 46 for detailed option description.
3. Options must be order with control.
4. Certain combinations of options may not be compatible. See page 47 or consult local representative or factory.
5. Consult factory for option requirements not shown.

DESCRIPTION: Three Phase, Zero Fired Control
APPLICATION: Constant Resistance Loads

100% Power Factor
No Harmonics

Model Number	Fuse Amps	kVA @ Max Rated Volts	Open Chassis Dimensions Inches Height Width Depth			Open Chassis List Price	Ventilated Dimensions H x W x D	Enclosure List Price Adder
THREE PHASE, 240 VAC INPUT, 0-238 VAC OUTPUT, 50/60Hz (ALSO FOR 220/230 VAC INPUT, For 208 VAC See Note 6)								
18EZ-2-10	10	4	11	9	5.37	325.00	16 14 8	Contact Factory
18EZ-2-20	20	8	11	9	5.37	351.00	16 14 8	***
18EZ-2-30	30	12	12.5	10.25	6.37	360.00	16 14 8	***
18EZ-2-50	50	20	13.25	11.25	6.5	491.00	16 14 8	***
18EZ-2-80	80	33	13.25	11.25	6.5	512.00	16 14 8	***
18EZ-2-120	120	49	14	14	9	994.00	24 24 12	***
18EZ-2-150	150	62	21	21	9	1016.00	24 24 12	***
18EZ-2-250	250	103	27	17	9.62	1330.00	36 24 12	***
18EZ-2-350	350	144	27	21	11	1424.00	36 30 12	***
18EZ-2-450	450	185	27	21	11	1631.00	42 30 12	***
18EZ-2-600	600	247	33	21	11	1984.00	42 36 12	***
18EZ-2-1200	1200	494	57	33	12.5	4338.00	90 36 20	***
THREE PHASE, 480 VAC INPUT, 0-478 VAC OUTPUT, 50/60Hz (ALSO FOR 440 VAC INPUT, For 380/415 See Note 7)								
18EZ-4-10	10	8.3	11	9	5.37	362.00	16 14 8	Contact Factory
18EZ-4-20	20	16.6	11	9	5.37	371.00	16 14 8	***
18EZ-4-30	30	25.0	12.5	10.25	6.37	382.00	16 14 8	***
18EZ-4-50	50	41.0	13.25	11.25	6.5	501.00	16 14 8	***
18EZ-4-80	80	66.0	13.25	11.25	6.5	523.00	16 14 8	***
18EZ-4-120	120	99.0	14	14	9	994.00	24 24 12	***
18EZ-4-150	150	124	21	21	9	1016.00	24 24 12	***
18EZ-4-250	250	206	27	17	9.62	1330.00	36 24 12	***
18EZ-4-350	350	288	27	21	11	1424.00	36 30 12	***
18EZ-4-450	450	375	27	21	11	1631.00	42 30 12	***
18EZ-4-600	600	500	33	21	11	1984.00	42 36 12	***
18EZ-4-1200	1200	994	57	33	12.5	4338.00	90 36 20	***

NOTES:

- Standard units supplied with:
 - Manual control potentiometer on 2 feet of cable
 - Control isolation transformer (except where noted †)
 - Factory installed 2-millisecond fuses
- For recommended spare fuses, see FUSE CHART, Page 39. Use of any other fuse voids all warranties.
- Enclosures supplied by others must be properly ventilated. See VENT SCHEDULE, Page 43.
- Dimensions are approximate, refer to unit drawing for construction.
- For 3-phase, 4-wire systems specify 18EZ-x-xxx3P and multiply above price by 1.5
- For 208 VAC input add suffix "L" to unit number. See options, page 27.
- For 380/415 input, change voltage number to "3". See options page 27.

List prices may be subject to trade classification discounts. Contact your local Payne Engineering Authorized Distributor or representative.

Prices shown are subject to change without notice.

OPTION NAME	OPTION ORDER No.	OPTION DESCRIPTION	LIST PRICE ADDER
ISOLATED CHASSIS	14A 14B	For installation in non-vented enclosures. Electrically Isolated Chassis, 10-30A, 480 VAC only. (Std. on 10-30A, 120/240 VAC) Electrically Isolated Chassis, 50-80A	195.00 291.00
THERMISTOR TEMPERATURE CONTROL	15A 15B	Thermistor Bridge, Proportional, Automatic Temperature Control. Temperature Range 0-90°C Temperature Range 90-240°C	90.00
OPTICALLY ISOLATED ma. CONTROL	21A 21B 21C 21D 21E 21H	For closed-loop applications only. (See Option 20 for open-loop applications) 1-5 ma., ≤1000 Ω 2-10ma., ≤1000 Ω 4-20 ma., ≤600 Ω 12-20 ma., ≤600 Ω 10-50 ma., ≤300 Ω Other. Specify ma. range and input impedance.	38.00
HEATSINK OVERTEMP SWITCH	24A 24B	Overtemp trip of controller. For external indicating circuit or alarm.	55.00
120V PILOT	28	120 VAC On/Off Pilot Control	38.00
70-400Hz	30	For operation on power frequencies from 70-400Hz, and 16-2/3 or 25Hz.	Contact Factory
EXTERNAL POWER	33	External trigger circuit power. Specify voltage to be supplied.	38.00
120 VAC INPUT	18EZ- <u>1</u> -etc.	Rated for 120 VAC (nominal) Input. (Change Model No. from 18EZ-2-etc. to 18EZ-1-etc.)	N/C
208 VAC INPUT	18EZ- <u>2-xx</u> <u>L</u>	Rated for 208 VAC (nominal) Input. (Change Model No. from 18EZ-2-etc. to 18EZ-2-xx <u>L</u>)	N/C
380/415 VAC INPUT	18EZ- <u>3</u> -etc.	Rated for 380/415 VAC (nominal) Input. (Change Model No. from 18EZ-2-etc. to 18EZ-3-etc.)	N/C
550 VAC INPUT	18EZ- <u>5</u> -etc.	Rated for 550 VAC (nominal) Input. (Change Model No. from 18EZ-4-etc. to 18EZ-5-etc.)	66.00
600 VAC INPUT	18EZ- <u>6</u> -etc.	Rated for 600 VAC (nominal) Input. (May require size increase of base model.) (Change Model No. from 18EZ-4-etc. to 18EZ-6-etc.)	270.00

18EZ OPTION NOTES:

- To order, specify option number seperately, and add option price to control list price.
- See page 46 for detailed option description.
- Options must be order with control.
- Certain combinations of options may not be compatible. See page 47 or consult local representative or factory.
- Consult factory for option requirements not shown.

DESCRIPTION: Single Phase, Phase Angle Control

APPLICATION: Transformer Coupled and other Inductive Loads

Model Number	Max Amps	kVA @ Max Rated Volts	Open Chassis Dimensions Inches			Open Chassis List Price	Ventilated Dimensions H x W x D	Enclosure List Price Adder
			Height	Width	Depth			
SINGLE PHASE, 120 VAC INPUT, 0-118 VAC OUTPUT, 50/60Hz								
18D-1-10SW2i	10	1.2	7	5.5	3	264.00	12 10 8	Contact Factory
18D-1-30SW2	30	3.6	7	5.5	5.5	364.00	12 10 8	***
18D-1-80SW2	80	9.4	12	5.5	7	639.00	14 12 8	***
18D-1-150SW2	150	17.7	15	9.5	8	756.00	20 16 9	***
18D-1-350SW2	350	41.3	21	13	10.5	887.00	36 24 12	***
18D-1-600SW2	600	70.8	33	17	11	2168.00	42 30 12	***
SINGLE PHASE, 240 VAC INPUT, 0-238 VAC OUTPUT, 50/60Hz (ALSO FOR 208/220/230 VAC INPUT)								
18D-2-10SW2i	10	2.4	7	5.5	3	264.00	12 10 8	Contact Factory
18D-2-30SW2	30	7.2	7	5.5	5.5	364.00	12 10 8	***
18D-2-80SW2	80	19.0	12	5.5	7	639.00	14 12 8	***
18D-2-150SW2	150	35.7	15	9.5	8	756.00	20 16 9	***
18D-2-350SW2	350	83.3	21	13	10.5	887.00	36 24 12	***
18D-2-600SW2	600	142.8	33	17	11	2168.00	42 30 12	***
SINGLE PHASE, 480 VAC INPUT, 0-478 VAC OUTPUT, 50/60Hz (ALSO FOR 380/415/440 VAC INPUT)								
18D-4-10SW2	10	4.8	10	5.5	4.5	318.00	12 10 8	Contact Factory
18D-4-30SW2	30	14.4	10	5.5	5.5	397.00	12 10 8	***
18D-4-80SW2	80	38.2	12	5.5	7	639.00	14 12 8	***
18D-4-150SW2	150	71.7	15	9.5	8	756.00	20 16 9	***
18D-4-350SW2	350	167	21	13	10.5	887.00	36 24 12	***
18D-4-600SW2	600	287	33	17	11	2168.00	42 30 12	***

NOTES:

- Standard units supplied with:
 - Manual control potentiometer on 2 feet of cable
 - Control isolation transformer (except where noted †)
 - Factory installed 2-millisecond fuses
 - 1/2 second soft start
 - Oversized SCR's
- For recommended spare fuses, see FUSE CHART, Page 39. Use of any other fuse voids all warranties.
- Enclosures supplied by others must be properly ventilated. See VENT SCHEDULE, Page 43.
- Dimensions are approximate, refer to unit drawing for construction.

List prices may be subject to trade classification discounts. Contact your local Payne Engineering Authorized Distributor or representative.

Prices shown are subject to change without notice.

OPTION NAME	OPTION ORDER No.	OPTION DESCRIPTION	LIST PRICE ADDER
VOLTAGE LIMIT	9	RMS Output Voltage Limit (Field adjustable)	25.00
MILLIAMP CONTROL	11A 11B 11C 11D 11E 11F 11G 11H	For closed-loop applications only. (See Option 20 for open-loop applications) 1-5 ma., $\leq 1000 \Omega$ 2-10ma., $\leq 1000 \Omega$ 4-20 ma., $\leq 600 \Omega$ 12-20 ma., $\leq 600 \Omega$ 10-50 ma., $\leq 300 \Omega$ 1-5 volts DC 2-10 volts DC Other. Specify ma. range and input impedance.	38.00
CURRENT LIMIT	12	RMS Output Current Limit (Field Adjustable, includes current transformer)	115.00
VOLTAGE REGULATION	13	RMS Output Voltage Regulation. $\pm 1\%$ output variation with $\pm 10\%$ input voltage variation	115.00
ISOLATED CHASSIS	14A 14B	For installation in non-vented enclosures. Electrically Isolated Chassis, 10-30A, 480 VAC only. (Std. on 10-30A, 120/240 VAC) Electrically Isolated Chassis, 50-80A	65.00 97.00
THERMISTOR TEMPERATURE CONTROL	15A 15B	Thermistor Bridge, Proportional, Automatic Temperature Control. Temperature Range 0-90°C Temperature Range 90-240°C	90.00
OPTICALLY ISOLATED ma. EXTERNAL CONTROL CARD	20A 20B 20C 20D 20E 20H	Optically isolated. May be field installed. Suitable for open-loop control. 1-5 ma., $\leq 1000 \Omega$ 2-10ma., $\leq 1000 \Omega$ 4-20 ma., $\leq 600 \Omega$ 12-20 ma., $\leq 600 \Omega$ 10-50 ma., $\leq 300 \Omega$ Other. Specify ma. range and input impedance.	65.00
HEATSINK OVERTEMP SWITCH	24A 24B	Overtemp trip of controller. For external indicating circuit or alarm.	55.00
120V PILOT	28	120 VAC On/Off Pilot Control	38.00
70-400Hz	30	For operation on power frequencies from 70-400Hz, and 16-2/3 or 25Hz.	Contact Factory
EXTERNAL POWER	33	External trigger circuit power. Specify voltage to be supplied.	38.00
277 VAC INPUT	18D- 3 -etc.	Rated for 277 VAC Input. (Change Model No. from 18D-2-etc. to 18D-3-etc.)	38.00
550 VAC INPUT	18D- 5 -etc.	Rated for 550 VAC Input. (Change Model No. from 18D-4-etc. to 18D-5-etc.)	38.00
600 VAC INPUT	18D- 6 -etc.	Rated for 600 VAC Input. (May require size increase of base model.) (Change Model No. from 18D-4-etc. to 18D-6-etc.)	210.00

18D-SW OPTION NOTES:

- To order, specify option number separately, and add option price to control list price.
- See page 46 for detailed option description.
- Options must be ordered with control (except Option 20)
- Certain combinations of options may not be compatible. See page 47 or consult local representative or factory.
- Consult factory for option requirements not shown.

DESCRIPTION: Three Phase, Variable Voltage Control

APPLICATION: High Inrush, Variable Resistance Loads

Model Number	Max Amps	kVA @ Max Rated Volts	Open Chassis Dimensions Inches Height Width Depth			Open Chassis List Price	Ventilated Dimensions H x W x D			Enclosure List Price Adder
THREE PHASE, 240 VAC INPUT, 0-236 VAC OUTPUT, 50/60Hz (ALSO FOR 208/220/230 VAC INPUT)										
18E-2-10SW	10	4.1	10	10.25	5.12	576.00	14	12	8	Contact Factory
18E-2-30SW	30	12.2	10	10.25	6.12	831.00	14	12	8	***
18E-2-80SW	80	32.7	24	11	6.5	1503.00	30	20	9	***
18E-2-150SW	150	61.3	27	21	10	1918.00	36	24	12	***
18E-2-250SW	250	102	25	14	10	2060.00	36	24	12	
18E-2-350SW	350	143	27	27	10.5	2681.00	42	36	12	***
18E-2-600SW	600	245	39	27	11	3946.00	60	36	12	***
THREE PHASE, 480 VAC INPUT, 0-476 VAC OUTPUT, 50/60Hz (ALSO FOR 380 ⁵ /415 ⁵ /440 VAC INPUT)										
18E-4-10SW	10	8.2	10	10.25	5.12	623.00	14	12	8	Contact Factory
18E-4-30SW	30	24.7	10	10.25	6.12	889.00	14	12	8	***
18E-4-80SW	80	66	24	11	6.5	1549.00	30	20	9	***
18E-4-150SW	150	124	27	21	10	1918.00	36	24	12	***
18E-4-250SW	250	205	25	14	10	2060.00	36	24	12	
18E-4-350SW	350	288	27	27	10.5	2681.00	42	36	12	***
18E-4-600SW	600	495	39	27	11	3946.00	60	36	12	***

NOTES:

- Standard units supplied with:
 - Manual control potentiometer on 2 feet of cable
 - Control isolation transformer
 - Factory installed 2-millisecond fuses
 - 1/2 second soft start
- For recommended spare fuses, see FUSE CHART, Page 39. Use of any other fuse voids all warranties.
- Enclosures supplied by others must be properly ventilated. See VENT SCHEDULE, Page 43.
- Dimensions are approximate, refer to unit drawing for construction.
- For 208 VAC, add suffix "L" to unit number. See options, page 31.
- For 380/415 VAC input, change voltage number to "3". See options, page 31.

List prices may be subject to trade classification discounts. Contact your local Payne Engineering Authorized Distributor or representative.

Prices shown are subject to change without notice.

OPTION NAME	OPTION ORDER No.	OPTION DESCRIPTION	LIST PRICE ADDER
VOLTAGE LIMIT	9	RMS Output Voltage Limit (Field adjustable)	25.00
CURRENT LIMIT	12	RMS Output Current Limit (Field Adjustable, includes current transformer)	115.00
ISOLATED CHASSIS	14A 14B	For installation in non-vented enclosures. Electrically Isolated Chassis, 10-30A, 480 VAC only. (Std. on 10-30A, 120/240 VAC) Electrically Isolated Chassis, 50-80A	195.00 291.00
OPTICALLY ISOLATED ma. EXTERNAL CONTROL CARD	21A 21B 21C 21D 21E 21H	Optically isolated. Suitable for open-loop control. 1-5 ma., $\leq 1000 \Omega$ 2-10ma., $\leq 1000 \Omega$ 4-20 ma., $\leq 600 \Omega$ 12-20 ma., $\leq 600 \Omega$ 10-50 ma., $\leq 300 \Omega$ Other. Specify ma. range and input impedance.	38.00
HEATSINK OVERTEMP SWITCH	24A 24B	Overtemp trip of controller. For external indicating circuit or alarm.	55.00
120V PILOT	28	120 VAC On/Off Pilot Control	38.00
70-400Hz	30	For operation on power frequencies from 70-400Hz, and 16-2/3 or 25Hz.	Contact Factory
EXTERNAL POWER	33	External trigger circuit power. Specify voltage to be supplied.	38.00
120 VAC INPUT	18E- <u>1</u> -etc.	Rated for 120 VAC (nominal) Input. (Change Model No. from 18E-2-etc. to 18E-1-etc.)	N/C
208 VAC INPUT	18E-2-xxSW <u>L</u>	Rated for 208 VAC (nominal) Input. (Change Model No. from 18E-2-etc. to 18E-2-xx <u>L</u>)	N/C
380/415 VAC INPUT	18E- <u>3</u> -etc.	Rated for 380-415 VAC (nominal) Input. (Change Model No. from 18E-2-etc. to 18E-3-etc.)	N/C
550 VAC INPUT	18E- <u>5</u> -etc.	Rated for 550 VAC (nominal) Input. (Change Model No. from 18E-4-etc. to 18E-5-etc.)	66.00
600 VAC INPUT	18E- <u>6</u> -etc.	Rated for 600 VAC (nominal) Input. (May require size increase of base model.) (Change Model No. from 18E-4-etc. to 18E-6-etc.)	330.00

18E-SW OPTION NOTES:

- To order, specify option number seperately, and add option price to control list price.
- See page 46 for detailed option description.
- Options must be ordered with control
- Certain combinations of options may not be compatible. See page 47 or consult local representative or factory.
- Consult factory for option requirements not shown.

DESCRIPTION: Single Phase A.C. Input, Variable D.C. Output Control

APPLICATION: Inductive or Resistive D.C. Loads

Model Number	Fuse Amps	Open Chassis Dimensions Inches Height Width Depth			Open Chassis List Price	Ventilated Dimensions H x W x D	Enclosure List Price Adder
SINGLE PHASE, 120 VAC INPUT, 0-107 VDC OUTPUT, 50/60Hz							
36D-1-10i	10	6.25	3.5	3	238.00	12 10 8	Contact Factory
36D-1-20	20	10	5.5	6	348.00	12 10 8	***
36D-1-30	30	12	5.5	6	352.00	14 12 8	***
36D-1-50	50	12	5.5	6	481.00	14 12 8	***
36D-1-80	80	17	13	9	581.00	24 20 9	***
36D-1-150	150	21	17	9	922.00	36 24 12	***
36D-1-250	250	27	17	9	1463.00	36 24 12	***
36D-1-600	600	45	27	10.5	3140.00	72 36 12	***
36D-1-1200	1200	48	27	11	4591.00	72 36 12	***
SINGLE PHASE, 240 VAC INPUT, 0-215 VAC OUTPUT, 50/60Hz (ALSO FOR 208/220/230 VAC INPUT)							
36D-2-10i	10	6.25	3.5	3	238.00	12 10 8	Contact Factory
36D-2-20	20	10	5.5	6	348.00	12 10 8	***
36D-2-30	30	12	5.5	6	352.00	14 12 8	***
36D-2-50	50	12	5.5	6	481.00	14 12 8	***
36D-2-80	80	17	13	9	581.00	24 20 9	***
36D-2-150	150	21	17	9	922.00	36 24 12	***
36D-2-250	250	27	17	9	1463.00	36 24 12	***
36D-2-600	600	45	27	10.5	3140.00	72 36 12	***
36D-2-1200	1200	48	27	11	4591.00	72 36 12	***
SINGLE PHASE, 480 VAC INPUT, 0-430 VAC OUTPUT, 50/60Hz (ALSO FOR 380/415/440 VAC INPUT)							
36D-4-10	10	10	5.5	4.62	238.00	12 10 8	Contact Factory
36D-4-20	20	10	5.5	6	383.00	12 10 8	***
36D-4-30	30	12	5.5	6	388.00	14 12 8	***
36D-4-50	50	12	5.5	6	530.00	14 12 8	***
36D-4-80	80	17	13	9	639.00	24 20 9	***
36D-4-150	150	21	17	9	966.00	36 24 12	***
36D-4-250	250	27	17	9	1610.00	36 24 12	***
36D-4-600	600	45	27	10.5	3455.00	72 36 12	***
36D-4-1200	1200	48	27	11	5051.00	72 36 12	***

NOTES:

- Standard units supplied with:
 - Manual control potentiometer on 2 feet of cable
 - Control isolation transformer
 - Factory installed 2-millisecond fuses
 - 1/2 second soft start
- For recommended spare fuses, see FUSE CHART, Page 39. Use of any other fuse voids all warranties.
- Enclosures supplied by others must be properly ventilated. See VENT SCHEDULE, Page 43.
- Dimensions are approximate, refer to unit drawing for construction.

List prices may be subject to trade classification discounts. Contact your local Payne Engineering Authorized Distributor or representative.

Prices shown are subject to change without notice.

OPTION NAME	OPTION ORDER No.	OPTION DESCRIPTION	LIST PRICE ADDER
VOLTAGE LIMIT	9	RMS Output Voltage Limit (Field adjustable)	25.00
MILLIAMPERE CONTROL	11A 11B 11C 11D 11E 11F 11G 11H	For closed-loop applications only. (See Option 20 for open-loop applications) 1-5 ma., $\leq 1000 \Omega$ 2-10ma., $\leq 1000 \Omega$ 4-20 ma., $\leq 600 \Omega$ 12-20 ma., $\leq 600 \Omega$ 10-50 ma., $\leq 300 \Omega$ 1-5 volts DC 2-10 volts DC Other. Specify ma. range and input impedance.	38.00
CURRENT LIMIT	12	RMS Output Current Limit (Field Adjustable, includes current transformer)	115.00
VOLTAGE REGULATION	13	RMS Output Voltage Regulation. $\pm 1\%$ output variation with $\pm 10\%$ input voltage variation	215.00
ISOLATED CHASSIS	14A 14B	For installation in non-vented enclosures. Electrically Isolated Chassis, 10-30A, 480 VAC only. (Std. on 10-30A, 120/240 VAC) Electrically Isolated Chassis, 50-80A	65.00 97.00
THERMISTOR TEMPERATURE CONTROL	15A 15B	Thermistor Bridge, Proportional, Automatic Temperature Control. Temperature Range 0-90°C Temperature Range 90-240°C	90.00
OPTICALLY ISOLATED ma. EXTERNAL CONTROL CARD	20A 20B 20C 20D 20E 20H	Optically isolated. May be field installed. Suitable for open-loop control. 1-5 ma., $\leq 1000 \Omega$ 2-10ma., $\leq 1000 \Omega$ 4-20 ma., $\leq 600 \Omega$ 12-20 ma., $\leq 600 \Omega$ 10-50 ma., $\leq 300 \Omega$ Other. Specify ma. range and input impedance.	65.00
HEATSINK OVERTEMP SWITCH	24A 24B	Overtemp trip of controller. For external indicating circuit or alarm.	55.00
120V PILOT	28	120 VAC On/Off Pilot Control	38.00
70-400Hz	30	For operation on power frequencies from 70-400Hz, and 16-2/3 or 25Hz.	Contact Factory
EXTERNAL POWER	33	External trigger circuit power. Specify voltage to be supplied.	38.00
277 VAC INPUT	36D- 3 -etc.	Rated for 277 VAC Input. (Change Model No. from 36D-2-etc. to 36D-3-etc.)	38.00
550 VAC INPUT	36D- 5 -etc.	Rated for 550 VAC Input. (Change Model No. from 36D-4-etc. to 36D-5-etc.)	66.00
600 VAC INPUT	36D- 6 -etc.	Rated for 600 VAC Input. (May require size increase of base model.) (Change Model No. from 36D-4-etc. to 36D-6-etc.)	210.00

36D OPTION NOTES:

- To order, specify option number separately, and add option price to control list price.
- See page 46 for detailed option description.
- Options must be ordered with control (except Option 20)
- Certain combinations of options may not be compatible. See page 47 or consult local representative or factory.
- Consult factory for option requirements not shown.

DESCRIPTION: Three Phase A.C. Input, Variable D.C. Output Control

APPLICATION: Inductive or Resistive D.C. Loads

Model Number	Fuse Amps	Open Chassis Dimensions Inches Height Width Depth			Open Chassis List Price	Ventilated Dimensions H x W x D	Enclosure List Price Adder
THREE PHASE, 240 VAC INPUT, 0-260 VAC OUTPUT, 50 or 60Hz ⁵ (ALSO FOR 208/220/230 VAC INPUT)							
36E-2-10	10	10.5	8.25	5.37	464.00	14 12 8	Contact Factory
36E-2-20	20	12.5	10.25	5.37	493.00	16 14 8	***
36E-2-30	30	15.12	11.25	6.37	510.00	16 14 8	***
36E-2-50	50	15	13	6	719.00	20 16 9	***
36E-2-80	80	21	13	6	869.00	30 20 9	***
36E-2-150	150	27	24	9	1403.00	36 30 12	***
36E-2-250	250	27	27	9	2592.00	42 36 12	***
36E-2-450	450	33	33	10.5	3743.00	60 36 12	***
36E-2-600	600	39	33	10.5	4152.00	60 36 12	***
36E-2-1200	1200	48	33	11	7677.00	72 36 12	***
THREE PHASE, 480 VAC INPUT, 0-520 VAC OUTPUT, 50 or 60Hz ⁵ (ALSO FOR 380/415/440 VAC INPUT)							
36E-4-10	10	10.5	8.25	5.37	530.00	14 12 8	Contact Factory
36E-4-20	20	12.5	10.25	5.37	607.00	16 14 8	***
36E-4-30	30	15.12	11.25	6.37	699.00	16 14 8	***
36E-4-50	50	15	13	6	819.00	20 16 9	***
36E-4-80	80	21	13	6	869.00	30 20 9	***
36E-4-150	150	27	24	9	1403.00	36 30 12	***
36E-4-250	250	27	27	9	2592.00	42 36 12	***
36E-4-450	450	33	33	10.5	3743.00	60 36 12	***
36E-4-600	600	39	33	10.5	4152.00	60 36 12	***
36E-4-1200	1200	48	33	11	7677.00	72 36 12	***

NOTES:

- Standard units supplied with:
 - Manual control potentiometer on 2 feet of cable
 - Control isolation transformer
 - Factory installed 2-millisecond fuses
 - 1/2 second soft start
- For recommended spare fuses, see FUSE CHART, Page 39. Use of any other fuse voids all warranties.
- Enclosures supplied by others must be properly ventilated. See VENT SCHEDULE, Page 43.
- Dimensions are approximate, refer to unit drawing for construction.
- Factory set for 60Hz. Must specify if for 50 Hz usage.

List prices may be subject to trade classification discounts. Contact your local Payne Engineering Authorized Distributor or representative.

Prices shown are subject to change without notice.

OPTION NAME	OPTION ORDER No.	OPTION DESCRIPTION	LIST PRICE ADDER
VOLTAGE LIMIT	9	RMS Output Voltage Limit (Field adjustable)	25.00
MILLIAMP CONTROL	11A 11B 11C 11D 11E 11F 11G 11H	For closed-loop applications only. (See Option 20 for open-loop applications) 1-5 ma., $\leq 1000 \Omega$ 2-10ma., $\leq 1000 \Omega$ 4-20 ma., $\leq 600 \Omega$ 12-20 ma., $\leq 600 \Omega$ 10-50 ma., $\leq 300 \Omega$ 1-5 volts DC 2-10 volts DC Other. Specify ma. range and input impedance.	38.00
CURRENT LIMIT	12	RMS Output Current Limit (Field Adjustable, includes current transformer)	115.00
VOLTAGE REGULATION	13	RMS Output Voltage Regulation. $\pm 1\%$ output variation with $\pm 10\%$ input voltage variation	386.00
ISOLATED CHASSIS	14A 14B	For installation in non-vented enclosures. Electrically Isolated Chassis, 10-30A, 480 VAC only. (Std. on 10-30A, 120/240 VAC) Electrically Isolated Chassis, 50-80A	195.00 291.00
THERMISTOR TEMPERATURE CONTROL	15A 15B	Thermistor Bridge, Proportional, Automatic Temperature Control. Temperature Range 0-90°C Temperature Range 90-240°C	90.00
OPTICALLY ISOLATED ma. EXTERNAL CONTROL CARD	20A 20B 20C 20D 20E 20H	Optically isolated. May be field installed. Suitable for open-loop control. 1-5 ma., $\leq 1000 \Omega$ 2-10ma., $\leq 1000 \Omega$ 4-20 ma., $\leq 600 \Omega$ 12-20 ma., $\leq 600 \Omega$ 10-50 ma., $\leq 300 \Omega$ Other. Specify ma. range and input impedance.	65.00
HEATSINK OVERTEMP SWITCH	24A 24B	Overtemp trip of controller. For external indicating circuit or alarm.	55.00
120V PILOT	28	120 VAC On/Off Pilot Control	38.00
70-400Hz	30	For operation on power frequencies from 70-400Hz, and 16-2/3 or 25Hz.	Contact Factory
EXTERNAL POWER	33	External trigger circuit power. Specify voltage to be supplied.	38.00
120 VAC INPUT	36E- <u>1</u> -etc.	Rated for 120 VAC Input. (Change Model No. from 36E-2-etc. to 36E-1-etc.)	N/C
550 VAC INPUT	36E- <u>5</u> -etc.	Rated for 550 VAC Input. (Change Model No. from 36E-4-etc. to 36E-5-etc.)	99.00
600 VAC INPUT	36E- <u>6</u> -etc.	Rated for 600 VAC Input. (May require size increase of base model.) (Change Model No. from 36E-4-etc. to 36E-6-etc.)	330.00

36E OPTION NOTES:

- To order, specify option number seperately, and add option price to control list price.
- See page 46 for detailed option description.
- Options must be ordered with control (except Option 20)
- Certain combinations of options may not be compatible. See page 47 or consult local representative or factor.
- Consult factory for option requirements not shown.

DESCRIPTION: Single Phase, Variable Voltage Control

APPLICATION: Constant Resistance Loads

Model Number	Fuse Amps	Watts @ Max Rated Volts	Open Chassis Dimensions Inches Height Width Depth			List Price
MODEL 18TBP						
SINGLE PHASE, 120 VAC INPUT, 0-118 VAC OUTPUT, 50/60Hz						
18TBP-1-5	5	600	2.5	2.5	2	62.00
18TBP-1-10	10	1200	2.5	2.5	2	74.00
18TBP-1-15	15	1800	2.5	2.5	2.5	89.00
SINGLE PHASE, 240 VAC INPUT, 0-235 VAC OUTPUT, 50/60Hz (ALSO FOR 208/220/230 VAC INPUT)						
18TBP-2-5	5	1200	2.5	2.5	2	64.00
18TBP-2-10	10	2400	2.5	2.5	2	82.00
18TBP-2-15	15	3600	2.5	2.5	2.5	97.00
MODEL 18TB						
SINGLE PHASE, 120 VAC INPUT, 0-118 VAC OUTPUT, 50/60Hz						
18TB-1-15	15	1800	4	4	2	89.00
18TB-1-25	25	2900	6.3	4	3.5	107.00
SINGLE PHASE 240 VAC INPUT, 0-235 VAC OUTPUT, 50/60Hz (ALSO FOR 208/220/230 VAC INPUT)						
18TB-2-15	15	3600	4	4	2	97.00
18TB-2-25	25	5900	6.3	4	3.5	108.00
MODEL 18TP						
SINGLE PHASE, 120 VAC INPUT, 0-118 VAC OUPUT, 50/60Hz						
18TP-1-5	5	600	2.5	4.7	2.5	129.00
18TP-1-10	10	1200	2.5	4.7	2.5	136.00
18TP-1-15	15	1800	4	5.12	2.74	172.00
SINGLE PHASE, 240 VAC INPUT, 0-235 VAC OUTPUT, 50/60Hz (ALSO FOR 208/220/230 VAC INPUT)						
18TP-2-5	5	1200	2.5	4.7	2.5	149.00
18TP-2-10	10	2400	2.5	4.7	2.5	160.00
18TP-2-15	15	3600	4	5.12	2.74	182.00

NOTES:

- Model 18TBP controls designed for panel mounting. (See Fig. 1)
- Model 18TB controls designed for chassis mounting. Includes control pot and 2 feet of control cable.
- Model 18TP controls may be used as portable or permanently mounted units. Includes three prong plug, 6 ft. of cable, 3 prong receptacle, and lighted On/Off switch. (See Fig. 3)
- All 18TBP/TB/TP controls have factory tested and approved 2-millisecond fuses installed.
- For higher voltage or amperage ratings, or for control features not shown here, refer to Model 18D, page 14.
- For recommended spare fuses, see FUSE CHART, page 39. Use of any other fuse voids all warranties.
- Enclosures supplied by others must be properly ventilated. See VENT SCHEDULE, page 43.

List prices may be subject to trade classification discounts. Contact your local Payne Engineering Authorized Distributor or representative.

Prices shown are subject to change without notice.

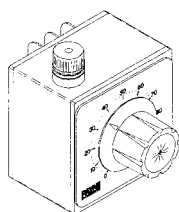


Fig. 1 Model 18TBP

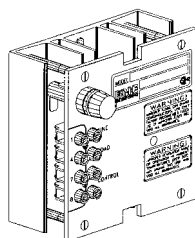


Fig. 2 Model 18TB

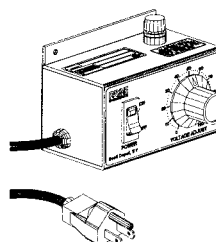


Fig. 3 Model 18TP

DESCRIPTION: Single Phase A.C. Input, Variable D.C. Output Control

APPLICATION: Inductive or Resistive D.C. Loads

Model Number	Fuse Amps	Open Chassis Dimensions Inches			List Price
		Height	Width	Depth	
SINGLE PHASE, 120 VAC INPUT, 0-107 VDC OUTPUT, 50/60Hz					
36TBP-1-5	5	3.25	2.65	3.4	100.00
36TBP-1-10	10	3.33	4.5	3.1	107.00
SINGLE PHASE, 240 VAC INPUT, 0-215 VAC OUTPUT, 50/60Hz (ALSO FOR 208/220/230 VAC INPUT)					
36TBP-2-5	5	3.25	2.65	3.4	118.00
36TBP-2-10	10	3.33	4.5	3.1	140.00

NOTES:

1. Model 36TBP controls designed for through-the-door mounting. (See Fig. 1)
2. All 36TBP controls have factory tested and approved 2-millisecond fuses installed.
3. For higher voltage or amperage ratings, or for control features not shown here, refer to Model 36D, page 32.
4. For recommended spare fuses, see FUSE CHART, page 39. Use of any other fuse voids all warranties.
5. Enclosures supplied by others must be properly ventilated. See VENT SCHEDULE, page 43.

List prices may be subject to trade classification discounts. Contact your local Payne Engineering Authorized Distributor or representative.

Prices shown are subject to change without notice.

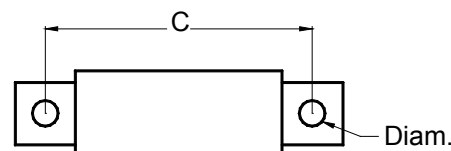
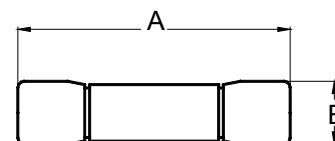


Fig. 1 Model 36TBP 5 AMP



Fig. 1 Model 36TBP 10 AMP

MODEL NUMBER	AMPS	OVERALL DIMENSIONS				LIST PRICE
		A	B	C	DIAM.	
300 VAC OR LESS FOR POWER CONTROL TO 30 AMPS						
49A25-10	10	52mm	14mm			\$ 80.00/10*
49A25-15	15	52mm	14mm			80.00/10*
49A25-20	20	52mm	14mm			80.00/10
49A25-30	30	52mm	14mm			80.00/10*
*SOLD ONLY IN BOXES OF 10						
600 VAC OR LESS FOR POWER CONTROL TO 30 AMPS						
49B70-10	10	52mm	14mm			\$ 102.00/10
49B70-20	20	52mm	14mm			102.00/10
49B70-30	30	52mm	14mm			102.00/10
*SOLD ONLY IN BOXES OF 10						
ALL FUSE REQUIREMENTS 50 AMPS AND GREATER						
49A50-50	50			62mm	8mm	\$ 21.00/10
49A50-80	80			73mm	8mm	21.00/10
49A50-125	125			73mm	8mm	27.00/10
49A50-150	150			73mm	8mm	27.00/10
49A50-250	250			83mm	10mm	37.00/10
49A50-350	350			83mm	10mm	37.00/10
49A50-450	450			86mm	10mm	54.00/10
49A50-600	600			86mm	10mm	62.00/10
49A50-800	800			114mm	14mm	62.00/10
18TBP/TB CONTROLS						
49C25-5	5	33mm	6mm			\$ 80.00/10
49C25-10	10	33mm	6mm			80.00/10
49C25-15	15	33mm	6mm			80.00/10
49B25-30	30	52mm	14mm			80.00/10
*SOLD ONLY IN BOXES OF 10						
CONTROL FUSES						
49D60-1/4	1/4	38mm	10mm			\$ 80.00/10
49D25-3/10	3/10	38mm	10mm			80.00/10
49D60-1/2	1/2	38mm	10mm			80.00/10



NOTES:

1. ONLY listed fuses are factory approved for proper protection of SCRs from short circuit faults.
2. 2-millisecond, sub-cycle fuses are factory coordinated with SCRs by factory conducted short circuit tests.
3. Use of any other fuses, including "I²t", "Fast-acting", or other types not listed here, voids all warranties.
4. Fuse clearing when load is applied to control indicates overcurrent condition at the load, or improperly sized control. Correct load fault before replacing fuses and re-energizing control, or select properly sized fused control.

FOR Model 11D, 11E, 18D, 18DZ, 18E, 18EZ, 36D, 36E POWER CONTROLS

UNIT NAMEPLATE RATING		RECOMMENDED FUSE
INPUT VOLTAGE	MAX AMPS	PAYNE ENGINEERING
120 TO 240 VAC	10A	49A25-10
	15A	49A25-15
	20A	49A25-20
	30A	49A25-30
277 TO 480 VAC	10A	49B70-10
	20A	49B70-20
	30A	49B70-30
120 TO 600 VAC	50A	49A50-50
	80A	49A50-80
	120A	49A50-125
	150A	49A50-150
	250A	49A50-250
	350A	49A50-350
	450A	49A50-450
	600A	49A50-600
	1200A	(2) 49A50-600

FOR Model 18D-H, 18E-H, 18D-SW, 18E-SW POWER CONTROLS

UNIT NAMEPLATE RATING		RECOMMENDED FUSE
INPUT VOLTAGE	MAX AMPS	PAYNE ENGINEERING
120 TO 240 VAC	10A	49A25-30
	30A	49A25-80
277 TO 480 VAC	10A	49B70-30
	30A	49B70-80
120 TO 600 VAC	80A	49A50-150
	150A	49A50-250
	350A	49A50-600
	600A	49A50-600

FOR Model 18TBP/TB, 36TBP POWER CONTROLS

UNIT NAMEPLATE RATING		RECOMMENDED FUSE
INPUT VOLTAGE	MAX AMPS	PAYNE ENGINEERING
120/240 VAC	5A	49C25-5
	10A	49C25-10
	15A	49C25-15
	25A	49A25-30

SCR POWER CONTROLS: RENEWAL PARTS, CIRCUIT CARDS

MODEL	TRIGGER CIRCUITS			PULSE BOARDS				SW MODULES				
	AMPS		PART NO.	LIST PRICE	AMPS	VAC	PART NO.	LIST PRICE	AMPS	VAC	PART NO.	LIST PRICE
11D	All Sizes		11DTC	\$61.00								
11E	All Sizes		11ETC	263.00								
18D	All Sizes		18DOPTO-TC	96.00					OPTO-TC may NOT be used with SW MOD.			
18D Units built prior to 1/1/00 w/pulse board	10-30 50-120 150-1200		18DTC 18DSPTC 18DTC	96.00					150-1200	120 240 277 480 550	DSW12 DSW24 DSW30 DSW48 DSW55	\$134.00
18E	10-30 50-120 150-1200		18ETC 18ESPTC 18ETC	378.00	150-1200	240 480 550	18ESP24 18ESP48 18ESP55	\$378.00				
18D-H	All Sizes		18DOPTO-TC	126.00					OPTO-TC may NOT be used with SW MOD.			
18D-H Units built prior to 1/1/00 w/pulse board	10-30 50-120 150-1200		18DHTC 18DHSPTC 18DHTC	126.00					150-1200	120 240 277 480 550	DSW12 DSW24 DSW30 DSW48 DSW55	134.00
18E-H	10-30 50-120 150-1200		18EHTC 18EHSPTC 18EHTC	378.00	150-1200	240 480 550	18ESP24 18ESP48 18ESP55	378.00				
18D-SW	All Sizes		18DSWTC	126.00						120 240 277 480 550	DSW12 DSW24 DSW30 DSW48 DSW55	134.00
18DSW2	All Sizes	VAC	18DSW2TC12 18DSW2TC24 18DSW2TC30 18DSW2TC48 18DSW2TC55	204.00								
		120 240 277 480 550										
18E-SW	All Sizes		18ESWTC	378.00	10-80	240 480 550	18ESWP6 (3) ²	134.00				
					150-350	240 480 550	18ESWP6S(3) ²	378.00				
18DZ	All Sizes		18DZTC	134.00								
18EZ	All Sizes		18EZTC	378.00								
36D	10-30 50-120 150-1200		36DTC 36DSPTC 36DTC	126.00						120 240 277 480 550	DSW12 DSW24 DSW30 DSW48 DSW55	134.00
36E	10-30 50-120 150-1200		36ETC 36ESPTC 36ETC	378.00	150-1200	240 480 550	36ESPTC 36ESP48 36ESP55	378.00				

NOTES:

- When ordering replacement parts, specify complete model number and serial number of control for which parts are to be used.
- Number in parentheses is quantity of that card required for each unit.
- Prices are for each card. If a unit utilizes multiple cards (number in parentheses), the price is for each card.
- Trigger circuit board prices are for standard control configurations only. For options, specify as needed and add option price to base trigger circuit board price. See Control Options page for each model for available options and prices.

SCR POWER CONTROLS: RENEWAL PARTS, CIRCUIT CARDS

MODEL	RC CARDS				Vbo CARDS				CONTROL TRANSFORMERS			
	AMPS	VOLTS	PART NO	LIST PRICE	AMPS	VAC	PART NO	LIST PRICE	AMPS	VAC	PART NO	LIST PRICE
11D	All Sizes	120/240 480	N/A RC24	N/A \$24.00	120-1200	120 240 480	VB21 VB22 VB24	\$45.00				
11E	All Sizes	240 480	RC12 (3) ² RC24 (3) ²	\$24.00	120-600	240 480	VB12 (3) ² VB14 (3) ²	\$35.00	All Sizes	240-480	5299S	\$45.00
18D	10-30 50-1200	120/240 480 120/240 480	N/A RC24 RC12 RC24	\$24.00	120-1200	120 240 480	VB21 VB22 VB24	\$45.00	10-30 10-30 50-1200	120-240 480 120-480	XA615 ⁶ 5299S 5299S	\$45.00
18E	All Sizes	240 480	RC12 (3) ² RC24 (3) ²	\$24.00	120-1200	240 480	VB12 (3) ² VB14 (3) ²	\$35.00	All Sizes	240-480	5299S	\$45.00
18D-H	All Sizes	120/240 480	RC12 RC24	\$24.00	80-600	120 240 480	VB21 VB22 VB24	\$45.00	10 30-600 All Sizes	120-240 120-240 480	XA615 5299S 5299S	\$45.00
18E-H	All Sizes	240 480	RC12 (3) ² RC24 (3) ²	\$24.00	80-600	240 480	VB12 (3) ² VB14 (3) ²	\$35.00	All Sizes	240-480	5299S	\$45.00
18D-SW	All Sizes	120/240 480	RC12 RC24	\$24.00	80-600	120 240 480	VB21 VB22 VB24	\$45.00	10 30-600 All Sizes	120-240 120-240 480	XA615 5299S 5299S	\$45.00
18E-SW	All Sizes	240 480	RC12 (3) ² RC24 (3) ²	\$24.00	80-150	240 480	VB22 (3) ² VB24 (3) ²	\$45.00	All Sizes	208-240 380-415 440-480	4564B 4564BL 4564B	\$45.00
18DZ	All Sizes	120/240 480	RC12 RC24	\$24.00	120-1200	120 240 480	VB21 VB22 VB24	\$45.00	10-30 50-1200 All Sizes	120-240 120-240 480	XA615 5299S 5299S	\$45.00
18EZ	All Sizes	240 480	RC12 (2) ² RC24 (2) ²	\$24.00	120-150 250-1200	240 480 240 480	VB22 (2) ² VB24 (2) ² VBZB2 (2) ² VBZB4 (2) ²	\$45.00	All Sizes	120-480	5299S	\$45.00
36D	All Sizes	120/240 480	RC12 (4) ² RC24 (4) ²	\$24.00	150-1200	120 240 480	VB21 VB22 VB24	\$45.00	10-30 50-1200 All Sizes	120-240 120-240 480	XA615 5299S 5299S	\$45.00
36E	All Sizes	240 480	RC12 (6) ² RC24 (6) ²	\$24.00	150-1200	240 480	VB12 (3) ² VB14 (3) ²	\$35.00	All Sizes	240-480	5299S	\$45.00

NOTES: (continued from previous page)

5. Circuit cards for Model 11DZ/EZ units are not available for field replacement. For sizes through 50 amps, a new unit must be ordered. Sizes 80 amps and larger may be forwarded to the factory for evaluation, repair or replacement at the discretion of the factory. See "Repair Services" under TERMS AND CONDITIONS, inside back cover, for return instructions.
6. For 18D 120 VAC 10-30 Amps ONLY: Control transformer only used on units ordered with options. Standard 120 volt units (no Options) do not require a control transformer.
7. For parts rated above 480 VAC, consult factory for part numbers, price and availability.

SEMICONDUCTORS FOR 11D, 11E, 18D, 18E, 18DZ, 18EZ, 36D, 36E POWER CONTROLS

AMP RATING	120 VAC				240 VAC			
	SCR	LIST PRICE	DIODE	LIST PRICE	SCR	LIST PRICE	DIODE	LIST PRICE
10	S1210	\$24.00	D1210	\$24.00	S2410	\$24.00	D2410	\$24.00
15	S1215	24.00			S2415	24.00		
20	S1220	24.00	D1220	24.00	S2420	24.00	D2420	24.00
30	S1230	24.00	D1230	24.00	S2430	24.00	D2430	24.00
50	S1250	59.00	D1250	24.00	S2450	59.00	D2450	24.00
80	S1280	59.00	D1280	24.00	S2480	59.00	D2480	24.00
120	S12120	135.00	D12120	70.00	S24120	135.00	D24120	70.00
150	S12150	135.00	D12150	70.00	S24150	135.00	D24150	70.00
250	S12250	191.00	D12250	135.00	S24250	191.00	D24250	135.00
350	S12350	191.00	D12350	135.00	S24350	191.00	D24350	135.00
450	S12450	234.00	D12450	234.00	S24450	234.00	D24450	234.00
600	S12600	234.00	D12600	234.00	S24600	234.00	D24600	234.00
1200	S121200	341.00	D121200	234.00	S241200	341.00	D241200	234.00
AMP RATING	480 VAC				550 VAC			
	SCR	LIST PRICE	DIODE	LIST PRICE	SCR	LIST PRICE	DIODE	LIST PRICE
10	S4810	\$24.00	D4810	\$24.00	S5510	\$29.00	D5510	\$29.00
20	S4820	24.00	D4820	24.00	S5520	29.00	D5520	29.00
30	S4830	24.00	D4830	24.00	S5530	29.00	D5530	29.00
50	S4850	59.00	D4850	24.00	S5550	107.00	D5550	29.00
80	S4880	59.00	D4880	24.00	S5580	107.00	D5580	29.00
120	S48120	135.00	D48120	70.00	S55120	142.00	D55120	75.00
150	S48150	135.00	D48150	70.00	S55150	142.00	D55150	75.00
250	S48250	191.00	D48250	135.00	S55250	196.00	D55250	140.00
350	S48350	191.00	D48350	135.00	S55350	196.00	D55350	140.00
450	S48450	234.00	D48450	234.00	S55450	239.00	D55450	239.00
600	S48600	234.00	D48600	234.00	S55600	239.00	D55600	239.00
1200	S481200	341.00	D481200	234.00	S551200	346.00	D551200	239.00

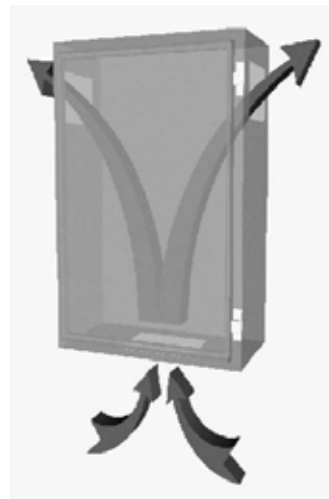
SEMICONDUCTORS FOR 18D-H, 18E-H, 18D-SW POWER CONTROLS

AMP RATING	120 VAC				240 VAC			
	SCR	LIST PRICE	DIODE	LIST PRICE	SCR	LIST PRICE	DIODE	LIST PRICE
10	S1210H	\$24.00	D1210	\$24.00	S2410	\$24.00	D2410	\$24.00
30	S1230H	59.00	D1230	24.00	S2430	59.00	D2430	24.00
80	S1280H	135.00	D1280	70.00	S2480	135.00	D2480	70.00
150	S12150H	191.00	D12150	135.00	S24150	191.00	D24150	135.00
350	S12350H	234.00	D12350	234.00	S24350	234.00	D24350	234.00
AMP RATING	480 VAC				550 VAC			
	SCR	LIST PRICE	DIODE	LIST PRICE	SCR	LIST PRICE	DIODE	LIST PRICE
10	S4810H	\$24.00	D4810	\$24.00	S5510	\$29.00	D5510	\$29.00
30	S4830H	59.00	D4830	24.00	S5530	64.00	D5530	29.00
80	S4880H	135.00	D4880	70.00	S5580	142.00	D5580	75.00
150	S48150H	191.00	D48150	135.00	S55150	196.00	D55150	140.00
350	S48350H	234.00	D48350	234.00	S55350	239.00	D55350	239.00

NOTES:

- When ordering replacement parts, specify complete model number and serial number of control for which parts are to be used.
- Consult factory for 600 VAC units.
- For 277 VAC parts, use 240 VAC part number, specify 277 VAC rating, and add \$5.00 to 240 VAC prices.
- Semiconductors for Model 11DZ/EZ to 50 amps not available for field installation. Sizes 80 amps and up may be forwarded to factory for evaluation, repair, or replacement at the discretion of the factory.

Amp Rated Controls		Vent Size and Location
1-Phase Amps	3-Phase Amps	
10 20 30 50	10 20 30 50	1-3" Dia. Hole Upper Right Side 1-3" Dia. Hole in Bottom
80 120 150	80	1-3" Dia. Hole in Upper Right & Left Sides 2-3" Dia. Holes in Bottom
250 350	150	1 - 6"x4" Hole in Upper Right and Left Sides 1 - 6"x8" Hole in Bottom
450 600	250 350	1 - 6"x6" Hole in Upper Right and Left Sides 1 - 6"x12" Hole in Bottom
	450	1 - 8"x8" Hole in Upper Right and Left Sides 1 - 8"x16" Hole in Bottom
1200	600 1200	1 - 10"x10" Hole in Upper Right and Left Sides 1 - 10"x20" Hole in Bottom



NOTES:

1. All round holes are to be covered with wire mesh with 1/4" openings; securely fastened to enclosure.
2. All square holes are to be covered with 16 Ga. flattened-expanded metal mesh with 3/4"x1/4" openings; securely fastened to enclosure.
3. All grills must comply with all national and local safety code requirements.
4. If louvers are used, sufficient numbers of them must be used to provide the equivalent open area as in above chart.
5. If hoods are mounted over louver openings, equivalent open area must be maintained as in above chart.
6. Standard Payne Engineering controls are designed to operate in ambient conditions of 50°C or less. If the control is to be operated in a higher ambient, it must be derated. Contact factory for assistance in these applications.
7. If the control is to be installed in a non-vented enclosure, the control must be built with Option 14, or be a model designed with isolated heatsinks. Temperature inside the enclosure must be maintained ≤50°C. Control may require derating. Consult factory.

SPECIFY BY ACCESSORY NAME	ADDITIONAL ORDERING INFORMATION		LIST PRICE	
AMMETER, SINGLE-PHASE, w/CT	Specify METER RANGE ¹⁾		\$121.00	
AMMETER, FILTERED, SINGLE-PHASE, w/CT	Specify METER RANGE ¹⁾ Part No. 41Z2B		242.00	
AMMETER, THREE-PHASE, w/3 CT's	Specify METER RANGE ¹⁾		464.00	
AMMETER, FILTERED, THREE-PHASE, w/3 CT's	Specify METER RANGE ¹⁾ Part No. 41Z2B		726.00	
BLOWN FUSE INDICATION	CONTACT CLOSURE, RATING 12VA		45.00/PHASE	
CONTROL CABLE	Specify REQUIRED LENGTH IN FT.		4.00/FT	
CONTROL POTENTIOMETER ASSEMBLY	Specify CONTROL MODEL NUMBER AND OPTIONS WHEN ORDERING	10K POT 75K POT 250K POT	35.00	
DIN-RAIL MOUNTING	10-80 AMPS ONLY (N/A for 18T, 36T series)		25.00	
DISCONNECT, NON-FUSED	Specify AMP SIZE Add list price of disconnect to the base list price of the selected control in the "Ventilated Enclosure" column	RATING	1-PHASE & 3-PHASE	
		30A	\$176.00	
		60A	317.00	
		100A	378.00	
		160A	522.00	
		200A	980.00	
DRAWINGS, APPROVAL	Specify "APPROVAL DRAWINGS REQUIRED"		\$250.00	
ENCLOSURE DRIP SHIELDS	Specify ENCLOSURE DRIP SHIELDS		165.00	
ENGRAVED TAGS	Specify TAG MESSAGE		65.00	
FLOOR STANDS	Specify FLOOR STANDS		150.00	
HAND-OFF-AUTO (H-O-A) SWITCH	Specify H-O-A SWITCH		75.00	
INDICATING LIGHTS	Specify "POWER ON" OR "RUN" INDICATION		75.00	
INSTRUCTION MANUAL	Specify MODEL NUMBER AND SERIAL NUMBER		1-PHASE	3-PHASE
			\$7.00	\$20.00
LEXAN COVER	N/A on "I" suffix models	10-30A	60.00	
		50-150A	90.00	
		250A-UP	160.00	
NEMA 4 ENCLOSURE	Specify "NEMA 4 ENCLOSED"		50.00	
ON/OFF SWITCH	Specify "ON/OFF SWITCH"		35.00	
SHORTED SCR INDICATION			35.00/PHASE	
THIRD LEG FUSE	Specify AMP SIZE		FUSE PRICE	
THIRD LEG FUSE KIT	Specify AMP SIZE		FUSE PRICE = 10.00	
TRANSFORMER, 12VA	Specify 120/240/480:120		45.00	
VOLTMETER, SINGLE-PHASE	Specify METER RANGE ²⁾ A.C. or D.C		91.00	
VOLTMETER, FILTERED, SINGLE-PHASE	Specify METER RANGE ²⁾ Part No. 41Z2C		193.00	
VOLTMETER, THREE-PHASE	Specify METER RANGE ²⁾		546.00	
VOLTMETER, FILTERED, THREE-PHASE	Specify METER RANGE ²⁾ Part No. 41Z2C		726.00	
ZERO FIRED OUTPUT TRANSDUCER	Specify LOAD AMPS		295.00/PHASE	

NOTES:

- Available A.C. Ammeter scales: 0-75A
0-150A
0-300A
0-600A
0-1200A
- Available Voltmeter scales: 0-300V
0-600V
- Prices include factory installation in enclosure.
- When ordering accessories, list each as separate line item.
- Contact factory for prices on Accessories not shown.

Ammeter, Single Phase

A current transformer drives an analog panel meter which reads RMS load current for phase-angle and on/off controls. $\pm 2\%$ of full scale accuracy

Ammeter, Filtered, Single Phase

A current transformer drives a filter card, which in turn drives an analog panel meter to read average load current for zero-fired controls.

Ammeter, Three Phase

Three current transformers are connected to a 3-position selector switch, which in turn is connected to an analog panel meter to allow the reading of RMS load current in any one of the three legs for phase-angle and on/off controls. $\pm 2\%$ of full scale accuracy.

Ammeter, Filtered, Three Phase

Three current transformers are connected to a 3-position selector switch, which in turn is connected to a filter card that drives an analog panel meter to allow the reading of average load current in any one of the three legs for zero-fired controls.

Blown Fuse Indication

A NO contact (rated 12 VA) closes if fuse clears. Contact output is to a terminal barrier on the card attached to the unit.

Control Cable

Shielded 3 or 4-wire to connect control potentiometer to control cable. 2-ft cable included with all manually operated controls. Extra cable priced per foot.

Control Potentiometer

Includes potentiometer, knob, dial plate, and 2-ft section of control cable. Note: standard phase-angle and zero-fired controls include a potentiometer for manual control.

DIN-Rail mounting

Allows units up to 80 amps to be mounted to DIN standard mounting rail. Requires derating of 50 and 80 amp units. See individual product literature.

Disconnect

Mechanical non-fused disconnect mounted and wired in enclosure ahead of the power control. Rotary handle mechanism is door mounted, and interlocked to prevent opening of door when turned on.

Drawings, Approval

When customer approval of drawings before release to manufacturing is required. One reproducible and three copies of the physical layout and electrical schematic are sent for review and approval. The order is not released to manufacturing until the drawings have been returned marked "Approved and Released For Manufacturing".

Enclosure Dip Shields

Drip shields mounted over ventilation openings on the sides of the standard enclosures to minimize chance of entry of rain, snow, and spray. Does not make the unit "raintight", nor suitable for "hose-down".

Engraved Tags

Engraved phenolic tags (white letters on black background). Tag size: $3/4" \times 2 1/2"$ Letter size: $1/4"$ Maximum of 18 letters per line, two lines per tag.

Floor Stands

Nominal 12 inch high stands convert any wall-mount enclosure to free standing version. Allows proper airflow for required heat dissipation.

Hand-Off-Auto (H-O-A) Switch

Three -position switch mounted on enclosure door and wired to switch the control from off to manual operation via the potentiometer to automatic operation via external analog control signal.

Indicating Lights

22mm indicating lights mounted in enclosure door. Specify "Power On" or "Run" indication and lens color.

Instruction Manuals

Each control provided with one set of installation and operation instructions and drawings. Additional sets may be ordered as a separate item.

LEXAN Cover

Cover over front of unit to prevent inadvertent contact with electrically "hot" parts.

NEMA 4 Enclosure

Non-vented, dust-tight NEMA 4 enclosure for power controls to 80 amps. Requires option 14, or units designed with isolation chassis.

On/Off Switch

On/Off toggle mounted on enclosure door and wired to power control trigger circuit to turn unit on and off without changing control signal or manual potentiometer setting.

Shorted SCR Indication

Neon lamp glows indicating SCR is good when the unit is in an "OFF" state in a complete circuit (load connected) with the line power on.

Third-Leg Fuse

(18EZ controls, 50A and larger) A semiconductor fuse factory installed in series with the third leg buss bar.

Third-Leg Fuse Kit

For adding third-leg fuse to 18EZ unit in the field. Includes fuse and mounting hardware.

Transformer

A 12VA transformer for customer logic purposes.

Voltmeter, Single Phase

Analog panel meter provides true RMS output voltage readings for phase angle and on/off controls. $\pm 2\%$ of full scale accuracy

Voltmeter, Filtered, Single Phase

A potential transformer drives a filter card, which in turn drives an analog panel meter which provides average output voltage readings for zero-fired controls.

Voltmeter, Three Phase

A 3-position selector switch, is connected to an analog panel meter to allow the reading of RMS output voltage in any one of three legs for phase angle and on/off controls. $\pm 2\%$ of full scale accuracy.

Zero-Fired Output Transducer

Provides 4-20 ma output proportional to average load current. Includes Current Transformer.

NOTES:

1. See page 44 for Accessories prices.
2. Accessory price must be added to base list price of control.

9. RMS Output Voltage Limit

Circuit board mounted variable-resistance trimmer in series with manual control potentiometer. Allows the user to limit the output voltage to the connected load at maximum potentiometer setting. Not applicable to units controlled by external analog signal.

11. Milliamp Control

Circuitry integral to main control board that allows output voltage to load to be controlled by an external analog signal (milliamps or D.C. voltage) in a closed-loop system. Voltage output from the power control is proportional to the analog signal input (elongated S-curve). Multiturn SPAN and GAIN trimmers provided for field calibration/adjustment of signal response change.

12. Output Current Limit

Output voltage from the power control is varied to keep load current at or below adjustable limit. Includes current transformer. Note: current limit is not a substitute for proper control sizing, nor an alternative to 2-millisecond fuses for short-circuit protection.

13. RMS Output Voltage Regulation

Output voltage variations are limited to $\pm 1\%$ for input voltage variations of up to $\pm 10\%$. Maximum regulated output voltage may not be greater than 75% of minimum input voltage.

14. Isolated Chassis Construction

Isolated-case power semiconductors are used to provide electrically isolated heatsink construction, which is required for mounting power controls in non-vented enclosures. Available through 80 Amps. See page 43, note 7 before installing any control in non-vented enclosures.

Thermistor Control

Control circuit accepts direct input from temperature-sensing stainless thermistor probe, and automatically adjusts power control output voltage to maintain load temperature at level selected on temperature set potentiometer in closed-loop control scheme. Available temperature ranges: 90°C and 90-240°C. Thermistor probe, 3 ft. of cable and set-point potentiometer supplied with this option.

19. Soft Start

Output voltage to the connected load is ramped from 0 to potentiometer-selected level over 1/2 second time period after control actuation to reduce inrush currents. Operates on closure of On/Off switch in control potentiometer and main power activation; must be reset by opening that same switch or removing main power before operating again.

20. Optically Isolated ma. External Control Card

Circuit card for field retrofit of manually operated power controls for automatic control in response to external analog signal. Optically isolated permits use in open or closed-loop control schemes. Voltage output from the power control is proportional to the analog signal input (elongated S-curve). Multiturn SPAN and GAIN trimmers provided for field calibration/adjustment of signal response range.

21. Optically Isolated ma. Control

Optically isolated circuitry integral to main control board that allows output voltage to load to be controlled by an analog signal in open or closed-loop system.

22. Retrofit

11D/18D construction at 120 and 240 VAC to 30 amps as built prior to 8/90. 18DZ, all voltages, to 30 A. prior to 11/96. 18D-H, 120/240, 10A prior to 1/99

24. Heatsink Overtemp Switch

Temperature sensor mounted to heatsink chassis with integral switch that changes state if heatsink temperature exceeds maximum temperature exceeds maximum allowable temperature. Available either to turn off control or to drive external indicating signal.

27. Alternate Control Voltage

Actuation by control voltage other than the product standard.

28. 120V Pilot

120 VAC Pilot voltage signal used to actuate control. 220 VAC also available.

30. 70-400Hz

Control configuration for operation at frequencies ranging from 70-400Hz or 16 2/3 and 25Hz. Must specify exact frequency rating required.

31. Zero Fired Delay

Forces delay of turn on until next line voltage sine wave zero crossing point (up to 8.3 milliseconds). All subsequent cycles are zero-fired, as they are with the standard unit.

33. External Power

Terminals provided for external voltage to power trigger circuit permitting power control to switch non standard voltages. Applications include installing power controls in low voltage secondary output of transformer and powering trigger circuit with connections to high voltage primary. Specify voltage to be supplied, 120/240/480.

Proportional Option

Converts 11DZ/EZ solid state ON/OFF relays to time proportioning controls that respond to a 2-12VDC or 4-20 ma control signal. Factory installed, NOT field selectable. Specify -PV or -PM. Both options utilize an external supply transformer, supplied, shipped loose. Not available for 11DZ-N series.

277 VAC Input

277 VAC input voltage rating.

550 VAC

550 VAC input voltage (nominal).

600 VAC

600 VAC input voltage (nominal).

Not all options are available on all models. Not all options available for some models can be incorporated on any one unit. Call Application Engineering at 304/757-7354 if there are any questions.

NAME	NUMBER	NON-COMPATIBLE WITH OPTION NUMBER	REQUIRES:
VOLTAGE LIMIT	9	13, 15	
MILLIAMP CONTROL	11	12 and 19 combined, 13, 15, 20, 21	22 WITH "I" SUFFIX UNITS AND ANY OTHER OPTION
CURRENT LIMIT	12	11 and 19 combined, 13, 15, 19 and 21 combined	
VOLTAGE REGULATION	13	9, 11, 12, 13, 20, 27, 29, 31, 32	22 WITH "I" SUFFIX UNITS
ISOLATED CHASSIS	14	"I" SUFFIX UNITS	
THERMISTOR TEMPERATURE CONTROL	15	9, 11, 12, 13, 20, 21, 31, 32	22 WITH "I" SUFFIX UNITS
SOFT START	19	ZERO-FIRE UNITS	PHASE ANGLE FIRING
OPTICALLY ISOLATED ma. EXTERNAL CONTROL CARD	20	11, 13, 15, 21	
OPTICALLY ISOLATED ma. CONTROL	21	11, 13, 15, 20	
RETROFIT	22		
OVERTEMP SWITCH	24		
ALTERNATE CONTROL VOLTAGE	27	28, 29	
120V PILOT	28	27, 29	
70-400hZ	30		SPECIFY FREQUENCY
ZERO-FIRED INITIAL TURN-ON	31	-PV, -PM	
EXTERNAL POWER	33		
PROPORTIONAL	-PV -PM	31	

18D-i ONLY	MAY USE OPTION 11 OR 20 AND/OR 19 ONLY. REQUIRES OPTION 22 FOR ANY OTHER OPTIONS
18DZ-i ONLY	ONLY OPTION 21 AVAILABLE. REQUIRES OPTION 22 FOR ANY OTHER OPTIONS

Need application assistance for SCR Power Controls? Fill in the following information and fax us this form. One of our experienced application experts will contact you within 24 hours!

YOUR NAME: _____

COMPANY: _____

ADDRESS: _____

CITY/STATE/ZIP: _____

PHONE NUMBER: _____

FAX NUMBER: _____

E-Mail: _____

Brief description of your application: _____

Application Parameters:

Line Voltage Voltage _____ Freq/Hz _____ ☐ single phase ☐ three phase

Load Type See Application Guide inside front cover ☐ Constant Resistance ☐ Variable Resistance ☐ Transformer ☐ D.C. Load

Load Rating Voltage _____ Amps _____ kW _____ Transformer kVA _____

Load Configuration ☐ single phase ☐ three phase, balanced ☐ three phase, unbalanced ☐ three phase, four wire

Control Method ☐ manual ☐ analog signal ☐ digital signal ☐ other _____

Control Scheme ☐ open loop ☐ closed loop

Unit Configuration ☐ open-chassis ☐ enclosed

Modifications and Accessories ☐ disconnect ☐ line contactor ☐ pilot light ☐ H-O-A switch ☐ drip shields
☐ ammeter ☐ voltmeter ☐ other

Usage Requirements ☐ 1 piece ☐ 2-10 pieces ☐ 11-25 pieces ☐ 26-50 pieces ☐ 50+ pieces

PHOTOCOPY THIS FORM, FILL IT IN, AND FAX TO 304/757/7305 FOR FREE APPLICATION ASSISTANCE

WARRANTY The Seller warrants to the Purchaser that any equipment sold will be free from defects in material or workmanship. If at any time within one (1) year from the date of shipment, the Seller is notified of any such defect it will promptly correct it by either, at it's option, repairing any defective part or material or replacing it. This warranty shall be effective only if installation and maintenance is in accordance with our instructions and written notice of a defect is given to the seller within the warranty period. This warranty is exclusive. There are no other warranties, written, oral or implied, and no warranties which extend beyond the description on the face thereof; specifically, without limitation, there is no warranty of merchantability or fitness for any purpose. The liability of the Seller shall be limited to the repair or replacement of materials or parts set forth above.

LIMITATION OF LIABILITY The Seller shall not be liable for any claim or consequential or special loss or damage arising or alleged to have arisen from any delay in delivery or malfunction of the equipment. The Seller's liability for any loss or damage arising out of or connected with the manufacture, sale or use of the equipment sold, including damage done due to negligence, shall not in any event exceed the price of the equipment supplied by the Seller.

GENERAL CONDITIONS All orders are subject to acceptance by the seller at it's Office in Scott Depot, West Virginia. Clerical errors are subject to correction. No oral or subsequent modification of any of the foregoing general provisions or of any term or condition of any order shall be binding unless agreed to in writing by the Seller and Purchaser.

Payne Engineering Company, Inc. reserves the right to make changes at any time, without notice, in prices, colors, materials, specifications and models in the interest of advancing design technologies. The Seller will continue to service obsolete models only as parts remain available, and such service is considered by the Seller to be practical.

DELIVERY Any indicated delivery date is approximate, and while the Seller shall use it's best efforts to make deliveries in accordance therewith, the Seller shall not be liable for any delays in delivery or damages therefrom. Unless otherwise specified, method of shipment shall be selected by the Seller.

CANCELLATION AND RETURNS Any order which has been accepted by the Seller may be cancelled only with the consent which shall be given upon the Purchaser's agreement to pay the Seller reasonable cancellation charges. The Seller will not accept return of any merchandise for credit unless it's written consent thereto is given in advance.

REPAIR SERVICES Product checkout and repair is available at our facility in Scott Depot, West Virginia. All returns must be accompanied by a Returned Materials Authorization (RMA) number, which must be obtained in advance from Payne Engineering Company. Shipments that do not include a valid RMA number will be returned to the shipper at the shipper's expense.

Equipment to be repaired should be sent, freight prepaid, to the following address:

Payne Engineering Company
Attn: Service Department
Ref: (RMA number)
Route 29, Rock Step Road
Scott Depot, WV 25560-0070

Returned items should be accompanied by a brief description of the observed problem, and the name and telephone number of a contact who is familiar with the use of the equipment.

Charges are determined according to the material and labor required to repair the product. All repairs will be assessed a minimum bench charge of \$45.00, as will all products (including those still under warranty) which are determined to be fully operational as received. Charges for parts and labor will be charged in addition to checkout charges.

FIELD SERVICES Factory technicians are available for field service on all Payne Engineering Company products. To arrange for a factory technician to service equipment in the field, please contact our Sales Department at 304/757-7353; rates will be quoted at that time.

CREDIT CARD PURCHASES All purchases made with a credit card will be subject to a handling charge.

Request more info:

- *Gas Lamps: Why an Initial Current Surge?*
Technical Information Publication 208
- *Temperature Considerations for SCR Controls*
Application Note 10-18
- *Laminar Flow Heatsink Design*
Technical Paper

For a complete list go to our website:

www.payneng.com



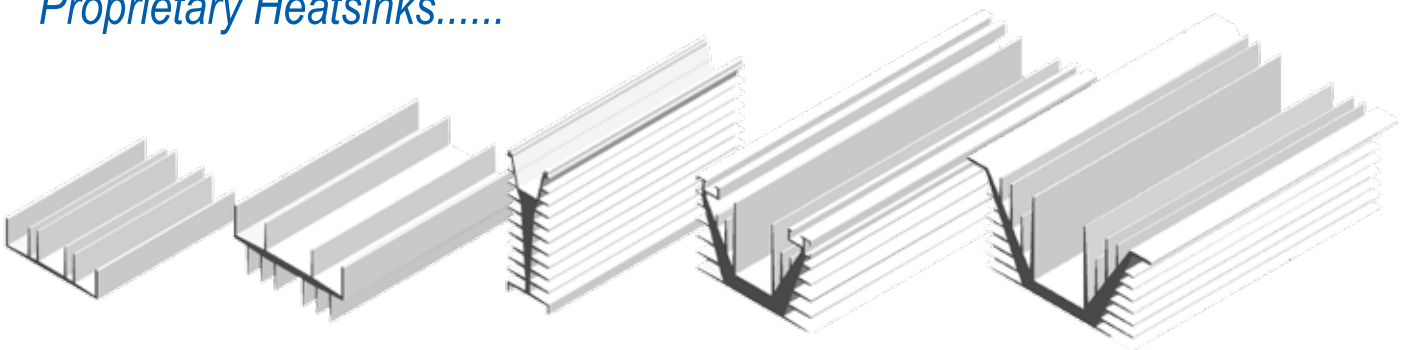
Expert Fusing.....



Hand-Selected Thyristors.....



Proprietary Heatsinks.....





Scott Depot, West Virginia

The Company

Founded in 1959, Payne Engineering today carries on with the same mission it has had since the very beginning: to provide practical solutions to controlling power to motor and process heating applications with solid state switching technology.

The Experience

We didn't "introduce" solid state controls when market conditions made them fashionable, we pioneered the commercial application of this technology in the late 1950's. Our engineering, research and development, design, and manufacturing experience and resources have always been singularly dedicated to providing solid state controls that outperform and outlast any electromechanical product available.

The Technology

Continuous investment of research time and engineering resources in advanced power semiconductor protection methodologies assures a level of reliability unmatched by any other solid state controls. "2 ms" fuses, selected according to strict criteria for clearing time and total energy let-through, protect power semiconductors against short-circuits; proprietary heatsink designs allow air cooling with no fans and no thermal derating; "Voltage Breakover Clamping" protects power semiconductors against transient voltage spikes independent of PIV ratings.



Valkaria, Florida

The Products

Our product scope over the years has evolved into the industries broadest, comprising all solid state, maintenance-free replacements for electromechanical motor controls, power relays, variable transformers, saturable reactors, and mercury relays. Standard catalog items exist to meet almost any application requirement.

PAYNE
ENGINEERING

Box 70, Scott Depot, WV 25560-0070
900 Ramblebrook st., Valkaria, FL 32950

304/757-7353

FAX: 304/757-7305

www.payneng.com

E-mail: sales@payneng.com

*Some products are not yet certified





Textiles



Plastic Injection Molding



Food Processing



Payne Engineering manufactures a complete line of motor controls.

Across-the Line Contactors

Reduced Voltage Soft Starters

Reversing Starters

Request a copy of our
Solid State Motor Control Catalog

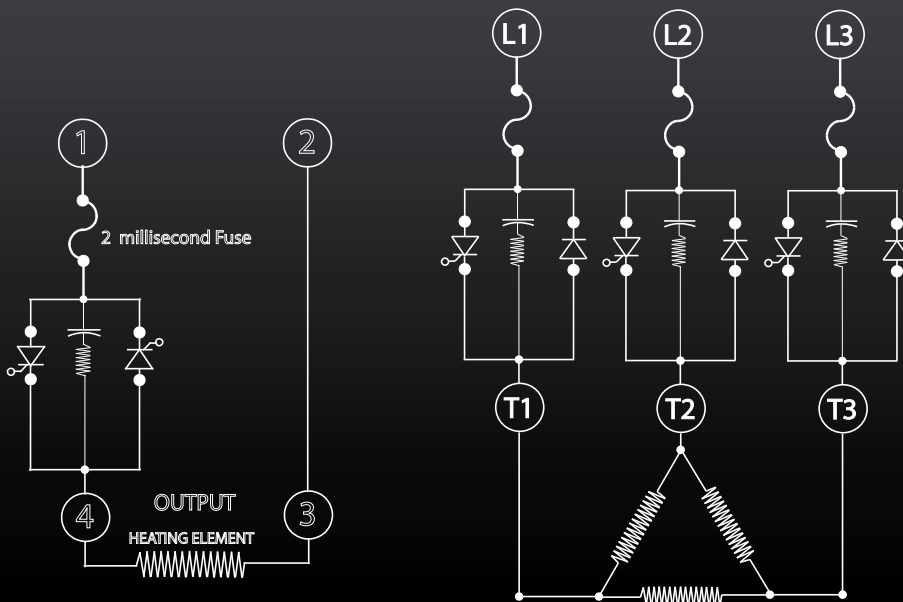


SALES REPRESENTATIVE

COMPANY NAME: _____

SALES REP: _____

PHONE: _____



OHM's LAW Chart

