

SUPERSEDES:

Class General
Page 1
January 13, 1969

**GENERAL**

PAGE 1

JANUARY 15, 1970

ADDITIONS AND SPECIAL FEATURES FOR AC MAGNETIC CONTACTORS AND STARTERS

Factory-installed additions and special features are available for the Classes of control equipment listed in the respective tables below. Prices shown are **additions** to standard equipment prices and are not to be used as separate selling prices.

Kits are also available for many field modifications and normal parts replacement on most control items. Refer to

Classes 9998 and 9999 for complete listings.

Standard equipment dimensions and enclosure construction may not apply when certain special features are added. Such cases should be referred to the factory with complete description when accurate dimensions are required.

TABLE 1 — LINE VOLTAGE AND REDUCED VOLTAGE CONTROLS

CLASSES 8502, 8508, 8536, 8538, 8539, 8702, 8736, 8738, 8739, 8547, 8549, 8606, 8630, 8640, 8650, 8651, 8810, 8811, 8812 and 8903*

Additions or Special Features	Enclosure Type	Form Letters	NEMA Size									
			00	0	1 PW 1 YD	2 PW 2 YD	3 PW 3 YD	4 PW 4 YD	5 PW 5 YD	6 PW 6 YD	7 PW 7 YD	8 PW 8 YD
PILOT DEVICES IN COVER												
Line Voltage Controls												
"Start-Stop" push button (momentary contact) . . .	1	A	\$ 8.	\$ 8.	\$ 8.	\$ 8.	\$ 8.	\$ 8.	\$ 22.	\$ 22.	\$ 22.	
"Start-Stop" push button (momentary contact) . . .	4, 7, 9, 12	A	....	22.	22.	22.	22.	22.	22.	22.	22.	
"On-Off" push button (momentary contact)	1	A3	8.	8.	8.	8.	8.	8.	22.	22.	22.	
"On-Off" push button (momentary contact)	4, 7, 9, 12	A3	....	22.	22.	22.	22.	22.	22.	22.	22.	
"On-Off" push button (Class 8903 lighting contactors —electrically held only—price includes holding interlock)	1	A3X1	....	....	19.	19.	19.	19.	....	....	....	
"On-Off" push button (Class 8903 lighting contactors —electrically held only—price includes holding interlock)	4, 12	A3X1	....	....	33.	33.	33.	33.	....	....	....	
"Start-Stop" push button (momentary contact) with lockout on "Stop"	1, 4, 12	....	....	25.	25.	25.	25.	25.	25.	25.	25.	
"Start-Stop" push button (maintained contact) . . .	Any	....	....	25.	25.	25.	25.	25.	25.	25.	25.	
"Start-Stop" push button (momentary contact) and "Hand-Off-Auto" selector switch	Any	AC	....	44.	44.	44.	44.	44.	44.	44.	44.	
"Hand-Off-Auto" selector switch	1	C	8.	8.	8.	8.	8.	8.	22.	22.	22.	
"Hand-Off-Auto" selector switch	4, 7, 9, 12	C	....	22.	22.	22.	22.	22.	22.	22.	22.	
"Forward-Off-Reverse" selector switch	Any	....	....	22.	22.	22.	22.	22.	22.	22.	22.	
"High-Off-Low" selector switch	Any	C7	....	22.	22.	22.	22.	22.	22.	22.	22.	
"On-Off" selector switch	1	C6	8.	8.	8.	8.	8.	8.	22.	22.	22.	
"On-Off" selector switch	4, 7, 9, 12	C6	....	22.	22.	22.	22.	22.	22.	22.	22.	
"Forward-Reverse-Stop" push button	1, 4, 12	A1	....	40.	40.	40.	40.	40.	40.	40.	40.	
"Forward-Reverse-Stop" push button (Spin Top) . .	7	A1	....	50.	50.	50.	50.	50.	....	....	....	
"High-Low-Stop" push button	1, 4, 12	A2	....	40.	40.	40.	40.	40.	40.	40.	40.	
"High-Low-Stop" push button (Spin Top)	7	A2	....	50.	50.	50.	50.	50.	....	....	....	
Oil-tight "Start-Stop" push button (momentary contact) or "Hand-Off-Auto" selector switch in NEMA 1	1	....	....	22.	22.	22.	22.	22.	....	....	....	
Single push button or selector switch with standard markings listed for Class 9001 oil-tight units. (Specify required marking and connections)	1, 4, 12	....	....	22.	22.	22.	22.	22.	....	....	....	
Addition of lockout or padlock attachment (Add to above price)	1, 12	....	....	3.	3.	3.	3.	3.	....	....	....	
Substitute key operator on selector switch (Add to above price)	1, 12	....	....	6.	6.	6.	6.	6.	....	....	....	
Pilot light (specify color)												
Without operating interlock (one light only)	1, 4, 12	P▲	15.	15.	15.	15.	15.	15.	15.	15.	15.	
Without operating interlock (one light only)	7, 9,	P▲	....	27.	27.	27.	27.	27.	27.	27.	27.	
Without operating interlock (two or more lights) Each	Any	P▲	....	27.	27.	27.	27.	27.	27.	27.	27.	

*Class 8903 lighting contactors are rated in amperes as opposed to a NEMA size. The following is a cross reference to determine modification prices:

NEMA Size	1	2	3	4	5
Class 8903 ampere rating	30	60	100	200	300

▲ Indicate pilot light color as Form P (red) or Form P (green), etc. and how light is to be wired into the circuit. Insert "Push-To-Test" before color, if applicable.

GENERAL

PAGE 2

JANUARY 15, 1970



SUPERSEDES:
Class General
Page 2
January 13, 1969

ADDITIONS AND SPECIAL FEATURES FOR AC MAGNETIC CONTACTORS AND STARTERS

TABLE 1 — LINE VOLTAGE AND REDUCED VOLTAGE CONTROLS (Continued)

CLASSES 8502, 8508, 8536, 8538, 8539, 8702, 8736, 8738, 8739, 8547, 8549, 8606, 8630, 8640, 8650, 8651, 8810, 8811, 8812 and 8903*

Additions or Special Features	Enclosure Type	Form Letters	NEMA Size									
			00	0	1 PW 1 YD	2 PW 2 YD	3 PW 3 YD	4 PW 4 YD	5 PW 5 YD	6 PW 6 YD	7 PW 7 YD	8 PW 8 YD
PILOT DEVICES IN COVER (continued)												
Line Voltage Controls (continued)												
Pilot light (specify color) (continued)												
Without operating interlock (Push-to-Test light only).....Each	1, 4, 12	P▲	....	\$ 30.	\$ 30.	\$ 30.	\$ 30.	\$ 30.	\$ 30.	\$ 30.	\$ 30.	\$ 30.
Electrical interlocks for operating above lights (Add to price of pilot light from above)...Each	Any	†	....	12.	12.	12.	12.	12.	12.	34.	34.	34.
Substitute illuminated push button(s) for non-illuminated push button(s) (Add to Form A price — specify color and function)												
Each illuminated operator	1	....	....	15.	15.	15.	15.	15.	15.	....	....	....
Each illuminated operator	4, 12	....	....	27.	27.	27.	27.	27.	27.	....	....	....
Reduced Voltage Controls												
"Start-Stop" push button.....	Any	A	....	....	22.	22.	22.	22.	22.	22.	22.	22.
"Hand-Off-Auto" selector switch.....	Any	C	....	....	22.	22.	22.	22.	22.	22.	22.	22.
"Start-Stop" push button (momentary contact) and "Hand-Off-Auto" selector switch.....	Any	AC	....	44.	44.	44.	44.	44.	44.	44.	44.	44.
"On-Off" selector switch.....	Any	C6	....	22.	22.	22.	22.	22.	22.	22.	22.	22.
"Forward-Reverse-Stop" push button.....	Any	A1	....	....	40.	40.	40.	40.	40.	40.	40.	40.
"High-Low-Stop" push button.....	Any	A2	....	....	40.	40.	40.	40.	40.	40.	40.	40.
Pilot light												
Without operating interlock (one light only).....	1, 4, 12	P▲	....	....	15.	15.	15.	15.	15.	15.	15.	15.
Without operating interlock (one light only).....	7, 9	P▲	....	....	27.	27.	27.	27.	27.	27.	27.	27.
Without operating interlock (two or more lights) Ea.	Any	P▲	....	....	27.	27.	27.	27.	27.	27.	27.	27.
Electrical interlock(s) for operating above lights (Add to price of pilot light from above)...Each	Any	†	....	....	12.	12.	12.	12.	12.	34.	34.	34.
Oil-tight push button or selector switch with standard markings listed for Class 9001 oil-tight units. (Specify required marking and connections) Each	1, 4, 12	....	....	....	22.	22.	22.	22.	22.	....	....	....
Addition of lockout or padlock attachment (Add to above price).....	1, 12	....	....	....	3.	3.	3.	3.	3.	....	....	....
Substitute key operator on selector switch (Add to above price).....	1, 12	....	....	....	6.	6.	6.	6.	6.	....	....	....
CONTROL CIRCUIT												
Separate control circuit, unfused (Specify voltage and frequency).....	Any	S	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.
Omission of magnet coil. DEDUCT per coil.....	Any	....	....	2.	2.	2.	4.	4.	6.	....	....	....
Dual fusing of transformer secondary.....	Any	....	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.
Control circuit breaker — Internally operated.....	Any	....	....	87.	87.	87.	87.	87.	87.	87.	87.	87.
Fused control circuit switch — Internally operated.....	Any	....	....	54.	54.	54.	54.	54.	54.	54.	54.	54.
Line Voltage Controllers												
Fused control circuit (1 or 2 fuses).....	1, 12	F	....	....	22.	22.	22.	22.	22.	22.	Std.	Std.
Substitute dual-voltage magnet coil..... Per Coil	Any	Y5	....	2.	2.	2.	2.	2.	....	....	....	....
Substitute dual-frequency, 50/60 cycle magnet coil..... Per Coil	Any	....	....	6.	6.	8.	8.	11.	13.	....	....	....
Control circuit transformer:												
Standard capacity:												
With fused secondary 60 Hz. or 50 Hz.....	1, 4, 12	FT	....	27.	27.	38.	56.	68.	77.	N.C.	Std.	Std.
With unfused secondary 60 Hz. or 50 Hz.....	7○	T	....	31.	31.	52.	73.	93.	107.	....	....	....
With unfused secondary 60 Hz. or 50 Hz.....	9	T	....	27.	27.	38.	56.	68.	77.	....	....	....
With fused secondary 25 Hz.....	1, 4, 12	FT	....	41.	41.	57.	84.	102.	102.	102.	Std.	Std.
With unfused secondary 25 Hz.....	7○	T	....	45.	45.	73.	101.	127.	132.	....	....	....

*Class 8903 lighting contactors are rated in amperes as opposed to a NEMA size. The following is a cross reference to determine modification prices:

NEMA Size	1	2	3	4	5
Class 8903 ampere rating.....	30	60	100	200	300

○ Bolted or Spin Top® construction.

▲ Indicate pilot light color as Form P (red) or Form P (green), etc. and how light is to be wired into the circuit. Insert "Push-To-Test" before color, if applicable.

† DO NOT indicate Form X number for any interlock which is wired in series with pilot light. Specify, however, how pilot light is to be wired into the circuit. Indicate pilot light color as Form P (red) or Form P (green), etc. Insert "Push-To-Test" before color, if applicable.



ADDITIONS AND SPECIAL FEATURES FOR AC MAGNETIC CONTACTORS AND STARTERS

TABLE 1 — LINE VOLTAGE AND REDUCED VOLTAGE CONTROLS (Continued)

CLASSES 8502, 8536, 8538, 8539, 8702, 8736, 8738, 8739, 8547, 8549, 8606, 8630, 8640, 8650, 8651, 8810, 8811, 8812 and 8903*												
Additions or Special Features	Enclosure Type	Form Letters	NEMA Size									
			00	0	1 PW 1 YD	2 PW 2 YD	3 PW 3 YD	4 PW 4 YD	5 PW 5 YD	6 PW 6 YD	7 PW 7 YD	8 PW 8 YD
CONTROL CIRCUIT — (continued)												
Control circuit transformer (continued)												
Extra capacity with fused secondary:												
100 watt extra 60 Hz. or 50 Hz.....	1, 4, 12	FT-11	....	\$ 48.	\$ 48.	\$ 62.	\$ 78.	\$ 88.	\$ 98.	\$ 98.	\$ 98.	\$ 98.
200 watt extra 60 Hz. or 50 Hz.....	1, 4, 12	FT-12	....	65.	65.	81.	97.	107.	107.	107.	107.	107.
300 watt extra 60 Hz. or 50 Hz.....	1, 4, 12	FT-13	....	82.	82.	100.	116.	126.	126.	126.	126.	126.
400 watt extra 60 Hz. or 50 Hz.....	1, 4, 12	FT-14	....	116.	116.	138.	154.	174.	174.	174.	174.	174.
500 watt extra 60 Hz. or 50 Hz.....	1, 4, 12	FT-15	....	136.	136.	158.	174.	194.	194.	194.	194.	194.
Extra capacity with unfused secondary:												
100 watt extra 60 Hz. or 50 Hz.....	7	T-11	....	52.	52.	76.	95.	113.	128.	.....	.....	.....
100 watt extra 60 Hz. or 50 Hz.....	9	T-11	....	48.	48.	62.	78.	88.	98.	.....	.....	.....
200 watt extra 60 Hz. or 50 Hz.....	9	T-12	....	65.	65.	81.	97.	107.	107.	.....	.....	.....
300 watt extra 60 Hz. or 50 Hz.....	9	T-13	....	82.	82.	100.	116.	126.	126.	.....	.....	.....
400 watt extra 60 Hz. or 50 Hz.....	9	T-14	....	116.	116.	138.	154.	174.	174.	.....	.....	.....
500 watt extra 60 Hz. or 50 Hz.....	9	T-15	....	136.	136.	158.	174.	194.	194.	.....	.....	.....
Substitute non-standard single primary, and/or single secondary voltage rating on control transformer.....	Any	....	....	5.	5.	5.	5.	5.	5.	.....	.....	.....
Standard voltage ratings are:												
60 Hz.: 480—240/120, 460—230/115, 440—220/110, 600/120, 575/115, 550/110, and 480—240/24												
50 Hz.: 460—230/115, 440—220/110, 575/115, and 550/110												
25 Hz.: 460—230/115, 575/115, 460—230/24												
Dual-voltage on transformer secondary.....	Any	....	....	5.	5.	5.	5.	5.	5.	.....	.....	.....
Substitute dual-voltage magnet coil.....Per Coil	Any	Y5	....	2.	2.	2.	2.	2.	.....	.....	.....	.....
Reduced Voltage Controllers Only												
Control circuit transformers												
Standard capacity												
With fused secondary 60 Hz. or 50 Hz.....	1, 4, 12	FT	....	48.	48.	62.	78.	88.	98.	N.C.	N.C.	N.C.
With fused secondary 25 Hz.....	1, 4, 12	FT	....	72.	72.	93.	117.	132.	147.	N.C.	N.C.	N.C.
With unfused secondary 60 Hz. or 50 Hz.....	7, 9	T	....	48.	48.	62.	78.	88.	98.	.....	.....	.....
With unfused secondary 25 Hz.....	7, 9	T	....	72.	72.	93.	117.	132.	147.	.....	.....	.....
Extra capacity — with fused secondary												
100 watt extra 60 Hz. or 50 Hz.....	1, 4, 12	FT-11	....	69.	69.	83.	99.	109.	119.	119.	119.	119.
200 watt extra 60 Hz. or 50 Hz.....	1, 4, 12	FT-12	....	86.	86.	105.	119.	127.	138.	138.	138.	138.
300 watt extra 60 Hz. or 50 Hz.....	1, 4, 12	FT-13	....	128.	128.	142.	158.	168.	178.	178.	178.	178.
400 watt extra 60 Hz. or 50 Hz.....	1, 4, 12	FT-14	....	211.	211.	233.	249.	269.	269.	269.	269.	269.
500 watt extra 60 Hz. or 50 Hz.....	1, 4, 12	FT-15	....									
Substitute non-standard single primary, and/or single secondary voltage rating on control transformer.....	Any	....	....	5.	5.	5.	5.	5.	5.	.....	.....	.....
Standard voltage ratings are:												
60 Hz.: 480—240/120, 460—230/115, 440—220/110, 600/120, 575/115, 550/110, and 460—240/24												
50 Hz.: 460—230/115, 440—220/110, 575/115, and 550/110												
25 Hz.: 460—230/115, 575/115, 460—230/24												
Dual voltage on transformer secondary.....	Any	....	....	\$ 5.	\$ 5.	\$ 5.	\$ 5.	\$ 5.	\$ 5.	.....	.....	.....
Substitute dual-voltage magnet coil.....Per Coil	Any	Y5	....	2.	2.	2.	2.	2.	.....	.....	.....	.....

*Class 8903 lighting contactors are rated in amperes as opposed to a NEMA Size. The following is a cross reference to determine modification prices:

NEMA Size	1	2	3	4	5
Class 8903 ampere rating.....	30	60	100	200	300

GENERAL

PAGE 4

JANUARY 13, 1969



SUPERSEDES:
General Price Sheet,
Pages 1-14,
dated November, 1965

ADDITIONS AND SPECIAL FEATURES FOR AC MAGNETIC CONTACTORS AND STARTERS

TABLE 1 — LINE VOLTAGE AND REDUCED VOLTAGE CONTROLS (Continued)

CLASSES 8502, 8536, 8538, 8539, 8702, 8736, 8738, 8739, 8547, 8549, 8606, 8630, 8640, 8650, 8651, 8810, 8811, 8812 and 8903*

Additions or Special Features	Enclosure Type	Form Letters	NEMA Size									
			00	0	1 PW 1 YD	2 PW 2 YD	3 PW 3 YD	4 PW 4 YD	5 PW 5 YD	6 PW 6 YD	7 PW 7 YD	8 PW 8 YD
AUXILIARY RELAYS												
Control relay (limited to one relay having maximum of 4 poles)—specify pole arrangement, voltage and type required†	1, 12	....	....	\$ 51.	\$ 51.	\$ 51.	\$ 51.	\$ 80.	\$ 90.	\$ 90.	\$ 90.	\$ 90.
	4, 9	....	....	78.	78.	78.	78.	106.	118.	118.	118.	118.
Pneumatic timing relay (adjustable .2 to 180 seconds) added. In circuit (limit of one — specify “On” or “Off” delay)†	1, 12	K	....	84.	84.	84.	84.	84.	84.	84.	84.	84.
	4, 9	K	....	110.	110.	110.	110.	110.	110.	110.	110.	110.
Time delay low voltage release relay†	1, 4, 12	....	....	110.	110.	110.	110.	110.	110.	110.	110.	110.
Motor driven timing relay†	1, 4, 12	K5	....	176.	176.	176.	176.	176.	176.	176.	176.	176.
Phase failure relay.....	1, 12	....	....	185.	185.	185.	195.	195.	255.	315.	315.	315.
Reverse phase and phase failure relay.....	1, 12	....	....	250.	250.	250.	260.	260.	320.	380.	380.	380.
Reverse phase and dead phase relay.....	1, 12	....	....	118.	118.	118.	118.	118.	118.	118.	118.	118.
Incomplete sequence relay (reduced voltage only)†	1, 12	....	....	....	119.	119.	119.	119.	119.	119.	119.	119.
For multispeed controllers:												
Compelling relay (requires motor to be started in low speed).....	1, 4, 9, 12	R1	....	66.	66.	66.	66.	66.	66.	66.	66.	66.
Accelerating relay (provides timed acceleration to selected speed.):												
For Class 8810.....	1, 4, 9, 12	R2	....	154.	154.	154.	154.	154.	154.	154.	154.	154.
For Class 8811.....	1, 4, 9, 12	R2	....	308.	308.	308.	308.	308.	308.	....	....	....
For Class 8812.....	1, 4, 9, 12	R2	....	462.	462.	462.	462.	462.	462.	....	....	....
Decelerating relay (imposes a timing delay during transfer from a higher to a lower speed.):												
For Class 8810.....	1, 4, 9, 12	R3	....	154.	154.	154.	154.	154.	154.	154.	154.	154.
For Class 8811.....	1, 4, 9, 12	R3	....	308.	308.	308.	308.	308.	308.	....	....	....
For Class 8812.....	1, 4, 9, 12	R3	....	462.	462.	462.	462.	462.	462.	....	....	....
Brake relay.....	1, 4, 12	....	....	98.	98.	98.	98.	98.	98.	98.	98.	98.
METERS AND METERING												
Ammeter in cover (includes current transformer if necessary on size 2 and up).....	1, 12	....	....	70.	70.	140.	140.	198.	198.	198.	198.	198.
Ammeter and switch.....	1, 12	....	....	....	300.	300.	300.	300.	300.	300.	300.	300.
Voltmeter.....	1, 12	....	....	....	198.	198.	198.	198.	198.	198.	198.	198.
Voltmeter and switch.....	1, 12	....	....	....	300.	300.	300.	300.	300.	300.	300.	300.
Elapsed time meter.....	1, 12	....	....	....	58.	58.	58.	58.	58.	58.	58.	58.
Wattmeter.....	1, 12	....	....	....	406.	406.	406.	406.	406.	459.	459.	459.
OVERLOAD RELAYS												
Three phase overload protection												
Type B to G starters.....Add per Relay	Any	J	....	4.	4.	4.	4.	4.	40.	70.	70.	70.
Types A and S starters.....Add per Relay	Any	....	\$ 1.50	1.50	1.50	1.50	1.50	....	....	....	....	....

*Class 8903 lighting contactors are rated in amperes as opposed to a NEMA Size. The following is a cross reference to determine modification prices:

NEMA Size	1	2	3	4	5
Class 8903 ampere rating	30	60	100	200	300

†Not more than one of these devices per controller. If controller has a control transformer, price that transformer with additional capacity for the relay provided.



ADDITIONS AND SPECIAL FEATURES FOR AC MAGNETIC CONTACTORS AND STARTERS

TABLE 1 — LINE VOLTAGE AND REDUCED VOLTAGE CONTROLS (Continued)

CLASSES 8502, 8536, 8538, 8539, 8702, 8736, 8738, 8739, 8547, 8549, 8606, 8630, 8640, 8650, 8651, 8810, 8811, 8812 and 8903*												
Additions or Special Features	Enclosure Type	Form Letters	NEMA Size									
			00	0	1 PW 1 YD	2 PW 2 YD	3 PW 3 YD	4 PW 4 YD	5 PW 5 YD	6 PW 6 YD	7 PW 7 YD	8 PW 8 YD
OVERLOAD RELAYS (continued)												
Ambient compensated, three element (bimetallic) overload relay with "Auto/Hand" reset for Type S starters only.....	Any	B	....	\$ 3.50	\$ 3.50	\$ 3.50	....	....	....	....	....	....
Auto/Hand reset overload relays for Type S starters	Any	B1	....	N.C.	N.C.	N.C.	....	....	....	....	....	....
Two element, non-compensated (bimetallic).....	Any	B2	....	1.50	1.50	1.50	....	....	....	....	....	....
Three element, non-compensated (bimetallic).....	Any	Y34	\$ 4.	4.	4.	4.	\$ 4.	\$ 4.	\$ 4.	\$ 4.	\$ 4.	\$ 4.
Substitute melting alloy type overload relay with 1 N.O. and 1 N.C. contact.....Add per Relay	Any	Y34	\$ 4.	4.	4.	4.	\$ 4.	\$ 4.	\$ 4.	\$ 4.	\$ 4.	\$ 4.
Addition of two thermal overload relays with standard trip thermal units (for Classes 8536, 8538, 8539, 8736, 8738, 8739 only).....	1, 12	....	....	18.	18.	45.	50.	60.	80.	....	....	....
Omit overload protection from combination starters, (Classes 8538, 8539, 8738, 8739 only)	Any	Y76	....	8.	8.	12.	18.	26.	85.	110.	135.	407.
Deduct per Starter	Any	Y76	....	8.	8.	12.	18.	26.	85.	110.	135.	407.
Substitute slow-trip or fast-trip thermal units for standard melting alloy type units. (Not available on Size 00 Class 8536. Size 3 and 4 starters also require Form Y21 or Y81 modification.)	Any	....	2.50	2.50	2.50	2.50	2.50	2.50	....	....	....	....
Slow-trip units, Type JB.....Add per Unit	Any	....	2.50	2.50	2.50	2.50	2.50	2.50	....	....	....	....
Fast-trip units, Type FB.....	Any	....	....	N.C.	N.C.	N.C.	N.C.	N.C.	....	....	....	....
Modify size 3 (pre Type S only) starter with melting alloy overload relays to accept Type B, C, FB or JB thermal units.....	Any	Y21	....	....	....	....	N.C.	....	....	....	....	....
Modify size 3 (Type S) or size 4 (pre Type S) with melting alloy overload relays to accept Type B, FB or JB thermal units.....	Any	Y81	....	....	....	....	N.C.	N.C.	....	....	....	....
Additional thermal units or heaters:												
Standard-trip type.....Each	Any	....	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Fast-trip type (melting alloy).....Each	Any	....	1.50	1.50	1.50	1.50	1.50	1.50	....	....	....	....
Slow-trip type (melting alloy).....Each	Any	....	4.	4.	4.	4.	4.	4.	....	....	....	....
Substitute magnetic time delay overload relays												
Auto-reset.....Per Pair	1, 4, 9, 12	Y43	....	....	....	33.	33.	33.	N.C.	33.	33.	33.
Internal hand reset.....Per Pair	1, 4, 9, 12	Y43-1	....	....	....	38.	38.	38.	5.	38.	38.	38.
Substitute instantaneous trip magnetic overload relays on starters with thermal relays												
Auto reset.....Per Pair	1, 4, 9, 12	Y43-2	....	....	....	44.	44.	44.	11.	44.	44.	44.
Substitute instantaneous trip overload relays on Class 8536 starters listed with magnetic overload relays												
Auto-reset.....Per Pair	1, 4, 9, 12	Y43-3	....	....	....	11.	11.	11.	11.	11.	11.	11.
External hand reset for magnetic overload relays.												
Add to additions price for substituting magnetic overload relays with internal hand reset...Per Pair	1, 12	Y-144	....	....	....	25.	25.	25.	25.	25.	25.	25.
	4, 9	Y-144	....	....	....	45.	45.	45.	45.	45.	45.	45.
ELECTRICAL INTERLOCKS												
Additional electrical interlocks.....Each	Any	X▲	....	11.	11.	11.	11.	11.	11.	33.	33.	33.
Change standard normally open interlock to normally closed	Any	X▲	....	11.	11.	11.	11.	11.	11.	33.	33.	33.
Non-reversing devices.....	Any	X▲	3.	11.	11.	11.	11.	11.	11.	11.	11.	11.
Reversing devices.....	Any	X▲	6.	22.	22.	22.	22.	22.	22.	22.	22.	22.

*Class 8903 lighting contactors are rated in amperes as opposed to a NEMA Size. The following is a cross reference to determine modification prices:

NEMA Size	1	2	3	4	5
Class 8903 ampere rating.....	30	60	100	200	300

▲For proper Form X... numbers, starters Type B through Type G, see GENERAL INFORMATION Catalog Section, Pages 14-16. For Type S starters, see Class 8536, Page 109, and Class 8736, Pages 106-107.

GENERAL

PAGE 6

JANUARY 13, 1969



SUPERSEDES:
General Price Sheet,
Pages 1-14,
dated November, 1965

ADDITIONS AND SPECIAL FEATURES FOR AC MAGNETIC CONTACTORS AND STARTERS

TABLE 1 — LINE VOLTAGE AND REDUCED VOLTAGE CONTROLS (Continued)

CLASSES 8502, 8536, 8538, 8539, 8702, 8736, 8738, 8739, 8547, 8549, 8606, 8630, 8640, 8650, 8651, 8810, 8811, 8812 and 8903 *

Additions or Special Features	Enclosure Type	Form Letters	NEMA Size									
			00	0	1 PW 1 YD	2 PW 2 YD	3 PW 3 YD	4 PW 4 YD	5 PW 5 YD	6 PW 6 YD	7 PW 7 YD	8 PW 8 YD
ELECTRICAL INTERLOCKS (continued)												
Auxiliary interlocks installed on disconnect switch or circuit breaker operating mechanism												
1 N.O. — 1 N.C. contacts.....	1, 4, 12	Y74	....	\$ 11.	\$ 11.	\$ 11.	\$ 11.	\$ 11.	....	....	....	....
2 N.O. — 2 N.C. contacts.....	1, 4, 12	Y75	....	22.	22.	22.	22.	22.	....	....	....	....
(Note: Above contacts do not switch with automatic tripping of circuit breaker. If such operation is required, see internal circuit breaker auxiliary or alarm contacts, below.)												
Internal auxiliary contacts within circuit breaker. Consists of a N.O.-N.C. contact (with a common connection) which switches with circuit breaker contacts												
1 N.O. — 1 N.C. interlocks.....	All	Y74-1	....	18.	18.	18.	18.	....	....	....	....	....
2 N.O. — 2 N.C. interlocks.....	All	Y75-1	....	36.	36.	36.	36.	....	....	....	....	....
Alarm circuits in circuit breaker.												
Used to actuate an alarm, or other warning device, when breaker is in tripped position.												
1 N.O. contact.....	All	Y74-2	....	18.	18.	18.	18.	....	....	....	....	....
ENCLOSURES												
Omit enclosure (deduct from NEMA 1 price):												
Class 8547.....	....	....	....	....	10.	24.	76.	110.	\$ 222.	\$ 356.	\$ 356.	\$ 356.
Class 8606.....	....	....	....	....	....	24.	76.	110.	222.	356.	356.	356.
Function identification plate, with marking as specified.	Any	....	\$ 1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Floor mounting angles (not for Spin Top starters)....	Any	E	....	50.	50.	50.	50.	50.	50.	....	....	....
Cylinder lock (Yale 511-S or equal) on enclosure door.	1, 12	....	....	50.	50.	50.	50.	50.	50.	50.	50.	50.
Convenience receptacle (2-wire) mounted in side of enclosure.....	1, 12	Y31	....	20.	20.	20.	20.	20.	20.	20.	20.	20.
Drain and breather installed (Spin Top starters only)...	7	Y41	....	6.	6.	6.	6.	6.	6.	....	....	....
Drip hood with corrosion resisting finish (enclosure should be given corrosion resisting finish at additions shown below).....	1, 9, 12	....	....	18.	18.	22.	33.	66.	88.	120.	120.	120.
Corrosion resisting finish on sheet steel enclosure (furnished as standard on NEMA 4). Apply and set-up charge of \$33. Plus a charge per device as indicated:												
Charge per device:												
Lots of 1- 9.....	1, 9, 12	....	....	....	22.	22.	22.	22.	22.	132.	132.	132.
Lots of 10- 24.....	1, 9, 12	....	....	....	18.	18.	18.	18.	18.	132.	132.	132.
Lots of 25- 49.....	1, 9, 12	....	....	....	14.	14.	14.	14.	14.	....	....	....
Lots of 50- 99.....	1, 9, 12	....	....	....	9.	9.	9.	9.	9.	....	....	....
Lots of 100-499.....	1, 9, 12	....	....	....	5.	5.	5.	5.	5.	....	....	....
Lots of 500 or more.....	1, 9, 12	....	....	....	3.	3.	3.	3.	3.	....	....	....
Special paint (other than corrosion resisting) on enclosures. Apply a set-up charge of \$33. plus a charge per device as indicated:												
Charge per device:												
Lots of 1- 9.....	Any	....	....	11.	11.	11.	11.	11.	11.	132.	132.	132.
Lots of 10- 24.....	Any	....	....	9.	9.	9.	9.	9.	9.	132.	132.	132.
Lots of 25- 49.....	Any	....	....	7.	7.	7.	7.	7.	7.	....	....	....
Lots of 50- 99.....	Any	....	....	5.	5.	5.	5.	5.	5.	....	....	....
Lots of 100-499.....	Any	....	....	3.	3.	3.	3.	3.	3.	....	....	....
Lots of 500-999.....	Any	....	....	1.	1.	1.	1.	1.	1.	....	....	....
Lots of 1000 or more.....	Any	....	....	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	....	....	....

*Class 8903 lighting contactors are rated in amperes as opposed to a NEMA Size. The following is a cross reference to determine modification prices:

NEMA Size	1	2	3	4	5
Class 8903 ampere rating.....	30	60	100	200	300



ADDITIONS AND SPECIAL FEATURES FOR AC MAGNETIC CONTACTORS AND STARTERS

TABLE 1 — LINE VOLTAGE AND REDUCED VOLTAGE CONTROLS (Continued)

CLASSES 8502, 8508, 8536, 8538, 8539, 8702, 8736, 8738, 8739, 8547, 8549, 8606, 8630, 8640, 8650, 8651, 8810, 8811, 8812 and 8903 *												
Additions or Special Features	Enclosure Type	Form Letters	NEMA Size									
			00	0	1 PW 1 YD	2 PW 2 YD	3 PW 3 YD	4 PW 4 YD	5 PW 5 YD	6 PW 6 YD	7 PW 7 YD	8 PW 8 YD
ENCLOSURES (continued)												
Cover gaskets (in combination starters only):												
For Class 8538 and 8539.....	1	Y47	....	\$ 10.	\$ 10.	\$ 18.	\$ 22.	\$ 33.	\$ 68.	\$ 120.	\$ 120.	\$ 120.
For Classes 8738 and 8739.....	1	Y47	....	18.	18.	26.	32.	60.	98.	180.	180.	180.
Stainless steel watertight device (add to catalog price of sheet steel watertight device):												
Class 8606.....	....	Y56	....	....	....	120.	160.	240.	335.	....	....	....
Classes 8630 and 8640.....	....	Y56	....	....	65.	120.	150.	240.	335.	....	....	....
Provision only for field installation of pilot lights in Spin Top collar section:												
For one light.....	7, 9	Y72	....	7.	7.	7.	7.	7.	7.	....	....	....
For two lights.....	7, 9	Y73	....	14.	14.	14.	14.	14.	14.	....	....	....
Additional conduit drilling and tapping of Spin Top collar section:												
Side pads.....	7, 9	....	....	4.	4.	4.	4.	4.	4.	....	....	....
Back pad.....	7, 9	....	....	2.	3.	3.	3.	3.	3.	....	....	....
Non-standard size or location of conduit openings or hubs. (Specify size and location. Does not apply to Spin Top starters. No deduction for omission of standard conduit provision. Use of standard pipe plug by user recommended instead).												
For 2½ inch and smaller conduit.....Each	4, 7, 9	....	\$ 6.	6.	8.	6.	7.	7.	7.	....	....	....
For 3 inch to 4 inch conduit.....Each	4, 7, 9	....	15.	15.	15.	15.	15.	15.	15.	....	....	....
Sound proof enclosure (for Class 8903 lighting contactors only)—consists of panel mounted on shock mounts, and acoustical material bonded to inside wall of enclosure.....Add to NEMA 1 Price	1	G4	....	....	58.	65.	80.	110.	150.	....	....	....
MISCELLANEOUS												
Add for reversing service												
For Class 8606.....	1, 4, 9, 12	Y64	....	....	....	394.	416.	802.	1078.	1845.	....	....
For Classes 8630 and 8640.....	1, 4, 9, 12	Y64	....	....	144.	384.	416.	802.	1078.	1845.	....	....
Add for thermal protector (installed on auto-transformer on Class 8606 only).....	Any	Y116	....	....	....	40.	40.	40.	40.	40.	....	....

*Class 8903 lighting contactors are rated in amperes as opposed to a NEMA Size. The following is a cross reference to determine modification prices:

NEMA Size	1	2	3	4	5
Class 8903 ampere rating.....	30	60	100	200	300



ADDITIONS AND SPECIAL FEATURES FOR AC MAGNETIC CONTACTORS AND STARTERS

TABLE 1 — LINE VOLTAGE AND REDUCED VOLTAGE CONTROLS (Continued)

CLASSES 8547, 8549, 8606, 8630, 8640, 8650, 8651, 8810, 8811 and 8812

Additions or Special Features	Enclosure Type	Form Letters	NEMA Size								
			0	1	2 1 PW 1 YD	3 2 PW 2 YD	4 3 PW 3 YD	5 4 PW 4 YD	6 5 PW 5 YD	7 6 PW 6 YD	8 7 PW 7 YD
DISCONNECT SWITCH ADDERS											
Addition of main circuit breaker or disconnect switch											
Molded case circuit breaker.....	1	Y79-1	\$141.	\$141.	\$172.	\$187.	\$342.	\$665.	\$ 479.	\$1357.	\$2300.
Molded case circuit breaker.....	4, 7 & 9	Y79-1	201.	201.	248.	343.	498.	829.	1279.	1857.	2800.
Molded case circuit breaker.....	12	Y79-1	143.	143.	180.	201.	462.	761.	1054.	1432.	2375.
Non-fusible disconnect switch (not applicable to size 6).....	1	Y79-2	94.	94.	120.	152.	210.	376.	863.	.....	.....
Non-fusible disconnect switch (not applicable to size 6).....	4, 9	Y79-2	154.	154.	196.	308.	374.	540.	1163.	.....	.....
Non-fusible disconnect switch (not applicable to size 6).....	12	Y79-2	98.	96.	128.	166.	338.	418.	938.	.....	.....
Fusible switch with 30 amp. fuse clips.....	1	Y79-3	110.	110.	128.	.....	.....	.....	.....	.....	.....
Fusible switch with 30 amp. fuse clips.....	4	Y79-3	170.	170.	204.	.....	.....	.....	.....	.....	.....
Fusible switch with 30 amp. fuse clips.....	12	Y79-3	112.	112.	136.	.....	.....	.....	.....	.....	.....
Fusible switch with 60 amp. fuse clips.....	1	Y79-4	110.	110.	128.	.....	.....	.....	.....	.....	.....
Fusible switch with 60 amp. fuse clips.....	4	Y79-4	170.	170.	204.	.....	.....	.....	.....	.....	.....
Fusible switch with 60 amp. fuse clips.....	12	Y79-4	112.	112.	136.	.....	.....	.....	.....	.....	.....
Fusible switch with 100 amp. fuse clips.....	1	Y79-5	.....	.....	149.	164.	.....	.....	.....	.....	.....
Fusible switch with 100 amp. fuse clips.....	4	Y79-5	.....	.....	225.	320.	.....	.....	.....	.....	.....
Fusible switch with 100 amp. fuse clips.....	12	Y79-5	.....	.....	157.	178.	.....	.....	.....	.....	.....
Fusible switch with 200 amp. fuse clips.....	1	Y79-6	.....	.....	169.	204.	254.	.....	.....	.....	.....
Fusible switch with 200 amp. fuse clips.....	4	Y79-6	.....	.....	245.	380.	410.	.....	.....	.....	.....
Fusible switch with 200 amp. fuse clips.....	12	Y79-6	.....	.....	177.	218.	374.	.....	.....	.....	.....
Fusible switch with 400 amp. fuse clips.....	1	Y79-7	.....	.....	.....	282.	362.	412.	.....	.....	.....
Fusible switch with 400 amp. fuse clips.....	4	Y79-7	.....	.....	.....	438.	518.	578.	.....	.....	.....
Fusible switch with 400 amp. fuse clips.....	12	Y79-7	.....	.....	.....	298.	390.	452.	.....	.....	.....
Fusible switch with 600 amp. fuse clips.....	1	Y79-8	.....	.....	.....	.....	473.	563.	989.	.....	.....
Fusible switch with 600 amp. fuse clips.....	4	Y79-8	.....	.....	.....	.....	829.	717.	1289.	.....	.....
Fusible switch with 600 amp. fuse clips.....	12	Y79-8	.....	.....	.....	.....	501.	593.	1044.	.....	.....
Non-automatic circuit breaker with fuse clips (1000 A. or less).....	1	Y79-9	.....	.....	.....	.....	.....	.....	1083.	1083.	.....
Non-automatic circuit breaker with fuse clips (1000 A. or less).....	4	Y79-9	.....	.....	.....	.....	.....	.....	1383.	1383.	.....
Non-automatic circuit breaker with fuse clips (1000 A. or less).....	12	Y79-9	.....	.....	.....	.....	.....	.....	1233.	1233.	.....
Substitute adjustable magnetic only trip circuit breaker for standard breaker (not available on devices with E frame breakers).....	Any	Y53-3	N.C.	N.C.	N.C.	N.C.	N.C.	N.C.	.....	.....	.....
Substitute circuit breaker with high interrupting capacity (1-75000) for standard breaker (not available on devices with E frame breakers).....	Any	Y53-2	25.	25.	25.	25.	180.	185.	.....	.....	.....
Substitute rejection type fuse clips, on fusible combination starters only. (Specify fuse clip ampere and voltage rating, and make and type of fuses being used. — Fuses not included.)											
Add price of required-voltage starter with same fuse clip size:	1, 4, 12	Y107	For 3-Pole Starters			For 4-Pole Starters					
30 ampere.....				\$ 10.			\$ 14.				
60 ampere.....				15.			20.				
100 ampere.....				20.			27.				
200 ampere.....				30.			40.				
400 ampere.....				72.			98.				
600 ampere.....				100.			134.				
Substitute NEMA Class J current limiting fuse clips on fusible combination starters only. Specify 440-550 volt type number of combination starter which has fuse clips of the desired size. If starter is to be used on 220 volt common control, specify "Form Y91Y35 for operation on 220 volts." — Fuses not included in price.											
Add to price of 440-550 volt starter with same fuse clip size:	1, 4, 12	Y91	For 3-Pole Starters			For 4-Pole Starters					
30 ampere.....				\$ 12.			\$ 16.				
60 ampere.....				13.			17.				
100 ampere.....				18.			24.				
200 ampere.....				24.			32.				
400 ampere.....				35.			43.				
600 ampere.....				50.			..				



ADDITIONS AND SPECIAL FEATURES

TABLE 2 — QWIK-STOP ELECTRIC BRAKING CONTROL — CLASS 8922

Addition or Special Feature	Form Letters	Type C	Type D	Type E	Type F
Braking unit only, for use with separate non-reversing starter, deduct.....	Y108	\$21.	\$53.	\$128.	\$188.
NEMA 12 dust-tight, industrial use enclosure, add.....		34.	44.	184.	238.
Open type controller (no enclosure), deduct.....		22.	26.	76.	110.
Reversing controller — braking in both directions, add.....		48.	94.	167.	416.
Braking unit only, for use with separate reversing starter, deduct.....			32.	128.	188.

TABLE 3 — OIL FIELD STARTERS* — CLASS 8943-8944

Addition or Special Feature	Form Letter	Price
Program timer — 110 V./60 Cy. with control transformer.....	T4	N/C
Day omission feature on time clock.....		\$ 7.
Omit program timer.....		Deduct 35.
Add Type S6 meter socket.....		27.
Omit lightning arrester.....		Deduct 25.

*Prices shown on Price Sheet Class 8943-8944 Page 1 include third overload relay installed.

TABLE 4 — DC MAGNETIC CONTACTORS — CLASS 7002, 7003, 7004

Addition or Special Feature	Price
Additional electrical interlocks, each.....	\$10.
Omit standard normally open interlock (deduction).....	10.
Substitute normally closed interlock for standard normally open.....	N/C

TABLE 5 — DC MAGNETIC CONTACTORS AND STARTERS — CLASSES 7010, 7032 and 7033

Addition or Special Feature	Enclosure Type	Form Letters	Price
PILOT DEVICES IN COVER			
"Start-Stop" push button.....	1	A	\$ 8.
"Start-Stop" push button.....	4, 5, 9	A	22.
"Start-Stop" push button.....	7	A	33.
"Hand-Off-Auto" selector switch.....	1	C	8.
"Hand-Off-Auto" selector switch.....	4, 5, 9	C	22.
"Hand-Off-Auto" selector switch.....	7	C	33.
CONTROL CIRCUIT			
Additional electrical interlocks, each.....	Any	X—	11.
Change standard normally open interlock to normally closed.....	Any	X—	11.
MISCELLANEOUS			
Additional thermal units, each.....	Any	....	1.50

TABLE 6 — DC REDUCED VOLTAGE STARTERS — CLASSES 7135, 7136, 7735 and 7736

Description	Type C	Type D	Type E	Type F	Type G	Type H
CONTROL CIRCUIT						
Additional electrical interlocks, N.O. or N.C.....	\$ 25.	\$ 25.	\$ 25.	\$ 33.	\$ 62.	\$ 84.
AUXILIARY RELAYS						
Control or brake relay.....	97.	97.	97.	97.	97.	97.
Field economizing relay with resistor. (This feature not required on starters without dynamic braking).....	121.	121.	121.	121.	121.	121.
Field failure relay (specify field current at high and low speeds).....	97.	97.	97.	97.	97.	97.
Field decelerating relay.....	121.	121.	121.	121.	121.	121.
Jogging relay — for Class 7135 and 7136.....	97.	97.	97.	97.	97.	97.
Jogging relay — for Class 7735 and 7736.....	146.	146.	146.	146.	146.	146.
ENCLOSURE						
Drip hood having standard enclosure finish.....	37.	37.	73.	73.	88.	88.
MISCELLANEOUS						
Additional thermal units, each.....	1.50	1.50	1.50	1.50	1.50	....

www.ElectricalPartManuals.com



ADDITIONS AND SPECIAL FEATURES

ENCLOSURE PRICE

Enclosures only for certain Class 8501 relays are listed on a Class 8501 Supplementary sheet, and enclosures only for certain Class 8536, 8736 and 8810 starters are listed on Class 9991 Supplementary sheets. Where enclosures **other** than those are required, catalog sheets may be used to determine selling price under **all** of the following limitations:

1. The enclosure must be for a Class 8502, 8536, 8702 or 8736 device.
2. The enclosure must be Nema Type 1 for a device of current design.
3. The basic device must be without form letter (except Form S, X or SX).
4. The enclosure must be for replacement purposes, or for use with an open type device previously purchased.
5. Prices must be listed in catalog for both the open and enclosed versions.

If all of the above limitations apply, use the method below.

When both the price of the enclosed device and the price of the open device are shown in the catalog, the difference is the "omission price." After the omission price has been found, the cabinet list price may be determined by the following formula:

- | | | |
|---------------------------------|---|----------------------------------|
| A. Two times the omission price | } | Use the lower of the two prices. |
| or | | |
| B. Omission price plus \$10.00 | | |

Example 1: Enclosure only for Class 8502, Type SCG-2

8502 — SCG-2	\$36.00
8502 — SCO-2	34.00
Omission price	\$ 2.00

(a) Two times \$2.00 = \$4.00

(b) \$2.00 + \$10.00 = \$12.00

Use \$4.00 as list price

Example 2: Enclosure only for Class 8536 Type EG-1

8536 — EG-1	\$138.00
8536 — EO-1	118.00
Omission price	\$ 20.00

(a) Two times \$20.00 = \$40.00

(b) \$20.00 + \$10.00 = \$30.00

Use \$30.00 as list price

All prices obtained by this method are subject to Schedule DS-1 discount.

CHARGES FOR SPECIAL WIRING DIAGRAMS AND SPECIAL WIRING

The prices quoted for special controllers include charges covering the preparation of the special diagrams needed. The prices published for standard apparatus, however, are based upon high production of identical units with no provision for special engineering, beyond the assistance which our representatives render in the field.

I. SPECIAL WIRING DIAGRAMS

- A. If customer purchases a number of standard devices to be connected together for controlling a machine of his manufacture, it is assumed that he will prepare a machine wiring diagram based on the standard diagrams which we supply with each individual piece of equipment. If, however, he does not have the facilities for this work and asks us to do it for him, the following prices will be charged.

Sheet Identification		Size	Net Price
New	Old		
A	D	8 1/2" x 11"	\$ 65.00
B	C	11" x 17"	150.00
C	B	17" x 22"	225.00
D	A	22" x 34"	425.00
E	AA	34" x 44"	800.00

- B. The above prices cover only our engineering charges for making up the wiring diagrams required. When requested ten (10) blueprints of the wiring diagram

will be furnished without additional charge. In the event the customer is willing to make his own blueprints from a **paper transparency** (ammonia process), we will supply a suitable transparency without charge.

- C. Our Engineering Department reserves the right to select the size of sheets to be used for the special diagrams. Their selection will be in accordance with good engineering practice, and will be guided by the amount and size of equipment to be shown.

II. SPECIAL WIRING

Occasionally requirements involve devices which are completely standard except for the fact that special wiring is necessary. On reasonably simple devices such as Class 8502, 8536, 8538, 8539, 8702, 8736, 8738, and 8739, special wiring can be furnished at the following prices:

- A. A special handling charge of \$1.50 LIST (Schedule K discounts) per device will be added to the price of the device when fewer than ten identical units are ordered. In the event that ten or more identical units are ordered, no special handling charge will be assessed.
- B. A net charge should be made for special wiring diagrams on the **initial** order. No charge for diagrams will be made on **repeat** orders. (See section I-A above for correct diagram prices.)

GENERALPAGE | **12****JANUARY 15, 1970****SUPERSEDES:**
General Price Sheet,
Page 12
January 13, 1969**ADDITIONS AND SPECIAL FEATURES**
FUNGICIDAL TREATMENT AND SPECIAL FINISHES

Price additions shown below will apply when one or more of the following finishes are applied to a device:

1. Plating of parts to withstand 200 hour salt spray test.
2. Cronak finish on zinc plated parts.
3. Zinc or cadmium plating of all metal parts (does not include enclosure).
4. Treatment with special impregnating varnishes per MIL-V-173A under Government Specification MIL-T-152B, to resist moisture and fungus.
5. Special impregnation of magnet coil only. Use price additions under III below.

MINIMUM CHARGE

A minimum charge of **\$80.** list per item will be made for each order for unit shipment. An item may be interpreted to be all devices on an order having the same Class number and the same size rating.

UNIT CHARGES**I Control Items****A. Class 2510 Type A:**

Lots of 1—22..... **\$80.00** list minimum charge
Lots of 23—99..... **3.50** list each
Lots of 100 or more..... **2.00** list each

B. Classes 2510 B, C, R and S, 7001, 8501, 8502, 8504, 8536, 8538 and 8539 (Price additions for Classes 8502, 8504, 8536, 8538 and 8539 devices, apply to NEMA Size 1½ and smaller only):

Lots of 1—10..... **\$80.00** list minimum charge
Lots of 11—99..... **7.80** list each
Lots of 100 or more..... **3.50** list each

C. All Other Controls:

Lots of 1—99..... **25%** of list price of open type construction (Subject to **\$80.** list minimum charge).

Lots of 100 or more..... **10%** of list price of open type construction (Subject to **\$80.** list minimum charge).

II Accessories**A. Class 9001, Standard duty push button stations, heavy duty and heavy duty oil-tight control units:**

Lots of 1—24..... **\$80.00** list minimum charge
Lots of 25 or more..... **3.30** list each

B. Class 9001, Heavy duty and heavy duty oil-tight push button stations, Class 9007 limit switches and Class 9050 timing relays:

Lots of 1—10..... **\$80.00** list minimum charge
Lots of 11—99..... **7.80** list each
Lots of 100 or more..... **3.50** list each

III Special Impregnation of Coil

When only special impregnation of the coil or treatment of the coil to resist moisture and fungus is involved, using varnishes to be specified by purchaser, no minimum charge is required, with the price addition following to apply:

Size 0 or smaller and relays..... **\$2.80** list per coil
Size 1 or 1½..... **4.20** list per coil
Size 2..... **5.50** list per coil
Size 3..... **6.90** list per coil
Size 4..... **8.30** list per coil
Size 5..... **9.70** list per coil
Sizes 6 and 7..... **11.00** list per coil



ADDITIONS AND SPECIAL FEATURES

CHARGES FOR EXCESSIVE QUANTITIES OF BLUEPRINTS AND INSTRUCTION MANUALS

I. BLUEPRINTS

Prices of industrial control products have been established on the basis that the wiring diagram normally included will be sufficient for most applications and other jobs will require little more in the way of outline dimension prints or additional diagrams. A few applications will require abnormal quantities of blueprints and there should be no objection to paying for the excessive quantities of blueprints required. Our policy will be as follows:

- A. Where job requirements justify, we will furnish, without charge, as many as ten (10) blueprints for an order item of 1 to 24 units of equipment of the same type. This would mean furnishing "no charge" twenty (20) prints for an order item calling for 25 to 49 units, thirty (30) prints for an order item specifying 50 to 74 units, etc. Upon request, these prints will also be certified without charge. In the event the customer is willing to make his own blueprints from a **paper transparency** (Ammonia process), we will supply such a reproduction of any standard wiring diagram or outline dimension drawing without charge.
- B. Additional blueprints over and above the quantities listed above will be provided at the prices shown in Table 1 (minimum billing charge of \$5.00 net will apply).
- C. Van Dykes — A reproduction obtained from a process that produces a transparency having white lines on a brown background is known as a "van dyke".

Van dykes are of particular value when the user wishes to obtain blue lines on white paper using an ordinary blueprint machine — they offer no other advantage over ordinary transparencies. The equipment required for the production of van dykes is somewhat special and all such work must be done outside our own plant.

Because the term "van dykes" is frequently misused to cover all types of transparencies, any request for a "van dyke" should be checked to determine whether a true van dyke or a reproduction suitable for blueprints is actually required. If a true van dyke is required, the charges shown in Table 1 for cloth transparencies will apply.

II. INSTRUCTION MANUALS

- A. When requested, from one to five instruction manuals will be supplied without charge for each special multi-motor controller or control center ordered. These instruction manuals normally consist of a stiff paper binder containing service bulletins covering the devices in the controller, wiring diagrams, panel arrangement, outline dimension drawings, etc.
- B. If more than five instruction manuals per controller are required for any particular application, they can be supplied for a charge of \$2.00 net each.

Note: This does **not** apply to the printed instruction manuals frequently required in connection with a Navy or Marine control order. For pricing such manuals refer to factory.

TABLE 1

Sheet Identification		Size	Net Price Each		
New	Old		Print*	Paper Transparency	Cloth Transparency
A	D	8½" x 11"	\$.25	\$.85	\$ 2.75
B	C	11 " x 17"	.40	1.25	4.00
C	B	17 " x 22"	.60	2.25	6.75
D	A	22 " x 34"	1.00	3.75	2.50
E	AA	34 " x 44"	1.50	7.00	25.00

*These prints can be certified for an additional charge of **\$0.02** per print.

www.ElectricalPartManuals.com



ADDITIONS AND SPECIAL FEATURES
TABLE 7 — AUTOMATIC TRANSFER PANELS — CLASS 8901

Additions or Special Features	Enclosure Type	Form Letter	Rating — Amperes				
			30	60	100	200	300
TEST SWITCH (mounted on panel inside enclosure).....	Any	Y29	\$ 16.	\$ 16.	\$ 16.	\$ 16.	\$ 16.
FULL PHASE PROTECTION:							
FIXED:							
Transfers load to emergency supply when any phase on the normal supply drops to approximately 70% of nominal voltage. Returns load to normal when all phases on normal supply reach approximately 90% of nominal voltage:							
Single phase.....	Any	Y27-1	40.	40.	40.	40.	40.
Two phase.....	Any	Y27-2	80.	80.	80.	80.	80.
Three phase.....	Any	Y27-3	120.	120.	120.	120.	120.
VARIABLE:							
Same as fixed except using voltage sensitive relays on which the transfer and retransfer voltages are adjustable. Transfer of load to emergency can be adjusted from 70% to 110% of nominal voltage. The differential between transfer and retransfer voltage can be adjusted from 4.5 to 16.5% of nominal voltage. Standard factory setting — transfer at 90% nominal voltage, retransfer at 95% (unless otherwise specified):							
Single phase.....	Any	Y15-1	80.	80.	80.	80.	80.
Two phase.....	Any	Y15-2	160.	160.	160.	160.	160.
Three phase.....	Any	Y15-3	240.	240.	240.	240.	240.
LOCKOUT RELAY:							
Prevents connection of load to emergency source until engine generator voltage reaches approximately 70% of nominal.....	Any	Y135	40.	40.	40.	40.	40.
PILOT LIGHT IN COVER TO INDICATE SOURCE TO WHICH LOAD IS CONNECTED:							
Red, marked "Emergency".....	Any	P1	27.	27.	27.	27.	27.
Green, marked "Normal".....	Any	P2	27.	27.	27.	27.	27.
TIMING RELAYS:							
PREVENTS TRANSFER FROM EMERGENCY TO NORMAL UNTIL VOLTAGE HAS STABILIZED:							
Pneumatic time delay, 0-180 seconds — all voltages.....	Any	K	84.	84.	84.	84.	84.
Motor driven timer, 0-30 minutes — 120, 208, 220 or 240 volts, 60 Hertz.....	Any	K5	110.	110.	110.	110.	110.
Motor driven timer, 0-30 minutes — 480 volts, 60 Hertz.....	Any	K5	144.	144.	144.	144.	144.
IGNORES MOMENTARY POWER OUTAGES, 0-180 SECONDS:							
Delays transfer from normal to emergency.....	Any	K8	84.	84.	84.	84.	84.
Delays cranking of emergency generator (includes engine starting contact).....	Any	K9	84.	84.	84.	84.	84.
UNLOADED RUNNING TIMER:							
Delays shutdown of standby engine generator after retransfer to normal, 0-180 seconds.....	Any	K10	84.	84.	84.	84.	84.
CRANKING LIMITER:							
Limits engine cranking when engine fails to start, 0-180 seconds.....	Any	K11	84.	84.	84.	84.	84.
PLANT EXERCISER:							
Exercises engine generator only, for a period of 15 minutes (or any multiple of 15 minutes) every 7 days (or 24 hours) — does not transfer load.....	Any	K12	144.	144.	144.	144.	144.
Same as Form K12 except load is transferred.....	Any	K13	144.	144.	144.	144.	144.
MANUAL RETURN TO NORMAL PUSH BUTTON:							
Load will not retransfer back to the normal source until button is depressed.....	Any	A6	27.	27.	27.	27.	27.
PUSH BUTTON TO BY-PASS TIME DELAY FROM EMERGENCY TO NORMAL (Marked "By-Pass Time Delay Back to Normal").....	Any	A7	27.	27.	27.	27.	27.
4-POSITION SELECTOR SWITCH, HAND CRANK-OFF-AUTO-TEST (Includes contact to initiate cranking).....	Any	C12	69.	69.	69.	69.	69.
BATTERY TRICKLE CHARGER WITH AMMETER AND ADJUSTMENT FROM 50 TO 200 MILLIAMPERES:							
6 volt.....	Any	Y136-1	109.	109.	109.	109.	109.
12 volt.....	Any	Y136-2	109.	109.	109.	109.	109.
24 volt.....	Any	Y136-3	170.	170.	170.	170.	170.
32 volt.....	Any	Y136-4	175.	175.	175.	175.	175.
36 volt.....	Any	Y136-5	180.	180.	180.	180.	180.
ENCLOSURES:							
Omit enclosure (deduct from NEMA 1 price).....	1	....	6.	16.	30.	52.	300.
Add for NEMA 4 enclosure (add to NEMA 1 price).....	4	....	64.	104.	154.	272.	352.
Add for NEMA 12 enclosure (add to NEMA 1 price).....	12	....	18.	30.	66.	102.	352.
Add for flush mounting enclosure — includes flush lock (add to NEMA 1 price).....	1	....	40.	45.	50.	55.	60.
Add for flush lock only.....	1, 12	Y137	24.	24.	24.	24.	24.
Add cover gasket.....	1	Y47	18.	26.	34.	60.	100.
ELECTRICAL INTERLOCKS:							
NORMAL CONTACTOR:							
One additional normally open interlock.....	Any	X10	11.	11.	11.	11.	11.
One additional normally closed interlock.....	Any	X20	11.	11.	11.	11.	11.
Two additional normally open interlocks.....	Any	X30	22.	22.	22.	22.	22.
Two additional normally closed interlocks.....	Any	X40	22.	22.	22.	22.	22.
One additional normally open and one additional normally closed interlock.....	Any	X50	22.	22.	22.	22.	22.
EMERGENCY CONTACTOR:							
One additional normally open interlock.....	Any	X01	11.	11.	11.	11.	11.
One additional normally closed interlock.....	Any	X02	11.	11.	11.	11.	11.
Two additional normally open interlocks.....	Any	X03	22.	22.	22.	22.	22.
Two additional normally closed interlocks.....	Any	X04	22.	22.	22.	22.	22.
One additional normally open and one additional normally closed interlock.....	Any	X05	22.	22.	22.	22.	22.
ENGINE START CONTACT:							
Initiates cranking of emergency generator upon failure of normal source..... (Contact is on SE relay)	Any	Y138	11.	11.	11.	11.	11.

*Form numbers for the normal and emergency contactors should be combined. A panel with one additional normally closed interlock on normal

and two additional normally open interlocks on emergency would be a Form X23 at \$33.

www.ElectricalPartManuals.com