

These arrangements minimize installation time and costs by combining 2 or 3 control functions into a single control panel. All wiring connections between the B/W relays are made in our shop. Field wiring is made to the rugged terminals of the B/W relays and a system wiring diagram is provided which clearly shows all required external connections to the electrodes and other devices.

The standard enclosure is rated Nema 3R for location indoors or outdoors. It is made of steel with baked enamel finish and has knockouts in the bottom for conduit fittings. The Nema 4 watertight

enclosure is fiberglass. It meets the Nema 4X corrosion resistance standards and suitable aluminum conduit hubs are furnished loose for field mounting. Nema 12 enclosures are available to meet industrial requirements, or the relays can be furnished as open chassis on a back plate for field mounting into an electrical panel.

Several of the most common control combinations are listed below and identified with catalog numbers. However, any combination of relays can be provided. Just tell us what you want.

Catalog Number Example

8040-FS2B-X-L1 _____ N12 _____ 5200-L-LF1

DISCOUNT SCHEDULE LL1
Prices Subject to Change Without Notice

LINE VOLTAGE	
L1	115 Volt 50/60 Hz
L2	208-230 Volt 50/60 Hz
L3	460 Volt 50/60 Hz*
L4	575 Volt 50/60 Hz*

*Not available for Solid State

OPTIONAL FEATURES	
X	None
O	Other-Specify Details

ENCLOSURE	LIST PRICE ADDITION	
OC	Open Chassis	None
N1	Nema 1 & 3R	\$ 0000
N4	Nema 4 or 4X	0000
N12	Nema 12	0000

RELAY SENSITIVITY	LIST PRICE ADDITION	
S1-S11	Select from Chart Sec. 1500 pg.9	None
LF1, HF2	Select from Chart Section 5200 Page 5	None
LV1-2 HV3-4-5	Select from Chart Section 5200 Page 5	0000
V	Select from Chart Section 5300 Page 5	0000
F1-F8	Select from Chart Section 5300 Page 5	None

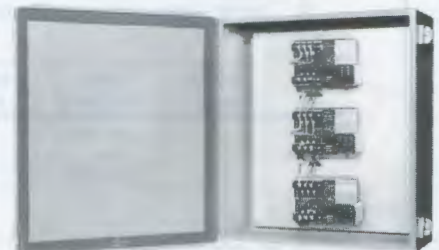
LIST PRICE 0000	NUMBER OF ELECTRODES ¹	TYPICAL CONTROLS WITH 2 RELAYS
FS2A	4	Single pump up with high level alarm contact
FS2B	4	Single pump up with low level alarm contact
FS2C	3 & 3	Single pump up control for reservoir with low level cut-off in suction tank or well
FS2D	4	Two pump, pump up fixed sequence-common stop
FS2E	5	Two pump, pump up fixed sequence-separate stops
FS2F	3	Two pump, pump up common stop for ice free electrodes
FS2G	5	Make-up valve control with low level cut-off
FS2H	4	Make-up valve control with low level cut-off and alarm contact
FS2I	4	Hydropneumatic tank control for one pump with low level alarm contact
FS2J	4	Single pump down with high level alarm contact
FS2K	4	Two pump, down fixed sequence with common stop
FS2L	5	Two pump, down fixed sequence with separate stops
FS2M	3	Single pump down with heater cut-off for ice-free electrodes
FS2N	3	High and low level alarm, 1 N.O. and 1 N.C. contact
FS2O	2	High and low alarm contacts for ice-free electrodes

RELAY TYPE	LIST PRICE ADDITION	
1500	Induction Type 1500	None
5200-L	Series 52-low sensitivity	\$ 0000
5200-H	Series 52-high sensitivity	\$ 0000
5300-S	Series 53-10 amp contacts	\$ 0000
5300-P	Series 53-25 amp contacts	\$ 0000

LIST PRICE 0000	NUMBER OF ELECTRODES ¹	TYPICAL CONTROLS WITH 3 RELAYS
FS3A	5	Single pump up with high and low level alarm contacts
FS3B	6	Single pump up with high level alarm contact and low level cut-off and alarm contacts
FS3C	5	Single pump up with high and low level alarm contacts for ice-free electrode assembly
FS3D	5	Three pump, pump up with common stop electrode
FS3E	5	Single pump down with high and low level alarm contacts
FS3F	5	Two pump down common stop with high level alarm contact
FS3G	5	Three pump down fixed sequence with high level alarm contact when third pump is required
FS3H	5	Make-up valve control with high and low level alarm contacts
FS3I	4	Make-up valve control with high and low level alarm contacts for shallow tank ice-free electrode assembly
FS3J	4	Make-up valve control with high and low level alarm contacts for standard ice-free electrode assembly
FS3K	4	Three level indication with 1 N.O. and 1 N.C. contacts



Two Type 1500 Relays
In NEMA 4 Enclosure



Three Type 5200 Relays
In NEMA 12 Enclosure

- NOTES: 1. A common electrode is included and it may be omitted if a dependable ground return connection to the liquid is provided by other means.
2. The alarm contacts provided *close* on alarm condition. Other controls can be furnished with contacts that *open* on alarm condition.
3. Add \$150.00 list for special diagrams of 2 or 3 relay panels.

These versatile combination control units consist of a Size 1 magnetic, across the line, full voltage starter mounted on a backplate, together with the liquid level sensing relay required for the control operation to be performed.

All necessary interwiring of the starter and relay is done at the factory to provide a completely packaged unit ready for sim-

ple external connection to the line, motor, and electrodes. A complete easy to read system wiring diagram is provided.

The compact design of these starter relay combinations make them ideal for many pump control applications. They are convenient to use and economical, too, since installation labor costs are significantly reduced.

8040—D—C101—X—L2—N4—5200—LF1

DISCOUNT SCHEDULE LL1
Prices Subject to Change Without Notice

ENCLOSURE		LIST PRICE ADDITION
OC	Open Chassis	None
N1	NEMA 1	\$700.00
N4	NEMA 4	\$800.00
N12	NEMA 12	\$850.00

LINE VOLTAGE	
L1	115 Volt 50/60 Hz
L2	208-230 Volt 50/60 Hz
L3	460 Volt 50/60 Hz ¹
L4	575 Volt 50/60 Hz ¹

Note¹ — Not available for solid state relays.

OPTIONAL FEATURES		LIST PRICE ADDITION
X	None	None
HOA	Hand-Off Auto Switches ²	\$300.00
PRL	Pump Running Lights ²	\$200.00
RTM	Running Time Meters ²	\$250.00
O	Other-Specify Details	Consult Factory

Note² — Mounted on cover complete with engraved data plate.

NEMA SIZE	LINE VOLTAGE	MAX H.P. RATING	LIST PRICE
C101	208-230	7½	\$1000.00
	460	10	
	550-600	10	

The customer must supply his own disconnect means as required by current electrical codes.

RELAY SENSITIVITY		LIST PRICE ADDITION
S1-S11	Select from Chart Section 1500 Page 9	None
LF1, HF2	Select from Chart Section 5200 Page 5	None
LV1-2 HV3-4-5	Select from Chart Section 5200 Page 5	\$200.00
V	Select from Chart Section 5300 Page 5	\$200.00
F1-F8	Select from Chart Section 5300 Page 5	None

RELAY TYPE		LIST PRICE ADDITION
1500	Induction Type 1500	None
5200-L	Series 52-low sensitivity	\$300.00
5200-H	Series 52-high sensitivity	\$400.00
5300-S	Series 53-10 amp contacts	\$700.00
5300-P	Series 53-25 amp contacts	\$750.00

ORDERING INFORMATION

In addition to the complete Catalog Number, furnish details on the pump to be controlled including horsepower, voltage and full load current rating.

TYPE OF CONTROL	
D	Pump Down for 1 Pump
U	Pump Up for 1 Pump
H	Hydropneumatic Tank with 1 Pump

EXAMPLE:

Cat. No: 8040-D-C101—HOA—PRL—L2—N1—5200-L—LF1

$$\cancel{\$000.00} + \cancel{\$450.00} + \cancel{\$150.00} + \$0 + \cancel{\$100.00} + \cancel{\$300.00} + \$0 = \$1490.00 \text{ List}$$

Less Discount Schedule LL

B/W also offers starter relay combinations with various optional line disconnect devices; Non-fusible disconnect switches, and circuit breakers. These units are furnished with an external operator interlocked with the enclosure cover to make sure the door can only be opened when the switch is in the OFF position.

B/W starter-relay combinations are available in a range of

standard models to meet a wide variety of application requirements.

Enclosures are available to meet all indoor and outdoor location requirements. A complete easy to read system wiring diagram is provided showing all of the field connections so that installation is quick and easy.

Catalog Number Example

8040 — D — C2B1 — X — L3 — N1 — 1500 — S8

TYPE OF CONTROL	
D	Pump Down For 1 Pump
U	Pump Up For 1 Pump
H	Hydropneumatic Tank With 1 Pump

	ENCLOSURE	LIST PRICE ADDITION
N1	Nema 1	None
N4	Nema 4	3400.00
N12	Nema 12	6200.00

3 PHASE LINE VOLTAGE	
L2	208-230 Volt 50/60 Hz
L3	460 Volt 50-60 Hz
L4	575 Volt 50/60 Hz

	RELAY SENSITIVITY	LIST PRICE ADDITION
S1-S11	Select from Chart Section 1500 Page 9	None
LF1, HF2	Select from Chart Section 5200 Page 5	None
LV1-2 HV3-4-5	Select from Chart Section 5200 Page 5	2400.00
V	Select from Chart Section 5300 Page 5	2400.00
F1-F8	Select from Chart Section 5300 Page 5	None

	RELAY TYPE	LIST PRICE ADDITION
1500	Induction Type 1500	None
5200-L	Series 52-low sensitivity	2000.00
5200-H	Series 52-high sensitivity	3000.00
5300-S	Series 53-10 amp contacts	2400.00
5300-P	Series 53-25 amp contacts	2400.00

	OPTIONAL FEATURES	LIST PRICE ADDITION
X	None	None
HOA	Hand-Off Auto Switches Furnished as Standard Equipment	None
PRL	Pump Running Lights	1000.00
RTM	Running Time Meters	2000.00
O	Other-Specify Details	Consult Factory

DISCOUNT SCHEDULE LL1
Prices Subject to Change Without Notice

Cat. No: 8040-D-C2B1—HOA—N4—L3—5200-H—HF2
~~92100.00~~ + \$0 + \$400.00 + \$0 + ~~3000.00~~ + \$0 = ~~96400.00~~ List
 Less Discount Schedule List

	NEMA SIZE	LINE VOLTAGE	MAX. H.P. RATING	CIRCUIT BREAKER		LIST PRICE
				Frame Size	Max. Amp*	
C1B1	1	208-230	7½	EA	40	2400.00
		460	10	EH	30	
		550-600	10	FA	20	
C2B1	2	208-230	15	EA	70	3400.00
		460	25	FA	50	
		550-600	25	FA	50	
C3B1	3	208-230	25	FA	100	4400.00
		208-230	30	JA	125	
		460	50	FA	100	
C4B1	4	208-230	50	JA	200	Consult Factory
		460	100	JA	200	
		550-600	100	JA ¹	175	

	NEMA SIZE	LINE VOLTAGE	MAX. H.P. RATING	DISCONNECT SWITCH		LIST PRICE
				FUSE CLIP SIZE*		
C1F1	1	208-230	7½	31-60 ampere	2400.00	
		460	10	31-60 ampere		
		550-600	10	31-60 ampere		
C2F1	2	208-230	15	61-200 ampere	3400.00	
		460	25	61-100 ampere		
		550-600	25	61-100 ampere		
C3F1	3	208-230	25	61-100 ampere	4400.00	
		208-230	30	101-200 ampere		
		460	50	101-200 ampere		
C4F1	4	208-230	50	201-400 ampere	Consult Factory	
		460	100	201-400 ampere		
		550-600	100	201-400 ampere		