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.

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**Optional Features**

- **List Price Number of Electrodes:**
  - **F52A:** 4 - Single pump up with high level alarm contact
  - **F52B:** 4 - Single pump up with low level alarm contact
  - **F52C:** 3 & 3 - Single pump up control for reservoir with low level cut-off in suction tank or well
  - **F52D:** 4 - Two pump, pump up fixed sequence-common stop
  - **F52E:** 5 - Two pump, pump up sequence-separate stops
  - **F52F:** 3 - Two pump, pump up common stop for ice free electrodes
  - **F52G:** 5 - Make-up valve control with low level cut-off
  - **F52H:** 4 - Make-up valve control with low level cut-off and alarm contact
  - **F52I:** 4 - Hydro pneumatic tank control for one pump with low level alarm contact
  - **F52J:** 4 - Single pump down with high level alarm contact
  - **F52K:** 4 - Two pump, down fixed sequence with common stop
  - **F52L:** 5 - Two pump, down fixed sequence with separate stops
  - **F52M:** 3 - Single pump down with heater cut-off for ice-free electrodes
  - **F52N:** 3 - High and low level alarm, 1 N.O. and 1 N.C. contact
  - **F52O:** 2 - High and low alarm contacts for ice-free electrodes

- **List Price Number of Electrodes:**
  - **F53A:** 5 - Single pump up with high and low level alarm contacts
  - **F53B:** 6 - Single pump up with high level alarm and low level cut-off and alarm contacts
  - **F53C:** 5 - Single pump up with high and low level alarm contacts for ice-free electrode assembly
  - **F53D:** 5 - Three pump, pump up with common stop electrode
  - **F53E:** 5 - Single pump down with high and low level alarm contacts
  - **F53F:** 5 - Two pump down common stop with high level alarm contact
  - **F53G:** 5 - Three pump down fixed sequence with high level alarm contact when third pump is required
  - **F53H:** 5 - Make-up valve control with high and low level alarm contacts
  - **F53I:** 4 - Make-up valve control with high and low level alarm contacts for shallow tank ice-free electrode assembly
  - **F53J:** 4 - Make-up valve control with high and low level alarm contacts for standard ice-free electrode assembly
  - **F53K:** 4 - Three level indication with 1 N.O. and 1 N.C. contacts

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**RELAY TYPE**

- **1500** - Induction Type 1500
- **5200-L** - Series 52-low sensitivity
- **5200-H** - Series 52-high sensitivity
- **5300-S** - Series 53-10 amp contacts
- **5300-P** - Series 53-25 amp contacts

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**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 $50.00 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 simple 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.

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**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.

**EXAMPLE:**

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

\[ \text{List Price} + \text{Discount} + \text{Relay Add} + \text{Pump Running Lights} + \text{Other-Specify Details} = $1490.00 \]

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**DISCOUNT SCHEDULE LL**

Prices Subject to Change Without Notice.
BIW 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.

BIW 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.

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**BIW Controls**

**SINGLE PUMP STARTER RELAY COMBINATIONS WITH DISCONNECT**

**SECTION 8040 PAGE 7**

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BIW 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.

BIW 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.

**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.

**RELAY SENSITIVITY**

- S1-S11 Select from Chart Section 1500 Page 9
- LF1, HF2 Select from Chart
- LV1-2 Select from Chart Section 5200 Page 5
- V Select from Chart Section 5300 Page 5
- F1-F8 Select from Chart

**RELAY TYPE**

- 1500 Induction Type 1500
- 5200-L Series 52-low sensitivity
- 5200-H Series 52-high sensitivity
- 5300-S Series 53-10 amp contacts
- 5300-P Series 53-25 amp contacts

**DISCOUNT SCHEDULE**

List Prices Subject to Change Without Notice

**RELAY SIZE**

- C1F1
- C2F1
- C3F1
- C4F1

**FUSE CLIP SIZE**

- 208-230
- 460
- 550-600

**LIST PRICE**

- 31-60 ampere
- 61-100 ampere
- 101-200 ampere

**FACTORY**

Consult Factory

**OPTIONAL FEATURES**

- Hand-Off Auto Switches
- NEMA LINE MAX.
- NEMA LINE MAX.
- NEMA LINE MAX.

**CIRCUIT BREAKER**

- EA
- FA
- JA
- JA

**LIST PRICE**

- None
- None
- None
- None

**CIRCUIT BREAKER**

- Frame Size
- 40
- 30
- 20
- 70
- 50
- 100
- 200
- 175
- Consult Factory

**CIRCUIT BREAKER**

- 208-230
- 460
- 550-600

**LIST PRICE**

- 7½
- 10
- 15
- 25
- 30
- 50
- 100
- 200
- 175
- Consult Factory

**CIRCUIT BREAKER**

- Max. Amp
- 40
- 30
- 20
- 70
- 50
- 100
- 200
- 200
- Consult Factory

**LIST PRICE**

- None
- None
- None
- None

**LIST PRICE**

- None
- None
- None
- None

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**BIW Controls**

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