

## **INSTALLATION OF TYPE 230 & 230-PM CONTROLLERS**

**SCOPE AND INTRODUCTION** This bulletin outlines principal recommendations on unpacking and storage, handling, mechanical installation, electrical connections, mounting accessory parts, and check-out, for the Type 230 & 230-PM controllers. These controllers are for control of 2300-4160-volt motors or transformers. Type 230-PM controllers are Raintight, suitable generally for outdoor locations.

**UNPACKING AND STORAGE** Open any shipping cases for accessory items upon delivery and unpack carefully. Inspect all packages for possible damage in transit. Report damage in transit to the delivering carrier. If the equipment will not be installed immediately, place a close-fitting cover over it and store in a clean place protected from dust and moisture. If stored outdoors, connect cabinet space heaters.

**HANDLING** Controllers are packaged for handling by forklift truck or by overhead hoist. Do not alter the original boxing and/or pallet. In handling type 230-PM controllers, do not unbolt the support frame from pallet, unless you will use only overhead handling methods. Use handling equipment rated for at least 150% of the approximate weight shown on the outline drawing. Before using a fork lift truck, make sure your truck has proper rating considering the distance to the center of the load. Consider safety strapping. When handling with overhead equipment, attach hooks to lifting angle or to support frame.

**MECHANICAL INSTALLATION** Refer to outline drawing for mechanical arrangement. For type 230-PM, secure controller lifting means to your crane, before you loosen the bolts holding the support frame to shipping pallet. Set in place with crane. Re-use the bolt washers from shipping pallet or equivalent washers on your mounting bolts, except use other washers when provided in some cases for Seismic Zone 4.

**ELECTRICAL CONNECTIONS** Refer to wiring diagram or diagrams for required external connections. Ground the copper ground bus, and, for Type 230-PM, ground the support frame. Locate control wiring in plastic wiring ducts provided on walls of cabinet. Control connections at control-terminal block may be made with terminal-ended or looped wires, No. 8 and smaller. Use 3/8" wide or narrower ring or spade terminal for No. 10 stud.

**MOUNTING ACCESSORIES** Mount in each controller any parts or accessories which may have been shipped separately, such as fuses or bustie parts. Also re-install any barriers or covers that were removed temporarily during installation. Store Wiring Diagram & Instructions Envelope in the holder provided. On single units, remove the Lifting Angle and install Lifting-Hole Covers.

**CHECK-OUT** Before checking-out controllers or remote-control connections, refer to wiring diagram. If you use a temporary, separate 115-volt source for control power, disconnect connections to the secondary side of the control power transformer. For safety, consider grounding and shorting both the primary voltage side of control transformer (fuses removed) and its secondary terminals. Also, either remove the intentional ground from the normal control circuit or connect that ground to grounded side of temporary source.