



3ARR12P and -12W Two-Pin Plug-In Type Motor Starting Relay

General Description

The 3ARR12P and 3ARR12W Relays are Plug-In, compressor mounted, current type motor starting relays. They are used as a start-assisting device for Single-Phase AC compressors used in the appliance industry. Generally the size of the motor is limited to 1/3 HP, 120 Volts AC and 3/4 HP, 240 Volts AC. Motors may be resistance start-induction run, resistance start-capacitor run, or capacitor start-induction run.

The 3ARR12P and 3ARR12W relays are identical, except that the switch housing is rotated 90 degrees to accommodate special field wiring considerations.

They are current-sensing relays, which utilizes the principal of a ferromagnetic plunger in a solenoid coil to be actuated by the motor main winding current through the coil, opening and closing the contacts of the relay.

Typical Applications

- Refrigeration Compressors
- Dehumidifiers

Operation

The relay utilizes the correlation of the main-winding current and motor speed to actuate the contacts to energize and de-energize the start winding.

As the motor accelerates and the main winding current increases, the relay solenoid picks up and closes the contacts to the start winding circuit. As the motor increases speed, the main winding current begins to decrease, and at the appropriate motor speed, the relay drops out, allowing the contacts to open and disconnect the start winding from the circuit. Gravity acting on the plunger opens the contacts.

Features

- Rugged, durable Construction
- Quiet operation
- Long Life Electrical Contacts.
- Optional spare terminal available for capacitor start applications.



Technical Data

Coil Current Ratings

- Depends on motor current characteristics
- Available 2 through 30 Amps, 50/60 Hz.
- Coil has Class "B" insulation

Contact Ratings

- **Standard 3ARR12P or -12W**
U.L. 13 Amperes (max), 240 VAC, 50/60 Hz.
VDE 13 Amperes (max), 250 VAC, 50 Hz.
- **High Rated 3ARR12KP or -12KW**
U.L. 26 Amperes (max), 240AC, 50/60 Hz
VDE 26 Amperes (max), 250 VAC, 50 Hz

Circuits

- Normally open, single-pole, double break contacts.
- Common or isolated coil connections.

Terminal Options

- Quick Connect Tabs Standard.
0.250" X 0.032" (6.3 mm X 0.8 mm)
- Screw Type Optional # 6-32 Thread
- Pig-Tail Lead with Quick Connect Terminal

Mounting

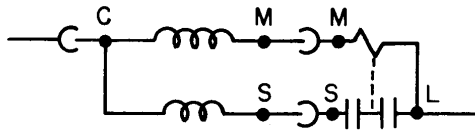
- Relay plugs onto the standard "Fusite" type pins on the compressor shell to connect directly to the "Main" and "Start" windings of the motor.
- Relay is position sensitive. Vertical mounting is required.

Calibration

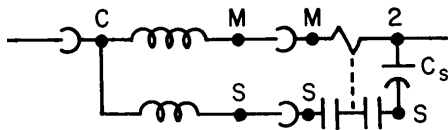
- The calibration specifications typically are:
Maximum Pickup Amperes
Minimum Dropout Amperes

- The calibration is achieved by the selection of coil wire diameter, number of turns, and relay design.

Circuit Diagrams

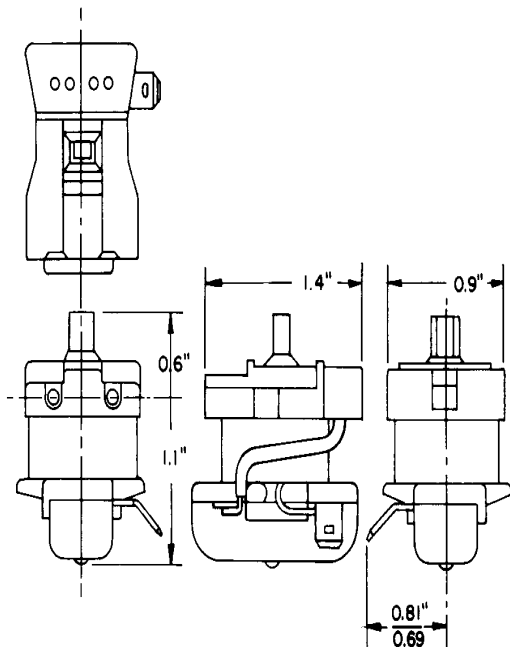


Motor without Start Capacitor
(Common Coil and Contacts)
Plug-In Relay



Motor with Start Capacitor
(Isolated Coil and Contacts)
Plug-In Relay

Outline – Basic 3ARR12P with Tab Type Common Input Terminal



Application Procedure

Use the Application Data Worksheets from Appendix "A" of the General Information Brochure to convert motor speed and torque curves to relay coil and calibration characteristics for proper motor starting.

Agency Approvals

- U.L. File SA 639
- Canadian recognition included in U.L.
- VDE Approved, License # 112792

Outline – Basic 3ARR12W with Tab Type Common Input Terminal

