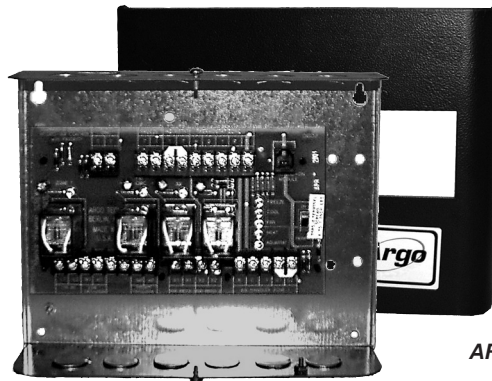




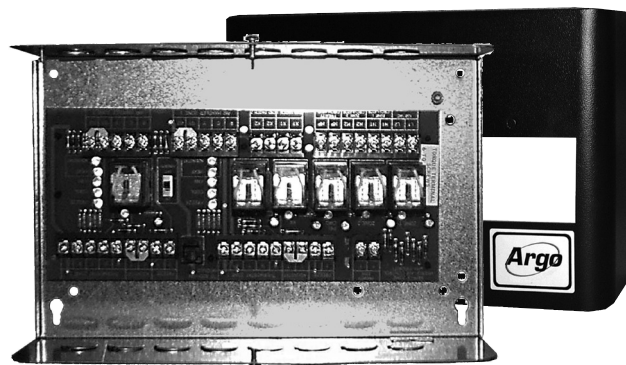
# HYDRO-AIR ZONING CONTROLS ARH-1, ARH-2, ARH-3



ARH-1



ARH-2



**ECR** international

Manufactured by:  
ECR International Inc.  
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**IMPORTANT: THIS MANUAL MUST BE KEPT FOR FUTURE REFERENCE!!**

**WARNINGS AND SAFETY SYMBOLS**

**⚠ DANGER**

Indicates a hazardous situation which, if not avoided, WILL result in death or serious injury.

**⚠ CAUTION**

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

**⚠ WARNING**

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

**NOTICE**

Indicates information which should be followed to ensure proper installation and operation.

**INTRODUCTION**

This manual is intended to familiarize the installer and user of the Argo ARH Series of Controls with their installation and operation to assure normal trouble-free operation.

Argo controls are designed and manufactured with quality components for maximum life and durability and require minimal service. To insure a satisfactory installation, it is imperative that the instructions be followed carefully before operating the control. Failure to do so may result in breach of warranty.

**PRODUCT DESCRIPTION**

Argo Hydro-Air Zoning Controls provide the easiest way to interface between the thermostat and air handler. These dependable control relays will control from 1 to 20 zones of heating/cooling and provide priority switching for domestic hot water. Boiler and A/C condenser wiring is virtually fool proof.

## ARH FEATURES AND BENEFITS

### Choice of Three Models

- Single Zone/Expansion module (ARH-1)
- Two-Zone With Priority (ARH-2)
- Three-Zone with Priority (ARH-3)

**All ARH Models** have plug-in connections for easy expansion up to 20 zones.

**Multiple Terminals** for 2-speed air handlers

**Built-In Air Handler "Freeze Protection"**

**Switch-able Priority** for domestic hot water applications.

**LED Diagnostic Lights** for easy troubleshooting.

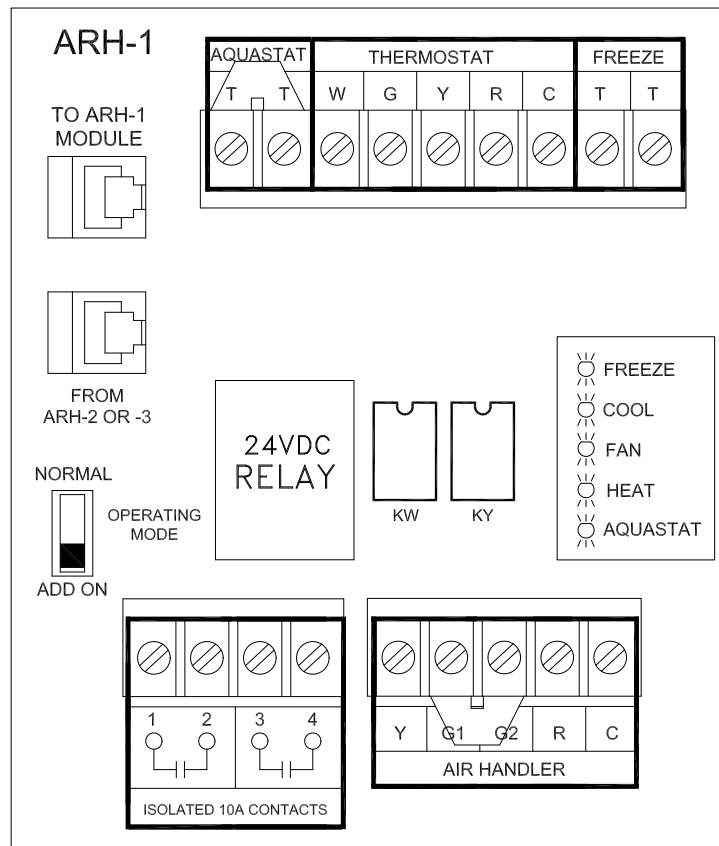
**Includes Strap-On Bi-Metal Aquastat** to prevent "cold air" circulation in heating mode.

**100% Quality Controlled**

**All Controls Supported by Argo Technical/Support**

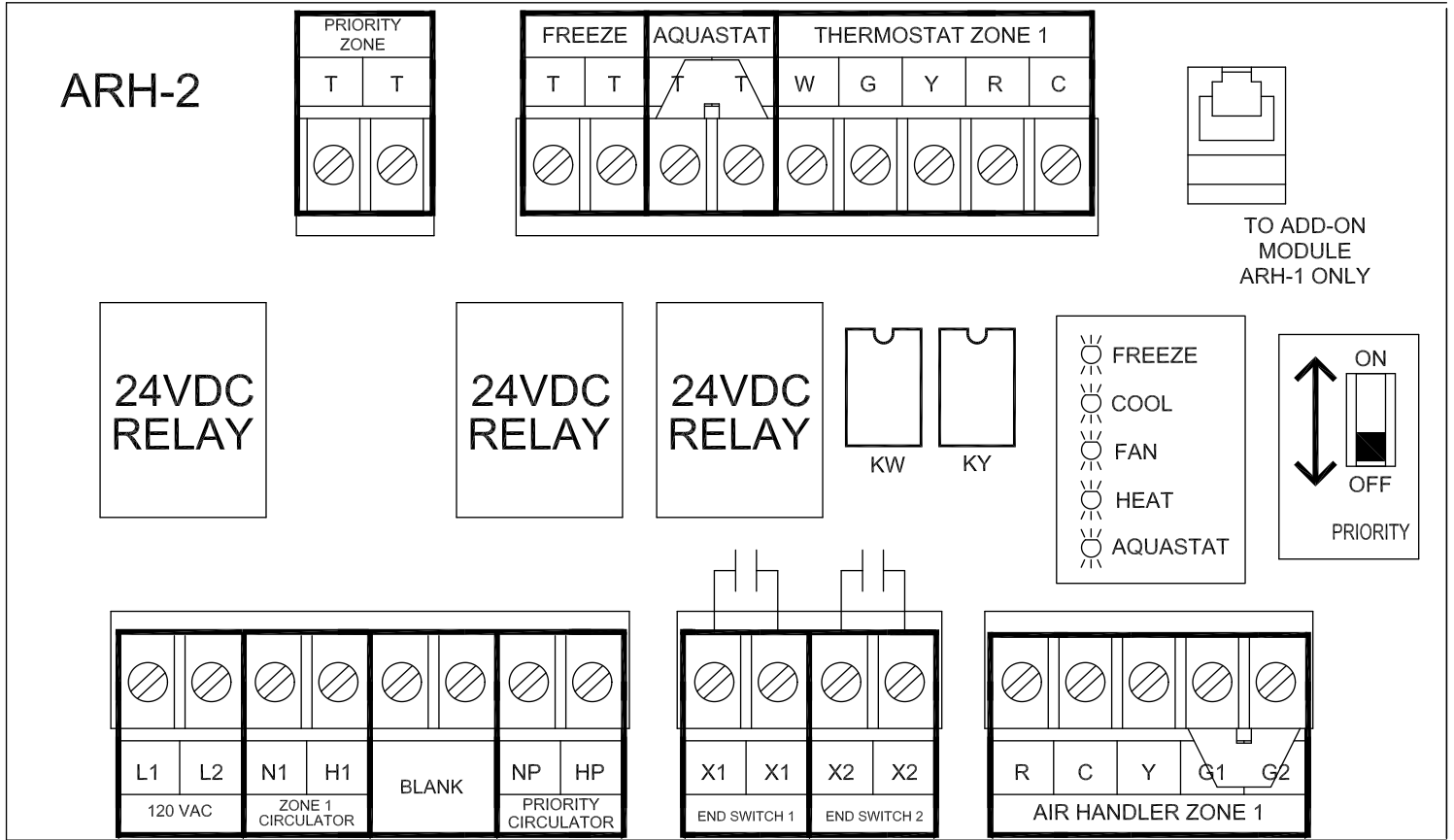
## ARH CONTROL BOARD DIAGRAMS

### ARH -1

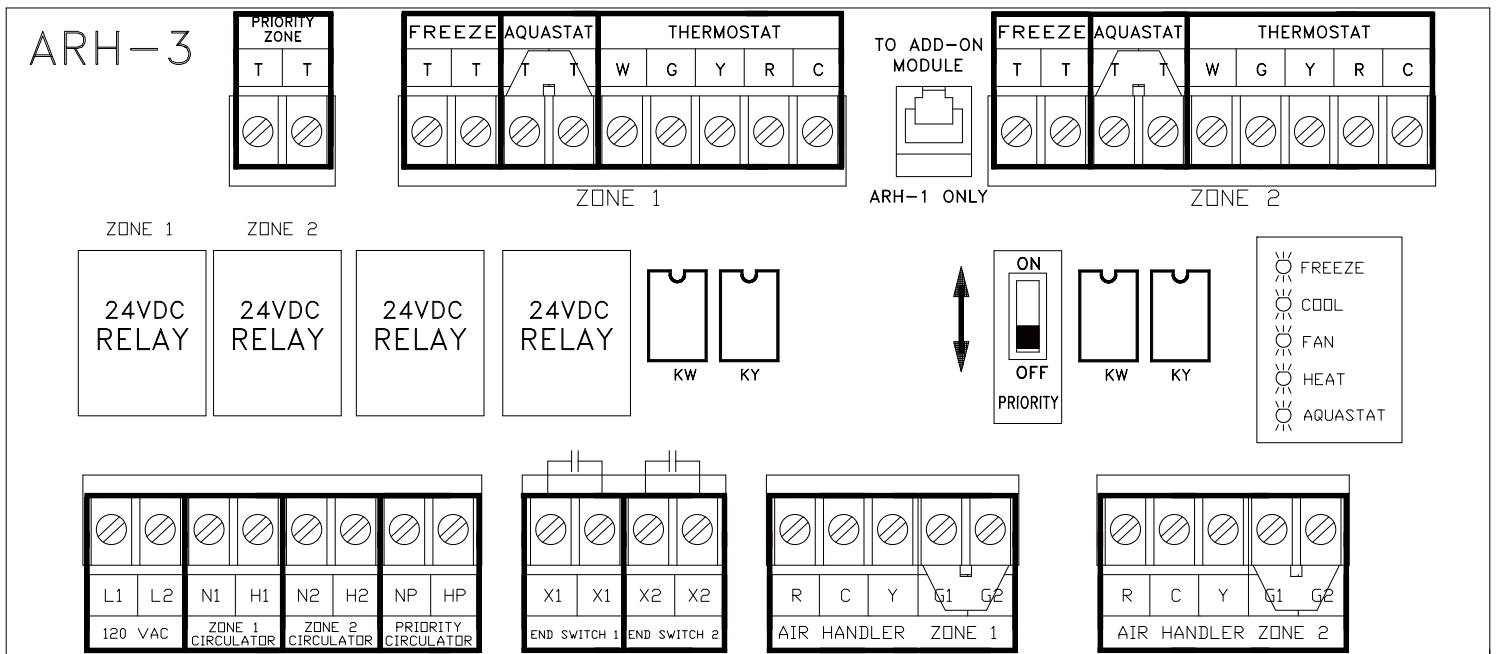


# ARH CONTROL BOARD DIAGRAMS

## ARH-2



## ARH-3



## MOUNTING INSTRUCTIONS

Mount Argo ARH Series Control vertically on a solid wall or partition. Manufacturer recommends control be mounted as close as possible to the device being controlled, do not mount more than 75 feet away. Select a location that is easily accessible for installation and service.

### NOTICE

To reduce possible transformer hum and relay noise sometimes amplified by mounting surfaces such as sheet metal, plasterboard, and similar materials, place rubber or felt washers between the case and mounting surface.

1. Position the control and mark the mounting holes.
2. Start screws (not provided) for the keyhole type mounting holes in the upper corner(s). Tighten the screws down to about 1/8" (3mm) from the surface. The ARH-1 will require a screw to be installed in the lower left hand corner after the control is hung and leveled.
3. Hang the control on the screws, position the case, and start the bottom screws.
4. Tighten all screws.

## ELECTRICAL SPECIFICATIONS & WIRING

### ⚠ WARNING

Electrical shock hazard! Disconnect power before installing or servicing. Failure to follow these instructions could result in death or serious injury.

#### **General Wiring Notice**

All primary wiring must be 14 AWG minimum. Torque terminal screws 6 to 7 inch pounds.

**U.S.A.** - National Electric Code and any other national, state, or local code requirements. Wiring must be N.E.C. Class 1.

**CANADA** - C.S.A. C22.1 Canadian Electrical Code Part 1 and any other national, provincial, or local code requirements. Wiring must be C.S.A. C22.1 C.E.C. Part 1.

### Electrical Specifications

Argo Model Number	Argo Part Number	Power Input	Thermostat Current	Supplied Aquastat
ARH-1	Z181	24VAC/60Hz	.085A	3/8" to 3/4" Strap on Bi-Metal (ON at 118°F ± 5%) (OFF at 95°F ± 5%)
ARH-2	Z179	24VAC/60Hz		
		120VAC/60Hz for Circulator Power		
ARH-3	Z180	24VAC/60Hz		
		120VAC/60Hz for Circulator Power		

## SEQUENCE OF OPERATION

When thermostat calls for heat, boiler end switch closes, starting burner and energizing the heating circulator. Fan will operate at low speed (G1) when water temperature is above (118°F) the aquastat setting at the Hydro-Coil.

If priority zone is actuated, priority circulator and boiler end switch are energized. Heating circulator is shut off and fan will operate at low speed (G1) until water temperature drops below aquastat setting.

When thermostat calls for cooling, Argo Control energizes outdoor condenser and starts the fan on high speed (G2).

**Optional Freeze Protection** for Hydro-Coil: When Freeze Terminals (TT) are shorted together as with SPST actuator, heating zone circulator will operate to circulate water through the Hydro-Coil.

For additional zones, use telephone connector to ARH-1 module. Up to 20 Air Handler Zones can be "Daisy Chained" together.

## TERMINAL DESCRIPTIONS

### Thermostat

**W** - Heat Switched Leg  
**G** - Fan Switching Leg  
**Y** - Cool Switching Leg  
**R** - 24VAC Hot  
**C** - 24VAC Common (**Optional** for use on thermostats requiring common leg)

### Aquastat

**TT**- Connect to factory supplied strap-on aquastat (118°F) at Hydro-Coil. These terminals must be closed for fan to operate in Heating Mode. Install a jumper if no aquastat is used.

### Freeze

**TT**- Optional freeze protection (Argo A11F) when (TT) is connected to aquastat at Hydro-Coil. When closed, these terminals start the heating circulator, but not the fan. Using an SPST aquastat that closes when temperature falls to 40°F with a 5°F differential (Honeywell L4080B), is recommended.

### Boiler End Switch

**X1X1** - Connect to TT terminal on boiler  
**X2X2** - Extra End Switch

### Air Handler

**Y** - Cooling Relay (Condenser)  
**G1** - Heat Fan Center Relay (Low Speed)  
**G2** - Cool Fan Center Relay (High Speed)

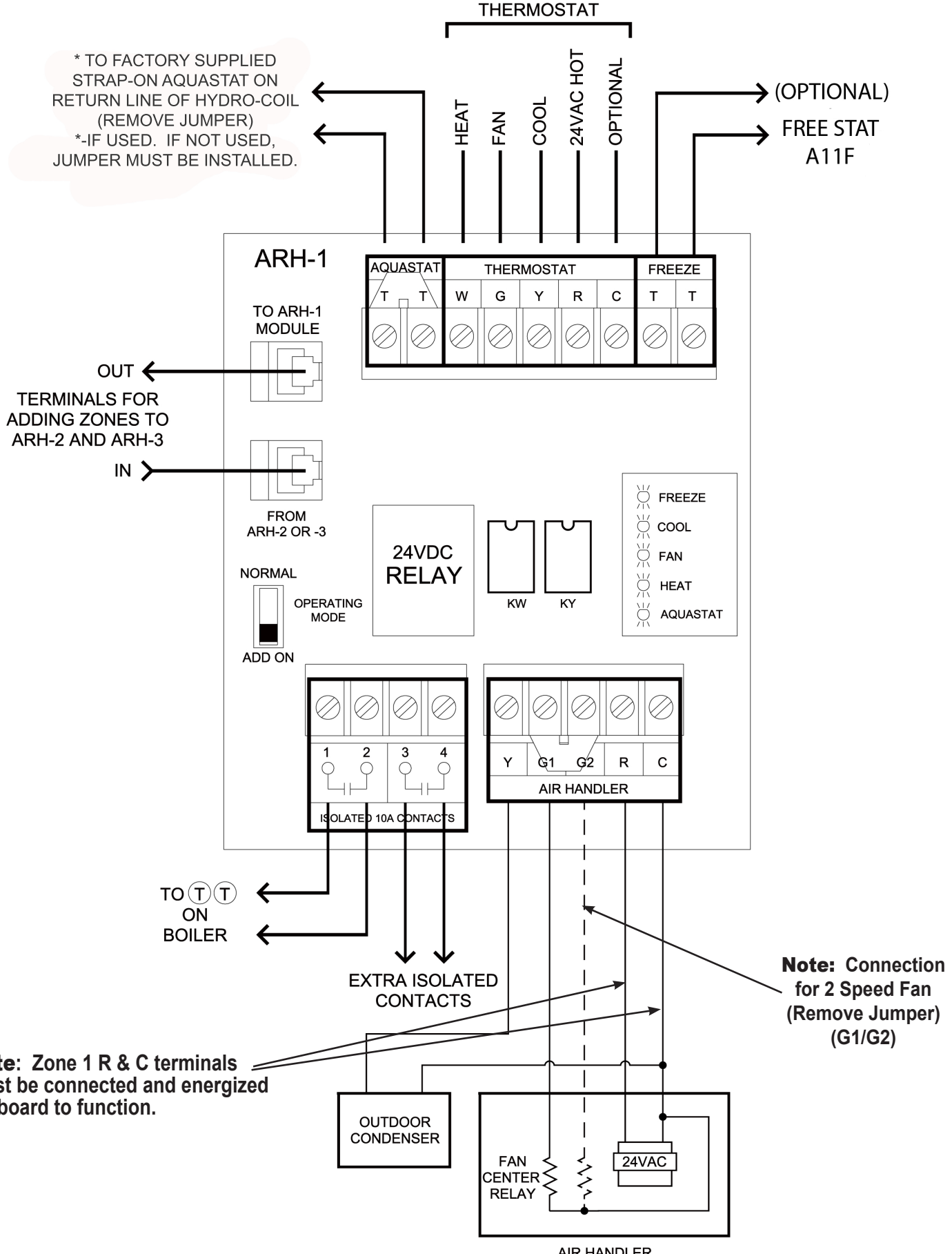
### NOTICE

Note: A single Speed Fan requires Jumper to be installed between G1 and G2.

**R** - 24VAC Hot used to switch all functions.  
**C** - 24VAC Common used to power fan control.

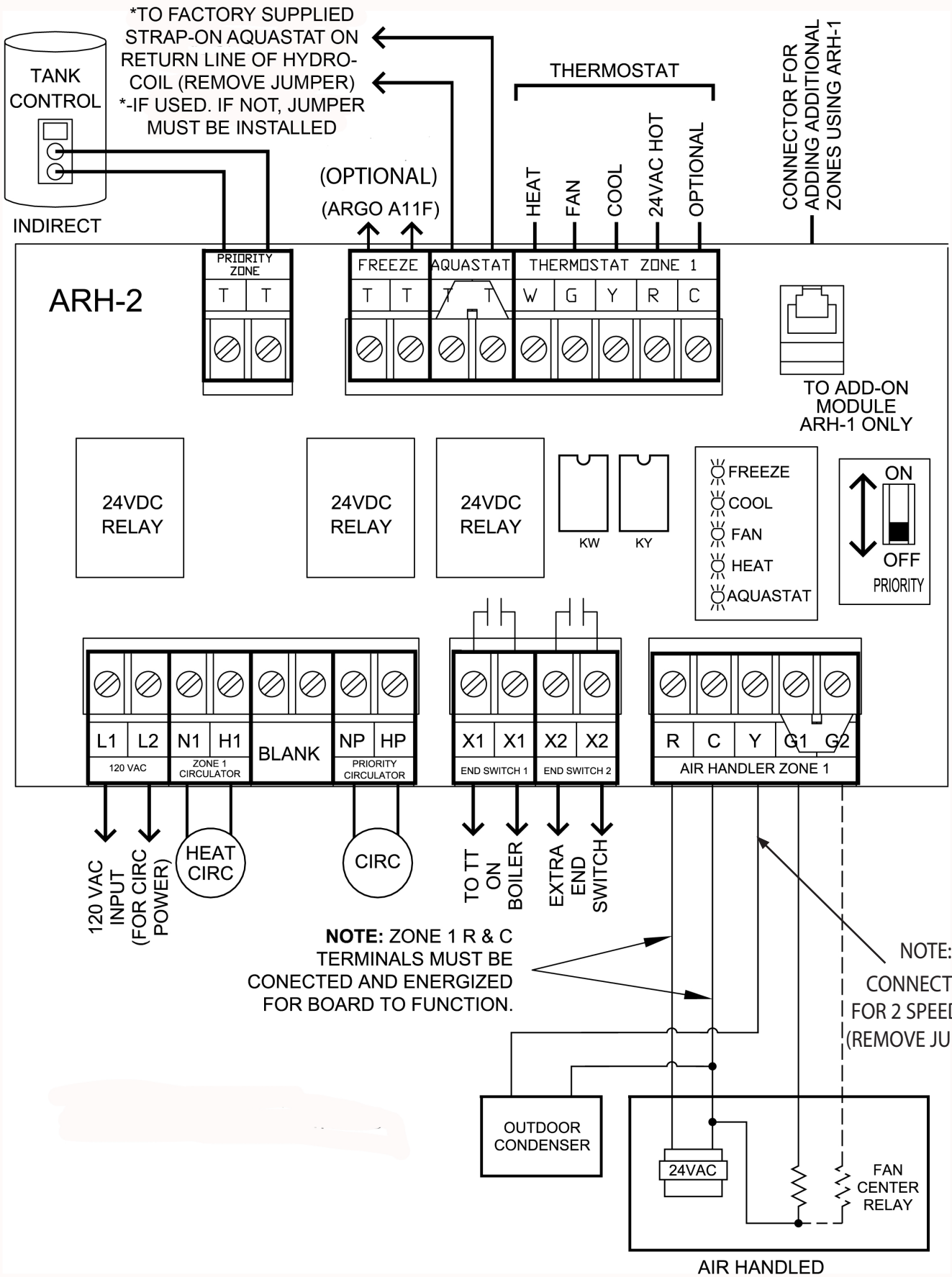
# WIRING DIAGRAM APPLICATIONS

## ARH-1 SINGLE ZONE HYDRO-AIR CONTROL INSTRUCTIONS



# WIRING DIAGRAM APPLICATIONS

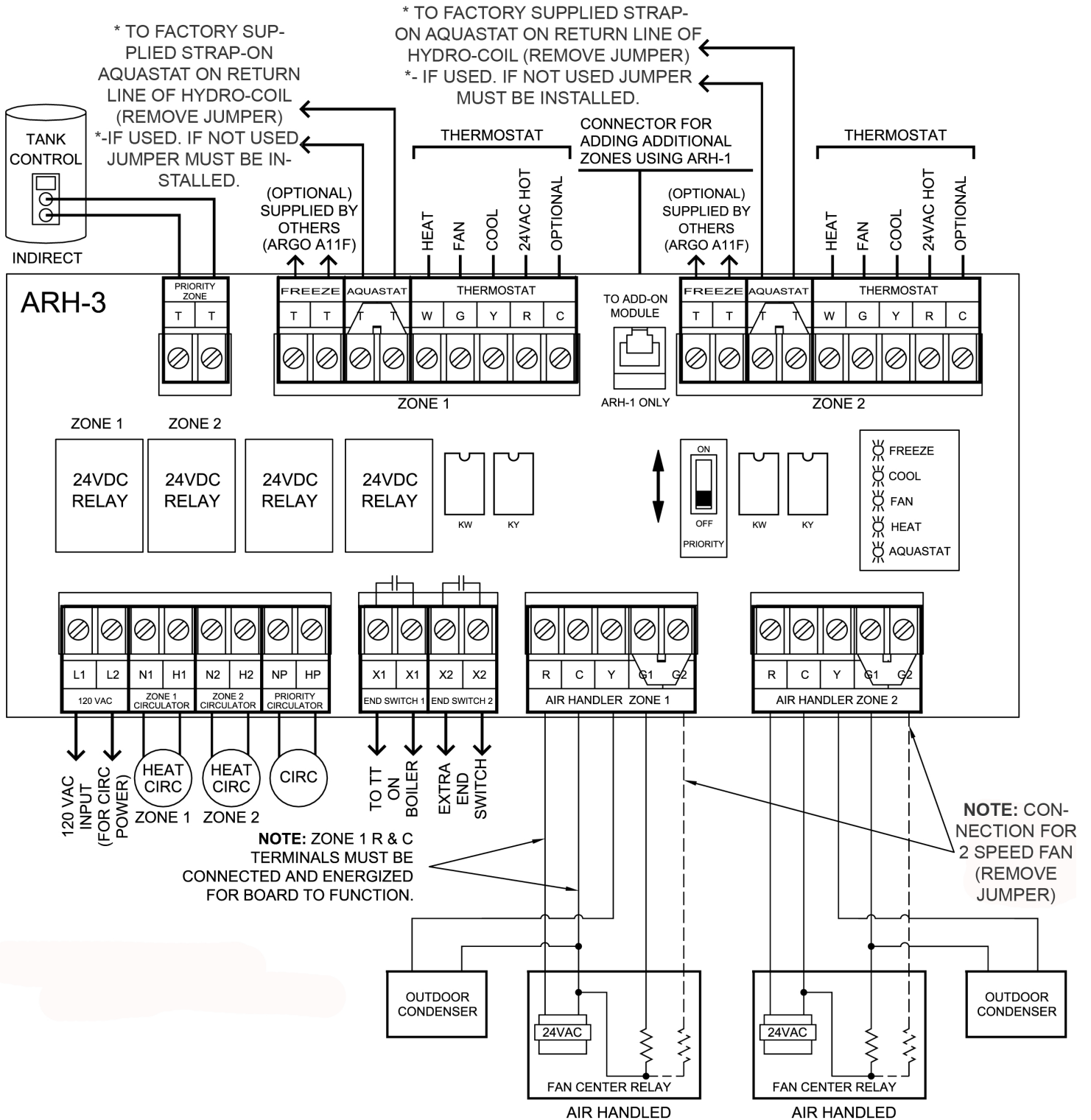
## ARH-2 TWO ZONE HYDRO-AIR CONTROL INSTRUCTION (1 AIR HANDLER AND 1 PRIORITY ZONE)



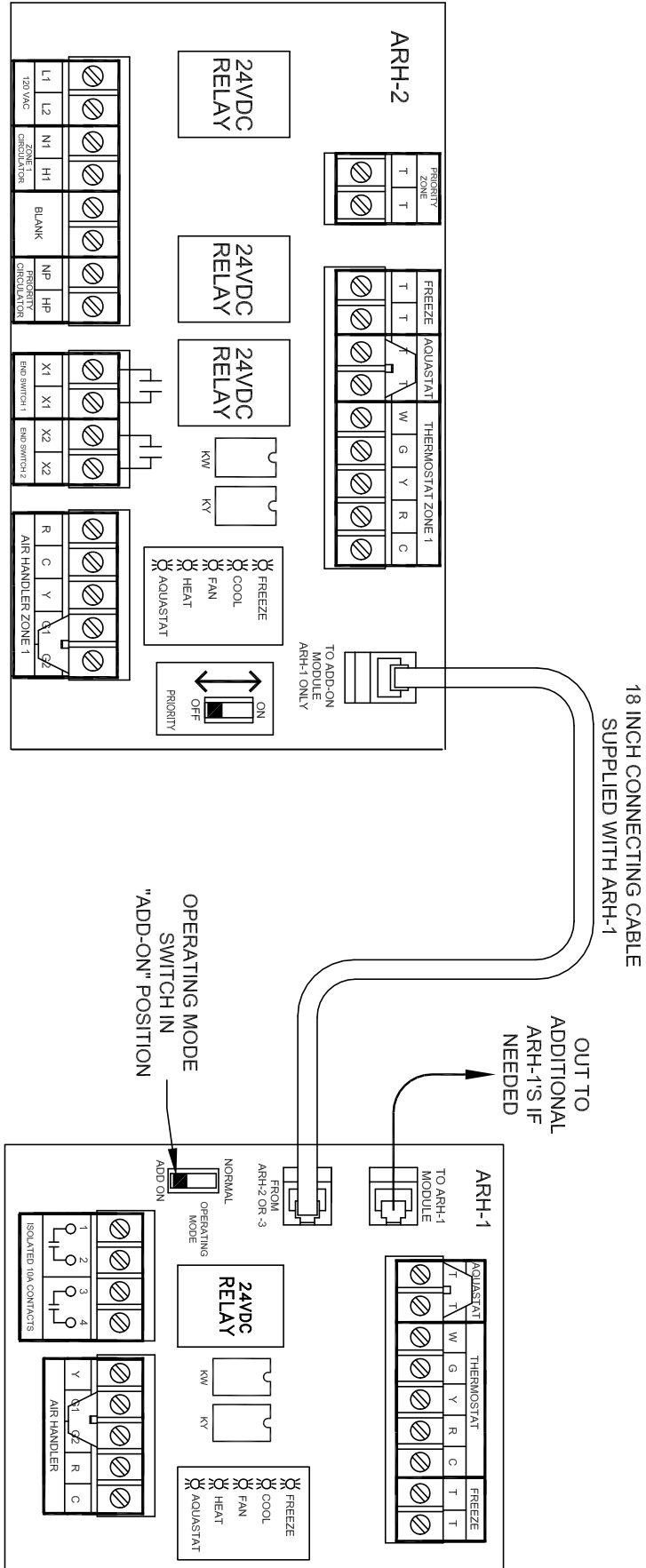


**WIRING DIAGRAM APPLICATIONS**

**ARH-3 THREE ZONE HYDRO-AIR CONTROL INSTRUCTION (2 AIR HANDLER AND 1 PRIORITY ZONE)**



Wiring Diagram for Adding ARH-1 TO ARH-2 OR ARH-3



## REPLACEMENT PARTS

<b>Replacement Parts</b>	
<b>Part Description</b>	<b>Argo Part Number</b>
Relay 24VDC Coil	R35DC
Snap on Aquastat (118° F)	A10
18" Expansion Cable	C1
Freeze Stat Aquastat (40°F)	A11F

## TECHNICAL SUPPORT

For technical support on this and all Argo products, please contact ECR International Technical Service at 1-800-325-5479. Please have your model number available when calling.

<b>Information Needed When Calling</b>
Model Number
Installation Date
Installer



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All specifications subject to change without notice.

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