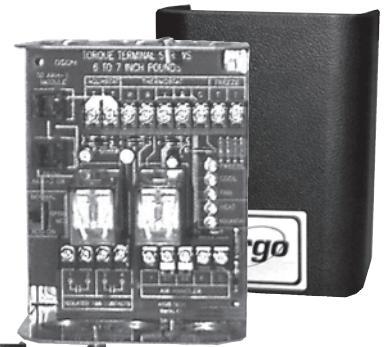




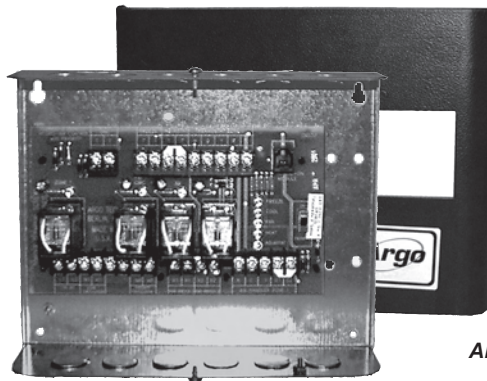
HYDRO-AIR ZONING CONTROLS

ARH-1, ARH-2, ARH-3

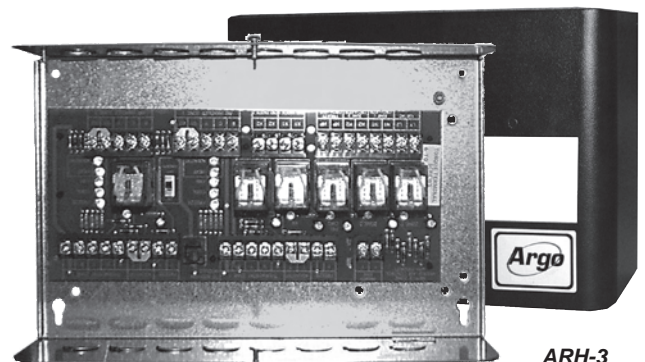
INSTALLATION, OPERATION & MAINTENANCE MANUAL



ARH-1



ARH-2



ARH-3



An ISO 9001-2000 Certified Company

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IMPORTANT: THIS MANUAL MUST BE KEPT FOR FUTURE REFERENCE!!

WARNINGS AND SAFETY SYMBOLS

	<p>DANGER</p> <p>Indicates a hazardous situation which, if not avoided, WILL result in death, serious injury.</p>		<p>CAUTION</p> <p>Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.</p>
	<p>WARNING</p> <p>Indicates a hazardous situation which, if not avoided, could result in death, serious injury.</p>		<p>NOTICE</p> <p>Indicates information which should be followed to ensure proper installation and operation.</p>

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.

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.

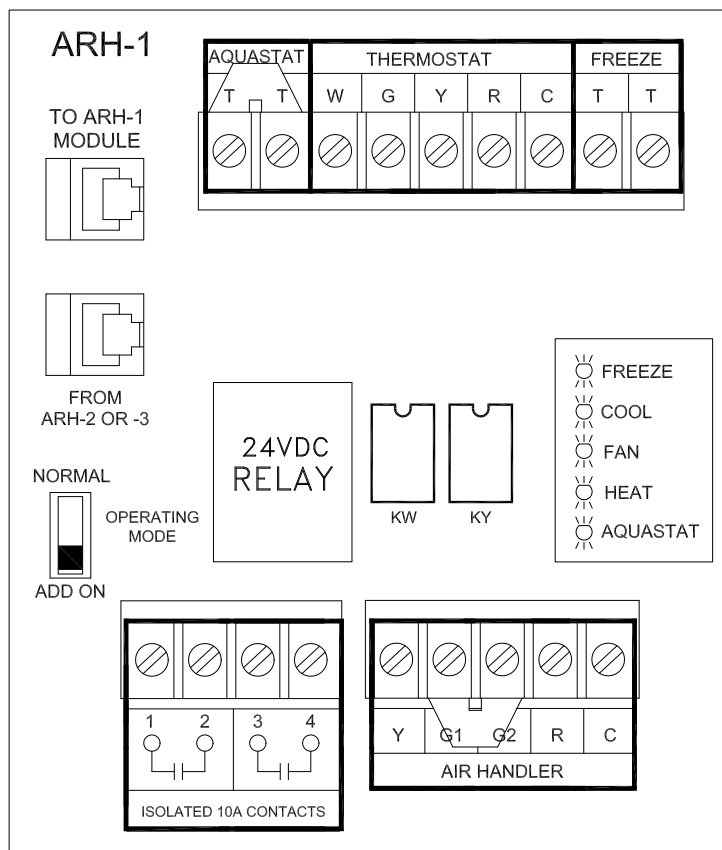
Includes Strap-On Bi-Metal Aquastat to prevent “cold air” circulation in heating mode.

100% Quality Controlled

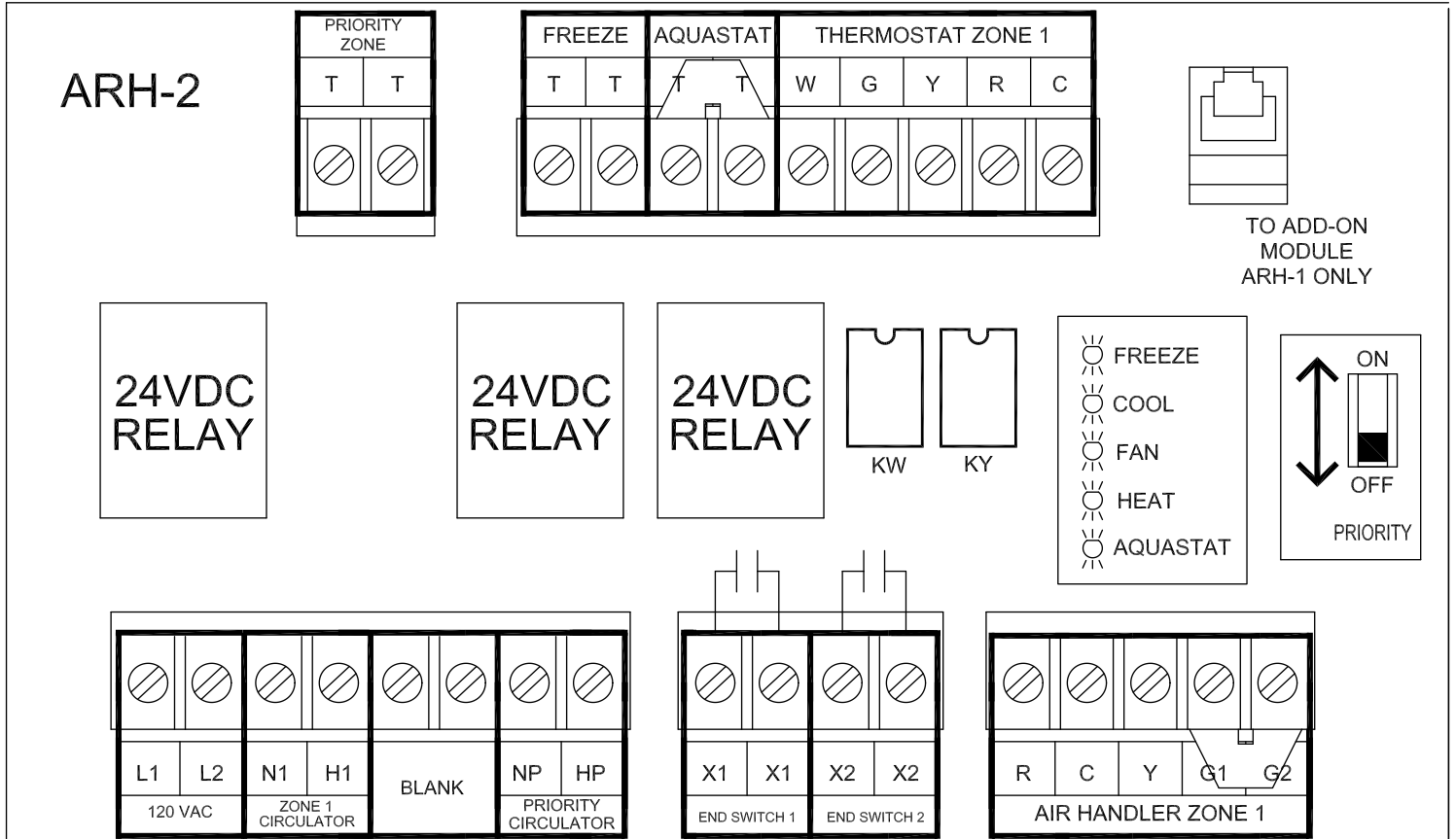
All Controls Supported by Argo Technical/Support

ARH CONTROL BOARD DIAGRAMS

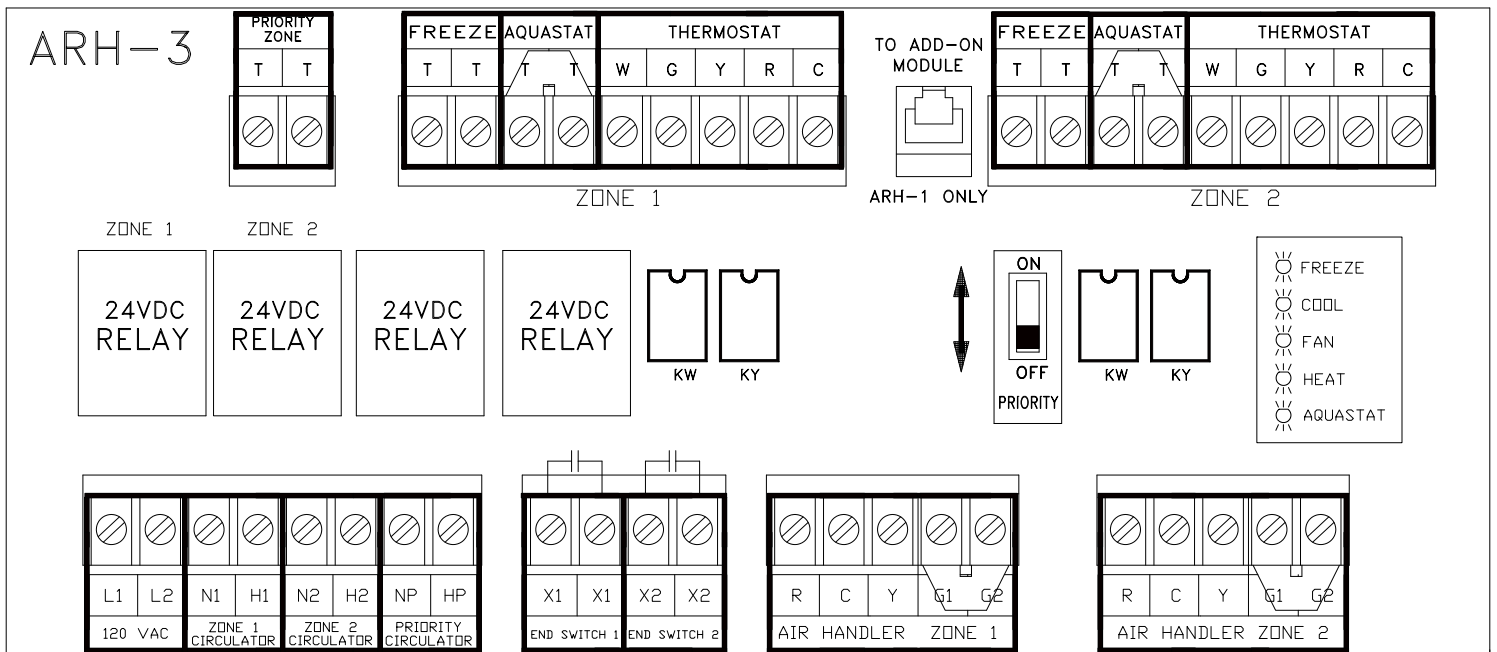
ARH -1



ARH-2



ARH-3



MOUNTING INSTRUCTIONS

Mount the Argo ARH Series Control vertically on a solid wall or partition. For your convenience it is recommended that the control be mounted as close as possible to the device being controlled, however it should never be mounted more than 75 feet away. Select a location that is easily accessible for installation and service.

NOTICE

NOTE: To reduce the possible transformer hum and relay noise that is sometimes amplified by mounting surfaces such as sheet metal, plasterboard, and similar materials, place rubber or felt washers between the case and the 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. Could cause severe personal injury, death if ignored.

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

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

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

Optional Freeze Protection for Hydro-Coil: When the Freeze Terminals (TT) are shorted together as with SPST actuator, the 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.

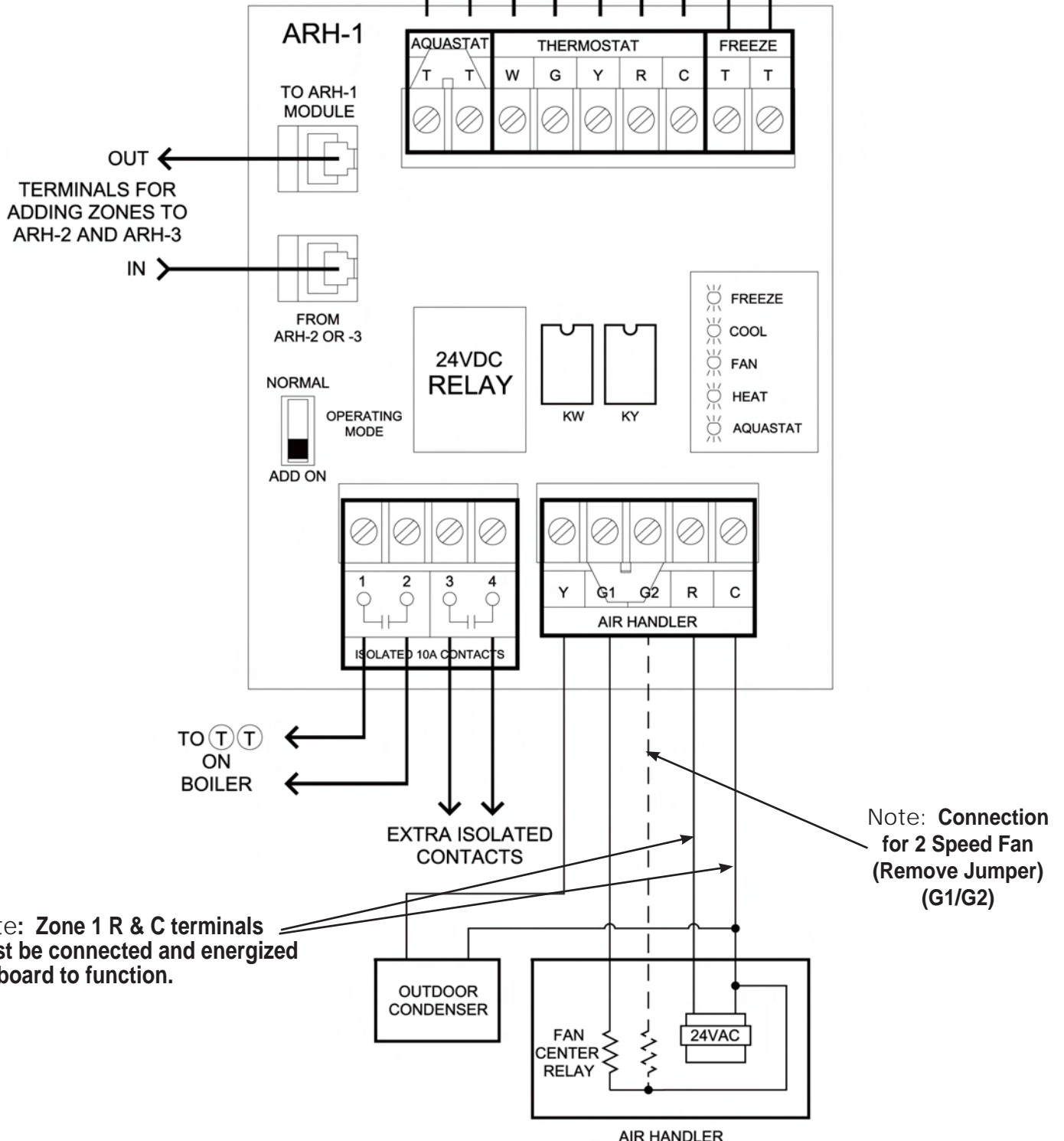
ARH-1 SINGLE ZONE HYDRO-AIR CONTROL INSTRUCTIONS

THERMOSTAT

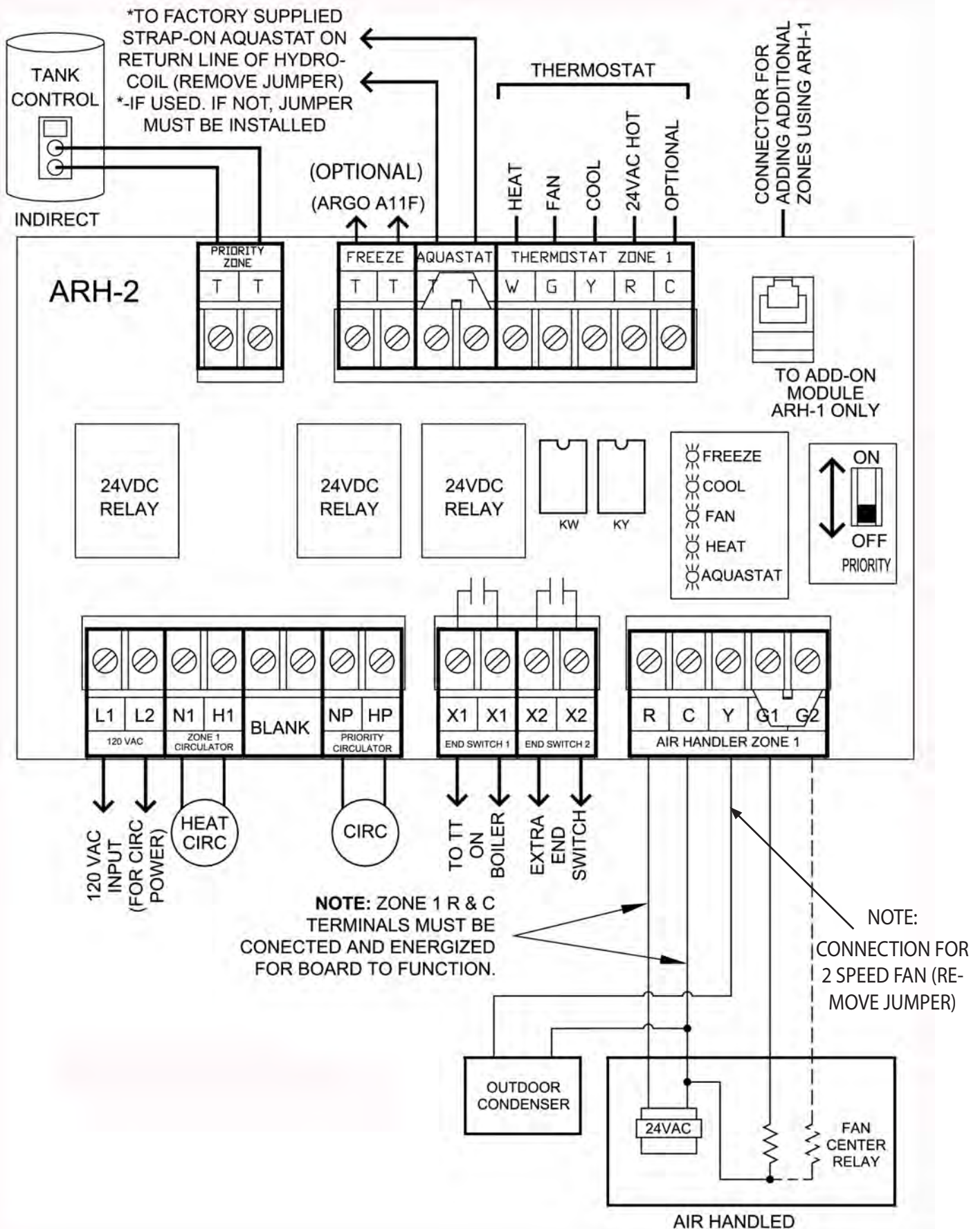
* TO FACTORY SUPPLIED STRAP-ON AQUASTAT ON RETURN LINE OF HYDRO-COIL (REMOVE JUMPER)
*IF USED. IF NOT USED, JUMPER MUST BE INSTALLED.

(OPTIONAL)

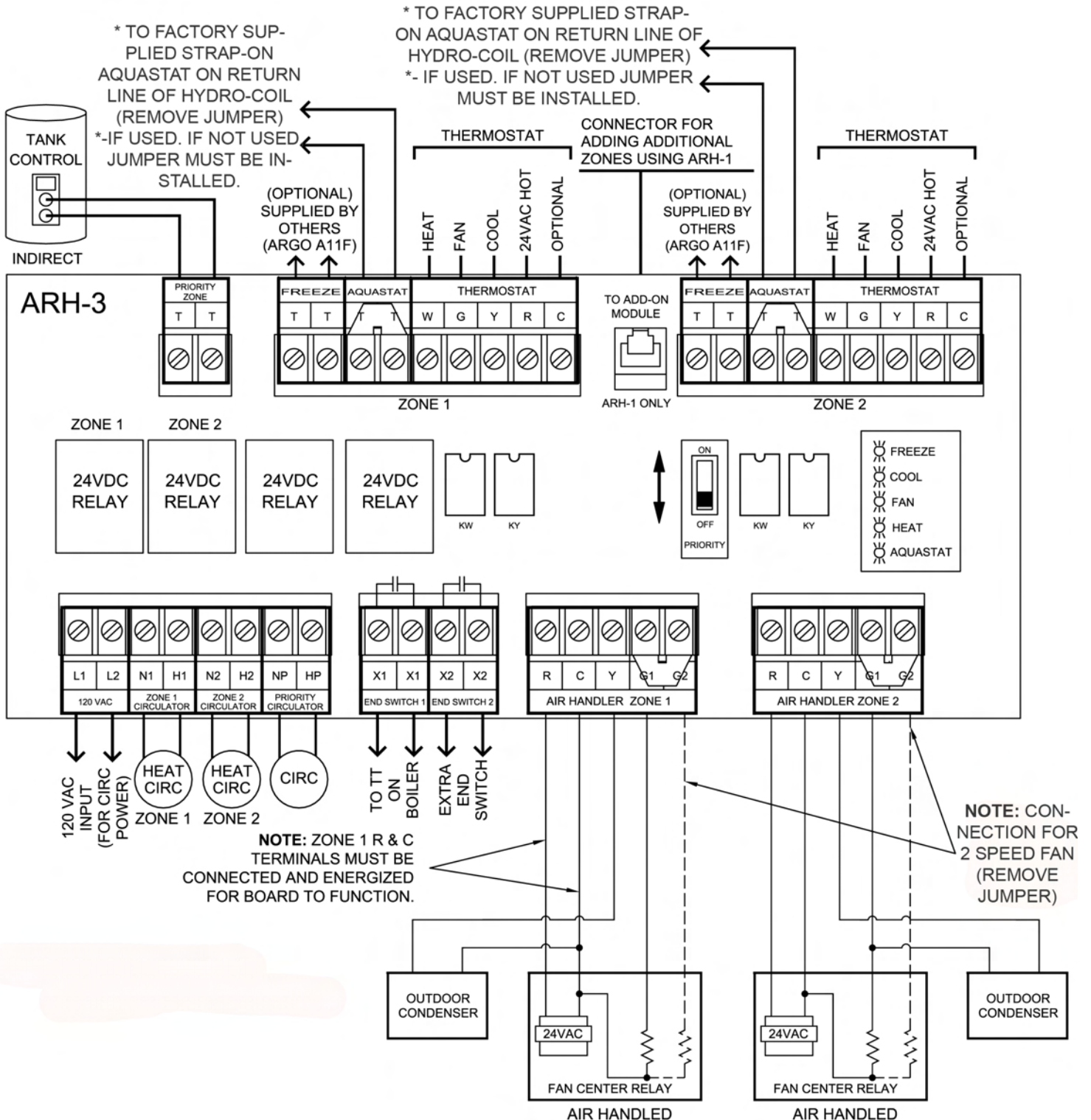
FREE STAT
A11F



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



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



REPLACEMENT PARTS

Replacement Parts	
Part Description	Argo Part Number
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.

Information Needed When Calling
Model Number
Installation Date
Installer

Argo