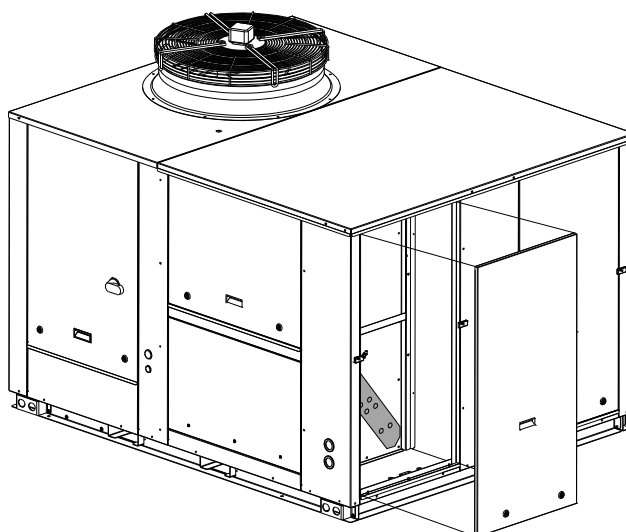




BY JOHNSON CONTROLS

Electric resistors for Roof top ACTIVA 017-040



Options and Accessories, Installation manual

Ref.: N-40406_EN 0112



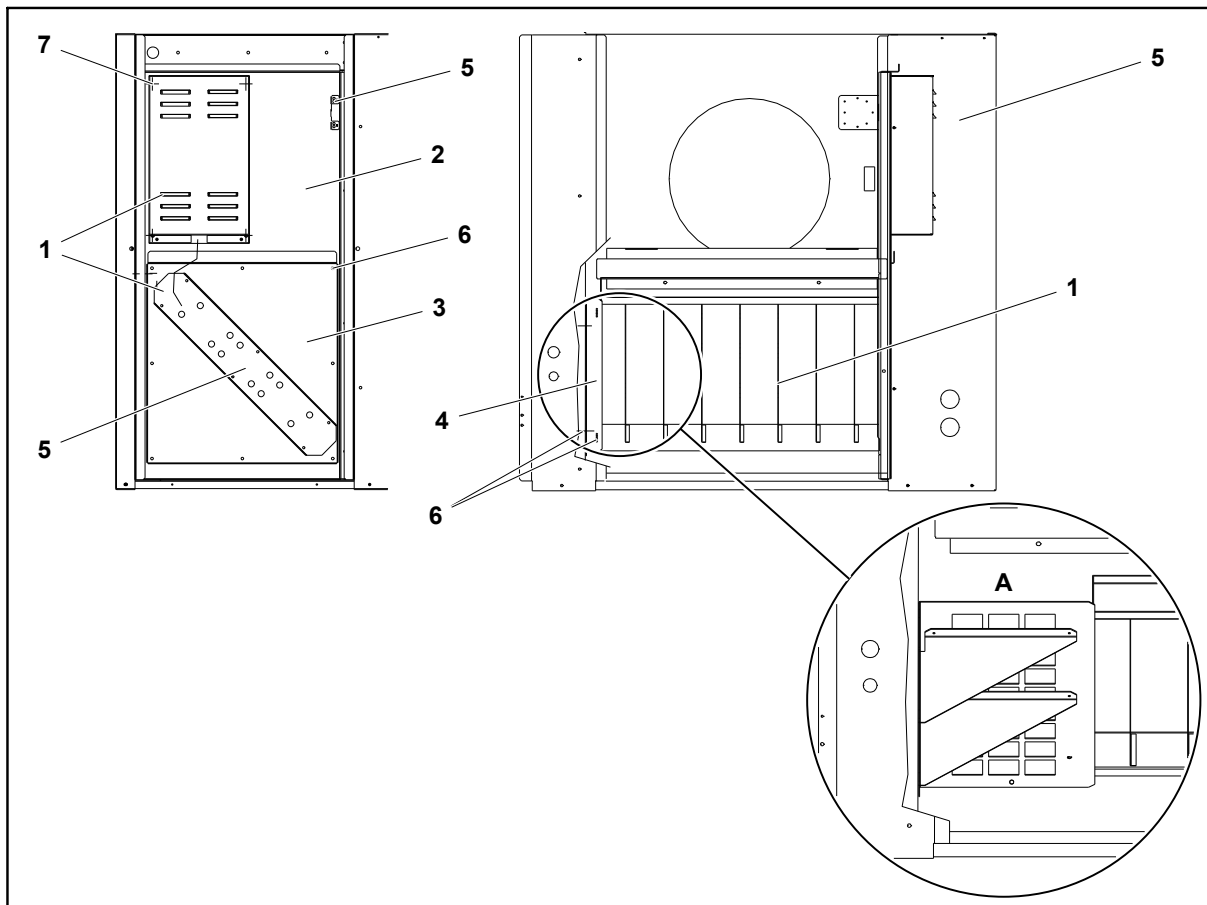
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1

**Electric resistors for Roof top ACTIVA
017-040**

1.1 Electric resistor installation



- | | |
|------------------------------------|---|
| 1. Heating element | 5. Differential pressure switch support plate |
| 2. Front panel | 6. Bolts |
| 3. Electric resistor support panel | 7. Resistor electrics box |
| 4. Electric resistor support plate | A. Additional support |



NOTE

On fitting 16 and 25 kW resistors in ACTIVA 32 and 40 models, add additional support according to close-up -A-.

1.2 General information

The optional electric resistors can be factory or site-fitted. These resistors are located on the inside of the central section of the unit, with the heating elements in the air supply section *Electric resistor installation*, see on page 2.

All electric resistors are two-stage and are supplied with circuit breakers for each one.

The electronic boards, the cables and all the material for the installation are supplied with this accessory.

The tables of this document list the electrical specifications of the resistors depending on the model of the unit in which they are fitted. Section *Air flow limits*, see on page 4 specifies the minimum flow rate of the indoor fan.

1.3 Technical specifications

The electric resistors include the following components:

- Galvanised plate casing, covers and supports.
- Electric resistors with exposed chrome-nickel wires, mounted on insulated supports.
- Power contactor with 24 Vac coil.
- Two thermal trip switches located on the front and thermal-magnetic resistor breaker. The former, with automatic reset, disconnects it when the temperature reaches 77 °C. The latter, with manual reset, disconnects the resistor when it reaches a temperature of 105 °C. There are four thermal trip switches (2 per stage) on 2-stage resistors.
- Interlocking with the indoor fan thermal relay. The unit control system does not enable the resistor to operate in the event of a fault in the indoor fan thermal relay.
- Control boards (A6 and A7) for resistor switching.

1.4 Installation



NOTE

- ***Bear in mind the current regulations on electrical installation in the country where the unit is to be installed.***
 - ***Also see [Electric resistor installation](#), see on page 2 for resistor connection details.***
1. Disconnect the main switch on the unit.
 2. Remove the access panels from the electric box and from the resistor section.
 3. Remove the cover from the resistor electrics box.
 4. Fit the electric resistor support plate and the front panel.
 5. Open the top of the cardboard box in which the resistor is packed and remove carefully. Check that the set of resistors and the ceramic insulation have not been damaged during transport (a wire of the resistor and the metal support assembly can be touched).
 6. Fit the electric resistor using the bolts around the support panel and secure using the bolts on the front panel.
 7. Fit and secure the resistor electrics box.
 8. Run the power cables and secure the packing gland on the side separation panel. Then connect the power cables to the main switch and the earthing cable to the terminal supplied. Secure the cables with ties to prevent them from moving due to vibrations.
 9. Connect the resistor switching cables according to the wiring diagram (connectors J5 and J4 on A6 and A7) [Wiring diagram](#), see on page 5. Connect the telephone cable to the accessory bus connector.
 10. Check the fitting, ensuring it is correct.
 11. Check that the manual and automatic reset thermal circuit breakers are closed (F12, F13, F15 and F16).
 12. Turn circuit breakers F21 and F22 ON.
 13. Fit the cover on the electric resistor box and the access panels.
 14. Reconnect the main switch on the unit.
 15. Check that the green LED on board A6 remains lit. Next, search and configure the accessories by pressing the test button on the YKN2Open board (A1) for more than three seconds, until the red LED lights up. When the search and configuration process starts, the red LED on the board will light up and will remain on until the operation is completed. Once it has switched off, check that the green LED is flashing to indicate that the accessory has been configured.
 16. Check the switching and the working order of the resistor by selecting the Emergency heat function on the unit control ambient thermostat.



CAUTION

Loose connection terminals produce overheating of cables and terminals. The unit will work incorrectly and there is a risk of fire.

1.5 Electrical specifications

1.5.1 ARC units with auxiliary heating element

ARC Model	Power supply V/Ph/Hz	Heating element			Maximum total current of the unit (A)	Maximum circuit breaker (K Curve) (1)	Minimum cable cross- section (mm ²) (2)
		Power (kW)	Stages (No.)	Current (A)			
017	400/3/50	16	2	24	28	40	10
		25	2	36	40	50	16
022	400/3/50	16	2	24	28	40	10
		25	2	36	40	50	16
032	400/3/50	16	2	24	30	40	10
		25	2	36	42	50	16
		37	2	54	60	80	25
040	400/3/50	16	2	24	30	40	10
		25	2	36	42	50	16
		37	2	54	60	80	25

(1) K Curve (DIN, VDE 0660-104).

(2) Based on copper conductors 105 °C.

1.5.2 ARH units with auxiliary heating element

ARH Model	Power supply V/Ph/Hz	Heating element			Maximum total current of the unit (A)	Maximum circuit breaker (K Curve) (1)	Minimum cable cross- section (mm ²) (2)
		Power (kW)	Stages (No.)	Current (A)			
017	400/3/50	16	2	24	40	50	16
		25	2	36	52	63	16
022	400/3/50	16	2	24	45	50	16
		25	2	36	57	63	16
032	400/3/50	16	2	24	54	63	16
		25	2	36	66	80	25
		37	2	54	84	100	35
040	400/3/50	16	2	24	62	80	25
		25	2	36	74	100	35
		37	2	54	92	125	50

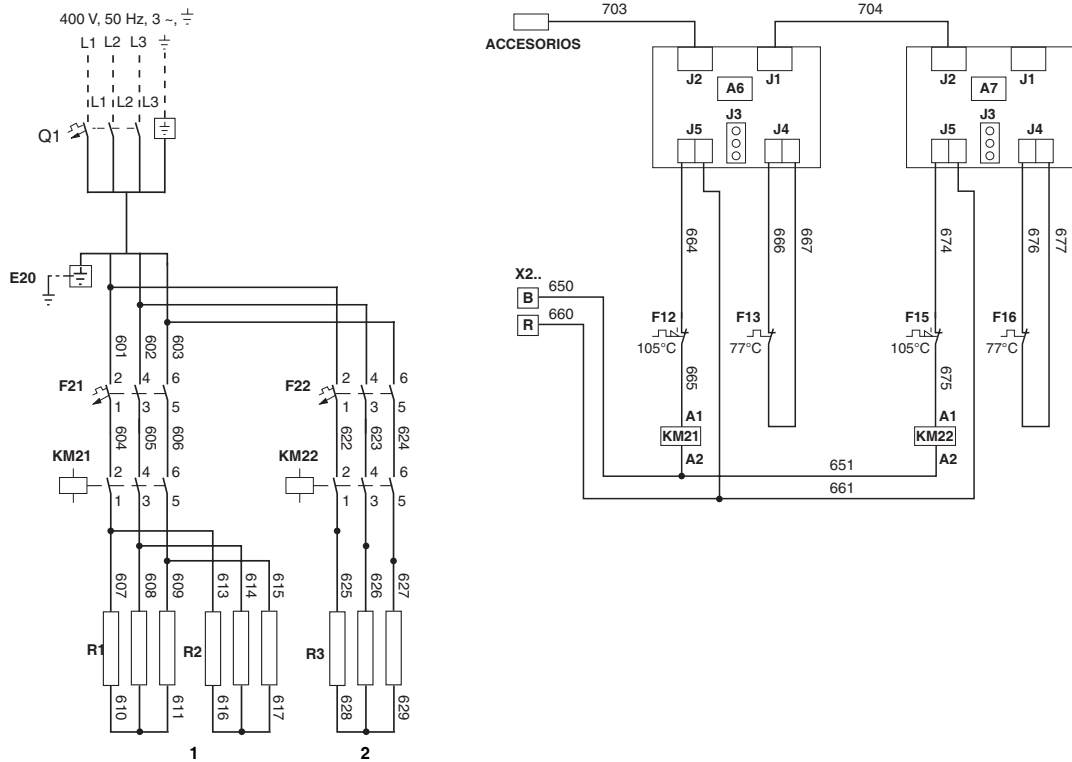
(1) K Curve (DIN, VDE 0660-104).

(2) Based on copper conductors 105 °C.

1.6 Air flow limits

Models		ARC/ARH	017	022	032	040
Indoor fan	Rated flow	m ³ /h	3400	4300	5700	7400
	Maximum flow rate		4000	5100	6800	8600
	Minimum flow rate		2800	3500	4700	6200
	IP54 motor (standard)	kW	1,85	1,85	2,8	2,8

1.7 Wiring diagram



I-2392a
400.3.50

1.	1st stage
2.	2nd stage
3.	Accessories
A6.	Auxiliary resistor 1 accessory
A7.	Auxiliary resistor 2 accessory
F12	Manual reset thermal trip switch, 105 °C
F15	Manual reset thermal trip switch, 105 °C
F13	Automatic reset thermal trip switch, 77 °C
F16.	Automatic reset thermal trip switch, 77 °C
F21.	Circuit breaker
F22.	Circuit breaker
KM21.	Power contactor, 24 Vac coil.
KM22.	Power contactor, 24 Vac coil.
R1.	Resistor, 1st stage
R2.	Resistor, 1st stage
R3.	Resistor, 2nd stage
R4.	Resistor, 2nd stage
X2.	24 Vac switching terminal strip

1 Electric resistors for Roof top ACTIVA 017-040

1.7 Wiring diagram

Power (kW)	Stages	Circuit breaker	
		F21 (A)	F22 (A)
12	1 (R1)	25	-
25	2 (R1, R3)	25	25
37	2 (R1, R2, R3)	50	25
50	2 (R1, R2, R3, R4)	50	50

Data and measurements subject to changes without prior notice.