

# FHC



FHC 10, -20, och -40

Ⓒ Installation and maintenance instructions for fan heater unit, water



**Important: Read these instruction before the product is installed and used.  
Save the instructions for future use**

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## Safety instructions

Read these instructions before installing and using the product.

### Caution

⚠ If the fan heater is incorrectly installed and/or incorrectly used, injury to persons or damage to property may occur.

⚠ Isolate the power supply to the fan heater before opening the fan heater, doing any electrical work or cleaning.

## Product information

The FHC series is available in three sizes: FHC 10, FHC 20 and FHC 40. All models have two fan speeds as standard. The fan heater is suitable for installation in dry, humid or wet rooms.

The degree of protection is IP X4.

Technical specification: see Appendix A.

For particulars of throw, see Appendix B1.

### FHC 10, -20 and -40

The FHC incorporates no control equipment. External components are needed for controlling the fan motor and the water supply. Anti-freeze protection must be provided in premises in which there is risk of freezing.

### FHCE extension sleeve.

If the fan heater is mounted at a high level, the outlet sleeve of the FHC can be replaced by a longer sleeve. This increases the throw of the fan heater (see Appendix B1).

Start by removing the fan grille from the short outlet sleeve and then the sleeve itself.

Put the extension sleeve together (FHCE) by mounting the parts in reversed order.

## Installation of the FHC

1. If several fan heaters are installed in the same premises, ensure that they are uniformly distributed and that they deliver air so that the working environment will not be disturbed.
2. Secure the fan heater to the ceiling with four screws through the brackets as shown in Figure 1. For drilling template for the heater with minimum distance from the wall, see Appendix B2.

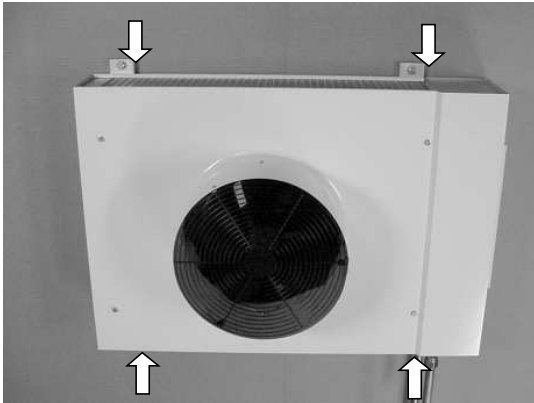


Figure 1

3. If the ceiling structure is weak, it must be reinforced to ensure safe installation. For particulars of weights of each size, see Appendix A.

## Water connections to the FHC

**CAUTION** After making the water connections, carefully check that the entire system is tight. Any leakage could cause expensive water damage.

1. The fan heater must not be connected to hot tap water or steam. The maximum permissible temperature and pressure are specified on the rating plate of the fan heater at the connecting pipes.
2. The capacity, water temperature, flow and pressure drop can be read from the table for each size. See Appendix C.
3. Connect the fan heater so that when it is not in operation and there is risk of freezing, the water can be drained from the coil.
4. Fit an air vent valve at the outlet pipe of the fan heater or centrally in the system.
5. When tightening the couplings at the connecting pipes or valves, these must be restrained so that the tightening torque will not be applied to the inlet and outlet pipes of the fan heater.
6. The pipe system connected to the fan heater must be supported so that it will not apply loads to the inlet and outlet pipes of the fan heater.
7. Connect the water inlet pipe, with or without valve, to the lower pipe on the fan heater and the outlet pipe to the upper pipe as shown by the arrows in Figure 2. The connection threads on the FHC 10 and 20 are R1/2 (1/2" BSP) and on the FHC 40, R3/4 (3/4" BSP).

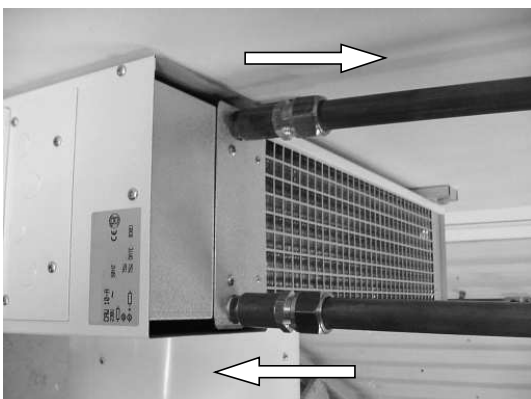


Figure 2

### Electrical connections to the FHC models.

1. The installation work must be done by an authorized installer.
2. The fan heater is designed for a 230 V AC power supply.
3. Connect the fan heater to the mains power supply with a permanent run of cable. All-pole breaking, with a distance of at least 3 mm between contacts, must be arranged in the permanent cable run.
4. Remove the cover from the connection box as shown in Figure 3.
5. Connect the fan heater and select the fan speed in accordance with the wiring diagram on the cover. See Figure 4 or Appendix D.

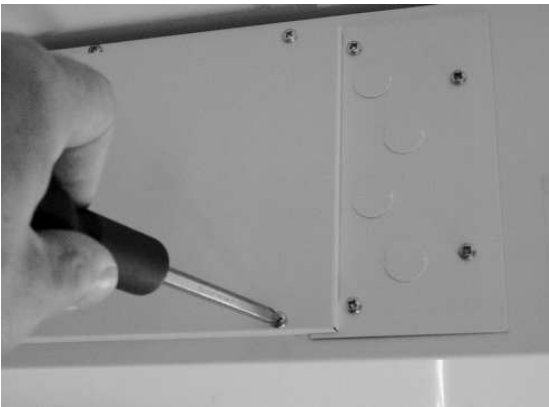


Figure 3

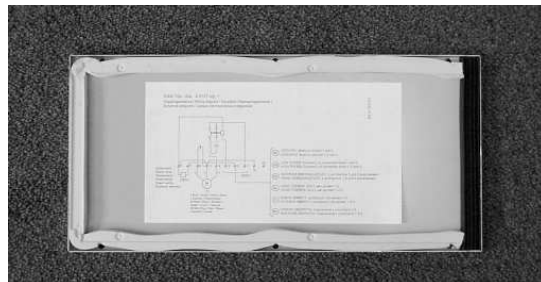


Figure 4

6. Use a tipped screwdriver and a hammer to remove the necessary number of cable entry washers for the installation, as shown in Figure 5. Use pliers to remove the washer as shown in Figure 6.

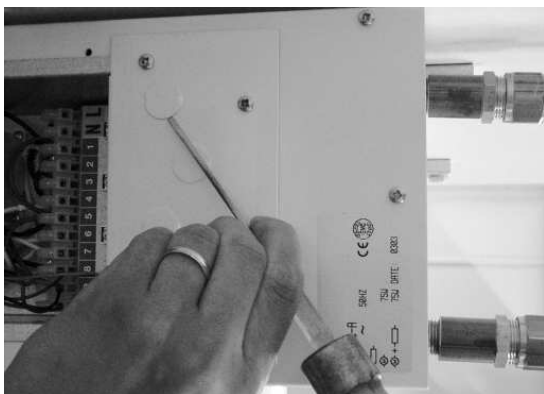


Figure 5

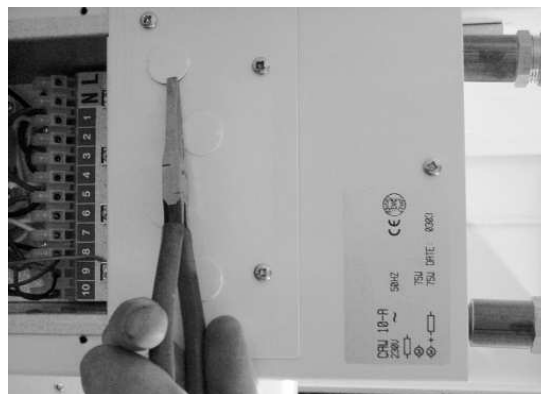


Figure 6

7. The thermostat used for controlling the fan heater should be installed so that it is not affected by draughts from open doors and windows, by the fan heater air discharge, etc.

## Electrical connection of genuine accessories for FHC models

1. Thermostat SR121/1 (Figure 7) with a temperature range of 0 - 40°C and degree of protection IP 54.

One thermostat can control up to four FHC fan heaters.



Figure 7

2. Speed selector switch AWD with degree of protection IP 65 and with three positions (Figure 8) that are selected manually.

0 = Fan stopped

1 = Low speed + heating

2 = High speed + heating

Can control up to five FHC fan heaters. For wiring diagram, see Appendix E. N.B. If thermostat TI-N or SR121/1 is used, three respectively four FHC fan heaters can be connected.



Figure 8

3. Valve with thermomotor (Figure 9) for a maximum water temperature of 100°C and pressure rating PN 10 (1.0 MPa). The thermomotor must not be turned to a position below the horizontal plane (see Figure 10).



Figure 9

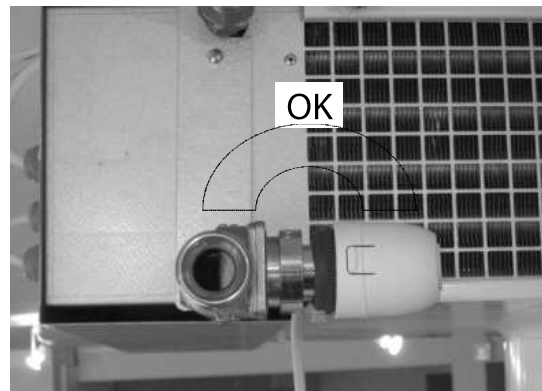


Figure 10

## Cleaning

The fan heater must be cleaned at regular intervals to ensure optimum performance. Any dust deposits on the aluminium fins of the coil reduce the air flow rate and impair the heat transfer. The coil must therefore be kept clean.

1. Isolate the power supply to the fan heater before doing any cleaning work.
2. Remove the screws for the fan plate (see Figure 11) and remove the plate.
3. Use compressed air to blow the coils clean from the inside outwards as shown in Figure 12.
4. Use a soft brush to clean the fan blades and the protective grille.



Figure 11



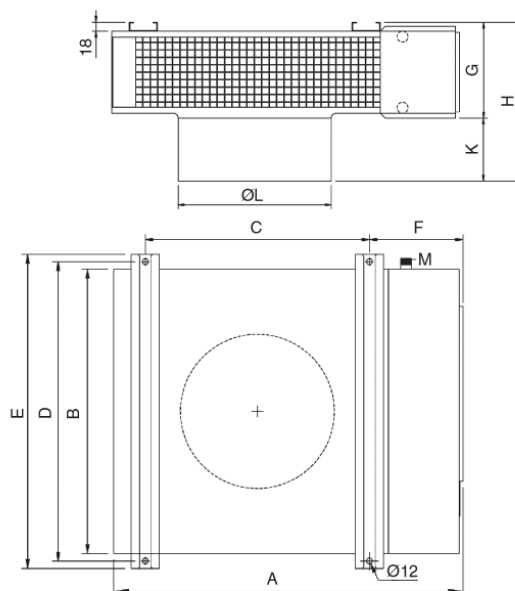
Figure 12

5. If water or steam is used for cleaning, the fan motor must be protected against the entry of water.
6. The intervals between cleaning depend on the environment in which the fan is operating.

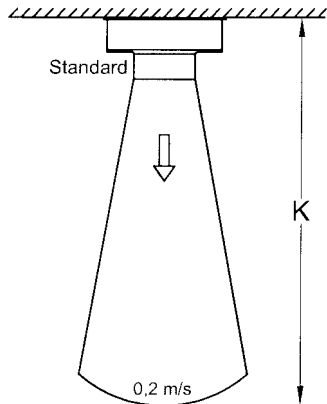
Technical data		FHC 10	FHC 20	FHC 40
Voltage	V~	230 V~	230V~	230V~
Current	max A	0,4 A	0,6 A	1,0 A
Air volume m <sup>3</sup> /h	low speed	700	1300	2500
	high speed	1100	2000	3900
Ljudnivå dBA <sup>1)</sup>	low speed	37	44	48
	high speed	53	57	60
Vertical air movment <sup>2)</sup> , m	low speed	2,2	2,7	4,5
	high speed	4	4,5	7,5
Vertical air movment <sup>2)</sup> , m inkl FHCE	low speed	4	5	7
	high speed	7	8	12
Dimension, mm	A	695	895	1065
	B	570	620	700
	C	450	650	850
	D	600	650	730
	E	630	680	760
	F	180	180	145
	G	195	195	290
	H	320	350	400
	K	130	155	110
	Connecting pipe	ØL	310	345
	M	R1/2	R1/2	R3/4
Weight	kg	21	28	42
Protection class		IP X4	IP X4	IP X4
Max. operating temp. water, FHC		80°C	80°C	80°C
Max. operating temp. (on the water)		1,0 MPa	1,0 MPa	1,0 MPa
Ambient temperature		3-30°C	3-30°C	3-30°C

<sup>1)</sup> Noise level measured 5 meters from fan outlet.

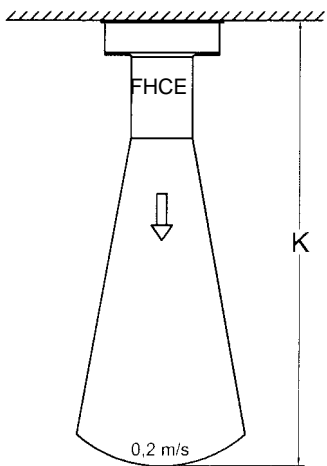
<sup>2)</sup> The figures are based on: From the ceiling down to a point where the air speed is 0,2 m/s, room temperature 18°C and outgoing air temperature is 40°C.





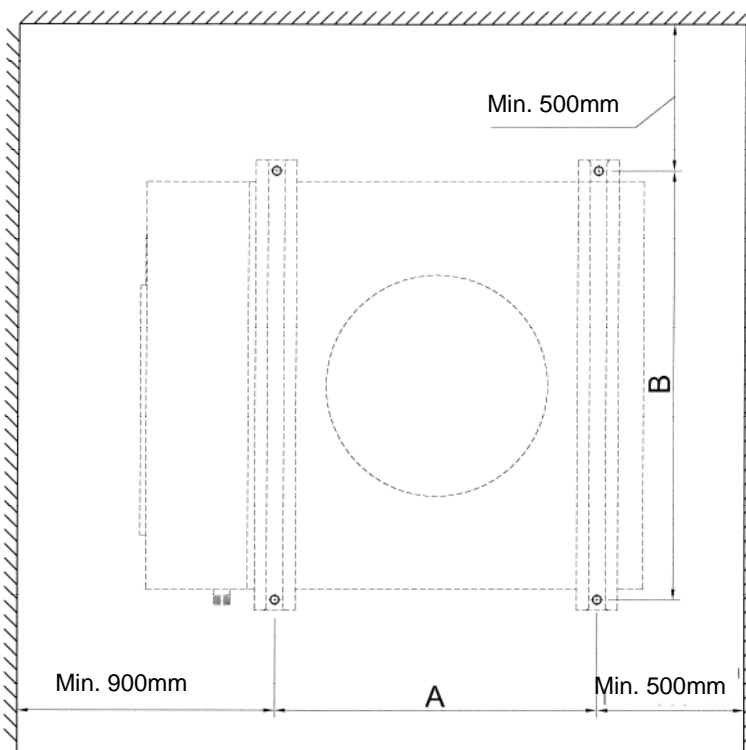


**K** — Vertical throw from the ceiling to the point at which the airspeed is 0,2 m/s.  
Room temperature 18°C and discharge air temperature of 40°C



FHC standard	Low speed	High speed
FHC 10	2,2	4
FHC 20	2,7	4,5
FHC 40	4,5	7,5

FHC with FHCE	Low speed	High speed
FHC 10	4	7
FHC 20	5	8
FHC 40	7	12



	A mm	B mm
FHC 10	450	600
FHC 20	650	650
FHC 40	850	730

**Capacity FHC 10**

Water temp.		in/out 55°C/45°C				in/out 60°C/40°C				in/out 80°C/60°C			
Air flow	Air in	Power	Air out	Water flow	Press. drop water	Power	Air out	Water flow	Press. drop water	Power	Air out	Water flow	Press. drop water
m <sup>3</sup> /h	°C	kW	°C	l/s	kPa	kW	°C	l/s	kPa	kW	°C	l/s	kPa
700	+10	6,3	35,8	0,15	4	5,3	31,8	0,06	1	9,5	48,9	0,13	2
1100	+10	8,3	31,6	0,20	6	7,3	29,1	0,09	1	12,5	42,5	0,15	3
700	+15	5,4	37,6	0,13	3	4,3	33,0	0,05	1	8,6	50,8	0,10	2
1100	+15	7,1	33,9	0,17	5	5,8	30,5	0,07	1	11,3	44,9	0,14	3
700	+20	4,6	39,3	0,11	2	3,4	34,3	0,04	0	7,7	52,6	0,09	1
1100	+20	6,0	36,1	0,14	3	4,4	31,9	0,05	1	10,1	47,3	0,12	2

**Capacity FHC 20**

Water temp.		in/out 55°C/45°C				in/out 60°C/40°C				in/out 80°C/60°C			
Air flow	Air in	Power	Air out	Water flow	Press. drop water	Power	Air out	Water flow	Press. drop water	Power	Air out	Water flow	Press. drop water
m <sup>3</sup> /h	°C	kW	°C	l/s	kPa	kW	°C	l/s	kPa	kW	°C	l/s	kPa
1300	+10	10,8	33,8	0,26	12	10,2	32,5	0,12	3	16,2	45,9	0,20	7
2000	+10	13,9	29,9	0,33	18	13,0	28,6	0,16	5	20,9	39,9	0,25	10
1300	+15	9,3	35,9	0,22	9	8,7	34,5	0,11	2	14,7	48,1	0,18	5
2000	+15	12,0	32,5	0,29	14	11,0	31,1	0,13	4	18,9	42,6	0,23	9
1300	+20	7,8	37,9	0,19	7	6,9	35,7	0,08	2	13,2	50,2	0,16	5
2000	+20	10,1	35,0	0,24	10	9,1	33,6	0,11	3	17,0	45,2	0,21	7

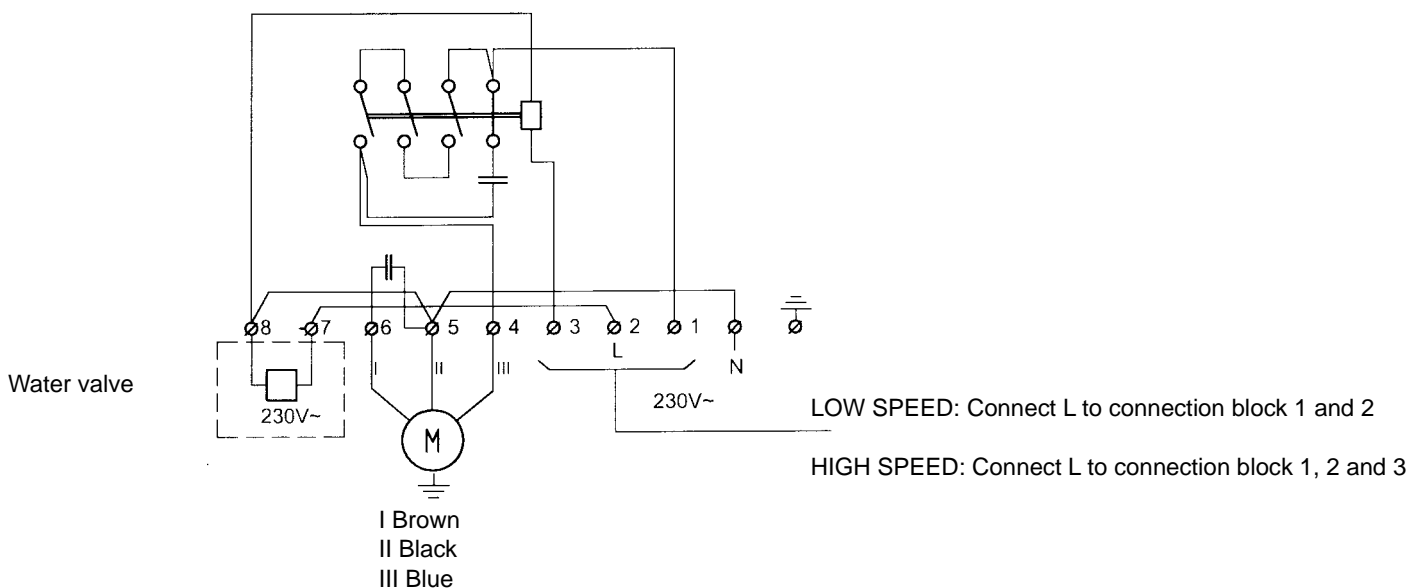
**Capacity FHC 40**

Water temp.		in/out 55°C/45°C				in/out 60°C/40°C				in/out 80°C/60°C			
Air flow	Air in	Power	Air out	Water flow	Press. drop water	Power	Air out	Water flow	Press. drop water	Power	Air out	Water flow	Press. drop water
m <sup>3</sup> /h	°C	kW	°C	l/s	kPa	kW	°C	l/s	kPa	kW	°C	l/s	kPa
2500	+10	21,3	34,5	0,51	11	20,2	33,2	0,24	3	32,1	46,9	0,39	6
3900	+10	27,7	30,4	0,67	17	26,0	29,1	0,31	4	41,7	41,7	0,51	10
2500	+15	18,4	36,5	0,44	8	17,3	35,2	0,21	2	29,2	<b>29,2</b>	0,36	5
3900	+15	23,9	32,9	0,58	13	22,2	31,6	0,27	3	37,8	<b>37,8</b>	0,46	8
2500	+20	15,5	38,5	0,38	6	13,6	36,2	0,16	1	26,2	<b>26,2</b>	0,32	4
3900	+20	20,2	35,4	0,49	10	18,4	34,0	0,22	2	34,0	<b>34,0</b>	0,41	7

# FHC 10-40 3-9137 utg.3

Appendix D

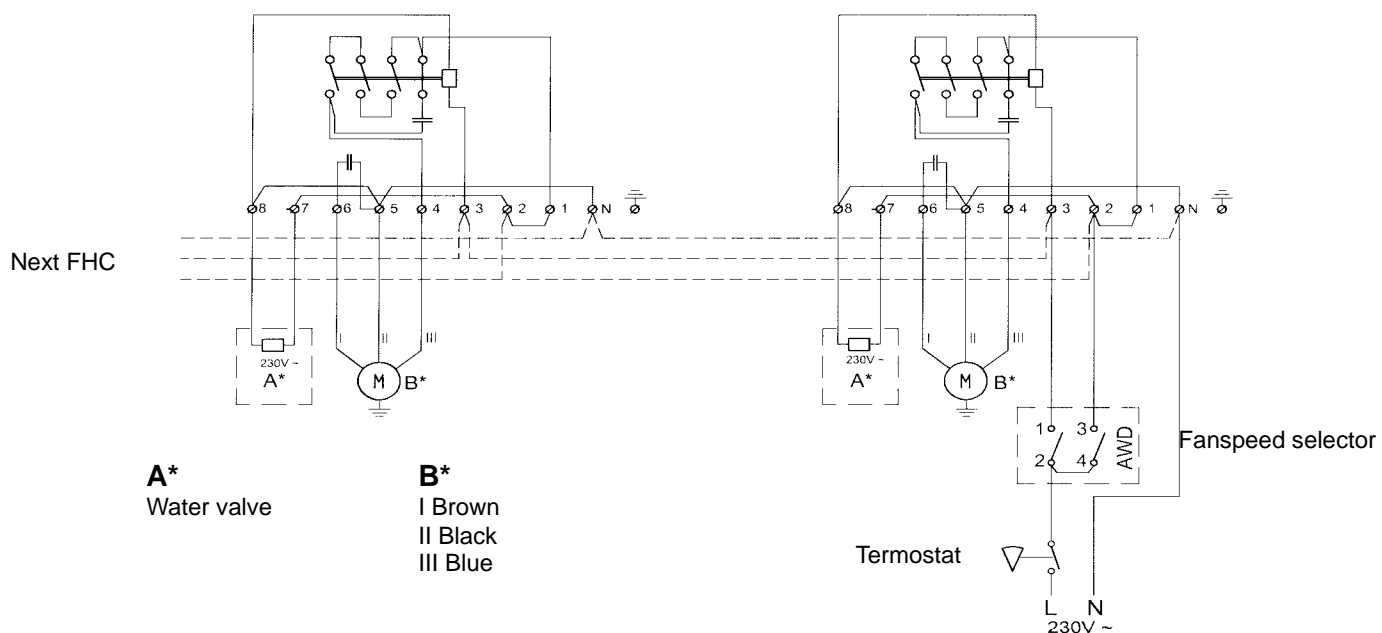
Wiring diagram



Appendix E

# FHC 10-40 3-9972 utg.3

Wiring diagram



**NB.** Systemair AB reserves the right to make changes and improvements to the contents of this manual without prior notice.

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