



Ceiling Air Conditioning Elegant ECM

TECHNICAL MANUAL



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INTRODUCTION

The Elegant Sabiana air conditioners allow, **at very economical cost**, to heat and cool small and medium size environments, like shops, show rooms, workshops, supermarkets.

The range provides 16 models:

- the **RE-ECM** version for heating only, provides 8 models
- the **PE-ECM** range for heating and cooling, provides 4 models
- the **SPE-ECM** range for heating and cooling, without condensate pump, provides 4 models

All models must be installed on the ceiling and supplied with water.

The range Elegant ECM uses an innovative brushless synchronous permanent magnet electric motor controlled by an inverter board that is directly installed on the unit.

The main advantages are:

- compact design
- constant speed characteristic
- high efficiency even at low rotational speeds
- continuously fan speed control
- lower power consumption
- lower noise levels

The intake of the air is from the bottom side of the unit and the air supply is from the 4 lateral grids which have individually controllable louvres for the best distribution of the air.

The connection to the battery can be made either from the upper or from the lateral side, in accordance to the installation with or without false ceiling.

The condensate drain is made through an electronically controlled micro-pump, supplied on every standard **PE-ECM** model.

Different remote controls of the air flow and of the room temperature are available and it is possible to control up to 8 units with only 1 remote control.

Beside the **low installation and running cost**, the Elegant Sabiana air conditioners offer the following advantages:

- they take a low amount of the valuable space in the room, there is not any ducting system and the walls are free
- they are versatile and provide flexibility of installation: also where there is no false ceiling it is possible to distribute the air evenly
- they provide easy control and are easily installed

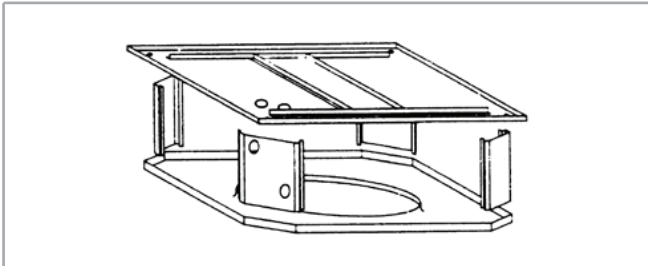


MAIN COMPONENTS

Casing

The casing includes 3 sections made of high quality cold-formed steel, designed to give greater strength to the surfaces. The casing is then phosphatised and finished with an epoxy-polyester powder coating dried at 180 °C, in white RAL 9016.

The casing is fitted with galvanized steel screws and so it is possible to quickly dismantle it for inspection when needed.

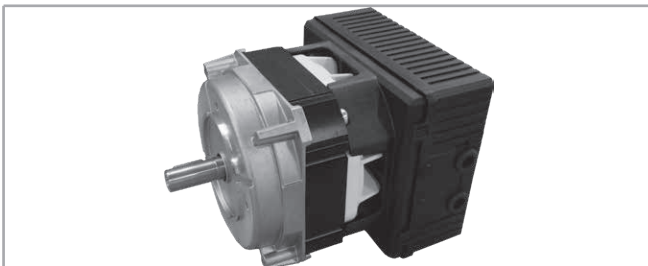


Electronic motor

Three phase permanent magnet brushless electronic motor.

The inverter board that controls the motor operation is powered by 230 Volt, single-phase and it generates a frequency modulated wave form power supply.

The electric power supply required for the machine is therefore single-phase with voltage of 230 - 240 V and frequency of 50 - 60 Hz.



Helicoidal fan

The fan is made with plastic blades. Its rational high-capacity profile provides the maximum air volume with the minimum energy consumption.

The fan hub is secured onto the motor shaft and it is protected by a safety guard.

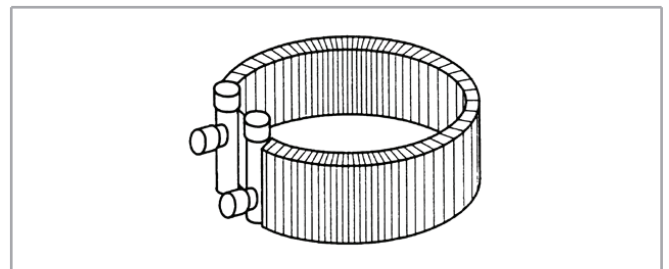


Heat exchanger

The heat exchanger has a circular shape and is built with wide-ranging copper tubes designed to minimize the pressure drop; equipped with aluminium fins shaped with a basic header that assures the perfect pipe adhesion; carbon steel headers. The supply and return connections have a female threading, 1" diameter, and they allow the connection either vertically from above or horizontally from a side.

The coil is supplied in two versions: with 1 row and with 2 rows.

The heat exchanger is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

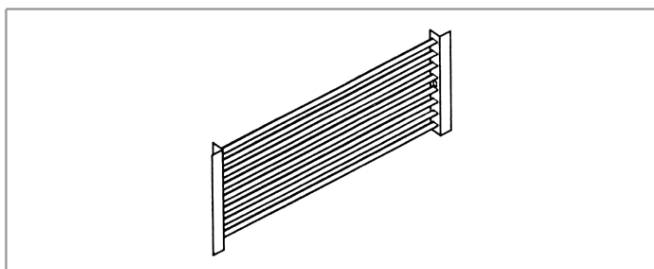


Outlet grids

The discharge of the air is obtained through 4 grids on the 4 lateral sides.

The grids are made of steel, painted with epoxy-polyester powder. They are made by a frame in which the louvres are individually adjustable.

It is very easy to take off these grids, allowing for easy maintenance of the battery and of the condensate tray.



Packaging

Every ELEGANT-SABIANA air conditioner is supplied in a robust cardboard box with the relevant installation and maintenance manual.

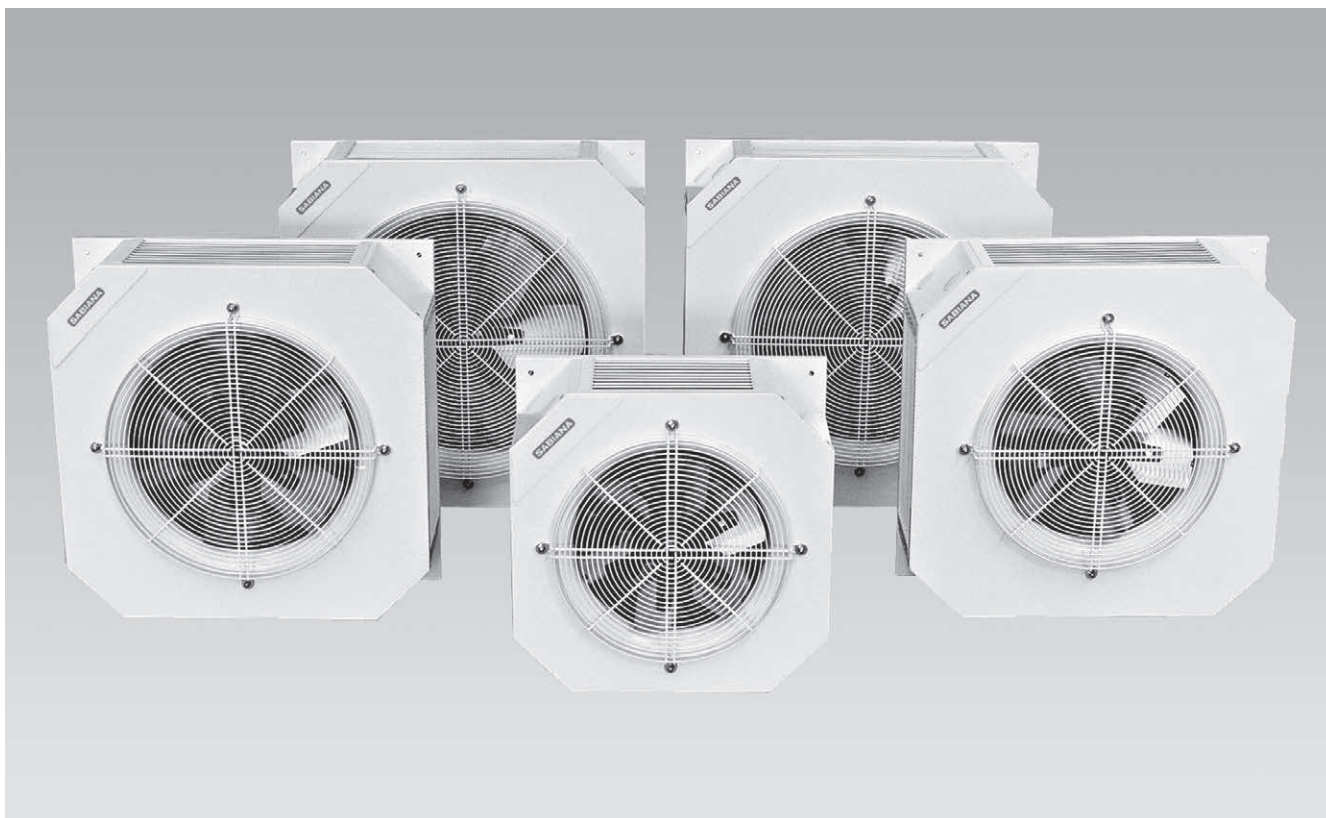
On the cardboard box is indicated the unit model.

Condensate micro-pump

The **PE-ECM** ELEGANT model for cooling is always supplied with an integral micropump (discharge head 3 m, water flow 6 l/h).

The pump is installed in the condensate collected tray. This pump controls the level of the condensate collected in the tray and eliminate it when necessary.

To prevent the pump from blocking and malfunctions in the condensate detection system, check that there are no significant quantities of oil in suspension and/or dust in the room being treated.



RE-ECM PERFORMANCE AND TECHNICAL CHARACTERISTICS

RE-ECM (heating only)

The following standard rating conditions are used:

HEATING

Entering air temperature: + 20 °C

Water temperature: +70/60 °C

MODEL		RE-ECM 11						RE-ECM 12					
Inverter power		5	6	7	8	9	10	5	6	7	8	9	10
Air flow	m ³ /h	1045	1265	1465	1635	1805	1890	1005	1215	1410	1570	1735	1820
Heating emission	kW	5,88	6,60	7,20	7,67	8,14	8,36	9,56	10,88	12,01	12,88	13,74	14,15
Dp Heating	kPa	11,2	13,8	16,2	18,1	20,2	21,1	6,9	8,8	10,5	11,9	13,3	14,1
Sound power (Lw)	dB(A)	44	48	52	54	56	57	44	48	52	54	56	57
Sound pressure (Lp) ⁽¹⁾	dB(A)	35	39	43	45	47	48	35	39	43	45	47	48
Sound pressure (Lp) ⁽²⁾	dB(A)	31	35	39	41	43	44	31	35	39	41	43	44
Motor power input	W	16	20	28	36	53	70	16	20	28	36	53	70

(1) Measurement performed at 3 meter from the source, room volume of 500 m³, reverberation period of 2 s, directional factor Q=2 (hemisphere sound emission)

(2) Measurement performed at 3 meter from the source, room volume of 1500 m³, reverberation period of 2 s, directional factor Q=2 (hemisphere sound emission)

MODEL		RE-ECM 21						RE-ECM 22					
Inverter power		5	6	7	8	9	10	5	6	7	8	9	10
Air flow	m ³ /h	1380	1645	1925	2175	2415	2600	1325	1580	1850	2090	2320	2500
Heating emission	kW	7,59	8,46	9,32	10,03	10,68	11,18	12,64	14,26	15,81	17,13	18,31	19,20
Dp Heating	kPa	7,9	9,6	11,4	13,0	14,6	15,9	13,0	16,2	19,5	22,5	25,4	27,7
Sound power (Lw)	dB(A)	48	51	54	57	60	62	48	51	54	57	60	62
Sound pressure (Lp) ⁽¹⁾	dB(A)	39	42	45	48	51	53	39	42	45	48	51	53
Sound pressure (Lp) ⁽²⁾	dB(A)	35	38	41	44	47	49	35	38	41	44	47	49
Motor power input	W	23	30	38	48	65	80	23	30	38	48	65	80

(1) Measurement performed at 3 meter from the source, room volume of 500 m³, reverberation period of 2 s, directional factor Q=2 (hemisphere sound emission)

(2) Measurement performed at 3 meter from the source, room volume of 1500 m³, reverberation period of 2 s, directional factor Q=2 (hemisphere sound emission)

MODEL		RE-ECM 31						RE-ECM 32					
Inverter power		5	6	7	8	9	10	5	6	7	8	9	10
Air flow	m ³ /h	1880	2245	2560	2890	3140	3180	1810	2160	2460	2780	3020	3060
Heating emission	kW	8,70	9,71	10,50	11,29	11,85	11,95	14,97	16,80	18,24	19,68	20,71	20,89
Dp Heating	kPa	10,5	12,7	14,7	16,7	18,2	18,5	14,2	17,5	20,2	23,2	25,4	25,8
Sound power (Lw)	dB(A)	50	53	56	59	61	61	50	53	56	59	61	61
Sound pressure (Lp) ⁽¹⁾	dB(A)	41	44	47	50	52	52	41	44	47	50	52	52
Sound pressure (Lp) ⁽²⁾	dB(A)	37	40	43	46	48	48	37	40	43	46	48	48
Motor power input	W	30	39	50	65	90	110	30	39	50	65	90	110

(1) Measurement performed at 3 meter from the source, room volume of 500 m³, reverberation period of 2 s, directional factor Q=2 (hemisphere sound emission)

(2) Measurement performed at 3 meter from the source, room volume of 1500 m³, reverberation period of 2 s, directional factor Q=2 (hemisphere sound emission)

MODEL		RE-ECM 41						RE-ECM 42					
Inverter power		5	6	7	8	9	10	5	6	7	8	9	10
Air flow	m ³ /h	2475	3090	3515	3995	4450	4680	2380	2970	3380	3840	4280	4500
Heating emission	kW	10,40	11,84	12,75	13,72	14,57	14,99	17,49	20,08	21,71	23,44	25,00	25,73
Dp Heating	kPa	6,4	8,1	9,2	10,5	11,7	12,4	4,8	6,2	7,1	8,2	9,2	9,7
Sound power (Lw)	dB(A)	47	51	54	57	59	60	47	51	54	57	59	60
Sound pressure (Lp) ⁽¹⁾	dB(A)	38	42	45	48	50	51	38	42	45	48	50	51
Sound pressure (Lp) ⁽²⁾	dB(A)	34	38	41	44	46	47	34	38	41	44	46	47
Motor power input	W	40	65	100	125	155	174	40	65	100	125	155	174

(1) Measurement performed at 3 meter from the source, room volume of 500 m³, reverberation period of 2 s, directional factor Q=2 (hemisphere sound emission)

(2) Measurement performed at 3 meter from the source, room volume of 1500 m³, reverberation period of 2 s, directional factor Q=2 (hemisphere sound emission)

PE-ECM / SPE-ECM PERFORMANCE AND TECHNICAL CHARACTERISTICS

PE-ECM (heating and cooling)

The following standard rating conditions are used:

COOLING

Entering air temperature: + 27 °C b.s., 50% Ur

Water temperature: +7/12 °C

HEATING

Entering air temperature: + 20 °C

Water temperature: +70/60 °C

MODEL		PE-ECM / SPE-ECM 12						PE-ECM / SPE-ECM 22					
		5	6	7	8	9	10	5	6	7	8	9	10
Inverter power													
Air flow	m ³ /h	1005	1215	1410	1570	1735	1820	1325	1580	1850	2090	2320	2500
Cooling total emission	kW	3,89	4,30	4,65	4,80	5,17	5,20	5,31	5,83	6,33	6,74	7,13	7,38
Cooling sensible emission	kW	3,14	3,58	3,98	4,23	4,61	4,71	4,14	4,68	5,22	5,68	6,12	6,44
Heating emission	kW	9,56	10,88	12,01	12,88	13,74	14,15	12,64	14,26	15,81	17,13	18,31	19,20
Dp Cooling	kPa	6,3	7,6	8,8	9,3	10,6	10,7	12,7	15,0	17,4	19,4	21,5	22,9
Dp Heating	kPa	6,9	8,8	10,5	11,9	13,3	14,1	13,0	16,2	19,5	22,5	25,4	27,7
Sound power (Lw)	dB(A)	44	48	52	54	56	57	48	51	54	57	60	62
Sound pressure (Lp) ⁽¹⁾	dB(A)	35	39	43	45	47	48	39	42	45	48	51	53
Sound pressure_ (Lp) ⁽²⁾	dB(A)	31	35	39	41	43	44	35	38	41	44	47	49
Motor power input	W	16	20	28	36	53	70	23	30	38	48	65	80
Condensate drain pump power absorption	W	16	16	16	16	16	16	16	16	16	16	16	16

(1) Measurement performed at 3 meter from the source, room volume of 500 m³, reverberation period of 2 s, directional factor Q=2 (hemisphere sound emission)

(2) Measurement performed at 3 meter from the source, room volume of 1500 m³, reverberation period of 2 s, directional factor Q=2 (hemisphere sound emission)

MODEL		PE-ECM / SPE-ECM 32						PE-ECM / SPE-ECM 42					
		5	6	7	8	9	10	5	6	7	8	9	10
Inverter power													
Air flow	m ³ /h	1810	2160	2460	2780	3020	3060	2380	2970	3380	3840	4280	4500
Cooling total emission	kW	6,43	7,01	7,51	7,99	8,41	8,52	7,19	8,09	8,84	9,32	9,83	10,07
Cooling sensible emission	kW	5,21	5,87	6,44	7,02	7,50	7,60	6,40	7,53	8,40	9,15	9,83	10,07
Heating emission	kW	14,97	16,80	18,24	19,68	20,71	20,89	17,49	20,08	21,71	23,44	25,00	25,73
Dp Cooling	kPa	16,3	19,0	21,5	24,1	26,4	27,0	7,6	9,4	11,0	12,1	13,4	14,0
Dp Heating	kPa	14,2	17,5	20,2	23,2	25,4	25,8	4,8	6,2	7,1	8,2	9,2	9,7
Sound power (Lw)	dB(A)	50	53	56	59	61	61	47	51	54	57	59	60
Sound pressure (Lp) ⁽¹⁾	dB(A)	41	44	47	50	52	52	38	42	45	48	50	51
Sound pressure_ (Lp) ⁽²⁾	dB(A)	37	40	43	46	48	48	34	38	41	44	46	47
Motor power input	W	30	39	50	65	90	110	40	65	100	125	155	174
Condensate drain pump power absorption	W	16	16	16	16	16	16	16	16	16	16	16	16

(1) Measurement performed at 3 meter from the source, room volume of 500 m³, reverberation period of 2 s, directional factor Q=2 (hemisphere sound emission)

(2) Measurement performed at 3 meter from the source, room volume of 1500 m³, reverberation period of 2 s, directional factor Q=2 (hemisphere sound emission)

PE-ECM / SPE-ECM COOLING EMISSION

PE-ECM / SPE-ECM unit

Entering air temperature: +28 °C – R.H.: 55%

Model	Vdc	WT: 7 / 12 °C					WT: 8 / 13 °C					WT: 10 / 15 °C					WT: 12 / 17 °C				
		Qv m ³ /h	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa			
PE-ECM / SPE-ECM 12	10	1820	6,55	4,61	1126	16,2	5,91	4,39	1017	13,4	4,67	4,15	803	8,7	3,81	3,81	655	6,0			
	9	1735	6,41	4,48	1103	15,6	5,79	4,26	996	12,9	4,61	4,03	792	8,5	3,71	3,71	638	5,7			
	8	1570	6,11	4,21	1051	14,3	5,52	4,00	950	11,9	4,42	3,78	761	7,9	3,52	3,52	605	5,2			
	7	1410	5,80	3,94	997	13,0	5,25	3,74	902	10,8	4,20	3,51	723	7,2	3,32	3,32	571	4,7			
	6	1215	5,57	3,69	957	12,1	4,86	3,40	837	9,5	3,90	3,16	672	6,3	3,06	3,06	526	4,0			
	5	1005	4,86	3,17	835	9,5	4,41	3,01	759	7,9	3,61	2,80	620	5,5	2,75	2,65	473	3,3			
PE-ECM / SPE-ECM 22	10	2500	9,11	6,32	1567	33,4	8,27	6,02	1422	27,9	6,65	5,67	1144	18,7	5,33	5,33	917	12,5			
	9	2320	8,80	6,05	1514	31,4	7,99	5,75	1374	26,2	6,41	5,38	1103	17,5	5,13	5,13	882	11,6			
	8	2090	8,36	5,66	1438	28,6	7,60	5,39	1307	24,0	6,10	5,00	1049	16,0	4,85	4,85	834	10,5			
	7	1850	7,87	5,25	1354	25,7	7,15	4,99	1230	21,5	6,14	4,82	1056	16,2	4,57	4,51	787	9,4			
	6	1580	7,26	4,76	1248	22,2	6,61	4,52	1137	18,7	5,29	4,11	910	12,4	4,15	3,98	714	7,9			
	5	1325	6,61	4,25	1137	18,8	6,04	4,04	1038	15,9	4,82	3,64	829	10,5	3,77	3,49	649	6,7			
PE-ECM / SPE-ECM 32	10	3060	10,29	7,29	1770	38,0	9,34	6,96	1607	31,7	7,89	6,83	1358	23,2	6,09	6,09	1048	14,4			
	9	3020	10,22	7,22	1757	37,5	9,27	6,89	1594	31,3	7,56	6,60	1301	21,5	6,05	6,05	1041	14,3			
	8	2780	9,85	6,88	1694	35,1	8,92	6,55	1535	29,2	7,23	6,20	1244	19,8	5,79	5,79	995	13,2			
	7	2460	9,34	6,40	1606	31,9	8,44	6,07	1451	26,4	6,78	5,67	1166	17,6	5,43	5,43	933	11,7			
	6	2160	8,73	5,89	1502	28,3	7,93	5,60	1364	23,6	6,36	5,18	1094	15,7	5,07	5,07	871	10,4			
	5	1810	8,00	5,28	1375	24,1	7,27	5,02	1251	20,2	5,82	4,58	1001	13,4	4,61	4,47	793	8,7			
PE-ECM / SPE-ECM 42	10	4500	12,13	9,33	2087	19,5	10,92	8,91	1878	16,1	9,02	9,02	1552	11,3	7,37	7,37	1267	7,8			
	9	4280	11,90	9,06	2047	18,9	10,68	8,64	1837	15,4	8,81	8,73	1516	10,8	7,17	7,17	1234	7,4			
	8	3840	11,34	8,48	1950	17,3	10,22	8,10	1758	14,3	8,30	8,03	1428	9,7	6,78	6,78	1167	6,7			
	7	3380	10,78	7,88	1854	15,8	9,66	7,48	1661	12,9	7,86	7,36	1352	8,8	6,34	6,34	1090	5,9			
	6	2970	10,10	7,25	1738	14,0	9,11	6,90	1568	11,6	7,37	6,70	1267	7,8	5,91	5,91	1017	5,2			
	5	2380	9,11	6,33	1567	11,6	8,24	6,02	1417	9,7	6,62	5,73	1139	6,5	5,25	5,25	903	4,2			

WT: Water temperature
Vdc: Inverter power
Qv: Air flow
Pc: Cooling total emission
Ps: Cooling sensible emission
Qw: Water flow rate
Dp(c): Dp Cooling

PE-ECM / SPE-ECM unit

Entering air temperature: +27 °C – R.H.: 55%

Model	Vdc	WT: 7 / 12 °C					WT: 8 / 13 °C					WT: 10 / 15 °C				WT: 12 / 17 °C			
		Qv m³/h	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	
PE-ECM / SPE-ECM 12	10	1820	5,86	4,38	1008	13,3	5,27	4,21	907	10,9	4,25	4,16	731	7,4	3,38	3,38	581	4,8	
	9	1735	5,74	4,26	987	12,8	5,14	4,07	884	10,4	4,14	4,01	713	7,0	3,29	3,29	566	4,6	
	8	1570	5,44	3,98	936	11,6	4,87	3,79	837	9,5	3,94	3,73	679	6,4	3,11	3,11	535	4,2	
	7	1410	5,20	3,74	894	10,7	4,65	3,54	800	8,7	3,77	3,48	649	5,9	2,93	2,93	504	3,7	
	6	1215	4,82	3,40	829	9,3	4,33	3,23	745	7,7	3,44	3,09	591	5,0	2,68	2,68	462	3,2	
	5	1005	4,36	3,01	750	7,8	3,92	2,85	674	6,4	3,10	2,69	533	4,2	2,40	2,40	413	2,6	
PE-ECM / SPE-ECM 22	10	2500	8,20	6,03	1411	27,7	7,34	5,72	1263	22,6	5,94	5,62	1022	15,3	4,74	4,74	815	10,1	
	9	2320	7,91	5,75	1360	25,9	7,14	5,48	1227	21,4	5,72	5,33	984	14,3	4,55	4,55	783	9,4	
	8	2090	7,53	5,40	1295	23,7	6,76	5,11	1162	19,4	5,43	4,95	935	13,0	4,29	4,29	738	8,4	
	7	1850	7,09	5,00	1219	21,3	6,37	4,73	1096	17,5	5,09	4,52	876	11,6	4,01	4,01	689	7,4	
	6	1580	6,54	4,52	1125	18,4	6,02	4,35	1035	15,8	4,68	4,03	804	9,9	3,66	3,66	630	6,3	
	5	1325	5,96	4,04	1025	15,6	5,37	3,82	924	12,9	4,25	3,55	731	8,4	3,31	3,31	569	5,3	
PE-ECM / SPE-ECM 32	10	3060	9,26	6,95	1592	31,4	8,33	6,63	1433	25,8	6,76	6,59	1163	17,6	5,43	5,43	934	11,7	
	9	3020	9,21	6,90	1583	31,1	8,25	6,55	1419	25,4	6,70	6,52	1153	17,3	5,40	5,40	928	11,6	
	8	2780	8,86	6,55	1524	29,0	7,95	6,23	1368	23,8	6,40	6,12	1102	15,9	5,16	5,16	887	10,7	
	7	2460	8,43	6,12	1451	26,5	7,51	5,77	1292	21,4	6,05	5,62	1041	14,4	4,81	4,81	828	9,5	
	6	2160	7,85	5,60	1351	23,3	7,06	5,31	1214	19,2	5,66	5,11	973	12,8	4,48	4,48	770	8,3	
	5	1810	7,20	5,02	1238	20,0	6,48	4,75	1114	16,4	5,17	4,51	889	10,8	4,06	4,06	698	7,0	
PE-ECM / SPE-ECM 42	10	4500	10,84	8,90	1864	15,9	9,88	8,94	1699	13,4	8,14	8,14	1399	9,4	6,60	6,60	1135	6,4	
	9	4280	10,62	8,63	1827	15,4	9,65	8,63	1660	12,9	7,94	7,94	1365	9,0	6,42	6,42	1105	6,1	
	8	3840	10,14	8,08	1745	14,1	9,15	7,98	1575	11,7	7,51	7,51	1292	8,1	6,06	6,06	1042	5,5	
	7	3380	9,60	7,48	1650	12,8	8,66	7,32	1489	10,6	7,05	7,05	1213	7,2	5,65	5,65	971	4,8	
	6	2970	9,06	6,91	1558	11,5	8,13	6,69	1398	9,4	6,54	6,54	1125	6,3	5,26	5,26	904	4,2	
	5	2380	8,17	6,02	1405	9,6	7,32	5,75	1259	7,8	5,91	5,66	1017	5,3	4,65	4,65	799	3,4	

WT: Water temperature
Vdc: Inverter power
Qv: Air flow
Pc: Cooling total emission
Ps: Cooling sensible emission
Qw: Water flow rate
Dp(c): Dp Cooling

PE-ECM / SPE-ECM unit

Entering air temperature: +26 °C – R.H.: 50%

Model	Vdc	WT: 7 / 12 °C					WT: 8 / 13 °C					WT: 10 / 15 °C					WT: 12 / 17 °C				
		Qv m³/h	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa			
PE-ECM / SPE-ECM 12	10	1820	5,23	4,20	899	10,8	4,71	4,16	811	8,9	3,79	3,79	652	6,0	2,99	2,99	515	3,9			
	9	1735	5,12	4,07	881	10,4	4,60	4,02	791	8,5	3,69	3,69	635	5,7	2,91	2,91	500	3,7			
	8	1570	4,86	3,79	836	9,5	4,38	3,76	754	7,8	3,50	3,50	602	5,2	2,75	2,75	473	3,3			
	7	1410	4,62	3,55	795	8,7	4,05	3,43	696	6,8	3,30	3,30	567	4,6	2,58	2,58	444	3,0			
	6	1215	4,28	3,22	737	7,6	3,91	3,18	673	6,4	3,04	3,02	522	4,0	2,36	2,36	406	2,5			
	5	1005	3,88	2,85	668	6,3	3,60	2,82	619	5,5	2,73	2,62	469	3,3	2,10	2,10	361	2,0			
PE-ECM / SPE-ECM 22	10	2500	7,31	5,72	1257	22,5	6,57	5,62	1131	18,5	5,31	5,31	914	12,5	4,20	4,20	723	8,1			
	9	2320	7,05	5,46	1213	21,1	6,30	5,31	1083	17,1	5,10	5,10	877	11,6	4,03	4,03	693	7,5			
	8	2090	6,72	5,12	1156	19,3	6,05	4,98	1040	15,9	4,82	4,82	829	10,5	3,79	3,79	652	6,7			
	7	1850	6,33	4,74	1089	17,4	5,66	4,57	974	14,1	4,52	4,45	777	9,3	3,53	3,53	607	5,9			
	6	1580	5,98	4,37	1029	15,7	5,28	4,14	909	12,5	4,13	3,95	711	7,9	3,22	3,22	553	5,0			
	5	1325	5,32	3,82	915	12,7	4,75	3,63	817	10,3	3,75	3,47	645	6,7	2,89	2,89	497	4,1			
PE-ECM / SPE-ECM 32	10	3060	8,24	6,60	1418	25,5	7,50	6,58	1290	21,4	6,06	6,06	1042	14,4	4,84	4,84	832	9,5			
	9	3020	8,21	6,55	1412	25,3	7,42	6,50	1276	21,0	6,02	6,02	1035	14,2	4,80	4,80	826	9,4			
	8	2780	7,90	6,22	1359	23,6	7,13	6,14	1226	19,5	5,76	5,76	991	13,2	4,58	4,58	788	8,6			
	7	2460	7,47	5,77	1285	21,3	6,70	5,63	1153	17,5	5,39	5,39	927	11,7	4,27	4,27	735	7,6			
	6	2160	7,02	5,32	1207	19,1	6,29	5,15	1082	15,6	5,03	5,03	866	10,3	3,96	3,96	681	6,7			
	5	1810	6,43	4,76	1107	16,3	5,76	4,57	991	13,3	4,58	4,42	787	8,7	3,57	3,57	614	5,5			
PE-ECM / SPE-ECM 42	10	4500	9,83	8,90	1691	33,4	8,93	8,93	1537	31,2	7,33	7,33	1260	17,8	5,91	5,91	1017	10,2			
	9	4280	9,60	8,59	1652	32,8	8,73	8,63	1502	30,7	7,14	7,14	1227	17,4	5,75	5,75	989	10,0			
	8	3840	9,11	7,96	1567	31,7	8,29	7,98	1425	29,8	6,74	6,74	1160	16,7	5,40	5,40	929	9,4			
	7	3380	8,61	7,30	1480	30,5	7,78	7,28	1338	28,7	6,30	6,30	1084	15,9	5,02	5,02	864	8,9			
	6	2970	8,09	6,68	1391	29,4	7,30	6,64	1255	27,8	5,88	5,88	1011	15,2	4,66	4,66	802	8,4			
	5	2380	7,25	5,74	1248	27,7	6,54	5,68	1124	26,4	5,22	5,22	897	14,2	4,10	4,10	705	7,7			

- WT:** Water temperature
- Vdc:** Inverter power
- Qv:** Air flow
- Pc:** Cooling total emission
- Ps:** Cooling sensible emission
- Qw:** Water flow rate
- Dp(c):** Dp Cooling

RE-ECM HEATING EMISSION

RE-ECM 1 row unit

Entering air temperature: +20 °C

Model	Vdc	WT: 80 / 70 °C			WT: 75 / 65 °C			WT: 70 / 60 °C			WT: 65 / 55 °C			WT: 60 / 50 °C			WT: 55 / 45 °C			
		Qv m ³ /h	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa
RE-ECM 11	10	1890	10,38	893	30,2	9,36	805	25,5	8,36	719	21,1	7,35	632	17,1	6,35	546	13,3	5,35	460	10,0
	9	1805	10,09	868	28,7	9,12	784	24,3	8,14	700	20,2	7,16	615	16,3	6,18	532	12,7	5,20	448	9,5
	8	1635	9,51	818	25,8	8,60	740	21,9	7,67	660	18,1	6,76	581	14,7	5,84	502	11,5	4,91	422	8,5
	7	1465	8,91	767	23,0	8,06	694	19,5	7,20	619	16,2	6,34	545	13,1	5,47	470	10,2	4,61	396	7,6
	6	1265	8,17	703	19,6	7,39	635	16,6	6,60	568	13,8	5,81	500	11,2	5,02	432	8,7	4,24	364	6,5
	5	1045	7,28	626	16,0	6,58	566	13,5	5,88	506	11,2	5,18	446	9,1	4,49	386	7,1	3,78	325	5,3
RE-ECM 21	10	2600	13,85	1191	22,6	12,51	1075	19,1	11,18	961	15,9	9,83	845	12,8	8,48	729	10,0	7,14	614	7,4
	9	2415	13,24	1139	20,8	11,96	1029	17,6	10,68	918	14,6	9,40	808	11,8	8,12	698	9,2	6,82	587	6,9
	8	2175	12,44	1070	18,6	11,23	966	15,7	10,03	862	13,0	8,83	760	10,6	7,62	656	8,2	6,42	552	6,2
	7	1925	11,54	993	16,3	10,44	898	13,8	9,32	801	11,4	8,20	705	9,2	7,09	610	7,2	5,97	513	5,4
	6	1645	10,49	902	13,7	9,47	814	11,6	8,46	728	9,6	7,46	641	7,8	6,45	554	6,1	5,43	467	4,6
	5	1380	9,39	807	11,2	8,49	730	9,5	7,59	652	7,9	6,68	575	6,4	5,78	497	5,0	4,87	419	3,7
RE-ECM 31	10	3180	14,81	1273	26,4	13,37	1150	22,3	11,95	1028	18,5	10,52	905	15,0	9,08	781	11,7	7,63	656	8,7
	9	3140	14,71	1265	26,1	13,29	1143	22,1	11,85	1019	18,2	10,43	897	14,7	9,01	774	11,5	7,57	651	8,6
	8	2890	14,00	1204	23,8	12,65	1088	20,2	11,29	971	16,7	9,93	854	13,5	8,57	737	10,5	7,22	621	7,9
	7	2560	13,03	1121	21,0	11,76	1011	17,7	10,50	903	14,7	9,24	795	11,9	7,98	686	9,3	6,72	578	6,9
	6	2245	12,02	1034	18,1	10,86	934	15,3	9,71	835	12,7	8,54	734	10,3	7,38	635	8,0	6,21	534	6,0
	5	1880	10,77	926	14,9	9,74	837	12,6	8,70	748	10,5	7,66	659	8,5	6,63	570	6,6	5,58	480	5,0
RE-ECM 41	10	4680	18,71	1609	17,8	16,85	1449	15,0	14,99	1289	12,4	13,13	1129	9,9	11,29	971	7,7	9,43	811	5,7
	9	4450	18,18	1564	17,0	16,38	1409	14,3	14,57	1253	11,7	12,78	1099	9,4	10,98	944	7,3	9,19	790	5,4
	8	3995	17,11	1471	15,2	15,39	1324	12,8	13,72	1180	10,5	12,03	1035	8,5	10,34	890	6,6	8,65	744	4,8
	7	3515	15,88	1366	13,3	14,32	1232	11,2	12,75	1096	9,2	11,19	962	7,4	9,62	827	5,8	8,05	693	4,3
	6	3090	14,75	1269	11,6	13,30	1144	9,8	11,84	1018	8,1	10,38	893	6,5	8,94	769	5,1	7,49	644	3,7
	5	2475	12,94	1113	9,2	11,66	1003	7,7	10,40	894	6,4	9,12	784	5,1	7,85	675	4,0	6,58	566	3,0

WT: Water temperature
Vdc: Inverter power
Qv: Air flow
Ph: Heating emission
Qw: Water flow rate
Dp(h): Dp Heating

RE-ECM HEATING EMISSION

RE-ECM 2 row unit

Entering air temperature: +20 °C

Model	Vdc	WT: 70 / 60 °C				WT: 60 / 50 °C			WT: 55 / 45 °C			WT: 50 / 45 °C			WT: 50 / 40 °C		
		Qv m ³ /h	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa
RE-ECM 12	10	1820	14,15	1217	14,1	10,77	927	8,9	9,07	780	6,6	8,64	1486	21,4	7,37	634	4,7
	9	1735	13,74	1181	13,3	10,45	899	8,4	8,81	757	6,3	8,39	1443	20,3	7,16	615	4,4
	8	1570	12,88	1108	11,9	9,81	844	7,5	8,28	712	5,6	7,86	1352	18,0	6,72	578	3,9
	7	1410	12,01	1033	10,5	9,16	788	6,6	7,72	664	5,0	7,33	1261	15,9	6,29	541	3,5
	6	1215	10,88	936	8,8	8,31	715	5,6	7,01	603	4,2	6,63	1140	13,3	5,72	492	2,9
	5	1005	9,56	823	6,9	7,31	629	4,4	6,18	532	3,3	5,83	1003	10,5	5,05	434	2,4
RE-ECM 22	10	2500	19,20	1651	27,7	14,67	1261	17,6	12,40	1067	13,3	11,71	2014	42,1	10,13	871	9,4
	9	2320	18,31	1575	25,4	14,01	1205	16,2	11,84	1019	12,2	11,17	1921	38,6	9,67	832	8,6
	8	2090	17,13	1473	22,5	13,11	1128	14,4	11,09	954	10,9	10,45	1797	34,3	9,06	779	7,7
	7	1850	15,81	1360	19,5	12,12	1042	12,5	10,26	883	9,4	9,65	1660	29,7	8,40	722	6,7
	6	1580	14,26	1226	16,2	10,93	940	10,4	9,25	796	7,8	8,68	1493	24,5	7,58	652	5,6
	5	1325	12,64	1087	13,0	9,70	835	8,4	8,23	708	6,3	7,70	1324	19,8	6,76	581	4,5
RE-ECM 32	10	3060	20,89	1796	25,8	15,95	1371	16,4	13,48	1159	12,4	12,74	2191	39,3	11,00	946	8,7
	9	3020	20,71	1781	25,4	15,82	1360	16,2	13,37	1150	12,2	12,65	2176	38,8	10,91	938	8,6
	8	2780	19,68	1693	23,2	15,03	1293	14,8	12,71	1093	11,1	12,01	2066	35,3	10,39	893	7,9
	7	2460	18,24	1569	20,2	13,95	1200	12,9	11,80	1014	9,7	11,13	1914	30,8	9,64	829	6,9
	6	2160	16,80	1445	17,5	12,84	1105	11,1	10,87	934	8,4	10,24	1761	26,5	8,89	764	6,0
	5	1810	14,97	1287	14,2	11,48	987	9,1	9,72	836	6,9	9,13	1570	21,6	7,96	685	4,9
RE-ECM 42	10	4500	25,73	2213	9,7	19,49	1676	6,1	16,36	1407	4,5	15,73	2706	14,8	13,22	1137	3,1
	9	4280	25,00	2150	9,2	18,93	1628	5,8	15,88	1365	4,3	15,27	2626	14,0	12,85	1105	3,0
	8	3840	23,44	2016	8,2	17,77	1528	5,2	14,93	1284	3,8	14,33	2465	12,5	12,08	1039	2,7
	7	3380	21,71	1867	7,1	16,46	1416	4,5	13,84	1190	3,3	13,28	2284	10,9	11,21	964	2,3
	6	2970	20,08	1727	6,2	15,24	1311	3,9	12,81	1102	2,9	12,25	2107	9,4	10,38	893	2,0
	5	2380	17,49	1505	4,8	13,29	1143	3,1	11,19	963	2,3	10,67	1835	7,4	9,09	782	1,6

WT: Water temperature
Vdc: Inverter power
Qv: Air flow
Ph: Heating emission
Qw: Water flow rate
Dp(h): Dp Heating

PE-ECM / SPE-ECM HEATING EMISSION

PE-ECM / SPE-ECM 2 row unit

Entering air temperature: +20 °C

Model	Vdc	WT: 70 / 60 °C				WT: 60 / 50 °C			WT: 55 / 45 °C			WT: 50 / 45 °C			WT: 50 / 40 °C		
		Qv m ³ /h	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa	Ph kW	Qw l/h	Dp(h) kPa
PE-ECM / SPE-ECM 12	10	1820	14,15	1217	14,1	10,77	927	8,9	9,07	780	6,6	8,64	1486	21,4	7,37	634	4,7
	9	1735	13,74	1181	13,3	10,45	899	8,4	8,81	757	6,3	8,39	1443	20,3	7,16	615	4,4
	8	1570	12,88	1108	11,9	9,81	844	7,5	8,28	712	5,6	7,86	1352	18,0	6,72	578	3,9
	7	1410	12,01	1033	10,5	9,16	788	6,6	7,72	664	5,0	7,33	1261	15,9	6,29	541	3,5
	6	1215	10,88	936	8,8	8,31	715	5,6	7,01	603	4,2	6,63	1140	13,3	5,72	492	2,9
	5	1005	9,56	823	6,9	7,31	629	4,4	6,18	532	3,3	5,83	1003	10,5	5,05	434	2,4
PE-ECM / SPE-ECM 22	10	2500	19,20	1651	27,7	14,67	1261	17,6	12,40	1067	13,3	11,71	2014	42,1	10,13	871	9,4
	9	2320	18,31	1575	25,4	14,01	1205	16,2	11,84	1019	12,2	11,17	1921	38,6	9,67	832	8,6
	8	2090	17,13	1473	22,5	13,11	1128	14,4	11,09	954	10,9	10,45	1797	34,3	9,06	779	7,7
	7	1850	15,81	1360	19,5	12,12	1042	12,5	10,26	883	9,4	9,65	1660	29,7	8,40	722	6,7
	6	1580	14,26	1226	16,2	10,93	940	10,4	9,25	796	7,8	8,68	1493	24,5	7,58	652	5,6
	5	1325	12,64	1087	13,0	9,70	835	8,4	8,23	708	6,3	7,70	1324	19,8	6,76	581	4,5
PE-ECM / SPE-ECM 32	10	3060	20,89	1796	25,8	15,95	1371	16,4	13,48	1159	12,4	12,74	2191	39,3	11,00	946	8,7
	9	3020	20,71	1781	25,4	15,82	1360	16,2	13,37	1150	12,2	12,65	2176	38,8	10,91	938	8,6
	8	2780	19,68	1693	23,2	15,03	1293	14,8	12,71	1093	11,1	12,01	2066	35,3	10,39	893	7,9
	7	2460	18,24	1569	20,2	13,95	1200	12,9	11,80	1014	9,7	11,13	1914	30,8	9,64	829	6,9
	6	2160	16,80	1445	17,5	12,84	1105	11,1	10,87	934	8,4	10,24	1761	26,5	8,89	764	6,0
	5	1810	14,97	1287	14,2	11,48	987	9,1	9,72	836	6,9	9,13	1570	21,6	7,96	685	4,9
PE-ECM / SPE-ECM 42	10	4500	25,73	2213	9,7	19,49	1676	6,1	16,36	1407	4,5	15,73	2706	14,8	13,22	1137	3,1
	9	4280	25,00	2150	9,2	18,93	1628	5,8	15,88	1365	4,3	15,27	2626	14,0	12,85	1105	3,0
	8	3840	23,44	2016	8,2	17,77	1528	5,2	14,93	1284	3,8	14,33	2465	12,5	12,08	1039	2,7
	7	3380	21,71	1867	7,1	16,46	1416	4,5	13,84	1190	3,3	13,28	2284	10,9	11,21	964	2,3
	6	2970	20,08	1727	6,2	15,24	1311	3,9	12,81	1102	2,9	12,25	2107	9,4	10,38	893	2,0
	5	2380	17,49	1505	4,8	13,29	1143	3,1	11,19	963	2,3	10,67	1835	7,4	9,09	782	1,6

WT: Water temperature
Vdc: Inverter power
Qv: Air flow
Ph: Heating emission
Qw: Water flow rate
Dp(h): Dp Heating

OPERATING LIMITS

Description		UoM	Value
Water flow	Coil maximum working pressure	bars	10
		kPa	1000
	Coil test pressure	bars	22
	Lowest water inlet temperature	°C	+6
	Highest water inlet temperature	°C	+85
Power supply	Single-phase rated operating voltage	V/Hz	230/50

Electrical data - max. absorption

Model		RE-ECM 1	RE-ECM 2	RE-ECM 3	RE-ECM 4
Rating	W	70	80	110	174
Current absorbed	A	0,6	0,7	0,9	1,4

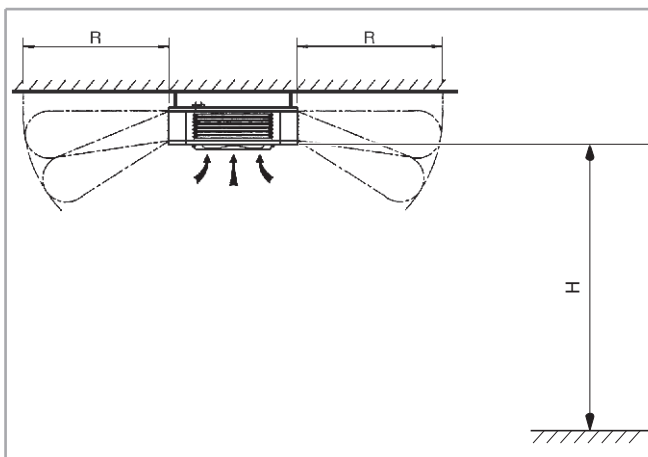
Model		PE-ECM 1	PE-ECM 2	PE-ECM 3	PE-ECM 4
Rating	W	86	96	126	190
Current absorbed	A	0,7	0,8	1,0	1,5

Model		SPE-ECM 1	SPE-ECM 2	SPE-ECM 3	SPE-ECM 4
Rating	W	70	80	110	174
Current absorbed	A	0,6	0,7	0,9	1,4

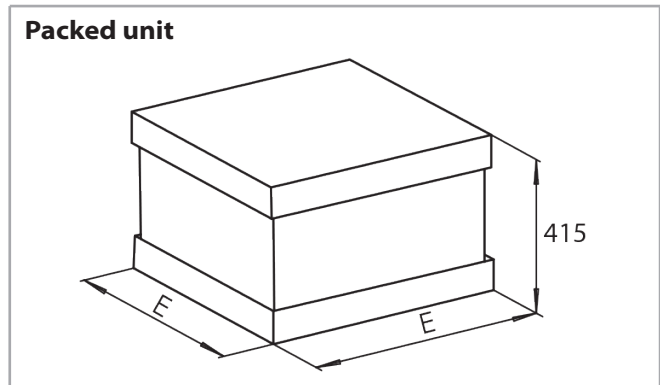
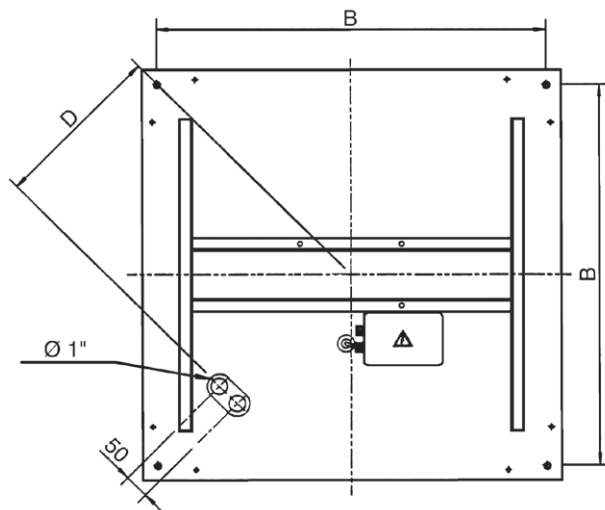
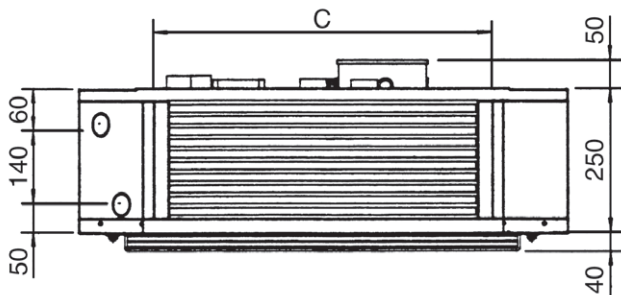
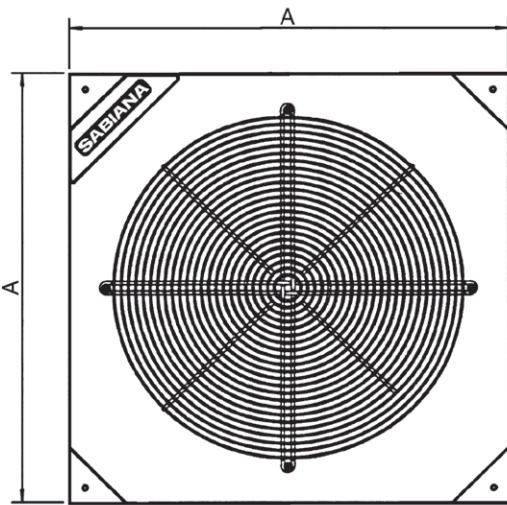
Installation height

Installation height (m)

Model	Max. speed		Min. speed	
	Max. installation height (m)	Surface (m)	Max. installation height (m)	Surface (m)
	H	R	H	R
1	3,5	3,5	3,0	2,5
2	3,5	3,8	3,0	2,6
3	4,0	4,0	3,5	3,0
4	4,5	4,5	4,0	3,5



DIMENSION, WEIGHT AND WATER CONTENT



RE-ECM version with 1 row coil
(heating only)

Model		RE-ECM 11	RE-ECM 21	RE-ECM 31	RE-ECM 41
A	mm	600	750	750	830
B	mm	540	690	690	770
C	mm	330	480	480	560
D	mm	220	287	300	344
E	mm	650	815	815	900
Empty weight	kg	26	31	32	38
Water content	l	0,8	1,1	1,1	1,3

RE-ECM version with 2 row coil
(heating only)

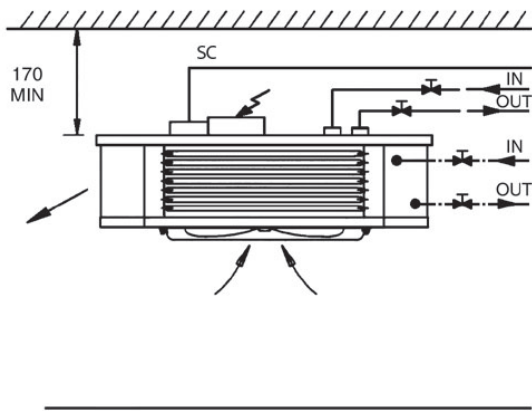
Model		RE-ECM 12	RE-ECM 22	RE-ECM 32	RE-ECM 42
A	mm	600	750	750	830
B	mm	540	690	690	770
C	mm	330	480	480	560
D	mm	220	287	300	344
E	mm	650	815	815	900
Empty weight	kg	28	34	35	40
Water content	l	1,8	2,4	2,4	2,7

PE-ECM / SPE-ECM version with 2 row coil
(heating and cooling)

Model		PE-ECM / SPE-ECM 12	PE-ECM / SPE-ECM 22	PE-ECM / SPE-ECM 32	PE-ECM / SPE-ECM 42
A	mm	600	750	750	830
B	mm	540	690	690	770
C	mm	330	480	480	560
D	mm	220	287	300	344
E	mm	650	815	815	900
Empty weight	kg	28	34	35	40
Water content	l	1,8	2,4	2,4	2,7

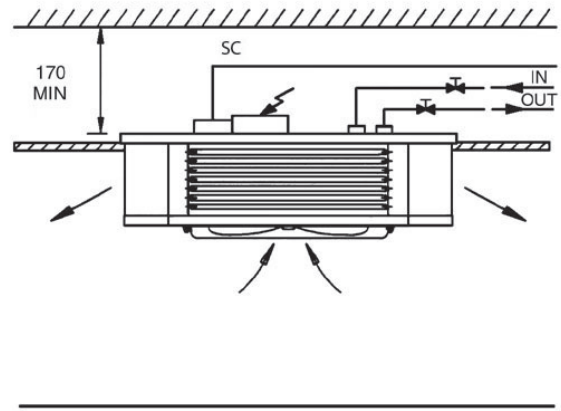
INSTALLATION EXAMPLES

Installation without false ceiling



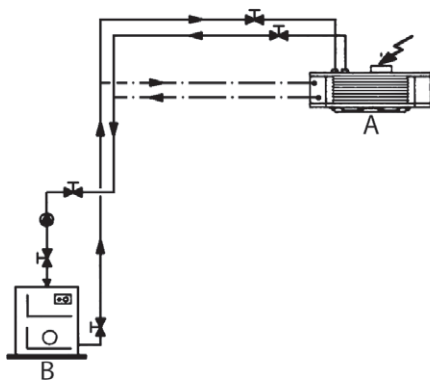
SC = condensate drain

Installation with false ceiling



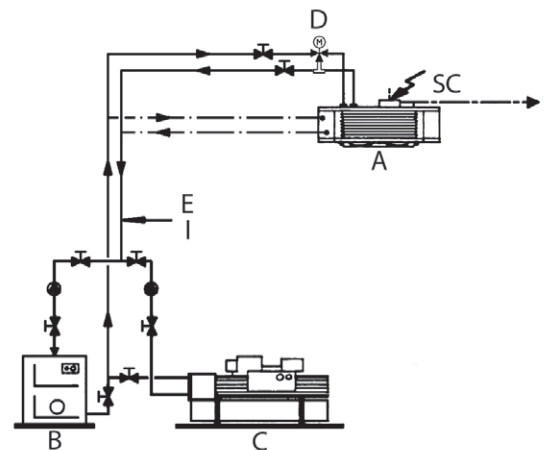
SC = condensate drain

RE-ECM version - Heating only



A = Sabiana Elegant RE-ECM
B = boiler

PE-ECM / SPE-ECM - Heating and cooling

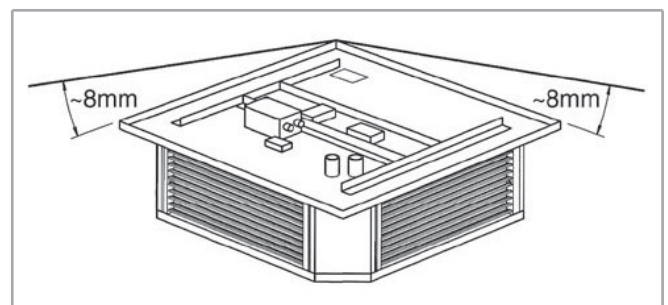


A = Sabiana Elegant PE-ECM E = SUMMER: chilled water
B = boiler I = WINTER: hot water
C = chiller SC = condensate drain
D = water valve

Warning

In cooling systems:

- Always install the unit with a small inclination towards the hydraulic connections side, in order to allow a good suction of the condensate micro-pump.
- You are recommended to shut off the water supply to the coil using the 2/3-way valves, electrically connected to the control with thermostat, to avoid condensation forming on the outside of the unit.



WALL ELECTRONIC CONTROLS

WM-3V

Model	Code	ID
1-2-3-4	9066642	WM-3V



The control must always be connected with ADC-M signal converter (fitted on the unit) or with ADC-S signal converter (not fitted on the unit).

- Manual 3 speed switch, without thermostatic control.

Dimensions: 75x75x30 mm

WM-T

Model	Code	ID
1-2-3-4	9066630	WM-T



The control must always be connected with ADC-M signal converter (fitted on the unit) or with ADC-S signal converter (not fitted on the unit).

- Manual 3 speed switch.
- Manual Summer/Winter switch.
- Electronic room thermostat for fan control (ON-OFF).
- Electronic room thermostat for water valve control (ON-OFF).
- It allows to control the low temperature cut-out thermostat TMM.
- Presence of a LED signal when the thermostat is on.

Control power absorption: 0,25 VA

Dimensions: 135x86x31 mm

WM-TQR

Model	Code	ID
1-2-3-4	9066631	WM-TQR



The control must always be connected with ADC-M signal converter (fitted on the unit) or with ADC-S signal converter (not fitted on the unit).

- Manual 3 speed switch.
- Manual, automatic or centralized Summer/Winter switch.
- Electronic room thermostat for fan control (ON-OFF).
- Electronic room thermostat for water valve control (ON-OFF).
- Simultaneous thermostatic control of the valves and fan.
- It allows to control the low temperature cut-out thermostat NTC.
- Energy saving function.
- Presence of a LED signal when the thermostat is on.

Control power absorption: 1 VA

Dimensions: 135x86x31 mm

WM-AU

Model	Code	ID
1-2-3-4	9066632	WM-AU



The control must always be connected with UPEM-AU power unit (fitted on the unit) or with UPE-AU power unit (with separate packaging).

- Manual/automatic 3 speed switch.
- Manual, automatic or centralized Summer/Winter switch.
- Summer/Winter/Fan/Auto mode switch.
- Electronic room thermostat for fan and water valves control (ON-OFF).
- Simultaneous thermostatic control of the valves and fan.
- It allows to use the low temperature cut-out thermostat NTC mounted on the power unit.
- Energy saving function.
- Presence of a LED signal when the thermostat is on.

Control power absorption: see the UPE-AU power unit

Dimensions: 135x86x24 mm

T-MB

Model	Code	ID
1-2-3-4	9066331E	T-MB



The control must always be connected with UPEM-AU power unit (fitted on the unit) or with UPE-AU power unit (with separate packaging).

Wall control with display that allows controlling one or more units in Master/Slave mode. The control is equipped with internal sensor to detect the room temperature, which can be defined as a priority compared to the return air sensor on the unit.

The T-MB wall control features the following functions:

- ON/OFF switch
- temperature set
- manual, automatic or centralized Summer/Winter switch
- set the fan speed (low, medium, high or auto fan)
- set the operation mode (fan only, cooling, heating, automatic)
- it allows to use the low temperature cut-out thermostat NTC mounted on the power unit
- time setting
- weekly ON/OFF program

Control power absorption: see the UPE-AU power unit

Dimensions: 110x72x25 mm

T2T

Model	Code	ID
1-2-3-4	9060174	T2T



The control must always be connected with ADC-M signal converter (fitted on the unit) or with ADC-S signal converter (not fitted on the unit).

- ON/OFF switch.
- Manual 3 speed switch.
- Manual Summer/Winter switch.
- Thermostatic control on the fan.
- Thermostatic control on the valve and continuous fan operation.
- Simultaneous thermostatic control of the valve and fan.
- Cannot be used with speed switch (master-slave).

Control power absorption: 1,5 VA

Dimensions: 128x75x25 mm

ADC

Model	FITTED		NOT FITTED	
	Code	ID	Code	ID
1-2-3-4	9041073	ADC-M	9041072	ADC-S



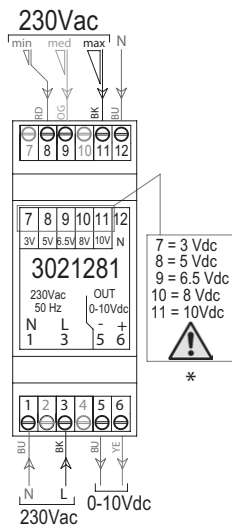
Signal converter for wall controls: WM-3V, WM-T, WM-TQR and T2T

It is a signal converter that transforms a 230 volt input in 3/10 Volt signal.

This allows the use of 230 V wall controls to control the fan speed for inverter motors.

ADC converter is wired between the 230 V outputs control corresponding to the 3 MIN-MED-MAX speeds and the inverter board motor.

According to the ADC wiring, the converter will provide different voltage values ranging between 3/10 volt showed in the wiring diagram.



Terminal input related to output voltage scenarios.

UPE

Model	FITTED		NOT FITTED	
	Code	ID	Code	ID
1-2-3-4	9041077	UPEM-AU	9041076	UPE-AU



Power unit for WM-AU and T-MB remote controls to be installed on the unit (unit interface).

It controls the electric components (fan) and the electrohydraulic components (the valves) of the unit and it is connected to the electric power supply.

It receives the information required from the control.

- It allows to control up to 10 units (1 master and 9 slaves).
- Max. network length: 100 meters.
- Max cable length between control and first connected power unit: 20 meters.
- Control power absorption: 2,3 VA

WALL ELECTRONIC CONTROLS ACCESSORIES

TMM

Model	Code	ID
1-2-3-4	9053048	TMM

Low temperature cut-out thermostat, for use with WM-T control units



To be fitted between the coil fins.
When connecting the control, the TMM probe cable must be separated from the power supply wires. It stops the fan when the water temperature is lower than 30 °C and it starts the fan when is higher than 38 °C.

NTC

Model	Code	ID
1-2-3-4	3021090	NTC

Low temperature cut-out thermostat, for use with WM-TQR control units and UPE-AU power unit



To be fitted between the coil fins.
When connecting the control, the NTC probe cable must be separated from the power supply wires. It stops the fan when the water temperature is lower than 28 °C and it starts the fan when is higher than 33 °C.

To use as:

- T1 function for the return air control.
- T2 function which controls the summer/winter switch (change-over).
- T3 function as low temperature cut-out thermostat.

CH 15-25

Model	Code	ID
1-2-3-4	9053049	CH 15-25

Change-over; for use with WM-TQR control units

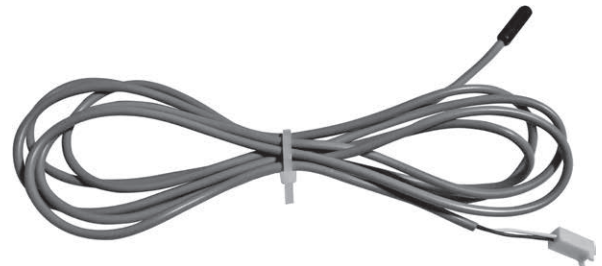


- Automatic summer/winter switch to be installed in contact with the water circuit.
- For 2 tube installations only (not to be used with 2 way valve).

T2

Model	Code	ID
1-2-3-4	9025310	T2

Cut-out thermostat, for use with UPE-AU power unit



T2 probe to be placed on the water supply pipe upstream 3 way valves (not to be used with 2 way valve). The T2 probe is to be used as Change-Over for 2 pipe systems, for the automatic switch of the operation mode. If water temperature is lower than 20 °C, cooling mode is set; on the other hand, if water temperature exceeds 30 °C, heating mode is set.

CONTROLS AND UNITS MBE VERSION

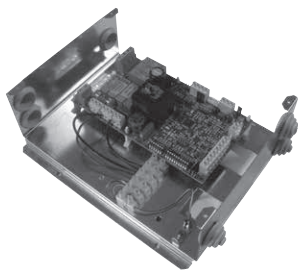
All the units Elegant ECM can be supplied in a wide range of controls, which allow managing one single unit or several units by using the Modbus RTU - RS 485 communication protocol.

Units can be managed according to the Master/Slave logic (up to 20 units) or by supervisory components.

The system consists in a **MBE** board and a series of controls, such as the **T-MB** wall control, the **PSM-DI** multifunction control panel and the **Sabianet** supervisory program.

MBE electronic board

Model	FITTED		NOT FITTED	
	Code	ID	Code	ID
1-2-3-4	9041071	MBE-M	9041070	MBE-S



The MBE electronic board is set to carry out different functions and adjustment modes, in order to meet the installation requirements. These modes are selected by setting the configuration dip switches on the board.

- Fan ON/OFF thermostatic control.
- Valve ON/OFF thermostatic control and continuous ventilation.
- Valve and simultaneous ventilation ON/OFF thermostatic control.
- Fan operation control depending on the coil temperature (T3 probe fitted), which can be activated only in heating mode or heating and cooling mode.
- Automatic switch of the operating mode by means of T2 water probe (optional).
- Seasonal switch by means of remote contact.
- ON/OFF of the fan coil by means of the remote contact (window or clock contact).

By activating the T3 probe function, the fan is stopped in winter when the coil temperature is lower than 32 °C and started when the temperature reaches 36 °C. In summer mode, the fan stops when the temperature inside the coil exceeds 22 °C and starts when it drops below 18 °C.

The following connections are located on the power board:

- T-MB wall control
- serial connection RS 485 to manage several fan coil units in Master/Slave configuration or to create a supervisory network

T-MB wall control

Model	Code	ID
1-2-3-4	9066331E	T-MB



Wall control (to be used with MBE board only)

Wall control with display that allows controlling one or more units in Master/Slave mode. The control is equipped with internal sensor to detect the room temperature, which can be defined as a priority compared to the return air sensor on the unit.

The T-MB wall control features the following functions:

- ON/OFF switch
- temperature set
- Modify the set point (when used as a +/- 3° variation of the set point configured from Sabianet supervisory program or PSM-DI).
- set the fan speed (low, medium, high or auto fan)
- set the operation mode (fan only, cooling, heating)
- time setting
- weekly ON/OFF program
- display and change of the fan coil operation parameters

Dimensions: 110x72x25 mm

Connections with MBE board

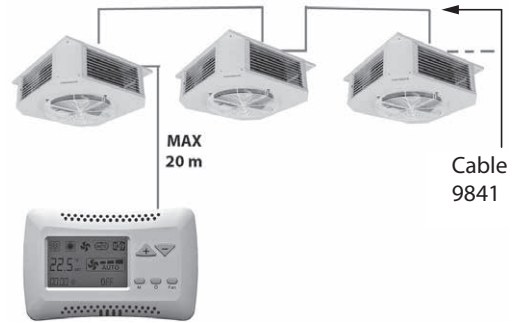
A group of Elegant ECM units with **MBE electronic board** can be connected via a serial link and can consequently be managed at the same time by just one **T-MB** wall control.

Using the special jumper present on the MB board, one unit must be configured as the master, and all the others as slaves.

One control for each unit
(Maximum length of the connection cable = 20 m)

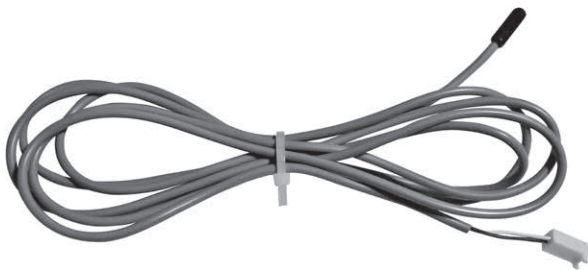


One control for more units (20 units max.)
(Maximum total length of the connection cable = 800 m)



T2 accessory for units with MBE electronic board

Model	Code	ID
1-2-3-4	9025310	T2



Type NTC sensor can be combined with MBE boards to be placed on the water supply pipe upstream 3 way valves.

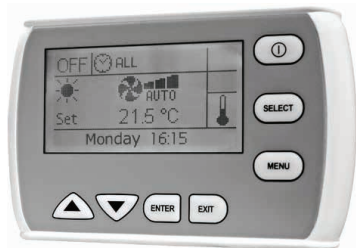
The T2 probe must be used as described below:

- Change-Over for the automatic switch of the operating mode. If water temperature is lower than 20 °C, cooling mode is set; on the other hand, if water temperature exceeds 30 °C, heating mode is set.

PSM-DI multifunction control panel

Model	Code	ID
1-2-3-4	3021293	PSM-DI

Multifunction control (to be used with MBE board only)



Another option available for the serial communication between the units is the possibility to connect up to 60 Elegant ECM units in series and manage them with just one multifunction control panel. The wall mounted controller can be used to set the operating mode for each individual unit connected, display the operating conditions of each individual unit, and set the ON/OFF time sets for each day of the week (the program can be set for all the units and for a maximum of ten groups of units). If more than 60 units need to be connected, two or more multifunction control panels must be used.

Each unit must have a MBE board.

The PSM-DI control is used to manage a series of fan coils, up to a maximum of 60 units (the maximum length of the RS 485 connection cable must not exceed 800 m), from one single control point.

The PSM-DI control communicates via a serial line with all the units connected, with the possibility of controlling them all together or individually. In fact, the unique address of each individual fan coil means that all the units can be called at the same time, or the individual unit called, to perform the following functions:

- display the current operating mode, the fan speed, the set point
- display the room temperature measured on the individual unit
- turn all the units ON and OFF at the same time or alternatively each unit individually
- change the operating mode (fan only, heating, cooling, automatic change-over)
- change the set point
- modify the values and operation parameters of the fan speed

Each function can then be sent to all the units connected, or alternatively to each individual unit.

Different set points or operating modes can be set for each individual unit.

The PSM-DI panel can also be used for the time management of the units over the week. Four ON times and four OFF times can be set on the units for each day of the week. A different temperature set that will be considered as Operation set for all connected appliances, can be set for each event. If the temperature set is not entered for the individual event, it must be set during programming for each individual unit or for the entire network.

The PSM-DI panel cannot be used together with the Sabianet management program (see next page).

Notes:

- *set the Dip Switches of each fan coil as illustrated in the installation manual, based on the required solutions*
- *only one SIOS board is allowed to be used per each PSM-DI control panel*
- *about "Priority pump function": when just one unit calls for, the relay RL1 on the SIOS board is automatically activated to connect a hot water pump*
- *the RS 485 network's overall length must not exceed 700/800 metres*

MANAGEMENT SYSTEM FOR A NETWORK OF UNITS

Sabianet program for managing a network of Sabiana MBE fan coils

Model	Code	ID
1-2-3-4	9079118	Sabianet



Sabianet is a centralised control system for networks of Sabiana **MBE** fan coils, based on software that runs on LINUX™ operating system (the program is provided pre-installed on a PC) and it works in a "stand alone" way, as an ordinary computer, so that it can be connected to a monitor, to a mouse and to a keyboard. By connecting an Ethernet cable is instead possible to work at a distance and visualize the entire program setting-up through whatever browsers. The **Sabianet** software offers a practical and economical solution for managing the units, with the simple click of the mouse.

The main characteristics are:

- simplicity of use
- an extremely complete and functional weekly program
- possibility to access the historical operating data for each individual unit connected
- possibility of data saving on USB key
- visualization of the saved configuration on a new ASUS PC

The program takes advantage from all features of our units with fitted MBE board.

The program can be used to:

- create uniform groups (groups of units on individual floors, in offices or rooms)

- save weekly programs configured for different types of operation (summer, winter, mid seasons, closing periods etc.); these can then be recalled and activated with a simple click of the mouse. Weekly on/off cycles can be set for individual units or groups of units
- set the operating conditions for each individual unit or groups of units (operating mode, fan speed, temperature setting)
- set the set point limits for each individual unit or groups of units
- switch each individual unit or groups of units ON or OFF

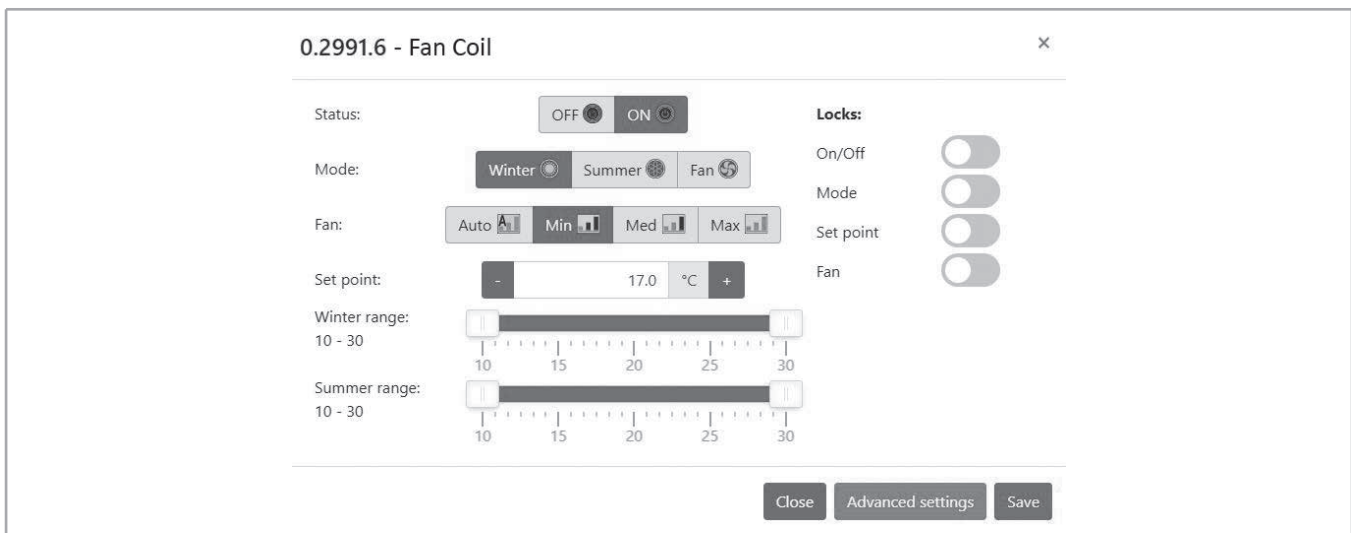
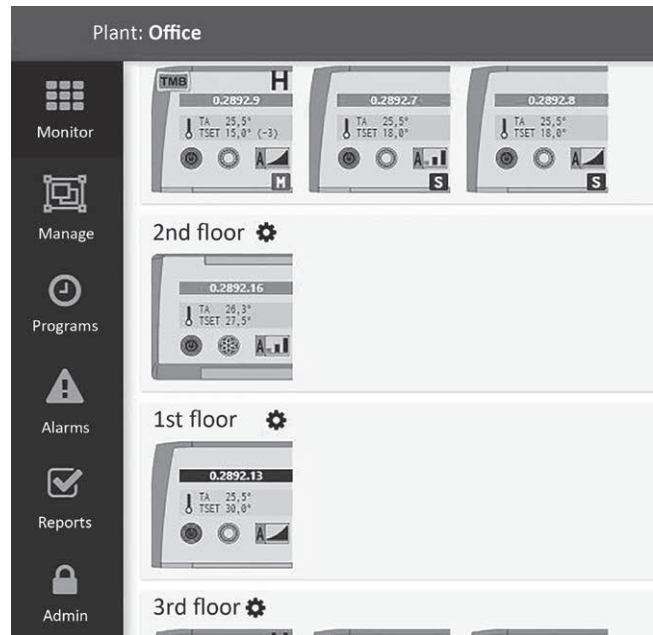
Graphical pages

The main program screen can display and interact with the entire network of units.

An individual unit, a group of units or the entire network can be called so as to make modifications to the operating mode and the set point.

The user can then check the operating status of each individual unit, read the room temperature, the coil temperature and the operating status of the condensate drain pump or any alarms.

The **"Monitoring"** Screen shows the units that are connected to the network and scanned by the program.



The icon of the terminal unit provides the following information:

- unit name (0.2766.8)
- set temperature (SETP)
- room temperature (AT)
- unit status:



ON (GREEN)



OFF (RED)

- mode:



Summer



Winter



Auto



Fan only

- fan speed:



Low



Medium



High



Auto Fan

The **“Programs”** Screen, can be used to set the unit operating parameters for each day of the week. Several weekly programs can be set.

Time bands are available for each day of the week. The time and the type of operation to be performed by the unit can be set for each band.

The time and the operating parameters can then be displayed before being sent to the unit and implemented.

The screenshot shows the 'Programs / Edit' interface. At the top, it displays 'Program name: prova 12', 'Program type: Weekly', and 'Unit type: Units'. Below this is an 'Edit program name' field and a 'Copy day' button. The main area is a grid with days of the week (Monday to Sunday) as columns and time slots (0:00 to 10:00) as rows. A horizontal bar at 4:00 is active, showing a setpoint of 17°C for Monday through Friday. A search icon is visible in the 8:00 slot on Thursday.

Every time that the reading of the set up Dip Switches results not easy (as for example by the false ceiling installations), it is always possible to display them directly through the Sabianet program.

The screenshot shows the '0.2991.6 - Fan Coil' configuration window. It has three tabs: 'Unit status', 'Configuration', and 'Parameters'. The 'Configuration' tab is active, displaying a row of 10 dip switches, all of which are currently in the 'ON' position. Below the switches is a table of options:

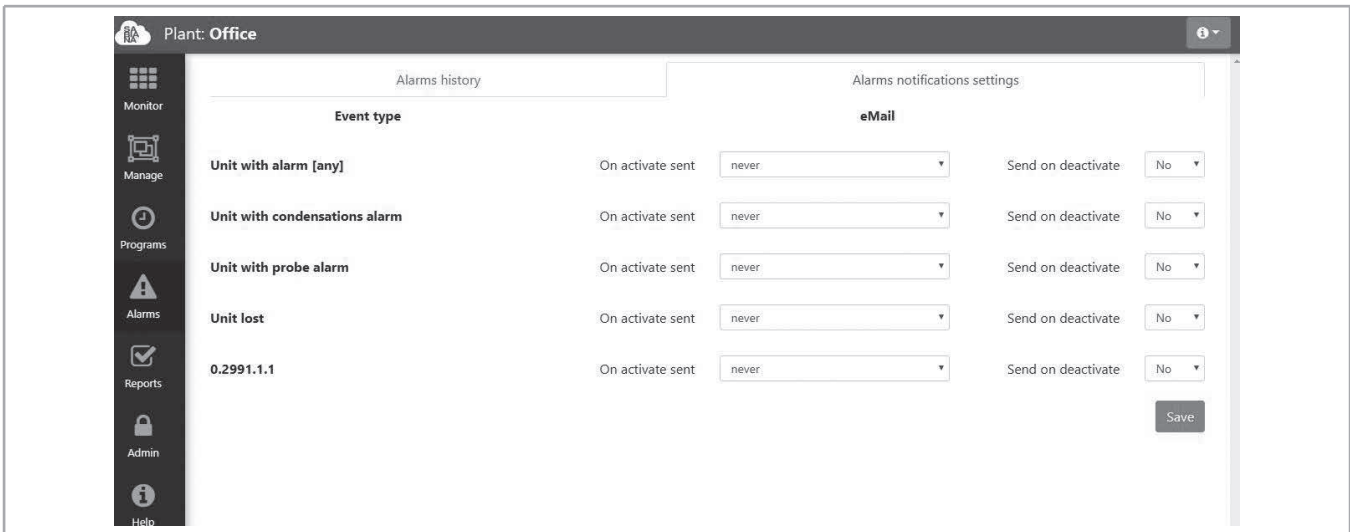
Dip	OFF option	ON option
1: OFF	2 pipe units	4 pipe units
2: OFF	Thermal power station with valves	Thermal power station with Fan
3: OFF	T3 disabled	T3 enabled
4: OFF	T3 only Winter when enabled	T3 Winter and Summer when enabled
5: OFF	Continuous ventilation	Simultaneous ventilation of valves
6: OFF	Unit without electrical heater	Resistance-coils Management
7: OFF	T2 as CH Change-Over (resistance phase II)	Resistance-coils with T2
8: OFF	RL7 (D0-D0) according to the state of the controller	RL7 (D0-D0) according to the pump
9: OFF	CA - Remote ON/OFF	CA = Remote Summer/Winter
10: OFF	Master	Slave

The screenshot shows the '0.2991.6 - Fan Coil' parameters window. It has three tabs: 'Unit status', 'Configuration', and 'Parameters'. The 'Parameters' tab is active, displaying a list of adjustable settings with minus and plus buttons for each:

- T3 fan on heating: 34.0 °C
- T3 fan on cooling: 22.0 °C
- T3 fan control hysteresis: 5.0 °C
- Fan maximum off time for antistratification: 10 min.
- Antistratification on time: 60 sec.
- Post-ventilation time: 180 sec.
- ECM voltage MIN speed: 1.0 V
- ECM voltage MED speed: 5.0 V
- ECM voltage MAX speed: 10.0 V
- Pump, delay time: 150 sec.

At the bottom, there are navigation buttons: '< 1 2 3 4 >' and 'Close', 'Set TMB time', and 'Save'.

In addition to the alarm set on the **"Alarms"** Screen, it is possible to send the ON-OFF alarm notification via E-mail and sms.



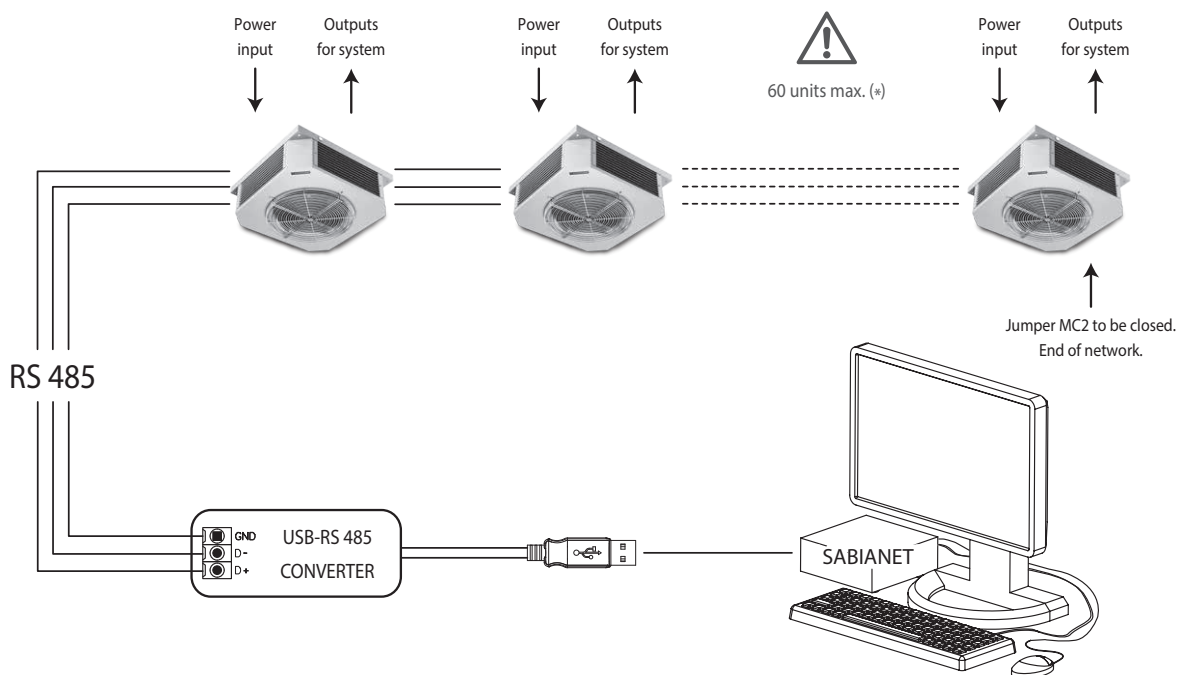
RS 485 serial connection cable

Shielded cable to be used: 9841, RS-485, 1x2x24 AWG SFTP, 120 Ohm.



PC Sabianet Software

Installation example with a Elegant ECM network with MBE board.



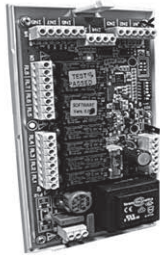
(*) In the event of more than 60 units, add one or more Router-S (see next page).

PSM-DI AND SABIANET ACCESSORIES

SIOS

Model	Code	ID
1-2-3-4	3021292	SIOS

IO board



The SIOS is a board equipped with 8 relays with potential free contact to control the activation or deactivation of remote electric utilities. Moreover, the board has 8 digital inlets to display the actuators or external consents, such as motor or other.

The SIOS boards can be connected:

- inside a network managed by Sabianet
- to a PSM-DI panel (one SIOS for each PSM-DI panel)

Router-S

Model	Code	ID
1-2-3-4	3021290	Router-S

Router for Sabianet (default) or for BMS Systems not supplied by Sabiana.



The Router-S is an electronic board that allows to control several units inside a network managed by Sabianet (default) or within a sub-network managed by BMS systems, that are not provided by Sabiana (it is necessary to operate on a Dip Switch on the board).

Managed by Sabianet

The Router-S in the standard version is an electronic board that:

- allows creating networks with more than 60 units (minimum 2 Router-S are required) or to divide the network (per floor, building, ecc.)
- allows creating a Master/Slave sub-network to be controlled as an independent group

The number of Router-S to be used is:

- up to 60 units: no Router-S
- from 61 to 120 units: 2 Router-S
- every 60 subsequent units: 1 additional Router-S

Managed by BMS Systems which are not provided by Sabiana

The Router-S becomes an electronic board to use with BMS systems (not by Sabiana), only after having set the Dip Switch on the board and so creating a Master/Slave sub-network to be controlled as an independent group.

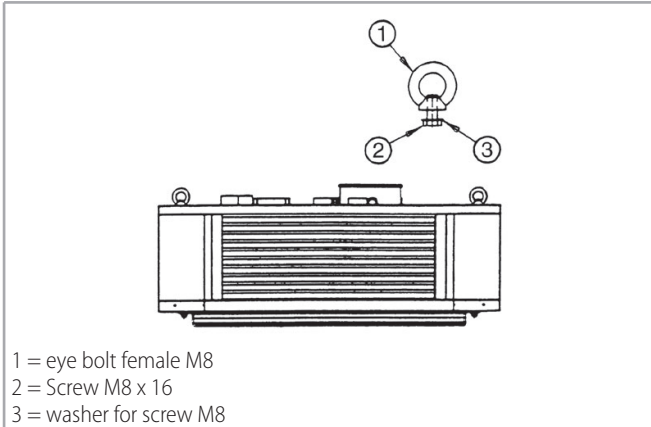
The number of Router-S to be used is:

- max 14 Router-S
- max. 15 units for each Router-S

ACCESSORIES

Hanging brackets

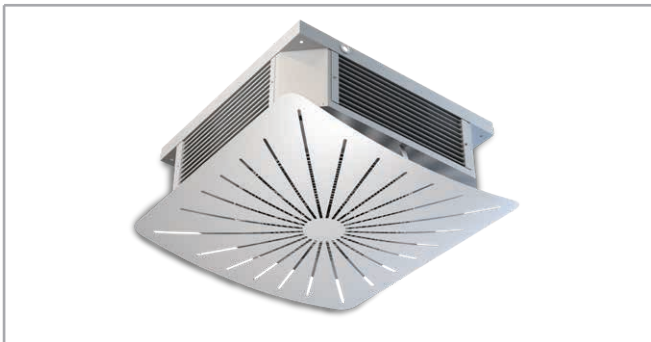
Composed by 4 eye bolts and screws.



Model	Code	ID
1-2-3-4	9041018	KAE

Grilled air intake panel

To be fitted on the fan guard.

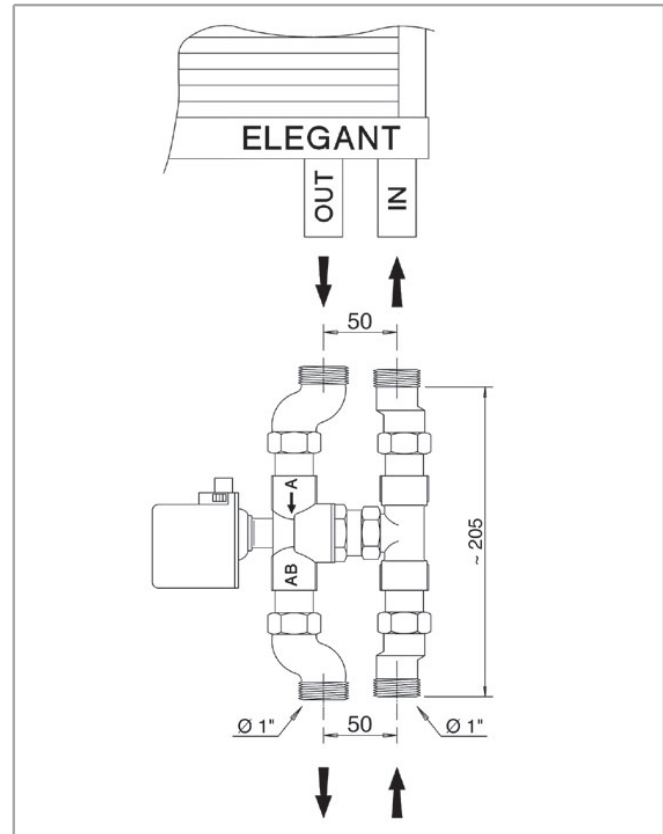


Model	Code	ID
1	9041031	PGE 1
2	9041032	PGE 2
3	9041033	PGE 3
4	9041034	PGE 4

3 way valve + connection kit

Composed by:

- one 3-way valve 3/4" Kvs 4,7
- one actuator
- pipe connections



Model	Code	ID
1-2-3-4	9041050	V3ES

Il presente documento annulla e sostituisce il certificato di pari numero emesso in data 06/05/2022.



IQNet, the association of the world's first class certification bodies, is the largest provider of management system certification in the world. IQNet is composed of more than 30 bodies and counts over 150 subsidiaries all over the globe.

CERTIFICATO N. 0545/8
 CERTIFICATE No. _____

SI CERTIFICA CHE IL SISTEMA DI GESTIONE PER LA QUALITÀ DI
 WE HEREBY CERTIFY THAT THE QUALITY MANAGEMENT SYSTEM OPERATED BY

SABIANA S.P.A.

Sede e Unità Operativa
 Via Piave, 53 - 20011 Corbetta (MI) - Italia
 Processi direzionali, primari e di supporto relativamente a Progettazione, produzione e assistenza di apparecchiature per il riscaldamento e il condizionamento dell'aria (aerotermi, termostriche radianti, ventilconvettori e unità trattamento aria) e canne fumarie.

Unità Operative
 Via Virgilio, 2 - 20013 Magenta (MI) - Italia
 Produzione di ventilconvettori. Magazzino Logistica.
 (Presente solo reparto produttivo, magazzino componenti e logistica: Magazzino P.F. e spedizione).
 Via Zanella, 27 - 20011 Corbetta (MI) - Italia
 Assemblaggio unità trattamento aria, lavorazioni meccaniche, saldatura, magazzino, assemblaggio recuperatori.

È CONFORME ALLA NORMA / IS IN COMPLIANCE WITH THE STANDARD

UNI EN ISO 9001:2015

Sistema di Gestione per la Qualità / Quality Management System

PER LE SEGUENTI ATTIVITÀ / FOR THE FOLLOWING ACTIVITIES

EA: 18

Progettazione, produzione e assistenza di apparecchiature per il riscaldamento e il condizionamento dell'aria (aerotermi, termostriche radianti, ventilconvettori e unità trattamento aria) e canne fumarie.

Design, production and service of heating and air conditioning equipment (unit heaters, radiant panels, fan coil units and air handling units) and chimneys.

Riferirsi alla documentazione del Sistema di Gestione per la Qualità aziendale per l'applicabilità dei requisiti della norma di riferimento.
 Refer to the documentation of the Quality Management System for details of application to reference standard requirements.

Il presente certificato è soggetto al rispetto del documento ICIM "Regolamento per la certificazione dei sistemi di gestione" e al relativo Schema specifico.
 The use and the validity of this certificate shall satisfy the requirements of the ICIM document "Rules for the certification of company management systems" and specific Scheme.

Per informazioni puntuali e aggiornate circa eventuali variazioni intervenute nello stato della certificazione di cui al presente certificato, si prega di contattare il n° telefonico +39 02 725341 o indirizzo e-mail info@icim.it.
 For timely and updated information about any changes in the certification status referred to in this certificate, please contact the number +39 02 725341 or email address info@icim.it.

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 www.icim.it

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 CISQ is the Italian Federation of management system Certification Bodies.

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