

ELIS A AIR CURTAINS

ELIS A

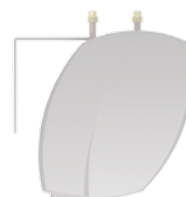
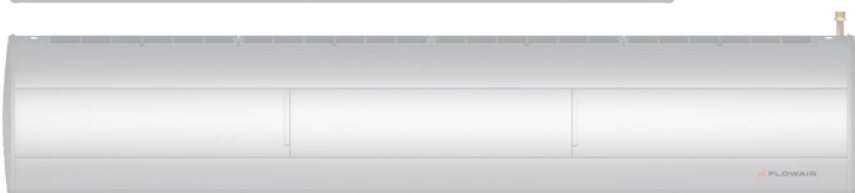
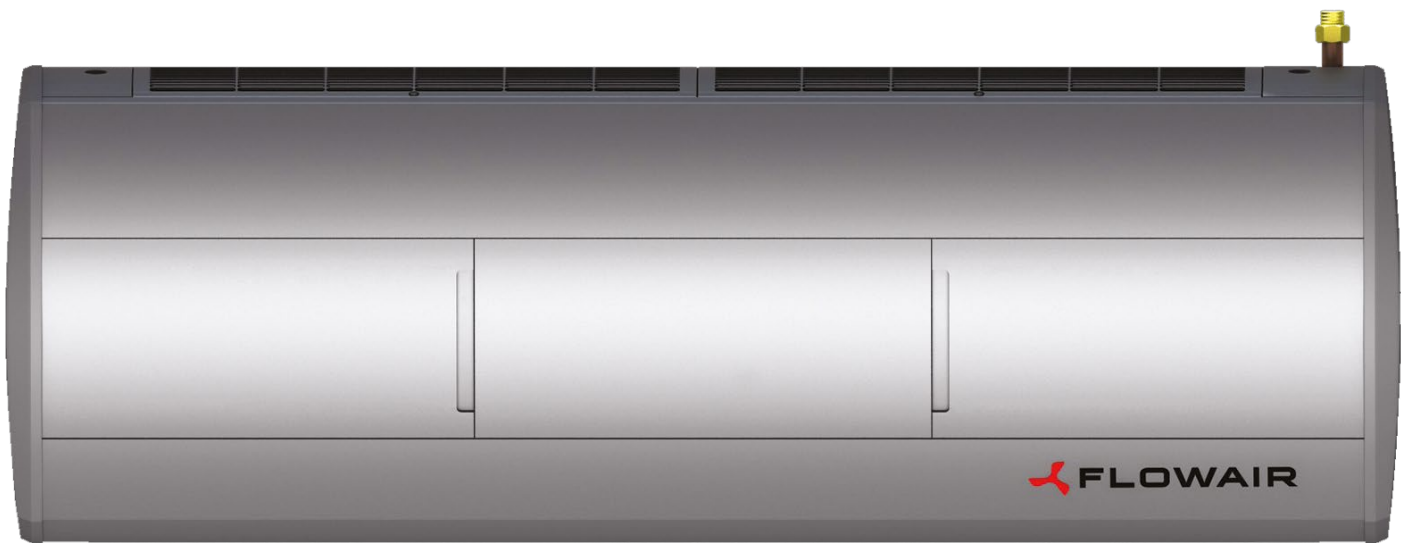
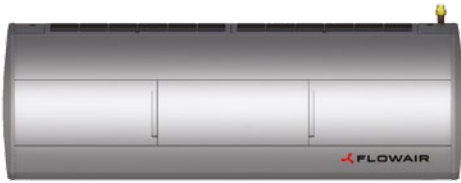


TABLE OF CONTENTS

• General characteristics	3
• Construction	4
• Dimensions	5
• Technical data	5
• Velocity of the air flow	6
• Installation	6
• BMS programming	7
• Control systems	8
• Control system elements	9
• Connection diagrams	10
• Heating capacity table	
- ELiS A with water heat exchanger	12
- ELiS A with electrical heaters	13

GENERAL CHARACTERISTICS






	ELiS A
Max. range* (m)	3,0
Heating capacity** (kW)	12,3–28,0
Air flow (m ³ /h)	850–3500
Weight (kg)	18,4–39,0
Colour	silver (RAL 9006)/white (RAL 9010)
Casing	sheet steel + plastic

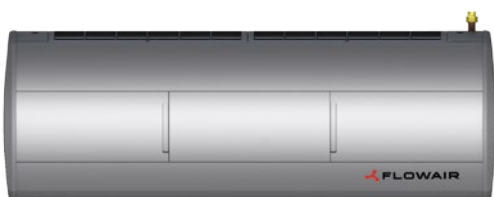
* Vertical range of isothermal stream (at velocity boundary equal to 2 m/s).
 ** At inlet/outlet water temperature 90/70°C, inlet air temperature 10°C.

ELiS A air curtains are designed to ensure thermal protection of rooms. They generate air barrier on entire door opening plane. It prevents the inflow of cold air during winter and the inflow of warm air into the air-conditioned rooms during summer.

ELiS A air curtains are:

- available in 3 lengths: 1 m, 1,5 m, 2 m
- available in 3 versions:
 - with water heat exchanger (W),
 - with electric heaters (E),
 - without heating elements - ambient curtain (N)
- designed for horizontal installation.

-  W - air curtain with water heat exchanger
-  E - air curtain with electric heaters
-  N - air curtain without heating elements (ambient)



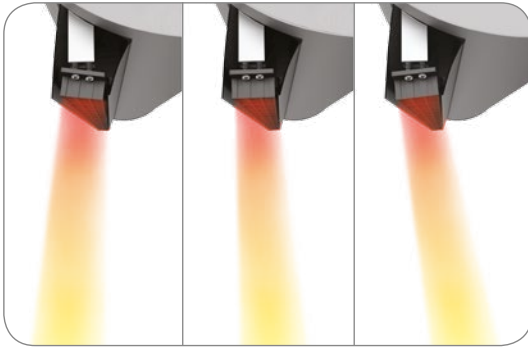
A-W/N/E-100



A-W/N/E-150



A-W/N/E-200



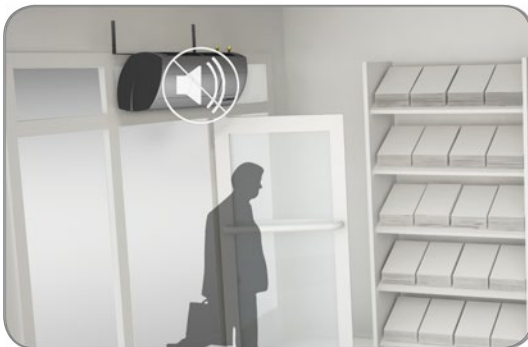
ADJUSTABLE AIR STREAM

Adjustable air outlet enables to set the right angle of the air stream.



HEATING ELEMENTS

Air curtains can be equipped with water heat exchanger made of copper and aluminium.



QUIET OPERATION OF FANS

Centrifugal fans are placed in the casing made of light, durable and sound-absorbing material. They are known for quiet operation and low power consumption in relation to their performance.



CONTROL SYSTEM WITH BMS PROTOCOLS

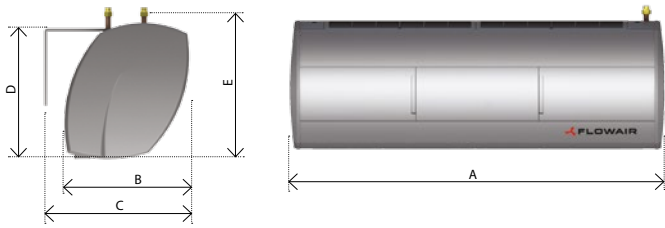
Advanced control system makes it possible to connect the units to the intelligent building management system (BMS).



MODERN DESIGN

Our experienced team of product designers made the unit look very modern.

DIMENSIONS



Dimensions [mm]	ELiS A 100	ELiS A 150	ELiS A 200
A	1125	1580	2040
B	356	356	356
C	393	393	393
D	390	390	390
E	440	440	440

TECHNICAL DATA

	A-W-100	A-N-100	A-E-100	A-W-150	A-N-150	A-E-150	A-W-200	A-N-200	A-E-200
Fan	2 x centrifugal fan with double air inlet, single phase, AC			3 x centrifugal fan with double air inlet, single phase, AC			4 x centrifugal fan with double air inlet, single phase, AC		
Max. air flow [m ³ /h]	1500			2500			3500		
Fan power supply [V/Hz]	230/50								
Fan max. current consumption [A]	0,72			1,1			1,45		
Fan max. power consumption [kW]	0,17			0,25			0,34		
IP	21								
Max. acoustic pressure level* [dB(A)]	52			56			57		
Max. air stream range**[m]	3								
	A-W/N/E-100			A-W/N/E-150			A-W/N/E-200		
Fan step	1 st step	2 nd step	3 rd step	1 st step	2 nd step	3 rd step	1 st step	2 nd step	3 rd step
Revs [1/min]	850	1020	1350	850	1020	1350	850	1020	1350
Air flow [m ³ /h]	1000	1210	1500	1650	2100	2500	2400	2900	3500
Fan current consumption [A]	0,54	0,7	0,72	0,81	1,05	1,08	1,29	1,34	1,45
Fan power consumption [W]	124	160	168	186	240	248	297	308	335
Acoustic pressure level* [dB(A)]	42	46	53	45	49	56	47	51	58
	A-W-100			A-W-150			A-W-200		
Heat exchanger	Cu – Al, one row								
Heating capacity*** [kW]	17,9			20			28		
Air temperature rise (ΔT)***[°C]	34			24			24		
Max. water pressure [MPa]	1,6								
Max. water temperature [°C]	95								
Connection ["]	½"								
	A-E-100			A-E-150			A-E-200		
Heating element	2 x PTC heating board			3 x PTC heating board			4 x PTC heating board		
Power supply [V/Hz]	3x400 / 50								
Rated current*** [A]	9,5	9,8	10	14,8	15,2	15,5	20,7	21,2	21,5
Heating capacity of electric heaters*** [kW]	6,6	6,8	7	10,2	10,5	10,7	14,4	14,7	15
Air temperature rise (ΔT)***[°C]	27	26	25	24	22	21	22	20	18
	A-W-100	A-N-100	A-E-100	A-W-150	A-N-150	A-E-150	A-W-200	A-N-200	A-E-200
Unit weight [kg]	20,9	18,4	21,4	28,3	25,3	28,5	37,1	33,6	39
Weight of unit filled with water [kg]	22,3	-	-	29,6	-	-	38,8	-	-

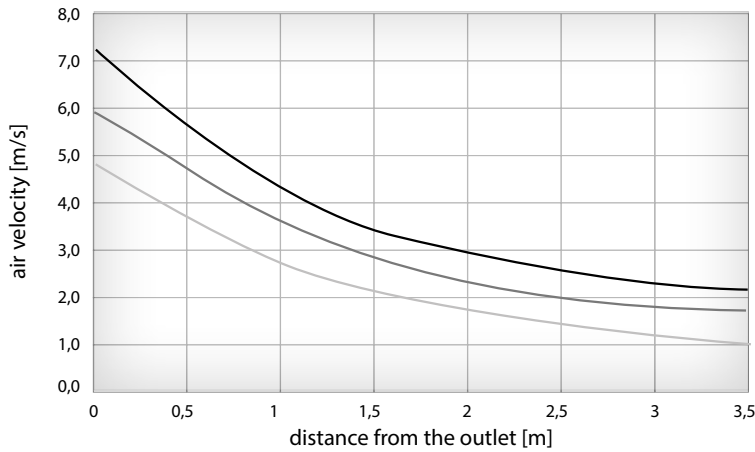
* Acoustic pressure level measured in the room with average sound absorption, capacity 500 m³, at distance of 2 m from the unit.

** Vertical range of isothermal stream (at velocity boundary equal to 2 m/s).




*** A-W temperature increase at inlet air 10°C and heating agent temperature 90/70°C / A-E temperature increase at inlet air 10°C

VELOCITY OF THE AIR FLOW

ELiS A

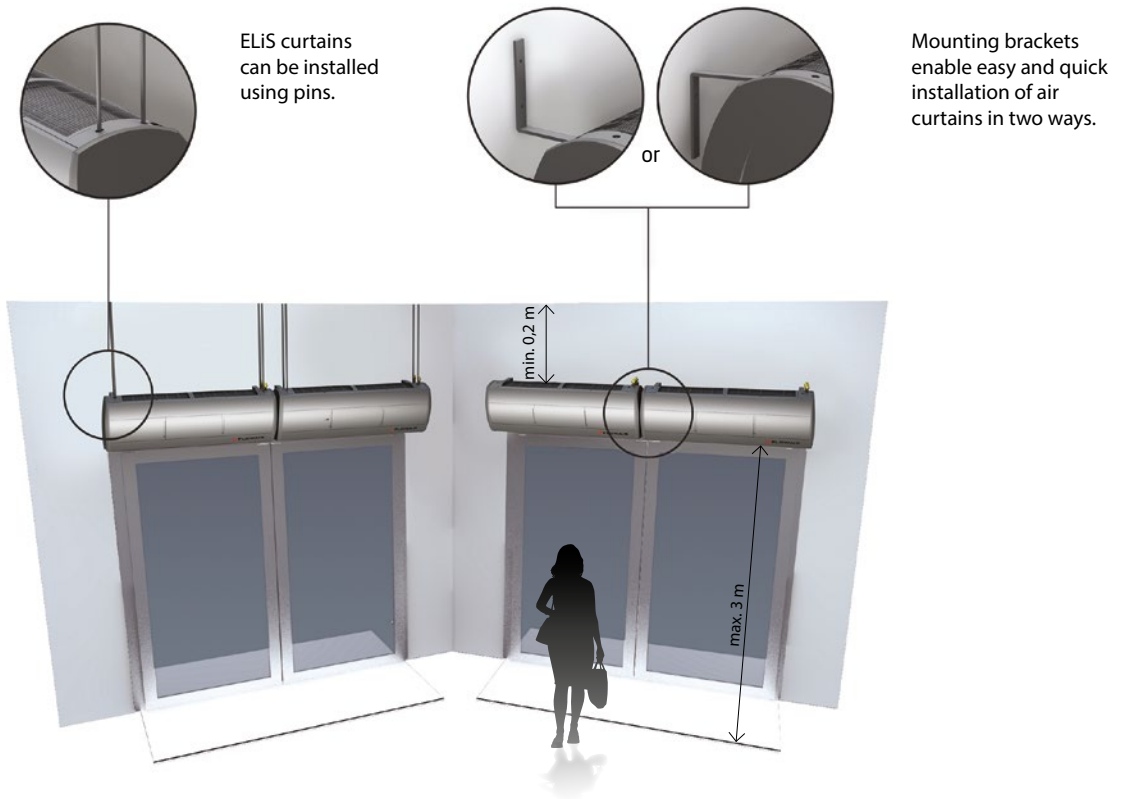


Max. height of installation for ELiS A air curtains is related to vertical air stream range. It is recommended to install ELiS A at a height of 3 m.

1st step 
 2nd step 
 3rd step 

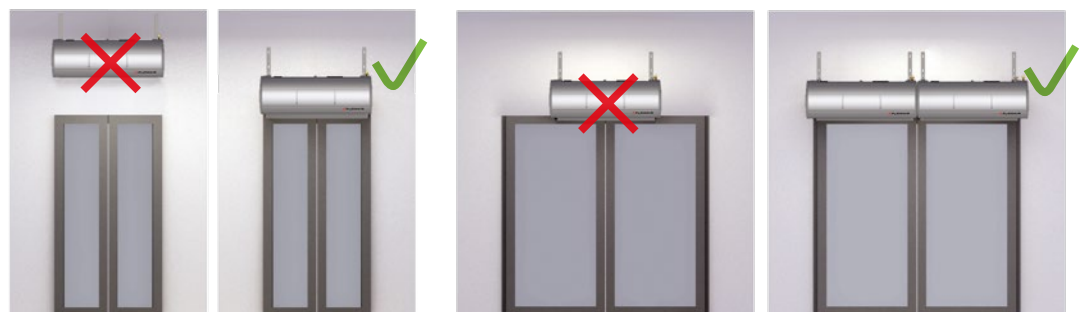
INSTALLATION

INSTALLATION OPTIONS



CORRECT INSTALLATION

Correct installation of ELiS A curtains provides effective air barrier for the whole surface of the open gate. It ensures appropriate working conditions inside regardless of the temperature outside.



ELiS A air curtains are equipped with control system DRV ELiS, which communicates with BMS (Building Management System). It is possible to set up to 32 addresses.

Holding Register Data (Write and Read)

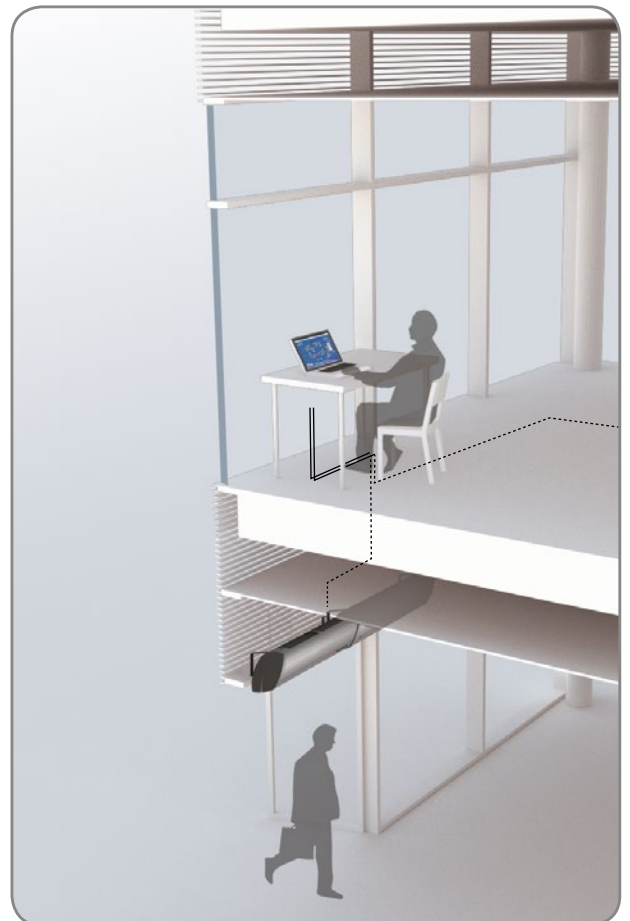
No.	Modbus address	Name of parameter	Min.	Max.	Modbus address
1	0x04	CurtainFanSpeedRef	0	3	Set value for curtain's fan 0 FAN_SPEED0 Fan is off 1 FAN_SPEED1 1 st step of fan is on 2 FAN_SPEED2 2 nd step of fan is on 3 FAN_SPEED3 3 rd step of fan is on
2	0x05	CurtainHeatRef	0	1	Set value for thermostat 0 HEAT_OFF Curtain's thermostat is off 1 HEAT_ON Curtain's thermostat is on
3	0x08	ContactDoor	0	1	Set value for door switch 0 DOOR_CLOSE Door is closed 1 DOOR_OPEN Door is open

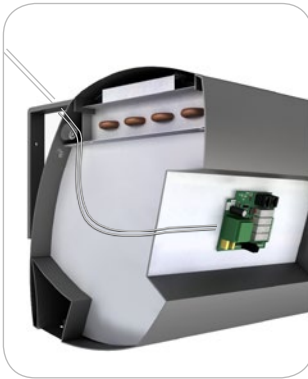
Inputs Register Data (Read)

No.	Modbus address	Name of parameter	Min.	Max.	Modbus address
1	0x04	FanSpeed	0	3	Current fan step 0 FAN_SPEED0 Fan is off 1 FAN_SPEED1 1 st step of fan is on 2 FAN_SPEED2 2 nd step of fan is on 3 FAN_SPEED3 3 rd step of fan is on
2	0x05	ValveState	0	2	Current valve status 1 VALVE_CLOSE Valve closing 2 VALVE_OPEN Valve opening
3	0x08	ContactDoor	0	1	Set value for door switch 0 DOOR_CLOSE Door is closed 1 DOOR_OPEN Door is open

Communication parameters:

Name	Description
Physical layer	RS485
Protocol	MODBUS-RTU
Transmission speed	38400 [bps]
Parity	Even
Number of data bits	8
Number of stop bits	1





SRQ2d
two-way valve
with actuator



SRQ3d
three-way valve
with actuator

TS
3-step fan speed regulator with
built-in room thermostat



DCe
magnetic
door switch



DCm
mechanical
door switch

DRV ELiS:

ELiS A air curtains are equipped with control module, which enables to connect:

- DCm/DCe door switch
- TS three-step fan speed regulator with thermostat

DRV ELiS has 2 operation modes:

- Configuration 1 – operation of the curtain, when the master signal comes both from door switch and thermostat with fan speed regulator
- Configuration 2 – operation of the curtain, when the master signal comes from door switch. Fan speed regulator with thermostat changes fan speed and turns on the heaters.

CHAINING OF THE AIR CURTAINS:

System is equipped with RJ connectors, which enable to connect MASTER and SLAVE units and control up to 5 units by single TS and DC.

BMS:

DRV ELiS can be connected to the intelligent building management system BMS. This solution enables saving and loading parameters of curtain's operation (e.g. fan speed).

FEATURES:







Regulation of fan speed.
(three steps of efficiency).

Possibility of connection to BMS system using DRV ELiS.

Multiple configurations of curtains operation with DRV ELiS.

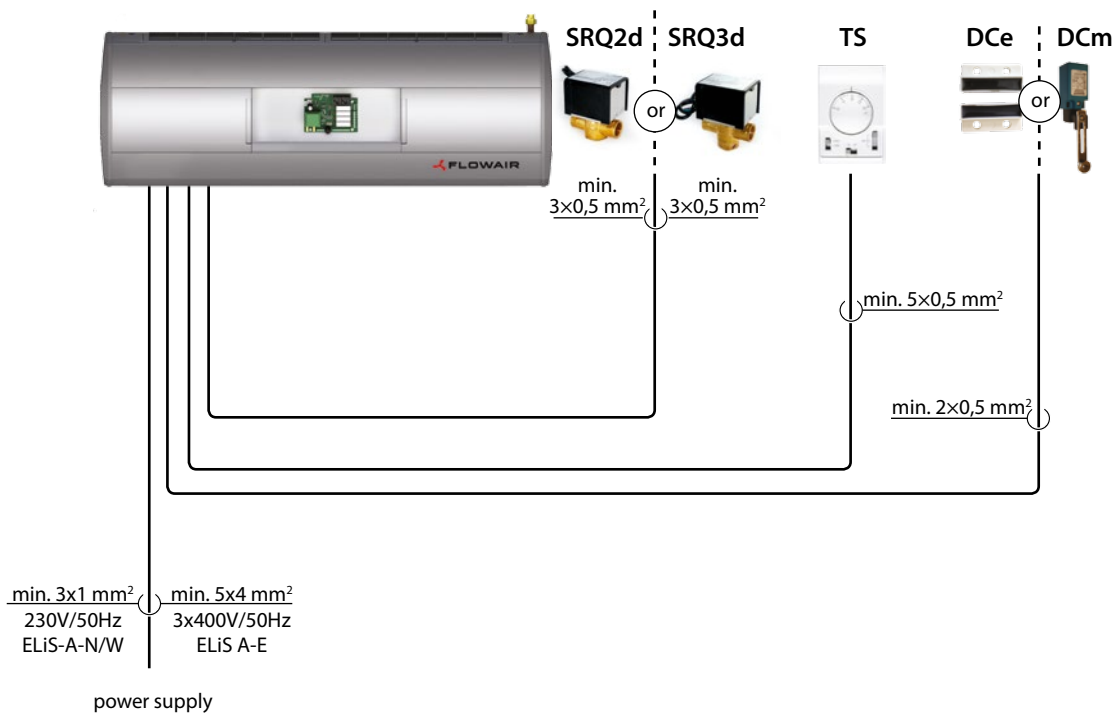
Several curtains can be operated by one controller if linked by RJ wire.

CONTROL SYSTEM COMPONENTS

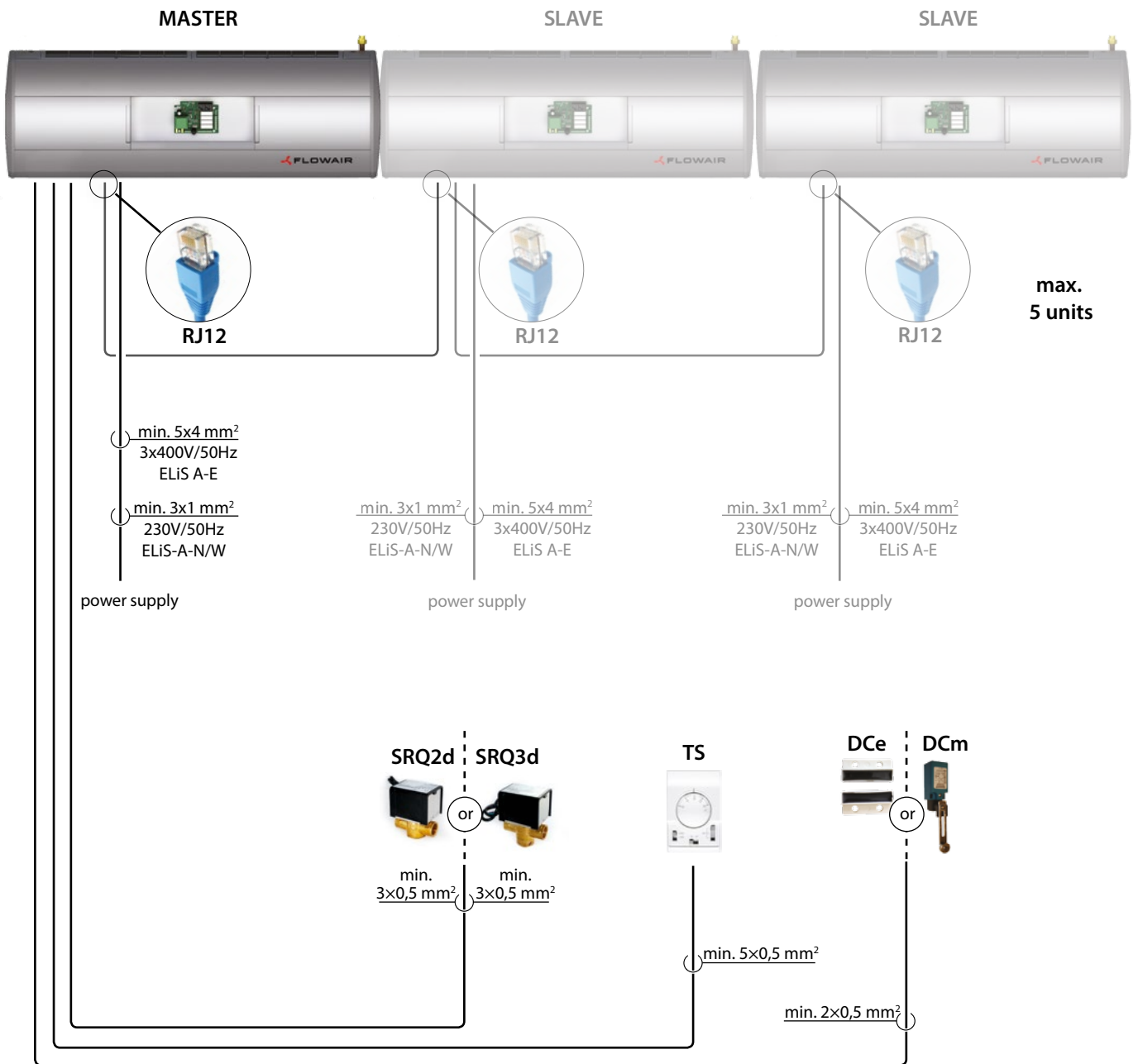
Category	Symbol	Picture	Technical data
valves with actuator	SRQ2d two-way valve 1/2" with actuator		Protection degree: IP20 Power supply: 200-240 V 50/60 Hz Max. water temperature: +93°C Max. operating pressure: 1,6 MPa Kvs: 3,0 m³/h Installation: on water outlet pipe Opening/closing time: 18s/5s Dimensions (HxWxL): 108x86x66 mm
	SRQ3d three-way valve 1/2" with actuator		Protection degree: IP20 Power supply: 200-240 V 50/60 Hz Max. water temperature: +93°C Max. operating pressure: 2,0 MPa Kvs: 3,4 m³/h Installation: on water inlet pipe Opening/closing time: 18s/5s Dimensions (HxWxL): 118x86x66 mm
thermostat	TS room thermostat with built-in 3-step fan speed regulator		Temperature adjustment range: +10 ... +30°C Operating temperature range: 0 ... +40°C Protection degree: IP30 Switches load: inductive 4 A, resistance 6 A
door switches	DCe magnetic door switch		Operating temperature range: -5 ... +60°C Protection degree: IP64 Casing: plastic Connection wire length: 2 m Type: NC Resistance switches load: 0,5 A Max. switches voltage: 175 VDC Max. distance between switches: 8 mm
	DCm mechanical door switch		Operating temperature range: -10 ... +80°C Protection degree: IP64 Casing: plastic Connection wire length: none Type: 1xNC and 1xNO Resistance switches load: 10 A Max. switches voltage: 300 VAC or 250 VDC
wires	CW wire for curtains chaining (master - slave)		Length: 3,7 m Plugs: RJ12

Operation mode enables to control the unit by:

- controlling air curtain by door switch DCe or DCm and TS fan speed controller with room thermostat.



It is possible to connect ELiS A units to each other. All of the control system components must be connected to the first unit (MASTER). Control signals are transmitted to the other units (SLAVE) by CW wire (with RJ12 plugs) - it is possible to connect up to 5 units in this way.



ELIS A 100

Tp1 °C	V m³/h	PT kW	Qw l/h	Δpw kPa	Tp2 °C	PT kW	Qw l/h	Δpw kPa	Tp2 °C
0	850/1150/1500	14,4/17,7/21,0	637/781/927	4,4/6,4/8,8	47/43/39	12,4/15,2/18,0	545/668/793	3,4/5,0/6,8	40/37/33
5		13,3/16,4/19,4	588/721/857	3,8/5,5/7,6	49/45/41	11,3/13,9/16,5	497/610/724	2,9/4,2/5,7	43/39/36
10		12,3/15,0/17,9	541/663/788	3,3/4,8/6,5	51/47/44	10,3/12,6/15,0	451/553/657	2,4/3,5/4,8	45/41/39
15		11,2/13,7/16,3	494/606/721	2,8/4,0/5,5	53/50/47	9,2/11,3/13,5	405/497/591	2,0/2,9/4,0	47/44/41
20		10,2/12,5/14,8	448/550/654	2,3/3,4/4,6	55/52/49	8,2/10,1/12,0	360/442/526	1,6/2,4/3,2	49/46/44
Tw1 / Tw2 = 70/50°C						Tw1 / Tw2 = 70/40°C			
0	850/1150/1500	10,4/12,7/15,1	453/555/659	2,5/3,7/5,0	34/31/28	8,6/10,5/12,5	249/306/363	0,9/1,3/1,7	28/25/23
5		9,3/11,4/13,5	407/498/592	2,1/3,0/4,1	36/33/30	7,5/9,2/10,9	218/268/319	0,7/1,0/1,4	30/28/26
10		8,3/10,1/12,0	361/443/526	1,7/2,4/3,3	38/35/33	6,4/7,9/9,4	186/230/274	0,5/0,8/1,1	31/30/28
15		7,2/8,9/10,5	316/388/461	1,3/1,9/2,6	40/37/35	5,2/6,6/7,9	153/191/229	0,4/0,6/0,8	33/32/30
20		6,2/7,6/9,1	271/334/397	1,0/1,5/2,0	42/40/38	3,9/5,1/6,3	114/150/182	0,2/0,4/0,5	34/33/32
Tw1 / Tw2 = 60/40°C						Tw1 / Tw2 = 50/40°C			
0	850/1150/1500	8,3/10,1/12,0	360/442/525	1,8/2,5/3,4	27/24/22	8,0/9,8/11,6	693/850/1010	5,8/8,3/11,4	26/24/21
5		7,2/8,9/10,5	315/386/459	1,4/2,0/2,7	29/27/25	6,9/8,5/10,1	603/740/880	4,5/6,5/8,9	28/26/24
10		6,2/7,6/9,0	269/331/394	1,0/1,5/2,0	31/29/27	5,9/7,3/8,6	515/633/752	3,4/4,9/6,7	30/28/27
15		5,1/6,3/7,5	224/276/329	0,8/1,1/1,5	33/31/30	4,9/6,1/7,2	428/526/626	2,4/3,5/4,8	32/30/29
20		4,1/5,1/6,1	177/220/264	0,5/0,7/1,0	34/33/32	3,9/4,9/5,8	343/422/502	1,6/2,4/3,2	34/32/31

ELIS A 150

Tp1 °C	V m³/h	PT kW	Qw l/h	Δpw kPa	Tp2 °C	PT kW	Qw l/h	Δpw kPa	Tp2 °C
0	1650/2100/2500	17,9/20,7/22,9	791/914/1011	5,3/6,9/8,3	32/29/27	15,3/17,7/19,6	672/777/861	4/5,6/6,3	27/25/23
5		16,8/19,4/21,4	740/855/946	4,7/6,1/7,4	35/32/30	14,1/16,3/18,1	621/718/795	3,5/4,5/5,5	30/28/26
10		15,6/18/20	688/795/881	4,1/5,3/6,5	38/35/34	13/15/16,6	569/658/728	3/3,9/4,7	33/31/30
15		14,4/16,7/18,5	636/735/814	3,5/4,6/5,6	41/38/37	11,8/13,6/15	517/597/661	2,5/3,2/3,9	36/34/33
20		13,2/15,3/17	584/674/748	3/3,9/4,8	43/41/40	10,6/12,2/13,5	464/532/593	2/2,7/3,2	39/37/36
Tw1 / Tw2 = 70/50°C						Tw1 / Tw2 = 70/40°C			
0	1650/2100/2500	12,7/14,6/16,2	554/640/709	2,9/3,8/4,6	23/21/19	10,1/11,7/12,9	294/340/377	0,9/1,2/1,5	18/16/15
5		11,5/13,3/14,7	502/580/643	2,4/3,2/3,8	26/24/22	8,8/10/11,4	257/299/331	0,7/1/1,2	21/19/18
10		10,3/11,9/13,2	450/520/576	2/2,6/3,1	28/27/26	7,6/8,8/9,8	220/256/284	0,6/0,7/0,9	23/22/21
15		9,1/10,5/11,6	397/459/508	1,6/2,1/2,5	31/30/29	6,2/7,2/8,1	179/211/235	0,4/0,5/0,6	26/25/24
20		7,8/9,1/10	343/397/439	1,2/1,6/1,9	34/33/32	2,9/5,5/6,2	83/160/181	0,1/0,3/0,4	25/28/27
Tw1 / Tw2 = 60/40°C						Tw1 / Tw2 = 50/40°C			
0	1650/2100/2500	10/11,5/12,8	434/502/556	1,9/2,5/3	18/16/15	10/11/12,6	857/992/1099	6,8/8,9/10,7	18/16/15
5		9/10,1/11,2	381/441/489	1,5/2/2,4	21/19/18	8,7/10/11,1	754/872/967	5,4/7/8,5	21/19/18
10		7,5/8,7/9,7	328/380/421	1,2/1,5/1,8	23/22/21	7,5/8,6/9,6	649/751/832	4/5,3/6,4	23/22/21
15		6,3/7,3/8	273/316/351	0,8/1,1/1,3	26/25/24	6,3/7,2/8	543/629/696	3/3,9/4,7	26/25/24
20		4,9/5,7/6,4	214/250/279	0,6/0,7/0,9	29/28/27	5/5,8/6,4	436/504/559	2/2,6/3,1	29/28/28

ELIS A 200

Tp1 °C	V m³/h	PT kW	Qw l/h	Δpw kPa	Tp2 °C	PT kW	Qw l/h	Δpw kPa	Tp2 °C
0	2400/2900/3500	25,7/29/32,2	1135/1271/1419	12/14,5/18	32/29/27	22/24,7/27,6	970/1086/1212	9/11,1/13,6	27/25/23
5		24/27/30	1063/1191/1329	10,4/13/16	35/32/30	20,4/22,9/25,5	898/1006/1122	7,8/9,7/11,8	30/28/27
10		22,5/25,1/28	992/1110/1240	9,2/11,3/14	38/36/34	18,8/21/23,5	825/924/1031	6,7/8,3/10,1	33/31/30
15		20,8/23,3/26	918/1027/1147	7,9/9,8/12	40/38/37	17,1/19,1/21,4	751/841/939	5,7/7/8,5	36/34/33
20		19/21,4/24	844/945/1054	6,8/8,4/10,3	43/42/40	15,4/17,3/19,2	677/758/845	4,7/5,8/7	39/37/36
Tw1 / Tw2 = 70/50°C						Tw1 / Tw2 = 70/40°C			
0	2400/2900/3500	18,4/20,6/23	805/902/1007	6,6/8,1/10	23/21/20	15,2/17/1,49	443/496/554	2,3/2,8/3,4	19/17/16
5		16,8/18,8/21	733/821/916	5,6/6,9/8,4	26/24/23	13,5/15,1/16,9	394/441/492	1,8/2,3/2,8	22/20/19
10		15,1/16,9/18,9	660/739/824	4,6/5,7/6,9	29/27/26	11,8/13,2/14,7	343/384/429	1,4/1,8/2,2	24/23/22
15		13,4/15/16,7	586/655/731	3,7/4,6/5,6	31/30/29	10/11,2/12,5	291/326/364	1,1/1,3/1,6	27/26/25
20		11,7/13/14,6	510/571/637	2,9/3,5/4,3	34/33/32	8,1/9,1/10,2	237/266/297	0,7/0,9/1,1	30/29/28
Tw1 / Tw2 = 60/40°C						Tw1 / Tw2 = 50/40°C			
0	2400/2900/3500	14,7/16,5/18,4	641/717/801	4,5/5,5/6,7	18/17/16	14,2/16/17,8	1237/1386/1548	15,2/18,8/23	18/16/15
5		13/14,6/16,3	568/636/709	3,6/4,5/5,4	21/20/19	12,5/14/15,7	1092/1223/1366	12,1/14,9/18,3	20/19/18
10		11,3/12,7/14,1	493/552/616	2,8/3,5/4,2	24/23/22	10,9/12,2/13,6	945/1059/1182	9,3/11,5/14	23/22/21
15		9,6/11/12	418/468/522	2/2,6/3,1	27/26/25	9,2/10,3/11,5	797/892/996	6,8/8,4/10,3	26/25/24
20		7,8/8,7/9,8	340/381/425	1,4/1,8/2,2	30/29/28	7,4/8,3/9,3	646/724/808	4,7/5,7/7	29/28/27

For operating parameters concerning other water temperatures, please contact Sales Office.

- V – air flow
- PT – heating capacity
- Tp1 – inlet air temperature
- Tp2 – outlet air temperature
- Tw1 – inlet water temperature
- Tw2 – outlet water temperature
- Qw – water flow rate in heat exchanger
- Δpw – water pressure drop in heat exchanger

Power supply [V/Hz]	A-E-100			A-E-150			A-E-200		
	3x400/50								
Rated current* [A]	9,5	9,8	10	14,8	15,2	15,5	20,7	21,2	21,5
Heating capacity of electric heaters* [kW]	6,6	6,8	7	10,2	10,5	10,7	14,4	14,7	15
Air temperature rise (ΔT)* [°C]	27	26	25	24	22	21	22	20	18

*At inlet air temperature 10°C.

