





Cleaner, healthier air from Lossnay









# **Simple and Effective**

Excellent air quality and unbeatable Heat Exchange Efficiency

Try blowing into a rolled-up piece of paper. The warmth of your breath travels through the paper to your hands.

Some 38 years ago, that simple principle led to the development of our most advanced air-conditioning technology.



Poor air quality can be attributed to many problems arising in the workplace or in the home. It is believed to contribute to a significant loss in productivity, low morale and higher rates of sickness among many employees. The object of providing good ventilation alongside air conditioning in residential and commercial buildings is to provide conditions under which people can live and work in comfort and safety.

Developed and refined over the past 30 years, the LOSSNAY system has perfected the recovery of energy that would have otherwise been wasted. The units reduce overall energy costs by extracting stale air and then recovering the heating or cooling energy to either warm or cool incoming fresh air. By utilising this energy, the LOSSNAY system can save up to 30% on initial capital costs of heating and cooling plants. LOSSNAY's energy recovery technology and simultaneous ventilations (supply and exhaust) contribute to excellent indoor air quality and significantly reduce the outdoor air load.

### **ENERGY-RECOVERY CONCEPT BY HYPER ECO LOSSNAY CORE**



Calculation example :  $28.2^{\circ}C=33^{\circ}C=(33^{\circ}C=26^{\circ}C)\times68^{\circ}$ 

\* The above applies to the case of LGH-600RX<sub>5</sub> (High notch). Every building needs a supply of fresh air to keep its inhabitants healthy and comfortable. Outdoor air is rarely, if ever, the same temperature as that maintained by the building's air conditioning system. In the summer, it is too hot. In the winter, it is too cold. This puts added stress on the air conditioner to compensate for the intake of the hot or cold air adding to the expense of operating the system. LOSSNAY eliminates this problem with original energy-recovery technology: it uses the heat of the stale indoor air to be expelled in order to

either heat or cool the incoming fresh air to a temperature much closer to the existing indoor air. This process reduces the load on the air conditioning system without cutting off the supply of vitally necessary fresh air.

### THE BASIC PRINCIPLE

Inside the LOSSNAY Core, temperature (sensible heat) and humidity (latent heat) are exchanged from one air stream to another through the cross-flow, plate-fin total heat exchanger. The partition plates completely separate the fresh and exhaust air streams, ensuring that only fresh air is introduced to the indoor environment with no cross-contamination. Through the specially treated membrane, temperature is transferred by conduction, while humidity is transferred through the membrane pores so small that only airborne water molecules can pass through. This greatly reduces gas transfer ratio and achieves high heat recovery efficiency.



### LOSSNAY CORE CONSTRUCTION & PRINCIPLE

### **HYPER ECO CORE**

#### Introducing the new Hyper Eco Element

![](_page_3_Figure_2.jpeg)

### **EXTRA LOW MODE**

# Additional energy conservation by using a four-level air volume system that allows more precise control.

In addition to the conventional Extra High, High, and Low modes, an Extra Low mode is added to provide a more dynamic range of air volume settings and versatility in a variety of installation environments, yielding much better energy conservation. Using a simplified timer function, it switches to Extra Low operation when the operation stop button is activated and it is accordingly possible to implement 24-hour energy conservation ventilation.

![](_page_3_Figure_6.jpeg)

\* The Extra High and High ventilation modes are selectable by the initial setting.

\* Extra-Low not equipped on LGH-F1200RX5.

\* The ventilation mode is actually selected in three levels, and the remote controller also displays these three levels.

### **NEW FUNCTION: "BY-PASS" VENTILATION EXTERNAL CONTROL SETTING**

In addition to the automatic damper open/close function, open/close control via external devices is now possible, delivering a "By-pass" ventilation system that is suitable to the installed environment.

Establish the wire connection by inserting the optional remote display adaptor (PAC-SA88HA-E) in the connector CN16 (Ventilation mode selector).

With SW1 "ON," the ventilation mode of LOSSNAY is changed to the By-pass ventilation regardless of the setting on the remote controller.

![](_page_4_Figure_4.jpeg)

SW1: By-pass ventilation operation switch (When closed: For By-pass ventilation operation) Max wiring length 10 m

#### Automatic ventilation setting

The automatic damper mode automatically provides the correct ventilation for the conditions in the room. The following shows the effect "By-pass" ventilation will have under various conditions.

#### 1. Reduces cooling load

If the air outside is cooler than the air inside the building during the cooling season (such as early morning or at night), "By-pass" ventilation will draw in the cooler outside air and reduce the cooling load on the system.

#### 2. Night purge

"By-pass" ventilation can be used at night to release hot air from inside the building that has accumulated during the hot summer days.

#### 3. Office equipment room cooling

During cold season, fresh air can be drawn in and used as is to cool rooms where the temperature has risen due to the use of office equipment.

\* When the outdoor air temperature drops lower than 8°C it changes to the heat exchange ventilation. (Display of the remote controller does not change)

\* In the case of "By-pass" ventilation, the supply air temperature slightly rises more than the outside air temperature because of the heat effect around the ducts or the unit motors.

### **CO<sub>2</sub> SENSOR**

![](_page_4_Picture_17.jpeg)

The system allows you to measure CO2 density and thereby control the amount of fresh air supplied. By connecting a CO2 sensor to the connector CN16, which is added to the LOSSNAY main unit, the setting can be switched to High, Low, or Extra Low operation,

which is selected when the sensor is turned ON. This system produces additional energy conservation.

#### Air volume can be set using a pin position.

To force High fan speed externally under various conditions.

![](_page_4_Figure_22.jpeg)

![](_page_4_Figure_23.jpeg)

When SW1 is "ON," fan speed of the LOSSNAY will be set to "High" (Extra-High) regardless of the remote control setting. Use this in such a way that it ventilates at Low or Extra-Low fan speed normally, and when the external sensor detects contamination of indoor air, it changes to High (Extra High) fan speed operation.

### MULTI-VENTILATION MODE ENABLES THE APPROPRIATE SUPPLY/EXHAUST BALANCE TO BE SELECTED TO SUIT THE USAGE ENVIRONMENT AND LOCATION

Featuring "Multi-ventilation Mode," which allows the air supply/exhaust balance to be varied dynamically. The supply/exhaust balance can be selected to suit the usage environment and location, such as allowing for air exhausted via extractor fans. Modes can be selected easily by setting the connectors on the circuit board.

Ventilation mode	Supply airflow	Exhaust airflow		
Power air supply/exhaust mode	High	High		
Power air supply mode	High	Low		
Power air exhaust mode	Low	High		
Energy-saving ventilation mode	Low	Low		

Offers choice of 9 air supply/exhaust combination patterns.

![](_page_5_Figure_4.jpeg)

### **NEW REMOTE CONTROLLER PZ-60DR-E**

A new remote controller for the RX5 series is now available. In addition to boosting the energy conservation performance of the main unit, the remote controller features a variety of new functions that also pursue additional energy conservation. The appearance of the remote controller conforms to Mitsubishi Electric air conditioner interface design standards. Functions that were set using Dip-Switch on the LOSSNAY main unit can now be configured as needed using the new remote controller. This eliminates the need to crawl under the eaves to change operation settings. Also, a newly adopted dot matrix display provides much more information, making it easy to check maintenance indications, operation status display and explanations required when configuring settings.

![](_page_5_Figure_7.jpeg)

### **NEWLY ADOPTED DOT MATRIX DISPLAY AVAILABLE IN EIGHT LANGUAGES**

![](_page_6_Figure_1.jpeg)

### ENERGY SAVING BY OWEEKLY TIMER

Air volume level can be set hourly (max 8 times) and weekly. You can pre-set air volume according to the predictable requirement so that LOSSNAY can automatically operate at only necessary air-speed at the specified time period, which saves power consumption while maintaining the indoor air quality. Besides, once the weekly timer has been set, no switching on-off is required.

![](_page_6_Figure_4.jpeg)

#### **ENERGY SAVING BY NIGHT PURGE FUNCTION**

During the summer season, the Night Purge function draws cooler outside air into the room to suppress temperature rises at night. This energy conservation function reduces the load when air conditioning is started the next morning.

![](_page_6_Figure_7.jpeg)

The outdoor temperature (OA) setting can be selected either 17°C or 28°C by using Dip-Switch (SW2-7) in the LOSSNAY control box. Refer to the Installation Manual for more information. \*Do not use the night purge function if fog and heavy rain is expected. The entry of rain water may occur in the night.

### **CONNECT DUCTS IN TWO DIFFERENT DIRECTIONS (OA, EA SIDE)**

Ducts can be connected in two different directions to the outdoor vents thanks to collars and aperture plates that can be interchangeably placed in two different positions. This flexibility allows for installations close to the surface of a wall and helps avoid cases where the stale air exhaust vent would be blocked by an obstruction of some kind. This makes both planning and installation that much simpler.

![](_page_7_Figure_2.jpeg)

The position of the suspension bracket is changed to improve workability.

By attaching the suspension bracket in the centre of the product, the suspension bracket does not need to be moved even when the product is mounted upside down. (Model LGH-F300)

![](_page_7_Picture_5.jpeg)

### OA/EA square duct (LGH-F1200)

OA/EA is square duct. This simplifies installation and reduces total installation time.

### **CONTROLLERS**

#### LOSSNAY remote controller (PZ-60DR-E)

![](_page_7_Picture_10.jpeg)

![](_page_7_Figure_11.jpeg)

#### LOSSNAY remote controller (PZ-41SLB-E)

![](_page_7_Picture_13.jpeg)

	8, 33,
48	Unit: mm

### Source power requirement Power received from a LOSSNAY unit, TM4 ① - ② Number of LOSSNAY units controlled by PZ-41SLB-E 1–15

#### LOSSNAY M-NET remote controller (PZ-52SF-E)

![](_page_7_Picture_17.jpeg)

![](_page_7_Figure_18.jpeg)

\*Stock available only.

Source power requirement	Input voltage: 17VDC – 30VDC, 0.02A Power received from an outdoor unit or a power supply unit via M-NET transmission line.
Interface condition for transmission line	M-NET transmission line: 30VDC+AMI signal (±5VDC)
Number of M-NET controlled LOSSNAY units controlled by PZ-52SF-E	1–16

#### \*Stock available only.

Source power requirement	Input voltage: 9VDC-15VDC, 0.02A Power received from a LOSSNAY unit, TM4 ① - ②
Interface condition for transmission line	Specialized transmission line: DC power+AM modulation
Number of LOSSNAY units controlled by PZ-41SLB-E	1–15

### **FRESH AIR SOLUTIONS**

	LGH-F300RX₅-E1	LGH-F470RX₅-E1	LGH-F600RX₅-E1	LGH-F1200RX₅-E1	
				FF	
Airflow (Extra High)	300 CFM (500 m <sup>3</sup> /h)	470 CFM (800 m <sup>3</sup> /h)	600 CFM (1000 m <sup>3</sup> /h)	1200 CFM (2000 m <sup>3</sup> /h)	
Power source	208-230V / 60Hz	208-230V / 60Hz	208-230V / 60Hz	208-230V / 60Hz	
Power consumption	67 - 300W	120 - 538W	146 - 637W	639 - 1,303W	
Temperature recovery efficiency	65.5 - 81%	69 - 82%	67 - 80%	67 - 75%	
Enthalpy recovery efficiency (Cooling)	50 - 63%	51 - 69%	50 - 68%	50 - 59%	
Sound level (Measured at 1.5m under the centre of the unit)	18 - 37dB	18.5 - 38dB	19 - 38dB	29 - 40.5dB	

- Features the patented Mitsubishi Electric Lossnay Core
- Use with City Multi Systems or in stand-alone applications
- Reduces cooling and heating load, while improving Indoor Air Quality all year long with no cross-contamination
- No condensation drains
- Built-in frost prevention cycle for Canadian climate
- Free cooling with bypass economizer damper

### **TOTAL COMFORT & INDOOR AIR QUALITY**

Lossnay can be easily and seamlessly integrated with our City Multi systems for the ultimate in indoor air quality and air comfort solutions.

- Lossnay ERV Enthalpy heat exchanger recovers sensible and latent heat between supply and exhaust air with no cross-contamination
- B Fresh Air Zoned approach enables the use of small diameter ducts with diameters as small as 8" that take up less space than central fresh air ducting systems
- City Multi Indoor Unit Fresh air is mixed with conditioned air in the indoor unit
- D Exhaust Air
- Exhaust Ceiling Grille

![](_page_8_Picture_15.jpeg)

### LOSSNAY AND GREENSPEC

Mitsubishi Electric is a committed leader in designing and manufacturing 'Green' products and systems for industrial applications. As such, Lossnay systems are engineered to conserve energy while managing loads, and are excellent solutions for the continuous removal of indoor airborne pollutants.

- Exceptional durability; low maintenance
- Removes indoor pollutants

- Reduces heating and cooling loads
- Conserves energy and manages loads

![](_page_8_Picture_22.jpeg)

### SPECIFICATIONS: LGH-F300RX5-E1

Model		LGH-F300RX5-E1							
Power source		Single phase 208-230V/60Hz							
Ventilation mode		Lossnay ventilation Bypass ventilation							
Speed		Extra high	High	Low	Extra Low	Extra high	High	Low	Extra Low
Current	(A)	1.33/1.35	1.12/1.18	0.81/0.86	0.32/0.36	1.33/1.35	1.12/1.18	0.81/0.86	0.32/0.36
Input	(W)	274/300	232/268	168/197	67/82	274/300	232/268	168/197	67/82
Air volume	(CFM)	300/300	260/300	203/235	91/112	300/300	260/300	203/235	91/112
External static pressure	(In. W.G.)	0.60/0.78	0.46/0.54	0.28/0.33	0.06/0.08	0.60/0.78	0.46/0.54	0.28/0.33	0.06/0.08
Temperature recovery efficiency (%	) )	65.5/65.5	67.5/65.5	71/69	81/79	-	-	-	-
Eatheless account officianess (0()	Heating	63/63	65/63	68/66	79/77	-	-	-	-
Enthalpy recovery enciency (%)	Cooling	50/50	52/50	55/53	63/61	-	-	-	-
Sound pressure (Measured at 1.5m under level (dB <a>) the centre of the unit)</a>		34/37	30.5/33	25.5/27.5	18/18	35/37.5	31.5/34.5	25.5/28.5	18/18.5
Weight	(lbs)	73							
Starting current		2.5A							
Filter Specification		Standard Filter Provided (MERV 6)							

#### **EFFICIENCY AND FAN CURVES**

![](_page_9_Figure_3.jpeg)

![](_page_9_Figure_5.jpeg)

### SPECIFICATIONS: LGH-F470RX5-E1

Model			LGH-F470RX₅-E1						
Power source		Single phase 208-230V/60Hz							
Ventilation mode		Lossnay ventilation Bypass ventilation							
Speed		Extra high	High	Low	Extra Low	Extra high	High	Low	Extra Low
Current	(A)	2.40/2.50	2.10/2.20	1.59/1.71	0.60/0.64	2.40/2.50	2.10/2.20	1.59/1.71	0.60/0.64
Input	(W)	485/538	425/490	330/393	120/145	485/538	425/490	330/393	120/145
Air volume	(CFM)	470/470	420/470	330/365	147/177	470/470	420/470	330/365	147/177
External static pressure	(In. W.G.)	0.80/0.96	0.54/0.66	0.33/0.40	0.07/0.09	0.80/0.96	0.54/0.66	0.33/0.40	0.07/0.09
Temperature recovery efficiency (%	6)	69/69	70.5/69	74/72	82/80	-	-	-	-
Enthelmy receivery officiency (9)	Heating	64/64	66/64	70/68	80/78	-	-		-
Entralpy recovery enciency (%)	Cooling	51/51	53/51	58/55	69/67	-	-	-	
Sound pressure (Measured at 1.5m under level (dB <a>) the centre of the unit)</a>		36/38	33/35.5	28.5/31	18/18.5	36/39	33/36	28.5/31.5	18/18
Weight	(lbs)	119							
Starting current		4.5A							
Filter Specification		Standard Filter Provided (MERV 6)							

#### **EFFICIENCY AND FAN CURVES**

![](_page_10_Figure_3.jpeg)

![](_page_10_Figure_5.jpeg)

### SPECIFICATIONS: LGH-F600RX5-E1

Model		LGH-F600RXs-E1							
Power source		Single phase 208-230V/60Hz							
Ventilation mode		Lossnay ventilation Bypass ventilation							
Speed		Extra high	High	Low	Extra Low	Extra high	High	Low	Extra Low
Current	(A)	2.80/2.90	2.50/2.70	1.56/1.69	0.72/0.79	2.80/2.90	2.50/2.70	1.56/1.69	0.72/0.79
Input	(W)	577/637	517/605	324/387	146/180	577/637	517/605	324/387	146/180
Air volume	(CFM)	600/600	520/600	370/430	200/235	600/600	520/600	370/430	200/235
External static pressure	(In. W.G.)	0.56/0.80	0.48/0.48	0.24/0.24	0.07/0.07	0.56/0.80	0.48/0.48	0.24/0.24	0.07/0.07
Temperature recovery efficiency (%	5)	67/67	68/67	75/73	80/78	-	-	-	-
Enthelpy receivery officiency (%)	Heating	64/64	65/64	71/68	79/77	-	-	-	-
Enthalpy recovery enciency (%)	Cooling	50/50	53/50	59/56	68/67	-	-	-	-
Sound pressure (Measured at 1.5m under level (dB <a>) the centre of the unit)</a>		36/38	34/36.5	26.5/29	19/21	37/39	35/37.5	27/30	18.5/20
Weight	(lbs)	132							
Starting current		5.0A							
Filter Specification		Standard Filter Provided (MERV 6)							

#### **EFFICIENCY AND FAN CURVES**

![](_page_11_Figure_3.jpeg)

![](_page_11_Figure_5.jpeg)

### SPECIFICATIONS: LGH-F1200RX5-E1

Model		LGH-F1200RX5-E1					
Power source		Single phase 208-230V/60Hz					
Ventilation mode		Lossnay ventilation Bypass ventilation					
Speed		Extra high	High	Low	Extra high	High	Low
Current	(A)	5.7/5.8	5.0/5.3	3.1/3.4	5.8/5.8	5.1/5.4	3.1/3.4
Input	(W)	1185/1303	1040/1219	639/765	1185/1303	1040/1219	639/765
Air volume	(CFM)	1200/1200	1012/1200	695/824	1200/1200	1012/1200	695/824
External static pressure	(In. W.G.)	0.43/0.75 0.43/0.43		0.20/0.20	0.43/0.75	0.43/0.43	0.20/0.20
Temperature recovery efficiency (%	<b>6</b> )	67/67	68/67	75/73	-	-	-
	Heating	64/64	65/64	71/68	-	-	-
Enthalpy recovery eniciency (%)	Cooling	50/50	53/50	59/56	-	-	
Sound pressure (Measured at 1.5) (dB <a>) the centre of the</a>	38/40.5	36/39	29/32	40/42.5	38/41	30.5/33.5	
Weight	(lbs)	265					
Starting current		10.0A					
Filter Specification		Standard Filter Provided (MERV 6)					

#### EFFICIENCY AND FAN CURVES

![](_page_12_Figure_3.jpeg)

![](_page_12_Figure_5.jpeg)

### **A BREATH OF FRESHNESS IN RESTAURANTS, OFFICES AND SCHOOLS**

### **Restaurants**

# A restaurant can never be too clean and its air never too fresh

The atmosphere of a restaurant is crucial to securing customers and making them happy enough to come back for more. Cleanliness is the key to an attractive atmosphere and restaurants devote significant effort to ensuring the premises are sanitary. Sanitation and cleanliness, however, are not enough. No matter how clean a restaurant may look, if there are bothersome odours lingering in the air, all those efforts go to waste and the restaurant's clean image is tarnished. For these reasons, we invite restaurant owners to leave the air to LOSSNAY. LOSSNAY's superior ventilation capabilities ensure that every breath is a breath of freshness keeping guests happy. LOSSNAY also keeps owners happy with its remarkable heat recovery technology that supplies fresh outdoor air with minimal change to indoor temperature, saving on energy and expense.

## **Schools**

#### Creating the best possible environment for our children to succeed

Children deserve all the help we can give for them to grow up healthy, happy, and prosperous. No matter how good a school's curriculum, no matter how positive and enthusiastic the teacher, a child who does not feel well will have a hard time learning. The constant flow of fresh air is nowhere as important as it is in our schools. In classrooms where large numbers of students are gathered for long periods of time, carbonic gases have the tendency to accumulate, decreasing the levels of oxygen that are vital for alertness and concentration. This is especially true during the winter months when windows tend to remain closed. LOSSNAY ventilates fresh outdoor air into classrooms to replenish the supply of oxygen and expels not only carbon dioxide, but also other pollutants and odors that inevitably sully the air.

![](_page_13_Figure_7.jpeg)

### Offices

#### Fresh air – improving the overall quality of working life

Many office buildings today are heavily insulated air-tight structures with little or no natural ventilation. The unnatural environment created by air conditioners without added ventilation is a breeding ground for bacteria. Factor this in with the accumulation of pollutants and odours in the form of cigarette smoke, formaldehyde, pollen, dust and carbon dioxide, and the necessity of ventilation becomes ever more apparent. In fact, poorly ventilated buildings can give rise to Sick Building Syndrome, a malady that is known to cause headaches, sore eyes, itching and concentration loss. This results not only in discomfort at best and sickness at worst for the building's occupants, but also the reduced productivity of the workforce. Fresh air, effectively ventilated throughout the building, is therefore essential to the overall quality of working life.

![](_page_14_Picture_3.jpeg)

Simultaneous forced-air supply and exhaust introduces fresh, outdoor air into the building, effectively ventilating even fully airtight structures.

Multiple split-type units operate independently of one another, simplifying system setup and ensuring a layout that optimally matches nearly any office design.

> LOSSNAY operation can be interlocked with air-conditioning system operation.

Heat that is commonly lost due to ventilation is collected and reused thanks to the LOSSNAY Core, reducing air conditioners' energy load and cutting operating costs.

![](_page_14_Picture_8.jpeg)

### **Environmental Vision 2021**

![](_page_15_Picture_1.jpeg)

Environmental Vision 2021 is the long-term environmental management vision of the Mitsubishi Electric Group. With the guideline of making positive contributions to the earth and its people through technology and action, the Company is working toward the realization of a sustainable

society utilizing wide-ranging and sophisticated technologies as well as the promotion of proactive and ongoing actions by our employees. The Vision sets 2021 as its target year, coinciding with the 100th anniversary of Mitsubishi Electric's founding.

![](_page_15_Picture_4.jpeg)

Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.

![](_page_15_Picture_6.jpeg)

Mitsubishi Electric Sales Canada Inc. www.Lossnay.ca

![](_page_15_Picture_8.jpeg)

![](_page_15_Picture_9.jpeg)

![](_page_15_Picture_10.jpeg)

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