ENERGY RECOVERY VENTILATORS
FOR TODAY’S INDOOR ENVIRONMENTAL QUALITY REQUIREMENTS
Recapture Cooling and Heating Energy Plus Control Humidity Extremes
Outside Air Makes the Difference!

People need outside air for their health and comfort. Unconditioned outdoor air rarely meets their needs: it’s usually too hot and humid in the summer and too cold and dry in the winter. To provide the benefit of ventilation, the air must be preconditioned before being introduced into the occupied space.

Cooled or heated indoor air soon grows stale and must be exhausted to rid the building of toxins, odors, viruses, bacteria, and other potentially harmful contaminants. Exhausting that air and replacing it with outside air, which must be conditioned, is critical to a healthy and productive environment, but it is a process that can be both costly and inefficient.

If your air-conditioning system utilizes an energy recovery ventilator (ERV), these costs are greatly minimized. An ERV helps improve the efficiency of air-conditioning systems by preheating or precooling incoming outside air with the available energy in the stale exhaust air.

ERVs save money by decreasing the load on your air-conditioning units; helping remove noxious indoor pollutants, such as formaldehyde, pollen, cigarette smoke, dust, and carbon dioxide; and helping equalize humidity levels. An ERV is an efficient and effective step toward improving overall indoor environmental quality.

How does the Lossnay® core work?

At the heart of each Mitsubishi Electric Lossnay energy recovery ventilator is a low-maintenance cross-flow energy exchange core constructed of a specially treated cellulose fiber membrane.

The low-maintenance ERV core prevents the inbound air and exhaust air from intermingling while crossing the airflows, thus preconditioning the air by warming it in the wintertime with the warm exhausted air, or by cooling it in the summertime with the cooler exhaust air.

While the airflows are exchanging heat energy by conduction in the ERV core, the humidity in the airstreams seeks to equalize. In the winter cool dry supply air from outside is partially humidified by the moist exhausted air, and the opposite occurs in the summertime. The special treatment and impregnation applied to the transmission plates allows water vapor molecules to pass through so the differing humidity levels move toward equilibrium in the Lossnay core. Larger molecules are unable to pass through the transmission plates, so the outside air is uncontaminated by stale exhausted air.

Energy Recovery Ventilators

- Maintain an adequate supply of ventilation air while reducing energy costs.
- Recover up to 80 percent of sensible and latent energy from the conditioned air as it is exhausted.
- Reduce extremes in humidity that can encourage mold growth.
- Remove dangerous gases, bacteria, and other airborne impurities from conditioned air.

Mitsubishi Electric’s Lossnay energy recovery ventilators offer:

- Unprecedented energy transfer in a fixed-plate component with no moving parts.
- Reasonable paybacks and reduced peak demand.
- Superior part-load per performance, reducing latent load even at mild outdoor temperatures.
- No wheels to stop turning so outside air is always preconditioned and available.
Features

Mitsubishi Electric has responded to the growing need for total, integrated management of building HVAC and indoor air quality by making it easier to interlock and control Lossnay energy recovery ventilators with our air-conditioning systems.

Improved sound attenuation makes Lossnay units quiet enough for places where silence is a must, such as meeting rooms and libraries.

A free-cooling function is standard to help reduce costs and boost efficiency. The integrated bypass damper design makes installation and system integration quick and efficient.

System compatibility

Lossnay is fully compatible with our AE-200A, AE-50A and EW-50A Centralized Controllers and works with the TG-2000A software, LonWorks® interface, and BACnet® interface, further increasing the scope of total system management.

Multifunction LCD remote control

The PZ-43SMF-E Remote Controller and the PZ-60DR-EM-NET Controller are compact and attractive. In addition to controls for ON/OFF and Ventilation Mode, the schedule for filter maintenance is also displayed. The liquid crystal display has been designed for easy visibility.

High-static pressure blades

By developing blower blades that are thinner, more widely spaced, and possessing a larger diameter of curvature, static pressure has been boosted and sound reduced while ensuring optimal airflow. Higher static pressure means that Lossnay can accommodate the pressure loss required to meet the specifications of ductwork and terminal devices, increasing the flexibility of system installation.

Lossnay construction

Lossnay ERVs are constructed so that the exhaust air passage from the indoor side to the outdoor side (RA → EA) and the outside air passage from the outdoor side to the indoor side (OA → SA) cross. The Lossnay energy recovery unit features the Lossnay Core, which is installed at this cross point and recovers the heat by conduction through the separating medium between the airflows. This enables the energy loss during exhaust to be greatly reduced.

Ventilation

With conventional ERVs, bypass or auto ventilation was impossible without attaching an additional damper and adapter. With the LGH-F-RX5 series, however, these modes are available without using any other parts. Auto mode is the fixed setting when Lossnay is interlocked with air conditioners.

When using Lossnay independently with the PZ-43SMF-E remote control (sold separately), Lossnay ventilation, bypass ventilation, or auto mode can be selected.

Reduce 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), bypass ventilation will draw in the cooler outside air and reduce the cooling load on the system.

Cooling using outdoor air

During cooler seasons (such as spring and fall), if the people in a room cause the temperature of the room to rise, bypass ventilation will draw in the cool outside air and use it as is to cool the room.

Night purge

Bypass ventilation can be used to release hot air from inside the building that has accumulated during a hot summer day.

Office equipment room cooling

During the cold season, outdoor air can be drawn in to cool rooms where the temperature has risen due to the use of office equipment. (only when interlocked with CITY MULTI®, M-Series, or P-Series indoor units)
Comparison of primary building ventilation methods

There are two main ventilation methods:

Centralized ventilation method
This is mainly used in large buildings, with the outside air intake being installed in one machine room. For this method, primary treatment of the outdoor air, such as heat recovery to the intake air and dust removal, is performed before distribution to the building duct system.

Independent zoned ventilation method
This is mainly used in small to medium-sized buildings, with areas being ventilated using outside air intakes from independent ventilation devices. The rate of use of this method has recently increased as zone conditioning and independent control is becoming more feasible.

Calculation of total heat recovery efficiency

The Lossnay Core’s energy recovery efficiency can be considered using the following three transfer rates:

1. Temperature (sensible heat) recovery efficiency
2. Humidity (latent heat) recovery efficiency
3. Enthalpy (total heat) recovery efficiency

The heat recovery effect can be calculated if two of the above efficiencies are known. (The temperature and enthalpy efficiencies are indicated on pages 7–10.) Lossnay performance and cost analysis can also be determined using Mitsubishi Electric ERValue® software.

- Each recovery efficiency can be calculated with the formulas in the table below.
- When the supply air volume and exhaust air volume are equal, the heat recovery efficiencies on the supply and exhaust sides are the same.
- When the supply air volume and exhaust air volume are not equal, the total heat recovery efficiency is low if the exhaust volume is lower, and high if the exhaust volume is higher.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>FORMULA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature recovery efficiency (%)</td>
<td>$\eta_t = \frac{\text{t}<em>{OA} - \text{t}</em>{SA}}{\text{t}<em>{OA} - \text{t}</em>{RA}} \times 100$</td>
</tr>
<tr>
<td>Enthalpy recovery efficiency (%)</td>
<td>$\eta_i = \frac{\text{i}<em>{OA} - \text{i}</em>{SA}}{\text{i}<em>{OA} - \text{i}</em>{RA}} \times 100$</td>
</tr>
</tbody>
</table>

Calculation of supply air condition leaving Lossnay

If the Lossnay energy recovery efficiency and the conditions of the room and outdoor air are known, the conditions of the air entering the room and the air exhausted outdoors can be determined with the following formulas in the table below.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>FORMULA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply side</td>
<td>$\eta_t = \frac{\text{t}<em>{OA} - \text{t}</em>{SA}}{\text{t}<em>{SA} - \text{t}</em>{RA}} \times 100$</td>
</tr>
<tr>
<td>Exhaust side</td>
<td>$\eta_i = \frac{\text{i}<em>{OA} - \text{i}</em>{RA}}{\text{i}<em>{OA} - \text{i}</em>{SA}} \times 100$</td>
</tr>
</tbody>
</table>
Lossnay remote controller (PZ-43SMF-E)

| Source power requirement | Input voltage: 9VDC-15VDC, 0.02A  
|--------------------------|-----------------------------------
|                           | Power received from a Lossnay unit, TM2 5-6 |

<table>
<thead>
<tr>
<th>Interface condition for transmission line</th>
<th>Specialized transmission line: DC power + AM modulation</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Number of Lossnay® units controlled by PZ-43SMF-E</th>
<th>1–15</th>
</tr>
</thead>
</table>

Lossnay remote controller (PZ-60DR-E)

| Source power requirement | Input voltage: 9VDC-15VDC, 0.02A  
|--------------------------|-----------------------------------
|                           | Power received from a Lossnay® unit, TM2 5-6 |

<table>
<thead>
<tr>
<th>Interface condition for transmission line</th>
<th>Specialized transmission line: DC power + AM modulation</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Number of Lossnay units controlled by PZ-60DR-E</th>
<th>1–15</th>
</tr>
</thead>
</table>

PZ-43SMF-E and PZ-60DR-E controllers cannot be used simultaneously.
**Interlock simply, effectively, and economically**

Because the M-NET adapter is included as standard equipment on the LGH Series Lossnay Units, networking Lossnay Units with Mitsubishi Electric CITY MULTI has never been easier. Systems can be assembled simply and logically, reducing construction times and keeping costs low.

**INTERLOCKED WITH INDOOR UNITS**

**LGH-RX5**

**CITY MULTI/Lossnay connected M-NET transmission line**

**Lossnay remote controller PZ-43SMF-E**

**M-Series or P-Series/Lossnay connection cable**

**M- & P-Series indoor unit**

**LOSSNAY® USED INDEPENDENTLY**

**LGH-RX5**

**Lossnay remote controller PZ-60DR-E**

**Fan speed**

Select an appropriate Lossnay model according to the room size, air volume and sound levels. Each unit, (300, 470, 600 and 1,200 CFM), has an extra-high fan speed setting for use with a long duct or when a large air volume is required. Fan speed can also be adjusted for positive or negative zone pressurization.

Lossnay units have a low-sound design. However, for additional sound reduction, a silencer-type supply/return grill, a silencer box and a flexible silencer may be used.
LGH-F300RX5-E1

Model
Power source
Ventilation mode
Speed
Current (A)
Input (W)
Air volume (CFM)
External static pressure (in. WG)
Temperature recovery efficiency (%)
Enthalpy recovery efficiency (%)
Sound pressure level (dB[A])
Weight (lbs)
Starting current

<table>
<thead>
<tr>
<th>Model</th>
<th>LGH-F300RX5-E1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power source</td>
<td>Single phase 208-230V/60Hz</td>
</tr>
<tr>
<td>Ventilation mode</td>
<td>Lossnay ventilation</td>
</tr>
<tr>
<td>Speed</td>
<td>Extra High</td>
</tr>
<tr>
<td>Current (A)</td>
<td>1.33/1.35</td>
</tr>
<tr>
<td>Input (W)</td>
<td>274/300</td>
</tr>
<tr>
<td>Air volume</td>
<td>300/300</td>
</tr>
<tr>
<td>External static pressure</td>
<td>0.60/0.78</td>
</tr>
<tr>
<td>Temperature recovery efficiency (%)</td>
<td>65.5/65.5</td>
</tr>
<tr>
<td>Enthalpy recovery efficiency (%)</td>
<td>63/63</td>
</tr>
<tr>
<td>Sound pressure level (dB[A])</td>
<td>30/37</td>
</tr>
<tr>
<td>Weight (lbs)</td>
<td>73</td>
</tr>
<tr>
<td>Starting current</td>
<td>2.5A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit</th>
<th>Dimensions</th>
<th>Ceiling suspension fixture pitch</th>
<th>Nominal diameter</th>
<th>Duct connecting flange</th>
<th>Duct pitch</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>inches</td>
<td>34-15/16</td>
<td>40</td>
<td>12-3/8</td>
<td>34-1/2</td>
<td>41-7/8</td>
<td>2-9/16</td>
</tr>
<tr>
<td>mm</td>
<td>888</td>
<td>1016</td>
<td>315</td>
<td>875</td>
<td>1063</td>
<td>65</td>
</tr>
</tbody>
</table>

Diagram showing the unit dimensions and various components.
# Model Information

## LGH-F470RX5-E1

### General Specifications

**Model:** LGH-F470RX5-E1  
**Power source:** Single phase 208-230V/60Hz

### Ventilation Mode

<table>
<thead>
<tr>
<th>Speed</th>
<th>Lossnay ventilation</th>
<th>Bypass ventilation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Extra High</td>
<td>High</td>
</tr>
<tr>
<td>Current (A)</td>
<td>2.40/2.50</td>
<td>2.10/2.20</td>
</tr>
<tr>
<td>Low</td>
<td>1.59/1.71</td>
<td>1.59/1.71</td>
</tr>
<tr>
<td>Extra Low</td>
<td>0.60/0.64</td>
<td>0.70/0.74</td>
</tr>
<tr>
<td>Extra High</td>
<td>2.40/2.50</td>
<td>2.10/2.20</td>
</tr>
<tr>
<td>High</td>
<td>1.59/1.71</td>
<td>1.59/1.71</td>
</tr>
<tr>
<td>Low</td>
<td>0.70/0.74</td>
<td>0.80/0.84</td>
</tr>
<tr>
<td>Extra Low</td>
<td>0.60/0.64</td>
<td>0.30/0.31</td>
</tr>
<tr>
<td>Extra High</td>
<td>2.40/2.50</td>
<td>2.10/2.20</td>
</tr>
<tr>
<td>High</td>
<td>1.59/1.71</td>
<td>1.59/1.71</td>
</tr>
<tr>
<td>Low</td>
<td>0.30/0.31</td>
<td>0.40/0.40</td>
</tr>
</tbody>
</table>

### Air Volume

<table>
<thead>
<tr>
<th>Air volume (CFM)</th>
<th>470/470</th>
<th>420/470</th>
<th>330/365</th>
<th>330/365</th>
</tr>
</thead>
<tbody>
<tr>
<td>External static pressure (in. WG)</td>
<td>0.80/0.96</td>
<td>0.54/0.66</td>
<td>0.33/0.40</td>
<td>0.07/0.09</td>
</tr>
<tr>
<td>Temperature recovery efficiency (%)</td>
<td>69/69</td>
<td>70/72</td>
<td>74/72</td>
<td>82/80</td>
</tr>
<tr>
<td>Enthalpy recovery efficiency (%)</td>
<td>64/64</td>
<td>66/64</td>
<td>70/68</td>
<td>80/78</td>
</tr>
<tr>
<td>Sound pressure (Measured at 1.5m under level (dB[A]) the center of the unit)</td>
<td>36/38</td>
<td>33/35.5</td>
<td>28.5/31</td>
<td>18/18.5</td>
</tr>
</tbody>
</table>

### Weight (lbs)

- 119 lbs

| Starting current | 4.5A |

### Dimensions

<table>
<thead>
<tr>
<th>Unit</th>
<th>Dimensions</th>
<th>Ceiling suspension fixture pitch</th>
<th>Nominal diameter</th>
<th>Duct connecting flange</th>
<th>Duct pitch</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>1144</td>
<td>1004</td>
<td>399</td>
<td>1010</td>
<td>1036</td>
<td>389</td>
</tr>
</tbody>
</table>

### Additional Information

- **Power supply cable opening**
- **Lossnay core**
- **Enthalpy exchange efficiency (Heating)**
- **Enthalpy exchange efficiency (Cooling)**
- **Extra Low**
- **Low**
- **Extra High**
- **High**
- **Exhaust air outlet**
- **Air exhaust fan**
- **OA (outside air intake)**
- **Control box**
- **Maintenance cover**
- **Air supply fan**
- **RA (return air)**
- **SA**
- **Position where duct direction change is possible**
- **Bypass damper plate**
- **Ceiling suspension fixture (4-5/16 X 3 1/16) (4-15 X 20 oval)**

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*Illustrations and diagrams related to the above specifications.*
### LGH-F600RX5-E1

#### Model
- **LGH-F600RX5-E1**

#### Power source
- Single phase 208-230V/60Hz

#### Ventilation mode
- **Lossnay ventilation**
- **Bypass ventilation**

<table>
<thead>
<tr>
<th>Speed</th>
<th>Extra High</th>
<th>High</th>
<th>Low</th>
<th>Extra Low</th>
<th>Extra High</th>
<th>High</th>
<th>Low</th>
<th>Extra Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current (A)</td>
<td>2.80/2.90</td>
<td>2.50/2.70</td>
<td>1.56/1.69</td>
<td>0.72/0.79</td>
<td>2.80/2.90</td>
<td>2.50/2.70</td>
<td>1.56/1.69</td>
<td>0.72/0.79</td>
</tr>
<tr>
<td>Input (W)</td>
<td>577/637</td>
<td>517/605</td>
<td>324/367</td>
<td>146/160</td>
<td>577/637</td>
<td>517/605</td>
<td>324/367</td>
<td>146/160</td>
</tr>
<tr>
<td>Air volume (CFM)</td>
<td>600/650</td>
<td>520/650</td>
<td>370/430</td>
<td>200/235</td>
<td>600/650</td>
<td>520/650</td>
<td>370/430</td>
<td>200/235</td>
</tr>
<tr>
<td>External static pressure (in. WG)</td>
<td>0.56/0.80</td>
<td>0.48/0.48</td>
<td>0.24/0.24</td>
<td>0.07/0.07</td>
<td>0.56/0.80</td>
<td>0.48/0.48</td>
<td>0.24/0.24</td>
<td>0.07/0.07</td>
</tr>
<tr>
<td>Temperature recovery efficiency (%)</td>
<td>67/67</td>
<td>68/67</td>
<td>75/73</td>
<td>80/78</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Enthalpy recovery efficiency (%)</td>
<td>64/64</td>
<td>65/64</td>
<td>71/68</td>
<td>79/77</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Sound pressure (Measured at 1.5m under level (dB[A])</td>
<td>36/38</td>
<td>34/36.5</td>
<td>26.5/29</td>
<td>19/21</td>
<td>37/39</td>
<td>35/37.5</td>
<td>27/30</td>
<td>18.5/20</td>
</tr>
<tr>
<td>Weight (lbs)</td>
<td>132 lbs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Starting current</td>
<td>5.0A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Unit Dimensions

<table>
<thead>
<tr>
<th>Unit</th>
<th>Dimensions</th>
<th>Ceiling suspension fixture pitch</th>
<th>Nominal diameter</th>
<th>Duct connecting flange</th>
<th>Duct pitch</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>inches</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mm</td>
<td>1144</td>
<td>1231</td>
<td>399</td>
<td>1010</td>
<td>1263</td>
<td>389</td>
</tr>
</tbody>
</table>

#### Diagrams
- **60Hz/Single phase 208V**
- **60Hz/Single phase 230V**
LGH-F1200RX5-E1

Model: LGH-F1200RX5-E1

<table>
<thead>
<tr>
<th>Power source</th>
<th>Ventilation mode</th>
<th>Speed (CFM)</th>
<th>Lossnay ventilation</th>
<th>Bypass ventilation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current (A)</td>
<td>Extra High</td>
<td>5/7.5/8</td>
<td>1185/1303</td>
<td>1040/1219</td>
</tr>
<tr>
<td>Input (W)</td>
<td>High</td>
<td>5/0.5/3</td>
<td>1040/1219</td>
<td>639/765</td>
</tr>
<tr>
<td>Air volume (CFM)</td>
<td>Low</td>
<td>3/1.3/4</td>
<td>639/765</td>
<td>1012/1200</td>
</tr>
<tr>
<td>External static pressure (In. WG)</td>
<td>Extra High</td>
<td>1200/1200</td>
<td>1012/1200</td>
<td></td>
</tr>
<tr>
<td>Temperature recovery efficiency (%)</td>
<td>High</td>
<td>0.43/0.75</td>
<td>0.43/0.43</td>
<td></td>
</tr>
<tr>
<td>Enthalpy recovery efficiency (%)</td>
<td>Extra High</td>
<td>0.20/0.20</td>
<td>0.43/0.43</td>
<td></td>
</tr>
<tr>
<td>Sound pressure level (dBA) (Measured at 1.5m under the center of the unit)</td>
<td>Low</td>
<td>38/40.5</td>
<td>38/40.5</td>
<td></td>
</tr>
<tr>
<td>Weight (lbs)</td>
<td>265 lbs</td>
<td>36/39</td>
<td>120 lbs</td>
<td>30.5/33.5</td>
</tr>
<tr>
<td>Starting current</td>
<td>10.0A</td>
<td>29/32</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit</th>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>48-1/2</td>
<td>265 lbs</td>
</tr>
<tr>
<td>B</td>
<td>36-1/8</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>36-1/8</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>50-1/8</td>
<td>120 kg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit</th>
<th>Dimensions</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1231</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>917</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>917</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>1272</td>
<td></td>
</tr>
</tbody>
</table>

Specifications:
- **Power source**: Single phase 208-230V/60Hz
- **Ventilation mode**: Lossnay ventilation, Bypass ventilation
- **Speed**: Extra High, High, Low
- **Current (A)**: 5/7.5/8, 5/0.5/3, 3/1.3/4
- **Input (W)**: 1185/1303, 1040/1219, 639/765
- **Air volume (CFM)**: 1200/1200, 1012/1200, 695/824
- **External static pressure (In. WG)**: 0.43/0.75, 0.43/0.43, 0.20/0.20
- **Temperature recovery efficiency (%)**: 67/67, 68/67, 75/73
- **Enthalpy recovery efficiency (%)**: 64/64, 65/64, 71/68
- **Sound pressure level (dBA)**: 38/40.5, 36/39, 29/32, 40/42.5, 38/41, 30.5/33.5
- **Weight (lbs)**: 265 lbs, 120 kg
- **Starting current**: 10.0A

Additional features:
- **Control box**
- **Maintenance cover**
- **Inspection opening**
- **Core, air filter, High-efficiency filter, fan, maintenance space**
- **High-efficiency filter (sold separately)**
- **Air exhaust fan**
- **Air supply fan**
- **Bypass damper plate**
- **Ceiling suspension fixture**
- **OA (outside air intake)**
- **RA (return air)**
- **EA (exhaust air outlet)**
- **SA (supply air)**

Diagram showing unit dimensions, weight, and other specifications.
Typical Installation

LGH-F300RX5-E1
LGH-F470RX5-E1
LGH-F600RX5-E1

- Clearance should be provided to allow access to the air filter and Lossnay® Core.
- The installer must provide insulation to prevent moisture condensation along the two outside ducts (outside-air intake and exhaust-air outlet).
- Ceiling installation hardware can be attached to the top of the unit.
- The installer must use weather-protected caps or hoods in areas directly exposed to rain.

LGH-F1200RX5-E1

Duct can be installed 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 are interchangeable — either side or bottom locations. This flexibility allows for installations close to the surface of a wall and helps avoid cases where the stale exhaust air vent would be obstructed. This innovative feature simplifies both planning and installation.
System Control Examples

Basic System — Stand-alone Lossnay ERV with PZ-41SLB-E Remote Controller

One Lossnay with one remote controller

- Non-polar 2 wires
- Remote controller PZ-43SMF-E

One Lossnay unit is operated independently with one remote controller.

Multiple Lossnay units with one remote controller

- Non-polar 2 wires
- Remote controller PZ-43SMF-E

Up to 15 Lossnay units can be controlled at one time with one remote controller.

Two remote controller system with one Lossnay

- Non-polar 2 wires
- Remote controller PZ-43SMF-E

The Lossnay can be controlled from two remote locations. The remote controller gives priority to the last touch.

Operation with M-Series or P-Series

Operating with M- and P-Series (A-control) — Interlocked

- Lossnay
- Remote controller PZ-43SMF-E
- Indoor unit

The Remote controller (A-control) controls the air conditioning device and the Lossnay. It is possible to operate or switch fan speed for the Lossnay individually.

Operating with external device

- Lossnay
- Remote controller PZ-43SMF-E
- Indoor unit

The operation of the Lossnay will be connected with the operation or stopping of the external device. Input of level signal or pulse signal (12V DC, 24V DC, uncharged a-contact) is possible.

CITY MULTI and Lossnay Interlocked

- Air conditioning device and system control
- Outdoor unit
- Indoor unit
- Remote controller PZ-43SMF-E

It is possible to operate 16 indoor units per 1 Lossnay.

Centralized Management System

- Centralized controller
- Lossnay
- Remote controller PZ-60DR-E

Control of start/stop, fan speed and ventilation mode is possible from the Lossnay remote controller PZ-60DR-E.

Note: In the LGH-F1200RX type, there are two circuit boards installed in each unit, so count each unit as two Lossnay units.
Energy Recovery Ventilator Terminology

**Balanced Ventilation**
A ventilation strategy using both an exhaust air blower and a supply or make-up air blower providing the same airflow and pressure so as not to pressurize or depressurize a building.

**CFM**
Cubic Feet per Minute, a measure of air volume.

**Delayed Operation**
The On/Off operation of the Lossnay unit can be delayed for 30 minutes following the operation of the indoor unit. When using PZ-43SMF-E, the delay can be set for 0:30–24:00 hours.

**ESP**
External Static Pressure, available motive force to propel air in a duct system from a blower or ventilator.

**Enthalpy Exchange**
The exchange of both sensible and latent heat energy.

**Exhaust Air (EA)**
Air expelled from indoor space.

**External Control Input**
An On/Off input signal for operating the Lossnay unit that can be sent from an external device. The signal may be a 12V–24V DC or an uncharged a-contact signal.

**Interlocked Lossnay**
Lossnay unit linked to CITY MULTI, M-, S-, or P-Series Indoor units that receive signals and operates via the indoor unit's remote controller.

**Non-interlocked Lossnay**
Lossnay unit controlled independently of CITY MULTI, M-Series, or P-Series indoor units by the Lossnay remote controller and/or centralized controller.

**Operation in Cold Areas**
When the outdoor air is less than 14°F, continuous operation of the fan for drawing in supply air is stopped, and intermittent operation is started.

**Outdoor Air (OA)**
Air drawn from outdoors — ventilation air.

**Pulse Input**
When the control signal from an external device outputs a pulse such as the one shown at right, the pulse input control is performed by the Lossnay unit. (Optional DIP switch 2-2 ON) 200 ms or more.

**Remote Operation**
This is used for enabling/disabling the On/Off control signal from an external device and for setting interlocked operation of the external device and the Lossnay unit.
- ON/OFF interlock: Enables both ON ↔ OFF and OFF ↔ ON external signals.
- ON interlock: Enables OFF ↔ ON external signal. Disables ON ↔ OFF external signal.
- OFF interlock: Enables ON ↔ OFF external signal. Disables OFF ↔ ON external signal.
- External priority: Same as on/off interlock but the OFF signal from the remote controller is ignored when the external control signal is on.

**Return Air (RA)**
Air drawn from indoor space.

**Supply Air (SA)**
Air supplied to indoor space.

**Ventilation Modes**
- Energy Recovery — energy exchange through Lossnay core at all times.
- Bypass — no exchange—bypass damper open
- Automatic — energy exchange or bypass as determined by present temperature sensor in inlet and discharge airstreams.
### System Selection

**Interlocked with CITY MULTI**

- Lossnay operation when indoor unit is stopped: ○ Available  × Not available
- Lossnay stopping when indoor unit is operating: ○
- Selecting Lossnay fan speed:
  - When interlocked with indoor unit for compatibility with R22, R407C and R410A: High / Low
- Ventilation mode: Fixed to automatic
- Filter maintenance indicator: ○
- Lossnay error indicator: ○
- Delayed operation – selectable times: ○
- External control operating mode selection: ×
- Number of indoor units for interlocked group setting with one Lossnay unit: 16 units
- Number of Lossnay units for interlocked group setting with one indoor unit: 1 unit

**Interlocked with M-Series or P-Series**

- Lossnay operation when indoor unit is stopped: ○
- Lossnay stopping when indoor unit is operating: ×
- Lossnay fan speed selection: High / Low
- Other common items:
  - Lossnay error indicator: ×
  - Ventilation mode: Fixed to automatic
  - Filter maintenance indicator: ×
  - Delayed operation - selectable times: ○
  - External control operating mode selection: ×
- Number of indoor units for interlocked group setting with one Lossnay unit: 1 unit
- Number of Lossnay units for interlocked group setting with one indoor unit: 1 unit

**Independent Lossnay Unit**

(Not interlocked with CITY MULTI, M-Series, or P-Series systems)

- Start/Stop: ○
- Fan speed selection: High / Low
- Ventilation mode: Energy Recovery / By-pass / Auto
- Filter maintenance indicator: ○
- Lossnay error indicator: ○
- Delayed operation: ○
- External control operating mode selection: ○
- Number of Lossnay units:
  - (In the case of LGH-200RX type, count each unit as two for calculation): 15 units
- Number of remote controllers: 2 units

**Interlocked with external device (BMS)**

- Start/Stop: ○
- Fan speed selection: Fixed to high
- Ventilation mode switching: Fixed to automatic
- Filter maintenance indicator: ×
- Lossnay error indicator: ×
- Delayed operation: ○
- External control operating mode selection: ○
Centralized Control System with CITY MULTI

AE-200A/AE-50A Centralized controller

Outdoor unit

Indoor unit

Lossnay Indoor unit

Remote controller

A-control M-Series or P-Series outdoor unit

M-NET control adapter PAC-SF83MA-E

A-control M-Series or P-Series indoor unit

M- and P-Series A-control PAR-33MAA remote controller

Lossnay

Lossnay

Lossnay remote controller (PZ-60DR-E)

Lossnay remote controller (PZ-43SMF-E)

Lossnay

Lossnay

Lossnay remote controller (PZ-60DR-E)

Lossnay remote controller (PZ-43SMF-E)

Lossnay

Ext. signal source

Remote controller