CENTRALIZED HEATING OF A RESIDENTIAL BUILDING VIA HMU UNITS CONNECTED TO A KXZ SYSTEM

The system provides hydronic heating only via a centralized distribution system in a residential condominium.

DHW production is centralized and entrusted to specific products such as Hot Water or Q-ton, based on the volume needed.

floor heating

DHW via Hot Water or Q-ton

SYSTEM FEATURES

28-168 kW
Capacity range of the outdoor units

100% (max)
Total power of connectable I.U.(HMU only)

40 m
Maximum splitting level difference between O.U. and HMU. With design temperature lower than -10°C, the O.U. must always be placed above the HMU.

510 m (max)
Total splitting distance

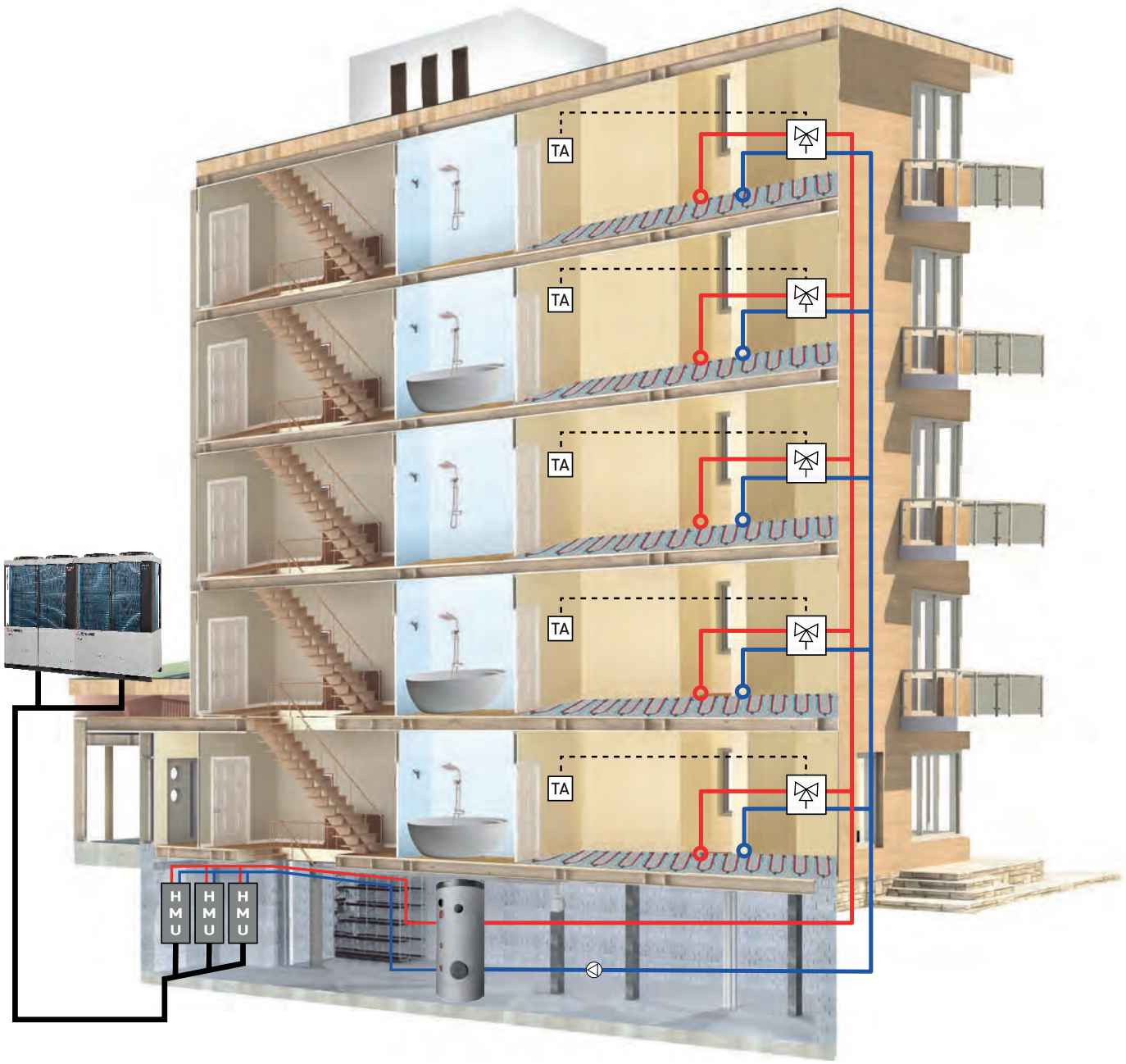
CONTROL SYSTEM

Using the RC-EX3H wired control connected to the HMUs, it is possible to turn the system on and off and set operating time bands.

The delivery temperature to the system is calculated from the climatic curve based on the outdoor temperature.

The maximum flow temperature useful for determining the project conditions varies based on the outdoor temperature according to the table alongside.

Outdoor design temp.	Maximum design temp. for the delivery	Minimum return temp.
10°C	55°C	20°C
5°C	55°C	20°C
0°C	55°C	25°C
-5°C	49°C	25°C
-10°C	43°C	25°C
-15°C	37°C	32°C
-20°C	32°C	27°C



DESCRIPTION OF THE SYSTEM

The main refrigerant pipe branches from the outdoor units connected in combination, until it reaches the room designed to house the Hydromodules (thermal power plant): from here and through Y-shaped branches, the refrigerant fluid is distributed to the various HMUs. These take energy from the fluid and transfer it to the water in the heating system.

The Hydromodules use the circulators present inside them to push the water into a storage tank, which acts as a hydraulic separator between the primary circuit, made up of the HMUs and the secondary circuit made up of the distribution to private users.

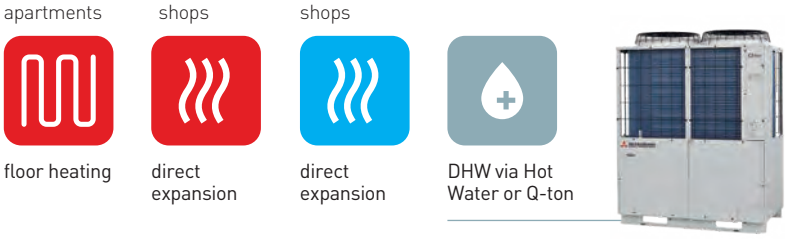
Each apartment has a consumption distribution box, controlled by a room thermostat (RT), which allows you to use the heating according to your needs, thus paying only for actual use. Distribution inside the apartments occurs with radiant floor panels.

HEATING OF THE APARTMENTS VIA HMU UNITS LOCATED ON THE FLOORS AND **AIR CONDITIONING** OF THE SHOPS VIA AIR-TO-AIR INDOOR UNITS, CONNECTED TO A KXZ SYSTEM

The system provides hydronic heating via a distribution system divided by floors, **with an HMU serving the individual real estate units on the same floor**.

The condominium is of a residential type with shops underneath, typically present in winter tourist areas, where there is no need for summer air conditioning in the apartments.
The air conditioning of the shops takes place with indoor direct expansion air-to-air units.

DHW production is centralized and entrusted to specific products such as Hot Water or Q-ton, based on the volume needed.



SYSTEM FEATURES

28-168 kW
Capacity range of the outdoor units

200% (max)
(for O.U. up to 45 kW)

160% (max)
(for O.U. more than 45 kW)

Total power of connectable I.U. (HMU+DX). It is mandatory to connect at least 50% of the total I.U. power (DX type)

40 m
Max. splitting level difference between O.U. and I.U. (HMU or DX)

18 m
Max. splitting level difference between the I.U. (HMU or DX)

510 m (max)
Total splitting distance

-10°C
Minimum outdoor design temperature

CONTROL SYSTEM

Through the SL4 centralized control, it is possible to manage every single U.I. (including HMU modules) to the system both locally and via the Internet.

Local control is also available for each DX I.U. with its own individual control (wired or wireless), with the possibility of weekly programming, while with the RC-EX3H wired control it is possible to turn each individual HMU on and off and set operating time bands.

The delivery temperature to the system is calculated from the climatic curve based on the outdoor thermal values.
The maximum flow temperature useful for determining the design conditions varies based on the outdoor values, according to the table alongside.

Outdoor design temp.	Maximum design temp. for the delivery	Minimum return temp.
10°C	40°C	20°C
5°C	40°C	20°C
0°C	40°C	25°C
-5°C	40°C	25°C
-10°C	40°C	25°C

DESCRIPTION OF THE SYSTEM

The Hydromodules are located on the floors, (one or more based on need) contributing to the reduction of installation costs (no water risers), and use the circulators present inside them to push the water directly into the individual apartments.

Each apartment has a consumption distribution box, controlled by a room thermostat (RT), which allows you to use the heating according to your needs, thus paying only for actual use. Distribution inside the apartments occurs with radiant floor panels.

In the apartments, air conditioning is disabled by a specific setting available in the RC-EX3H control connected to the HMUs.

The direct expansion indoor units are positioned in the shops (one or more based on need).

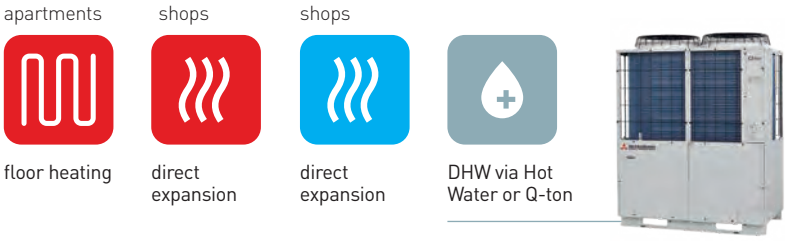
The management costs are divided per I.U., whether air or water, by means of a centralized control which, in the presence of a LAN connection, also allows remote management via the web.

HEATING OF THE APARTMENTS VIA HMU UNITS LOCATED IN A TECHNICAL ROOM AND **AIR CONDITIONING** OF THE SHOPS VIA AIR-TO-AIR I.U., CONNECTED TO A KXZ SYSTEM

The system provides for the supply of hydronic heating via a riser distribution system, **with an HMU serving the individual real estate units on the same floor. The HMU units are installed in a designated room on the same level as the shops.**

The condominium is of a residential type with shops underneath, typically present in winter tourist areas where there is no need for summer air conditioning in the apartments. The air conditioning of the shops takes place with indoor direct expansion air-to-air units.

DHW production is centralized and entrusted to specific products such as Hot Water or Q-ton, based on the volume needed.



SYSTEM FEATURES

28-168 kW
Capacity range of the outdoor units

200% (max)
(for O.U. up to 45 kW)

160% (max)
(for O.U. more than 45 kW)

Total power of connectable I.U. (HMU+DX). It is mandatory to connect at least 50% of the total I.U. power (DX type)

40 m
Max. splitting level difference between O.U. and I.U. (HMU or DX). With design temperature lower than -10°C, the O.U. must always be placed above the I.U.

18 m
Max. splitting level difference between the U.I. (HMU or DX)

510 m (max)
Total splitting distance

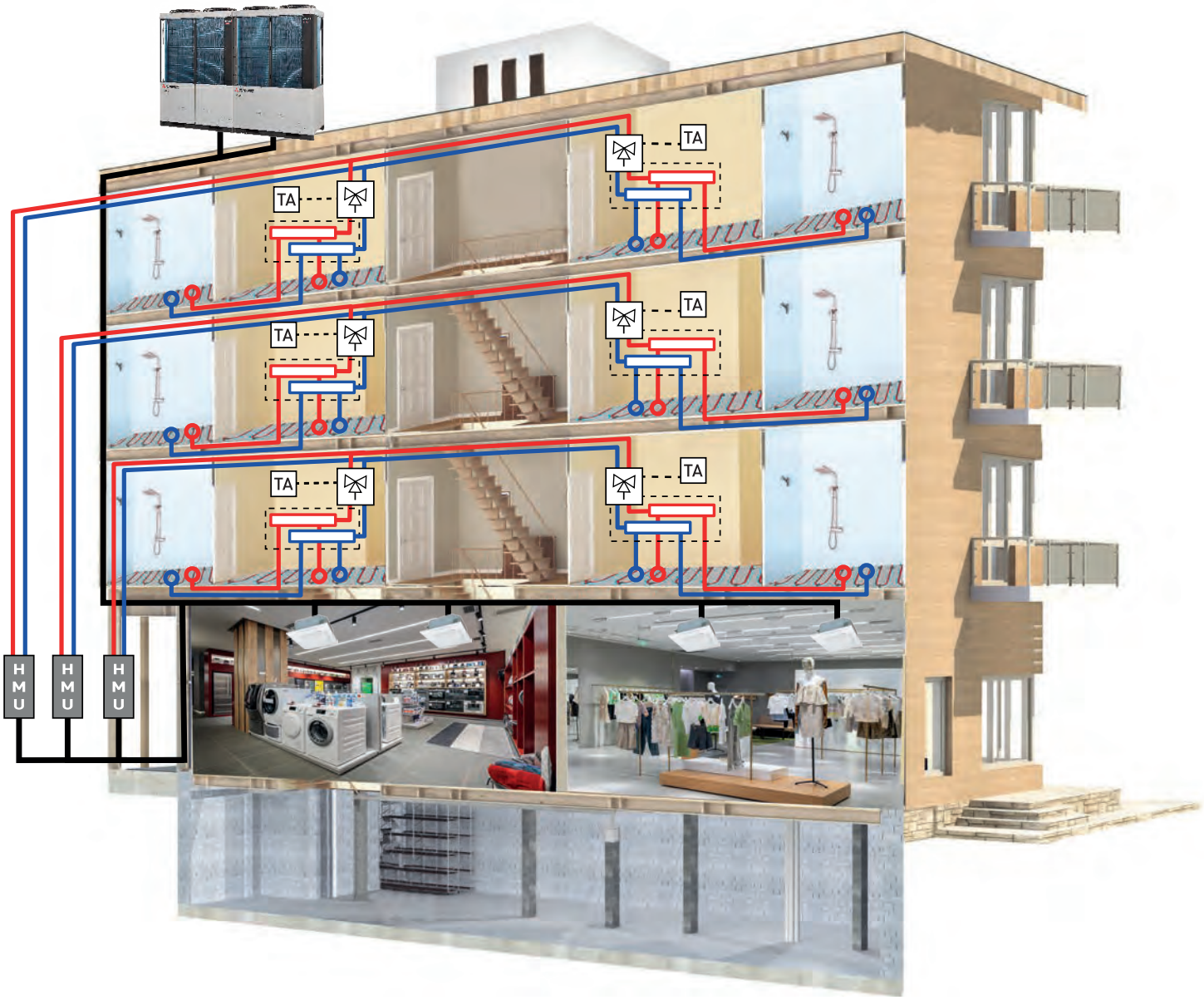
CONTROL SYSTEM

Through the SL4 centralized control, it is possible to manage every single U.I. (including HMU modules) to the system both locally and via the Internet.

Local control is also available for each DX I.U. with its own individual control (wired or wireless), with the possibility of weekly programming, while with the RC-EX3H wired control it is possible to turn each individual HMU on and off and set operating time bands.

The delivery temperature to the system is calculated from the climatic curve based on the outdoor thermal values. The maximum flow temperature useful for determining the design conditions varies based on the outdoor values, according to the table alongside.

Outdoor design temp.	Maximum design temp. for the delivery	Minimum return temp.
10°C	40°C	20°C
5°C	40°C	20°C
0°C	40°C	25°C
-5°C	40°C	25°C
-10°C	40°C	25°C
-15°C	36°C	31°C
-20°C	32°C	27°C



DESCRIPTION OF THE SYSTEM

The Hydromodules are located in a room set up on the same level as the shops. Each HMU serves the apartments on the floor via a riser column, which brings the heating water to the specific floor from the boiler room.

Each apartment has a consumption distribution box, controlled by a room thermostat (RT), which allows you to use the heating according to your needs, thus paying only for actual use.
Distribution inside the apartments occurs with radiant floor panels.

In the apartments, air conditioning is disabled by a specific setting available in the RC-EX3H control connected to the HMUs.

The direct expansion indoor units are positioned in the shops (one or more based on need).

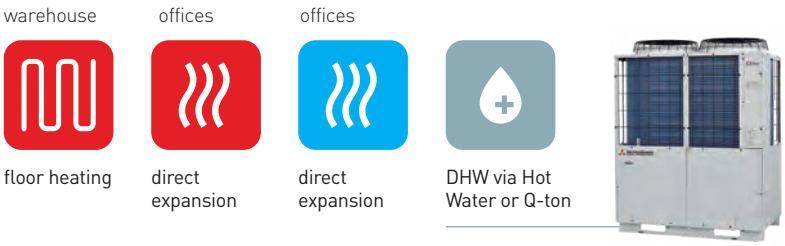
The management costs are divided per I.U., whether air or water, by means of a centralized control which, in the presence of a LAN connection, also allows remote management via the web.

WAREHOUSE HEATING VIA HMU UNITS LOCATED IN A TECHNICAL ROOM AND OFFICE AIR CONDITIONING VIA AIR-TO-AIR I.U., CONNECTED TO A KXZ SYSTEM

The system involves the supply of hydronic heating via a radiant floor distribution system for a warehouse that does not require summer air conditioning, and is adjacent to the company office building.

The air conditioning of the offices takes place with internal direct expansion air-to-air units.

DHW production is centralized and entrusted to specific products such as Hot Water or Q-ton, based on the volume needed.



SYSTEM FEATURES

28-168 kW
Capacity range of the outdoor units

200% (max)
(for O.U. up to 45 kW)

160% (max)
(for O.U. more than 45 kW)

Total power of connectable I.U.(HMU+DX). It is mandatory to connect at least 50% of the total I.U. power (DX type)

40 m
Max. splitting level difference between the O.U. and the I.U. (HMU or DX).
With design temperature lower than -10°C, the O.U. must always be placed above the I.U.

18 m
Max. splitting level difference between I.U. (HMU or DX)

510 m (max)
Total splitting distance

CONTROL SYSTEM

Through the SL4 centralized control, it is possible to manage every single U.I. (including HMU modules) to the system both locally and via the Internet.

Local control is also available for each DX I.U. with its own individual control (wired or wireless), with the possibility of weekly programming, while with the RC-EX3H wired control it is possible to turn each individual HMU on and off and set operating time bands.

The delivery temperature to the system is calculated from the climatic curve based on the outdoor thermal values.
The maximum flow temperature useful for determining the design conditions varies based on the outdoor values, according to the table alongside.

Outdoor design temp.	Maximum design temp. for the delivery	Minimum return temp.
10°C	40°C	20°C
5°C	40°C	20°C
0°C	40°C	25°C
-5°C	40°C	25°C
-10°C	40°C	25°C
-15°C	36°C	31°C
-20°C	32°C	27°C

DESCRIPTION OF THE SYSTEM

The necessary Hydromodules are positioned inside a designated room (thermal power plant) and use the circulators present inside them to push the water into a storage tank, which acts as a hydraulic separator between the primary circuit, composed of the HMUs and the secondary, consisting of the distribution system towards the warehouse with radiant floor panels.
The direct expansion indoor units are positioned in the office building in quantities and types suitable for needs.

In the presence of a LAN connection, remote control via the web is possible.

INDEPENDENT HEATING VIA HMU UNITS LOCATED IN EACH APARTMENT AND AIR CONDITIONING VIA AIR-TO-AIR I.U., CONNECTED TO A KXZ SYSTEM

The system provides independent heating and cooling for the apartments of a residential building.

The heating is hydronic via a radiant floor distribution system for each individual property unit. Air conditioning takes place with indoor direct expansion air-to-air units located in the same rooms.

The preparation of domestic water is centralized and entrusted to specific products such as Hot Water or Q-ton, based on the necessary volume.

floor heating

direct expansion

DHW via Hot Water or Q-ton

SYSTEM FEATURES

28-168 kW
Capacity range of the outdoor units

28 kW
Min. I.U. capacity that can be installed per apartment, divided into 14 kW (1 HMU) + 14 kW split between the various DX I.U.

200% (max)
(for O.U. up to 45 kW)

160% (max)
(for O.U. more than 45kW)

Total power of connectable I.U. (HMU+DX). It is mandatory to connect at least 50% of the total I.U. power (DX type)

40 m
Max. splitting level difference between the O.U. and the I.U. (HMU or DX)

18 m
Max. splitting level difference between I.U. (HMU or DX)

510 m (max)
Total splitting distance

-10°C
Min. outdoor design temperature

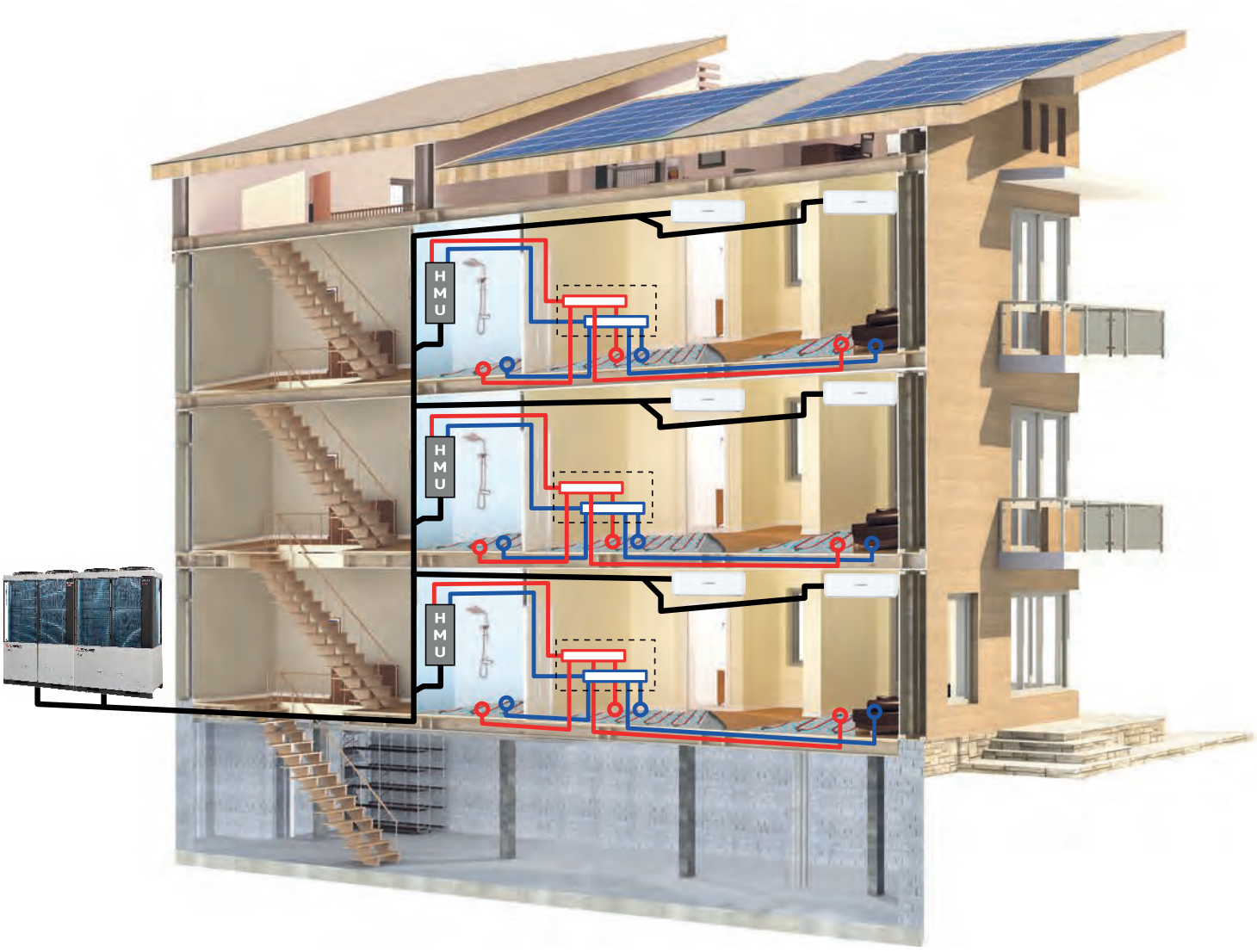
CONTROL SYSTEM

Through the SL4 centralized control, it is possible to divide the operating costs between the various real estate units.

Local control is available for each DX I.U. with its own individual control (wired or wireless) with the possibility of weekly programming, while with the wired control RC-EX3H it is possible to turn the HMU on and off and set operating time bands.

The delivery temperature to the system is calculated from the climatic curve based on the outdoor thermal values.
The maximum flow temperature useful for determining the design conditions varies based on the outdoor values, according to the table alongside.

Outdoor design temp.	Maximum design temp. for the delivery	Minimum return temp.
10°C	40°C	20°C
5°C	40°C	20°C
0°C	40°C	25°C
-5°C	40°C	25°C
-10°C	40°C	25°C



DESCRIPTION OF THE SYSTEM

The Hydromodules are located one per apartment and each uses the circulator present inside to push the water directly into the floor system.

The U.I. with direct expansion ensure efficient air conditioning and an exceptionally low sound level for a VRF system, as the expansion valves which normally cause noise are remoted, soundproofed and isolated inside or outside the apartment.

They are powered continuously with a backup card, so that the user can cut off the power to his apartment without damaging the functioning of the entire system.

Each apartment is autonomous in terms of determining operating costs, since the distribution is made by I.U., whether air or water, by means of a centralized control installed in the DHW production room.

INDEPENDENT HEATING VIA HMU UNITS LOCATED WITHIN THE STORE AND AIR CONDITIONING VIA AIR-TO-AIR I.U., CONNECTED TO A KXZ SYSTEM

The system involves the supply of independent heating and cooling for the shops of a shopping centre, located on the same floor.

Hydronic heating is provided via a radiant floor distribution system for each individual store. Air conditioning takes place with indoor direct expansion air-to-air units located in the individual rooms.

The preparation of domestic water is centralized and entrusted to specific products such as Hot Water or Q-ton, based on the necessary volume.

floor heating

direct expansion

DHW via Hot Water or Q-ton

SYSTEM FEATURES

28 kW

Min. I.U. capacity that can be installed per apartment, divided into 14 kW (1 HMU) + 14 kW split between the various DX I.U.

28-168 kW

Capacity range of the outdoor units

200% (max)
(for O.U. up to 45 kW)

160% (max)
(for O.U. more than 45 kW)

Total power of connectable I.U. (HMU+DX). It is mandatory to connect at least 50% of the total I.U. power (DX type)

40 m

Max. splitting level difference between the O.U. and the I.U. (HMU o DX). With design temperature lower than -10°C, the O.U. must always be placed above the I.U.

18 m

Max. splitting level difference between I.U. (HMU or DX)

510 m (max)

Total splitting distance

CONTROL SYSTEM

Through the SL4 centralized control, it is possible to divide the operating costs between the various users.

Local control is available for DX I.U. with its own individual control (wired or wireless) with the possibility of weekly programming, while with the wired control RC-EX3H it is possible to turn the HMUs on and off or set operating time bands.

The delivery temperature to the system is calculated from the climatic curve based on the outdoor thermal values.
The maximum flow temperature useful for determining the design conditions varies based on the outdoor values, according to the table alongside.

Outdoor design temp.	Maximum design temp. for the delivery	Minimum return temp.
10°C	40°C	20°C
5°C	40°C	20°C
0°C	40°C	25°C
-5°C	40°C	25°C
-10°C	40°C	25°C
-15°C	36°C	31°C
-20°C	32°C	27°C

DESCRIPTION OF THE SYSTEM

The Hydromodules are located inside the shop (one or more based on need) and each uses the circulator present inside to push the water directly into the floor system.

The U.I. with direct expansion ensure excellent air conditioning thanks to effective dehumidification of the rooms, typical of the system.

The expansion valves are powered continuously with a backup board, so that the tenant can cut off power to his shop without damaging the operation of the entire system.

Each shop is autonomous in terms of determining operating costs, since the distribution is made by I.U., whether air or water, via a centralized control installed in the DHW production room.