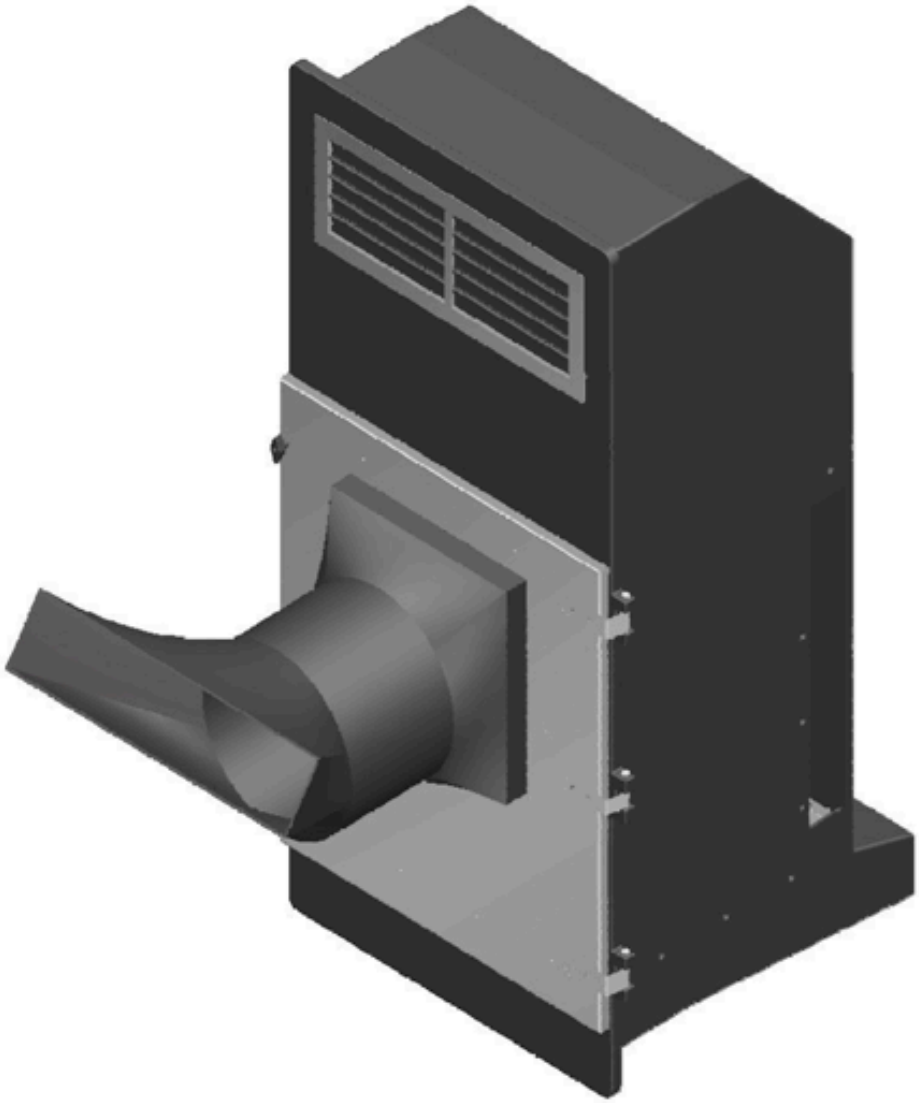
AVI ⇄ AIR

AVI35 EC with HRVI module



User and wiring manual

Designed and assembled in Canada by Distribution Avi-Air Inc.

Model : AVI35EC with HRVI

Intake ventilator: 60Hz 240V 2,8A / 360 watts RPM 3300

Exhaust ventilator 60Hz 240V 2,8A / 360 watts RPM 3300

0-10 volt or MODBUS HRVI module control.

Patent Pending USPTO 62/366,657

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AVI35 HRVI

A Heat Recovery Ventilator (HRV) removes stale air from a building while recovering valuable thermal energy, significantly reducing heating costs. In livestock production, this translates into healthier animals, lower energy bills, and a more stable environment throughout the year. However, to fully benefit from an HRV, producers must also manage defrost cycles, cleaning routines, airflow balance, and coordination between multiple units installed on the farm.

This is why the AVI-35, paired with the HRVI controller, has become a rising standard in modern agricultural ventilation. The AVI-35 offers neutral-pressure heat recovery, with no need to manage fresh-air inlets, and integrates powerful features such as dual EC motors, automatic defrosting, high-pressure cleaning, and a bypass mode. Its full potential is realized when combined with the HRVI.

The HRVI simplifies everything. Installation becomes faster and more economical, wiring is reduced, and ventilation is harmonized effortlessly across all exchangers operating in the building. It applies the manufacturer's best control strategies automatically, ensuring the exchanger always runs at peak efficiency, whether you use one unit or ten.

A Local Interface Designed for Producers

Where the HRVI truly stands out is its local user interface, built specifically with producers in mind, not engineers. At a glance, it shows:

- Who is in control (master system, analog signal, or stand-alone)
- What the exchanger is doing (HRV, Defrost, Cleaning, or Bypass)
- How hard it is working (real-time airflow and motor behavior)
- Clear manual override options for quick on-site adjustments

There is no guesswork, no complex menus, and no need to open panels or connect a laptop. Producers gain full visibility and immediate control, even in the middle of a flock, even during a power failure, and even if the central controller is offline.

Together, the AVI-35 and HRVI deliver a modern, reliable, and producer-friendly ventilation solution that enhances animal comfort, reduces energy consumption, and simplifies day-to-day farm operations.

Operating Modes

The AVI-AIR exchanger supports four automated operating modes. Each mode performs a specific ventilation or maintenance function to ensure optimal performance throughout the production cycle.

1 – Heat Recovery Mode (HRV Mode)

In Heat Recovery mode, the system ventilates the building while recovering a significant portion of the thermal energy contained in the exhaust air. The operator sets the ventilation rate driven by the exhaust fan, while the fresh air intake fan is automatically adjusted to maintain optimal heat exchange.

2 – Defrost Mode

In cold weather, frost can accumulate inside the exchanger, gradually reducing its heat recovery capacity. When efficiency becomes too low, a Defrost cycle is initiated to remove the accumulated ice. Warm air is directed through the exchanger to melt the frost and restore proper thermal performance.

3 – Cleaning Mode

Cleaning mode removes dust and debris that accumulate inside the exchanger and restrict airflow, reducing ventilation performance. This mode activates a high-pressure water spray to flush out contaminants in the exchanger core, restoring proper airflow capacity.

4 – Bypass Mode

In Bypass mode, the fresh air intake fan is stopped and only the exhaust fan remains active. No heat exchange takes place—the exchanger behaves like a standard exhaust fan. This mode is used when the operator wants to cool the building by removing warm indoor air.

HVRI Interface

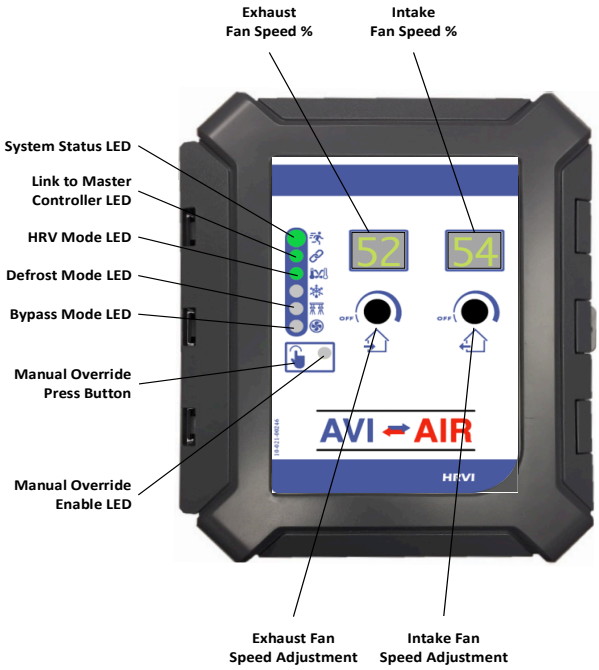
The HRVI front interface provides clear visual indicators and simple controls that allow the operator to immediately understand the exchanger's status, its current operating mode, and whether manual control is active. The main elements are:

System Status LED
This LED indicates the overall health and functioning of the HRVI.

- **Solid Green:** Normal operation
- **Solid Red:** Fault condition (refer to error registers for diagnostics)

Link to Master Controller LED
Indicates whether the HRVI is currently receiving commands from an external master system through Modbus or a 0–10 V signal.

- **Solid Green:** Active communication with the master
- **Solid Red:** Communication lost
- **OFF** : Stand-alone mode



Operating Mode LEDs
Four LEDs indicate which operating mode the exchanger is currently executing:

- **HRV Mode:** The exchanger is recovering heat and providing balanced ventilation
- **Defrost Mode:** A defrost cycle is active to remove ice buildup
- **Cleaning Mode:** The high-pressure cleaning sequence is running
- **Bypass Mode:** Fresh air bypasses the heat exchanger core, operating as a direct-exhaust system

Manual Override Button
A momentary push-button that allows the operator to force a temporary or permanent Override mode, depending on configuration.
The button provides quick access to manual control for on-site adjustments, troubleshooting, or emergency operation.

Manual Override LED
This LED indicates when Manual Override has been activated through the push-button. It provides a clear visual confirmation that the exchanger is no longer following commands from the master controller.

Exhaust and Intake Fan Adjustment Knobs
Two rotary potentiometers allow airflow adjustment **when Manual Override is active**.

- The **Exhaust Fan potentiometer** sets the baseline ventilation rate

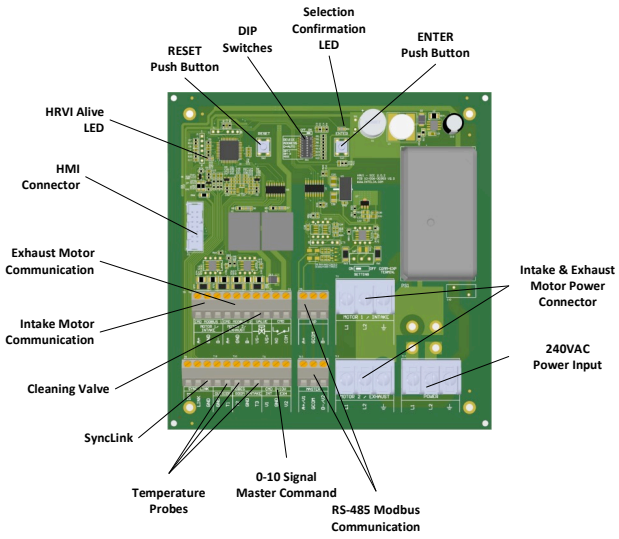
The **Intake Fan potentiometer** adjusts the fresh-air balance relative to the exhaust
These controls are ignored when the HRVI is being commanded by a master system (Modbus or 0–10 V)

HRVI Main Control Board

The HRVI controller is the central control module that manages all functions of the AVI-35 heat recovery exchanger. It coordinates motor operation, defrost and cleaning cycles, safety logic, Modbus communication, sensor acquisition, and synchronization with other exchangers through the SyncLink network.
This section provides an overview of the HRVI circuit board and explains how to properly connect the temperature probes, motors, cleaning valve, communication lines and electrical supply.

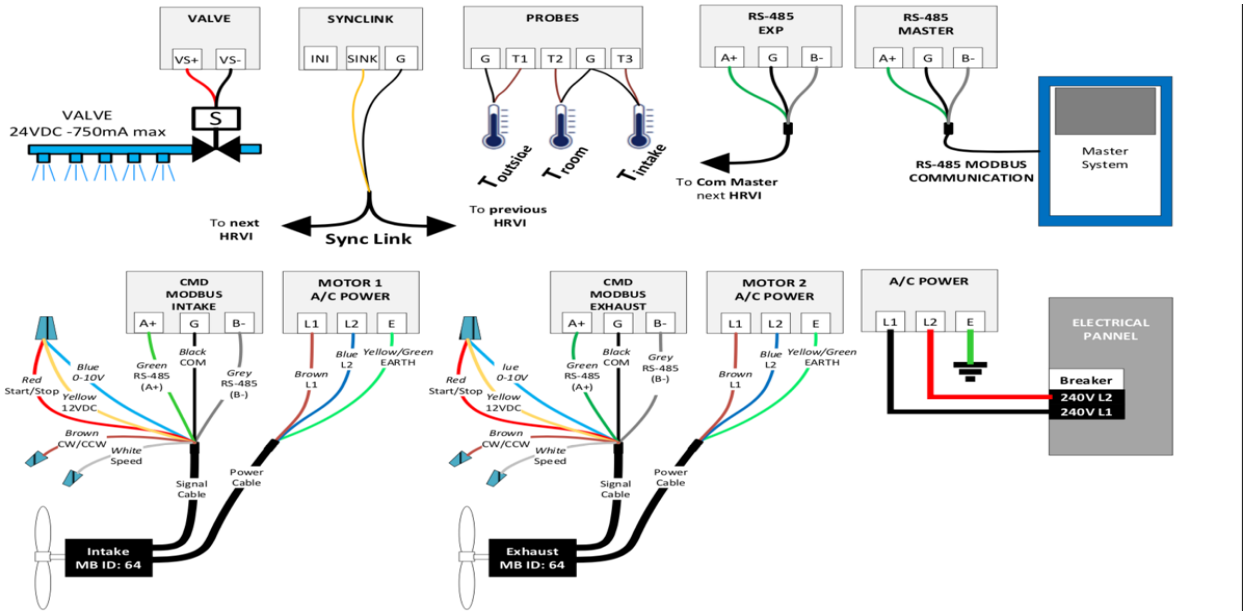
The board includes several key components that allow the HRVI to operate autonomously or under master controller supervision:

- **DIP switches** used to configure communication, addressing, override behavior and operating parameters.
- **RESET push button** to Reset unit
- **ENTER** push button to Enter Dip Swiches selection.
- **Status LEDs**, including the Selection Confirmation LED and the HRVI Alive LED, providing a quick visual indication of system state.

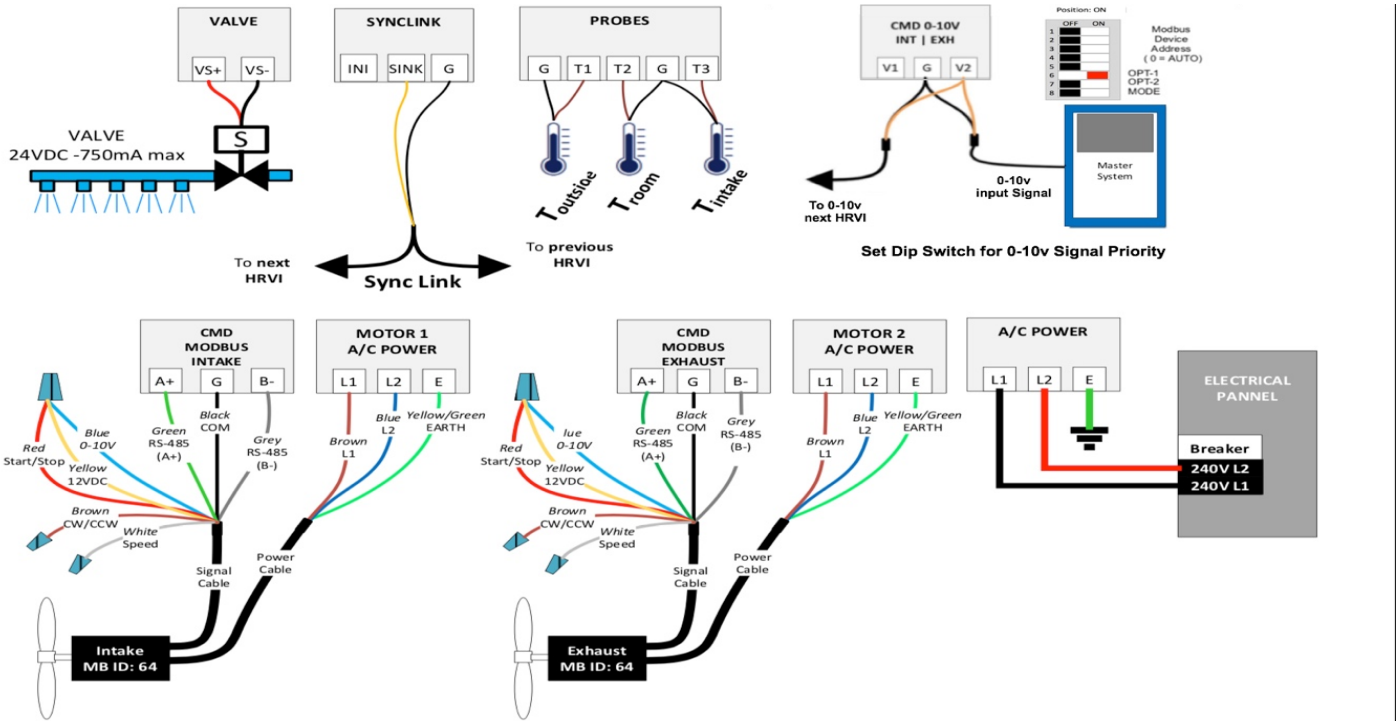


Dedicated terminals for power, motor control, communication, temperature sensing, cleaning valve and SyncLink.

The following sections describe each connection in detail **with modbus master**.



The following sections describe each connection in detail **with 0-10v master**.



Temperature Probes
The HRVI uses three temperature sensors to monitor outdoor, indoor and intake air conditions. These measurements are essential for heat-recovery efficiency, defrost management and safety logic.

- **T1 – Outdoor Temperature Probe**
  Measures external ambient temperature used for frost detection and energy-recovery calculations.
- **T2 – Room Temperature Probe**
  Measures the indoor temperature of the livestock building.
- **T3 – Intake Temperature Probe**
  Measures the temperature of the air entering the building through the AVI-35 exchanger.

Cleaning Valve (Water Valve)
The HRVI controls a high-pressure water valve used to clean the exchanger core during the automated cleaning cycle.

RS-485 Communication Port to Master Controller
The HRVI communicates with the master controller through a dedicated RS-485 port. Baud Rate and Parity can be set by dip switch or by Modbus.

Motor Connections (Intake and Exhaust Fans)
The HRVI controls two EC motors: one for intake airflow and one for exhaust airflow. Both motors require **power wiring** and **RS-485 communication wiring**.

SyncLink Network
SyncLink ensures that multiple HRVI units installed in the same building coordinate their Defrost and Cleaning cycles to prevent simultaneous airflow interruptions.

HRV Ventilation

The HRV mode is the standard ventilation mode in which fresh outdoor air is drawn through the heat-exchange core to recover thermal energy from the exhaust airflow.
In this mode, the exhaust fan determines the overall ventilation rate, while the intake fan provides a matched airflow to maintain a near-neutral pressure between the building and the outside environment.

The **ventilation rate (%)** represents the proportion of the exhaust fan capacity currently being applied. The intake fan operates simultaneously to warm the incoming air by passing it through the thermal exchanger, ensuring optimal energy recovery and improved comfort inside the building.

Because environmental conditions can vary—such as wind pressure on the exchanger, dust accumulation, or early frost formation—the system continuously adapts the intake airflow ratio to maintain performance, reduce heat loss, and maximize the heat-recovery effect.

In HRV mode, ventilation management is straightforward: you define the required airflow, and the HRVI optimizes the exchanger's operation to deliver consistent and efficient heat-recovery ventilation.

Ventilation Command

- **HRV VENTILATION SET POINT (%)**
  Defines the exhaust fan speed and determines the target ventilation rate.
- Ventilation is enabled only when the requested set point reaches or exceeds **Register 2026 – MINIMUM VENTILATION REQUIRED TO START HRV**, a read-only value calibrated at the factory based on the exchanger's physical characteristics.

Operational Feedback Provided by the HRVI

To assist with system supervision, integration with master controllers, and diagnostic needs, the HRVI provides several real-time indicators of actual performance:

- **PERCENTAGE OF VENTILATION APPLIED (%)**
  Reports the real ventilation output delivered by the exchanger.
- **Register 2017 – PERCENTAGE RATIO INTAKE / EXHAUST APPLIED**
  Displays the airflow balance between intake and exhaust fans, useful for evaluating restrictions, weather effects, or installation-related variations.
- **AVERAGE EFFICIENCY (%)**
  Monitors real-time heat-recovery efficiency.
  A decrease in this value may indicate frost buildup, airflow obstruction, contamination, or an improperly installed or forgotten capping device.

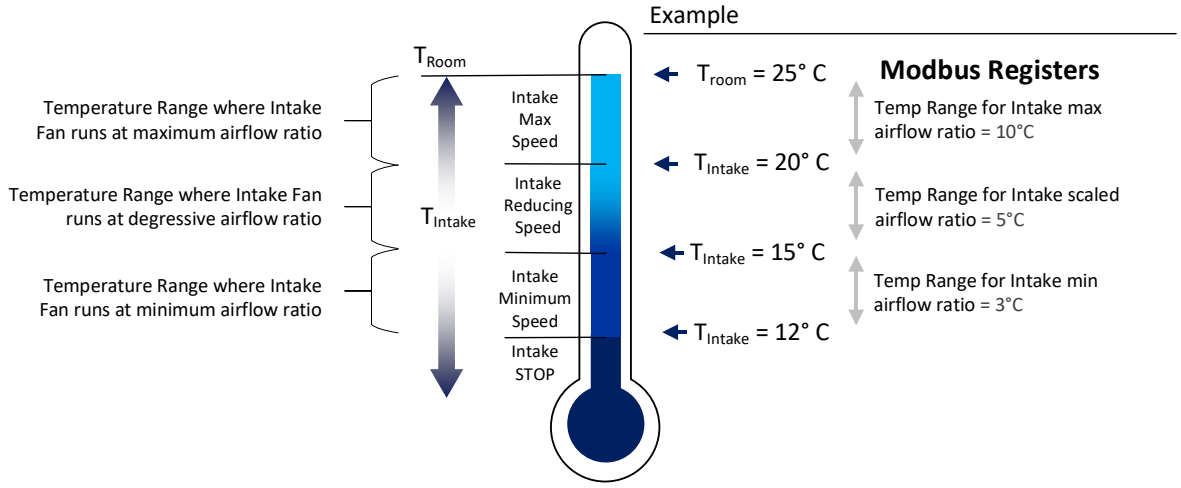
These values allow to validate proper HRV operation, detect anomalies early, and maintain optimal heat-recovery performance throughout the production cycl

HRV Intake ventilation management

The intake fan airflow is continuously adjusted by the HRVI based on three elements:

1. the exhaust fan airflow,
2. the maximum permitted intake airflow ratio,
3. the temperature difference between **room temperature (Troom)** and **intake temperature (Tintake)**.

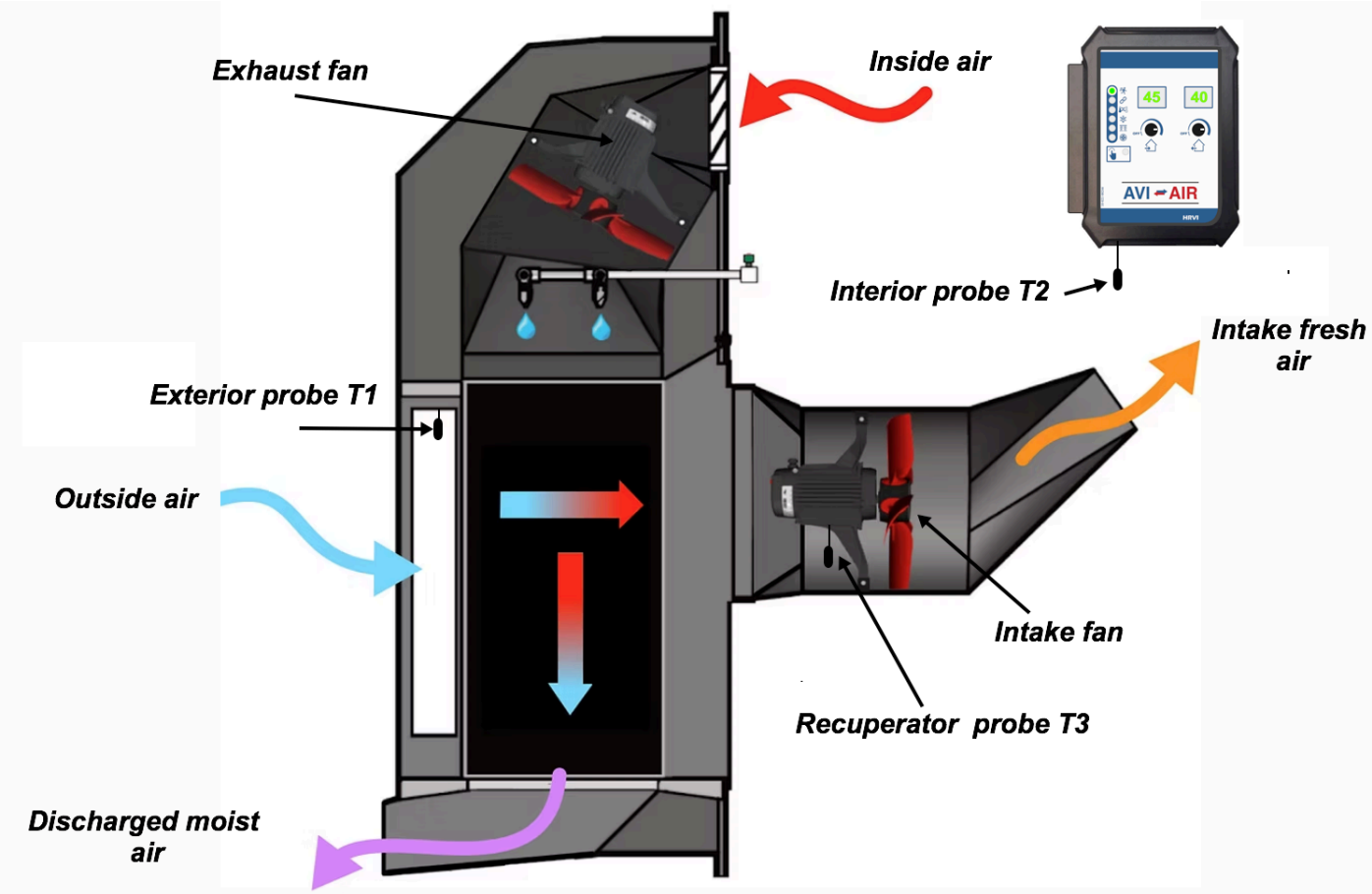
If the heat-exchange core cannot warm the intake air sufficiently, the HRVI will automatically reduce the intake fan speed.
This prevents cold drafts, maintains animal comfort, and ensures optimal heat-recovery performance.
The intake airflow modulation is governed by three temperature-based parameters, explained in the next section and illustrated in the diagram.



The HRVI modulates the intake airflow according to the temperature drop between the **room air** and the **preheated intake air**.
Three Modbus registers define the temperature ranges at which the intake fan operates at maximum, scaled, or minimum airflow ratios.

These three parameters allow fine-tuning of HRV performance, particularly in buildings exposed to strong winds, extreme cold, or unique installation conditions.
Factory defaults are appropriate for most situations, but adjustments may improve performance under special conditions.

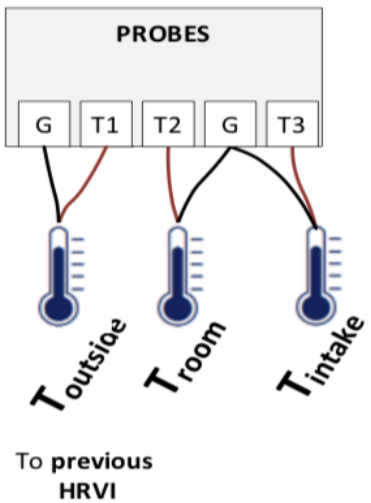
Register 2042: TEMP RANGE FOR INTAKE MAX AIRFLOW RATIO
Specifies the temperature span (°C) below the room temperature where the Intake Fan operates at its maximum permitted airflow ratio before transitioning to the scaled or minimum airflow zones.
Register 2043: TEMP RANGE FOR INTAKE SCALED AIRFLOW RATIO
Specifies the temperature span (°C) below the room temperature where the Intake Fan is proportionally adjusted between the maximum and minimum airflow ratios.
Register 2044: TEMP RANGE FOR INTAKE MIN AIRFLOW RATIO
Specifies the temperature span (°C) below the room temperature where the Intake Fan operates at its minimum permitted airflow ratio before stopping when the limit is exceeded.



Temperature probes

T1 (outside), T2 (room), T3 (intake)

• Connexions :
o T1 → outside probe
o T2 → inside probe
o T3 → Intake probe



Defrost Process

The defrost process operates as follows:
Based on the outdoor temperature, the HRVI continuously evaluates both the required **defrost duration** and the **interval between defrost cycles**. When the value of the **FROSTING RUNTIME COUNTER (FRTC)** exceeds the calculated defrost interval, a defrost cycle is initiated for the evaluated duration. Once the defrost cycle is completed, the FRTC is reset to zero.
The register **2045 – DEFROST INTENSITY CORRECTION (%)** allows the user to increase or decrease both the defrost interval and duration (±30%) to better adapt the system to the climatic conditions of the building.
The FRTC increments or decrements depending on conditions that promote or prevent frost formation inside the heat-exchange core.

FRTC increments when all the following conditions are met:

- Register **CURRENT MODE = Running HRV**
- Outdoor temperature < 0 °C
- FRTC < 65,536

FRTC decrements when all the following conditions are met:

- Register **CURRENT MODE = Running HRV**
- Outdoor temperature ≥ **SELF DEFROSTING TEMPERATURE** (factory-defined)
- FRTC > 0

FRTC is reset to zero at the beginning of each defrost sequence.

Defrost Sequence

The defrost sequence may be triggered either by the master system through Modbus or automatically by the HRVI.

In all cases, the exchanger behaves as follows:

1. The **INTAKE fan reverses direction** (CCW rotation).
2. The **INTAKE fan runs at 100% speed**.
3. The system waits until the heat-exchange core thaws.

If the register **MODE SELECTION = FORCE DEFROST**:

a) The system remains in defrost until another mode is selected.

Otherwise (automatic defrost):

a) The system waits for the defrost duration calculated according to the outdoor temperature.

b) The HRVI then returns to **HRV Mode with AUTO DEFROST** enabled.

Evaluation of Defrost Interval and Duration

The defrost interval and duration are determined according to a temperature-dependent curve defined by the manufacturer.
The calculation uses three reference temperature points for each curve:

- **DEFROST TIME @ T = 0°C**
- **DEFROST TIME @ T = –10°C**
- **DEFROST TIME @ T = –20°C**
- **DEFROST INTERVAL @ T = 0°C**
- **DEFROST INTERVAL @ T = –10°C**
- **DEFROST INTERVAL @ T = –20°C**

Boundary rules:

- If **T < –20°C**, the –20°C values are applied.
- If **T > 0°C**, defrosting remains inactive (no frost conditions).

Default Values

Outdoor Temperature	DEFROST TIME (s)	DEFROST INTERVAL (min)
0 °C	300	480
–10 °C	420	270
–20 °C	600	120

Adjustment of the Correction Factor

If the exchanger is not fully thawed after defrost cycles, or conversely if defrost cycles are unnecessarily long or too frequent, the user can apply a correction factor through **Register 2045 – DEFROST INTENSITY CORRECTION (%)**.

- A **positive correction (+1% to +30%)** shortens the interval between cycles and increases the defrost duration.
- A **negative correction (–1% to –30%)** lengthens the interval and shortens the defrost duration.

Starting the Defrost Mode

Defrost mode can be initiated either by the master system or directly by the user through the HRVI local interface.

Starting Defrost via the Master System in Modbus:

Defrost mode is controlled through the register **MODE SELECTION**.

MODE SELECTION	Defrost execution
0x0000 = Force OFF **0x0001** = HRV (default) **0x0003** = Force CLEANING **0x0004** = Force BYPASS **0x0007** = *Start CLEANING cycle **0x000A** = I/O BYPASS Control	No DEFROST execution for these mode
0x0002 = Force DEFROST	The defrost mode is fully controlled by the master system. The HRVI begins DEFROST when the master writes **FORCE DEFROST** to the MODE SELECTION register. The defrost sequence continues **until the master writes a different command** to the same register.
0x0005 = HRV – Auto DEFROST	The HRVI takes full control of the defrost process. Using temperature readings and the configured **HRV MANAGEMENT PARAMETERS**, the HRVI evaluates: • the interval between defrost cycles • the required defrost duration The defrost cycle is launched **automatically** by the HRVI and ends with an automatic return to **HRV – AUTO DEFROST** mode.
0x0006 = Start DEFROST cycle	The defrost sequence is **initiated by the master system**, but **the HRVI determines the duration** and manages the return to HRV mode. The duration is computed based on temperature conditions and HRV MANAGEMENT PARAMETERS.

Cleaning

Regular cleaning is essential to maintain the heat exchanger's performance and to preserve consistent airflow through the system. Dust, debris, and organic particles naturally accumulate inside the exhaust-side passages of the exchanger core. Over time, this buildup restricts airflow, reduces heat-recovery efficiency, increases fan load, and can lead to premature frost formation.

To ensure stable and efficient operation, the HRVI includes a dedicated **CLEANING mode**, which activates the water-spray system to wash the internal air channels of the core. This cleaning function is required not only during normal HRV operation but also remains available in **BYPASS mode**, as long as the exchanger core has not been physically removed from the airflow path.

Whether triggered automatically, via the master system, or by the operator, CLEANING mode helps maintain ventilation performance, reduce energy consumption, and extend the operational life of the exchanger.
The CLEANING mode can be activated in three different ways:

1. **Master System Command (Modbus)**

   The master controller triggers cleaning by writing **FORCE CLEANING** or **START CLEANING** to the **MODE SELECTION** register.
2. **Scheduled Cleaning (Runtime-Based) for all MODE SELECTION with Auto Cleaning**

   The exchanger automatically interrupts HRV mode to perform a cleaning cycle when: Register **RUNTIME ELAPSED SINCE LAST CLEANING ≥** Register **RUNTIME BEFORE CLEANING**
3. **HRVI Local Operator Interface (Override Command)**

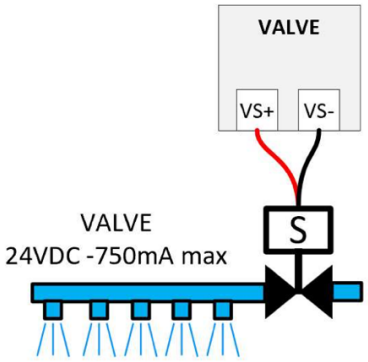
   The user can manually start a cleaning cycle from the HRVI interface.
   A manual action triggers the **START CLEANING** command and overrides the master system during the cycle.

Cleaning Sequence

A cleaning sequence may be initiated either by the master system via Modbus or automatically by the HRVI.
Regardless of how it is triggered, the exchanger behaves as follows:

1. The Intake fan stops.
2. The Exhaust fan is set to a predetermined speed (factory value).
3. The water valve opens to activate the spray nozzles.
4. The system waits until the cleaning duration elapses.
   If MODE SELECTION = FORCE CLEANING
   a) The system remains in CLEANING mode until another mode is selected.
   Otherwise (automatic or START CLEANING command)
   a) The system waits for the period defined by CLEANING CYCLE DURATION.
   b) The HRVI returns to HRV with AUTO CLEANUP.

Valve connection diagram:



SyncLink Connection

The SyncLink line is an arbitration bus shared between multiple HRVI modules installed in the same building. Its purpose is to ensure that only **one exchanger at a time** performs a sensitive maintenance sequence (DEFROST or CLEANING), preventing a sudden drop in total ventilation due to simultaneous shutdowns.
When an HRVI unit begins a Defrost or Cleaning cycle, it notifies all other units on the SyncLink bus that it is temporarily interrupting its ventilation for maintenance.
If other units also need maintenance, they automatically **queue** and wait until the active unit completes its cycle.
Depending on the desired strategy, it is possible to organize exchangers into multiple independent groups by wiring each group on its own SyncLink bus.
For example, four exchangers may be separated into **two independent groups**, allowing **two units** to perform maintenance at the same time—one per group.
If a unit is **not connected** to SyncLink, it operates freely and may perform its maintenance cycles without any waiting constraints.
To ensure system robustness, each module incorporates an internal **maximum timeout** mechanism. This prevents a unit from remaining indefinitely blocked in a waiting state in the event of a communication failure or an abnormally long delay before maintenance can begin.

When SyncLink is required

The SyncLink is optional for the operation of the exchangers. It provides improved ventilation regulation across multiple units and also prevents water-pressure drops at the cleaning nozzles, which can occur when several exchangers initiate a cleaning process at the same time.
However, if your master system already manages the synchronization of defrost and cleaning cycles between the exchangers, the SyncLink does not need to be connected or activated.

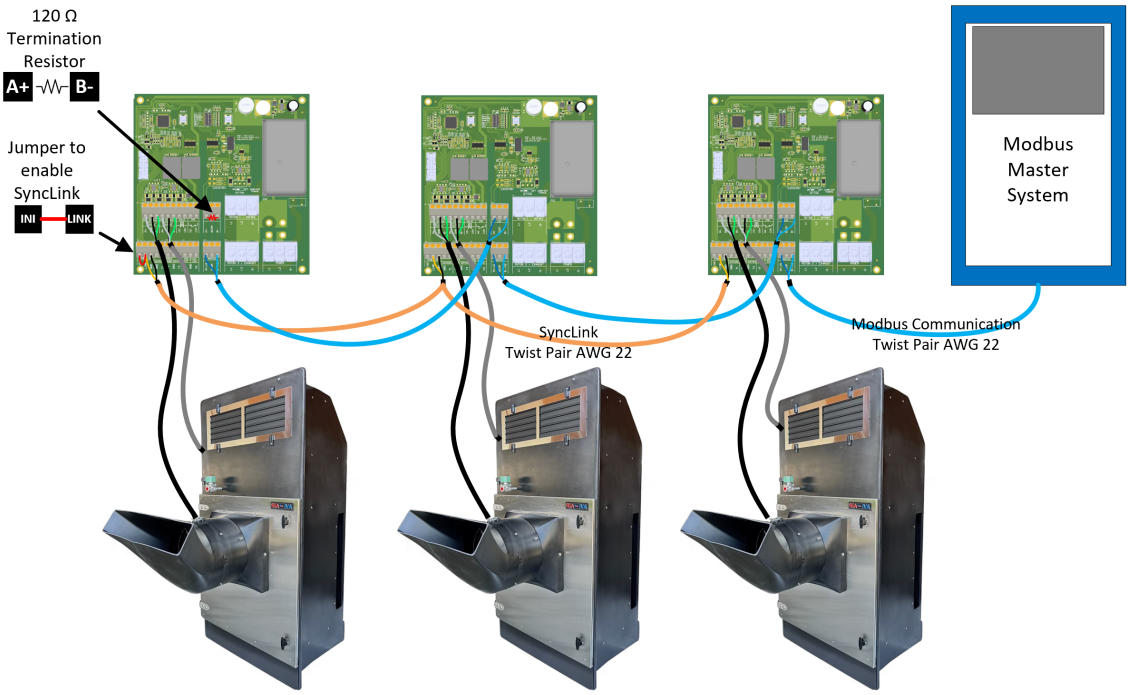
SyncLink Activation

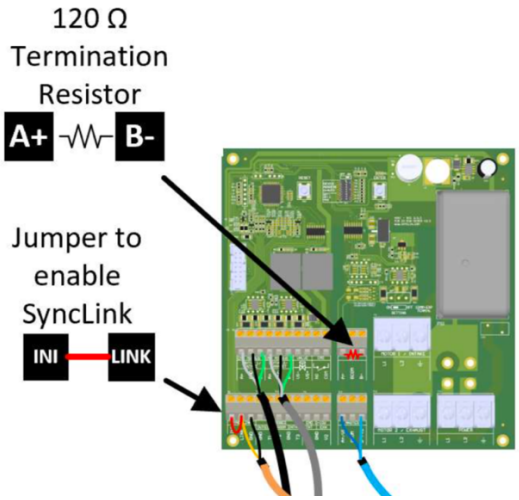
Activating Synclink requires **two essential conditions**:

1. **All HRVI units within the same synchronization group must be wired together** using a single twisted pair connected to the **SYNC** and **GND** terminals.
2. **Exactly one unit** in the group (either the first or the last in the chain) must have a jumper installed between the **SYNC** and **INI** terminals.
   This unit becomes the Synclink initiator.

Wiring

The figure below illustrates an example of a Synclink wiring layout, along with the Modbus communication bus connected to the master controller.





Note:
The SyncLink may be wired between units, but it will only be activated when the jumper between terminals INI and SYNC is installed.

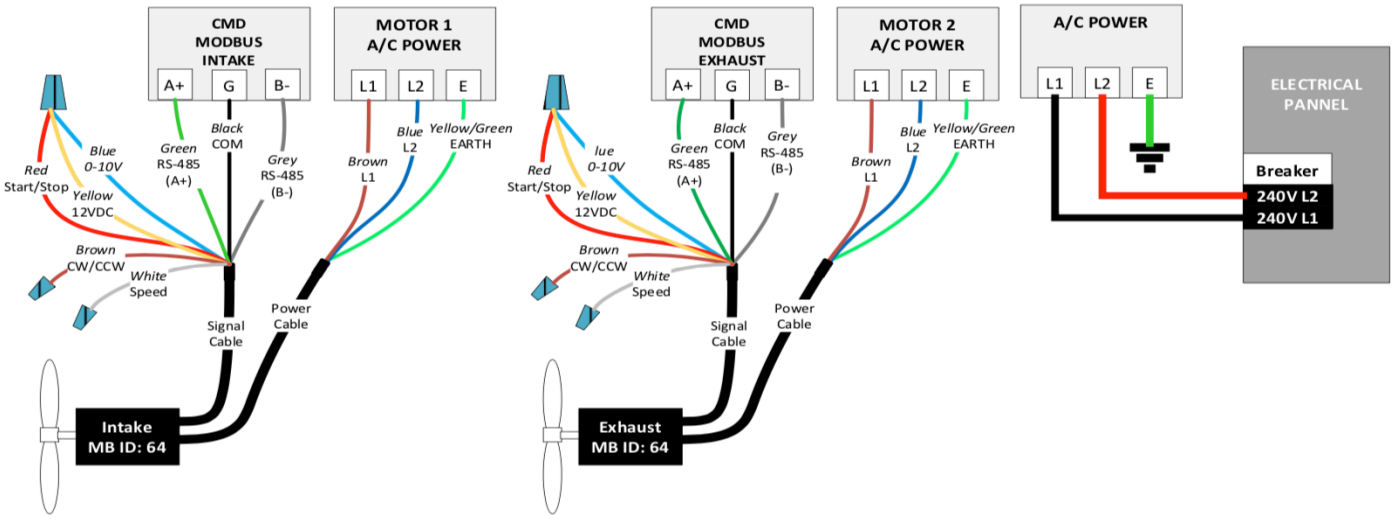
Motor connections :
o connect wires RS-485 A/B (green / grey) of intake fan to CMD MODBUS 1 /INTAKE.
o connect wires RS-485 A/B (green / grey) of exhaust fan to CMD MODBUS 1 /INTAKE.CMD MODBUS 2 /EXHAUST.

• Connect wires yellow , bleu and red together to enable failsafe. If Modbus signal is tos between HRVI and motor, the fan will run at 100 %

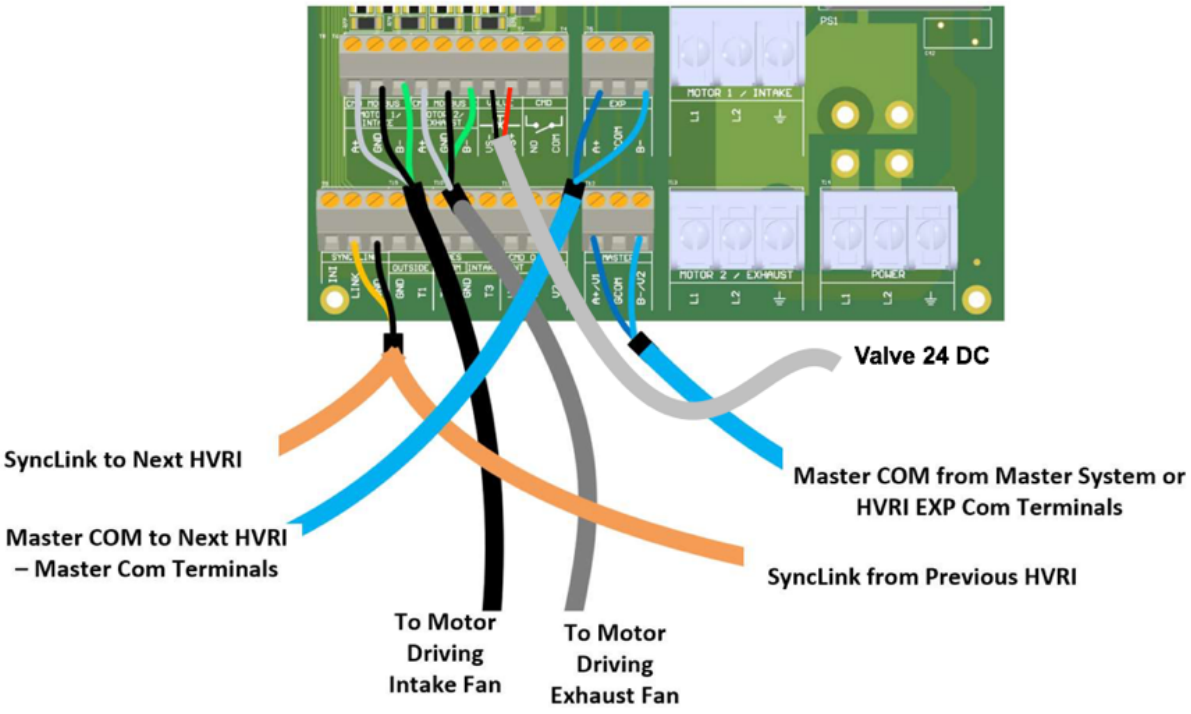
• Unsused wires are brown, white

Connect intake fan motor L1 and L2 and ground to motor 1 AC power

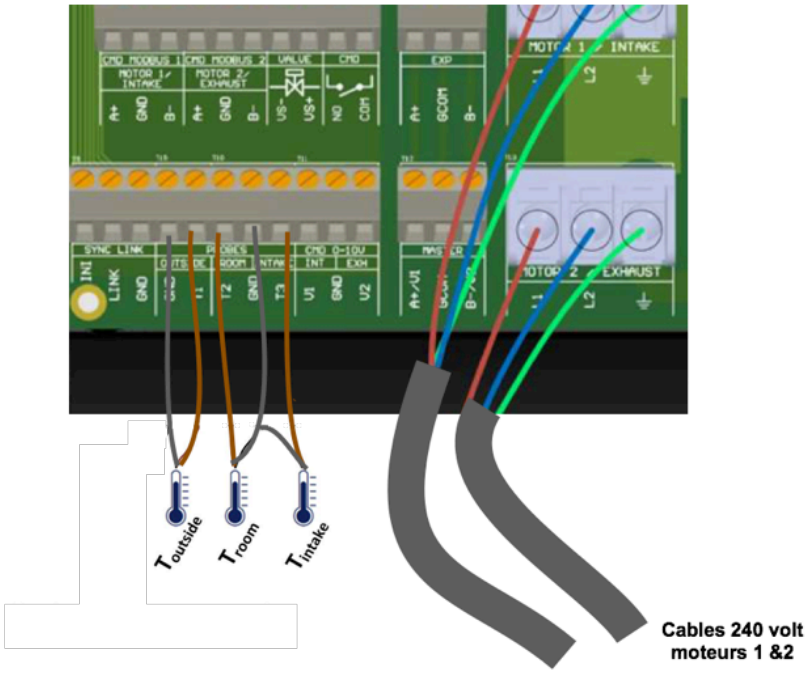
Connect exhaust fan motor L1 and L2 and ground to motor 2 AC power



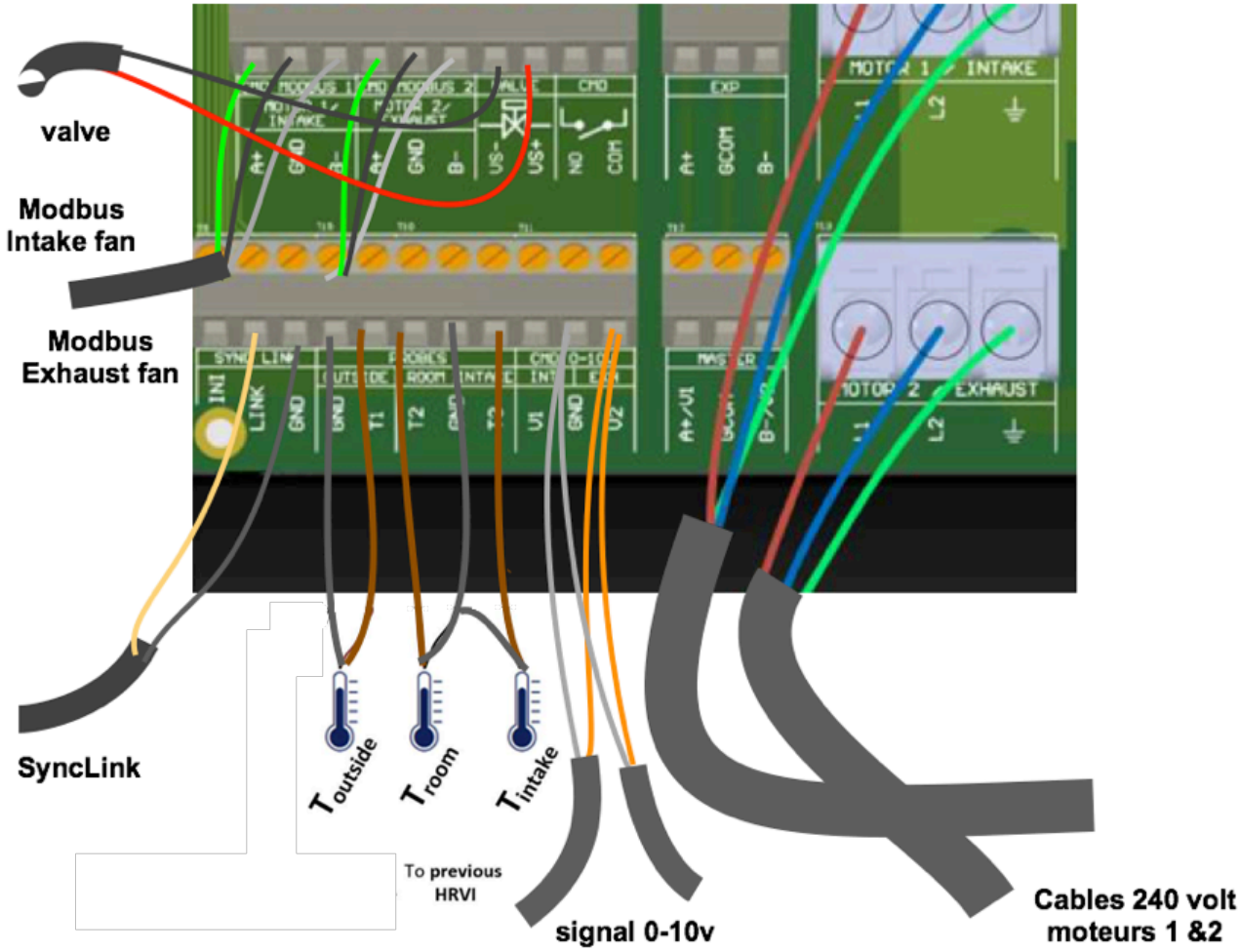
Wiring summary modbus RS485 motor and synclink cables



Wiring summary modbus L1 and L2 motor wires and probe cables



RÉSUMER DU BRANCHEMENT EN 0-10 VOLT, SONDES ET MOTEURS AVEC UN CONTRÔLEUR 0-10V



Device Setting using Dip Switches

DEVICE MODBUS ADDRESS
Modbus address when DIP switches 1 to 5 are all set to off can be written in register 2100

Range: 1 – 247 (According to Modbus Standard)
Default: 252 (Factory default)

OTHERWISE The unit's Modbus address is automatically assigned based on the DIP switch configuration.

The DIP switches provide access to essential configuration functions of the HRVI, including communication settings, operating modes, and manual override behaviors.
All DIP-switch selections are stored in the DEVICE SETUP Modbus registers to ensure persistent operation after power cycles.

Two configuration modes are available, depending on the position of DIP switch 8.
1. Master Connection Mode (DIP SWITCH 8 = OFF)
When **DIP switch 8 is set to OFF**, switches **1 to 7** are used to configure:

- the Modbus device address of the HRVI
- the master communication mode
- the communication parameters (baud rate, parity, etc.)

The available options are described in detail in the section **"Setting Master Communication Using DIP Switches."**

IMPORTANT
These parameters are applied only when **DIP switch 8 is OFF**, and they take effect:

- at each system power-up, or after pressing the **RESET** button.
- **Keep-Alive LED:** blinks **once per second** in this mode.

This is also the mode in which the **Factory Reset Procedure** can be performed.

2. Device Setup Mode (DIP SWITCH 8 = ON)
Device Setup Mode provides a complementary configuration pathway used to establish communication parameters compatible with the Master Controller and to define the operating behavior of the system interfaces.
All parameters configured in this mode are saved in non-volatile memory to ensure that these functions are preserved across system restarts.
When **DIP switch 8 is set to ON**, switches **1 to 7** are used to configure:

- **Override Options – Option Dip Switches 6 -7 = 00**
- **Master Control Mode – Option Dip Switches 6 -7 =10**

- **Master Communication Baud Rate & Parity – Option Dip Switches 6 -7 = 11**

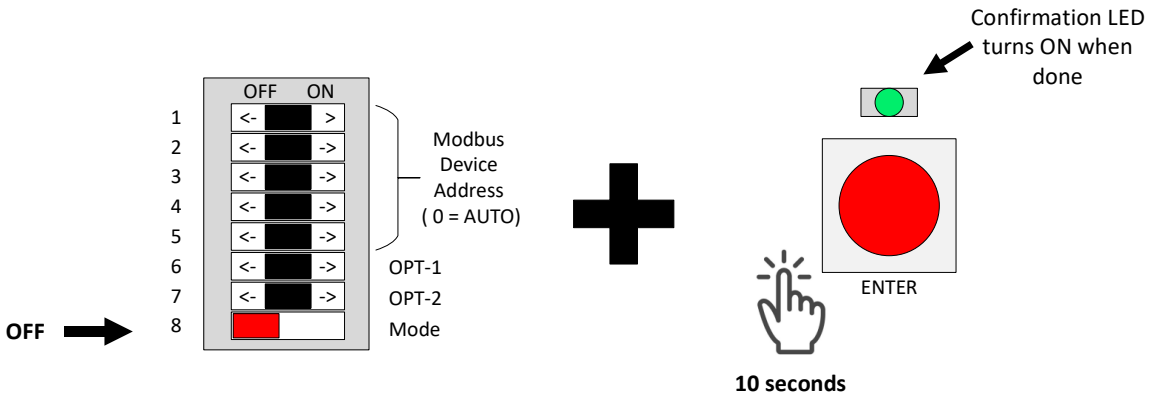
These settings allow the HRVI to adapt its communication behavior, operating logic, and manual override rules to match the requirements of the installation and the capabilities of the connected controller.

Factory Reset Procedure

In some situations, it may be useful to return the system to its original factory configuration to ensure that all settings start from a known, stable baseline.
This operation can be performed directly using the DIP switches and the **ENTER** button.

Important: This procedure will restore *all configuration registers* to their factory-default values. Any customized settings will be lost.

Step 1 – Set DIP Switch 8 to OFF
Place **DIP switch 8** in the **OFF** position.
(The position of switches 1 to 7 does not matter for this procedure.)
Step 2 – Press and Hold the ENTER Button
Press and hold the **ENTER** button for about **10 seconds**, until the **Confirmation LED** turns **ON**.



After the factory reset is complete, the controller will automatically reboot using the original factory parameters.

Setting Master Communication using Dip Swiches

The Master Communication configuration defines how the HRVI identifies itself on a Modbus network and how it establishes communication with the Master Controller.
At startup, the controller reads the DIP switches to determine its Modbus address, control source, and communication parameters. These selections ensure that the HRVI integrates correctly into the automation system and maintains reliable communication after every power cycle or reset.

Dip switches 1-5 - Modbus Address Selection

DIP switches 1 to 5 determine the Modbus ID that the HRVI will use on the RS-485 Modbus RTU network. Each HRVI on a Modbus network must have a unique address to ensure proper communication with the Master Controller.
DIP switches 1–5 allow assigning Modbus IDs in the range 1 to 31. The DIP combination directly encodes the Modbus ID according to the mapping table shown in *DIP Switch Positions to Modbus ID*.

Special Case – Modbus ID = 0 (DIP switches 1-5 = all OFF)
If the Modbus ID = 0, the HRVI applies the address stored in **Register 2100 – DEVICE MODBUS ADDRESS**, allowing a programmable range of **1–254**.
The factory default is **252**.
The DEVICE MODBUS ADDRESS can be changed either by writing directly to the register or by issuing a **special Modbus broadcast command (Function 22)** containing the HRVI's unique 32-bit device identifier printed on the label on the mainboard, followed by the desired Modbus ID.

DIP switch 6 – Master Control Source (OPT-1)

This switch determines how the HRVI selects its primary control input at startup:

- **OFF – Modbus Control**
  The HRVI operates under Modbus control, using the communication mode defined in the **MASTER CONTROL MODE** register.
- **ON – 0–10 V Signal**
  The HRVI ignores the Modbus control mode at startup and uses the external **0–10 V analog signal** as the ventilation setpoint source.
  Modbus remains available for monitoring and diagnostics.

This switch is evaluated at every power-up to determine the initial control source.

DIP Switch 7 – Communication Parameter Selection (OPT-2)

This switch determines the RS-485 communication parameters with the Master Controller:

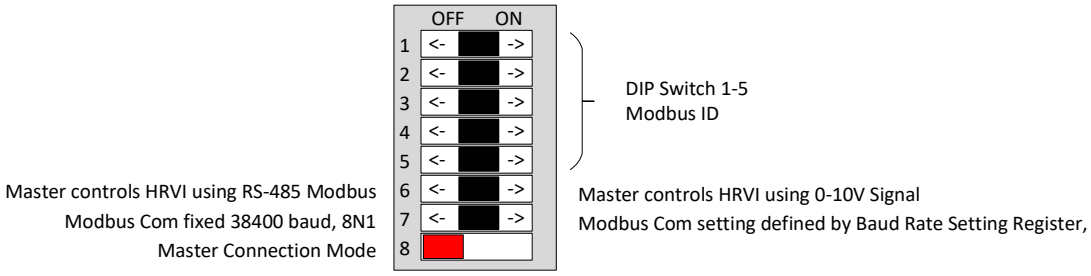
- **OFF – Fixed 38400 baud, N81**
  The HRVI enforces **38400 baud**, **8 data bits**, **no parity**, **1 stop bit**.
- **ON – Baud Rate Setting Register**
  Communication settings are defined by the **Baud Rate Setting Register**, which may be configured using DIP switches in **Device Setup Mode** or via Modbus.

DIP switch 8 = OFF (Master Connection Mode)

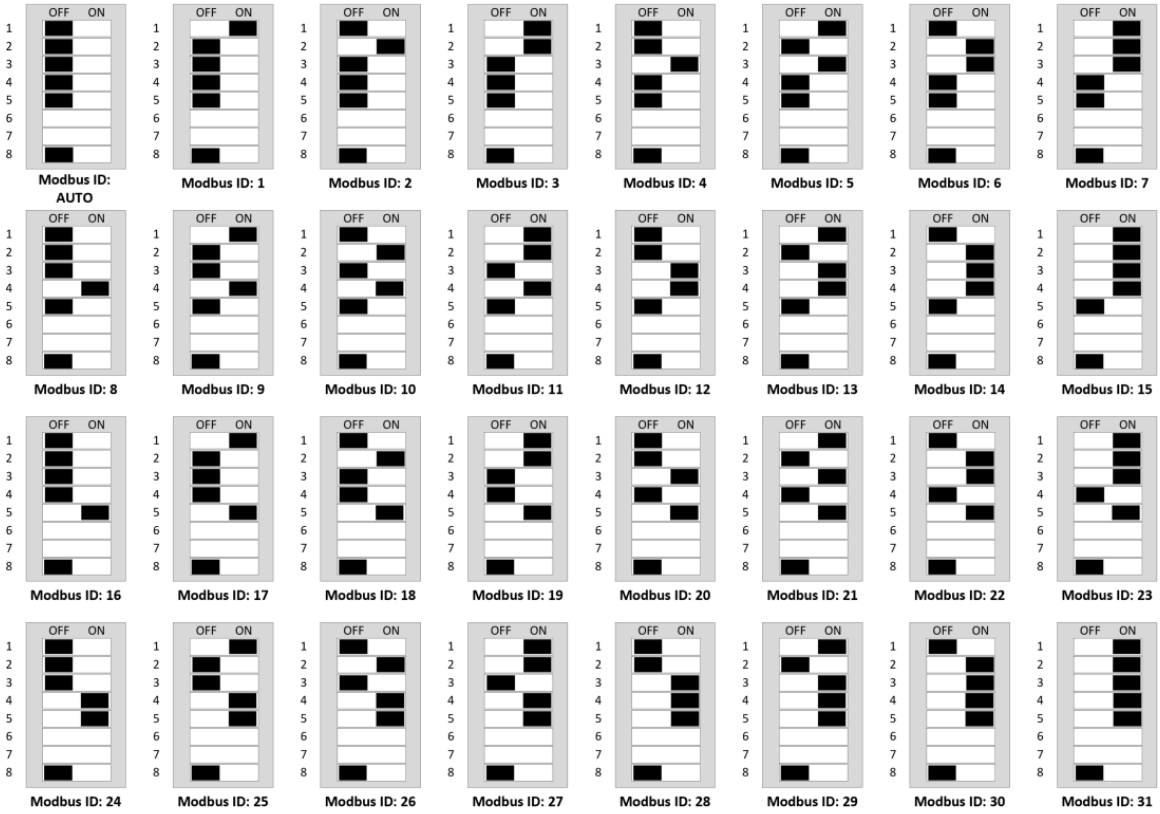
DIP switch 8 must remain OFF at each reset for these settings to take effect.

Master Communication DIP Switch Setting Summary

The following illustrations summarize the required DIP switch positions to configure communication with the Master at system startup.



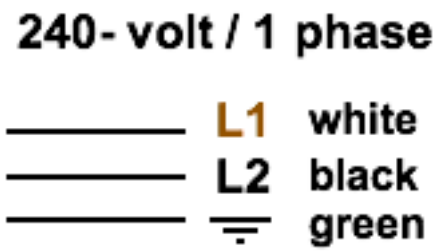
DIP Switch Positions for Master Communication



DIP Switch Positions to Modbus ID

PREWIRED AVI35 HRVI UNITS

Connect 240 volt power to the soow power cable.



Connect comunication wires :

- SYNCLINK GREEN / BLACK pair
  - Connect green Link in parallel between each AVI35 HRVI. Does not connect to master controller
  - Connect black Link in parallel between each AVI35 HRVI. Does not connect to master controller
  -

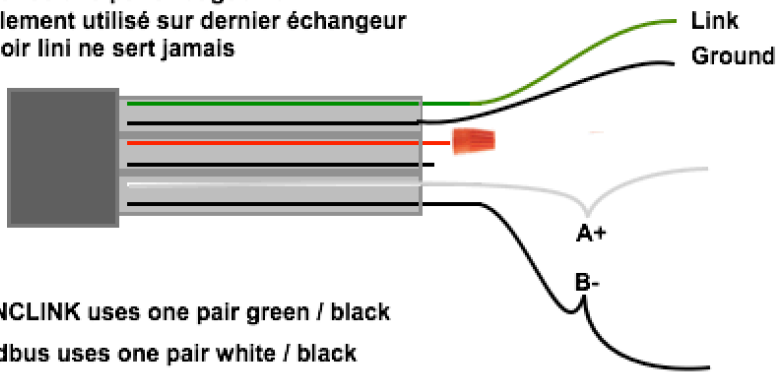
- Ini RED / Black pair
  - Use red wire from las AVI35 HRVI exchanger
  - Connect green and red on last exchanger only
  - Do not use black from that pair.

- MODBUS WHITE / BLACK pair
  - Connect white in parallel between all AVI35 HIRVI. Connect to A+ of farm master controller
  - Connect black in parallel between all AVI35 HIRVI. Connect to B- of farm master controller
  - Install a120 ohms resistance parallel between A+ et B- of last exchanger

SYNCLINK utilise une paire vert / noir

Modbus utilise une paire blanc / noir

Ini utilise une paire rouge / noir.
Seulement utilisé sur dernier échangeur
Le noir Ini ne sert jamais



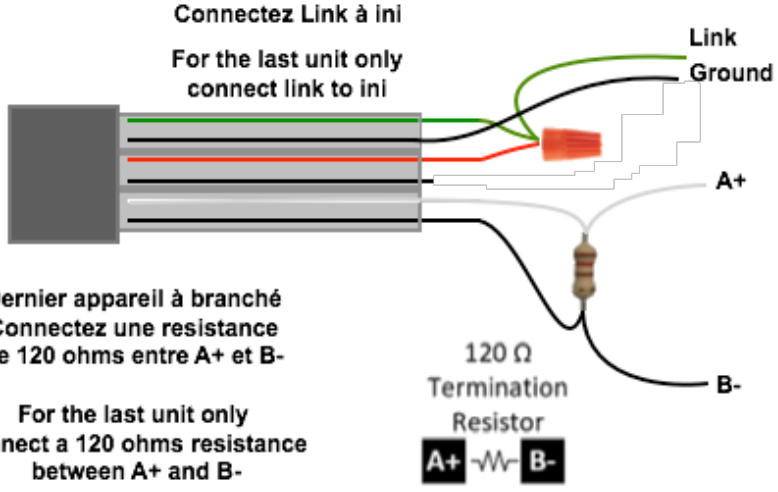
SYNCLINK uses one pair green / black

Modbus uses one pair white / black

Ini uses one pair red / black
Only use red ini on last unit connected
Never use black wire ini

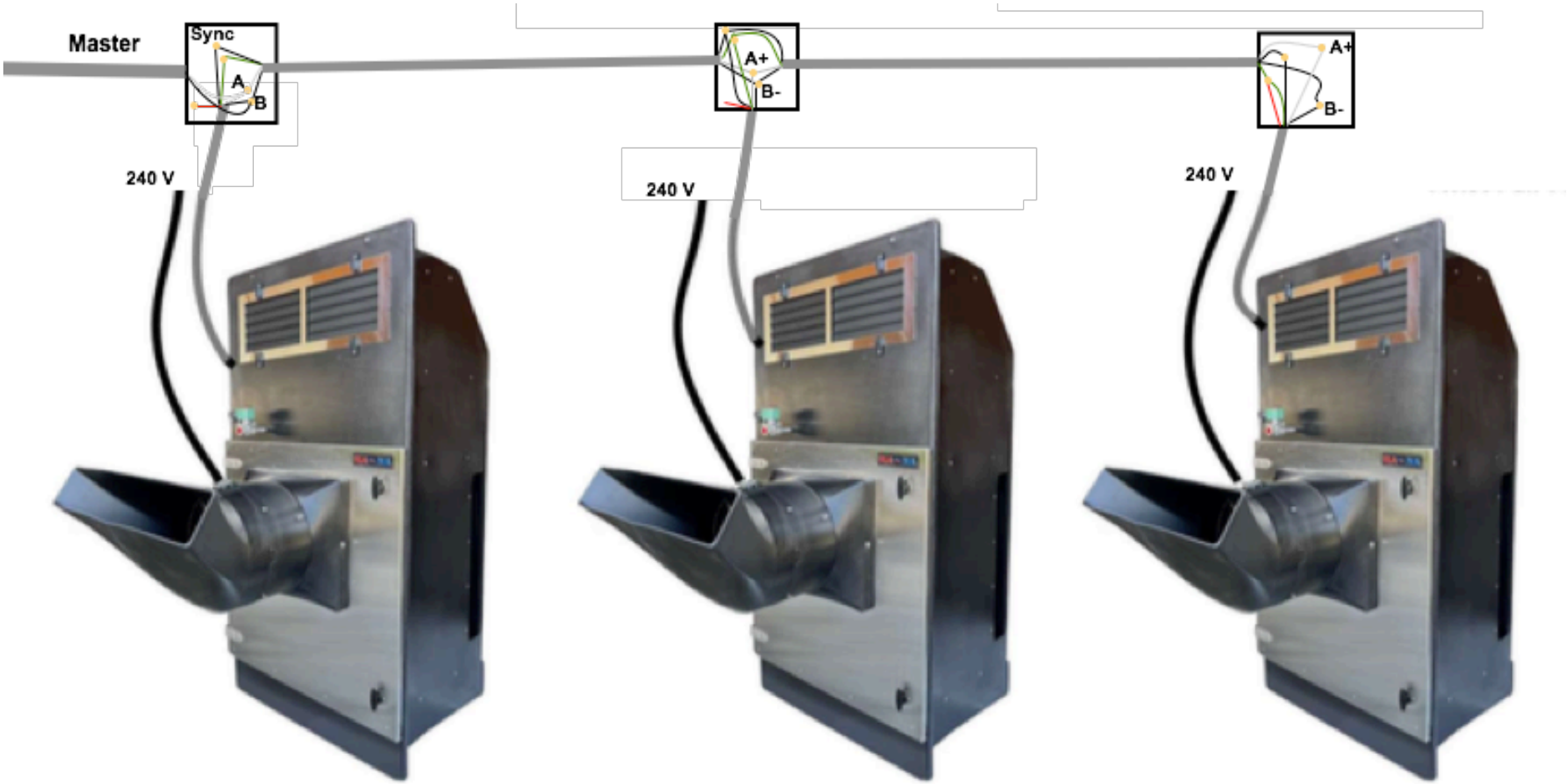
Dernier appareil à branché
Connectez Link à ini

For the last unit only
connect link to ini



Dernier appareil à branché
Connectez une resistance
de 120 ohms entre A+ et B-

For the last unit only
connect a 120 ohms resistance
between A+ and B-


Master
Sync
A
B
240 V
A+
B-
240 V
A+
B-
240 V

Installation Guide

Warnings and precautions

The manufacturer recommends installing the recuperators in the wall of the building. Ideally, the Avi35 should not be installed directly above each other to prevent ice build-up above the unit on the lower floor. Also, plan for a large accumulation of ground ice at the exit of the recuperator during winter.

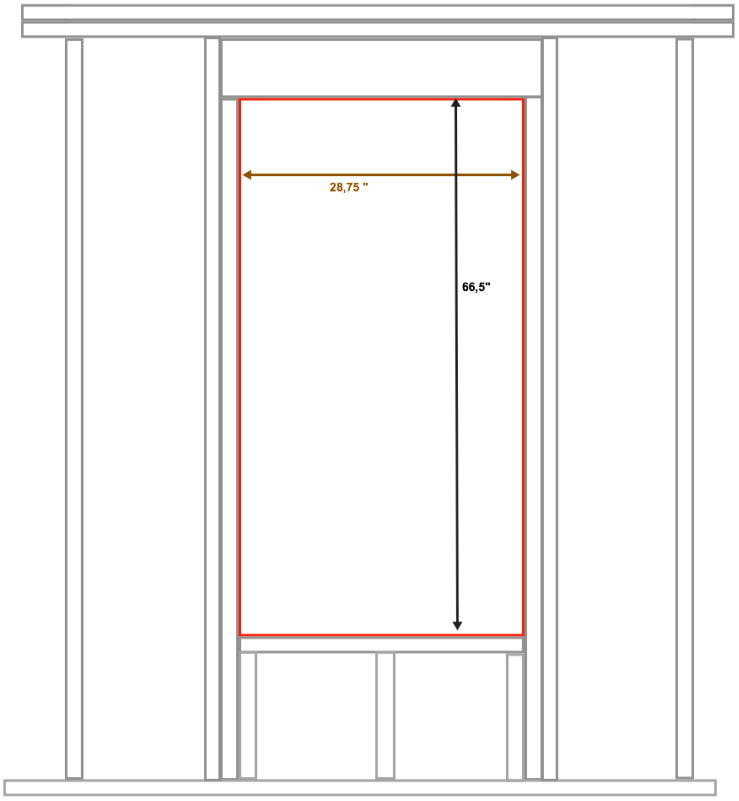
The manufacturer also recommends that a distance of at least 7 meters be maintained between the Avi35 recuperator and another standard building exhaust fan. The aim is to prevent a return of stale and dusty air from other standard exhaust fans in the Avi35 fresh air INTAKEs.

Make an opening 28.75 inches wide by 66.5 inches high. See diagram 1. Fix the device to the wall by aiming into the pre-drilled holes in the facade. Screw both sides of the device into the wall frame into the interior walls of the Avi35. Diagram 1

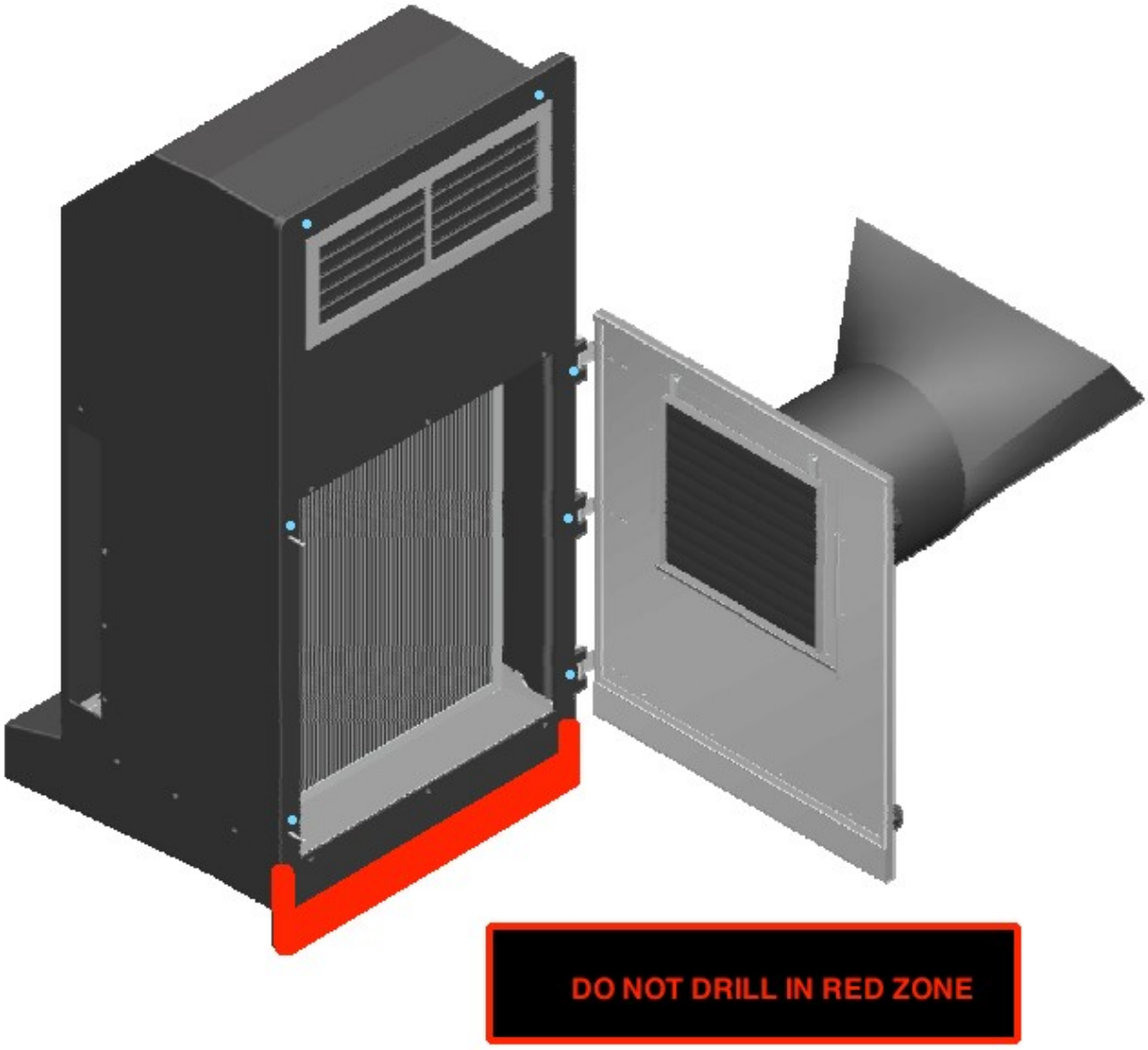
Do not drill holes in the bottom of the Avi35. See installation diagram 2

Secure the unit to the wall by aiming through the pre-drilled holes in the facade. Screw both sides of the unit into the wall frame. See installation diagram 3.

Installation diagram 1



Installation diagram 2



Limited warranty

The assembled product and individual components are subject to rigorous inspection and verification to ensure maximum product reliability and quality. However, the possibility of breakage and / or malfunction may exist. Contact your supplier for service. The warranty is for a period of three years from the date of sale. Proof of purchase is required to validate the warranty.

In any case, the warranty applies only to manufacturing defects and specifically excludes any damage caused by overload, short circuit, misuse, vandalism, unforeseen event, deluge, fire, hail or natural disaster. Any modification and repair not authorized by the manufacturer on this product automatically void the warranty and relieves the manufacturer of any liability.

The manufacturer assumes only the aforementioned obligations, excluding any other warranties or obligations. This warranty states that in all cases the manufacturer will be responsible only for the replacement of defective parts and will not be liable for any personal injury, damage, loss of profit, stoppage of operations, fines for contravention of the law or damage to the production of BUYER. The BUYER takes over the defense and holds the innocent manufacturer in any of the legal or extralegal procedures or request of the customer or by a third party and in respect of any legal or extralegal expenses and fees occasioned by such damage.