

# HLR 200R

Rooftop HVAC Load Reduction Air Cleaning Module with CO<sub>2</sub> Removal



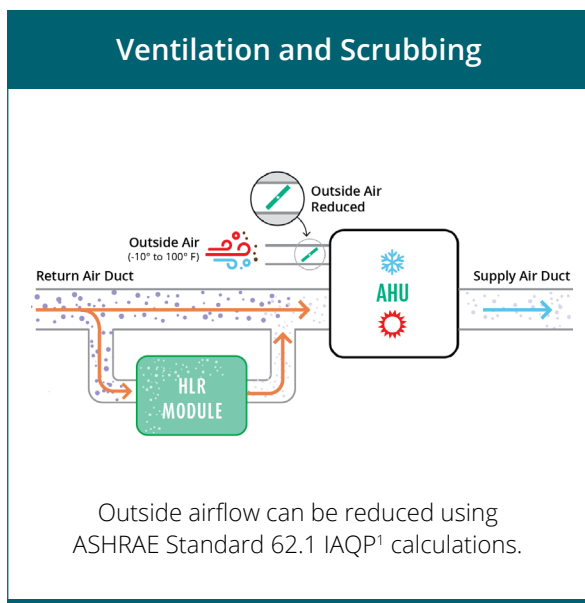
## Improved Air Quality, Lower HVAC Costs

The HLR 200R is enVerid's award-winning air cleaning product that removes CO<sub>2</sub> and contaminants of concern from indoor air so that it can be safely recirculated. This solution reduces first costs for new construction and lowers operating costs for all HVAC systems, lowers a building's carbon footprint, and improves indoor air quality while also generating LEED and WELL building credits. Indoor air quality is improved by removing indoor-generated contaminants and reducing the intake of outdoor pollutants. The HLR 200R solution is compliant under ASHRAE 62.1 and IMC 403.2. The HLR 200R module is designed for outdoor use, typically on a rooftop. The HLR 200M module (not shown) is a model designed for indoor installations.



HLR 200R Module

<b>IMPROVE AIR QUALITY</b>	<b>SAVE ENERGY</b>	<b>REDUCE COSTS</b>	<b>REMOVE CO<sub>2</sub></b>	<b>REDUCE CARBON</b>	<b>EARN LEED/WELL POINTS</b>	<b>NO BYPRODUCTS</b>



## How it Works

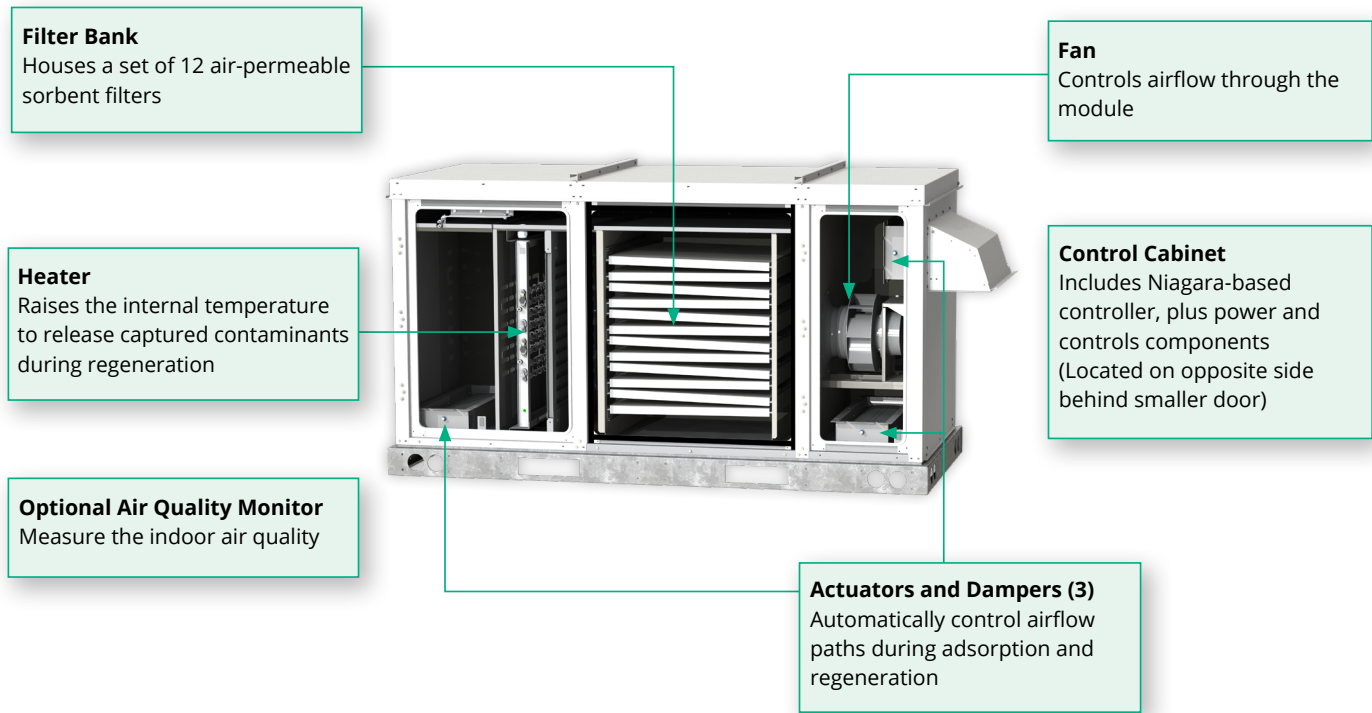
**Indoor Air Scrubbing** – One or more HLR 200R modules can be installed on the return air side of an air handling unit (AHU). Air is drawn into the 200R by internal fans, which blow the air through sorbent filters that capture and remove carbon dioxide (CO<sub>2</sub>) and contaminants of concern from the air stream. Without producing any byproducts, the HLR 200R then blows clean air back into the return.

**Automatic Self-Cleaning** – The sorbents are designed to release captured contaminants upon heating. The 200R module is equipped with a built-in heater and performs a periodic regeneration process to clean the sorbents and expel contaminants outside the building. Regeneration is managed for optimal performance and minimal energy use.

**Outside Air Intake Reduction** – By cleaning recirculated air, outside air ventilation rates can be safely reduced by up to 85%, and new HVAC equipment can be downsized, using the ASHRAE Standard 62.1 IAQ Procedure.

<sup>1</sup> The mass balance analysis is performed per contaminant and per zone to ensure all contaminants are properly maintained below their established limits. These "per zone" outside air CFMs are summed to yield the total ventilation required for the building. enVerid's IAQP calculator makes it easy.

## What's Inside the HLR 200R Module?



### Broadly Applicable

The 200R is ideally suited to integrate with custom and semi-custom airside systems, including systems with dedicated outside air systems (DOAS) and energy recovery ventilation (ERV) components, in office buildings, schools, and other commercial buildings.



Office Spaces



Higher Education



K-12 Schools



Light Commercial

### Proven, Award Winning HLR Technology®

Hundreds of HLR modules have been specified and installed around the world by leading consulting engineers and HVAC contractors. Air cleaning efficiency has been validated by ASHRAE 145.2 testing, and energy savings have been field validated by multiple utilities who have provided incentives for installing HLR modules as well as by the U.S. Department of Energy. Unlike many other air cleaning technologies, independent lab tests show that HLR modules do not produce any byproducts. In 2019, HLR technology received the AHR Expo Product of the Year Award, the most prestigious award for an HVAC product.



# 200R Module Specifications – Preliminary

## GENERAL SPECIFICATIONS

Installation	Insulated curb or above roof on equipment support
Construction	Double-wall, insulated, powder-coated galvanized steel
Sorbent Filters per Set	12
Typical Airflow (Adsorption)	1,000 CFM* 1,700 CMH
Typical Airflow (Regeneration)	600 CFM* 1,020 CMH
Static Pressure Increase to AHU Fan	None
Sound Level	68 dBA
Maximum Allowed External Static Pressure	0.6" wc / 150 Pa - Adsorption 1.5" wc / 370 Pa - Regeneration
Maintenance	Two-year Filter Replacement
Operating Life	20+ years with scheduled maintenance

\*CFM was measured at 0ft elevation and 70 degrees Fahrenheit

## COMMUNICATIONS

BMS Integration	BACnet IP with BTL, BACnet MS/TP (optional)*
Security	FIPS 140-2 compliant (2002 standard)

\*RS485 to USB converter required

## SYSTEM POWER RATINGS (Three Phase)

Voltage (VAC)	Frequency (Hz)	MCA	MOCP
480 V	60 Hz	19.6 A	20 A
400 V	50 Hz	23.2 A	25 A

## SYSTEM POWER CONSUMPTION

Adsorption Mode	1 kW
Regeneration Mode	13 kW

## DIGITAL INPUT (On/Off Signal)

Fire Alarm	Safety Stop for HLR Module
Regen OK	Permits Regen As Scheduled
Scrub Enable	Permits Adsorption When AHU Is On

## DIGITAL OUTPUT (On/Off Signal)

Exhaust Fan Start/Stop	Controls External Exhaust Fan
Aux Scrub Fan Start/Stop	Controls External Booster Fan
Unit Status	Signals Module On / Off State
Unit Alarm	Signals Normal Or Alarm State

## WEIGHTS

Module Shipping Weight	925 lbs	420 kg
Filter Shipping Weight	200 lbs	91 kg
Installation (Module Only)	865 lbs	392 kg
Operating (With Filters)	1,045 lbs	474 kg

## DIMENSIONS (Front View)

Height (Including Rail)	43.5" / 1,105 mm
Width (Includes Exhaust Hood)	87" / 2,197 mm
Depth (Allow Additional 36" / 914 mm on the front and 24" / 610 mm on the back for service)	36.8" / 945 mm
Ducts (Indoor Air Inlet and Clean Air Outlet)	6.4" x 22.8" / 162mm x 579mm

## CERTIFICATIONS

HLR Module Safety	UL 1995:2015 Ed.4 CSA C22.2#236:2015 ed.5
Filter Bank and Filters	UL 900:2015 Ed.8
Air Cleaning Efficiency	ASHRAE 145.2

## ASHRAE Standard Compliance

### Standard 62.1 for Ventilation & Acceptable Indoor Air Quality

All of enVerid's HLR products are fully compliant under ASHRAE Standard 62.1. By using ASHRAE's performance-based Indoor Air Quality Procedure (IAQP) rather than the prescriptive Ventilation Rate Procedure (VRP), engineers can calculate a minimum ventilation rate that optimizes indoor air quality and energy efficiency. Introduced in 1981, IAQP determines outdoor air intake rates based on an analysis of contaminant sources and air cleaning capacity to stay below recommended contaminant concentration limits. Tools developed by enVerid's in-house engineering team, including enVerid's online IAQP Calculator, streamline the application of IAQP for engineers.

### Standard 145.2 for Assessing the Performance of Gas-Phase Air Cleaning Systems

HLR technology is one of the only air cleaning technologies to have undergone independent lab tests for cleaning efficiency using ASHRAE Standard 145.2. Independent labs have conducted ASHRAE 145.2 single-pass efficiency testing for all the contaminants of concern required to maintain acceptable indoor air quality in buildings.

[enverid.com](http://enverid.com) · 1.617.795.4000 · [info@enverid.com](mailto:info@enverid.com)

Energy Savings. Air Quality.

enVerid Systems, the leading provider of sustainable indoor air quality (IAQ) solutions, helps buildings achieve air quality goals, save money, and reduce energy consumption and carbon emissions. Its flagship HVAC Load Reduction® (HLR) modules are award-winning air cleaners that deliver up to 40% HVAC energy savings and superior indoor air quality in new and existing buildings. For new HVAC systems, HLR modules also enable immediate capital cost savings. At the core of all HLR modules is enVerid Sorbent Ventilation Technology® (SVT®), uniquely designed to capture gaseous contaminants that degrade indoor environmental quality. enVerid's products are deployed in commercial, academic, and government buildings globally. Its air cleaning products are ASHRAE Standard 62.1, LEED® and WELL compliant and eligible for utility rebates. For more information, please visit [enverid.com](http://enverid.com).