

## Technical Datasheet

### Protocol CO<sub>2</sub>

P/N 3228811 Rev A  
April 2025

### Refrigerant

R-744 (CO<sub>2</sub>)

### Table of Contents

|                    |   |
|--------------------|---|
| Model Overview     | 2 |
| Model Nomenclature | 2 |
| Specifications     | 2 |
| Wiring Diagram     | 3 |
| Weight             | 3 |
| Dimensional Views  | 4 |

## Customer-Focused Solutions

Hussmann has a long history of innovation—continually updating current product offerings and developing new solutions to help reduce your environmental impact and satisfy regulatory requirements.

Hussmann can help you understand benefits and trade-offs associated with each solution and make the most of incentive and rebate programs.



Scan the QR code for more information on transcritical CO<sub>2</sub> systems.

## Certifications



### **⚠ WARNING**

Component parts shall be replaced with like components, and servicing shall be done by factory authorized service personnel only, so as to minimize the risk of possible ignition due to incorrect parts or improper service.

We reserve the right to change or revise specifications and product design in connection with any feature of our products. Such changes do not entitle the buyer to corresponding changes, improvements, additions or replacements for equipment previously sold or shipped.

# Protocol CO<sub>2</sub>

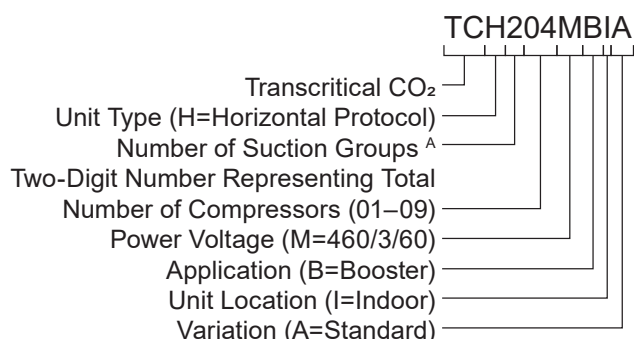
## Overview

Hussmann Protocol CO<sub>2</sub> is an ideal solution for both new construction and remodel projects for supermarkets and warehouses. This system operates using R-744 (CO<sub>2</sub>), a 100% natural refrigerant, and serves as a solution to meet current and upcoming regulatory requirements.

In addition, for retailers looking to achieve net zero or sustainability goals, the CO<sub>2</sub> refrigerant provides a GWP (global warming potential) rating of 1. The low GWP rating can have a profound impact on your organizations direct emissions and assist you in achieving your goals.

## Model Nomenclature

The nomenclature of a typical configuration is shown below, but not all variables are fully defined here. If interested in other options or configurations, please contact Hussmann for more details.



<sup>A</sup> Contact Hussmann Design Engineering for additional information

## Specifications

### Electrical

| Parameter                 | Default Configuration     |
|---------------------------|---------------------------|
| Protocol Voltage          | 460 VAC / 3-phase / 60 Hz |
| SCCR Rating               | 10k or 65k                |
| Main Disconnect           | external                  |
| Control Voltage           | 120 VAC                   |
| Control Voltage Supply    | single feed               |
| Gas Cooler Voltage        | 460 VAC                   |
| Gas Cooler Voltage Supply | separate                  |
| Courtesy Outlet           | standard                  |
| Courtesy Outlet Voltage   | 120 VAC (10 A max.)       |
| Lighting (in rack)        | none                      |
| Lighting (in panel)       | none                      |

### Controls

| Parameter                 | Default Configuration              |
|---------------------------|------------------------------------|
| Rack Controller           | XC Pro                             |
| Rack Controller Provider  | Hussmann                           |
| Rack Controller Location  | on-rack                            |
| Rack Controller Program   | included                           |
| High Pressure Controller  | Copeland IPro                      |
| Variable Frequency Drives | lead MT compressor                 |
| Gas Cooler Control        | 10–0 V signal                      |
| Leak Detection            | Copeland MRLDS                     |
| Defrost Type (MT/LT)      | off-time / electric (remote panel) |

### Valves

| Parameter        | Default Configuration                                |                  |
|------------------|--|------------------|
| Throttle Valve   | Copeland CV  |                  |
| Flash Gas Bypass | Copeland CV  |                  |
| Safety Valves    | 2 for low temperature suction (low side)             | 500 psi (35 bar) |
|                  | 2 for medium temperature suction (intermediate side) | 600/652 psi ( )  |
|                  | 2 for flash tank (liquid line)                       | 652 psi ( )      |
|                  | 2 for medium temperature discharge (high side)       | 1,740 psi ( )    |

## Compressors

| Parameter                | Default Configuration |
|--------------------------|-----------------------|
| MT Compressor Type       | Copeland Scroll       |
| Number of MT Compressors | 3–5                   |
| LT Compressor Type       | Copeland Scroll       |
| Number of LT Compressors | 2–3                   |
| Compressors Selected by  | Hussmann              |
| Excess Design Capacity   | 10–15%                |
| Oil in Compressors       | no                    |

## Filters, Driers, and Accumulators

| Parameter           | Default Configuration        |
|---------------------|------------------------------|
| Drier               | 1 installed, 1 shipped loose |
| Suction Filter      | 1 installed, 1 shipped loose |
| Suction Accumulator | 1 per suction group          |

## Oil System

| Parameter               | Default Configuration        |
|-------------------------|------------------------------|
| Oil Separator           | Temprite                     |
| Oil Reservoir Regulator | Castel 1417E/3S05            |
| Compressor Oiling       | Copeland OMC CO <sub>2</sub> |
| Oil Type                | PAG 68                       |
| Oil Reservoir Capacity  | 1.84 gal (7 L)               |

## Heat Exchanger

| Parameter                  | Default Configuration                |
|----------------------------|--------------------------------------|
| MT Superheat Control       | hot gas injection / liquid injection |
| Liquid Subcooling          | brazed-plate heat exchanger          |
| Heat Reclaim (optional)    | 3-way ball valve                     |
| Available Heat Calculation | up to 50% THR                        |

## Wiring Diagrams

Unit-specific wiring diagrams / schematics are located in one of the panels of each Protocol.

## Estimated Weight<sup>A</sup>

| Weight      | 4.1                 | 4.2                 |
|-------------|---------------------|---------------------|
| Shipping    | 5,200 lb (2,359 kg) | 5,800 lb (2,631 kg) |
| Operational | 5,700 lb (2,585 kg) | 6,300 lb (2,858 kg) |

## Design Pressures

| Parameter                | Default Configuration        |
|--------------------------|------------------------------|
| Flash Tank / Liquid Line | 565 psi (39 bar)             |
| MT Suction               | 382–460 psi (26–32 bar)      |
| MT Discharge             | 1,000–1,537 psi (69–106 bar) |
| LT Suction               | 180–290 psi (12.5–20 bar)    |
| LT Discharge             | 652 psig (45 bar)            |
| Oil System               | 565 psi (39 bar)             |

## Ship-Loose Items

| Parameter      | Default Configuration           |
|----------------|---------------------------------|
| Oil            | 20 gal of PAG 68 oil (included) |
| Filters        | included                        |
| Drier Cores    | included                        |
| Isolation Pads | included                        |

## Physical Information

| Parameter               | Default Configuration         |
|-------------------------|-------------------------------|
| Indoor Enclosure        | panels with sound attenuation |
| Quantity of Spring Tabs | 10                            |
| Access Panels           | swing-out (hinged)            |
| Access Location         | all sides                     |
| Ventilation             | enclosure fan                 |

## Design Considerations

| Parameter              | Default Configuration                                  |
|------------------------|--|
| Gas Cooler Outlet Temp | 85° F (29.4° C) for adiabatic<br>95° F (35° C) for dry |
| Design Temp Source     | ASHRAE, 0.04% average                                  |

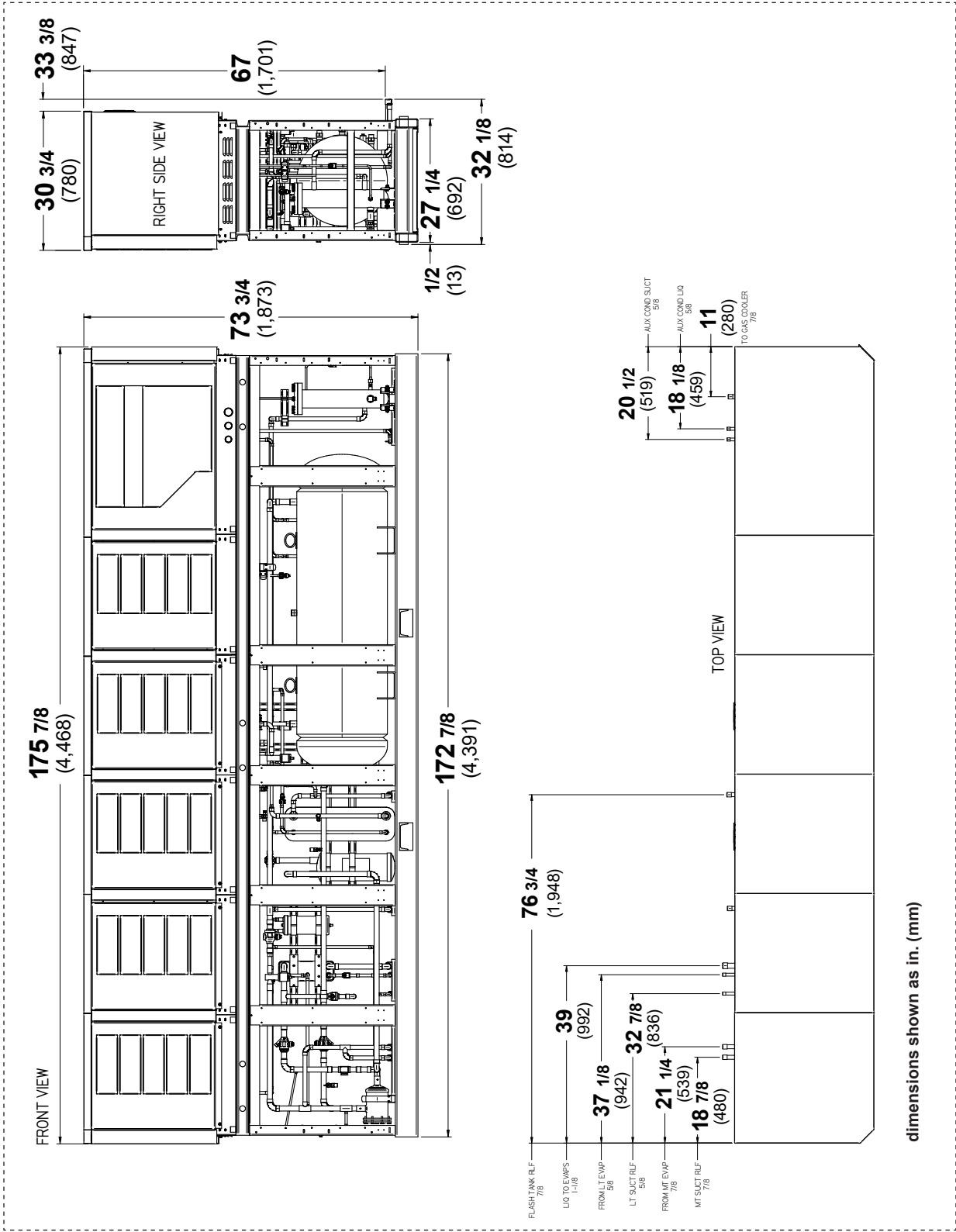
<sup>A</sup> Actual weight will vary related to included options.

Protocol CO<sub>2</sub>

Dimensional Views

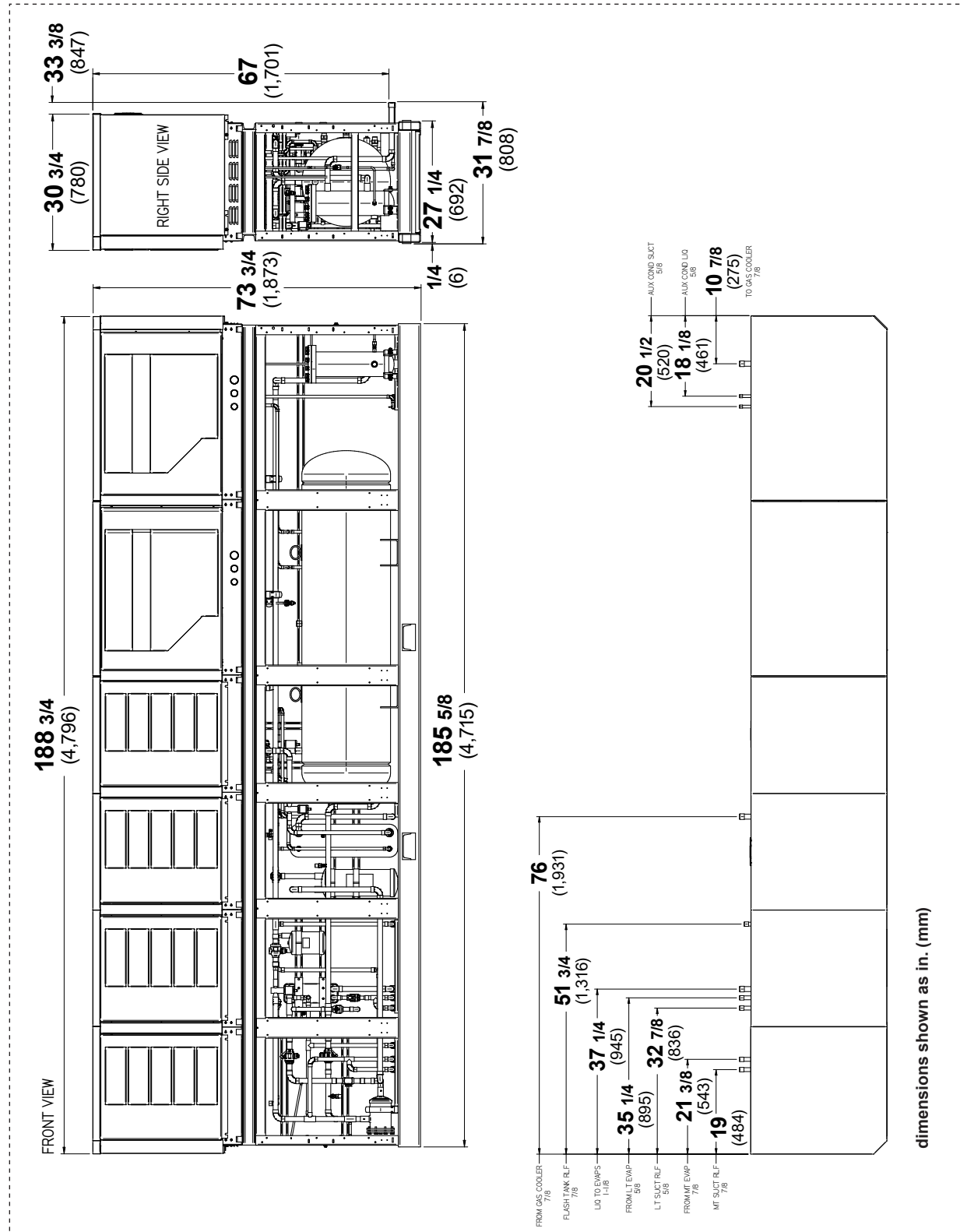
Protocol CO2 4.1 Dimensions

Images depict a typical design, but some dimensions may vary depending on configuration.



### Protocol CO2 4.2 Dimensions

Images depict a typical design, but some dimensions may vary depending on configuration.



---

## Revision History

Revision A: (May 2025) Initial release



Scan the QR code on your mobile device to access additional product information or order parts.

Parts may also be ordered at:

[parts.husmann.com](https://parts.husmann.com)

Call toll free: 1.855.487.7778

We reserve the right to change or revise specifications and product design in connection with any feature of our products. Such changes do not entitle the buyer to corresponding changes, improvements, additions or replacements for equipment previously sold or shipped.