

# KARLBORGS

## Product Catalogue 2026

*SMART CONNECTIVITY • SEAMLESS INTEGRATION • INDUSTRIAL RELIABILITY*

At Karlborgs, we specialize in making complex system integration simple, reliable, and scalable. This catalogue presents our 2026 lineup of smart connectivity solutions, designed for seamless interoperability with Danfoss and third-party systems.

Alsmart  
CERTIFIED

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# About Karlborgs

Smart Connectivity · Seamless Integration · Industrial Reliability

## ✓ Who We Are

At Karlborgs, we simplify complexity by breaking down the barriers between systems. As a trusted Danfoss partner, we develop smart, user-friendly solutions that connect third-party devices to Danfoss system managers. Our goal is to provide reliable, future-proof solutions that help you work more efficiently and create new sales opportunities.

## The Core Hardware

- ✓ We offer a few core hardware platforms, each designed to meet specific integration needs.
- ✓ The true power of our products lies in the firmware, which allows a single piece of hardware to solve a wide range of integration challenges.





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## OUR MISSION

### Connecting your system with Danfoss ecosystem

At Karlborgs, our mission is simple yet powerful: to break down barriers between systems and create seamless communication across all platforms. We believe in providing solutions that are not only efficient and reliable but also accessible and easy to implement.

## OUR COMMITMENT

### Connecting Systems, Simplifying Complexity, Driving the Future.

We don't just provide products, we provide solutions that last. Our commitment is to ensure that every integration is smooth, every system is optimized, and every technician has the tools they need to succeed.

## HOW WE WORK



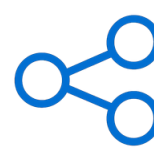
### ASSESS

Analyse  
Gather information  
Inspect



### BRIDGE

Address challenge  
Connect systems  
Stress test solution



### OPTIMIZE

Enhance performance  
Maximize efficiency

# M2M1 - Smart Bridge

## Effortless RS-485 to Danfoss Connectivity

*Connecting third-party devices into the Danfoss eco-system seamlessly*

### The Challenge

Connecting third-party RS-485 devices to Danfoss System Managers has traditionally required custom setups, protocol adjustments, and manual configuration — often leading to integration delays and reliability concerns.

### The Solution

The M2M1 Smart Bridge simplifies connectivity by adding a EKC-compatible Modbus RTU layer to 3rd party devices, ensuring plug & play compatibility with Danfoss. It reduces setup time, increases system stability, and provides a reliable communication link for refrigeration, HVAC, and sensor integrations.

## Why Choose M2M1

- ✓ **Minimal setup**  
Plug & Play setup cuts integration time dramatically
- ✓ **Endress Possibilities**  
Multiple integrations - one platform
- ✓ **Increase Reliability**  
Industrial-grade design ensures stable operation in critical systems
- ✓ **Sales with Confidence**  
Firmware options tailored to real-world applications



*Trusted by system technicians across Europe for 24/7 critical operations.*

# M2M1 Firmware Overview

Item Number	Description
M2M1	<b>Blank</b> - Delivered with no firmware. Customer may load it with software using USB-connected M2M1-PROG2.
M2M1-10	<b>Panasonic OCU-CR200/1000</b> CO <sub>2</sub> condensing units → <b>AK-SM 350/720/800/800A</b> <i>One device per M2M1</i>
M2M1-30	<b>StrongPoint Click&amp;Collect</b> MCX controllers → <b>AK-SM 350/720</b> <i>10x devices per M2M1</i>
M2M1-40	<b>Danfoss new generation GD</b> → Woodley 3 <sup>rd</sup> party bus ( <b>AK-SM 350</b> ) <i>One device per M2M1</i>
M2M1-50	<b>Emerson ECB-PRO</b> → <b>AK-SM 350/720/800/800A</b> <i>4x devices per M2M1</i>
M2M1-51	<b>Space Engineering BLDC Rotary Pack</b> → <b>AK-SM 800/800A</b> <i>1x device per M2M1</i>
M2M1-53	<b>Dixell XM679K v4.2</b> → <b>AK-SM 800/800A</b> <i>3x devices per M2M1</i>
M2M1-54	<b>Dixell XM679K v5.4</b> → <b>AK-SM 800/800A</b> <i>3x devices per M2M1</i>
M2M1-55	<b>Eliwell EVO V910</b> → <b>AK-SM 800/800A</b> <i>1x device per M2M1</i>
M2M1-56	<b>Eliwell EWSense</b> → <b>AK-SM 800/800A</b> <i>1x device per M2M1</i>

<b>Item Number</b>	<b>Description</b>
<b>M2M1-57</b>	<b>MYPRO TOUCH+</b> → <b>AK-SM 800/800A</b> <i>1x device per M2M1</i>
<b>M2M1-58</b>	<b>FRICO SIRe</b> → <b>AK-SM 800/800A</b> <i>1x device per M2M1</i>
<b>M2M1-59</b>	<b>AF-ENERGY NINO 3R-A</b> → <b>AK-SM 800/800A</b> <i>5x devices per M2M1</i>
<b>M2M1-60</b>	<b>Lennox CLIMATIC 60</b> → <b>AK-SM 800/800A</b> <i>1x device per M2M1</i>
<b>M2M1-62</b>	<b>Ciatesa ALDI controller v1.3</b> → <b>AK-SM 800/800A</b> <i>1x device per M2M1</i>
<b>M2M1-63</b>	<b>Produal HDU CO<sub>2</sub> sensors</b> → <b>AK-SM 800/800A</b> <i>10x devices per M2M1</i>
<b>M2M1-64</b>	<b>NovoCon Digital Actuator</b> → <b>AK-SM 800/800A</b> <i>32x devices per M2M1</i>
<b>M2M1-65</b>	<b>SonoMeter 40</b> → <b>AK-SM 800/800A</b> <i>32x devices per M2M1</i>
<b>M2M1-67</b>	<b>Danfoss EKE 1C</b> → <b>AK-SM 720</b> <i>1x device per M2M1</i>
<b>M2M1-68</b>	<b>Danfoss EKE 1C</b> → <b>AK-SM 720</b> <i>1x device per M2M1</i>

**Missing something? Contact us and let us solve your problems.**

# M2M1 - TOOL

## Custom configuration tool

*Integrate a third-part controller into a system inhouse!*

### What is the M2M1 TOOL

It is a web-based configuration tool that is used to configure and compile firmware for the M2M1 device, a RS-485 to RS-485 interface that allows third party controllers to be integrated into Danfoss system managers, such as AK-SM 720, AK-SM 800 and AK-SM 800A.

To understand how the M2M1 Tool works we need to understand how the Danfoss system manager expects connected modbus controllers to behave.

### Requirements

- ✓ **M2M1 Hardware**  
M2M1 Blank as an example
- ✓ **Computer with internet connection**  
For access to web interface
- ✓ **M2M1-PROG2**  
M2M1 programmer, sold separately

### The Problem

Danfoss system managers identify controllers on the modbus network by asking for their code number as well as their software version. For example 084B8032 v1.9. Third party controllers won't answer correctly to these requests, this is the main reason it's tricky to integrate these type of devices into the System Managers.

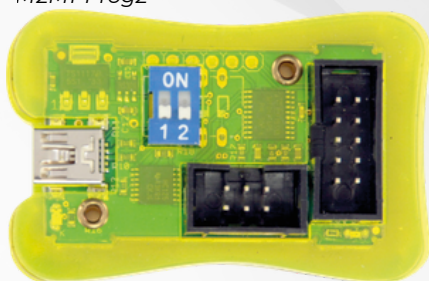
### The M2M1 approach

With M2M1 we solved the challenge of integrating third party devices by emulating a standard Danfoss EKC device, more specifically one that doesn't have different applications (as the AK-CC 550 does).

The M2M1 act very similar to an AK-RC 101.

### M2M1 solves this problem.

M2M1-Prog2



M2M1 Tool web interface

The screenshot shows the M2M1 Tool web interface with the following configuration options:

- Buttons:** Open file.., Save file.., Load enums, Compile
- Navigation:** Device, Parameter Groups, Parameters, Enums, Device Specifics, Poller, Maps, EDF, Information
- Device Name:** New Device
- Model:** 084B8030
- Version:** 1,13
- Device Type:** Pack
- Max. connected slaves:** 1
- Serial settings:**
  - Baudrate: 19 200
  - Serial config: 8E1
  - Timeout: 500
  - Scan Timeout: 280
  - Pollrate: 150
- Offset:** -1 (default)
- Compatibility:** AK-SM 800
- Watchdog:**
  - Register: 0
  - Value: 0

# M2M2 - Universal Gateway

## Expand Connectivity – Enhance Control

*Bridging multiple protocols for RS-485, CAN, Ethernet, and WiFi*

### The Challenge

Modern refrigeration, HVAC, and automation systems often need to exchange data across multiple protocols and interfaces. This integration can often be either very complex or actually impossible.

### The Solution

The M2M2 Universal Gateway enables seamless communication between Danfoss System Managers and third-party devices. Supporting Ethernet, and WiFi with Modbus RTU, Modbus TCP, and BACnet/IP, M2M2 offers unmatched flexibility. Its intuitive web interface allows for live diagnostics and adjustments, making integration fast, reliable, and future-proof.



## Why Choose M2M2

- ✓ **Multi-protocol support**  
Modbus RTU, Modbus TCP, CANbus, BACnet/IP
- ✓ **Web interface**  
For live diagnostics, updates and parameter control
- ✓ **Increase Reliability**  
Industrial-grade design ensures stable operation in critical systems
- ✓ **Future-Proof & Scalable**  
Staying relevant with firmware updates

*Trusted by system technicians across Europe for 24/7 critical operations.*

# M2M2 Firmware Overview

Item Number	Description
<b>M2M2-10</b>	<b>AK2 Gateway</b> (Modbus TCP + BACnet/IP) Adds Modbus TCP, Modbus RTU and BACnet/IP functionality to AK2(A) controllers
<b>M2M2-30</b>	<b>Modbus Gateway</b> Exposes connected <b>Modbus RTU</b> controllers to AK-SM 800/800A in a compatible way. Similar to what M2M1 does, but supports multiple different 3 <sup>rd</sup> party controllers on the same network.
<b>M2M2-51</b>	<b>Wireless Sensor Gateway</b> Reads data from <b>Ingics gateway</b> and exposes connected sensors as controllers to AK-SM 800/800A.
<b>M2M2-61</b>	<b>Gateway for Carel SPV</b> Enables communication with controller on a <b>Carel SPV</b> RS-485 bus from AK-SM 800/800A.
<b>M2M2-70</b>	<b>Gateway for energy meters</b> Normalizes data from energy meters to appear as Carlo Gawazzi EM210 and make them compatible with AK-SM 800/800A.
<b>M2M2-90</b>	<b>Modbus TCP Bridge</b> Exposes Modbus RTU and CANbus devices over Modbus TCP

**Missing something? Contact us and let us solve your problems.**

# SM8X2M1

## Integration of System Managers made easy

*Enhancing Danfoss System Managers with Modbus TCP and BACnet/IP*

### The Challenge

Integrating Danfoss System Managers with 3<sup>rd</sup> party systems has traditionally been difficult due to the complexity of the built-in XML based interface.

### The Solution

With SM8X2M1, this challenge disappears — Giving 3<sup>rd</sup> party systems the ability to read and write data to the System Manager over standard protocols such as Modbus TCP and BACnet/IP



## Why Choose SM8X2M1

- ✓ **Save Time**  
No need to develop your own XML driver,.
- ✓ **Simple commissioning**  
The full setup is made in a few easy steps in the built-in web interface
- ✓ **Wide support**  
Supports both AK-SM 800 and 800A, as well as AK-SC 255 and 355.
- ✓ **Standard protocols**  
By providing Modbus TCP and BACnet/IP support it's easily integrated in standard BMS systems.

*Trusted by system technicians across Europe for 24/7 critical operations.*

**SM8X2M1** - Designed to simplify, built to last

# Other Products

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## M2M1-PROG2

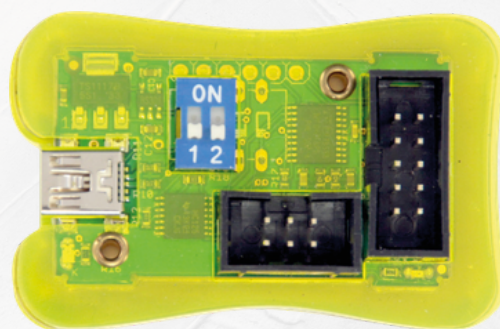
For custom configurations

USB programmer for M2M1 to upload custom configurations made with M2M1 Tool.

- ✓ Easy to use

Interface: USB

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## DGS2

CO<sub>2</sub> Gas Detection Box

DGS:2 makes CO<sub>2</sub> gas detection easy with a pre-mounted, fully wired sensor package. Built for speed and safety, it saves valuable installation time while ensuring compliance with industry standards

- ✓ Danfoss DGS-IR CO<sub>2</sub> sensor
- ✓ Complete kit
- ✓ Built-in test button



Power: 230V AC | Sensor: Danfoss DGS-IR

## RTDF-01

### Network Integration

Tailor-made pre-configured router to be used with IP connected controllers (AK-SM 800/800A). Customized DHCP server. Also solves VPN related connection issues when eth1 is used.

- ✓ Plug & Play
- ✓ 5x LAN ports
- ✓ DIN-rail mount



**Platform:** Teltonika RUT301 | **Interfaces:** 5x Ethernet

## MCX061V-SPC

### Suction Pressure Controller

Ensures accurate real-time regulation of suction pressure in refrigeration systems

- ✓ Simple configuration
- ✓ For stepper or 0-10V valves
- ✓ Optimized for CO<sub>2</sub> operations



**Platform:** Danfoss MCX061V | **Power Supply:** 230V AC

## Accessories

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<b>Item Number</b>	<b>Description</b>
iGS03E	Ingics Gateway
U-POE-AF	PoE Injector
TSW040	PoE Switch
iGS03T	Wireless temp. sensor
iGS03TP	Wireless temp. sensor with 2m cable

## Services

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<b>Item Number</b>	<b>Description</b>
Field Plantstart	<p>Start and optimization of systems</p> <p>We provide professional commissioning, advanced troubleshooting, and fine-tuning of your systems to ensure peak performance and stability. This service is available on-site or remotely by our certified technicians.</p> <p>We leverage our over 14 years of successful collaboration with Danfoss and our extensive, long-standing experience in system optimizations.</p>

# ALSMART PROGRAMMING

Delivery of a pre-programmed controller, or a custom software for your product, we're here to help you reach your goal.

## Our know-how

We have long long experience in developing applications for customers in different segments, such as commercial refrigeration, commercial and residential heating, test facilities, climatic wind tunnels, etc



## Why Choose Karlborgs

- ✓ **Certified Alsmart Software Partner**  
Validated and endorsed by Danfoss
- ✓ **Tailored Applications**  
Engineered to match your exact requirements
- ✓ **Simulated Pre-Deployment Testing**  
PLC logic is validated using simulation software for a smooth start-up.
- ✓ **Designed for the future**  
Code for long-term maintainability and future development

## What we offer

Item	Description
<b>Hardware+</b> Depending on sale	Ready to use hardware with application.
<b>Software</b> Depending on sale	Alsmart PLC application project ready for upload.
<b>Documentation</b>	I/O list, functional description, and tag list for technicians

# Graphical layouts

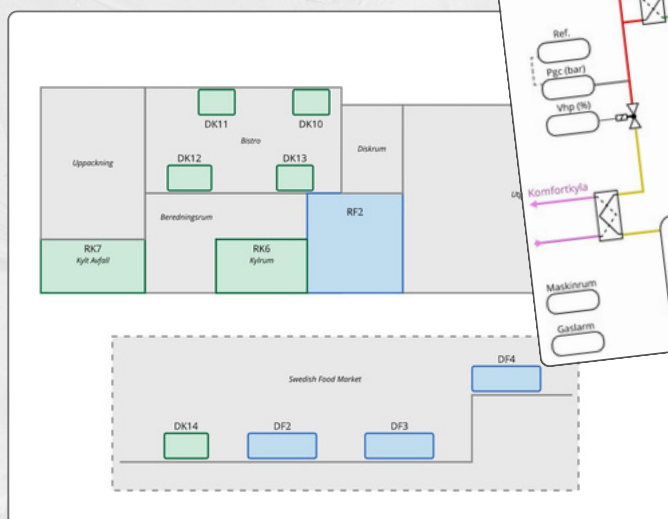
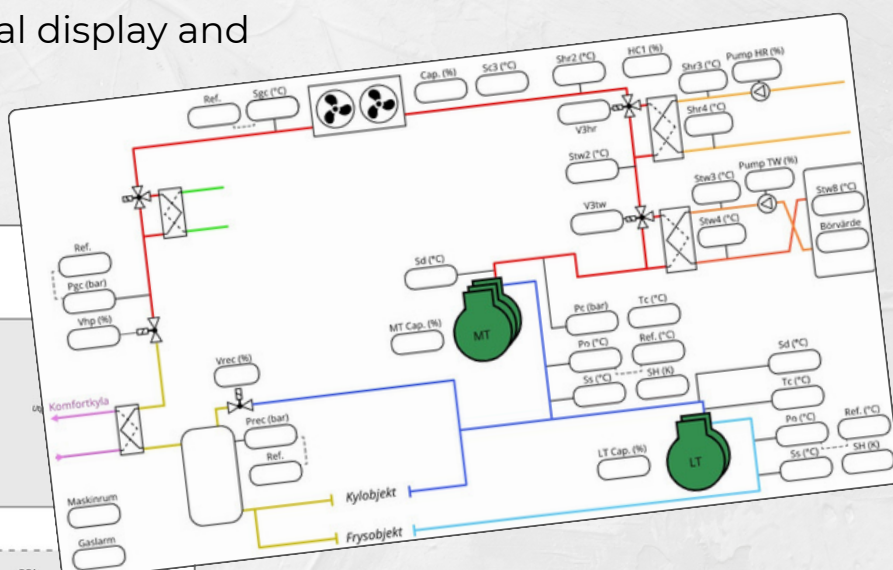
We create tailored graphical layouts for supermarkets and industrial refrigeration plants, including cold rooms, display cabinets, preparation areas, and complete transcritical CO<sub>2</sub> booster packs.

Our graphics are designed for use with Danfoss AK-SM 800A and other supervisory systems, giving operators a clear and intuitive visual overview of their installation.

Based on drawings, PID diagrams, equipment lists, or other customer-provided information, we convert system details into clean, scalable vector graphics that match the site's design and naming conventions.

## What we deliver

- Visualisation of rooms, cabinets, and refrigeration packs
- Custom graphics (SVG, JPG, etc.)
- Layouts optimised for Danfoss System Manager (local display and web)



# Integration Diagram

## Wireless Monitoring for Plug-in Refrigeration Units



### Problem

Many stores rely on standalone refrigeration units that are not integrated with the supermarket's central refrigeration and alarm system, which puts inventory at risk if a failure goes unnoticed.

### Solution

Combining wireless temperature sensors, the Ingics Gateway and our M2M2-51 to read and integrate wireless sensors into the system manager every store can archive full control of their groceries.



### Benefits

- ✓ **Plug & Play**  
Only a patch cable and power plug needed
- ✓ **Real-time alarms & monitoring**  
Prevent unnoticed failures and avoid unnecessary waste
- ✓ **Increase Reliability**  
Extend your monitoring coverage- even to stand alone units

# Integration Diagram

## Retrofitting modern products in legacy systems

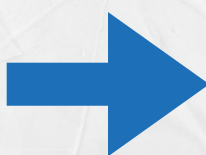


### Problem

Old systems built with Danfoss AK-SM 350 often utilize the TP-bus for legacy GD gas detectors. When replacing these gas detectors with modern equivalents it's not possible to communicate with them, especially not on the currently installed field bus.

### Solution

By connecting the modern GD gas detector to an M2M1-40 that emulates a legacy GD gas detector we make this retrofit fully plug & play and painless for the installer and customer.



### Benefits



#### Painless

No need to replace the System Manager or the installed field bus.



#### Plug & play

Requires no configuration or special tools

# Contact Karlborgs

Need help with firmware selection, custom integrations, or technical support?

Our team is here to assist you!



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