



CAREL

mpx

Total connectivity and high efficiency for the complete management of supermarket refrigeration units

Total refrigeration unit management

MPX is the innovative series of electronic controllers for the management of refrigerated showcases in supermarkets. Developed on platforms that guarantee high flexibility and scalability, this range of products can meet all market demands for this application: from ease of use and installation to highly-efficient performance.

The breadth of the range means the most suitable solution can be guaranteed to meet the needs of the application.

mpxone medium

- Advanced control for uniform groups of cabinets (main/secondary networks) with modulating devices (fans, anti-sweat heaters)
- VCC compressor management in frequency mode.
- Possible serial integration of modulating devices such as valve drivers, or modulating fans;
- Easy retrofit from TEV to E²V on existing cabinets, using the external EVDice driver (installed directly in the evaporator compartment) or EVDmini for an on-cabinet solution).

mpxzero advanced

- Management of groups of uniform showcases (main/secondary networks) or, alternatively, management of a variable-speed compressor (VCC by frequency or via serial line).
- Zero-crossing and high-low voltage protection for extended reliability;
- Advanced connectivity (Bluetooth®).

mpxzero

- Standard control for stand-alone units;
- Direct connection to supervisory systems (RS485) available on all models.



Connectivity

Easy integration into BMS systems, management of M/S networks and field devices via Fieldbus serial, NFC and Bluetooth wireless technology for immediate interaction with the refrigeration units.



High efficiency

Energy savings through advanced logic and control of modulating devices, now also available for more simple and compact applications.



Optimal food preservation and HACCP compliance

Stabilisation of the storage temperature preserves the quality of food. Certified best practice for food safety.

Benefits of MPXone Medium + EVDice

- + Complete serial communication between the showcase controller and the valve driver (just one device is connected to the supervisor).

- + EVDice (expansion valve) specifically developed to operate in the evaporator compartment (IP65/IP67) thanks to a special resin coating.

- + Optimal cabinet control, based on evaporator operating conditions (smooth lines).

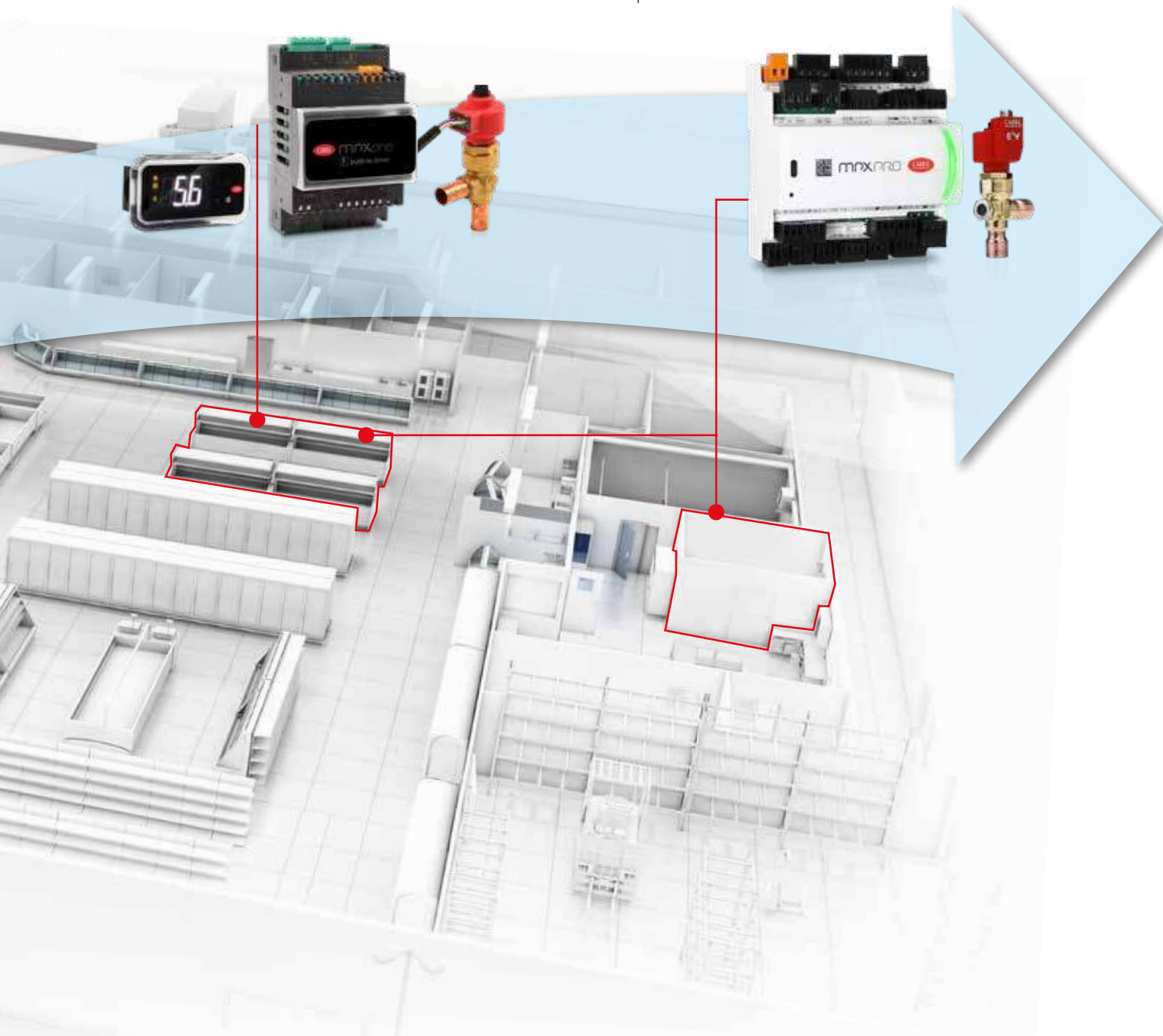


mpxone advanced

- Integrated management of a CAREL E²V unipolar stepper valve (with optional Ultracap technology), 0-10V valve or PWM (via external SSR).
- VCC compressor management in frequency mode.
- "Flooded" evaporator operating mode (low superheat - VLSH), via serial control or digital input.

mpxpro

- Compact controller (6 DIN modules);
- Same part number for stepper (with built-in Ultracap) or PWM electronic expansion valves;
- Real-time load monitoring with 3 built-in current sensors;
- Up to 2 independent RS485 serial ports for BMS and USB-C for configuration/upgrade;
- "Flooded evaporators" (VLSH) logic via serial command or digital input.



Platform modularity

The entire range features the most advanced control logic, from direct connection to supervisory systems to the management of synchronised actions between uniform groups of cabinets.



I/O flexibility: free configuration and association of probes to functions directly from the controller, without requiring physical modifications.



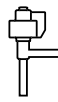
Parameter management: standard mode with pre-sets, or advanced via unlimited storage capacity via mobile devices/cloud.



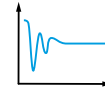
High level of security: user profiling, configurable parameters visibility and NFC/Bluetooth deactivation manageable from the supervisor.



Advanced synchronisation: coordinated actions between similar showcases for defrosting, lighting and probes.



Built-in EEV control: full integration with stepper or PWM electronic valves, for adaptive control and maximum efficiency.



Intelligent algorithms: temperature optimisation, food preservation and real-time power consumption monitoring.

Key features of MPXPRO

Extended monitoring

Up to 3 built-in current sensors for load fault detection and power consumption monitoring.

Flexibility

Two distinct versions of the board available:

- 5 power relays;
- 6 signal relays.

Horizontal or vertical connector assembly available.

Error-proof

- Direct connection via JST for HMI and repeater display.
- Serial BMS with automatic polarity correction.

Watch the sales video!



Fast to use

USB-C serial port for parameter configuration and/or software upgrades from a PC, even when the controller is not powered on.

Versatility

Solution available in the following versions:

- Entry (for stepper valve without Ultracap);
- Stepper (with built-in Ultracap);
- PWM;
- Universal (stepper with built-in Ultracap and PWM);

Intuitive operation

RGB LED to signal controller operating status.



Advanced connectivity (NFC, Bluetooth®)



Panel mounting without screws

Resistive or capacitive display

Multicolour icons

High contrast

Backlit buttons

Wide angle of visibility

The cutting-edge in user interfaces for the latest generation controllers



APPLICA



Mobile application for a new user experience

NFC and Bluetooth® wireless communications revolutionise interaction with the refrigerated cabinets.

Using APPLICA, a dedicated app, the traditional user interface is available on any mobile device (smartphone, tablet), extending functionality and usability.



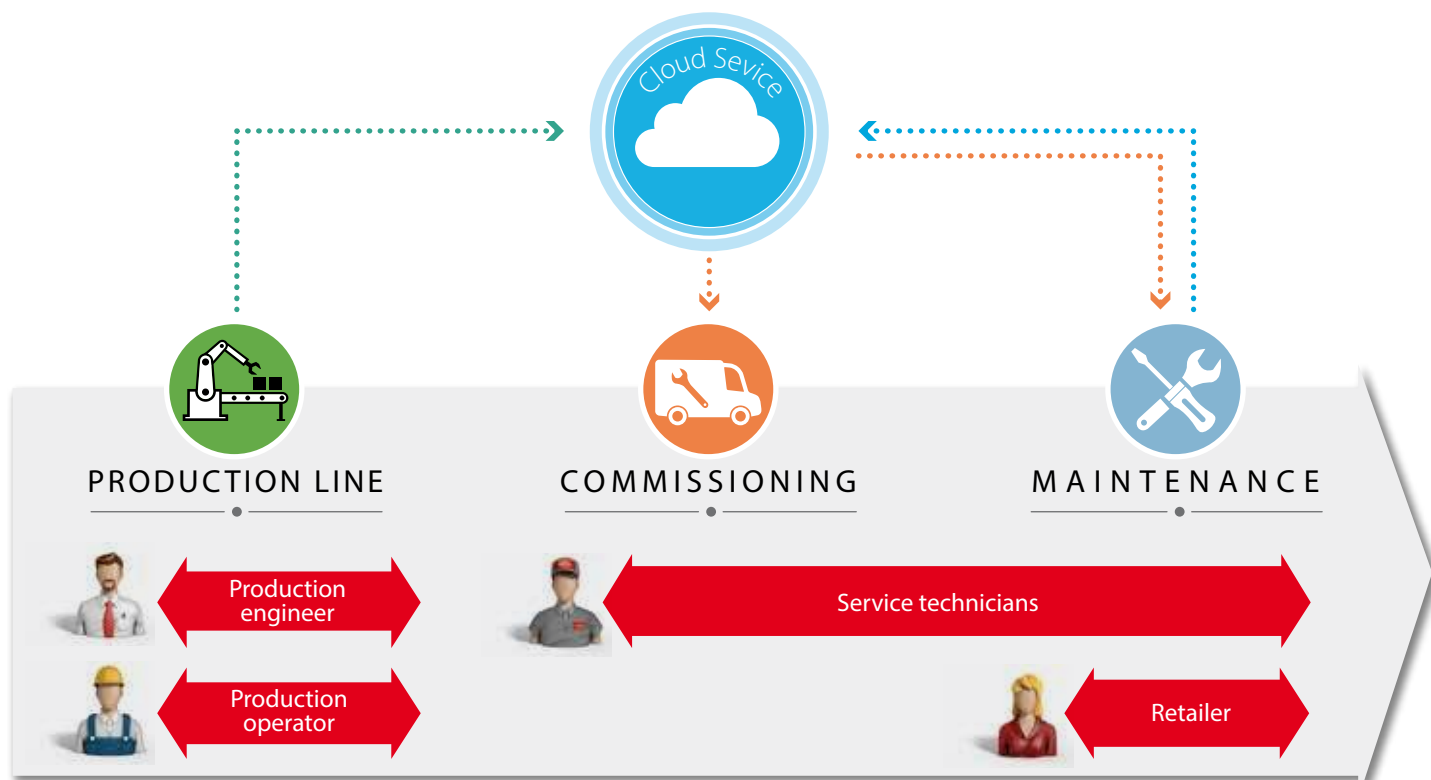
Available for Android and iOS, designed to simplify commissioning and maintenance work.

Links to tutorial videos on how to connect the device and basic product configuration simplify the work of technical personnel in the field.



Total connectivity solutions

A complete system architecture allows the units to be managed throughout their entire life cycle: from production and installation through to maintenance. File hosting and sharing services simplify interaction between users in different locations, allowing access to constantly updated documentation and configuration files.



- ✓ Writing of specific unit information (production date, serial number, type).
- ✓ Complete unit configuration and end-of-line testing.
- ✓ Definition of user profiles, passwords and corresponding parameter visibility.
- ✓ Creation of documentation package to be uploaded to the cloud, where it is then available to users in the field.

- ✓ Extensive I/O configurability directly on the smartphone, without the need to change the wiring.
- ✓ Direct management of control outputs via mobile device.
- ✓ Commissioning wizard.
- ✓ Immediate retrieval of default configurations and simple unit fine-tuning.

- ✓ Retrieval of logs from the controller (temperatures, alarms and events).
- ✓ Real-time display of operating conditions.
- ✓ Cloud/email sharing of configurations, alarm lists and log reports.
- ✓ Immediate access to the most up-to-date documentation in multimedia format.

Simplified interaction

The tools and dedicated apps developed simplify the daily tasks of manufacturers, installers and maintenance personnel.



Sparkly

Command-line tool that can be integrated into a higher level system for complete configuration and testing of the unit directly on the production line.



Spark

Stand-alone software released under license for creating unit parameter lists on a PC (even offline) and pre-programming the devices.

Connectivity for local and remote monitoring of all types of system

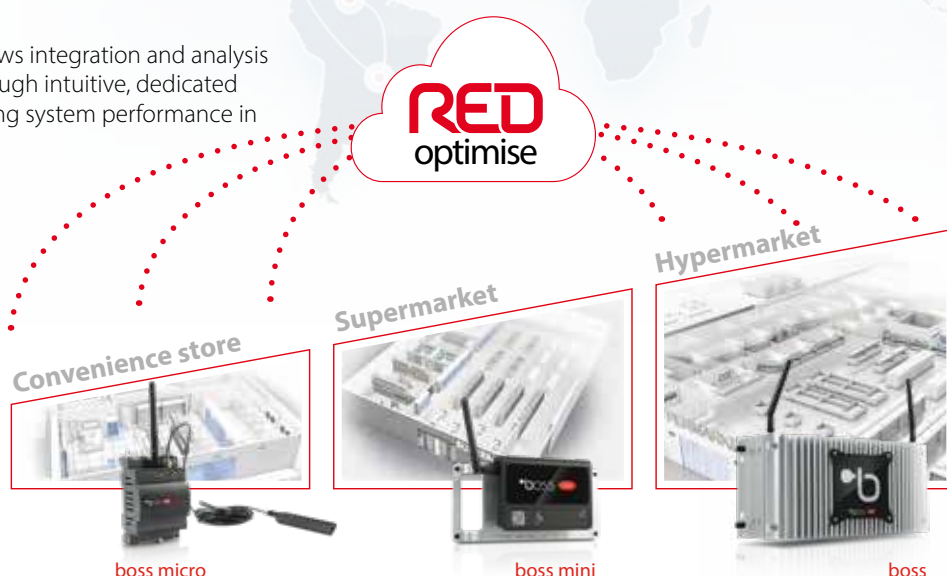
The extensive connectivity of the MPX range also covers solutions for local and remote management.

RED optimise

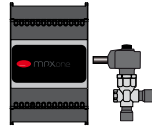
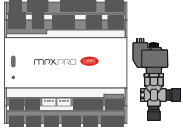
The CAREL digital services cloud portal allows integration and analysis of multi-site information and provides, through intuitive, dedicated dashboards, useful information for improving system performance in terms of energy consumption and control.

boss range

A wide range of local supervisors with features available for the management and interaction between the different users of the system, so as to optimise the thermodynamic conditions and energy consumption. The boss family covers all system sizes, from convenience stores to large hypermarkets.



Technical data

Caratteristiche	MPXzero	MPXzero advanced	MPXone medium		MPXone advanced	MPXPRO
Models						
Power supply	115 to 230 Vac	115 to 230 Vac	24 Vac/Vdc	115 to 230 Vac	115 to 230 Vac	115 to 230 Vac
Analogue inputs	3 (2)	3 (2)	6		8	8 (6)
Analogue outputs	-	2 (PWM/0-10V) available only in the VCC version with frequency control mode	2 (also for VCC compressors in frequency mode)		2 (also for VCC compressors in frequency mode)	4 (also for VCC compressors in frequency mode)
Digital inputs	1 (2)	1 (2)	5		5	3 (5)
Digital outputs	3	4	4		4	5/6
Local network management	-	Up to 6 devices	Up to 10 devices		Up to 10 devices	Up to 10 devices
Connectivity	NFC	NFC, Bluetooth®	NFC, Bluetooth®		NFC, Bluetooth®	NFC, Bluetooth®
Serial ports	1BMS	1 BMS 1 Fieldbus/VCC	1BMS 1Fieldbus		1BMS 1Fieldbus	Up to 2 BMS (optional) 1 Fieldbus
RTC	6 months	6 months	6 months		6 months	6 months
Connectors	All removable	Removable, JST	Microfit and removable		Microfit and remov.	All removable
Driver valvola	TEV	TEV	E²V external driver (EVDmini, EVDice)		CAREL E²V UNIPOLAR driver (built-in), PWM (external SSR)	CAREL E²V BIPOLAR driver, PWM (built-in)
Ultracap	N/A	N/A	On external driver		External device (4 DIN)	Incorporated

Available versions

Part number	Description
MPXzero - Controller	
S0MPSS3R02S0333	MPXzero, 115 to 230 Vac, 2HP 8A 5A, NFC, RTC, BMS, red LED
S0MPSA4R03SA000	MPXzero, 115 to 230 Vac, 2HP 8A 5A 5A, NFC, RTC, BMS, Fieldbus, white LED
S0MPSA4B03S0274	MPXzero, 115 to 230 Vac, 2HP 8A 5A 5A, NFC, Bluetooth®, RTC, BMS, Fieldbus, white LED
S0MPSA4R06S0319	MPXzero, 115 to 230 Vac, 2HP 8A 5A 5A, NFC, RTC, BMS, 2AO, white LED
S0MPSA4B04S0320	MPXzero, 115 to 230 Vac, 2HP 8A 5A 5A, NFC, Bluetooth®, RTC, BMS, VCC Serial, white LED
MPXone - Controller	
S1M0004W0B060	MPXone Basic, 24 Vac/Vdc, 16A 8A 5A 5A, NFC, RTC, BMS, Fieldbus, white LED
S1M0006W0B070	MPXone Medium, 24 Vac/Vdc, 16A 8A 5A 5A, NFC, RTC, BMS, Fieldbus, 2AO, white LED
S1M0006B0B080	MPXone Medium, 24 Vac/Vdc, 16A 8A 5A 5A, NFC, Bluetooth®, RTC, BMS, Fieldbus, 2AO, white LED
S1M0007N0B110	MPXone Medium DIN, 115-230 Vac, 16A 8A 5A 5A, RTC, BMS, Fieldbus, 2AO
S1M0009N0B120	MPXone Advanced DIN, 115-230 Vac, 16A 8A 5A 5A, RTC, BMS, Fieldbus, 2AO, unipolar E ² V
MPXPRO - Controller	
SPM00ENHRV040	MPXPRO stepper no Ultracap 115 to 230 Vac 5 relays, current sensors, vertical connectors
SPM00STHRV010	MPXPRO stepper Ultracap 115 to 230 Vac 5 relays, current sensors, vertical connectors
SPM00PWHRV020	MPXPRO PWM 115 to 230 Vac 5 relays, current sensors, vertical connectors
SPM00UNHRV030	MPXPRO stepper PWM Ultracap 115 to 230 Vac 5 relays, current sensors, combo serial no optoinsulated, vertical connectors
MPX - User interface only for MPXone and MPXPRO	
AX3000PS20020	Type A user interface, NFC, keypad, buzzer, white LED
AX3000PS20030	Type A user interface, NFC, Bluetooth®, keypad, buzzer, white LED
AX3000PS20X10	Type A repeater display, keypad, buzzer, white LED
S00HSA0N00S0700	Type B user interface, NFC, touchscreen keypad, buzzer, white LED
S00HSA0B00S1004	Type B user interface NFC, Bluetooth, keypad, buzzer
S00HXA0B00S1010	Type B XL HORIZONTAL user interface NFC, Bluetooth, keypad, buzzer

Notice: these products are also available in multi-pack versions.

Headquarters

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www.carel.com

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