

MPXPRO

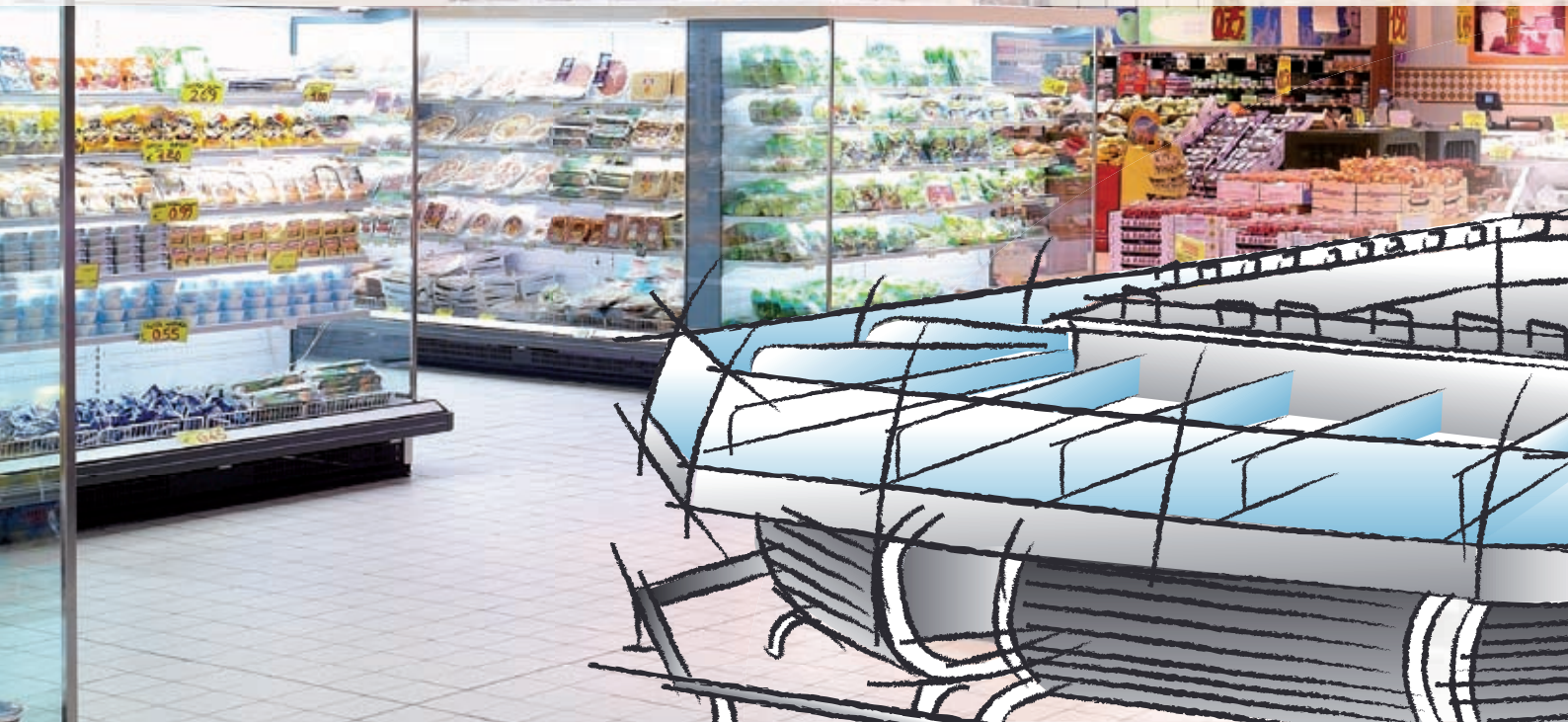
Performance and user simplicity

CAREL



MPXPRO

Complete solution for the management of multiplexed refrigeration units



Defrost



Anti-sweat



Lights



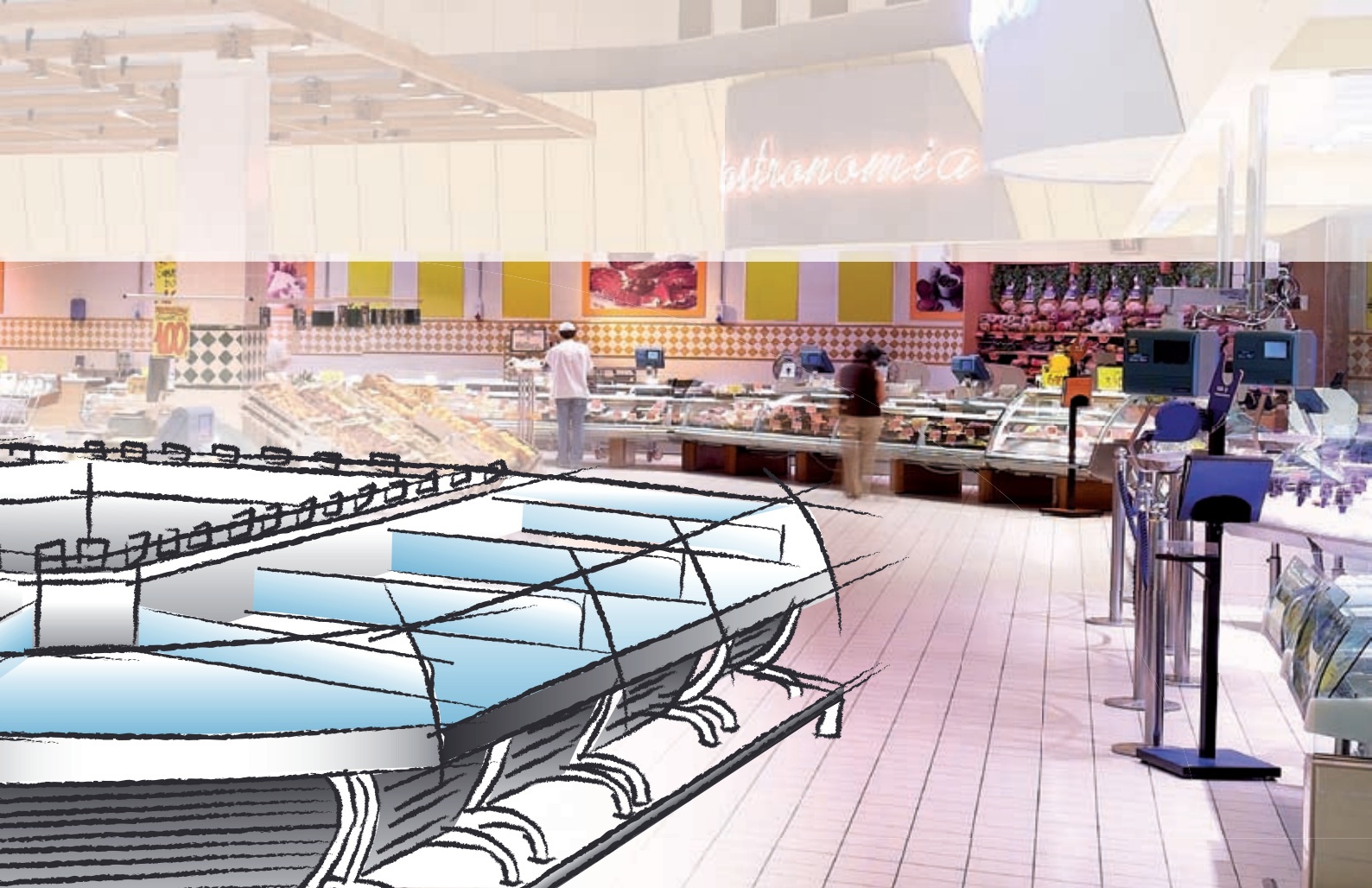
Day/night



Fans



the one solution



CAREL E²V



PWM valve



Alarms



Groups



Accessibility

MPXPRO is the avant-garde CAREL Retail sistema solution for the complete and integrated control of multiplexed showcases.

The result of CAREL's continuous commitment to research and development of innovative and technically advanced solutions, this solution guarantees high performance and flexibility, offers excellent possibilities for energy saving, with special regard to ease of use and installation.



Energy saving



MPXPRO offers several possibilities to optimise the operation of refrigerated showcases or cold rooms and achieve considerable energy saving. In addition to the traditional techniques of optimising defrosts and daily management.



EEV

Built-in driver for the management of CAREL EXV or PWM electronic expansion valves:

- optimised compressor rack operating pressure
- maximum evaporator efficiency
- stable temperature inside the showcases
- corrective procedures to ensure operation even in critical conditions

Anti-sweat heaters

Specific functions to avoid the creation of condensate on low temperature display cases, modulating the operation of the anti-sweat devices in real time based on the environmental and display case conditions. Special focus on installation costs, with the possibility to share readings from common probes and estimate the values of probes that are hard to install.



Fan modulation

Modulating control of evaporator fans to reduce energy consumption based on the real operating conditions of the showcase. Dedicated outputs for DC fans (0-10Vdc).



Usability



MPXPRO is complete with specific functions for ease of use and configuration, above all during installation.

Remote control

Used to interact with the instrument:



- direct infrared control
- display
- remote user management
- complete display configuration
- manual override

VPM - Visual Programming Method

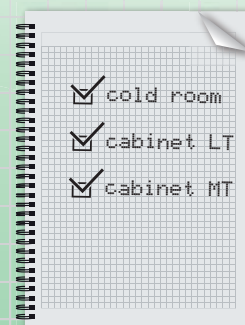
Application programming method for commissioning and configuration of the instrument. It allows for key customisation of the instrument.



- Management of the instrument
- Firmware update
- Real time display configuration
- Complete configuration

Pre-configuration

Six distinct lists for pre-configuration of the instrument. Each list can be modified and can be re-used. The lists can be shared.





functions and commissioning tools to simplify
g setup.

Control
act with the controller and ensure correct opera-

and connection to the user terminal or remote
keypad
display of probes and internal variables
override of inputs and outputs

Parameter Manager

program for managing lists of parameters and
tuning the devices. Direct connection from
nt to a PC via RS485 or tLAN; programming
ation. Functions
nt of lists of parameters, relay configurations
updates
display of states and graphs
override of inputs/outputs

Configurations

ts of parameters saved directly inside the
ach list can identify a specific application,
ecalled at any time without requiring a key.
be easily customised using the VPM.



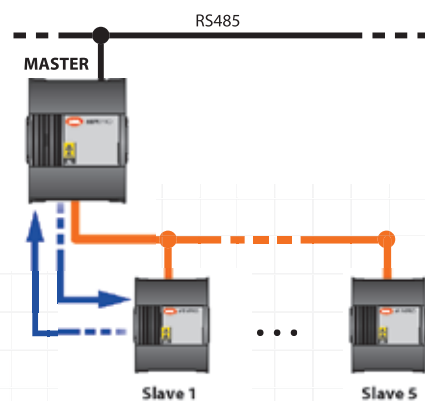
Performance



Innovative and highly flexible algorithms mean **MPXPRO** can satisfy the widest range of market requirements.

Master-slave network

Creation of sub-groups with a maximum of 6 units that can synchronise with each other, share information and implement common procedures. The various subnetworks are managed by a master unit that acts as the gateway to the supervisor.



Safety procedures



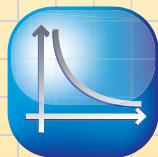
MPXPRO includes several safety procedures (starting from first installation) that allow the instrument to guarantee correct operation and postpone service calls, even in emergency conditions.

Hot gas defrost



MPXPRO includes an innovative algorithm for managing hot gas defrosts that can control a maximum of 6 outputs in different configurable phases. This procedure can be synchronised across the master-slave network.

Modulating thermostat



Function used to improve control of the temperature inside the showcase by continuously modulating the flow of refrigerant inside the evaporator, and avoiding the typical swings of traditional ON/OFF control, such as with EEVs.

MPXPRO and supervision

Integration with PlantVisorPRO and PlantWatchPRO

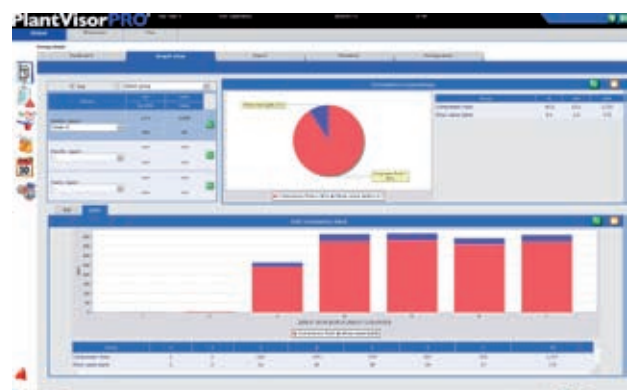


The integration of **MPXPRO** into the CAREL PlantVisorPRO and PlantWatchPRO supervisory systems expands the concept of the master-slave network and allows communication between instruments in different subnetworks.

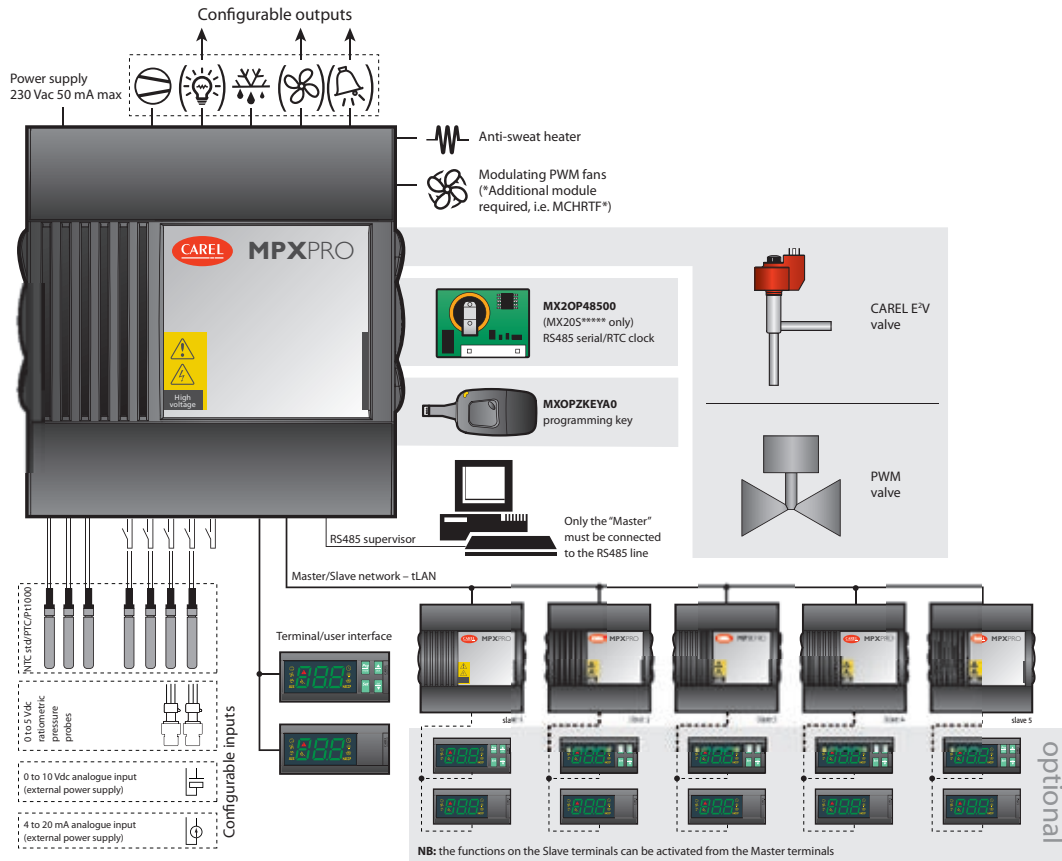
By creating interactions between the different controllers installed, a single system can be defined that globally synchronises and schedules various functions:

- programmed on/off;
- shared inside humidity and temperature values for the real time modulation of anti-sweat heaters;
- programmed multiplexed defrosts;

- management of store opening times;
- optimised compressor rack operating pressure;
- analysis and reports on energy consumption.



Functional diagram



Standard codes

All codes feature of a maximum of 8 configurable inputs. The possible combinations are described below.

Code	Description	Digital Input (max)	Digital Output*	Analog input				Analog Output		EEV Driver	
				NTC (max)	PTC/Pt1000 (max)	0,5-4,5Vdc** (max)	4-20mA/0-10Vdc (max)***	PWM 12Vdc	0-10 Vdc	CAREL E ^V	PWM
Basic versions											
MX20M00E(O,R)0	MPXPRO Master base	5	5 (3)	7						○	○
MX20S00E(O,R)0	MPXPRO Slave base 5 relay	5	5 (3)	7						○	○
MX20S10E(O,R)0	MPXPRO Slave base 3 relay	5	3 (1)	7						○	○
Full-optional versions											
MX20M21E(O,R)0	MPXPRO Master full optional	5	5 (3)	7	7	2	1	●		○	○
MX20S21E(O,R)0	MPXPRO Slave full optional 5 relay	5	5 (3)	7	7	2	1	●		○	○
MX20S31E(O,R)0	MPXPRO Slave full optional 3 relay	5	3 (1)	7	7	2	1	●		○	○
Versions with built-in EEV driver											
MX20M25E(O,R)0	MPXPRO Master full optional, E ^V driver	5	5 (3)	7	7	2	1	●	●	●	
MX20S25E(O,R)0	MPXPRO Slave full optional, E ^V driver	5	5 (3)	7	7	2	1	●	●	●	
MX20M24E(O,R)0	MPXPRO Master full optional, PWM driver	5	5 (3)	7	7	2	1	●	●		●
MX20S24E(O,R)0	MPXPRO Slave full optional, PWM driver	5	5 (3)	7	7	2	1	●	●		●

○ : Option not supplied but available for installation;

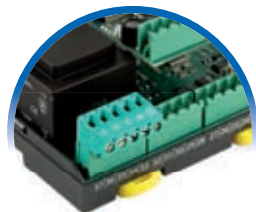
● : Option installed;

* : The number in brackets indicates the number of relays with changeover contacts;

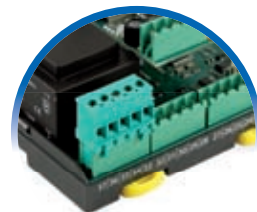
** : The software manages just one ratiometric evaporation pressure probe;

*** : 0-10 Vdc and 4-20 mA active probes cannot be powered directly by MPXPRO, they require an external power supply.

All the codes include the plug-in screw connector kit inside the packaging.



Terminals with connection for vertical cables (e.g. MX20M00E○○)



Terminals with connection for horizontal cables (e.g. MX20M00ER○)

Options	
MX2OP48500	RS485 serial and RTC clock card (only for slave)
MX2OPSTP0(2,3)	CAREL E ² V stepper driver and 0 to 10 Vdc output option
MX2OPPWM0(2,3)	PWM driver and 0 to 10 Vdc output option
TRADRBE240	24 Vac (20VA) transformer for CAREL E ² V, DIN rail assembly
TRAO0BE240	24 Vac (20VA) transformer for CAREL E ² V, panel installation
IROPZTLN00	Converter for MPXPRO commissioning connector (USB-tLAN)
IROPZPRG00	Converter for MPXPRO programming key (USB-I2C)
MXOPZKEYAO	Programming key for MPXPRO (230 Vac)
IRTRMPX000	IR remote control for MPXPRO

User terminals	
IR00UGC300	MPXPRO terminal with keypad (green LEDs, buzzer, IR, commissioning connector)
IR00XGC300	MPXPRO display (green LEDs, buzzer, IR, commissioning connector)
IR00UG6300	MPXPRO terminal with keypad (green LED, no options, neutral)
IR00XG6300	MPXPRO display (green LED, no options, neutral)

Solutions for applications

Below are the codes suggested by CAREL for different types of application.

Master display case or cold room (with E²V)

Code	Description	Qty.
MX20M25E00	MPXPRO Master full optional, E ² V driver	1
IR00UGC300	MPXPRO terminal with keypad (green LEDs, buzzer, IR, commissioning connector)	1
NTC060HP00	NTC Temperature probe inside the case	3
NTC060HF01	NTC Suction temperature probe for superheat	1
SPKC005310	Pressure probe cable	1
SPKT0013R0	Pressure probe, -1 to 9.3 bar	1
E2VCABS600	Cable for CAREL E ² V electronic expansion valves	1
E2V**BSF00	CAREL E ² V electronic expansion valve	1
TRADRBE240	24 Vac (20 VA) transformer for CAREL E ² V, DIN rail assembly	1

Slave display case (with E²V)

Code	Description	Qty.
MX20S25E00	MPXPRO Slave full optional, E ² V driver	1
IR00XGC300	MPXPRO display (green LEDs, buzzer, IR, commissioning connector)	1
NTC060HP00	NTC Temperature probe inside the case	3
NTC060HF01	NTC Suction temperature probe for superheat	1
E2VCABS600	Cable for CAREL E ² V electronic expansion valves	1
E2V**BSF00	CAREL E ² V electronic expansion valve	1
TRADRBE240	24 Vac (20 VA) transformer for CAREL E ² V, DIN rail assembly	1

Master display case or cold room (without E²V)

Code	Description	Qty.
MX20M00E00	MPXPRO Master base	1
IR00UGC300	MPXPRO terminal with keypad (green LEDs, buzzer, IR, commissioning connector)	1
NTC060HP00	Temperature probe inside the case	3

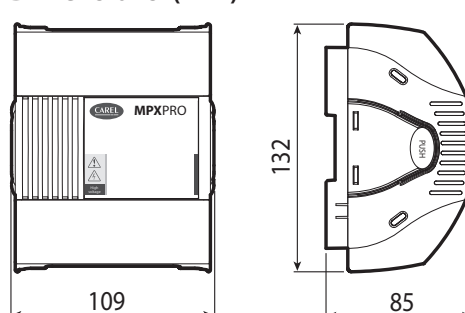
Slave display case (without E²V)

Code	Description	Qty.
MX20S00E00	MPXPRO Slave base	1
IR00XGC300	MPXPRO display (green LEDs, buzzer, IR, commissioning connector)	1
NTC060HP00	Temperature probe inside the case	3

Technical specifications

Power supply	230 Vac, 50/60 Hz
Current input	11.5 VA, 50 mA max.
Working conditions	-10T50 °C, <90% rH non-cond.
Operating conditions	-20T70 °C, <90% rH non-cond.
Installation	DIN rail
Index of protection	IP00

Dimensions (mm)



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