

MX(2,3)0***** - MPXPRO Display, funzioni, parametri ed allarmi / Display, functions, parameters and alarms



ITACA Certificata I-PE-705-CIS-RG-02 HACCP International - Food Safety Certification Systems

MPXPRO (MX(2,3)0*) è un dispositivo CAREL per il controllo e la regolazione automatica di unità frigorifere, che utilizza come interfaccia: terminale CAREL IRO0UG*300 (small display a 3 digit e 4 tasti); visualizzatore CAREL IRO0XG*300 (small display a 3 digit). Visualizzazione temperatura: -50T150 °C (con possibilità di risoluzione decimale nel range -19.9T19.9, vedi parametro /6), temperatura di funzionamento: -10T60°C, umidità: < 80% non condensante.

Tabella 1: display. Table with 6 columns: Icona, Funzione, Descrizione, Significato icone/Stato Funzione (ON, OFF, Lampeggiante), and visual details.

Tabella 2 - Tastiera e funzioni principali di MPXPRO: Il terminale utente (cod. IRO0UG*300) è un'interfaccia che oltre alle funzioni di visualizzazione, consente l'accesso ai menu di configurazione parametri di MPXPRO tramite la tastiera posta a lato del display.

Table with 4 columns: Categoria, Funzione, Comandi tastiera frontale (Tasti, Durata), and Visualizzazione Display/Note.

Tabella 3: comandi principali da tastiera

Table with 4 columns: Categoria, Funzione, Comandi tastiera frontale (Tasti, Durata), and Visualizzazione Display/Note.

Attenz.: per salvare definitivamente tutti i valori modificati ed uscire dal menu parametri premere PRG/mute per 5 s. Per uscire dal menu senza salvare i valori modificati (uscita per TIME OUT) non premere alcun tasto per almeno 60 s.

Nota: (!) Imbisce per un minuto le segnalazioni di slave offline.

Tabella 4: Parametri di funzionamento

Cod.: codice del parametro come visualizzato sul display. Parametro: nome del parametro ed eventuali possibili valori. Tipo: parametro tipo C (applicazioni base, pw 22), F (frequente), A (applicazioni avanzate, pw 33), NV (non visibili da terminale, solo chiave di programmazione, commissioning e supervisor). U.M.: unità di misura - Min, Max o Def. Valore minimo, massimo o default. N.B.: I codici dei parametri "A" sono evidenziati in grassetto - Note: consigliamo di annotare i nuovi valori

Table with 6 columns: Cod., Parametro, U.M., Tipo, Def., Min, Max. Contains various parameters for temperature, defrost, auxiliary, alarms, and HACCP.

Table with 6 columns: Cod., Parametro, U.M., Tipo, Def., Min, Max. Section: Parametri gestione del compressore (CMP).

Table with 6 columns: Cod., Parametro, U.M., Tipo, Def., Min, Max. Section: Parametri gestione sbrinatorio (dEF).

Table with 6 columns: Cod., Parametro, U.M., Tipo, Def., Min, Max. Section: Parametri gestione allarmi (ALM).

Table with 6 columns: Cod., Parametro, U.M., Tipo, Def., Min, Max. Section: Parametri gestione allarmi (ALM) - continued.

Table with 6 columns: Cod., Parametro, U.M., Tipo, Def., Min, Max. Section: Parametri gestione ventilatori evaporatore (FAN).

Table with 6 columns: Cod., Parametro, U.M., Tipo, Def., Min, Max. Section: Parametri della gestione della valvola (Evd).

Table with 6 columns: Cod., Parametro, U.M., Tipo, Def., Min, Max. Section: Parametri regolazione temperatura (CLT).

Table with 6 columns: Cod., Parametro, U.M., Tipo, Def., Min, Max. Section: Parametri regolazione temperatura (CLT) - continued.

Table with 6 columns: Cod., Parametro, U.M., Tipo, Def., Min, Max. Section: Parametri di configurazione (Cnf).

Table with 6 columns: Cod., Parametro, U.M., Tipo, Def., Min, Max. Section: Parametri storico allarmi (HSt).

Table with 6 columns: Cod., Parametro, U.M., Tipo, Def., Min, Max. Section: Parametri gestione allarmi HACCP (HcP).

Table with 6 columns: Cod., Parametro, U.M., Tipo, Def., Min, Max. Section: Parametri gestione RTC (Real Time Clock) e Defrost temporizzati (rtc).

Table with 6 columns: Cod., Parametro, U.M., Tipo, Def., Min, Max. Section: Parametri da chiave di programmazione e/o commissioning.

Tab. 4

Tabella 5: allarmi e segnalazioni: display, buzzer e relé

Note: il Buzzer viene attivato se risulta abilitato dal parametro 'H4'. Il relé di allarme viene attivato se una delle uscite ausiliaria 1, ausiliaria 2 e 3 ('H1', 'H5' e 'H7') è stata assegnata alla funzione relé di allarme (normalmente chiuso o aperto).

Table with 6 columns: Codice, Descrizione, Icona display lampegg., Relé allarme, Buzzer, Ripristino. Lists various alarm and signal parameters.

MPXPRO (MX(2,3)0*) is a CAREL device for the automatic control of refrigeration units, which uses the following interfaces: CAREL IROOUG*300 terminal (small display, 3 digits and 4 buttons); CAREL IROOXG*300 display (small display with 3 digits). **Display temperature:** -50T150 °C (with possibility of decimal resolution in the range -19.9T19.9 °C, see parameter /6), operating temperature -10T60°C, humidity < 80% non-condensing.

Table 1: display

Icon	Function	Description	Meaning of icons/Status of function		
			ON	OFF	Flashing
	COMPRESSOR	Status of compressor/solenoid valve output	Active	Inactive	Activation delayed by protection times
	FAN	Status of fan output	Active	Inactive	Activation disabled externally or due to procedure in progress
	DEFROST	Status of defrost output	Active	Inactive	Activation disabled externally or due to procedure in progress
	AUX (auxiliar.)	Status of auxiliary output	Active	Inactive	
	ALARM	Alarm status during normal operation or from digital input	Pre-activation of an external delayed digital alarm	No active alarm	Active alarms
	CLOCK	RTC option, at start-up comes on to indicate the option is available	Control in night-time operation	Daytime operation	Clock alarm
	LIGHT	Status of local or network light output	Active	Inactive	
	SERVICE	General service signals	On the master indicates that the parameters are being sent to the slaves	No malfunction	Malfunction (System error). Contact service.
	HACCP	HACCP alarm signal	Function enabled	Function disabled	HACCP alarm active, HA/HF signal on display
	CONTIN. CYCLE	Status of continuous cycle function.	Operating	Not operating	Call pending

Table 2: MPXPRO keypad and main functions - The user terminal (code IROOUG*300) is an interface that in addition to the display functions, allows access to the MPXPRO parameter configuration menu using the keypad next to the display. Depending on the connection and the configuration of the local network, the entire network can be managed from just one point.

Category	Function	Front keypad functions		Display / Notes
		Button	Duration	
SET POINT	Temperature set point	Set		Set point value flashing
		▲/▼		Modify the set point
ACCESS TO PARAMETERS	Type F parameters (frequent)	PrG	5 s	The first type F parameter is displayed
		PrG & Set	5 s	
ACCESS TO PARAMETERS	Type C or A parameters (configuration)	▲/▼		Enter password (default C = 22, A = 33)
		Set		Confirm the password, the first type C (or A) parameter is displayed
NETWORK FUNCTIONS (master only)	Copy parameters from Master to Slave	PrG & Set	5 s	
		▲/▼		Enter password (default 66)
DEFAULT	Reset default parameters	PrG & Set		for further info see the MPXPRO manual
		PrG & Set & ▲/▼		Select Slave unit (for further info see the MPXPRO manual "Display unit network status from Master")

Table 3: main functions available on the keypad

Category	Function	Front keypad functions		Display / Notes
		Button	Duration	
DEFROST	Local defrost	▲/▼	5 s	dFb: start defrost call; dFe: end defrost call
		Set & ▲/▼	5 s	dFb: start defrost call; dFe: end defrost call.
AUXILIARIES	Continuous cycle	▲/▼	5 s	ccb: start continuous cycle call; cCe: end continuous cycle call
		▲/▼		
ALARMS	Alarm log	PrG & Set	5 s	Enter password (default 44)
		Set		for further info see the MPXPRO manual, par. "Alarm log"
HACCP	Manual alarm reset	PrG & ▲/▼	5 s	rES: indicates the alarms with manual reset have been reset.
		PrG		
HACCP	HACCP menu	PrG & ▲/▼		for further info see the MPXPRO manual, par. "HACCP alarms"
		PrG		

▲ Important: to permanently save all the changed values and exit the parameter menu, press PRG/mute for 5 s; to exit without saving the values (exit by TIMEOUT) do not press any button for at least 60 s

Ⓞ Nota: (!) disables the slave offline signals for one minute.

Table 4: Operating parameters

Cod.: code of the parameter as shown on the display
 Parameter: parameter name and possible values
 Parameter type: C (basic applications, PW 22), F (frequent), A (advanced applications, pw 33), NV (not visible from terminal, solo programming key, commissioning tool and supervisor only)
 U.M.: unit of measure - Min, Max & Def. Minimum, maximum, default
 N.B.: "A" parameters are shown in bold - Note: write the new values down

Code	Parameter	U.M.	Type	Def.	Min	Max
Temperature probe management parameters (/Pro)						
/2	Analogue probe measurement stability	-	A	4	1	15
/4	Virtual probe composition: 0: outlet probe S _m ; 100: intake probe S _r	%	C	0	0	100
/5	Temperature unit of measure: 0: °C/barg; 1: °F/psig	-	A	0	0	1
/6	Display decimal point (0: enabled; 1: disabled)	-	A	0	0	1
rHS	Makeup of glass temperature sensor estimate 0: outlet probe S _m ; 100: intake probe S _r	%	NV	20	0	100
/t	Display alarms/signals on remote terminal: 0: disabled; 1: enabled	-	A	0	0	1
/t1	Display on user terminal: 0: disabled; 1..7: S1..S7; 8..11 serial probe S8..S11; 12: Control probe (Sreg); 13: Virtual probe (Sv); 14: Set point;	-	C	12	0	14
/t2	Display on remote terminal (See /t1)	-	A	12	0	14
/P1	Select type of probe, Group 1 (S1, S2, S3); 0: Standard NTC range -50T90°C; 1: Standard PTC range -50T150 °C; 2: Standard PT1000 range -50T150 °C; 3: NOT USED	-	A	0	0	3
/P2	Select type of probe, Group 2 (S4, S5) (See /P1)	-	A	0	0	3
/P3	Select type of probe, Group 3 (S6): 0...3: (See /P1); 4: Ratio metric probe 0...5V	-	A	0	0	4
/P4	Select type of probe, Group 4 (S7): 0...4: (See /P3); 5: Input 0...10V; 6: Input 4...20 mA	-	A	0	0	6
/P5	Select type of probe, Group 5: serial probes (S8...S11)	-	A	0	0	15
/FA	Assign outlet temperature probe (S _m) 0: function disabled; 1..7: S1 to S7; 8..11 serial probe S8 to S11	-	C	1	0	11
/Fb	Assign defrost temperature probe (Sd) (See /FA)	-	C	2	0	11
/Fc	Assign intake temperature probe (Sr) (See /FA)	-	C	3	0	11
/Fd	Assign superheated gas temp. probe (tG) (See /FA)	-	A	0	0	11
/FE	Assign saturated evap. press./temp. probe (Ptu/Teu) (See /FA)	-	A	0	0	11
/FF	Assign defrost temperature probe 2 (Sd2) (See /FA)	-	A	0	0	11
/FG	Assign auxiliary temperature probe 1 (Saux1) (See /FA)	-	A	0	0	11
/FH	Assign auxiliary temperature probe 2 (Saux2) (See /FA)	-	A	0	0	11
/FI	Assign room temperature probe (SA) (See /FA)	-	A	0	0	11
/FL	Assign room humidity probe (SU) (See /FA)	-	A	0	0	11
/FM	Assign glass temperature probe (Svt) (See /FA)	-	A	0	0	11
/Fn	Assign dewpoint value (Sdp) to a serial probe 0: disabled function; 1..4: serial probe S8..S11	-	A	0	0	4
/c1	Probe 1 calibration	°C/°F	F	0	-20	20
/c2	Probe 2 calibration	°C/°F	F	0	-20	20
/c3	Probe 3 calibration	°C/°F	F	0	-20	20
/c4	Probe 4 calibration	°C/°F	A	0	-20	20
/c5	Probe 5 calibration	°C/°F	A	0	-20	20
/c6	Probe 6 calibration	°C/°F	A	0	-20	20
/c7	Probe 7 calibration	°C/°F	A	0	-20	20
/U6	Maximum value of sensor 6 - Note A: 160 if /S=0; 999 if /S=1	°C/°F	A	9.3	/L6	note A
/L6	Minimum value of sensor 6 - Note B: -20 if /S=0; -90 if /S=1	°C/°F	A	-1.0	note B	/U6
/U7	Maximum value of sensor 7 - Note A: 160 if /S=0; 999 if /S=1	°C/°F	A	9.3	/L7	note A
/L7	Minimum value of sensor 7 - Note B: -20 if /S=0; -90 if /S=1	°C/°F	A	-1.0	note B	/U7
Temperature control parameters (CtL)						
OFF	ON/OFF - 0: ON; 1: OFF	-	A	0	0	1
St	Set point	°C/°F	F	50	r1	r2
Sd2	Intake probe set point with "Double thermostat"	°C/°F	A	50	r1	r2
r2	Set point differential St	°C/°F	F	2	0.1	20
r2d	Set point Sd2 differential with "Double thermostat" 0: function disabled	°C/°F	A	0	0	20
r1	Minimum Set point	°C/°F	A	-50	-50	r2
r2	Maximum Set point	°C/°F	A	50	r1	50
r3	Enable end defrost signal by timeout 0: disabled; 1: enabled	-	A	0	0	1
r4	Automatic night-time set point variation	°C/°F	C	0	-50	50
r6	Probe for night-time control: 0: virtual probe (Sv); intake probe (Sr)	-	C	0	0	1
r0	Control offset in the event of probe error	°C/°F	A	0.0	0.0	20
r7	Master solenoid valve configuration 0: local valve; 1: network valve (connected to Master)	-	C	0	0	1
rSu	Delay in closing suction valve during normal control	sec	C	0	0	999
rMu	Min. opening % for liquid refrigerant flow control	%	A	0	0	100

Code	Parameter	U.M.	Type	Def.	Min	Max
ClT	Maximum time for Clean mode	min	A	0	0	999
Stt	Maximum time for Stand-by mode	min	A	0	0	240
Compressor management parameters (CMP)						
c0	Compressor and fan start delay on power-up	min	A	0	0	240
c1	Minimum time between successive starts	min	A	0	0	15
c2	Minimum off time	min	A	0	0	15
c3	Minimum on time	min	A	0	0	15
c4	ON time for operation in duty setting (Toff = 15 minutes fixed) 0: compressor/valve always OFF; 100: compressor/valve always ON	min	A	0	0	100
cc	Duration of operation in continuous cycle	hours	A	1	0	15
c6	Low temperature alarm bypass time after continuous cycle	min	A	60	0	240
c7	Defrost priority over continuous cycle (0: no; 1: yes)	-	A	0	0	1
Defrost management parameters (dEF)						
d0	Select type of defrost: 0: heater by temperature; 1: hot gas by temperature; 2: heater by time; 3: hot gas by time; 4: heater by time w/ temp. control; 5: multiplexed hot gas by temperature; 6: multiplexed hot gas by time	-	C	0	0	6
d2	End defrost synchronised by Master - 0: not synchronised; 1: synchronised	-	A	1	0	1
d3	Master doesn't send network defrost command; 0: disabled; 1: enabled	-	A	0	0	1
dl	Maximum interval between consecutive defrosts	hour	C	8	0	240
dt1	End defrost temperature (read by Sd)	°C/°F	F	8.0	-50.0	50.0
dt2	End defrost temperature (read by Sd2)	°C/°F	A	8.0	-50.0	50.0
dp1	Maximum defrost duration	min	F	45	1	240
dp2	Maximum defrost duration on secondary evaporator	min	A	45	1	240
d4	Defrost on start-up: 0: disabled; 1: enabled (Master: network defrost; Slave: local defrost)	-	A	0	0	1
d5	Defrost delay on start-up (if d4=1): 0: delay disabled	min	A	0	0	240
d6	Display on terminal during defrost 0: temperature alternating with 'dEF'; 1: display frozen; 2: 'dEF'	-	C	1	0	2
dd	Dripping time after defrosting (fans off): 0: no dripping	min	A	2	0	15
d7	Skip defrost: 0: disabled; 1: enabled	-	A	0	0	1
d8	High temperature alarm bypass time after defrost	min	C	30	1	240
d9	Defrost priority over compressor protection times 0: protection times respected; 1: protection times ignored	-	A	1	0	1
Sd1	Defrost probe	°C/°F	F	-	-	-
Sd2	Secondary evaporator defrost probe	°C/°F	A	-	-	-
dC	Time base for defrost: 0: dff in hours; dP1; dP2 and ddp' in minutes 1: dff in minutes; dP1; dP2 and ddp' in seconds	-	A	0	0	1
d10	Defrost time in "Running time" 0: function disabled	min	A	0	0	240
d11	Temperature threshold for "running time" defrost	°C/°F	A	-30	-50	50
d12	Pressure probe alarm management during defrost 0: probe error disabled, updating after supervisor enabled 1: probe error disabled, updating after supervisor enabled 2: error sonda disabled, updating after supervisor disabled 3: probe error enabled, updating after supervisor disabled	-	A	0	0	3
d51	Compressor off time for "sequential stop" defrost: 0: function disabled	min	A	0	0	45
d52	Compressor operating time for "sequential stop" defrost	min	A	120	0	240
ddt	Additional end defrost temperature delta for "power defrost"	°C/°F	A	0.0	-20.0	20.0
ddP	Additional maximum end defrost time delta for "power defrost"	min	A	0	0	60
dn	Nominal duration of the defrost for "skip defrost"	%	A	75	0	100
d15	Number of daily defrosts (td1)	-	C	0	0	14
d25	Number of daily defrosts (td2)	-	C	0	0	14
dH1	Pump down duration (0: pump down disabled)	s	A	0	0	999
dHG	Type of multiplexed hot gas defrost: 0: equalising valve normally closed; 1: equalising valve normally open	-	A	0	0	1
d5b	Valve position during defrost: 0: valve position as required by defrost type; 1: valve forced close; 2 -100: opening percentage	%	A	0	0	100
Alarm management parameters (ALM)						
AA	Assign probe for high (AH) and low (AL) temperature alarm: 1: Control; 2: Virtual; 3: Outlet; 4: Defrost; 5: Intake; 6: Superheat gas; 7: Saturated evap.; 8: Auxiliary defrost; 9: Auxiliary; 10: Auxiliary 2; 11: Room temperature; 12: Room humidity; 13: Glass temperature; 14: dew point	-	F	1	1	14
AA2	Assign probe for high (AH2) and low (AL2) temperature alarm (see AA)	-	A	5	1	14
A0	Reset high and low temperature alarm differential	°C/°F	F	2.0	0.1	20.0
A1	Alarm thresholds (AL, AH) relative to set point (St) or absolute 0: relative; 1: absolute	-	F	0	0	1
A2	Alarm thresholds (AL2, AH2) relative to set point (Sd2) or absolute 0: relative; 1: absolute	-	A	0	0	1
AL	Low temperature alarm threshold	°C/°F	F	4.0	-50.0	50.0
AH	High temperature alarm threshold	°C/°F	F	10.0	-50.0	50.0
AL2	Low temperature alarm threshold 2	°C/°F	A	0.0	-50.0	50.0
AH2	High temperature alarm threshold 2	°C/°F	A	0.0	-50.0	50.0
Ad	Delay time for high and low temperature alarms	min	F	120	0	240
Ad2	Delay time for high and low temperature alarms (AH2, AL2)	min	F	120	0	240
A4	Configure function of digital input D11 on S4: 0: input not active; 1: immediate external alarm; 2: delayed external alarm; 3: enable defrost; 4: start defrost; 5: door switch with comp. and fans OFF; 6: remote ON/OFF; 7: curtain switch; 8: start/stop continuous cycle; 9: input status monitoring; 10: retaining digital input; 11: Stand-by mode switch; 12: Clean mode switch; 13: working parameters set change; 14: door switch with comp. and fans ON; 15: defrost according to DI status	-	C	0	0	15
A5	Configure function of digital input D12 on S5 (see A4')	-	C	0	0	15
A6	Configure solenoid/compressor control during external alarm (immediate or delayed) with 15 min. fixed OFF period 0: always OFF; 100: always ON	min	A	0	0	100
A7	Delay time for delayed external alarm	min	C	0	0	240
A8	Configure function of virtual digital input (see A4')	-	A	0	0	8
A9	Digital input propagated from Master to Slave (on Master only): 0: da supervisor; 1: D1; 2: D12; 3: D13; 4: D14; 5: D15	-	A	0	0	5
A10	Configure function of digital input D13 on S6 (see A4')	-	C	0	0	15
A11	Configure function of digital input D14 on S7 (see A4')	-	C	0	0	15
A12	Configure function of digital input D15 (see A4')	-	C	0	0	15
Ar	Send alarms from Slave to Master: 0: disabled; 1: enabled	-	A	1	0	1
A13	Enable hot gas safety procedure for Slave offline: 0: disabled; 1: enabled	-	A	0	0	1
Ad3	High temperature alarm bypass time after door open	min	C	30	1	240
Evaporator fan management parameters (FAn)						
F0	Configure fan management: 0: fans always on; 1: controlled based on Sd-Sv (or Sd-Sm in double thermostat); 2: controlled based on Sd	-	C	0	0	2
F1	Fan temperature control threshold (only if F0=1 or 2)	°C/°F	F	-5.0	-50.0	50.0
F2	Evaporator fans with compressor off 0: see F0; 1: always off	-	C	1	0	1
F3	Evaporator fans during defrost: 0: on; 1: off	-	C	1	0	1
Fd	Post-dripping time after defrost (fans off with controller on)	min	C	1	0	15
Frd	Fan activation differential (including variable speed)	°C/°F	F	2.0	0.1	20.0
F5	Evaporator fan cut-off temperature (hysteresis 1°C)	°C/°F	F	50.0	F1	50.0
F6	Maximum evaporator fan speed	%	A	100	F7	100
F7	Minimum evaporator fan speed	%				