+0500055ZH - rel. 1.5 - 05.06.2017

MX(2,3)0****** - MPXPRO 显示、功能、参数和报警/ *Display, functions, parameters and alarms*

阅读并保存说明书
READ AND SAVE THESE INSTRUCTIONS

RC

Certificate I-PE-705-CIS-RG-02
HACCP International - 食品安全认证系统

MPXPRO (MX30*)是CAREL推出的一款冷冻装置的自动控制设备，采用以下界面：CAREL IR00UG*300终端（3位数显示的小型显示屏和4个按钮）; CAREL IR00XG*300显示屏（3位数显示的小型显示屏）。显示温度：-50到150 °C（十进制的精确范围为-19.9到19.9，见参数/6），运行温度范围为-10到60 °C，湿度＜80%，无凝露。

表**1**：显示

图标	功能	描述	图标的含义/功能状态		
			开	关	闪烁
⊖	压缩机	压缩机/电磁阀输出的状态	激活	未激活	因保护时间导致的激活延时
✤	风机	风扇输出的状态	激活	未激活	因外部控制或运行中程序导致的激活禁用
❄	除霜	除霜输出的状态	激活	未激活	因外部控制或运行中程序导致的激活禁用
AUX	(辅助输出)	辅助输出的状态	激活	未激活	
⚠	报警	正常运行中或来自数字输入的报警状态	外部延时开关量报警的预激活	无激活的报警	激活的报警
🕓	时钟	RTC选择，启动时开始显示可选选项	夜间运行控制	日间运行控制	时钟报警
💡	灯光	本地或网络灯光的输出状态	激活	未激活	
🔧	服务	一般服务信号	在主控机上表示正在往从控机上发送参数	无故障	故障（系统错误）。联系服务人员
HACCP	HACCP	HACCP报警信号	功能启用	功能禁用	HACCP报警激活，显示出HA/HF信号
❅	连续循环	连续循环功能的状态	运行中	未运行	要求暂停

表1

表**2**：**MPXPRO**的小键盘和主要功能 - 用户终端（代码IR00UG*300）有多种功能，除了显示功能，还可使用显示屏边上的小键盘来访问MPXPRO参数配置菜单。根据连接类型和局域网的配制，可以从一点上控制整个网络。

类型	功能	前置键盘功能		显示／备注
		按钮	持续时间	
设定值	温度设定值	**Set**		设定值闪烁
		▲aux 或 def▼		修改设定值
		Set		存储设定值并返回到初始显示
访问参数	F 类参数（频率）	**Prg** mute	5 s	显示第一个F 类参数
	C/A 类参数（配置/高级）	**Prg** mute & **Set**	5 s	
		▲aux 或 def▼		输入密码 (默认C=22, A=33)
		Set		确认密码，显示第一个C 或 A 类参数
	退出	**Prg** mute	5 s	
网络功能，仅主机	从主机复制参数到从机	**Prg** mute & **Set**	5 s	
		▲aux 或 def▼		输入密码 (默认66)
		Set		详情请参考MPXPRO手册 +03C220186“从主机复制参数到从机”。
	从主机（虚拟控制台）显示设备网络状态	**Prg** mute & **Set** & def▼		选择从机设备(详情请参考MPXPRO手册“通过主机（虚拟控制台)显示设备网络状态”
默认	复位默认参数	启动时按下 **Prg** mute		

表2

表**3**：小键盘控制的主要功能

类型	功能	前置键盘功能		显示／备注
		按钮	持续时间	
除霜	本地除霜	def▼		dFb: 启动除霜指令 dFE: 结束除霜指令
	多路除霜 仅从主机上	**Set** & def▼	5 s	dFb: 启动除霜指令 dFE: 结束除霜指令
辅助	连续循环	▲aux & def▼	5 s	ccb: 启动连续循环指令 ccE: 结束连续循环指令
	辅助输出	▲aux		
报警	报警记录	**Prg** mute & **Set**	5 s	
		▲aux 或 def▼		输入口令（默认为44）
		Set		更多信息，参考MPXPRO说明书中的“报警记录”部分
	手动报警的复位	**Prg** mute & ▲aux	5 s	rES: 表示手动设置的报警已经复位。
	蜂鸣器静音和禁用报警继电器 (1)	**Prg** mute		
HACCP	HACCP菜单	**Prg** mute & def▼		更多信息，参考MPXPRO说明书中的“HACCP报警”部分

表3

⚠ 重要:
- 按下PRG/mute键持续5秒钟，可以对所有更改过的值进行永久保存并退出参数菜单。
- 如果不想保存任何更改而退出菜单，则在60秒内不要按任何键（超时退出）。

注意：(1)禁用从机脱机信号一分钟。

表**4**：运行参数

表中的关键词:
编码：参数编码如显示屏上所示
参数：参数名称和任何可能的值
类型：参数的类型, C类 (基础应用,密码22), F 类 (频繁使用的), A 类 (高级应用,密码33), NV 类 (终端上无显示,仅适用于编程钥匙，调试工具和监控程序)
U.M.：测量值单位 - Min, max 或 Def:最小值,最大值,或默认值
➡注意：“A”参数都用粗体字体突出标示 - Note:必须记录下的新值

编码	参数	单位	类型	默认	最小	最大
🔧 温度传感器管理参数(/Pro)						
/2	模拟量传感器测量稳定性	-	A	4	1	15
/4	虚拟传感器组成部分0: 出口传感器Sm; 100: 入口传感器Sr	%	C	0	0	100
/5	温度单位：0: °C/barg, 1: °F/psig	-	A	0	0	1
/6	小数点显示(0: 启用 1: 禁用)	-	A	0	0	1
rHS	玻璃温度传感器的估计值的补充 0：出口传感器Sm；100：入口传感器Sr	%	NV	20	0	100
/t	在遥控器上显示报警/信号 0: 禁用 1: 启用	-	A	0	0	1
/t1	在用户终端上显示 0: 不显示1…7：S1…S7；8…11：S8…S11: 虚拟传感器; 12: 控制传感器(Sreg); 13: 虚拟传感器(Sv); 14: 设点	-	C	12	0	14
/t2	在远程终端上显示(见/t1)	-	A	12	0	14
/P1	选择传感类型，组1（S1, S2, S3); 0：范围为-50到+90°C的标准NTC 1：范围为-50到+150°C的标准PTC 2：范围为-50到+150°C的标准PT1000 3：范围为-50到+90°C的标准NTC L243	-	A	0	0	3
/P2	选择传感器类型，组2 (S4, S5) (参照/P1)	-	A	0	0	3
/P3	选择传感器类型，组3 (S6) 0…3: (参照/P1); 4: 0…5 V 公制比例传感器	-	A	0	0	4
/P4	选择传感器类型，组4 (S7) 0…4: (参照/P1) 5: 0…10 V输入; 6: 4…20 mA输入	-	A	0	0	6
/P5	选择传感器类型，组5，虚拟传感器 (S8…S11)	-	A	0	0	15
/FA	指派出口温度传感器 (Sm) 0: 功能禁止；1…7: S1…S7; 8…11: S8…S11虚拟传感器；	-	C	1	0	11
/Fb	指派除霜温度传感器(Sd) (参照/FA)	-	C	2	0	11
/Fc	指派入口温度传感器 (Sr) (参照/FA)	-	C	3	0	11
/Fd	指派蒸发器出口温度传感器 (tGs) (参照 /FA)	-	A	0	0	11
/Fe	指派饱和蒸发温度传感器 (PEu/tEu) (参照/FA)	-	A	0	0	11
/FF	指派除霜温度传感器2 (Sd2) (参照/FA)	-	A	0	0	11
/FG	指派辅助温度传感器1 (Saux1) (参照/FA)	-	A	0	0	11
/FH	指派辅助温度传感器2 (Saux2) (参照/FA)	-	A	0	0	11
/FI	指派房间温度传感器 (SA) (参照/FA)	-	A	0	0	11
/FL	指派房间湿度传感器(SU) (参照/FA)	-	A	0	0	11
/FM	指派玻璃温度传感器(Svt) (参照/FA)	-	A	0	0	11
/Fn	指派虚拟传感器的露点值 (Sdp) (参照/FA) 0：功能禁用；1...4: 虚拟传感器 S8...S11	-	A	0	0	4
/c1	传感器1校准	°C, °F	F	0	-20	20
/c2	传感器2校准	°C, °F	F	0	-20	20
/c3	传感器3校准	°C, °F	F	0	-20	20
/c4	传感器4校准	°C, °F	**A**	0	-20	20
/c5	传感器5校准	°C, °F	**A**	0	-20	20
/c6	传感器6校准	°C, °F, barg, U.R.%	**A**	0	-20	20
/c7	传感器7校准		**A**	0	-20	20
/U6	传感器6最大值- 备注**A**: 160 若/5=0 ; 999 若/5=1		A	9.3	/L6	备注**A**
/L6	传感器6最小值- 备注**B**: -20 若/5=0; -90 若/5=1		A	-1.0	备注**B**	/U6
/U7	传感器7最大值- 备注**A**: 160 若/5=0 ; 999 若/5=1		A	9.3	/L7	备注**A**
/L7	传感器7最小值- 备注**B**: -20 若/5=0; -90 若/5=1		A	-1.0	备注**B**	/U7
编码	参数	单位	类型	默认	最小	最大
❅ 温度控制参数(CtL)						
OFF	ON/OFF 0: ON, 1: OFF	-	A	0	0	1
St	设点	°C/°F	F	50	r1	r2
St2	带“双恒温器”的入口传感器设点	°C/°F	A	50	r1	r2
rd	温度设点的偏差	°C/°F	F	2	0.1	20
rd2	“双恒温器”的设点St2偏差 0.0: 功能无效	°C/°F	A	0	0	20
r1	设点最小值	°C/°F	A	-50	-50	r2
r2	设点最大值	°C/°F	A	50	r1	50
r3	超时则启用结束除霜信号 0: 功能无效；1: 功能有效	-	A	0	0	1
r4	夜间设点的自动变动	°C/°F	C	0	-50	50
r6	夜间控制的传感器。0：虚拟传感器(Sv)；1：入口传感器(Sr)	-	C	0	0	1
ro	传感器发生错误时的控制偏移	°C/°F	A	0.0	0.0	20
r7	主机电磁阀设置 0: 本地阀；1: 网络阀（连接到主机）	-	C	0	0	1
rSu	正常控制时吸气阀关闭延迟	秒	C	0	0	999
rMu	液态制冷剂流量控制的最小开度%	%	**A**	0	0	100
⊖ 压缩机管理参数(CMP)						
c0	上电时压缩机和风扇开机延迟	分钟	A	0	0	240
c1	两个连续启动的最短间隔时间	分钟	A	0	0	15
c2	最短关机时间	分钟	A	0	0	15
c3	最短开机时间	分钟	A	0	0	15
c4	轮值设置中的运行时间 (Toff = 15分钟，固定的) 0: 压缩机／阀一直关闭；100: 压缩机／阀一直运行；	分钟	A	0	0	100
cc	连续循环中的运行持续时间	小时	A	1	0	15
c6	连续循环后低温报警延迟时间	分钟	A	60	0	240
c7	除霜优先于连续循环（0: 是；1: 否）	-	A	0	0	1
❄ 除霜管理参数(dEF)						
d0	选择除霜类型：0:根据温度加热器除霜；1:根据温度热气除霜 2: 根据时间加热器除霜；3:根据时间用热气除霜；4: 根据温度和时间加热器除霜；5: 根据温度复合热气除霜；6: 根据时间复合热气除霜	-	C	0	0	6
d2	通过主机同步结束除霜 0:不同步;1:同步	-	A	1	0	1
d3	主机未发送网络除霜指令；0：禁用；1：启用 从机忽略网络除霜指令；0：禁用；1：启用	-	**A**	0	0	1
dI	连续除霜间的最长间隔	小时	C	8	0	240
dt1	结束除霜的温度 (通过Sd读取)	°C/°F	F	8.0	-50	50
dt2	结束除霜的温度 (通过Sd2读取)	°C/°F	A	8.0	-50	50
dP1	除霜的最长持续时间	分钟	F	45	1	240
dP2	辅助蒸发器的最长除霜持续时间	分钟	A	45	1	240
d4	启用开机时除霜 0: 禁用；1: 启用 （主机：网络除霜；从机：本地除霜）	-	A	0	0	1
d5	开机时除霜延迟（如果d4=1），0: 延迟被禁用	分钟	A	0	0	240
d6	除霜期间，终端的显示 0: 温度和‘dEF’交替显示； 1: 显示屏是关闭的；2: ‘dEF’	-	C	1	0	2
dd	除霜后滴水时间（风扇关闭）0: 无滴水	分钟	A	2	0	15
d7	跳过除霜 0: 禁用；1: 启用	-	A	0	0	1
d8	除霜和开门后，高温报警旁通时间	分钟	C	30	1	240
d9	除霜优先于压缩机保护时间 0: 考虑压缩机保护时间；1: 忽略保护	-	A	1	0	1
Sd1	除霜传感器	°C/°F	F	-	-	-
Sd2	辅助蒸发器除霜传感器	°C/°F	A	-	-	-
dC	除霜时间表示 0:‘dI’ 用小时表示，‘dP1’,‘dP2’ 和‘ddP’用分钟表示 1:‘dI’ 用分钟表示，‘dP1’,‘dP2’ 和‘ddP’用秒钟表示	-	A	0	0	1
d10	“运行时间”中的除霜时间 0: 功能禁用	分钟	A	0	0	240
d11	“运行时间”中除霜的温度阈值	°C/°F	A	-30	-50	50
d12	除霜期间，压力传感器的报警管理 0: 传感器错误被禁用，在监控器启用后更新 1: 传感器错误被启用，在监控器启用后更新 2: 传感器错误被禁用，在监控器禁用后更新 3: 传感器错误被启用，在监控器禁用后更新	-	A	0	0	3
dS1	用于“有序停机”除霜的压缩机关机时间 0: 功能禁用	分钟	A	0	0	45
dS2	用于“有序停机”除霜的压缩机运行时间	分钟	A	120	0	240
ddt	用于“电源除霜”方式的附加的结束除霜温度变量	°C/°F	A	0.0	-20.0	20.0
ddP	用于“电源除霜”方式的附加的结束除霜时间的最大变量	分钟	A	0	0	60
dn	“跳过除霜”的除霜标称持续时间	%	A	75	0	100
d1S	每日除霜的数量(td1)	-	C	0	0	14
d2S	每日除霜的数量(td2)	-	C	0	0	14
dH1	泵极持续时间（0: 泵极被禁用）	秒	A	0	0	999
dHG	复合热气除霜的类型 0: 平衡阀常闭 1: 平衡阀常开	-	A	0	0	1
dSb	除霜时阀的位置：0：阀位置由除霜类型决定；1：阀被强制关闭；2-100：开度	%	**A**	0	0	100
⚠ 报警管理参数(ALM)						
AA	分配高温(AH)和低温(AL)报警传感器：1: 控制;2: 虚拟;3: 出风;4: 除霜;5: 回风;6: 过热气体;7: 饱和蒸发温度;8: 辅助除霜;9: 辅助;10: 辅助2;11: 房间温度;12: 房间湿度;13: 玻璃温度;14: 露点;	-	F	1	1	14
AA2	分配高温(AH2)和低温(AL2)报警传感器(参考AA)	-	A	5	1	14
A0	复位高低温报警的偏差	°C/°F	F	2.0	0.1	20.0
A1	设点(St)报警阈值(AL, AH)的绝对值或相对值：0: 相对值 1: 绝对值	-	F	0	0	1
A2	设点(St2)报警阈值(AL2, AH2)的绝对值或相对值	-	A	0	0	1
AL	低温报警阈值	°C/°F	F	4.0	-50.0	50.0
AH	高温报警阈值	°C/°F	F	10.0	-50.0	50.0
AL2	低温报警阈值2	°C/°F	A	0.0	-50.0	50.0
AH2	高温报警阈值2	°C/°F	A	0.0	-50.0	50.0
Ad	高、低温报警的延迟时间	分钟	F	120	0	240
Ad2	高、低温报警的延迟时间(AH2, AL2)	min	F	120	0	240
A4	配置S4上的数字输入端DI1的功能：0: 输入未激活; 1: 即时外部报警; 2: 延迟外部报警/仅显示; 3: 启用除霜; 4: 开始除霜 5: 门开关(压缩机和风扇关闭); 6: 远程开/关; 7: 门帘开关 8: 开始/停止持续循环;9: 输入点状态监控; 10: 保留数字输入; 11: 待机模式开关; 12: 清洁模式开关; 13: 工作参数设定变更; 14:门开关(压缩机和风扇开启); 15:根据数字输入点状态除霜	-	C	0	0	9
A5	设置S5上的数字输入端DI2的功能 (参考‘A4’)	-	C	0	0	9
A6	外部报警期间设置电磁阀/压缩机的控制（即时或延时），固定15分钟关闭期间：0: 一直关闭；100: 一直运行	分钟	A	0	0	100
A7	延迟的外部报警的延迟时间	分钟	C	0	0	240
A8	设置开关量虚拟输入端的功能 (参考‘A4’)	-	A	0	0	8
A9	选择从主机传送到从机的数字输入(仅在主机上) 0: 从监控器传送;1: DI1; 2: DI2; 3: DI3; 4: DI4; 5: DI5	-	A	0	0	5
A10	配置S6上的数字输入端DI3的功能 (参考‘A4’)	-	C	0	0	9
A11	配置S7上的数字输入端DI4的功能 (参考‘A4’)	-	C	0	0	9
A12	配置数字输入端DI5的功能 (参考A4)	-	C	0	0	8
Ar	启用从机到主机的报警发送 0: 报警被禁用 1: 报警被激活	-	A	1	0	1
A13	因为从机掉线，启用热气除霜安全程序：0: 禁用；1: 启用	-	A	0	0	1
Add	门打开后高温报警旁通时间	min	C	30	1	240
✤ 蒸发器风扇控制参数(FAn)						
F0	设置风扇管理：0: 风扇保持运行；1: 根据Sd-Sv(或双恒温器中的Sd-Sm)的温差来控制风扇；2: 根据蒸发器(Sd)温差来控制。	-	C	0	0	2
F1	风扇温度的控制阈值(仅当F0=1或2)	°C/°F	F	-5.0	-50.0	50.0
F2	启用当控制器关闭时停止风扇；0: 参考F0；1: 一直关	-	C	1	0	1
F3	除霜期间，蒸发器风扇状态 0: 风扇打开；1: 风扇关闭	-	C	1	0	1
Fd	除霜后的后滴水时间（控制器和风扇都打开）	分钟	C	1	0	15
Frd	风扇启用偏差（包括变速）	°C/°F	F	2.0	0.1	20.0
F5	风扇关机温度 (迟滞1°C)	°C/°F	F	50.0	F1	50.0
F6	蒸发器风扇最大转速	%	A	100	F7	100
F7	蒸发器风扇最小转速	%	A	0	0	F6
F8	风扇启动时间 0: 功能被禁用	秒	A	0	0	240
F9	选择用PWM1/2输出对风扇进行控制（通过相位来调整速度） 0: 持续；1: 脉冲	-	A	1	0	1
F10	强制风扇以最快速度运行的期间	分钟	A	0	0	240
🔧 阀控制参数(Evd)						
P1	选择电子阀类型：0: 阀不存在; 1: PWM阀; 2: CAREL E²V阀; 3: 0-10V调节用于液态制冷剂流量控制; 4: PWM阀调节用于液态制冷剂流量控制; 5: CAREL E²V阀调节用于液态制冷剂流量控制	-	A	0	0	2
P3	过热设点	K	F	10.0	0.0	25.0
P4	比例增益	-	A	15.0	0.0	100.0
P5	积分时间 0: 功能禁用	秒	A	150	0	900
P6	微分时间 0: 功能禁用	秒	A	5.0	0.0	100.0
P7	LSH 低过热阈值	K	F	7.0	-10.0	P3
P8	LSH 低过热积分时间 0: 功能禁用	秒	A	15.0	0.0	240
P9	LSH 低过热报警延迟 0: 功能禁用	秒	A	600	0	999
P10	因低过热(LowSH)和/或低吸气温度(LowSA)，启用关闭电磁阀	-	A	0	0	1
P11	LSA 低吸气温度阈值	°C/°F	A	-45.0	-50.0	50.0
P12	LSA 低吸气温度报警延迟 0: 禁用报警	秒	A	600	0	999
P13	LSA 低吸气温度报警偏差 (°C) 0.0: 一直自动复位	°C/°F	A	10.0	0.0	60.0
P14	启用阀移动结束时报警（‘blo’），1: 信号被启用	-	A	1	0	1
P15	压力传感器错误的情况下支持的饱和温度	°C/°F	A	-15.0	-50.0	50.0
PH	制冷剂的类型: 0: 自定气体; 1: R22; 2: R134A; 3: R404A; 4: R407C; 5: R410A; 6: R507A; 7: R290; 8: R600; 9: R600A; 10: R717; 11: R744; 12: R728; 13: R1270; 14: R417A; 15: R422D; 16: R413A; 17: R422A; 18: R423A; 19: R407A; 20: R427A; 21: R245FA; 22: R407F; 23: R32; 24: HTR01; 25: HTR02; 26: R23; 27: R1234yf; 28 R1234ze(E); 29: R455A; 30: R170; 31: R442A; 32: R447A; 33: R448A; 34: R449A; 35: R450A; 36: R452A; 37: R508B; 38: R452B; 39: R513A; 40: R454B	-	A	3	1	14
OSH	为温度调节器设置的过热偏移量 0: 功能禁用	K	A	0.0	0.0	60.0
Phr	启用阀时，对应监控器的阀参数快速更新 0: 快速更新禁用	-	A	0	0	1
PM1	MOP: 最大饱和蒸发温度阈值	°C/°F	A	50.0	-50.0	50.0
PM2	MOP: MOP积分时间	秒	A	10	0	240
PM3	MOP: MOP报警延迟 0: 功能禁用	秒	A	0	0	999
PM4	MOP: 开始进行控制时功能延迟	秒	A	2	0	240
PM5	MOP: MOP报警时，启用关闭本地电磁阀	-	A	0	0	1
PL1	LOP: 最小饱和蒸发温度阈值	°C/°F	A	-50.0	-50.0	50.0
PL2	LOP: 积分时间	秒	A	0	0	240
PL3	LOP: 报警延迟 0: 禁用报警	秒	A	0	0	240
编码	参数	U.M.	Tipo	Def.	Min	Max
SH	过热	K	F	-	-	-
PPU	阀开度比率	%	F	-	-	-
tGS	气体过热温度	°C/°F	F	-	-	-
tEu	饱和蒸发温度	°C/°F	F	-	-	-
/cE	饱和蒸发温度校准	°C/°F	A	0.0	-20.0	20.0
Po6	PWM膨胀阀Ton + Toff	秒	A	6	1	20
cP1	开始控制时的初始阀位	%	A	30	0	100
Pdd	除霜后的初始阀位维持时间	分钟	A	10	0	30
Psb	阀待用位置	步	A	0	0	400
PF	阀打开步数（监控器）	步	NV	-	0	-
PMP	启用手动膨胀阀定位 0: 禁用 1: 启用	-	A	0	0	1
PMu	手动定位阀	步	A	-	0	600
Phc	启用高电流E2V阀阀驱动	-	A	0	0	1
PSM	平滑控制-启用功能	-	A	0	0	1
PLt	平滑控制 - 在设点以下停止控制的偏移量	°C/°F	A	2.0	0.0	10.0
PHS	平滑控制 - 最大过热度偏移量	K	A	15.0	0.0	50.0
PSd	微分时间时间(平滑控制或液态制冷剂流量 控制)	s	NV	0	0	100
PSI	积分时间(平滑控制或液态制冷剂流量 控制)	s	**A**	120	0	800
PSP	比例增益(平滑控制或液态制冷剂流量 控制)	-	**A**	5	0	100
AUX 一般设置参数(CnF)						
In	选择机组类型，主机或从机 0: 从机 1: 主机	-	C	0	0	1
Sn	局域网中的从机数量 0: 无从机	-	C	0	0	5
H0	主从网络通讯地址	-	C	199	0	199
H1	设置AUX1输出的功能：0: 无功能;1: 报警输出未激活; 2: 报警输出被激活; 3: 辅助输出; 4: 从机上从属于主机的辅助功能; 5: 灯光输出; 6: 从机上从属于主机的灯光; 7: 辅助蒸发器除霜输出; 8: 蒸发器风扇输出; 9: 防露加热器; 10: 吸气阀; 11: 平衡阀; 12: 电磁阀; 13:与输出关联的计时器功能; 14: 加热器	-	C	8	0	12
H2	禁用小键盘和遥控器功能 1: 启用小键盘和遥控器	-	A	1	0	5
H3	遥控器启用编码 00: 不用编码通过遥控器编辑	-	A	0	0	255
H4	终端蜂鸣器（如果有）0: 启用蜂鸣器 1: 禁用	-	A	0	0	1
H5	设置AUX2输出的功能 (参考‘H1’)	-	C	2	0	12
H6	设置终端小键盘的锁定	-	A	0	0	15
H7	设置AUX3输出的功能 (参考‘H1’)	-	C	5	0	12
H8	时间段0对应的输出开关 0: 灯光；1: AUX。	-	C	0	0	1
H9	选择与用户终端AUX按钮关联的功能 0: 灯光；1: AUX。	-	C	0	0	1
H10	设置压缩机数字输出逻辑 0: 正向逻辑；1: 反向逻辑	-	A	0	0	1
H11	设置风机数字输出逻辑 0: 正向逻辑；1: 反向逻辑	-	A	0	0	1
H13	AUX4输出功能设置(参考‘H1’)	-	C	12	0	12
Hdn	参数组的数量	-	NV	0	0	6
Htc	时钟选择 0: 无时钟	-	A	0	0	1
rHu	防露加热器手动启用比率（rHt的百分比）0: 禁用此功能	%	A	70	0	100
rHt	防露加热器启用时间 0: 禁用此功能	分钟	A	5	0	180
rHo	防露加热器调节偏移量	°C/°F	A	2.0	-20.0	20.0
rHd	防露加热器调节偏差	°C/°F	A	0.0	0	20.0
rHL	防露加热器PWM输出的负载类型 0: 阻性；1: 感应	-	A	0	0	1
dIt	计时器持续时间	min	**A**	0	0	999
HSc	工作参数设定选择	-	**A**	1	1	Hdn
HSS	当前工作参数设定(+0.1 如果修改)	-	**A**	1.0	1.0	6.1
H14	门关后灯光开关延迟	min	C	0	0	240
Hr1	数字输入点1逻辑反向	-	**A**	0	0	1
Hr2	数字输入点2逻辑反向	-	**A**	0	0	1
Hr3	数字输入点3逻辑反向	-	**A**	0	0	1
Hr4	数字输入点4逻辑反向	-	**A**	0	0	1
Hr5	数字输入点5逻辑反向	-	**A**	0	0	1
POM	制冷量信息	-	**A**	4.0	0	200.0
rHA	系数A,用于玻璃温度传感器估值	°C	NV	2	-20	20
rHb	系数B,用于玻璃温度传感器估值	%	NV	22	0	100
AUX 报警记录参数(HSt)						
HS0...9	报警事件 0…9（按Set按钮）	-	A	-	-	-
___	报警事件0…9 - 编码	-	*	-	-	-
h__	报警事件0…9- 小时	小时	*	-	0	23
n__	报警事件0…9- 分钟	分钟	*	-	0	59
___	报警事件0…9- 持续时间	分钟	*	-	0	999
HACCP HACCP报警管理参数(HcP)						
Ht0	HACCP报警被激活	-	NV	0	0	1
HAn	记录的HA事件数量	-	A	0	0	15
HA... HA2	发生的HA HACCP事件数量（按Set按钮）	-	A	-	-	-
y__	HACCP报警 1…3 - 年	年	*	-	0	99
M__	HACCP报警1…3 - 月	月	*	-	1	12
d__	HACCP报警1…3 - 日	日	*	-	1	31
h__	HACCP报警1…3 - 小时	小时	*	-	0	23
n__	HACCP报警1…3 - 分钟	分钟	*	-	0	59
t__	HACCP报警1…3 - 持续时间	分钟	*	-	0	240
HFn	记录的HF事件数量	-	A	0	0	15
HF... HF3	发生的HACCP事件数量（按Set按钮）	-	A	-	-	-
y__	HACCP报警1…3 - 年	年	*	-	0	99
M__	HACCP报警1…3 - 月	月	*	-	1	12
d__	HACCP报警1…3 - 日	日	*	-	1	31
h__	HACCP报警1…3 - 小时	小时	*	-	0	23
n__	HACCP报警1…3 - 分钟	分钟	*	-	0	59
t__	HACCP报警1…3 - 持续时间	分钟	*	-	0	240
Htd	HACCP报警延迟 0: 禁用监控	分钟	A	-	0	240
🕓 RTC(实时钟)和定时除霜(rtc)管理参数						
td1…8	除霜事件1…8（按Set按钮）	-	C	-	-	-
d__	除霜1…8 - 星期：0: 事件禁用; 1…7: 星期一到星期天; 8: 星期一到星期五; 9: 星期一到星期六;10: 星期六和星期天; 11: 每天	星期	*	0	0	11
h__	除霜1…8 - 小时	小时	*	0	0	23
n__	除霜1…8 - 分钟	分钟	*	0	0	59
P__	除霜1 - 启用电源除霜（除霜型号）0: 正常；1: 电源除霜	标识	*	0	0	1
tS1…8	启动时段1…8 - 时间:	-	C	-	-	-
d__	启动时段1…8 - 时间：日	日	*	0	0	11
h__	启动时段1…8 - 时间：小时	小时	*	0	0	23
m__	启动时段1…8 - 时间：分钟	分钟	*	0	0	59
tE1…8	结束时段1…8 - 时间：日	-	C	-	-	-
d__	结束时段1…8 - 时间：星期	星期	*	0	0	11
h__	结束时段1…8 - 时间：小时	小时	*	0	0	23
m__	结束时段1…8 - 时间：分钟	分钟	*	0	0	59
tc	设置RTC时间/日期（按Set按钮）	-	C	-	-	-
y__	时间/日期：年	年	*	0	0	99
M__	时间/日期：月	月	*	1	1	12
d__	时间/日期：日	日	*	1	1	31
u__	时间/日期：星期	星期	*	6	1	7
h__	时间/日期：小时	小时	*	0	0	23
n__	时间/日期：分钟	分钟	*	0	0	59
通过编程钥匙和/或调试工具修改的参数						
PS	显示配置参数的口令	**-**	NV	22	0	200
PSA	访问高级参数的口令	**-**	NV	PS + 11		
PSS	进入报警日志的口令	-	NV	PS + 22		
PSU	进入参数上传的口令	-	NV	PS + 44		

表4

表**5:** 报警和信号：显示屏，蜂鸣器和继电器

注意：如果由参数‘H4’启用，则蜂鸣器是动作的。
如果辅助1、辅助2或辅助3（‘H1’,‘H5’ 和 ‘H7’）的其中一个输出已经指定了报警继电器功能了(常闭或常开)，则报警继电器是激活的。

编码	描述	闪烁的图标	报警继电器	蜂鸣器	复位
rE	虚拟控制传感器故障	🔧	ON	ON	自动
E1	传感器S1故障	🔧	OFF	OFF	自动
E2	传感器S2故障	🔧	OFF	OFF	自动
E3	传感器S3故障	🔧	OFF	OFF	自动
E4	传感器S4故障	🔧	OFF	OFF	自动
E5	传感器S5故障	🔧	OFF	OFF	自动
E6	传感器S6故障	🔧	OFF	OFF	自动
E7	传感器S7故障	🔧	OFF	OFF	自动
E8	虚拟传感器S8未更新	🔧	OFF	OFF	自动
E9	虚拟传感器S9未更新	🔧	OFF	OFF	自动
E10	虚拟传感器S10未更新	🔧	OFF	OFF	自动
E11	虚拟传感器S11未更新	🔧	OFF	OFF	自动
“___”	未启用的传感器	-	OFF	OFF	自动
LO	低温报警	⚠	ON	ON	自动
HI	高温报警	⚠	ON	ON	自动
LO2	低温报警	⚠	ON	ON	自动
HI2	高温报警	⚠	ON	ON	自动
IA	来自外部触点的即时报警	⚠	ON	ON	自动
dA	来自外部触点的延时报警	⚠	ON	ON	自动
dEF	除霜运行	❄ 一直开	OFF	OFF	自动
Ed1	超时则结束蒸发器1的除霜	-	OFF	OFF	自动
Ed2	超时则结束蒸发器2的除霜	-	OFF	OFF	自动
dor	门打开时间过长报警	⚠	ON	ON	自动
Etc	实时时钟故障	🕓	OFF	OFF	自动
LSH	低过热报警	⚠	OFF	OFF	自动
LSA	低吸气温度报警	⚠	OFF	OFF	自动/手动
MOP	最大运行压力报警	⚠	OFF	OFF	自动
LOP	低吸气压力报警	⚠	OFF	OFF	自动
bLo	阀堵塞报警	⚠	ON	OFF	手动
Edc	与步进驱动器的通讯错误	🔧	ON	ON	自动
EFS	步进驱动器控制的电动机损坏或未连接	🔧	ON	ON	自动
EE	机组参数闪烁错误	🔧	OFF	OFF	自动
EF	运行参数Eeprom错误	🔧	OFF	OFF	自动
HA	HACCP报警类型‘HA’	HACCP	OFF	OFF	手动
HF	HACCP报警类型‘HF’	HACCP	OFF	OFF	手动
rct	连接到IR的远程控制有效	-	-	-	-
rcE	连接到IR的远程控制无效	-	-	-	-
Add	自动地址分配过程进行中	-	-	-	-
ccb	启动连续循环指令	-	-	-	-
ccE	结束连续循环指令	-	-	-	-
dFb	启动除霜指令	-	-	-	-
dFE	结束除霜指令	-	-	-	-
On	接通开关	-	-	-	-
OFF	断开开关	-	-	-	-
rES	手动复位报警，复位HACCP报警，复位温度监控	-	-	-	-
AcE	由于没有传感器或传感器故障，热丝切换到ON-OFF工作方式，作为PI导柜的除霜逻辑	⚠	-	-	-
Act	通过tLAN从机由主机控制	-	-	-	-
MA	与主机的通讯错误（仅在从机上）	🔧	ON	ON	自动
u1-u5	与从机1-5的通讯错误（仅在主机上）	🔧	ON	ON	自动
n1-n5	局域网中的机组1-5上的报警	⚠	ON	ON	自动
upL	上载程序进行中	-			-
up1-up5	上载程序时，机组1-5上有故障	⚠	OFF	OFF	-
uS_	从机未配置	-	OFF	OFF	自动
GPE	自定气体参数错误	🔧	ON	ON	AUTO
Stb	待机模式	-	-	-	-
CLn	清洁模式	-	-	-	-

表5

ENG

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

MPXPRO (MX(2,3)0*) is a CAREL device for the automatic control of refrigeration units, which uses the following interfaces: **CAREL IR00UG*300** terminal (small display, 3 digits and 4 buttons); **CAREL IR00XG*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	AUX (auxiliary output)	Status of auxiliary output	Active	Inactive	
▲	ALARM	Alarm status during normal operation or from digital input	Pre-activation of a 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	Control in 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	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 IR00UG*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: Button	Duration	Display / Notes
SET POINT	Temperature set point	**Set**		Set point value flashing
		▲ aux 0 def ▼		Modify the set point
		Set		Save set point and return to initial display
ACCESS TO PARAMETERS	Type F parameters (frequent)	**Prg** mute	5 s	The first type F parameter is displayed
	Type C or A parameters (configuration)	**Prg** mute & **Set**	5 s	
		▲ aux 0 def ▼		Enter password (default C= 22, A= 33)
		Set		Confirm the password, the first type C (or A) parameter is displayed
	Exit	**Prg** mute	5 s	
NETWORK FUNCTIONS (master only)	Copy parameters from Master to Slave	**Prg** mute & **Set**	5 s	
		▲ aux 0 def ▼		Enter password (default 66)
		Set		For further info see the MPXPRO manual
	Display unit network status from Master (Virtual Console)	**Prg** mute & **Set** & def ▼		Select Slave unit (for further info see the MPXPRO manual "Display unit network status from Master"
DEFAULT	Reset default parameters	Press **Prg** mute at start-up		

Table 3: main functions available on the keypad

Category	Function	Front keypad functions: Button	Duration	Display / Notes
DEFROST	Local defrost	def ▼	5 s	dFb: start defrost call; dFE: end defrost call
	Multiplexed defrost From master only	**Set** & def ▼	5 s	dFb: start defrost call; dFE: end defrost call.
AUXILIARIES	Continuous cycle	▲ aux 0 def ▼	5 s	ccb: start continuous cycle call; ccE: end continuous cycle call
	AUX output	▲ aux		
ALARMS	Alarm log	**Prg** mute & **Set**	5 s	
		▲ aux 0 def ▼		Enter password (default 44)
		Set		for further info see the MPXPRO manual, par. "Alarm log".
	Manual alarm reset	**Prg** mute & ▲ aux	5 s	rES: indicates the alarms with manual reset have been reset.
	Mute buzzer and disable alarm relay (1)	**Prg** mute		
HACCP	HACCP menu	**Prg** mute & def ▼		for further info see the MPXPRO manual, par. "HACCP alarms"

▲ **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

Note: (1) 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
Type: 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 o Def**: Minimum, maximum, default
N.B.: **"A"** parameters are shown in bold - Note: write the new values down

Temperature probe management parameters (/Pro)

Code	Parameter	U.M.	Type	Def.	Min	Max
/2	Analogue probe measurement stability	-	A	4	1	15
/4	Virtual probe composition; 0: outlet probe Sm; 100: intake probe Sr	%	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 Sm; 100: intake probe Sr	%	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: Standard NTC L243 range -50T90 °C	-	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: Ratiometric probe 0…5 V	-	A	0	0	4
/P4	Select type of probe, Group 4 (S7); 0…4: (See /P3); 5: Input 0…10 V; 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 (Sm) 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 (tGs) (See /FA)	-	A	0	0	11
/FE	Assign saturated evap. press./temp. probe (PEu/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, barg, U.R.%	A	0	-20	20
/c7	Probe 7 calibration		A	0	-20	20
/U6	Maximum value of sensor 6 - **Note A:** 160 if /5=0 ; 999 if /5=1		A	9.3	/L6	**note A**
/L6	Minimum value of sensor 6 - **Note B:** -20 if /5=0; -90 if /5=1		A	-1.0	**note B**	/U6
/U7	Maximum value of sensor 7 - **Note A:** 160 if /5=0 ; 999 if /5=1		A	9.3	/L7	**note A**
/L7	Minimum value of sensor 7 - **Note B:** -20 if /5=0; -90 if /5=1		A	-1.0	**note B**	/U7

Temperature control parameters (CtL)

Code	Parameter	U.M.	Type	Def.	Min	Max
OFF	ON/OFF - 0: ON; 1: OFF	-	A	0	0	1
St	Set point	°C/°F	F	50	r1	r2
St2	Intake probe set point with "Double thermostat"	°C/°F	A	50	r1	r2
rd	Set point differential St	°C/°F	F	2	0.1	20
rd2	Set point St2 differential with "Double thermostat" 0.0: 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
ro	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)

Code	Parameter	U.M.	Type	Def.	Min	Max
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)

Code	Parameter	U.M.	Type	Def.	Min	Max
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 Slaves ignore network defrost command; 0:disabled; 1:enabled	-	A	0	0	1
dI	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: 'dI' in hours, 'dP1', 'dP2' and 'ddP' in minutes 1: 'dI' 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: errore sonda disabilitato, updating after supervisor disabled 3: probe error enabled, updating after supervisor disabled	-	A	0	0	3
dS1	Compressor off time for "sequential stop" defrost: 0: function disabled	min	A	0	0	45
dS2	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
d1S	Number of daily defrosts (td1)	-	C	0	0	14
d2S	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
dSb	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)

Code	Parameter	U.M.	Type	Def.	Min	Max
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 (St2) 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 DI1 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 DI2 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 supervisore; 1: DI1; 2: DI2; 3: DI3; 4: DI4; 5: DI5.	-	A	0	0	5
A10	Configure function of digital input DI3 on S6 (see 'A4')	-	C	0	0	15
A11	Configure function of digital input DI4 on S7 (see 'A4')	-	C	0	0	15
A12	Configure function of digital input DI5 (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
Add	High temperature alarm bypass time after door open	min	C	30	1	240

Evaporator fan management parameters (FAn)

Code	Parameter	U.M.	Type	Def.	Min	Max
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
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	%	A	0	0	F6
F8	Evaporator fan start-up time 0: function disabled	s	A	0	0	240
F9	Select fan control with PWM1/2 output (with speed control by phase cutting) 0: pulse; 1: duration	-	A	1	0	1
F10	Force evaporator fan period at maximum speed: 0: function disabled	min	A	0	0	240

Valve management parameters (Evd)

Code	Parameter	U.M.	Type	Def.	Min	Max
P1	Electronic valve: 0: not present; 1: PWM valve; 2: CAREL E2V valve; 3: 0-10V modulation for liquid refrigerant flow control; 4: PWM valve modulation for liquid refrigerant flow control; 5: Carel E2V valve modulation for liquid refrigerant flow control	-	A	2	0	5
P3	Superheat set point	K	F	7.0	0.0	25.0
P4	Proportional gain	-	A	15.0	0.0	100.0
P5	Integral time 0: function disabled	s	A	150	0	900
P6	Derivative time 0: function disabled	s	A	5.0	0.0	100.0
P7	LowSH: low superheat threshold	K	F	4.0	-10.0	P3
P8	LowSH: integral time 0: function disabled	s	A	15.0	0.0	240.0
P9	LowSH: alarm delay 0: alarm disabled	s	A	600	0	999
P10	Enable close solenoid valve for low superheat (LowSH) and/or low suction temperature (LowSA) 1: closing enabled	-	A	0	0	1
P11	LSA: low suction temperature threshold	°C/°F	A	-45.0	-50.0	50.0
P12	LSA: alarm delay 0: alarm disabled	s	A	600	0	999
P13	LSA: alarm differential (°C) 0: always automatic reset	°C/°F	A	10.0	0.0	60.0
P14	Enable valve at end travel alarm ('blo') 1: signal enabled	-	A	1	0	1
P15	Support saturated temp. in the event of pressure probe error	°C/°F	A	-15.0	-50.0	50.0
PH	Type of refrigerant: 0: Custom gas ; 1: R22; 2: R134A; 3: R404A; 4: R407C; 5: R410A; 6: R507A; 7: R290; 8: R600; 9: R600A; 10: R717; 11: R744; 12: R728; 13: R1270; 14: R417A; 15: R422D; 16: R413A; 17: R422A; 18: R423A; 19: R407A; 20: R427A; 21: R245FA; 22: R407F; 23: R32; 24: HTR01; 25: HTR02; 26: R23; 27: R1234yf; 28 R1234ze(E); 29: R455A; 30: R170; 31: R442A; 32: R447A; 33: R448A; 34: R449A; 35: R450A; 36: R452A; 37: R508B; 38: R452B; 39: R513A; 40: R454B	-	A	3	0	40
OSH	Superheat offset for modulating thermostat: 0: function disabled	K	A	0.0	0.0	60.0
Phr	Enable fast update of the valve parameters to supervisor: 0: fast update disabled	-	A	0	0	1
PM1	MOP: maximum saturated evaporation temperature threshold	°C/°F	A	50.0	-50.0	50.0
PM2	MOP: integral time	s	A	10	0	240
PM3	MOP: alarm delay 0: function disabled	s	A	0	0	999
PM4	MOP: function delay when starting control	s	A	2	0	240
PM5	MOP: enable close solenoid valve: 0: closing diabled; 1: closing enabled	-	A	0	0	1
PL1	LOP: minimum saturated evaporation temperature threshold	°C/°F	A	-50.0	-50.0	50.0
PL2	LOP: integral time	s	A	0	0	240
PL3	LOP: alarm delay 0: funcrion disabled	s	A	0	0	240
SH	Superheat	K	F	-	-	-
PPU	Valve opening percentage	%	F	-	-	-
tGS	Superheated gas temperature	°C/°F	F	-	-	-
tEu	Saturated evaporation temperature	°C/°F	F	-	-	-
/cE	Saturated evaporation temperature calibration	°C/°F	A	0.0	-20.0	20.0
Po6	PWM expansion valve Ton + Toff	s	A	6	1	20
cP1	Initial valve position at start control	%	A	30	0	100
Pdd	Initial valve position maintenance time after defrost	min	A	10	0	30
PSb	Valve standby position	steps	A	0	0	400
PF	Valve opening steps (supervisor)	steps	NV	-	0	-
PMP	Enable manual expansion valve positioning: 0: disabled; 1: enabled	-	A	0	0	1
PMu	Manual valve position	steps	A	-	0	600
Phc	Enable high current E2V valve driving	-	A	0	0	1
PSM	Smooth Lines - Enable function	-	A	0	0	1
PLt	Smooth Lines - Offset to stop control below set point	°C/°F	A	2.0	0.0	10.0
PHS	Smooth Lines - Maximum superheat offset	K	A	15.0	0.0	50.0
PSd	Derivative time (Smooth Lines or liquid refrigerant flow control)	s	NV	0	0	100
PSI	Integral time (Smooth Lines or liquid refrigerant flow control)	s	A	120	0	800
PSP	Proportional gain (Smooth Lines or liquid refrigerant flow control)	-	A	5	0	100

AUX General configuration parameters (CnF)

Code	Parameter	U.M.	Type	Def.	Min	Max
In	Type of unit 0: Slave 1: Master	-	C	0	0	1
Sn	Number of slaves in the local network 0: no slaves	-	C	0	0	5
H0	Serial or Master-Slave network address	-	C	199	0	199
H1	Configure function of output AUX1: 0: No function; 1: Alarm norm. deenergized; 2: Alarm normally energized; 3: Auxiliary; 4: Aux. slaved to MASTER on SLAVES; 5: Light; 6: Light slaved to MASTER on SLAVE; 7: Aux evaporator defrost; 8: Evaporator fan; 9:Anti-sweat heaters; 10: Suction valve; 11: Equalising valve; 12: solenoid valve; 13: timer function related output; 14: drain heaters	-	C	8	0	14
H2	Disable keypad and remote control functions: 1: keypad and remote control enabled	-	A	1	0	5
H3	Remote control enabling code: 00: programming from the remote control without code	-	A	0	0	255
H4	Terminal buzzer (if present) 0: enabled; 1: disabled	-	A	0	0	1
H5	Configure function of output AUX2 (see 'H1')	-	C	2	0	14
H6	Configure terminal keypad lock	-	A	0	0	15
H7	Configure function of output AUX3 (see 'H1')	-	C	5	0	14
H8	Output switched with time bands 0: LIGHT; 1: AUX.	-	C	0	0	1
H9	Select function associated with user terminal AUX button: 0: LIGHT; 1: AUX	-	C	0	0	1
H10	Configure compressor digital output logic: 0: direct logic; 1: reverse logic	-	A	0	0	1
H11	Configure fan digital output logic: 0: direct logic; 1: reverse logic	-	A	0	0	1
H13	Configure function of output AUX4 (see 'H1')	-	C	12	0	14
Hdn	Number of sets of default parameters available	-	NV	0	0	6
Htc	Clock option 0: clock absent	-	A	0	0	1
rHu	Antisweat heater manual activation percentage (of rHt) 0: function disabled	%	A	70	0	100
rHt	Antisweat heater manual activation time 0: function disabled	min.	A	5	0	180
rHo	Antisweat heater modulation offset	°C/°F	A	2.0	-20.0	20.0
rHd	Antisweat heater modulation differential	°C/°F	A	0.0	0	20.0
rHL	Type of load for antisweat heater PWM outputs; 0: resistive, 1: inductive	-	A	0	0	1
dIt	Timer duration	min	A	0	0	999
HSc	Working parameters set selector	-	A	1	1	Hdn
HSS	Current working parameters set (+0.1 if modified)	-	A	1.0	1.0	6.1
H14	Light switch-off delay after door closing	min	C	0	0	240
Hr1	Digital input 1 logic inversion	-	A	0	0	1
Hr2	Digital input 2 logic inversion	-	A	0	0	1
Hr3	Digital input 3 logic inversion	-	A	0	0	1
Hr4	Digital input 4 logic inversion	-	A	0	0	1
Hr5	Digital input 5 logic inversion	-	A	0	0	1
POM	Refrigeration capacity information	-	A	4.0	0	200.0
rHA	Coefficient A for glass temp. sensor estimate	°C/°F	NV	2	-20	20
rHb	Coefficient B for glass temp. sensor estimate	-	NV	22	0	100

AUX Alarm log parameters (HSt)

Code	Parameter	U.M.	Type	Def.	Min	Max
HS0...9	Alarm 0 to 9 (press Set)	-	A	-	-	-
---	Alarm 0 to 9 - Code	-	*	-	-	-
h___	Alarm 0 to 9- Hours	hour	*	0	0	23
n___	Alarm 0 to 9- Minutes	min.	*	0	0	59
---	Alarm 0 to 9- Duration	min.	*	0	0	999

HACCP HACCP alarm management parameters (HcP)

Code	Parameter	U.M.	Type	Def.	Min	Max
Ht0	HACCP alarms active	-	NV	0	0	1
HAn	Number of HA events	-	A	0	0	15
HA...2	Number of HA HACCP events occurred (press Set)	-	A	-	-	-
y___	HACCP alarm 1 to 3 - Year	year	*	0	0	99
M___	HACCP alarm 1 to 3 - Month	month	*	0	1	12
d___	HACCP alarm 1 to 3 - Day of month	day	*	0	1	31
h___	HACCP alarm 1 to 3 - Hours	huor	*	0	0	23
n___	HACCP alarm 1 to 3 - Minutes	min.	*	0	0	59
t___	HACCP alarm 1 to 3 - Duration	min.	*	0	0	240
HFn	Number of HF events recorded	-	A	0	0	15
HF1...3	Number of HF HACCP events occurred (press Set)	-	A	-	-	-
y___	HACCP alarm 1 to 3 - Year	year	*	0	0	99
M___	HACCP alarm 1 to 3 - Month	month	*	0	1	12
d___	HACCP alarm 1 to 3 - Day of month	day	*	0	1	31
h___	HACCP alarm 1 to 3 - Hours	huor	*	0	0	23
n___	HACCP alarm 1 to 3 - Minutes	min.	*	0	0	59
t___	HACCP alarm 1 to 3 - Duration	min.	*	0	0	240
Htd	HACCP alarm delay 0: monitoring disabled	min.	A	0	0	240

RTC (Real Time Clock) and Timed defrosts (rtc) management parameters

Code	Parameter	U.M.	Type	Def.	Min	Max
td1…8	Defrost event 1 to 8 (press Set)	-	C	-	-	-
d___	Defrost 1 to 8 - Day: 0: event disabled; 1...7: Monday to Sunday; 8: Monday to Friday; 9: Monday to Saturday; 10: Saturday & Sunday; 11: every day	day	*	0	0	11
h___	Defrost 1 to 8 - Hours	huor	*	0	0	23
n___	Defrost 1 to 8 - Minutes	min.	*	0	0	59
P___	Defrost 1 - Enable Power defrost: 0: normal; 1: power defrost	-	*	0	0	1
tS1...8	Start time band 1 to 8 - day	-	C	-	-	-
d	Start time band 1 to 8 - day: Day	day	*	0	0	11
h	Start time band 1 to 8 - day: Hours	huor	*	0	0	23
n	Start time band 1 to 8 - day: Minutes	min.	*	0	0	59
tE1…8	End time band 1 to 8 - day	-	C	-	-	-
d	End time band 1 to 8 - day: Day	day	*	0	0	11
h	End time band 1 to 8 - day: Hour	huor	*	0	0	23
n	End time band 1 to 8 - day: Minute	min.	*	0	0	59
tc	Time/date (press Set)	-	C	-	-	-
y___	Time/date: year	year	*	0	0	99
M___	Time/date: month	month	*	1	1	12
d___	Time/date: day of month	day	*	1	1	31
u___	Time/date: day of the week	day	*	6	1	7
h___	Time/date: hours	huor	*	0	0	23
n___	Time/date: minutes	min.	*	0	0	59

Parameters from programming key and/or commissioning tools

Code	Parameter	U.M.	Type	Def.	Min	Max
PS	Password to display configuration parameters	-	NV	22	0	200
PSA	Password to access advanced parameters	-	NV	PS + 11		
PSS	Password to enter alarm log	-	NV	PS + 22		
PSU	Password to enter parameter upload	-	NV	PS + 44		

Tab. 4

Table 5: alarms and signals: display, buzzer and relay

Note: The buzzer is activated if enabled by parameter 'H4'. The alarm relay is activated if one of the outputs, auxiliary 1, auxiliary 2 or auxiliary 3 ('H1', 'H5' and 'H7') has been assigned to the alarm relay function (normally closed or normally open).

Code	Description	Icon flashing	Alarm relay	Buzzer	Reset
rE	Control probe fault	🔧	ON	ON	AUTO
E1	Probe S1 fault	🔧	OFF	OFF	AUTO
E2	Probe S2 fault	🔧	OFF	OFF	AUTO
E3	Probe S3 fault	🔧	OFF	OFF	AUTO
E4	Probe S4 fault	🔧	OFF	OFF	AUTO
E5	Probe S5 fault	🔧	OFF	OFF	AUTO
E6	Probe S6 fault	🔧	OFF	OFF	AUTO
E7	Probe S7 fault	🔧	OFF	OFF	AUTO
E8	Serial probe S8 not updated	🔧	OFF	OFF	AUTO
E9	Serial probe S9 not updated	🔧	OFF	OFF	AUTO
E10	Serial probe S10 not updated	🔧	OFF	OFF	AUTO
E11	Serial probe S11 not updated	🔧	OFF	OFF	AUTO
"___"	Probe not enabled	-	OFF	OFF	AUTO
LO	Low temperature alarm	▲	ON	ON	AUTO
HI	High temperature alarm	▲	ON	ON	AUTO
LO2	Low temperature alarm	▲	ON	ON	AUTO
HI2	High temperature alarm	▲	ON	ON	AUTO
IA	Immediate alarm from external contact	▲	ON	ON	AUTO
dA	Delayed alarm from external contact	▲	ON	ON	AUTO
dEF	Defrost running	❄ always ON	OFF	OFF	AUTO
Ed1	Defrost on evaporator 1 ended by timeout	-	OFF	OFF	AUTO
Ed2	Defrost on evaporator 2 ended by timeout	-	OFF	OFF	AUTO
dor	Door open for too long alarm	▲	ON	ON	AUTO
Etc	Real time clock fault	🕓	OFF	OFF	AUTO
LSH	Low superheat alarm	▲	OFF	OFF	AUTO
LSA	Low suction temperature alarm	▲	OFF	OFF	AUTO/MAN
MOP	Maximum operating pressure alarm	▲	OFF	OFF	AUTO
LOP	Low suction temperature alarm	▲	OFF	OFF	AUTO
bLo	Blocked valve alarm	▲	ON	OFF	MAN
Edc	Communication error with stepper driver	🔧	ON	ON	AUTO
EFS	Motor controlled by the stepper driver broken or not connected	🔧	ON	ON	AUTO
EE	Unit parameter flash error	🔧	OFF	OFF	AUTO
EF	Operating parameter EEPROM error	🔧	OFF	OFF	AUTO
HA	HACCP alarm type 'HA'	HACCP	OFF	OFF	MAN
HF	HACCP alarm type 'HF'	HACCP	OFF	OFF	MAN
rct	Connection to IR remote control active	-	-	-	-
rcE	Connection to IR remote control disabled	-	-	-	-
Add	Automatic address assignment procedure in progress	-	-	-	-
ccb	Start continuous cycle call	-	-	-	-
ccE	End continuous cycle call	-	-	-	-
dFb	Start defrost call	-	-	-	-
dFE	End defrost call	-	-	-	-
On	Switch ON	-	-	-	-
OFF	Switch OFF	-	-	-	-
rES	Reset alarms with MAN reset, reset HACCP alarms, reset temperature monitoring	-	-	-	-
AcE	Hot wires switched to ON-OFF operation due to no sensor or sensor error for the PI display cabinet defrost algorithm	-	-	-	-
Act	Control of Slave following Master via tLAN	-	-	-	-
MA	Communication error with the Master (only on Slave)	🔧	ON	ON	AUTO
u1-u5	Communication error with Slave 1-5 (on Master only)	🔧	ON	ON	AUTO
n1-n5	Alarm on unit 1-5 in the network	▲	ON	ON	AUTO
Cn	Upload procedure in progress	-			-
up1-up5	Upload procedure with errors on unit 1-5	▲	OFF	OFF	-
uS_	Slave unit not configured	-	OFF	OFF	AUTO
GPE	Custom gas parameters error	🔧	ON	ON	AUTO
Stb	Stand-by mode	-	-	-	-
CLn	Clean mode	-	-	-	-

Tab. 5

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