

H424W1 User manual





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# 1 Parameter list

	S	Description Functions about storage	Minimum	Maximum	Default	Unit
	St_	Functions about storage temperature				
	t0	storage room temperature	-55.0	145.0	2.0	°C
	_td	differential	0.0	50.0	0.2	K
	Fd_	Functions about defrost duration and timing				
	Fd0	immediate delay before next defrost		194 4:20:15	-	dd hh:mm:ss
	Fdd	on-time duration of the defrost		194 4:20:15		dd hh:mm:ss
		dripping time after defrost		194 4:20:15		dd hh:mm:ss
		evaporator fan activation delay after the defrost		194 4:20:15		dd hh:mm:ss
1		overall period of the defrost	0	194 4:20:15	4:00:00	dd hh:mm:ss
	FF	Functions about forced defrost				
		enable forced defrost by keyboard short cut	oFF	on	on	
		forced defrost duration		194 4:20:15		dd hh:mm:ss
2		start immediate forced defrost	oFF	_on	oFF	/
	FP_	Functions about defrost preference				,
	FPt	defrost type: 0=none / 1=pause / 2=air / 3=electric / 4=hot gas / 5=heat pump /	0	4	2	/
2	ED-	6=heat pump by hp				,
3		use door closure input as start command for remote defrost	oFF	_on	oFF	/
	Ft_	Functions about defrost temperature	FF 0	145.0	<b>C</b> 0	0.6
	Ftt	defrost stop temperature	-55.0	145.0	6.0	٠
	n	Functions about fans				
	nE_	Functions about evaporator fans				,
		force evaporator fans when refrigeration is off	oFF	_on	oFF	/
	v vP	Functions about electronic expansion valve				
4	_	Functions about electronic expansion valve preference		_		/
4		enable electronic expansion valve	oFF	_on	_on	
	vPP	refrigerant gas type: $0=R134A$ / $1=R404A$ / $2=R507A$ / $3=R22$ / $4=R407C$ / $5=R407F$ / $6=R407A$ / $7=R410A$ / $8=R290$ / $9=R1270$ / $10=R744$ / $11=R717$ / $12=R1234y$ / $13=R1234z$ / $14=R449A$ / $15=R448A$ / $16=R452A$ / $17=R450A$ / $18=R513A$ / $19=R407H$ / $20=R23$ / $21=R455A$	0	4	0	•
5	vPd	network originating address of the pressure broadcast	0	255	0	/
	vt	Functions about electronic expansion valve temperature				
6	vtt	wanted overheating (similar to Danfoss thermostatic overheating spring regulation)	-999.0	999.0	8.0	K
7	∨tH	maximum overheating	-999.0	999.0	99.0	K
8	vtL	minimum overheating	-999.0	999.0	6.0	K
	vtU	maximum pressure allowed in the suction line (similar to Danfoss MOP)	0.0	999.0	10.0	(gauge) bar
	vd_	Functions about electronic expansion valve timing				
9	vd1	on-off duty cycle duration	0	194 4:20:15	8	dd hh:mm:ss
10	vd2	on duty cycle duration at refrigeration start (set to 0 for previous stop value)	0	194 4:20:15		dd hh:mm:ss
11	vdd	on duty cycle adaptation speed (low value for slow adaptation and small swinging)	0	255	8	/
	b	Functions about probe calibration				
	b1_	Probe nr. 1				
		room temperature	-999.0	999.0	0.0	
		enable probe	oFF	_on	_on	/
	b2	Probe nr. 2				
	b2C	suction temperature	-9.0	9.0	0.0	
		enable probe	oFF	_on	_on	/
	L	Functions about alarm and stand-by				
	Lt_	Temperature alarm		_		0.5
12		low temperature alarm set point	-55.0	145.0	-2.0	
13	LtH	high temperature alarm set point	-55.0	145.0	14.0	
	Ltd		-	104	00 -1	dd hh:mm:ss
		alarm delay	0	194 4:20:15	30:00	uu
	Lo	On / stand-by status				
	Lo_ Loo	On / stand-by status actual status: stand-by or on	0 oFF	194 4:20:15 _on	30:00 oFF	
	Lo_ Loo P	On / stand-by status actual status: stand-by or on Functions about master preferences				
	Lo_ Loo P Pd_	On / stand-by status actual status: stand-by or on Functions about master preferences Functions about network address	oFF	_on	oFF	/
	Lo_ Loo P Pd_ PdM	On / stand-by status actual status: stand-by or on Functions about master preferences Functions about network address master address for global network communication	oFF	_on 254	oFF	/
	Lo_ Loo P Pd_ PdM PdS	On / stand-by status actual status: stand-by or on Functions about master preferences Functions about network address master address for global network communication number of slaves connected to this master	oFF	_on	oFF	/
	Lo_ Loo P Pd_ PdM PdS	On / stand-by status actual status: stand-by or on Functions about master preferences Functions about network address master address for global network communication number of slaves connected to this master Functions about input-output and machine state (read only)	oFF	_on 254	oFF	/
	Lo_ Loo PPd_ PdM PdS I IA_	On / stand-by status actual status: stand-by or on Functions about master preferences Functions about network address master address for global network communication number of slaves connected to this master Functions about input-output and machine state (read only) Analog inputs	oFF 0 1	_on 254 3	oFF	/ / /
	Lo_ Loo P Pd_ PdM PdS I IA_ IA1	On / stand-by status actual status: stand-by or on Functions about master preferences Functions about network address master address for global network communication number of slaves connected to this master Functions about input-output and machine state (read only) Analog inputs room temperature	oFF 0 1	_on 254 3 145.0	oFF 1 3	/ / / °C
	Lo_ Loo P Pd_ PdM PdS I IA_ IA1 IA2	On / stand-by status actual status: stand-by or on Functions about master preferences Functions about network address master address for global network communication number of slaves connected to this master Functions about input-output and machine state (read only) Analog inputs room temperature suction temperature	oFF 0 1	_on 254 3	oFF	/ / / °C
	Lo_Loo PPd_PdM PdS IIA_IA1 IA2 Id_	On / stand-by status actual status: stand-by or on Functions about master preferences Functions about network address master address for global network communication number of slaves connected to this master Functions about input-output and machine state (read only) Analog inputs room temperature suction temperature Digital input	oFF 0 1 -55.0	_on 254 3 145.0 145.0	oFF 1 3 -55.0 -55.0	/ / / °C °C
	Lo_Loo PPd_PdM PdS IIA1 IA2 Id_Id4	On / stand-by status actual status: stand-by or on Functions about master preferences Functions about network address master address for global network communication number of slaves connected to this master Functions about input-output and machine state (read only) Analog inputs room temperature suction temperature Digital input digital input 4 (door closure / remote defrost) - read by IA4	oFF 0 1	_on 254 3 145.0	oFF 1 3	/ / / °C °C
	Lo_ Loo P	On / stand-by status actual status: stand-by or on Functions about master preferences Functions about network address master address for global network communication number of slaves connected to this master Functions about input-output and machine state (read only) Analog inputs room temperature suction temperature Digital input digital input 4 (door closure / remote defrost) - read by IA4 Machine status	oFF 0 1 -55.0 -55.0	_on  254 3 145.0 145.0 _on	oFF  1 3  -55.0 -55.0 oFF	/ / / °C °C
	Lo_Loo P_Pd_PdM PdS I_IA1 IA2 Id_Id4 OS_LLA	On / stand-by status actual status: stand-by or on Functions about master preferences Functions about network address master address for global network communication number of slaves connected to this master Functions about input-output and machine state (read only) Analog inputs room temperature suction temperature Digital input digital input 4 (door closure / remote defrost) - read by IA4 Machine status actual alarm - read only (0 means no alarm)	oFF 0 1 -55.0	_on 254 3 145.0 145.0	oFF 1 3 -55.0 -55.0	/ / / °C °C
	Lo_Loo P	On / stand-by status actual status: stand-by or on Functions about master preferences Functions about network address master address for global network communication number of slaves connected to this master Functions about input-output and machine state (read only) Analog inputs room temperature suction temperature Digital input digital input 4 (door closure / remote defrost) - read by IA4 Machine status actual alarm - read only (0 means no alarm) Digital output	oFF 0 1 -55.0 -55.0 oFF	_on  254 3 145.0 145.0 _on 255	oFF  1 3  -55.0 -55.0 oFF	/ / / °C °C /
14	Lo_Loo P	On / stand-by status actual status: stand-by or on Functions about master preferences Functions about network address master address for global network communication number of slaves connected to this master Functions about input-output and machine state (read only) Analog inputs room temperature suction temperature Digital input digital input 4 (door closure / remote defrost) - read by IA4 Machine status actual alarm - read only (0 means no alarm) Digital output solenoid	oFF 0 1 -55.0 -55.0 oFF 0	_on  254 3  145.0 145.0 _on 255 _on	oFF  1 3  -55.0 -55.0  oFF  0	/ / / °C °C / / /
14 14	Lo_Loo P_Pd_PdM PdS I_IA1 IA2 Id Id4 OS_LLA Od_Od1 Od4	On / stand-by status actual status: stand-by or on Functions about master preferences Functions about network address master address for global network communication number of slaves connected to this master Functions about input-output and machine state (read only) Analog inputs room temperature suction temperature Digital input digital input 4 (door closure / remote defrost) - read by IA4 Machine status actual alarm - read only (0 means no alarm) Digital output solenoid evaporator	oFF 0 1 -55.0 -55.0 oFF	_on  254 3 145.0 145.0 _on 255	oFF  1 3  -55.0 -55.0 oFF	/ / / °C °C / / /
14 14	Lo_Loo P	On / stand-by status actual status: stand-by or on Functions about master preferences Functions about network address master address for global network communication number of slaves connected to this master Functions about input-output and machine state (read only) Analog inputs room temperature suction temperature Digital input 4 (door closure / remote defrost) - read by IA4 Machine status actual alarm - read only (0 means no alarm) Digital output solenoid evaporator Functions about storage	oFF 0 1 -55.0 -55.0 oFF 0	_on  254 3  145.0 145.0 _on 255 _on	oFF  1 3  -55.0 -55.0  oFF  0	/ / / °C °C / / /
14 14	Lo_Loo P_dM PdS I_IA1 IA2 Id Id4 OS LLA Od_Od1 Od4 S_St_	On / stand-by status actual status: stand-by or on Functions about master preferences Functions about network address master address for global network communication number of slaves connected to this master Functions about input-output and machine state (read only) Analog inputs room temperature suction temperature Digital input digital input 4 (door closure / remote defrost) - read by IA4 Machine status actual alarm - read only (0 means no alarm) Digital output solenoid evaporator	oFF 0 1 -55.0 -55.0 oFF 0	_on  254 3  145.0 145.0 _on 255 _on	oFF  1 3  -55.0 -55.0  oFF  0	/ / °C °C / / /

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Rem.	Parameter	Description	Minimum	Maximum	Default Unit
	_td	differential	0.0		0.2 K
	Fd_	Functions about defrost duration and timing			
	Fd0	immediate delay before next defrost		194 4:20:15	0 dd hh:mm:ss
	Fdd			194 4:20:15	30:00 dd hh:mm:ss
	Fdg	dripping time after defrost		194 4:20:15	2:00 dd hh:mm:ss
1	FdE FdP	evaporator fan activation delay after the defrost overall period of the defrost		194 4:20:15	7:00 dd hh:mm:ss 4:00:00 dd hh:mm:ss
1	FF	Functions about forced defrost	U	194 4.20.13	4.00.00 dd III.IIIII.55
	FFh		oFF	on	on /
		forced defrost duration		194 4:20:15	30:00 dd hh:mm:ss
2	FFo	start immediate forced defrost	oFF	on	oFF /
	FP_	Functions about defrost preference		_	
	FPt		0	4	2 /
2	ED-	6=heat pump by hp			-FF /
3	Ft	use door closure input as start command for remote defrost Functions about defrost temperature	oFF	_on	oFF /
	Ftt	defrost stop temperature	-55.0	145.0	6.0 °C
	n	Functions about fans	33.0	110.0	0.0
	n nE	Functions about evaporator fans			
	nEH	force evaporator fans when refrigeration is off	oFF	on	oFF /
	v	Functions about electronic expansion valve		_	·
	vP	Functions about electronic expansion valve preference			
4	vPH	!	oFF	_on	_on /
	vPP	refrigerant gas type: 0=R134A / 1=R404A / 2=R507A / 3=R22 / 4=R407C / 5=R407F	0	4	0 /
		/ 6=R407A / 7=R410A / 8=R290 / 9=R1270 / 10=R744 / 11=R717 / 12=R1234y / 13=R1234z / 14=R449A / 15=R448A / 16=R452A / 17=R450A / 18=R513A /			
		/ 13=R12342 / 14=R449A / 15=R448A / 16=R452A / 17=R450A / 18=R513A / 19=R407H / 20=R23 / 21=R455A			
5	vPd		0	255	0 /
	vt	Functions about electronic expansion valve temperature	Ū	200	• /
6	vtt	wanted overheating (similar to Danfoss thermostatic overheating spring regulation)	-999.0	999.0	8.0 K
7	vtH	maximum overheating	-999.0	999.0	99.0 K
8	vtL	minimum overheating	-999.0	999.0	6.0 K
	vtU	maximum pressure allowed in the suction line (similar to Danfoss MOP)	0.0	999.0	10.0 (gauge) bar
	vd	Functions about electronic expansion valve timing	_		0 1111
9	vd1	on-off duty cycle duration		194 4:20:15	8 dd hh:mm:ss
10 11	vd2	on duty cycle duration at refrigeration start (set to 0 for previous stop value)	0	194 4:20:15 255	5 dd hh:mm:ss
11	vdd b	on duty cycle adaptation speed (low value for slow adaptation and small swinging) Functions about probe calibration	U	255	8 /
	b	Probe nr. 1			
		room temperature	-999.0	999.0	0.0 K
		enable probe	oFF	on	_on /
	b2_	Probe nr. 2		_	,
		suction temperature	-9.0	9.0	0.0 K
	b2A	,	oFF	_on	_on /
	L	Functions about alarm and stand-by			
12	Lt_ LtL	Temperature alarm low temperature alarm set point	-55.0	145.0	-2.0 °C
13		high temperature alarm set point	-55.0		14.0 °C
15	Ltd	alarm delay		194 4:20:15	30:00 dd hh:mm:ss
	Lo	On / stand-by status	ŭ	13 : 1.20.10	00:00 44
	Loo	actual status: stand-by or on	oFF	on	oFF /
	I	Functions about input-output and machine state (read only)		_	
	IA_	Analog inputs			
	IA1	room temperature	-55.0	145.0	-55.0 °C
	IA2	suction temperature	-55.0	145.0	-55.0 °C
	ld_ ld4	Digital input digital input 4 (door closure / remote defrost) - read by IA4	oFF	00	oFF /
	OS	Machine status	OFF	_on	011 /
	LLA		0	255	0 /
	Od	Digital output			,
14	Od1	solenoid	oFF	_on	oFF /
14		·	oFF	_ _on	oFF /
	S	Functions about storage			
	St_	Functions about storage temperature		4	20.05
	t0	storage room temperature	-55.0		2.0 °C
	td Fd	differential Functions about defrost duration and timing	0.0	50.0	0.2 K
	Fd0		Ω	194 4:20:15	0 dd hh:mm:ss
	Fdd	on-time duration of the defrost		194 4:20:15	30:00 dd hh:mm:ss
	Fdg	dripping time after defrost		194 4:20:15	2:00 dd hh:mm:ss
	FdE	·· ·		194 4:20:15	15:00 dd hh:mm:ss
1		period of air renew cycle	0	194 4:20:15	4:00:00 dd hh:mm:ss
	FF	Functions about forced defrost			
	FFh		oFF	_on	_on /
	FFd	forced defrost duration	0	194 4:20:15	30:00 dd hh:mm:ss

em. P	arameter	Description	Minimum	Maximum	Default	Unit
2	FFo	start immediate forced defrost	oFF	on	oFF	/
	FP	Functions about defrost preference		_		
	FPt	defrost type: 0=none / 1=pause / 2=air / 3=electric / 4=hot gas / 5=heat pump /	0	4	2	/
		6=heat pump by hp				•
3	FPc	use door closure input as start command for remote defrost	oFF	on	oFF	/
	Ft	Functions about defrost temperature		_		
	Ftt	defrost stop temperature	4.0	146.0	6.0	°C
n		Functions about fans				
	nE	Functions about evaporator fans				
	nEH	force evaporator fans when refrigeration is off	oFF	on	oFF	/
V		Functions about electronic expansion valve		_		,
	vP	Functions about electronic expansion valve preference				
4	vPH	enable electronic expansion valve	oFF	on	on	/
	vPP	refrigerant gas type: 0=R134A / 1=R404A / 2=R507A / 3=R22 / 4=R407C / 5=R407F	0	_	0	,
	•••	/ 6=R407A / 7=R410A / 8=R290 / 9=R1270 / 10=R744 / 11=R717 / 12=R1234y	ŭ	-	ŭ	/
		/ 13=R1234z / 14=R449A / 15=R448A / 16=R452A / 17=R450A / 18=R513A /				
		19=R407H / 20=R23 / 21=R455A				
5	vPd	network originating address of the pressure broadcast	0	255	0	/
J	vt	Functions about electronic expansion valve temperature	·	255	· ·	/
6	vt_ vtt	wanted overheating (similar to Danfoss thermostatic overheating spring regulation)	2.0	40.0	8.0	K
7	vtH	maximum overheating	6.0	55.0	99.0	
8	vtL	minimum overheating	0.0	10.0	6.0	
0	vtU	maximum pressure allowed in the suction line (similar to Danfoss MOP)	0.0	30.0		rx (gauge) ba
	vd	Functions about electronic expansion valve timing	0.0	30.0	10.0	(gauge) ba
0	_	,	0	104 4:00:15	0	dd hh:mm:
9	vd1	on-off duty cycle duration	-	194 4:20:15	_	
10	vd2	on duty cycle duration at refrigeration start (set to 0 for previous stop value)		194 4:20:15		dd hh:mm:
11	vdd	on duty cycle adaptation speed (low value for slow adaptation and small swinging)	0	255	8	/
b <sub>.</sub>		Functions about probe calibration				
	b1_	Probe nr. 1	0.0	0.0	0.0	17
	b1C	room temperature	-9.0	9.0	0.0	
	b1A	enable probe	oFF	_on	_on	/
	b2	Probe nr. 2				
	b2C		-9.0	9.0	0.0	
	b2A	enable probe	oFF	_on	_on	/
L.		Functions about alarm and stand-by				
	Lt_	Temperature alarm				
12	LtL	low temperature alarm set point	-55.0	145.0	-2.0	
13	LtH	high temperature alarm set point	-55.0	145.0	14.0	
	Ltd	alarm delay	0	194 4:20:15	30:00	dd hh:mm
	Lo_	On / stand-by status				
	Loo	actual status: stand-by or on	oFF	_on	oFF	/
I		Functions about input-output and machine state (read only)		_		
	ĪĀ	Analog inputs				
	ĪA1	room temperature	-55.0	145.0	-55.0	°C
	IA2	suction temperature	-55.0	145.0	-55.0	°C
	ld	Digital input				
	ld4	digital input 4 (door closure / remote defrost) - read by IA4	oFF	on	oFF	/
	OS	Machine status				,
	LLA		0	255	0	/
				200	9	/
14	Od_ Od1	Digital output solenoid	oFF	on	oFF	/

## 2 Parameter remarks

- Nr. Remark
- 1 The period of each cycle includes on-time + off-time, that is the overall duration of the cycle.
- 2 Following defrost cycles will be aligned to the end of forced one.
- 3 For defrost synchronization of refrigerated expositors.
- 4 When off, the refrigeration solenoid is steadily on during cooling.
- The address of the central unit who is broadcasting pressure (usually 1). Use 0 for previous application H425V1 with no origin specification.
- 6 Caution! Low overheating causes liquid return and compressor damage.
- 7 Overheating over the maximum forces valve anticipated opening.
- 8 Overheating under the minimum delays valve opening.
- 9 Caution! Short duty cycle reduces valve life.
- 10 Caution! Low overheating causes liquid return and compressor damage.
- 11 Caution! High adaptation speed causes swing in the suction line and damage to the compressor.
- 12 The low temperature differential is fixed, and alarm status stops at 0.2  $^{\circ}$ C above the set point.
- 13 The high temperature differential is fixed, and alarm status stops at 0.2  $^{\circ}\text{C}$  under the set point.
- The fight temperature differential is fixed, and alarm status stops at 0.2°C under the minus sign on display ("-") signals that output is going to start after a delay.



#### 3 Alarm list

Display Alarm

A01 low temperature Low temperature limit has been reached.
A02 high temperature High temperature limit has been reached.

#### 4 Slave alarm list

Display Alarm

/ none This instrument has no slave alarm.

#### 5 Button list

Push button		Function
B1	esc - silence	Exit without saving from any menu - alarm buzzer silence.
B2	up	Up navigation in the menu.
B3	on/stand-by - pause	Toggle between on and stand-by - toggle evaporator fan stop.
B4	left - light	Left navigation in the menu - switch the light on and off.
B5	down - defrost	Down navigation in the menu - force immediate defrost.
B6	right - menu - set	Right navigation in the menu - display and modify the set point - enter menu.

### 6 Led list

Led		Function
L1	cooling	On during cooling.
L2	evaporator	On during evaporator run - blinking slowly during activation delay.
L3	unused	Unused in this application.
L4	unused	Unused in this application.
L5	unused	Unused in this application.
L6	unused	Unused in this application.
L7	light	On when lighting is on - blinking slowly during deactivation delay.

#### 7 Soft command list

Soft command Function

#### 8 How to ...

How to ... Functio

Switch between on and stand-by. Keep pressed B3 button, to activate and deactivate stand-by. In stand-by every output is disabled except light,

leds from L1 to L6 blink, timers continue to count.

Stop or restart evaporator fans.

Press shortly the B3 button. When the evaporator fans are stopped, the display blinks.

Program the menu. Navigate up and down with B2 and B5. Select

Keep pressed B6 to enter the menu. Navigate up and down with B2 and B5. Select the submenu by B6. Change the parameter by B2 and B5, press B6 to confirm, or B4 to go back without saving. The changes will have effect after the exit from programming pressing B4 repeatedly. Press B1 to exit immediately without

saving any parameter.

Show or change temperature set. Press shortly B6 - the display shows the current set point - change it by B2 and B5, and confirm it by B6. As

alternative, enter the menu program as explained above, modify the parameter t0, then confirm it.

Force a defrost. Keep pressed B5.



# 9 Shortcut list

Buttons to press Shortcut description - keep pressed 5 seconds B5 Force an immediate defrost.

# 10 Led and push button location

