



H425V3
User manual

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1 Parameter list

Rem.	Parameter	Description
	M__	Functions about compressor
	MU__	Functions about pressure switches
	ML0	suction low pressure regulation (similar to Danfoss RT1AL set point minus half of neutral zone)
	MLb	suction pressure regulation dead band (ML0 +/- MLb are the upper/lower limits)
	MLd	suction pressure regulation differential (loading at ML0+MLb+MLd / unl at ML0-MLb-MLd)
1	Md0	minimum HP-LP-difference to unload last compressor still running
1	Md1	minimum HP-LP-difference to leave all the compressors off
	MH0	discharge (HP) pressure limit forcing the timed compressor unload
2	MLH	low pressure safety restart (similar to Danfoss KP15 lp set point)
	MLL	low pressure safety stop (similar to Danfoss KP15 lp set point - differential)
	MHH	high pressure safety stop (similar to Danfoss KP15 hp set point)
	MHL	high pressure safety restart (similar to Danfoss KP15 hp set point - differential)
3	MU1	minimum oil differential pressure of compressor nr. 1
	MU2	minimum oil differential pressure of compressor nr. 2
4	MU3	minimum oil differential pressure of compressor nr. 3
	Mut	minimum oil receiver temperature before opening the oil solenoid
5	MM1	usage of mc nr. 1 output: 0=off / 1=on / 2=auto / 3=slave no / 4=slave nc / 5=kriwan
	MM2	usage of mc nr. 2 output: 0=off / 1=on / 2=auto / 3=slave no / 4=slave nc / 5=kriwan
	MM3	usage of mc nr. 3 output: 0=off / 1=on / 2=auto / 3=slave no / 4=slave nc / 5=kriwan
6	MMH	enable external load override on INP-4
7	MMd	external load override delay
	n__	Functions about fans
	nc__	Functions about condenser fans
	ncH	enable condenser fans when compressor is off and discharge pressure is over maximum
8	ncr	enable condenser fans speed regulation
9	ncU	fan minimum speed
	ncd	minimum HP-LP-difference to keep on fans
	n1H	fan 1 start pressure (similar to Danfoss KP5 set point) - active just when ncr is oFF
	n1L	fan 1 stop pressure (similar to Danfoss KP5 set point - differential)
	n2H	fan 2 start pressure
	n2L	fan 2 stop pressure
	n3H	fan 3 start pressure
	n3L	fan 3 stop pressure
	n4H	fan 4 start pressure
	n4L	fan 4 stop pressure
	b__	Functions about probe calibration
	b1__	Probe nr. 1
	b1C	oil receiver temperature
	b1A	enable probe
	b2__	Probe nr. 2
	b2C	discharge temperature
	b2A	enable probe
	b3__	Probe nr. 3
	b3C	suction temperature
	b3A	enable probe
	b4__	Probe nr. 4
	b4C	mc1 oil pressure
	b4A	enable probe
	b5__	Probe nr. 5
	b5C	mc2 oil pressure
	b5A	enable probe
	b6__	Probe nr. 6
	b6C	mc3 oil pressure
	b6A	enable probe
	b7__	Probe nr. 7
	b7C	high pressure (HP)
	b7A	enable probe
	b8__	Probe nr. 8
	b8C	low pressure (LP)
	b8A	enable probe
	L__	Functions about alarm and stand-by
	LI__	Other alarm inputs
	L1H	enable mc1 alarm
	L1d	mc1 alarm delay
	L2H	enable mc2 alarm
	L2d	mc2 alarm delay
	L3H	enable mc3 alarm
	L3d	mc3 alarm delay
	L4H	enable external override alarm
	L4d	override alarm delay
	L5H	enable digital input 5 alarm (compressor phase monitor / thermal overload relay)

Rem.	Parameter	Description
	L5d	digital input 5 alarm delay
	Lo_	On / stand-by status
10	Loo	actual status: stand-by or on
	d_	Functions about delays
	dF_	Delay from previous stop
	dF4	mc1 start delay
	dF5	mc2 start delay
	dF6	mc3 start delay
	dS4	mc1 stop delay
	dS5	mc2 stop delay
	dS6	mc3 stop delay
	F_	Functions about cooling capacity boost
	FP_	Functions about boost preference
	FPP	boost mode: 0=off / 1=on / 2=auto
	FPM	boost mode when not enough info is received: 0=off / 1=on
	FPd	delay before establishing that not enough info is received
	FM_	Functions about pressure switches in boost mode
	FM0	suction low pressure regulation
	FMb	suction pressure regulation dead band
	FMd	suction pressure regulation differential
	FF_	Delays in boost mode
	FF4	mc1 start delay
	FF5	mc2 start delay
	FF6	mc3 start delay
	FS4	mc1 stop delay
	FS5	mc2 stop delay
	FS6	mc3 stop delay
	H_	Functions about hot gas mode
	HP_	Functions about hot gas preference
	HPP	hot gas mode: 0=off / 1=on / 2=all / 3=auto
	HPM	hot gas mode when not enough info is received: 0=off / 1=on / 2=all
	HPd	delay to enter hot gas mode = on
	HPE	delay to enter hot gas mode = all
	H1_	Functions about condenser fans when hot gas mode = on
	H1H	fan 1 start pressure
	H1L	fan 1 stop pressure
	H2H	fan 2 start pressure
	H2L	fan 2 stop pressure
	H3H	fan 3 start pressure
	H3L	fan 3 stop pressure
	H4H	fan 4 start pressure
	H4L	fan 4 stop pressure
	HA_	Functions about condenser fans when hot gas mode = all
	A1H	fan 1 start pressure
	A1L	fan 1 stop pressure
	A2H	fan 2 start pressure
	A2L	fan 2 stop pressure
	A3H	fan 3 start pressure
	A3L	fan 3 stop pressure
	A4H	fan 4 start pressure
	A4L	fan 4 stop pressure
	HS_	Delays in hot gas mode
	HS0	minimum stop delay for the last mc still running
	P_	Functions about master preferences
	Pd_	Functions about network address
	PdM	master address for global network communication
	PdS	number of slaves connected to this master
	Pb_	Suction pressure broadcast
	PbH	enable suction pressure periodic broadcast over the PC net
	Pbd	delay between pressure broadcast messages
	Pbb	delay between latest received message and broadcasting start
	PbO	specify originating address in the pressure message
	Pb1	broadcast a packet with low pressure and without additional info
	Pb2	broadcast a packet with low pressure and additional info
	PPM	become network master after Pbb delay
	P2H	poll periodically second central unit for pressure broadcast
	P2M	master address of second central unit
	P2d	delay between pressure broadcast messages of second central unit
	P3H	poll periodically third central unit for pressure broadcast
	P3M	master address of third central unit
	P3d	delay between pressure broadcast messages of third central unit
	PO_	Output assignment
11	PO3	assign out-3 relay to: 0=condenser fan / 1=oil receiver solenoid / 2=alarm / 3=oil heater / 4=subcooler / 5=off / 6=NC oil sol / 7=oil sol
	I_	Functions about input-output and machine state (read only)

Rem.	Parameter	Description
	IA_	Analog inputs
	IA1	oil receiver temperature
	IA2	discharge temperature
	IA3	suction temperature
	IA4	oil pressure of mc1
	IA5	oil pressure of mc2
	IA6	oil pressure of mc3
	IA7	high pressure (HP)
	IA8	low pressure (LP)
	Id_	Digital input
	Id1	mc1 hardware safety
	Id2	mc2 hardware safety
	Id3	mc3 hardware safety
	Id4	external override
	Id5	phase software safety
	OA_	Analog output
	OA1	condenser
	OA2	humidity - 4...20 mA
	Od_	Digital output
12	Od1	condenser fan 2
	Od2	condenser fan 3
	Od3	condenser fan 4
	Od4	compressor 1
	Od5	compressor 2
	Od6	compressor 3
	Od7	oil receiver solenoid - eventually connected to OUT-3
	Od8	alarm - eventually connected to OUT-3
	Od9	mc1 oil heater - eventually connected to OUT-3
	Od0	digital output 3
	OS_	Machine status
	OL0	actual set point
	OLb	actual dead band
	OLd	actual differential
	O1H	fan 1 start pressure
	O1L	fan 1 stop pressure
	O2H	fan 2 start pressure
	O2L	fan 2 stop pressure
	O3H	fan 3 start pressure
	O3L	fan 3 stop pressure
	O4H	fan 4 start pressure
	O4L	fan 4 stop pressure
	LLA	actual alarm - read only (0 means no alarm)
	OM0	suction low pressure regulation: 0=unload/1=neutral/2=load
	OM1	number of running compressors
	OM2	number of available compressors
	OML	low pressure is insufficient to load the first compressor
	OMM	low pressure is insufficient and is going to unload the compressors
	OMH	high pressure is excessive to load further compressors
	OMi	high pressure is excessive and is going to unload the compressors
1	OMF	compressor forcing for extreme winter conditions
	OSF	boost mode
	OSH	hot gas mode
	OHd	timer to enter hot gas mode = on (in countdown-mode)
	OHE	timer to enter hot gas mode = all (in countdown-mode)
	OFM	not enough info is received
	OFd	timer for not enough info (in countdown-mode)
	ObH	autonomous pressure broadcast over the PC net
	Obb	autonomous broadcast timer (in countdown-mode)
	OF4	mc1 timer (in countdown-mode)
	OF5	mc2 timer (in countdown-mode)
	OF6	mc3 timer (in countdown-mode)
	OF0	timer of first scheduled compressor (in countdown-mode)
	OC0	number of active rooms connected to this central unit, and not lost
	OC1	number of rooms requiring liquid refrigerant
	OCH	number of rooms requiring hot gas
	OCt	number of rooms in turbo mode
	OCF	number of rooms in boost mode
	E_	Functions about slave preferences
	EY_	Functions about display
	EYY	input to show on display: 1=IA1 / 2=IA2 ...
	EYr	enable display rotation: 0=off / 1=all / 2=selected
	E0_	Functions about display rotation, when EYr=1
	E0d	duration of label display during rotation
	E0E	duration of value display during rotation

Rem.	Parameter	Description
	E1_	Functions about display rotation, when EYr=2 (repeated for each parameter)
	E1d	duration of label display during rotation
	E1t	label text during rotation
	E1E	duration of value display during rotation
	E2_	Functions about display rotation, when EYr=2 (repeated for each parameter)
	E2d	duration of label display during rotation
	E2t	label text during rotation
	E2E	duration of value display during rotation
	E3_	Functions about display rotation, when EYr=2 (repeated for each parameter)
	E3d	duration of label display during rotation
	E3t	label text during rotation
	E3E	duration of value display during rotation
	E4_	Functions about display rotation, when EYr=2 (repeated for each parameter)
	E4d	duration of label display during rotation
	E4t	label text during rotation
	E4E	duration of value display during rotation
	E5_	Functions about display rotation, when EYr=2 (repeated for each parameter)
	E5d	duration of label display during rotation
	E5t	label text during rotation
	E5E	duration of value display during rotation
	E6_	Functions about display rotation, when EYr=2 (repeated for each parameter)
	E6d	duration of label display during rotation
	E6t	label text during rotation
	E6E	duration of value display during rotation
	E7_	Functions about display rotation, when EYr=2 (repeated for each parameter)
	E7d	duration of label display during rotation
	E7t	label text during rotation
	E7E	duration of value display during rotation
	E8_	Functions about display rotation, when EYr=2 (repeated for each parameter)
	E8d	duration of label display during rotation
	E8t	label text during rotation
	E8E	duration of value display during rotation
	E9_	Functions about display rotation, when EYr=2 (repeated for each parameter)
	E9d	duration of label display during rotation
	E9t	label text during rotation
	E9E	duration of value display during rotation
	F0_	Functions about display rotation, when EYr=2 (repeated for each parameter)
	F0d	duration of label display during rotation
	F0t	label text during rotation
	F0E	duration of value display during rotation
	F1_	Functions about display rotation, when EYr=2 (repeated for each parameter)
	F1d	duration of label display during rotation
	F1t	label text during rotation
	F1E	duration of value display during rotation
	F2_	Functions about display rotation, when EYr=2 (repeated for each parameter)
	F2d	duration of label display during rotation
	F2t	label text during rotation
	F2E	duration of value display during rotation
	F3_	Functions about display rotation, when EYr=2 (repeated for each parameter)
	F3d	duration of label display during rotation
	F3t	label text during rotation
	F3E	duration of value display during rotation
	F4_	Functions about display rotation, when EYr=2 (repeated for each parameter)
	F4d	duration of label display during rotation
	F4t	label text during rotation
	F4E	duration of value display during rotation
	F5_	Functions about display rotation, when EYr=2 (repeated for each parameter)
	F5d	duration of label display during rotation
	F5t	label text during rotation
	F5E	duration of value display during rotation
	F6_	Functions about display rotation, when EYr=2 (repeated for each parameter)
	F6d	duration of label display during rotation
	F6t	label text during rotation
	F6E	duration of value display during rotation
	F7_	Functions about display rotation, when EYr=2 (repeated for each parameter)
	F7d	duration of label display during rotation
	F7t	label text during rotation
	F7E	duration of value display during rotation
	F8_	Functions about display rotation, when EYr=2 (repeated for each parameter)
	F8d	duration of label display during rotation
	F8t	label text during rotation
	F8E	duration of value display during rotation
	F9_	Functions about display rotation, when EYr=2 (repeated for each parameter)
	F9d	duration of label display during rotation

Rem.	Parameter	Description
	F9t	label text during rotation
	F9E	duration of value display during rotation
	Eb	Functions about buzzer
	EbH	enable buzzer
	EF	Functions about slave default
	EFF	reload slave default parameters from EEPROM, at next restart

2 Parameter remarks

Nr. Remark

- 1 To ensure operation in extreme winter conditions, respect to normal ones, compressors may be switched on sooner, and off later.
- 2 When $MLH < MLL$, there is a delay of $10 * (MLL - MLH)$ seconds on Ip switch. Eventual pumpdown restart is over $MLH + 1$ bar.
- 3 Fixed time 120 s and manual reset.
- 4 In H425V3, starting from revision 03, when MU1 and MU3 are 5.0 and b4A and b6A are OFF, use 5NTC controller for compressors without oil pump; c
- 5 Caution! Selection by manual override forces compressor to run whatever the high and low pressure; no safety is left except hardware ones. In slave mo
- 6 Caution! The external override drives the compressors ignoring high and low pressure; no safety is left except hardware ones. It is recommended to clos
- 7 After the delay elapsed, the override forces a load. Automatic reset.
- 8 When speed regulation is off the fan is operated on-off.
- 9 Caution! Speed regulation can cause fan fault or electronic board fault. Low and average minimum speed can increase the risk.
- 10 Passing from stand-by to on and at power on, there is a 5 second delay spent in a virtual stand-by.
- 11 In H425V3, starting from revision 02, when PO3 is 4, OUT-3 drives the subcooler liquid solenoid; AN-1 input is the subcooler suction temperature; Mu
- 12 The minus sign on display ("-") signals that output is going to start after a delay.

3 Alarm list

Display	Alarm	
A01	mc 1 alarm	Pressure switch, thermistors, or any other compressor safety device has disconnected.
A02	mc 2 alarm	Pressure switch, thermistors, or any other compressor safety device has disconnected.
A03	mc 3 alarm	Pressure switch, thermistors, or any other compressor safety device has disconnected.
A04	external override	The external override contact is driving the controller.
A05	mc phase	Compressor overload/thermal relay disconnected, or missing mains phase - manual reset.
A06	mc 1 oil pressure	Oil differential pressure remained under minimum value for 120 seconds - manual reset.
A07	mc 2 oil pressure	Oil differential pressure remained under minimum value for 120 seconds - manual reset.
A08	mc 3 oil pressure	Oil differential pressure remained under minimum value for 120 seconds - manual reset.
A09	EEPROM invalid	EEPROM invalid.
A10	EEPROM read start	EEPROM read start failure
A11	EEPROM read end	EEPROM read end failure
A12	EEPROM write start	EEPROM write start failure.
A13	EEPROM write end	EEPROM write end failure.
A14	EEPROM write max	EEPROM failure - reached the maximum number of writing attempts.
A15	Exc. pr. drop in w. f.	Excessive pressure drop through the water filter
A16	Ins. w. pr. in ev.	Insufficient water pressure drop through the evaporator
A17	Ins. w. pr. in any probe	Insufficient water pressure in any probe

4 Slave alarm list

Display	Alarm	
A96	slave EEPROM	Failed write operation onto the slave EEPROM.
A97	out of range	The slave address EdS might be out of the master range, the latter going from 1 to PdS.
A98	no link	The slave does not receive any message from the master.
A99	lost link	The slave lost the communication with the master.

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	Toggle between on and stand-by.
B4 left	Left navigation in the menu.
B5 down	Down navigation in the menu.
B6 right - menu - set	Right navigation in the menu - display and modify the set point - enter menu.

6 Led list

Led	Function
L1 compressor 1	On during compressor run - blinking slowly during activation and deactivation delay.
L2 compressor 2	On during compressor run - blinking slowly during activation and deactivation delay.
L3 compressor 3	On during compressor run - blinking slowly during activation and deactivation delay.
L4 condenser fan 1	On during condenser run.
L5 condenser fan 2	On during condenser run.
L6 condenser fan 3	On during condenser run.
L7 condenser fan 4	On during condenser run.

7 Soft command list

Soft command	Function
4 skip mc delay	Skip compressor delay.

8 How to ...

How to ...
 Switch between on and stand-by.
 Program the menu.
 Show or change pressure set.

9 Shortcut list

Buttons to press	Shortcut description - keep pressed 5 seconds
/	This instrument has no further shortcuts.

10 Led and push button location

