H425V2
User manual

Contents

1 Parameter list

Rem.	Parameter	Description	Minimum	Maximum	Default	Unit
	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)	0.0	99.0	2.8	(gauge) bar
	MLb	suction pressure regulation dead band (ML0 +/- MLb are the upper/lower limits)	0.0	99.0	0.5	bar
	MLd	suction pressure regulation differential (loading at ML0+MLb+MLd / unl at ML0-MLb-MLd)	0.0	99.0	0.2	bar
	MH0	discharge (HP) pressure limit forcing the timed compressor unload	0.0	99.0	24.0	(gauge) bar
1	MLH	low pressure safety restart (similar to Danfoss KP15 lp set point)	0.0	99.0	1.2	(gauge) bar
	MLL	low pressure safety stop (similar to Danfoss KP15 lp set point - differential)	0.0	99.0	0.2	(gauge) bar
	MHH	high pressure safety stop (similar to Danfoss KP15 hp set point)	0.0	99.0	28.0	(gauge) bar
	MHL	high pressure safety restart (similar to Danfoss KP15 hp set point - differential)	0.0	99.0	24.0	(gauge) bar
2	MU1	minimum oil differential pressure of compressor nr. 1	0.0	99.0	1.0	bar
	MU2	minimum oil differential pressure of compressor nr. 2	0.0	99.0	1.0	bar
3	MU3	minimum oil differential pressure of compressor nr. 3	0.0	99.0	1.0	bar
	Mut	minimum oil receiver temperature before opening the oil solenoid	-55.0	145.0	25.0	°C
4	MM1	usage of mc nr. 1 output: 0=off / 1=on / 2=auto / 3=slave no / 4=slave nc / 5=kriwan	0	5	2	/
	MM2	usage of mc nr. 2 output: 0=off / 1=on / 2=auto / 3=slave no / 4=slave nc / 5=kriwan	0	5	2	/
	MM3	usage of mc nr. 3 output: 0=off / 1=on / 2=auto / 3=slave no / 4=slave nc / 5=kriwan	0	5	2	/
5	MMH	enable external load override on INP-4	oFF	_on	oFF	/
6	MMd	external load override delay	0	194 4:20:15	1:00:00	dd hh:mm:ss
	n__	Functions about fans				
	nc_	Functions about condenser fans				
	ncH	enable condenser fans when compressor is off and discharge pressure is over maximum	oFF	_on	_on	/
7	ncr	enable condenser fans speed regulation	oFF	_on	_on	/
8	ncU	fan minimum speed	0	255	40	/
	ncd	minimum HP-LP-difference to keep on fans	0.0	99.0	2.0	(gauge) bar
	n1H	fan 1 start pressure (similar to Danfoss KP5 set point) - active just when ncr is oFF	0.0	99.0	10.0	(gauge) bar
9	n1L	fan 1 stop pressure (similar to Danfoss KP5 set point - differential)	0.0	99.0	6.0	(gauge) bar
	n2H	fan 2 start pressure	0.0	99.0	7.0	(gauge) bar
	n2L	fan 2 stop pressure	0.0	99.0	5.0	(gauge) bar
	n3H	fan 3 start pressure	0.0	99.0	8.0	(gauge) bar
	n3L	fan 3 stop pressure	0.0	99.0	6.0	(gauge) bar
	n4H	fan 4 start pressure	0.0	99.0	9.0	(gauge) bar
	n4L	fan 4 stop pressure	0.0	99.0	7.0	(gauge) bar
	b__	Functions about probe calibration				
	b1_	Probe nr. 1				
	b1C	oil receiver temperature	-99.0	99.0	0.0	K
	b1A	enable probe	oFF	_on	_on	/
	b2_	Probe nr. 2				
	b2C	discharge temperature	-99.0	99.0	0.0	K
	b2A	enable probe	oFF	_on	_on	/
	b3_	Probe nr. 3				
	b3C	engine room temperature	-99.0	99.0	0.0	K
	b3A	enable probe	oFF	_on	_on	/
	b4_	Probe nr. 4				
	b4C	mc1 oil pressure	-99.0	99.0	0.0	bar
	b4A	enable probe	oFF	_on	_on	/
	b5_	Probe nr. 5				
	b5C	mc2 oil pressure	-99.0	99.0	0.0	bar
	b5A	enable probe	oFF	_on	_on	/
	b6_	Probe nr. 6				
	b6C	mc3 oil pressure	-99.0	99.0	0.0	bar
	b6A	enable probe	oFF	_on	_on	/
	b7_	Probe nr. 7				
	b7C	high pressure (HP)	-99.0	99.0	0.0	bar
	b7A	enable probe	oFF	_on	_on	/
	b8_	Probe nr. 8				
	b8C	low pressure (LP)	-99.0	99.0	0.0	bar
	b8A	enable probe	oFF	_on	_on	/
	L__	Functions about alarm and stand-by				
	LI_	Other alarm inputs				
	L1H	enable mc1 alarm	oFF	_on	_on	/
	L1d	mc1 alarm delay	0	194 4:20:15	30:00	dd hh:mm:ss
	L2H	enable mc2 alarm	oFF	_on	_on	/
	L2d	mc2 alarm delay	0	194 4:20:15	30:00	dd hh:mm:ss
	L3H	enable mc3 alarm	oFF	_on	_on	/
	L3d	mc3 alarm delay	0	194 4:20:15	30:00	dd hh:mm:ss
	L4H	enable external override alarm	oFF	_on	_on	/
	L4d	override alarm delay	0	194 4:20:15	1:00:00	dd hh:mm:ss
	L5H	enable digital input 5 alarm (compressor phase monitor / thermal overload relay)	oFF	_on	_on	/
	L5d	digital input 5 alarm delay	0	194 4:20:15	1	dd hh:mm:ss

Rem.	Parameter	Description	Minimum	Maximum	Default	Unit
	Lo_	On / stand-by status				
10	Loo	actual status: stand-by or on	oFF	_on	oFF	/
	d_ _	Functions about delays				
	dF_	Delay from previous stop				
	dF4	mc1 start delay	0	194 4:20:15	5:00	dd hh:mm:ss
	dF5	mc2 start delay	0	194 4:20:15	10:00	dd hh:mm:ss
	dF6	mc3 start delay	0	194 4:20:15	15:00	dd hh:mm:ss
	dS4	mc1 stop delay	0	194 4:20:15	45	dd hh:mm:ss
	dS5	mc2 stop delay	0	194 4:20:15	30	dd hh:mm:ss
	dS6	mc3 stop delay	0	194 4:20:15	15	dd hh:mm:ss
	P_ _	Functions about master preferences				
	Pd_	Functions about network address				
	PdM	master address for global network communication	0	254	1	/
	PdS	number of slaves connected to this master	1	2	2	/
	Pb_	Suction pressure broadcast				
	PbH	enable suction pressure periodic broadcast over the PC net	oFF	_on	_on	/
	Pbd	delay between pressure broadcast messages	0	194 4:20:15	30	dd hh:mm:ss
	Pbb	delay between latest received message and broadcasting start	0	194 4:20:15	2:00	dd hh:mm:ss
	PbO	specify originating address in the pressure message	oFF	_on	_on	/
	PPM	become network master after Pbb delay	oFF	_on	oFF	/
	P2H	poll periodically second central unit for pressure broadcast	oFF	_on	oFF	/
	P2M	master address of second central unit	0	254	2	/
	P2d	delay between pressure broadcast messages of second central unit	0	194 4:20:15	30	dd hh:mm:ss
	P3H	poll periodically third central unit for pressure broadcast	oFF	_on	oFF	/
	P3M	master address of third central unit	0	254	3	/
	P3d	delay between pressure broadcast messages of third central unit	0	194 4:20:15	30	dd hh:mm:ss
	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	0	3	0	/
	I_ _	Functions about input-output and machine state (read only)				
	IA_	Analog inputs				
	IA1	oil receiver temperature	-55.0	145.0	-55.0	°C
	IA2	discharge temperature	-55.0	145.0	-55.0	°C
	IA3	engine room temperature	-55.0	145.0	-55.0	°C
	IA4	oil pressure of mc1	0.0	30.0	0.0	(gauge) bar
	IA5	oil pressure of mc2	0.0	30.0	0.0	(gauge) bar
	IA6	oil pressure of mc3	0.0	30.0	0.0	(gauge) bar
	IA7	high pressure (HP)	0.0	30.0	0.0	(gauge) bar
	IA8	low pressure (LP)	0.0	30.0	0.0	(gauge) bar
	Id_	Digital input				
	Id1	mc1 hardware safety	oFF	_on	oFF	/
	Id2	mc2 hardware safety	oFF	_on	oFF	/
	Id3	mc3 hardware safety	oFF	_on	oFF	/
	Id4	external override	oFF	_on	oFF	/
	Id5	phase software safety	oFF	_on	oFF	/
	OA_	Analog output				
	LLA	actual alarm - read only (0 means no alarm)	0	255	0	/
	OA1	condenser	0	255	0	/
	OA2	humidity - 4...20 mA	0	255	0	/
	Od_	Digital output				
12	Od1	condenser fan 2	oFF	_on	oFF	/
	Od2	condenser fan 3	oFF	_on	oFF	/
	Od3	condenser fan 4	oFF	_on	oFF	/
	Od4	compressor 1	oFF	_on	oFF	/
	Od5	compressor 2	oFF	_on	oFF	/
	Od6	compressor 3	oFF	_on	oFF	/
	Od7	oil receiver solenoid - eventually connected to OUT-3	oFF	_on	oFF	/
	Od8	alarm - eventually connected to OUT-3	oFF	_on	oFF	/
	E_ _	Functions about slave preferences				
	EY_	Functions about display				
	EYY	input to show on display: 1=IA1 / 2=IA2 ...	0	255	1	/

2 Parameter remarks

Nr.	Remark
1	When MLH<MLL,there is a delay of 10*(MLL-MLH) seconds on lp switch. Eventual pumpdown restart is over MLH+1 bar.
2	Fixed time 120 s and manual reset.
3	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; connect HP probe on AN-6 and LP on AN-7.
4	Caution! Selection by manual override forces compressor to run whatever the high and low pressure; no safety is left except hardware ones. In slave mode the output is used for partialization. In kriwan mode output is off for reset during stand-by.

Nr.	Remark
5	Caution! The external override drives the compressors ignoring high and low pressure; no safety is left except hardware ones. It is recommended to close this contact passing through both contacts of a low pressure and high pressure switch like a kp15. The closed contact is interpreted as "load" while the open contact is neutral. The delays dF4 through dF6 are respected.
6	After the delay elapsed, the override forces a load. Automatic reset.
7	When speed regulation is off the fan is operated on-off.
8	Caution! Speed regulation can cause fan fault or electronic board fault. Low and average minimum speed can increase the risk.
9	During the first 10 seconds of speed regulation, the n1L is replaced by (n1H+n1L)/2.
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; Mut is the wanted overheating, where 8.0 °C means 8.0 °C; maximum overheating is fixed at 99.0 °C; minimum overheating is fixed at 6.0 °C; n4H is the refrigerant type, where 0.1 bar means R404A; n4L is the cycle period, where 0.8 bar means 8 s; H4H is the initial on-time, where 0.5 bar means 5 s; H4L is the adaptation speed, where 0.8 bar means 8. To turn off the subcooler solenoid, set PO3 to 5. The subcooler is enabled just when all of the available motorcompressors are on.
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.

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	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

8 How to ...

How to ...	Function
Switch between on and stand-by.	Keep pressed B3 button, to activate and deactivate stand-by. In stand-by every output is, leds from L1 to L7 blink, timers continue to count.
Program the menu.	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 pressure 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 ML0, then confirm it.

9 Shortcut list

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

10 Led and push button location