



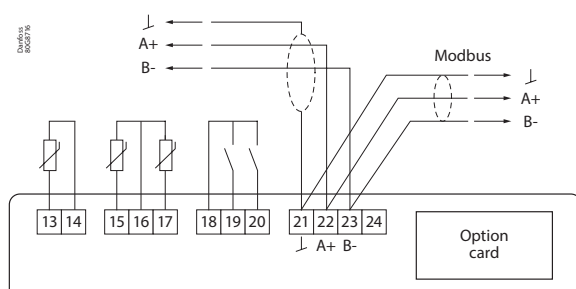
AK-CC25 Pro

Modbus interface description

SW ver. 1.2x



Danfoss AK-CC25 case controllers



The screenshot shows the 'Network' settings screen. It has a red header with a back arrow, the title 'Network', and a 'Done' button. Below the header, there are two tabs: 'Read out' and 'Settings'. The 'Settings' tab is selected. The screen displays the following settings:

- Network address: 0
- Baudrate: Auto
- Parity and stop bit: Even

The screenshot shows the 'Baudrate' settings screen. It has a red header with a back arrow, the title 'Baudrate', and a 'Done' button. Below the header, there are two tabs: 'Read out' and 'Settings'. The 'Settings' tab is selected. The screen displays the following settings:

- Baudrate: Auto (selected with a green checkmark)
- 9600 Baud
- 19200 Baud
- 38400 Baud
- 115200 baud
- Display code: oa1

The screenshot shows the 'Parity and stop bit' settings screen. It has a red header with a back arrow, the title 'Parity and stop bit', and a 'Done' button. Below the header, there are two tabs: 'Read out' and 'Settings'. The 'Settings' tab is selected. The screen displays the following settings:

- Parity: None
- Even (selected with a green checkmark)
- Odd
- Display code: oa2

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Programming Guide | AK-CC25 Pro, Modbus interface description

Modbus communication

Danfoss AK-CC25 Pro controllers are using Modbus RTU.
Communication speed is default "auto detection"
Default communication settings are "8 bit, Even parity, 1 stop bit".

Danfoss AK-CC25 Pro controllers are Modbus compliant and **MODBUS application protocol specification** can be found via below link
<http://modbus.org/specs.php>

AK-CC25 Pro documentation:
AK-CC25 Pro User Guides and Installation Guides can be found via www.danfoss.com:

<https://www.danfoss.com/en/products/electronic-controls/dcs/evaporator-and-room-control/#tab-overview>

Parameter list for AK-CC25 Pro (084B4022, 084B4023)

Code	Description	Modbus ADU	Value	Min	Max	Data type	R/W	Decimals	Unit	Appl.	Enum.
Thermostat											
r00	Cut-out 1	100	2,0	r03	r02	Float	RW	1	°C	*	
r01	Differential	101	2,0	0,1	20,0	Float	RW	1	°C	*	
r02	Max cut-out limit	102	50,0	r03	50,0	Float	RW	1	°C	*	
r03	Min cut-out limit	103	-60,0	-60,0	r02	Float	RW	1	°C	*	
r04	Display readout adjustment	104	0,0	-10,0	10,0	Float	RW	1	°C	*	
r05	Temperature unit	105	0	0	1	Integer	RW	0		*	0=Celsius, 1=Fahrenheit
r09	S4 Air OFF evap. - Adjustment	113	0,0	-10,0	10,0	Float	RW	1	°C	*	
r10	S3 Air ON evap. - Adjustment	114	0,0	-10,0	10,0	Float	RW	1	°C	*	
r11	S5 Evaporator - Adjustment	116	0,0	-10,0	10,0	Float	RW	1	°C	*	
r12	Main switch	117	0	-1	1	Integer	RW	0		*	-1=Manual, 0=Stop, 1=Start
r13	Night offset	125	0,0	-50,0	50,0	Float	RW	1	°C	*	
r14	Thermostat mode	124	1	1	2	Integer	R	0		*	2=Modulating, 1=ON/OFF
r15	Thermostat sensor S4 %	123	100	0	100	Integer	RW	0	%	*	
r16	Melt interval	122	1	0	10	Integer	RW	0	hours	*	
r17	Melt period	121	5	0	30	Integer	RW	0	min	*	
r59	S6 product temp. - Adjustment	180	0,0	-10,0	10,0	Float	RW	1	°C	9	
r61	Thermostat sensor S4 % night	182	100	0	100	Integer	RW	0	%	*	
r62	Air heater neutral zone	183	5,0	0,0	50,0	Float	RW	1	°C	9	
r63	Air heater start delay	184	3	0	240	Integer	RW	0	min	9	
r89	Food type	209	0	0	5	Integer	RW	0		*	0=None, 1=Vegetables, 2=Dairy, 3=Meat and fish, 4=Frozen food, 5=Ice cream
r98	S4 frost protection	216	-60,0	-60,0	50,0	Float	RW	1	°C	*	
ra1	Temp. pulldown diff	218	0,0	-50,0	0,0	Float	RW	1	°C	*	
ra2	Temp. pulldown time	219	0	0	300	Integer	RW	0	min	*	
Alarm settings											
A03	Alarm delay	10002	30	0	240	Integer	RW	0	min	*	
A04	Door open alarm delay	10003	60	0	240	Integer	RW	0	min	*	
A12	Alarm delay pull down	10018	90	0	240	Integer	RW	0	min	*	
A13	High alarm limit	10019	8,0	-60,0	50,0	Float	RW	1	°C	*	
A14	Low alarm limit	10020	-30,0	-60,0	50,0	Float	RW	1	°C	*	
A27	Alarm delay DI 1	10028	30	0	240	Integer	RW	0	min	*	

Programming Guide | AK-CC25 Pro, Modbus interface description

Code	Description	Modbus ADU	Value	Min	Max	Data type	R/W	Decimals	Unit	Appl.	Enum.
A28	Alarm delay DI 2	10029	30	0	240	Integer	RW	0	min	*	
A36	Alarm sensor S4%	10037	100	0	100	Integer	RW	0	%	*	
A37	Cond. alarm limit	10038	100,0	20,0	120,0	Float	RW	1	°C	4, 9	
A54	Cond. block limit	10055	120,0	20,0	140,0	Float	RW	1	°C	4, 9	
A55	Cond. alarm delay	10056	5	0	60	Integer	RW	0	min	4, 9	
A78	Cond. alarm differential	10096	10,0	1,0	30,0	Float	RW	1	°C	4, 9	
Compressor											
c01	Min ON time	500	0	0	30	Integer	RW	0	min	*	
c02	Min OFF time	501	0	0	30	Integer	RW	0	min	*	
c05	Delay between comp.	505	5	0	999	Integer	RW	0	s	5, 6, 7, 8, 9	
c08	Step control mode	508	2	1	3	Integer	RW	0		5, 6, 7, 8, 9	1=Sequential, 2=Cyclic, 3=Dual circuits
c46	Minimum speed	565	50	c49	c47	Float	RW	0	Hz	1, 2, 3, 4, 9	
c47	Start speed	566	60	c46	c48	Float	RW	0	Hz	1, 2, 3, 4, 9	
c48	Max speed	567	150	c47	200	Float	RW	0	Hz	1, 2, 3, 4, 9	
c49	Stop speed	577	20	0	c46	Float	RW	0	Hz	1, 2, 3, 4, 9	
c82	Speed Kp	552	10,0	3,0	30,0	Float	RW	1		1, 2, 3, 4, 9	
c83	Speed Tn	553	60	30	900	Integer	RW	0	s	1, 2, 3, 4, 9	
c96	Max speed slope	573	1,0	0,1	5,0	Float	RW	1		1, 2, 3, 4, 9	
c97	Comp. defrost speed	574	100	0	100	Integer	RW	0	%	1, 2, 3, 4, 9	
c98	Max. Kp factor	575	20,0	5,0	50,0	Float	RW	1		1, 2, 3, 4, 9	
c99	Comp cut-out delay	576	0	0	600	Integer	RW	0	s	1, 2, 3, 4, 9	
Defrost											
d01	Defrost method	1000	1	0	5	Integer	RW	0		*	0=None, 1=Electrical, 2=Hot gas, 4=Air/Offcycle, 5=Electrical pulsing
d02	Defrost stop limit	1001	6,0	0,0	50,0	Float	RW	1	°C	*	
d03	Defrost start interval	1002	8	0	240	Integer	RW	0	hours	*	
d04	Max. defrost time	1003	45	d24	360	Integer	RW	0	min	*	
d05	Time staggering power-up	1004	0	0	240	Integer	RW	0	min	*	
d06	Drip off time	1005	0	0	60	Integer	RW	0	min	*	
d07	Fan start delay	1007	0	0	60	Integer	RW	0	min	1, 2, 3, 4, 8, 9	
d08	Fan start temperature	1006	-5,0	-60,0	10,0	Float	RW	1	°C	1, 2, 3, 4, 8, 9	
d09	Fan control during defrost	1008	1	0	3	Integer	RW	0		1, 2, 3, 4, 8, 9	0=OFF, 1=ON, 2=OFF at drip, 3=OFF at high temp
d10	Defrost stop method	1009	0	0	3	Integer	RW	0		*	0=Time, 1=S5 sensor, 2=S4 sensor, 3=S5A and S5B
d16	Pump down delay	1018	0	0	60	Integer	RW	0	min	*	
d18	Max. thermostat run time	1020	0	0	240	Integer	RW	0	hours	*	
d19	DOD S5 differential	1021	20,0	0,0	20,0	Float	RW	1	°C	*	
d20	Drip tray heater delay	1028	0	0	240	Integer	RW	0	min	9	
d24	Min. defrost time	1040	0	0	d04	Integer	RW	0	min	*	

Programming Guide | AK-CC25 Pro, Modbus interface description

Code	Description	Modbus ADU	Value	Min	Max	Data type	R/W	Decimals	Unit	Appl.	Enum.
d27	Rail heat during defrost	1045	1	0	2	Integer	RW	0		3, 7, 9	0=OFF, 1=ON, 2=Normal control
d40	Display delay after defrost	1058	30	5	240	Integer	RW	0	min	*	
d41	Fan stop temperature	1059	0,0	-20,0	20,0	Float	RW	1	°C	1, 2, 3, 4, 8, 9	
d42	Pressure equalization delay	1065	0	0	30	Integer	RW	0	min	*	
d43	Hot gas valve at drip	1066	0	0	1	Integer	RW	0		*	0=OFF, 1=ON
d44	Temp. pulldown after defrost	1067	0	0	1	Integer	RW	0		*	0=No, 1=Yes
d45	Cond. fan at defrost	3220	1	0	1	Integer	RW	0		4, 9	0=OFF, 1=Normal ctrl.
Fan control											
F04	Fan stop high S5 temp.	1505	50,0	-60,0	50,0	Float	RW	1	°C	1, 2, 3, 4, 8, 9	
F05	Fan pulsing mode	1506	0	0	2	Integer	RW	0		1, 2, 3, 4, 8, 9	0=No pulsing, 1=Pulsing cut-out, 2=Pulsing cut-out night
F06	Fan period time	1507	5	1	120	Integer	RW	0	min	1, 2, 3, 4, 8, 9	
F07	Fan ON cycle	1508	100	0	100	Integer	RW	0	%	1, 2, 3, 4, 8, 9	
F24	Cond. fan cut-in	1525	60,0	10,0	110,0	Float	RW	1	°C	4, 9	
F25	Cond. fan diff.	1526	5,0	1,0	20,0	Float	RW	1	°C	4, 9	
Defrost schedule											
t00	Defrost schedule	1200	0	0	1	Integer	RW	0		*	0=No, 1=Yes
t01	Def. start 1 - Hours	1201	0	0	23	Integer	RW	0	hours	*	
t11	Def. start 1 - Minutes	1211	0	0	59	Integer	RW	0	min	*	
t02	Def. start 2 - Hours	1202	0	0	23	Integer	RW	0	hours	*	
t12	Def. start 2 - Minutes	1212	0	0	59	Integer	RW	0	min	*	
t03	Def. start 3 - Hours	1203	0	0	23	Integer	RW	0	hours	*	
t13	Def. start 3 - Minutes	1213	0	0	59	Integer	RW	0	min	*	
t04	Def. start 4 - Hours	1204	0	0	23	Integer	RW	0	hours	*	
t14	Def. start 4 - Minutes	1214	0	0	59	Integer	RW	0	min	*	
t05	Def. start 5 - Hours	1205	0	0	23	Integer	RW	0	hours	*	
t15	Def. start 5 - Minutes	1215	0	0	59	Integer	RW	0	min	*	
t06	Def. start 6 - Hours	1206	0	0	23	Integer	RW	0	hours	*	
t16	Def. start 6 - Minutes	1216	0	0	59	Integer	RW	0	min	*	
t07	Time hours	64045	0	0	23	Integer	RW	0	hours	*	
t08	Time minutes	64046	0	0	59	Integer	RW	0	min	*	
t45	Time date	64047	1	1	31	Integer	RW	0		*	
t46	Time month	64048	1	1	12	Integer	RW	0		*	
t47	Time year	64049	0	0	100	Integer	RW	0		*	
t51	Monday - Follow schedule	1221	1	0	1	Integer	RW	0		*	0=No, 1=Yes
t52	Tuesday - Follow schedule	1222	1	0	1	Integer	RW	0		*	0=No, 1=Yes
t53	Wednesday - Follow schedule	1223	1	0	1	Integer	RW	0		*	0=No, 1=Yes
t54	Thursday - Follow schedule	1224	1	0	1	Integer	RW	0		*	0=No, 1=Yes
t55	Friday - Follow schedule	1225	1	0	1	Integer	RW	0		*	0=No, 1=Yes
t56	Saturday - Follow schedule	1226	1	0	1	Integer	RW	0		*	0=No, 1=Yes

Programming Guide | AK-CC25 Pro, Modbus interface description

Code	Description	Modbus ADU	Value	Min	Max	Data type	R/W	Decimals	Unit	Appl.	Enum.
t57	Sunday - Follow schedule	1227	1	0	1	Integer	RW	0		*	0=No, 1=Yes
t58	Event 1 Day h	1229	0	0	23	Integer	RW	0	hours	*	
t59	Event 1 Day min	1230	0	0	59	Integer	RW	0	min	*	
t60	Event 1 Night h	1231	0	0	23	Integer	RW	0	hours	*	
t61	Event 1 Night min	1232	0	0	59	Integer	RW	0	min	*	
t62	Event 2 Day h	1233	0	0	23	Integer	RW	0	hours	*	
t63	Event 2 Day min	1234	0	0	59	Integer	RW	0	min	*	
t64	Event 2 Night h	1235	0	0	23	Integer	RW	0	hours	*	
t65	Event 2 Night min	1236	0	0	59	Integer	RW	0	min	*	
t66	Monday event	1237	0	0	3	Integer	RW	0		*	0=Day, 1=Night, 2=Event 1, 3=Event 2
t67	Tuesday event	1238	0	0	3	Integer	RW	0		*	0=Day, 1=Night, 2=Event 1, 3=Event 2
t68	Wednesday event	1239	0	0	3	Integer	RW	0		*	0=Day, 1=Night, 2=Event 1, 3=Event 2
t69	Thursday event	1240	0	0	3	Integer	RW	0		*	0=Day, 1=Night, 2=Event 1, 3=Event 2
t70	Friday event	1241	0	0	3	Integer	RW	0		*	0=Day, 1=Night, 2=Event 1, 3=Event 2
t71	Saturday event	1242	0	0	3	Integer	RW	0		*	0=Day, 1=Night, 2=Event 1, 3=Event 2
t72	Sunday event	1243	0	0	3	Integer	RW	0		*	0=Day, 1=Night, 2=Event 1, 3=Event 2
Miscellaneous											
o01	Delay of outputs at power-up	2000	5	0	600	Integer	RW	0	s	*	
o02	DI1 Configuration	2001	0	0	33	Integer	RW	0		1, 2, 3, 5, 6, 7, 8, 9	0=None, 1=DI status, 2=Door function, 3=Door alarm, 4=Defrost start, 5=Main switch, 6=Night setback, 8=Alarm at closed, 9=Alarm at open, 10=Case cleaning, 11=Forced cooling, 13=Coordinated defrost, 15=Shutdown, 16=Light control, 20=Leak detection, 24=Comp. safety, 29=Door fan stop, 31=Comp. safety 2, 32=Temp. pulldown, 33=Operation mode
o03	Network address	2008	0	0	240	Integer	RW	0		*	
o05	Access code 3	2013	0	0	999	Integer	RW	0		*	
o06	Temperature sensor type	2014	0	0	4	Integer	RW	0		*	0=Pt 1000, 1=PTC 1000, 2=NTC 5k, 3=NTC 10k, 4=User-defined
o16	Max. hold time	2020	20	0	360	Integer	RW	0	min	*	
o17	Display air S4%	2021	100	0	100	Integer	RW	0	%	*	
o37	DI2 Configuration	2055	0	0	33	Integer	RW	0		*	0=None, 1=DI status, 2=Door function, 3=Door alarm, 4=Defrost start, 5=Main switch, 6=Night setback, 8=Alarm at closed, 9=Alarm at open, 10=Case cleaning, 11=Forced cooling, 13=Coordinated defrost, 15=Shutdown, 16=Light control, 20=Leak detection, 24=Comp. safety, 29=Door fan stop, 31=Comp. safety 2, 32=Temp. pulldown, 33=Operation mode
o38	Light control mode	2057	1	1	5	Integer	RW	0		2, 6, 9	1=Day and night, 2=Network, 3=Door switch, 4=Network (Fallback), 5=Digital input
o39	MC Light signal	2058	0	0	1	Integer	RW	0		*	0=OFF, 1=ON
o41	Rail heat ON cycle day	2060	100	0	100	Integer	RW	0	%	3, 7, 9	
o42	Rail heat ON cycle night	2061	100	0	100	Integer	RW	0	%	3, 7, 9	
o43	Rail heat period time	2062	6	6	60	Integer	RW	0	min	3, 7, 9	
o46	Case cleaning mode	2056	0	0	2	Integer	RW	0		*	0=OFF, 1=Fans run, 2=Cleaning

Programming Guide | AK-CC25 Pro, Modbus interface description

Code	Description	Modbus ADU	Value	Min	Max	Data type	R/W	Decimals	Unit	Appl.	Enum.
o61	Application mode	2077	1	1	9	Integer	RW	0		*	1=1: Comp/def/fan/alarm, 2=2: Comp/def/fan/light, 3=3: Comp/def/fan/rail, 4=4: Comp/def/fan/cond, 5=5: Two comp/def/alarm, 6=6: Two comp/def/light, 7=7: Two comp/def/rail, 8=8: Two comp/def/fan, 9=9: Flexible
o64	Access code 2	2080	0	0	999	Integer	RW	0		*	
o85	Rail heat control mode	2116	0	0	2	Integer	RW	0		3, 7, 9	0=ON, 1=Day/Night timer, 2=Dewpoint ctrl.
o86	Dewpoint min. limit	2117	2,0	-10,0	o87	Float	RW	1	°C	3, 7, 9	
o87	Dewpoint max. limit	2118	12,0	o86	50,0	Float	RW	1	°C	3, 7, 9	
o88	Rail heat min. ON cycle	2119	30	0	100	Integer	RW	0	%	3, 7, 9	
o89	Door restart inj. delay	2120	30	0	240	Integer	RW	0	min	*	
o97	Display readout	2145	3	1	3	Integer	RW	0		*	1=Display air, 2=S6 Product temp., 3=Ther. air
o98	Light at Main switch OFF	2146	0	0	1	Integer	RW	0		2, 6, 9	0=OFF, 1=Normal ctrl.
oa1	Baudrate	2251	1	1	5	Integer	RW	0		*	1=Auto, 2=9600 Baud, 3=19200 Baud, 4=38400 Baud, 5=115200 baud
oa2	Parity and stop bit	2255	1	0	2	Integer	RW	0		*	0=None, 1=Even, 2=Odd
Control											
P39	Resonance band start	2276	100	0	100	Integer	RW	0	%	1, 2, 3, 4, 9	
P40	Resonance band	2277	0	0	15	Integer	RW	0	%	1, 2, 3, 4, 9	
P41	Alarm relay priority	2147	2	0	3	Integer	RW	0		1, 5, 9	0=Not used, 1=High Priority, 2=Medium priority, 3=All
P65	Fan stop at blinds closing	2179	0	0	300	Integer	RW	0	s	2, 9	
P77	Oil return speed limit	2191	40	0	100	Integer	RW	0	%	1, 2, 3, 4, 9	
P78	Oil return interval	2192	20	5	720	Integer	RW	0	min	1, 2, 3, 4, 9	
P79	Oil return speed	2193	50	P77	100	Integer	RW	0	%	1, 2, 3, 4, 9	
P80	Oil return time period	2194	60	10	600	Integer	RW	0	s	1, 2, 3, 4, 9	
P88	Access code 1	3156	0	0	999	Integer	RW	0		*	
P89	Display keyboard lock	3159	2	0	2	Integer	RW	0		*	0=None, 1=Local, 2=Network
P92	Safety action	2262	0	0	1	Integer	RW	0		2, 6, 9	0=None, 1=Lights off
P93	Safety event period	2263	0	0	120	Integer	RW	0	hours	*	
P94	Max safety events	2264	0	0	20	Integer	RW	0		*	
DO config and manual											
q01	DO1 Configuration	2204	0	0	14	Integer	RW	0		9	0=None, 1=Fans, 3=Defrost, 4=Rail heat, 5=Alarm, 6=Light, 8=Compressor/LLSV, 9=Compressor 2, 10=Air heater, 12=Condenser fan, 13=Drain heater, 14=Defrost B
q02	DO2 Configuration	2205	0	0	14	Integer	RW	0		9	0=None, 1=Fans, 3=Defrost, 4=Rail heat, 5=Alarm, 6=Light, 8=Compressor/LLSV, 9=Compressor 2, 10=Air heater, 12=Condenser fan, 13=Drain heater, 14=Defrost B
q03	DO3 Configuration	2206	0	0	14	Integer	RW	0		9	0=None, 1=Fans, 3=Defrost, 4=Rail heat, 5=Alarm, 6=Light, 8=Compressor/LLSV, 9=Compressor 2, 10=Air heater, 12=Condenser fan, 13=Drain heater, 14=Defrost B
q04	DO4 Configuration	2207	0	0	14	Integer	RW	0		9	0=None, 1=Fans, 3=Defrost, 4=Rail heat, 5=Alarm, 6=Light, 8=Compressor/LLSV, 9=Compressor 2, 10=Air heater, 12=Condenser fan, 13=Drain heater, 14=Defrost B

Programming Guide | AK-CC25 Pro, Modbus interface description

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q09	AO1 Configuration	2212	0	0	3	Integer	RW	0		1, 2, 3, 4, 9	0=None, 3=Comp. speed
q12	Compressor 1 - override	2223	0	0	1	Integer	RW	0		*	0=MAN OFF, 1=MAN ON
q13	Fan - override	2224	0	0	1	Integer	RW	0		1, 2, 3, 4, 8, 9	0=MAN OFF, 1=MAN ON
q14	Defrost A - override	2225	0	0	1	Integer	RW	0		*	0=MAN OFF, 1=MAN ON
q15	Rail heat - override	2226	0	0	1	Integer	RW	0		3, 7, 9	0=MAN OFF, 1=MAN ON
q16	Alarm relay - override	2227	0	0	1	Integer	RW	0		1, 5, 9	0=MAN OFF, 1=MAN ON
q17	Light - override	2228	0	0	1	Integer	RW	0		2, 6, 9	0=MAN OFF, 1=MAN ON
q19	Compressor 2 - override	2230	0	0	1	Integer	RW	0		5, 6, 7, 8, 9	0=MAN OFF, 1=MAN ON
q22	Defrost B - override	2233	0	0	1	Integer	RW	0		9	0=MAN OFF, 1=MAN ON
q23	Air heater - override	2234	0	0	1	Integer	RW	0		9	0=MAN OFF, 1=MAN ON
q28	High temperature - Priority	2239	1	0	3	Integer	RW	0		*	0=Disabled, 3=Low, 2=Medium, 1=High
q29	Low temperature - Priority	2240	1	0	3	Integer	RW	0		*	0=Disabled, 3=Low, 2=Medium, 1=High
q30	Sensor errors - Priority	2241	1	0	3	Integer	RW	0		*	0=Disabled, 3=Low, 2=Medium, 1=High
q31	DI alarms - Priority	2242	2	0	3	Integer	RW	0		*	0=Disabled, 3=Low, 2=Medium, 1=High
q32	Defrost - Priority	2243	3	0	3	Integer	RW	0		*	0=Disabled, 3=Low, 2=Medium, 1=High
q33	Miscellaneous - Priority	2244	2	0	3	Integer	RW	0		*	0=Disabled, 3=Low, 2=Medium, 1=High
q35	Control stopped - Priority	2246	3	0	3	Integer	RW	0		*	0=Disabled, 3=Low, 2=Medium, 1=High
q36	Leak detection - Priority	2247	2	0	3	Integer	RW	0		*	0=Disabled, 3=Low, 2=Medium, 1=High
q39	Food temp. sensor	2250	1	1	4	Integer	RW	0		*	1=Thermostat air, 2=Alarm air, 3=S3 Air ON evap., 4=S6 Product temp.
q48	Condenser fan - override	2269	0	0	1	Integer	RW	0		4, 9	0=MAN OFF, 1=MAN ON
q49	Compressor speed - override	2270	0	0	100	Integer	RW	0	%	1, 2, 3, 4, 9	
q52	Drip tray heater override	2082	0	0	1	Integer	RW	0		9	0=MAN OFF, 1=MAN ON
q53	Compressor - Priority	2281	2	0	3	Integer	RW	0		*	0=Disabled, 3=Low, 2=Medium, 1=High
q54	Condenser - Priority	2282	2	0	3	Integer	RW	0		*	0=Disabled, 3=Low, 2=Medium, 1=High
q58	Manage operation mode	3219	0	0	3	Integer	RW	0		*	0=None, 1=Copy to mode 1, 2=Copy to mode 2, 3=Clear modes
q59	Leak alarm action	3221	0	0	3	Integer	RW	0		*	0=None, 1=Comp. OFF, 2=Comp OFF/All fans ON, 3=Shutdown
q60	AI1 Configuration	3222	0	0	15	Integer	RW	0		9	0=None, 3=S3 Air ON evap., 4=S4 Air OFF evap., 5=S5 Evap. temp, 6=S6 Product, 10=S5B Evap. temp, 15=Sc Condenser
q61	AI2 Configuration	3223	0	0	15	Integer	RW	0		9	0=None, 3=S3 Air ON evap., 4=S4 Air OFF evap., 5=S5 Evap. temp, 6=S6 Product, 10=S5B Evap. temp, 15=Sc Condenser
q62	AI3 Configuration	3224	0	0	15	Integer	RW	0		9	0=None, 3=S3 Air ON evap., 4=S4 Air OFF evap., 5=S5 Evap. temp, 6=S6 Product, 10=S5B Evap. temp, 15=Sc Condenser
q63	AI4 Configuration	3225	0	0	15	Integer	RW	0		9	0=None, 3=S3 Air ON evap., 4=S4 Air OFF evap., 5=S5 Evap. temp, 6=S6 Product, 10=S5B Evap. temp, 15=Sc Condenser
q80	Display filter time	3234	0	0	600	Integer	RW	0	s	*	
q81	BLE Access level	3235	0	0	4	Integer	RW	0		*	0=Always access, 1=Level 1, 2=Level 2, 3=Level 3, 4=No access

Programming Guide | AK-CC25 Pro, Modbus interface description

Code	Description	Modbus ADU	Value	Min	Max	Data type	R/W	Decimals	Unit	Appl.	Enum.
Service											
u00	Control state	2007	0	0	55	Integer	R	0		*	0=Normal ctrl., 1=Hold after defrost, 2=Min ON timer, 3=Min OFF timer, 4=Drip off, 10=Main switch OFF, 11=Thermostat cut-out, 12=Frost protection S4, 14=Defrost, 15=Fan delay, 17=Door open, 18=Melt period, 19=Modulating temp. control, 20=Emergency control, 25=Manual control, 29=Case cleaning, 30=Forced cooling, 32=Power-up delay, 33=Air heating, 34=Comp. safety cut-out, 41=High Sc temp., 45=Shut down controller, 50=High S7 Brine inlet, 51=Oil recovery, 52=Temp. pulldown, 53=Comp. Lockout, 54=Leak action, 55=Wrong IO config
u09	S5 Evaporator A	1011	0,0	-200,0	200,0	Float	R	1	°C	*	
u10	DI1 Status	2002	0	0	1	Integer	R	0		*	0=OFF, 1=ON
u11	Defrost time	2508	0	0	900	Integer	R	0	min	*	
u12	S3 Air ON evap.	2530	0,0	-200,0	200,0	Float	R	1	°C	*	
u13	Night condition	2533	0	0	1	Integer	R	0		*	0=OFF, 1=ON
u16	S4 Air OFF evap.	2531	0,0	-200,0	200,0	Float	R	1	°C	*	
u17	Thermostat air temp.	2532	0,0	-200,0	200,0	Float	R	1	°C	*	
u18	Thermostat run time	2539	0	0	999	Integer	R	0	min	*	
u36	S6 Product temp.	2555	0,0	-200,0	200,0	Float	R	1	°C	9	
u37	DI2 Status	2556	0	0	1	Integer	R	0		*	0=OFF, 1=ON
u52	Compressor speed	2685	0	0	100	Integer	R	0	%	1, 2, 3, 4, 9	
u56	Display readout	2576	0,0	-200,0	200,0	Float	R	1	°C	*	
u57	Alarm air temp.	2578	0,0	-200,0	200,0	Float	R	1	°C	*	
u58	Compressor 1	2510	0	0	1	Integer	R	0		*	0=OFF, 1=ON
u59	Fan	2511	0	0	1	Integer	R	0		1, 2, 3, 4, 8, 9	0=OFF, 1=ON
u60	Defrost A	2512	0	0	1	Integer	R	0		*	0=OFF, 1=ON
u61	Rail heat	2579	0	0	1	Integer	R	0		3, 7, 9	0=OFF, 1=ON
u62	Alarm relay	2583	0	0	1	Integer	R	0		1, 5, 9	0=OFF, 1=ON
u63	Light	2584	0	0	1	Integer	R	0		2, 6, 9	0=OFF, 1=ON
u67	Compressor 2	2588	0	0	1	Integer	R	0		5, 6, 7, 8, 9	0=OFF, 1=ON
u75	S5 Evaporator B	2595	0,0	-200,0	200,0	Float	R	1	°C	9	
u81	Drip tray heater	2601	0	0	1	Integer	R	0		9	0=OFF, 1=ON
u83	Defrost B	2603	0	0	1	Integer	R	0		9	0=OFF, 1=ON
u84	Air heater	2605	0	0	1	Integer	R	0		9	0=OFF, 1=ON
u85	Rail heat power	2606	0	0	100	Integer	R	0	%	3, 7, 9	
u90	Thermostat cut-in temp.	2612	4,0	-200,0	200,0	Float	R	1	°C	*	
u91	Thermostat cut-out temp.	2613	2,0	-200,0	200,0	Float	R	1	°C	*	
U09	Sc Condenser temp.	2647	0,0	-200,0	200,0	Float	R	1	°C	4, 9	
U16	Condenser fan	2124	0	0	1	Integer	R	0		4, 9	0=OFF, 1=ON
U45	Network status	2682	0	0	100	Integer	R	0	%	*	
U72	Food temperature	2702	0,0	-200,0	200,0	Float	R	1	°C	*	
U73	Defrost sensor temp. A	2703	0,0	-200,0	200,0	Float	R	1	°C	*	
U93	Defrost sensor temp. B	2763	0,0	-200,0	200,0	Float	R	1	°C	9	
ua1	Operation mode	3217	0	0	2	Integer	R	0		*	0=None, 1=Mode 1, 2=Mode 2

Programming Guide | AK-CC25 Pro, Modbus interface description

Code	Description	Modbus ADU	Value	Min	Max	Data type	R/W	Decimals	Unit	Appl.	Enum.
Other											
X20	Sensor point 1 - Temp.	2353	-35,0	-40,0	60,0	Float	RW	1	°C	*	
X21	Sensor point 1 - kohm	2354	144	0	179	Integer	RW	0		*	
X22	Sensor point 1 - ohm	2355	324,0	0,0	999,9	Float	RW	1	Ohm	*	
X23	Sensor point 2 - Temp.	2356	0,0	-40,0	60,0	Float	RW	1	°C	*	
X24	Sensor point 2 - kohm	2357	27	0	179	Integer	RW	0		*	
X25	Sensor point 2 - ohm	2358	278,0	0,0	999,9	Float	RW	1	Ohm	*	
X26	Sensor point 3 - Temp.	2359	60,0	-40,0	60,0	Float	RW	1	°C	*	
X27	Sensor point 3 - kohm	2360	3	0	179	Integer	RW	0		*	
X28	Sensor point 3 - ohm	2361	20,0	0,0	999,9	Float	RW	1	Ohm	*	
U61	DO1 Function	2691	0	0	91	Integer	R	0		*	0=None, 60=Digital input status, 61=Door function, 62=Door alarm, 63=Defrost start, 64=Main switch, 65=Night setback, 67=Alarm at closed, 68=Alarm at open, 69=Case cleaning, 70=Forced cooling, 72=Coordinated def., 74=Shut down, 75=Light control, 76=Leak detection, 80=Comp. safety 1, 2=Fan, 4=Defrost A, 5=Rail heat, 6=Alarm relay, 7=Light, 9=Compressor 1, 10=Compressor 2, 32=S3 Air ON evap., 33=S4 Air OFF evap., 34=S5 Evaporator A, 91=Compressor speed, 22=Condenser fan, 85=Door fan stop, 45=Sc Condenser temp., 37=S5 Evaporator B, 23=Drip tray heater, 15=Defrost B, 87=Comp. safety 2, 24=Air heater, 88=Temp. pulldown, 89=Operation mode, 35=S6 Product temp.
U62	DO2 Function	2692	0	0	91	Integer	R	0		*	0=None, 60=Digital input status, 61=Door function, 62=Door alarm, 63=Defrost start, 64=Main switch, 65=Night setback, 67=Alarm at closed, 68=Alarm at open, 69=Case cleaning, 70=Forced cooling, 72=Coordinated def., 74=Shut down, 75=Light control, 76=Leak detection, 80=Comp. safety 1, 2=Fan, 4=Defrost A, 5=Rail heat, 6=Alarm relay, 7=Light, 9=Compressor 1, 10=Compressor 2, 32=S3 Air ON evap., 33=S4 Air OFF evap., 34=S5 Evaporator A, 91=Compressor speed, 22=Condenser fan, 85=Door fan stop, 45=Sc Condenser temp., 37=S5 Evaporator B, 23=Drip tray heater, 15=Defrost B, 87=Comp. safety 2, 24=Air heater, 88=Temp. pulldown, 89=Operation mode, 35=S6 Product temp.
U63	DO3 Function	2693	0	0	91	Integer	R	0		*	0=None, 60=Digital input status, 61=Door function, 62=Door alarm, 63=Defrost start, 64=Main switch, 65=Night setback, 67=Alarm at closed, 68=Alarm at open, 69=Case cleaning, 70=Forced cooling, 72=Coordinated def., 74=Shut down, 75=Light control, 76=Leak detection, 80=Comp. safety 1, 2=Fan, 4=Defrost A, 5=Rail heat, 6=Alarm relay, 7=Light, 9=Compressor 1, 10=Compressor 2, 32=S3 Air ON evap., 33=S4 Air OFF evap., 34=S5 Evaporator A, 91=Compressor speed, 22=Condenser fan, 85=Door fan stop, 45=Sc Condenser temp., 37=S5 Evaporator B, 23=Drip tray heater, 15=Defrost B, 87=Comp. safety 2, 24=Air heater, 88=Temp. pulldown, 89=Operation mode, 35=S6 Product temp.

Code	Description	Modbus ADU	Value	Min	Max	Data type	R/W	Decimals	Unit	Appl.	Enum.
U64	DO4 Function	2694	0	0	91	Integer	R	0		*	0=None, 60=Digital input status, 61=Door function, 62=Door alarm, 63=Defrost start, 64=Main switch, 65=Night setback, 67=Alarm at closed, 68=Alarm at open, 69=Case cleaning, 70=Forced cooling, 72=Coordinated def., 74=Shut down, 75=Light control, 76=Leak detection, 80=Comp. safety 1, 2=Fan, 4=Defrost A, 5=Rail heat, 6=Alarm relay, 7=Light, 9=Compressor 1, 10=Compressor 2, 32=S3 Air ON evap., 33=S4 Air OFF evap., 34=S5 Evaporator A, 91=Compressor speed, 22=Condenser fan, 85=Door fan stop, 45=Sc Condenser temp., 37=S5 Evaporator B, 23=Drip tray heater, 15=Defrost B, 87=Comp. safety 2, 24=Air heater, 88=Temp. pulldown, 89=Operation mode, 35=S6 Product temp.
Y55	DI1 Function	2722	0	0	91	Integer	R	0		1, 2, 3, 5, 6, 7, 8, 9	0=None, 60=Digital input status, 61=Door function, 62=Door alarm, 63=Defrost start, 64=Main switch, 65=Night setback, 67=Alarm at closed, 68=Alarm at open, 69=Case cleaning, 70=Forced cooling, 72=Coordinated def., 74=Shut down, 75=Light control, 76=Leak detection, 80=Comp. safety 1, 2=Fan, 4=Defrost A, 5=Rail heat, 6=Alarm relay, 7=Light, 9=Compressor 1, 10=Compressor 2, 32=S3 Air ON evap., 33=S4 Air OFF evap., 34=S5 Evaporator A, 91=Compressor speed, 22=Condenser fan, 85=Door fan stop, 45=Sc Condenser temp., 37=S5 Evaporator B, 23=Drip tray heater, 15=Defrost B, 87=Comp. safety 2, 24=Air heater, 88=Temp. pulldown, 89=Operation mode, 35=S6 Product temp.
Y56	DI2 Function	2723	0	0	91	Integer	R	0		*	0=None, 60=Digital input status, 61=Door function, 62=Door alarm, 63=Defrost start, 64=Main switch, 65=Night setback, 67=Alarm at closed, 68=Alarm at open, 69=Case cleaning, 70=Forced cooling, 72=Coordinated def., 74=Shut down, 75=Light control, 76=Leak detection, 80=Comp. safety 1, 2=Fan, 4=Defrost A, 5=Rail heat, 6=Alarm relay, 7=Light, 9=Compressor 1, 10=Compressor 2, 32=S3 Air ON evap., 33=S4 Air OFF evap., 34=S5 Evaporator A, 91=Compressor speed, 22=Condenser fan, 85=Door fan stop, 45=Sc Condenser temp., 37=S5 Evaporator B, 23=Drip tray heater, 15=Defrost B, 87=Comp. safety 2, 24=Air heater, 88=Temp. pulldown, 89=Operation mode, 35=S6 Product temp.
Y58	AI1 Function	2725	0	0	91	Integer	R	0		*	0=None, 60=Digital input status, 61=Door function, 62=Door alarm, 63=Defrost start, 64=Main switch, 65=Night setback, 67=Alarm at closed, 68=Alarm at open, 69=Case cleaning, 70=Forced cooling, 72=Coordinated def., 74=Shut down, 75=Light control, 76=Leak detection, 80=Comp. safety 1, 2=Fan, 4=Defrost A, 5=Rail heat, 6=Alarm relay, 7=Light, 9=Compressor 1, 10=Compressor 2, 32=S3 Air ON evap., 33=S4 Air OFF evap., 34=S5 Evaporator A, 91=Compressor speed, 22=Condenser fan, 85=Door fan stop, 45=Sc Condenser temp., 37=S5 Evaporator B, 23=Drip tray heater, 15=Defrost B, 87=Comp. safety 2, 24=Air heater, 88=Temp. pulldown, 89=Operation mode, 35=S6 Product temp.

Code	Description	Modbus ADU	Value	Min	Max	Data type	R/W	Decimals	Unit	Appl.	Enum.
Y59	AI2 Function	2726	0	0	91	Integer	R	0		*	0=None, 60=Digital input status, 61=Door function, 62=Door alarm, 63=Defrost start, 64=Main switch, 65=Night setback, 67=Alarm at closed, 68=Alarm at open, 69=Case cleaning, 70=Forced cooling, 72=Coordinated def., 74=Shut down, 75=Light control, 76=Leak detection, 80=Comp. safety 1, 2=Fan, 4=Defrost A, 5=Rail heat, 6=Alarm relay, 7=Light, 9=Compressor 1, 10=Compressor 2, 32=S3 Air ON evap., 33=S4 Air OFF evap., 34=S5 Evaporator A, 91=Compressor speed, 22=Condenser fan, 85=Door fan stop, 45=Sc Condenser temp., 37=S5 Evaporator B, 23=Drip tray heater, 15=Defrost B, 87=Comp. safety 2, 24=Air heater, 88=Temp. pulldown, 89=Operation mode, 35=S6 Product temp.
Y60	AI3 Function	2727	0	0	91	Integer	R	0		*	0=None, 60=Digital input status, 61=Door function, 62=Door alarm, 63=Defrost start, 64=Main switch, 65=Night setback, 67=Alarm at closed, 68=Alarm at open, 69=Case cleaning, 70=Forced cooling, 72=Coordinated def., 74=Shut down, 75=Light control, 76=Leak detection, 80=Comp. safety 1, 2=Fan, 4=Defrost A, 5=Rail heat, 6=Alarm relay, 7=Light, 9=Compressor 1, 10=Compressor 2, 32=S3 Air ON evap., 33=S4 Air OFF evap., 34=S5 Evaporator A, 91=Compressor speed, 22=Condenser fan, 85=Door fan stop, 45=Sc Condenser temp., 37=S5 Evaporator B, 23=Drip tray heater, 15=Defrost B, 87=Comp. safety 2, 24=Air heater, 88=Temp. pulldown, 89=Operation mode, 35=S6 Product temp.
Y61	AI4 Function	2728	0	0	91	Integer	R	0		4, 9	0=None, 60=Digital input status, 61=Door function, 62=Door alarm, 63=Defrost start, 64=Main switch, 65=Night setback, 67=Alarm at closed, 68=Alarm at open, 69=Case cleaning, 70=Forced cooling, 72=Coordinated def., 74=Shut down, 75=Light control, 76=Leak detection, 80=Comp. safety 1, 2=Fan, 4=Defrost A, 5=Rail heat, 6=Alarm relay, 7=Light, 9=Compressor 1, 10=Compressor 2, 32=S3 Air ON evap., 33=S4 Air OFF evap., 34=S5 Evaporator A, 91=Compressor speed, 22=Condenser fan, 85=Door fan stop, 45=Sc Condenser temp., 37=S5 Evaporator B, 23=Drip tray heater, 15=Defrost B, 87=Comp. safety 2, 24=Air heater, 88=Temp. pulldown, 89=Operation mode, 35=S6 Product temp.
U69	AO1 Function	2699	0	0	91	Integer	R	0		1, 2, 3, 4, 9	0=None, 60=Digital input status, 61=Door function, 62=Door alarm, 63=Defrost start, 64=Main switch, 65=Night setback, 67=Alarm at closed, 68=Alarm at open, 69=Case cleaning, 70=Forced cooling, 72=Coordinated def., 74=Shut down, 75=Light control, 76=Leak detection, 80=Comp. safety 1, 2=Fan, 4=Defrost A, 5=Rail heat, 6=Alarm relay, 7=Light, 9=Compressor 1, 10=Compressor 2, 32=S3 Air ON evap., 33=S4 Air OFF evap., 34=S5 Evaporator A, 91=Compressor speed, 22=Condenser fan, 85=Door fan stop, 45=Sc Condenser temp., 37=S5 Evaporator B, 23=Drip tray heater, 15=Defrost B, 87=Comp. safety 2, 24=Air heater, 88=Temp. pulldown, 89=Operation mode, 35=S6 Product temp.



Code	Description	Modbus ADU	Value	Min	Max	Data type	R/W	Decimals	Unit	Appl.	Enum.
x16	Alarm status	2541	0	0	1	Integer	R	0		*	0=OFF, 1=ON
y10	High alarm limit	2766	0,0	-200,0	200,0	Float	R	1	°C	*	
y11	Low alarm limit	2767	0,0	-200,0	200,0	Float	R	1	°C	*	
x15	Reset alarms	2046	0	0	1	Integer	RW	0		*	0=OFF, 1=ON
x09	Start defrost	1013	0	0	1	Integer	RW	0		*	0=OFF, 1=ON
x10	Stop defrost	1060	0	0	1	Integer	RW	0		*	0=OFF, 1=ON
q38	Mute alarm	2249	0	0	1	Integer	RW	0		1, 5, 9	0=OFF, 1=ON

Label	Description	Modbus ADU
Alarms		
E01	Hardware failure	20000
E06	Clock lost time	20001
E25	S3 Air ON evap. A - sensor error	20002
E26	S4 Air OFF evap. A - sensor error	20003
E27	S5 Evaporator A - sensor error	20004
E28	S6 product temp. A - sensor error	20005
E37	S5 Evaporator B - sensor error	20006
E64	Sc Condenser temp. sensor error	20007
A01	High temperature alarm A	20008
A02	Low temperature alarm A	20009
A04	Door open alarm	20010
A05	Max defrost hold time exceeded	20011
A15	DI alarm 1	20012
A16	DI alarm 2	20013
A19	Comp. safety 1	20014
A45	Main switch set OFF	20015
A59	Case in cleaning mode	20016
A61	Cond. high temperature	20017
A80	Cond. block alarm	20018
AA3	Refrigerant leak detected	20019
a04	Wrong IO configuration	20020
Z01	Max defrost time exceeded A	20021
a12	Comp. safety 2	20022
a13	Comp. safety lockout	20023

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