

Programming Guide

# Basic Modbus parameter list

## Optyma™ Plus Controller for condensing unit

SW Ver. 3.10 – 3.70



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**Optyma™ Plus Controller (084B8080 / 084B8180): Read Only and selected Read Write parameter list**

SW Version 3.10 – 3.7x

EKC Display	Parameter text	Comments	PNU	Type	RW / RO	Factory value	Min. value	Max. value	Scale
r12	r12 Main switch	Main switch for the controller (-1, 0, 1)	117	Integer	RW	0	-1	1	
r13	r13 Night Offset	Value added to reference in night	125	integer	RW	2	0	10	
r23	r23 Ts Ref	Suction pressure setpoint	213	float	RW	-7	-30 <sup>1)</sup>	10	1
t17	t17 Day start	Day time start for Day/Night function	1219	Integer	RW	0	0	23	
t18	t18 Night start	Night time start for Day/Night function	1220	Integer	RW	0	0	23	
t07	t07 Clk Hours	utilized by bsw rtc	64045	UINT8	RW	0	0	24	
t08	t08 Clk Minutes	utilized by bsw rtc	64046	UINT8	RW	0	0	59	
r29	r29 Tc Ref	Readout of Tc Reference	140	float	RO	0	-1000	2000	0.1
F07	F07 Fan Speed	Actual Fan speed in %	1508	Integer	RO	0	0	100	1
u01	u01 Pc bar	Measured Condenser pressure (at S1)	134	float	RO	0	-20	2000	0.1
u03	u03 T_Aux	Measured Auliliary temperature S5	108	float	RO	0	-2000	2000	0.1
u10	u10 DI1 status	Actual status for DI 1	2002	Bool	RO	0	0	1	1
u13	u13 NightCond	Readout of Day/Night status	2533	Bool	RO	0	0	1	1
u21	u21 SH	Readout of actual SuperHeat	2536	Float	RO	0	-1000	1000	0.1
u36	u36 S6 temp	Measured Auliliary temperature S6	2555	float	RO	0	-2000	2000	0.1
u37	u37 DI2 status	Actual status for DI 2	2556	Bool	RO	0	0	1	1
u52	u52 CompCap %	Readout of Compressor capacity	2685	integer	RO	0	0	100	1
u87	u87 DI3 status	Actual status for DI 3	2608	Bool	RO	0	0	1	1
U22	U22 Tc	Converted Condenser temperature	2659	float	RO	0	-2000	2000	0.1
U23	U23 Ps	Measured Suction pressure (at S6)	2660	float	RO	-	-2000	2000	0.1
U24	U24 Ts	Converted Suction temperature	2661	float	RO	0	-2000	2000	0.1
U25	U25 T_Ambient	Measured Ambient temperature S2	2662	float	RO	0	-2000	2000	0.1
U26	U26 T_Discharge	Measured Discharge temperature S3	2663	float	RO	0	-2000	2000	0.1
U27	U27 T_Suction	Measured Suction temperature S4	2664	float	RO	0	-2000	2000	0.1
---	Ctrl. State	Remote readout of control state	2007	int	RO	0	0	100	1
---	Ctrl. Error	utilized by bsw alfunc	2541	bool	RO	0	0	1	1

<sup>1)</sup> Min. value of r23 changed from -25 to -30°C with SW Ver. 3.70

EKC Display	Parameter text	Comments	PNU	Type	RW / RO	Factory value	Min. value	Max. value	Scale
<b>Alarms</b>									
E1	--- Ctrl Error	Internal controller error	20000	boolean	RO	0	0	1	1
E20	--- Pc Sensor Err	Pc transducer error	20001	boolean	RO	0	0	1	1
E39	--- Ps Sensor Err	Ps transducer error	20002	boolean	RO	0	0	1	1
E31	--- TAmb Sensor Err	T_Ambient sensor error	20003	boolean	RO	0	0	1	1
E32	--- TDis Sensor Err	T_Discharge sensor error	20004	boolean	RO	0	0	1	1
E33	--- TSuc Sensor Err	T_Suction sensor error	20005	boolean	RO	0	0	1	1
E30	--- TAux Sensor Err	T_Auxiliary sensor error	20006	boolean	RO	0	0	1	1
A2	--- LP Alarm	Low suction pressure alarm	20007	boolean	RO	0	0	1	1
A11	--- No Rfg. sel	Refrigerant not selected	20008	boolean	RO	0	0	1	1
A96	--- Max Disc.Temp	Max Discharge Alarm	20009	boolean	RO	0	0	1	1
A16	--- DI2 Alarm	Alarm on DI2	20010	boolean	RO	0	0	1	1
A17	--- HP Alarm	High Pressure Alarm	20011	boolean	RO	0	0	1	1
A97	--- Safety Alarm	Safety input has stopped comp	20012	boolean	RO	0	0	1	1
A45	--- Standby mode	Main switch Off	20013	boolean	RO	0	0	1	1
A80	--- Cond.Blocked	Condenser air flow blocked	20014	boolean	RO	0	0	1	1
A98	--- Drive Alarm	Alarm from VSD when speed comp mode	20015	boolean	RO	0	0	1	1

### MODBUS implementation

The implementation is MODBUS compliant.

The format of the single byte is:

1 start bit, 8 data bits, even parity, 1 stop bit.

The baud rates are 9600 baud, 19200 baud (default), 38400 baud, with auto baud detection.

If baud rate is wrong the master must send at least 3 messages before the device has changed to the right baud rate.

### Broadcasts

The EKC implementation in general accepts and supports MODBUS broadcast message (unit address = 0), but as broadcasts never are responded to by the slaves, it makes no sense to issue commands/functions requesting/requiring data from the EKC.

Commands/function where broadcast makes sense is

- write EKC parameter (0x06)
- write EKC RTC clock (0x15)

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