SOFTWARE FAMILY: 93

SOFTWARE RELEASE: 0.1

PARAMETERS DESCRIPTOR(EZ): 0.1

Revision:
0.1 2024/03/26

COMUNICATION INFO:

CRC calculation: standard modbus RTU CRC

Baudrate	9600
Data Lenght	8
Parity	none
Stop bit	1
Minimum TimeOut	60ms

DEVICE ID:

Reading function code: 0x 03

	HEX	HEX	HEX	HEX							
Name	**Reading Registers**	**Num. of Elements to Read**	**Mask**	**Value**	**Gain**	**Dec**	**Offset**	**Unit**	**Byte ORDER**	**Format**	**R/W**
Family Code	0000	0001	FF00	FF00	1	0	0	--	H-L	16 bit Unsigned	R
FW release	0000	0001	00FF	00FF	1	0	0	--	H-L	16 bit Unsigned	R
Device code	0001	0002	\	\	1	0	0	--	HH-LL	32 bit Unsigned	R
Serial number	0003	0002	\	\	1	0	0	--	HH-LL	32 bit Unsigned	R
FW release date	0005	0001	\	\	1	0	0	--	H-L	16 bit Unsigned	R
Eeprom serial number	0006	0001	00FF	00FF	1	0	0	--	H-L	16 bit Unsigned	R
FW Subversion	0007	0001	00FF	00FF	1	0	0	--	H-L	16 bit Unsigned	R
Modbus Version	0008	0001	\	\	1	0	0	--	H-L	16 bit Unsigned	R

ANALOG INPUTS

Reading function code: 0x 03

The data received must be added to "Offset" and then multiplied by "Gain".
The result can have "Dec" decimal digit

Example:

sent	ADDR+FUNCTION CODE + 01000001+CRC		
received	ADDR+030202B9+CRC		
	where		
	0x02B9 = 697(dec)	(697 + 0)* 0.1 = 69.7 °C	Probe 1
sent	ADDR+FUNCTION CODE + 01010001+CRC		
received	ADDR+03020222+CRC		
	where		
	0x0222 = 546(dec)	(546 + 0)* 0.1 = 54.6 °C	Probe 2

		HEX	HEX	HEX	HEX	Format					
Name	**Unit**	**Reading Registers**	**um. of Elements to Rea**	**Writing Registers**	**Num. of Elements to Write**	**Gain**	**Dec**	**Offset**	**Byte ORDER**	**Format**	**R/W**
Probe 1	par "CF"	010C	0001	\	\	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R
Probe 2	par "CF"	010D	0001	\	\	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R
Probe 3	par "CF"	010E	0001	\	\	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R
Probe 4	par "CF"	010F	0001	\	\	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R
Regulation probe	par "CF"	0100	0001	\	\	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R
Displayed probe	par "CF"	0101	0001	\	\	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R
Defrost 1 probe	par "CF"	0102	0001	\	\	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R
Defrost 2 probe	par "CF"	0103	0001	\	\	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R
Evaporator Fans probe	par "CF"	0104	0001	\	\	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R
Condenser Fans probe	par "CF"	0105	0001	\	\	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R
Temperature alarm 1 probe	par "CF"	0106	0001	\	\	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R
Temperature alarm 2 probe	par "CF"	0107	0001	\	\	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R
Aux regulator probe	par "CF"	0108	0001	\	\	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R
Dynamic setpoint control probe	par "CF"	0109	0001	\	\	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R
Minimum measured temperature	par "CF"	010A	0001	\	\	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R
Maximum measured temperature	par "CF"	010B	0001	\	\	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R
AO1: Air extraction Fan speed	%	0609	0001	0609	0001	1	0	0	H-L	16 bit Unsigned	R/W
AO2: Air extraction Fan speed	%	060A	0001	060A	0001	1	0	0	H-L	16 bit Unsigned	R/W
AO1: Light dimming Value	%	060B	0001	060B	0001	1	0	0	H-L	16 bit Unsigned	R/W
AO2: Light dimming value	%	060C	0001	060C	0001	1	0	0	H-L	16 bit Unsigned	R/W
AO1: Function 'vAL' output	%	060D	0001	060D	0001	1	0	0	H-L	16 bit Unsigned	R/W
AO2: Function 'vAL' output	%	060E	0001	060E	0001	1	0	0	H-L	16 bit Unsigned	R/W

SET POINT

Reading function code: 0x 03
Writing function code: 0x 10

The data received must be added to "Offset" and then multiplied by "Gain".
The result can have "Dec" decimal digit

Example:

sent	ADDR+03035F0001+CRC		
received	ADDR+030202A6+CRC		
	where		
	0x02A6 = 678(dec)	(678 + 0)* 0.1 = 67.8 °C	SetPoint reading value
sent	ADDR+10035F0001+02+01E7+CRC		
received	ADDR+10035F0001+CRC		
	where		
	0x01E7 = 487(dec)	(487 + 0)* 0.1 = 48.7 °C	SetPoint written value

		HEX	HEX	HEX	HEX	Format					
Name	**Unit**	**Reading Registers**	**um. of Elements to Rea**	**Writing Registers**	**Num. of Elements to Write**	**Gain**	**Dec**	**Offset**	**Byte ORDER**	**Format**	**R/W**
Real Regulation SetPoint	par "CF"	0600	0001	/	0001	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R
Temperature SetPoint	par "CF"	0601	0001	0601	0001	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R/W
High Temperature 1 SetPoint	par "CF"	0602	0001	0602	0001	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R/W
Low Temperature 1 SetPoint	par "CF"	0603	0001	0603	0001	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R/W
High Temperature 2 SetPoint	par "CF"	0604	0001	0604	0001	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R/W
High Temperature 2 SetPoint	par "CF"	0605	0001	0605	0001	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R/W
Auxiliary regulator setpoint	par "CF"	0606	0001	0606	0001	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R/W
Evaporator fan setpoint	par "CF"	0607	0001	0607	0001	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R/W
Condenser fan setpoint	par "CF"	0608	0001	0608	0001	par "rES=dE"-->0,1/ par "rES=in"-->1	1	0	H-L	16 bit Signed	R/W

DEVICE STATUS

Reading function code: 0x 01

Value interpretation:

ON = 0x 0001
OFF= 0x 0000

	HEX	HEX									
Name	**Reading Registers**	**Num. of Elements to Read**									**R/W**
Device: ON, OFF	0200	0001									R
Defrost	0201	0001									R
Pull Down	0202	0001									R
Energy Saving	0203	0001									R
Temperature resolution	0204	0001									R
Buzzer Status	0218	0001									R
Holiday Mode	0258	0001									R
Light output	020E	0001									R
Auxiliary output	0215	0001									R
Humidity Fan Status	0259	0001									R
Real Time Clock available	0230	0001									R
Sanitization Status	0216	0001									R
Air Extraction Fan Status	0212	0001									R
Active Parameter Map	025A	0001									R

DIGITAL OUTPUT/INPUT

Reading function code: 0x 01

Value interpretation:
ON = 0x 0001
OFF= 0x 0000

	HEX	HEX									
Name	**Reading Registers**	**Num. of Elements to Read**									**R/W**
Compressor output 1	0205	0001									R
Defrost output 1	0209	0001									R
Compressor output 2	0206	0001									R
Defrost output 2	020A	0001									R
Solenoid Output 1	0207	0001									R
Evaporator fan output	020F	0001									R
Evaporator fan output 2	0210	0001									R
Alarm output	020C	0001									R
Locked Man Alarm Output	020D	0001									R
Dead band output	0213	0001									R
ONOFF output	020B	0001									R
Energy saving output	0217	0001									R
Condenser fan output	0211	0001									R
Heaters Elements output	0214	0001									R
Inverter output	0208	0001									R
Digital input 1 status	0219	0002									R
Digital input 2 status	021A	0003									R
Door input	021B	0001									R
Defrost activation input	021D	0001									R
Auxiliary output input	021E	0001									R
Energy saving input	021F	0001									R
Warning input	0225	0001									R
Lockout input	0226	0001									R
PAL Alarm input	0227	0001									R
Humidity fan input	0220	0001									R
Holiday mode input	0221	0001									R
ONOFF input	0222	0001									R
Light input	0223	0001									R
Motion sensor input	021C	0001									R
Parameter map change input	0224	0001									R
Sanification activation input	022C	0001									R
Low Pressure Switch input	0228	0001									R
Cell Cleaning mode input	0229	0001									R
Gas Loss Warning input	022A	0001									R
Stop-Cooling input	022B	0001									R
Trapped Man Alarm input	022D	0001									R
Air Extraction Fan input	022E	0001									R
Pull Down input	022F	0001									R

CLOCK

Reading function code: 0x 03

Value interpretation:

	HEX	HEX	HEX	HEX							
Name	**Reading Registers**	**Num. of Elements to Read**	**Mask**	**Value**	**Gain**	**Dec**	**Offset**	**Unit**	**Byte ORDER**	**Format**	**R/W**
Seconds	0B00	0001	00FF	00FF	1	0	0	Seconds	H-L	16 bit Unsigned	R/W
Minutes	0B01	0001	00FF	00FF	1	0	0	Minutes	H-L	16 bit Unsigned	R/W
Hours	0B02	0001	00FF	00FF	1	0	0	Hours	H-L	16 bit Unsigned	R/W
Week Day	0B03	0001	00FF	00FF	1	0	0	Days	H-L	16 bit Unsigned	R/W
Day	0B04	0001	00FF	00FF	1	0	0	Days	H-L	16 bit Unsigned	R/W
Month	0B05	0001	00FF	00FF	1	0	0	Months	H-L	16 bit Unsigned	R/W
Year	0B06	0001	-	-	1	0	0	Years	H-L	16 bit Unsigned	R/W

ALARMS

Reading function code: 0x 01

Value interpretation:
ON = 0x 0001
OFF= 0x 0000

	HEX	HEX									
Name	**Reading Registers**	**Num. of Elements to Read**									**R/W**
Probe P1 alarm	023D	0001									R
Probe P2 alarm	023E	0001									R
Probe P3 alarm	023F	0001									R
Probe P4 alarm	0240	0001									R
High temperature alarm HA	0231	0001									R
Low temperature alarm LA	0232	0001									R
Condenser high temperature warning HP2	0233	0001									R
Condenser high temperature alarm HA2	0234	0001									R
Condenser low temperature alarm LA2	0235	0001									R
External warning event EAL	0236	0001									R
External lockout Event BAL	0237	0001									R
Pressure switch lockout PAL	0238	0001									R
Door open alarm	0239	0001									R
EEPROM failure alarm	023C	0001									R
RTC alarm	023A	0001									R
RTF alarm	023B	0001									R
Clock Battery Alarm (bAt)	0241	0002									R
Anti-Freeze Alarm (SAF)	0242	0003									R
Trapped Man Alarm (tPA)	0243	0004									R
Trapped Man Sensor Alarm (tME)	0244	0005									R

Pump-down Cycle Alarm (Pdt)	0245	0006									R
Low Pressure Switch Failure Alarm (PdA)	0246	0007									R
Cell Cleaning Mode (CLt)	0247	0008									R
Gas Sensor Alarm (GAS)	0248	0009									R
Gas Sensor Calibration Alarm (GAC)	0249	0010									R
Low Gas Sensor Alarm (GAL)	024A	0011									R
High Gas Sensor Alarm (GAH)	024B	0012									R
Gas Sensor Failure Alarm (GAF)	024C	0013									R
Gas Sensor Saturation Alarm (GSS)	024D	0014									R
Evaporator fan maintenance alarm	024E	0001									R
Condenser fan maintenance alarm	025F	0001									R

COMMANDS

Writing function code: 0x 05
Example command : ADR + 05 + REG ADR + DATA VALUE + CRC
ADR + 05 + 0200 + FF00 + CRC means DEVICE ON

Value interpretation:
ON = 0x FF00
OFF= 0x 0000

	HEX	HEX	HEX								
Name	***Register***	***Value***	***Modbus Command***								***R/W***
Device: ON	0200	FF00	0200FF00								W
Device: OFF	0200	0000	02000000								W
Defrost Request	0201	FF00	0201FF00								W
Pull Down Activation	0202	FF00	0202FF00								W
Energy Saving ON	0203	FF00	0203FF00								W
Energy Saving OFF	0203	0000	02030000								W
Holiday Mode ON	0258	FF00	0258FF00								W
Holiday Mode OFF	0258	0000	02580000								W
Light output ON	020E	FF00	020EFF00								W
Light output OFF	020E	0000	020E0000								W
Auxiliary output ON	0215	FF00	0215FF00								W
Auxiliary output OFF	0215	0000	02150000								W
Sanitization ON	0216	FF00	0216FF00								W
Sanitization OFF	0216	0000	02160000								W
Air Extraction ON	0212	FF00	0212FF00								W
Air Extraction OFF	0212	0000	02120000								W
Humidity Fan ON	0259	FF00	0259FF00								W
Humidity Fan OFF	0259	0000	02590000								W
Alarm Muting	0250	0000	02500000								W
Evaporator fan maintenance alarm reset	0251	FF00	0251FF00								W
Condenser fan maintenance alarm reset	0252	FF00	0252FF00								W
Reset Device	025B	FF00	025BFF00								W
Reset Recorded Temperatures	0255	FF00	0255FF00								W
Parameter Map 1	025A	0000	025A0000								W
Parameter Map 2	025A	FF00	025AFF00								W
Reset Pdt Alarm	0253	FF00	0253FF00								W
Reset PdA Alarm	0254	FF00	0254FF00								W
Reset Total Counters	0256	FF00	0256FF00								W
Reset Daily Counters	0257	FF00	0257FF00								W