MODBUS/JBUS IMPLEMENTATION TABLE

Applied to the following products:

PSK214

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1 INTRODUCTION

This document describes the device resources accessable via serial port.
The protocol is MODBUS RTU/JBUS

2 LIST OF DEVICES

This document applys to :

Device Name/Family	Notes
PSK214	

3 ADDRESSING CONVENTIONS

Please note that according to MODBUS specs:

- the first register is called register 1
- register x is coded as phisical address x-1

According to JBUS:

- the first register is called register 0
- register x is coded as phisical address x

The JBUS convention has been used in this document, addresses are shown in hexadecimal with the leading symbol $.

Data exchange example:
Example 1

Reading Holding Register at address $0601 (the set point value). Note that according to MODBUS that is register 1538, while according to JBUS that is register 1537.

	Slave Address	Function Code	High Starting Address	Low Starting Address	High Quantity of Register	Low Quantity of Register	Low CRC	High CRC
TX	$F7	$03	$06	$01	$00	$01	$C1	$D4

	Slave Address	Function Code	Byte Count	High Register value	Low Register value	Low CRC	High CRC	
RX	$F7	$03	$02	$00	$0A	$F0	$56	

the value is 1.0 (because Setpoint is represented in fixed point with 1 decimal digit)

Example 2
Reading Holding Register at address $FF08, representing the FW.ID field (FirmWare IDentifier)

	Slave Address	Function Code	High Starting Address	Low Starting Address	High Quantity of Register	Low Quantity of Register	Low CRC	High CRC
TX	$F7	$03	$FF	$08	$00	$01	$21	$4A

	Slave Address	Function Code	Byte Count	High Register value	Low Register value	Low CRC	High CRC	
RX	$F7	$03	$02	$01	$52	$F0	$3C	

The value is $0152 = 338

IMPLEMENTED COMMANDS

COMMAND	Function Code	NOTES
READ HOLDING REGISTERS	$03	Maximum 20 registers at once
WRITE SINGLE REGISTER	$06	
WRITE MULTIPLE HR	$10	Maximum 20 registers at once

4 WRITE MULTIPLE HOLDING REGISTER EXAMPLE

Example 1
Writing two Holding Registers starting at address $0603 (parameters CA1 and CA2) with values 10 and 15.

	Slave Address	Function Code	High Starting Address	Low Starting Address	High Num HR	Low Num HR	Byte cnt	Data1 High	Data1 Low	Data2 High	Data2 Low	CRC High	CRC High
Tx	$F7	$10	$06	$03	$00	$02	$04	$00	$0A	$00	$0F	$E5	$97

	Slave Address	Function Code	High Starting Address	Low Starting Address	High Num HR	Low Num HR	CRC High	CRC High
Rx	$F7	$10	$06	$03	$00	$02	$A5	$D6

HOLDING REGISTER ADRESSES TABLE

Description			Index	Access	Notes
HACCP ALARMS COMMAND					
Clear historian			$0465	W	Write 1 to clear HACCP list
Clear new alarm flag			$0490	W	write 1 to clear the flag
HACCP RECORD					
Start year (7 bit)	Start month (4bit)	Start day (5bit)	$0501	R	Record HACCP[0]
			$0502	R	
	Start hour (5 bit)	Start minute (6 bit)	$0503	R	
kind of alarm (3 bit)	hour duration (7 bit)	minutes duration (6 bit)	$0504	R	
TEMPERATURE (16 bit)					
Start year (7 bit)	Start month (4bit)	Start day (5bit)	$0505	R	Record HACCP[1]
			$0506	R	
	Start hour (5 bit)	Start minute (6 bit)	$0507	R	
kind of alarm (3 bit)	hour duration (7 bit)	minutes duration (6 bit)	$0508	R	
TEMPERATURE (16 bit)					
Start year (7 bit)	Start month (4bit)	Start day (5bit)	$0509	R	Record HACCP[2]
			$050A	R	
	Start hour (5 bit)	Start minute (6 bit)	$050B	R	
kind of alarm (3 bit)	hour duration (7 bit)	minutes duration (6 bit)	$050C	R	
TEMPERATURE (16 bit)					
Start year (7 bit)	Start month (4bit)	Start day (5bit)	$050D	R	Record HACCP[3]
			$050E	R	
	Start hour (5 bit)	Start minute (6 bit)	$050F	R	
kind of alarm (3 bit)	hour duration (7 bit)	minutes duration (6 bit)	$0510	R	
TEMPERATURE (16 bit)					
Start year (7 bit)	Start month (4bit)	Start day (5bit)	$0511	R	Record HACCP[4]
			$0512	R	
	Start hour (5 bit)	Start minute (6 bit)	$0513	R	
kind of alarm (3 bit)	hour duration (7 bit)	minutes duration (6 bit)	$0514	R	
TEMPERATURE (16 bit)					
Start year (7 bit)	Start month (4bit)	Start day (5bit)	$0515	R	Record HACCP[5]
			$0516	R	
			$0517	R	

		Start hour (5 bit)	Start minute (6 bit)	$0518	R	
	kind of alarm (3 bit)	hour duration (7 bit)	minutes duration (6 bit)			
	TEMPERATURE (16 bit)					
	Start year (7 bit)	Start month (4bit)	Start day (5bit)	$0519	R	Record HACCP[6]
				$051A	R	
				$051B	R	
		Start hour (5 bit)	Start minute (6 bit)	$051C	R	
	kind of alarm (3 bit)	hour duration (7 bit)	minutes duration (6 bit)			
	TEMPERATURE (16 bit)					
	Start year (7 bit)	Start month (4bit)	Start day (5bit)	$051D	R	Record HACCP[7]
				$051E	R	
				$051F	R	
		Start hour (5 bit)	Start minute (6 bit)	$0520	R	
	kind of alarm (3 bit)	hour duration (7 bit)	minutes duration (6 bit)			
	TEMPERATURE (16 bit)					
	Start year (7 bit)	Start month (4bit)	Start day (5bit)	$0521	R	Record HACCP[8]
				$0522	R	
				$0523	R	
		Start hour (5 bit)	Start minute (6 bit)	$0524	R	
	kind of alarm (3 bit)	hour duration (7 bit)	minutes duration (6 bit)	$0526	R	
				$0527	R	
	TEMPERATURE (16 bit)			$0528	R	
COMPRESSOR DATA						
	Compressor working hours			$2896	R	
	Clear memo compressor hours			$0470	W	1 = Clear
APPLICATION COMMANDS						
	Buzzer control			$0402	W	0 = mute 1 = reserved 2 = mute until reset 3 = restore buzzer for alarm segnalation
	Defrost control			$28B0	W	$0C stop defrost $0D start defrost
	Start Resistors command			$0475	W	writing 1, resistors will be activated for u6 minutes.
STATUS READ/WRITE						
	Status On/stand by			$0501	R/W	
	Status Light			$0502	R/W	
	Status Auxiliary output			$0503	R/W	
	next defrost counter (countdown)			$2886	R	Quarters of minute
PACKED STATUS						

	digital input-output status	$0551		Bit0 = door switch input Bit1= multipurpose input Bit8 = compressor Bit9 = output defrost Bit10 = Fans Bit11 = output K4
	PROBES			
	Cabinet probe (Probe 1)	$0552	R	1 decimal digit
	Evaporator probe (Probe 2)	$0553	R	1 decimal digit
	Aux probe (Probe 3)	$0554	R	1 decimal digit
	ALARMS			
	Alarm status ([2])	$0555	R	
	REGULATORS			
	Regulator flag 1	$0556	R	bit8: energy saving bit9: energy saving in real time bit10: service request
	Regulator flag 2	$0557	R	Bit1: On- stand-by (1=On) bit7: new alarm to read bit8…bit10: defrost status; 0 = no defrost active; 1 = defrost running; 2 = dripping; 3 = fans stop;
	Active set point	$0558	R	when energy saving is active, the active set point is the sum of SP and parameter r4
	Time remaining to next defrost	$0559	R	Quarters of minute
	Current defrost counter	$055A	R	Seconds
	Compressor delay	$055B	R	Seconds
	Number of HACCP alarm in historial	$055C	R	(max 9 alarms stored)
DIGITAL OUTPUT FLAGS				
	Energy saving	$ 28C1	R	Msk: $0100
	Service request			msk: $0200
	Resistors activated by AUX key status			msk: $0001
	Evaporator valve state			msk: $0002
	Output defrost state			msk: $0004
	Output lux state			msk: $0008
	Output aux state			msk: $0010
	Resistors state (activated by cabinet probe)			msk: $0020
	Output alarm state			msk: $0040
	Second compressor state			msk: $0080

Description		Index	Access	Notes
PARAMETERS				
	SP (set point)	$0601	R/W	Also available at $0081
	reserved	$0602	R/W	Never write
	CA1	$0603	R/W	
	CA2	$0604	R/W	
	CA3	$0605	R/W	
	P0	$0606	R/W	
	P1	$0607	R/W	
	P2	$0608	R/W	
	P3	$0609	R/W	
	P4	$060A	R/W	
	P5	$060B	R/W	
	P6	$060C	R/W	
	-- reserved --	$060D	R/W	
	r0	$060E	R/W	
	r1	$060F	R/W	
	r2	$0610	R/W	
	r3	$0611	R/W	
	r4	$0612	R/W	
	C0	$0613	R/W	
	C1	$0614	R/W	
	C2	$0615	R/W	
	C3	$0616	R/W	
	C4	$0617	R/W	
	C5	$0618	R/W	
	C6	$0619	R/W	
	C7	$061A	R/W	
	C8	$061B	R/W	
	C9	$061C	R/W	
	C10	$061D	R/W	
	d0	$061E	R/W	
	d1	$061F	R/W	
	d2	$0620	R/W	
	d3	$0621	R/W	
	d4	$0622	R/W	
	d5	$0623	R/W	
	d6	$0624	R/W	
	d7	$0625	R/W	
	d8	$0626	R/W	
	d9	$0627	R/W	
	dA	$0628	R/W	
	A0	$0629	R/W	
	A1	$062A	R/W	
	A2	$062B	R/W	
	A3	$062C	R/W	
	A4	$062D	R/W	
	A5	$062E	R/W	

	A6	$062F	R/W	
	A7	$0630	R/W	
	A8	$0631	R/W	
	A9	$0632	R/W	
	AA	$0633	R/W	
	F0	$0634	R/W	
	F1	$0635	R/W	
	F2	$0636	R/W	
	F3	$0637	R/W	
	I0	$0638	R/W	
	I1	$0639	R/W	
	I2	$063A	R/W	
	I3	$063B	R/W	
	I4	$063C	R/W	
	I5	$063D	R/W	
	I6	$063E	R/W	
	I7	$063F	R/W	
	I8	$0640	R/W	
	I9	$0641	R/W	
	u1	$0642	R/W	
	u2	$0643	R/W	
	u3	$0644	R/W	
	u4	$0645	R/W	
	u5	$0646	R/W	
	u6	$0647	R/W	
	u7	$0648	R/W	
	u8	$0649	R/W	
	HE1	$064A	R/W	
	HE2	$064B	R/W	
	Hd1	$064C	R/W	
	Hd2	$064D	R/W	
	Hd3	$064E	R/W	
	Hd4	$064F	R/W	
	Hd5	$0650	R/W	
	Hd6	$0651	R/W	
	LA (address)	$0652	R/W	
	LB (Baud Rate)	$0653	R/W	
	LP (parity)	$0654	R/W	
	Kbd lock	$0655	R/W	1= keyboard locked
	-- reserved --	$0656	R/W	Never write. Must be 1
INFO				
	Driver Identifier A: same as $FF08 (338)	$ff02	R	
	Driver Identifier B	$ff03	R	
	Firmware ID	$ff08	R	
	Firmware Variation/revision	$ff09	R	

([2])
ALARMS 1: at address 0x0301 :

Alarms	**Mask value**	
Pr1	0x0100	Probe 1 failure
Pr2	0x0200	Probe 2 failure
Pr3	0x0400	Probe 3 failure
	0x0800	Reserved
AL	0x1000	Minimum temperature
AH	0x2000	Maximum temperature
CSd	0x4000	Condenser temperature Failure
COH	0x8000	Condenser pre alarm
	0x0001	Reserved
	0x0002	Reserved
ID	0x0004	Door alarm
IA	0x0008	Multipurpose input alarm
ISD	0x0010	Compressor blocked
PF	0x0020	power failure
	0x0040	Reserved
RTC	0x0080	RTC error