ModBus data items of VAMP 230/245/255

Software version: 5.5
(dbitem\mb_data.db,v 7.9, inc\mb_arra.h, v 7.10)

Access codes:
R = Read
W = Write
C = Clear

Table 1.ModBus data items in RTU slave mode.

Name	***Default scaling Device = ModBus***	***Setting for scaling***	***Register***	***Access***	***NOTE***
Alive indicator	1 = 1	-	402001	R -	
Digital inputs	1 = 1	-	402007	R -	
DIs after DI16 for ModBus	1 = 1	-	402008	R -	
Phase current IL1	1 A = 1	-	402009	R -	
Phase current IL2	1 A = 1	-	402010	R -	
Phase current IL3	1 A = 1	-	402011	R -	
Io residual current	1.00 A = 100	-	402012	R -	
Io2 residual current	1.000 A = 1000	-	402013	R -	
Line voltage U12	1000 V = 1000	Voltage scaling	402014	R -	
Line voltage U23	1000 V = 1000	Voltage scaling	402015	R -	
Line voltage U31	1000 V = 1000	Voltage scaling	402016	R -	
Phase voltage UL1	1000 V = 1000	Voltage scaling	402017	R -	
Phase voltage UL2	1000 V = 1000	Voltage scaling	402018	R -	
Phase voltage UL3	1000 V = 1000	Voltage scaling	402019	R -	
Residual voltage	1.0 % = 10	-	402020	R -	

VAMP Ltd
P.O. Box 5, (Runsorintie 7)
FIN-65381 VAASA
FINLAND

Tel. +358 6 212 1100
Fax. +358 6 212 1105
Internet: www.vamp.fi
email: vamp@vamp.fi
Account No: 800016-70355743
SWIFT: PSBFIHH

Bank: Nordea Bank Finland Plc
Account No: 152830-101787
SWIFT: NDEAFIHH
Sampo Bank Plc

VAT No: FI09848948
Business ID: 0984894-8
Trade reg. No: 618.170
Domicile: VAASA

Name	Default scaling Device = ModBus	Setting for scaling	Register	Access	NOTE
Frequency	50.00 Hz = 5000	Frequency scaling	402021	R -	
Active power	1000 kW = 1000	Power scaling	402022	R -	
Reactive power	1000 kvar = 1000	Power scaling	402023	R -	
Apparent power	1000 kVA = 1000	Power scaling	402024	R -	
Power factor	1.00 = 100	PF and cos scaling	402025	R -	
Energy Eexp	1 = 1	-	402026	R -	
Eexp/10^4	10^4 = 1	-	402027	R -	
Eexp/10^8	10^8 = 1	-	402028	R -	
Energy EqExp	1 = 1	-	402029	R -	
EqExp/10^4	10^4 = 1	-	402030	R -	
EqExp/10^8	10^8 = 1	-	402031	R -	
Energy Eimp	1 = 1	-	402032	R -	
Eimp/10^4	10^4 = 1	-	402033	R -	
Eimp/10^8	10^8 = 1	-	402034	R -	
Energy EqImp	1 = 1	-	402035	R -	
EqImp/10^4	10^4 = 1	-	402036	R -	
EqImp/10^8	10^8 = 1	-	402037	R -	
Tan phii	1.000 = 1000	Tan phii scaling	402038	R -	
Phase current IL	1 A = 1	-	402039	R -	
Average line voltage	1000 V = 1000	Voltage scaling	402040	R -	
Average phase voltage	1000 V = 1000	Voltage scaling	402041	R -	
Obj1 state	Open=0,Close=1, Undef=2	-	402042	R -	
Obj2 state	Open=0,Close=1, Undef=2	-	402043	R -	
Obj3 state	Open=0,Close=1, Undef=2	-	402044	R -	
Obj4 state	Open=0,Close=1, Undef=2	-	402045	R -	
Obj5 state	Open=0,Close=1, Undef=2	-	402046	R -	

Name	Default scaling Device = ModBus	Setting for scaling	Register	Access	NOTE
Obj6 state	Open=0,Close=1, Undef=2	-	402047	R -	
Remote/Local State	REMOTE=0,LOCAL=1	-	402048	R W	
Output relays	1 = 1	-	402049	R -	
Events	1 = 1	-	402101...402105	R -	
Event code		-	402101		Event codes doc.
Event time stamp bits 15-6 = milliseconds bits 5-0 = seconds		-	402102		
Event time stamp upper byte = minute lower byte = hour		-	402103		
Event time stamp upper byte = day lower byte = month		-	402104		
Event time stamp, year		-	402105		
Fault current	1.00 xImot = 100	-	402111	R -	
Fault current	1.00 xImot = 100	-	402112	R -	
Fault current	1.00 xImot = 100	-	402113	R -	
Fault reactance	1.00 ohm = 100	-	402115	R -	
HARMONICS of IL1	1 % = 1	-	402201...402216	R -	
HARMONICS of IL2	1 % = 1	-	402221...402236	R -	
HARMONICS of IL3	1 % = 1	-	402241...402256	R -	
HARMONICS of Ua	1 % = 1	-	402301...402316	R -	
HARMONICS of Ub	1 % = 1	-	402321...402336	R -	
HARMONICS of Uc	1 % = 1	-	402341...402356	R -	
Reread event	1 = 1	-	402490...402494	R -	
Release latches	Release=1	-	402501	R W	
Synchronize minutes	1 = 1	-	402502	R W	

Name	Default scaling Device = ModBus	Setting for scaling	Register	Access	NOTE
Set RTC	1 = 1	-	402504...402507	- W	
Open select Obj1	1 = 1	-	402508	R W	
Close select Obj1	1 = 1	-	402509	R W	
Execute operation Obj1	1 = 1	-	402510	- W	
Max ctrl pulse length of Obj1	1.00 s = 100	-	402511	R W	
Open select Obj2	1 = 1	-	402512	R W	
Close select Obj2	1 = 1	-	402513	R W	
Execute operation Obj2	1 = 1	-	402514	- W	
Max ctrl pulse length of Obj2	1.00 s = 100	-	402515	R W	
Open select Obj3	1 = 1	-	402517	R W	
Close select Obj3	1 = 1	-	402518	R W	
Execute operation Obj3	1 = 1	-	402519	- W	
Max ctrl pulse length of Obj3	1.00 s = 100	-	402520	R W	
Open select Obj4	1 = 1	-	402521	R W	
Close select Obj4	1 = 1	-	402522	R W	
Execute operation Obj4	1 = 1	-	402523	- W	
Max ctrl pulse length of Obj4	1.00 s = 100	-	402524	R W	
Open select Obj5	1 = 1	-	402527	R W	
Close select Obj5	1 = 1	-	402528	R W	
Execute operation Obj5	1 = 1	-	402529	- W	
Max ctrl pulse length of Obj5	1.00 s = 100	-	402530	R W	
Ambient temperature	1 °C = 1	-	402525	R W	MOTOR OPTION
SetGrp common change	1=0,2=1	-	402526	R W	
Cancel selected operation	1 = 1	-	402516	- W	
Pos. sequence I1	1 A = 1	-	403001	R -	
Neg. sequence I2	1 A = 1	-	403002	R -	
Current -seq./+seq.	1.0 % = 10	-	403003	R -	

Name	Default scaling Device = ModBus	Setting for scaling	Register	Access	NOTE
Current phase seq.	??=0,OK=1,Reverse=2	-	403004	R -	
Phase current THD	1.0 % = 10	-	403005	R -	
IL1 THD	1.0 % = 10	-	403006	R -	
IL2 THD	1.0 % = 10	-	403007	R -	
IL3 THD	1.0 % = 10	-	403008	R -	
Phase current IL	1 A = 1	-	403009	R -	
Min. of IL1 IL2 IL3	1 A = 1	-	403010	R -	
Max. of IL1 IL2 IL3	1 A = 1	-	403011	R -	
Phase current ILRMS	1 Arms = 1	-	403012	R -	
Phase current IL1RMS	1 Arms = 1	-	403015	R -	
Phase current IL2RMS	1 Arms = 1	-	403016	R -	
Phase current IL3RMS	1 Arms = 1	-	403017	R -	
Temperature rise	1.0 % = 10	-	403018	R W	
Ambient temperature	1 °C = 1	-	403019	R W	MOTOR OPTION
IL1da, 15min average	1 A = 1	-	403020	R -	
IL2da, 15min average	1 A = 1	-	403021	R -	
IL3da, 15min average	1 A = 1	-	403022	R -	
IoC, 15min average	1.00 pu = 100	-	403023	R -	
Io, 15min average	1.000 pu = 1000	-	403024	R -	
Io2, 15min average	1.000 pu = 1000	-	403025	R -	
+seq. voltage U1	1000 V = 1000	Voltage scaling	403031	R -	
-seq. voltage U2	1000 V = 1000	Voltage scaling	403032	R -	
Voltage -seq./+seq.	1.0 % = 10	-	403033	R -	
Voltage phase seq.	??=0,OK=1,Reverse=2	-	403034	R -	
Voltage THD	1.0 % = 10	-	403035	R -	
Ua THD	1.0 % = 10	-	403036	R -	
Ub THD	1.0 % = 10	-	403037	R -	
Uc THD	1.0 % = 10	-	403038	R -	

Name	Default scaling Device = ModBus	Setting for scaling	Register	Access	NOTE
Average line voltage	1000 V = 1000	Voltage scaling	403039	R -	
Min of line voltages	1000 V = 1000	Voltage scaling	403040	R -	
Max of line voltages	1000 V = 1000	Voltage scaling	403041	R -	
Average phase voltage	1000 V = 1000	Voltage scaling	403042	R -	
UL_MinOf3	1000 V = 1000	Voltage scaling	403043	R -	
UL_MaxOf3	1000 V = 1000	Voltage scaling	403044	R -	
Voltage mean RMS	1000 Vrms = 1000	Voltage scaling	403045	R -	
Input voltage Ua RMS	1000 Vrms = 1000	Voltage scaling	403048	R -	
Input voltage Ub RMS	1000 Vrms = 1000	Voltage scaling	403049	R -	
Input voltage Uc RMS	1000 Vrms = 1000	Voltage scaling	403050	R -	
U12, 15min average	1000 V = 1000	Voltage scaling	403051	R -	
U23, 15min average	1000 V = 1000	Voltage scaling	403052	R -	
U31, 15min average	1000 V = 1000	Voltage scaling	403053	R -	
UL1, 15min average	1000 V = 1000	Voltage scaling	403054	R -	
UL2, 15min average	1000 V = 1000	Voltage scaling	403055	R -	
UL3, 15min average	1000 V = 1000	Voltage scaling	403056	R -	
Cosine phii	1.00 = 100	PF and cos scaling	403058	R -	
Tan phii	1.000 = 1000	Tan phii scaling	403059	R -	
Power angle	1 ° = 1	-	403060	R -	
RMS active power	1000 kW = 1000	Power scaling	403061	R -	
RMS reactive power	1000 kvar = 1000	Power scaling	403062	R -	
RMS apparent power	1000 kVA = 1000	Power scaling	403063	R -	
Active power, 15min average	1000 kW = 1000	Power scaling	403066	R -	
Reactive power, 15min average	1000 kvar = 1000	Power scaling	403067	R -	
Apparent power, 15min average	1000 kVA = 1000	Power scaling	403068	R -	
Power factor, 15min average	1.00 = 100	PF and cos scaling	403069	R -	
RMS active power, 15min average	1000 kW = 1000	Power scaling	403071	R -	
RMS reactive power, 15min ave	1000 kvar = 1000	Power scaling	403072	R -	

Name	Default scaling Device = ModBus	Setting for scaling	Register	Access	NOTE
RMS apparent power, 15min ave	1000 kVA = 1000	Power scaling	403073	R -	
Phase L1 active power	1000 kW = 1000	Power scaling	403081	R -	
Phase L2 active power	1000 kW = 1000	Power scaling	403082	R -	
Phase L3 active power	1000 kW = 1000	Power scaling	403083	R -	
Phase L1 reactive power	1000 kvar = 1000	Power scaling	403084	R -	
Phase L2 reactive power	1000 kvar = 1000	Power scaling	403085	R -	
Phase L3 reactive power	1000 kvar = 1000	Power scaling	403086	R -	
Phase L1 apparent power	1000 kVA = 1000	Power scaling	403087	R -	
Phase L2 apparent power	1000 kVA = 1000	Power scaling	403088	R -	
Phase L3 apparent power	1000 kVA = 1000	Power scaling	403089	R -	
Cosine of phase L1	1.00 = 100	PF and cos scaling	403090	R -	
Cosine of phase L2	1.00 = 100	PF and cos scaling	403091	R -	
Cosine of phase L3	1.00 = 100	PF and cos scaling	403092	R -	
Frequency fy (synchrocheck side y)	50.00 Hz = 5000	Frequency scaling	403101	R -	Synchrocheck
Line voltage U12y (sync. Side y)	1000 V = 1000	Voltage scaling	403102	R -	“ ”
Synchrocheck 1 angle difference	1° = 1	-	403103	R -	“ ”
Frequency fz (synchrocheck side z)	50.00 Hz = 5000	Frequency scaling	403101	R -	Synchrocheck
Line voltage U12z (sync. Side z)	1000 V = 1000	Voltage scaling	403102	R -	“ ”
Synchrocheck 2 angle difference	1° = 1	-	403103	R -	“ ”
DI1 counter	1 = 1	-	403301	R W	
DI2 counter	1 = 1	-	403302	R W	
DI3 counter	1 = 1	-	403303	R W	
DI4 counter	1 = 1	-	403304	R W	
DI5 counter	1 = 1	-	403305	R W	
DI6 counter	1 = 1	-	403306	R W	
DI7 counter	1 = 1	-	403307	R W	VAMP 255
DI8 counter	1 = 1	-	403308	R W	VAMP 255
DI9 counter	1 = 1	-	403309	R W	VAMP 255
DI10 counter	1 = 1	-	403310	R W	VAMP 255

Name	Default scaling Device = ModBus	Setting for scaling	Register	Access	NOTE
DI11 counter	1 = 1	-	403311	R W	VAMP 255
DI12 counter	1 = 1	-	403312	R W	VAMP 255
DI13 counter	1 = 1	-	403313	R W	VAMP 255
DI14 counter	1 = 1	-	403314	R W	VAMP 255
DI15 counter	1 = 1	-	403315	R W	VAMP 255
DI16 counter	1 = 1	-	403316	R W	VAMP 255
DI17 counter	1 = 1	-	403317	R W	VAMP 255
DI18 counter	1 = 1	-	403318	R W	VAMP 255
DI19 counter	1 = 1	-	403319	R W	requires optional DI19/DI20 card
DI20 counter	1 = 1	-	403320	R W	
Shot1 start counter	1 = 1	-	403331	R C	
Shot2 start counter	1 = 1	-	403332	R C	
Shot3 start counter	1 = 1	-	403333	R C	
Shot4 start counter	1 = 1	-	403334	R C	
Shot5 start counter	1 = 1	-	403335	R C	
AR start counter	1 = 1	-	403336	R C	
AR fail counter	1 = 1	-	403337	R C	
AR shot number	1,2,3,4,5,END=6	-	403402	R -	
Critical AR req.	1 = 1	-	403403	R -	
Reclose locked	1 = 1	-	403404	R -	
Reclose running	1 = 1	-	403405	R -	
Final trip	1 = 1	-	403406	R -	
Autoreclose on	1 = 1	-	403407	R -	
Motor starting	1 = 1	-	403411	R -	MOTOR OPTION
Motor running	1 = 1	-	403412	R -	MOTOR OPTION
Voltage interrupt	LOW=0,ok=1	-	403413	R -	

Name	Default scaling Device = ModBus	Setting for scaling	Register	Access	NOTE
Voltage status	OK=0,LOW=1,HIGH=2, LOW/HIGH=3, (OK)=4,(LOW)=5, (HIGH)=6, (LOW)/HIGH=7	-	403414	R -	
Timer 1 status	0=1,1=2	-	403415	R W	
Timer 2 status	0=1,1=2	-	403416	R W	
Timer 3 status	0=1,1=2	-	403417	R W	
Timer 4 status	0=1,1=2	-	403418	R W	
Logic output states 1...10	1 = 1	-	403419	R -	
CBWEAR: Alarm 1	1 = 1	-	403420	R -	
CBWEAR: Alarm 2	1 = 1	-	403421	R -	
Synchrochek 1 request state	1 = 1	-	403431	R -	Synchrocheck
Synchrocheck 1 OK state	1 = 1	-	403432	R -	“ ”
Synchrocheck 1 bypass state	1 = 1	-	403433	R W	“ ”
Synchrochec 1 fail state	1 = 1	-	403434	R -	“ ”
Synchrochek 2 request state	1 = 1	-	403441	R -	Synchrocheck
Synchrocheck 2 OK state	1 = 1	-	403442	R -	“ ”
Synchrocheck 2 bypass state	1 = 1	-	403443	R W	“ ”
Synchrochec 2 fail state	1 = 1	-	403444	R -	“ ”
External analog input 1	1.00 = 100	-	403500	R -	ModBusIO
External analog input 2	1.00 = 100	-	403501	R -	“ ”
..					“ ”
External analog input 16	1.00 = 100	-	403515	R -	“ ”
					“ ”
External digital input 1	1 = 1	-	403600	R -	ModBusIO
External digital input 2	1 = 1	-	403601	R -	“ ”
..					“ ”
External digital input 18	1 = 1	-	403617	R -	“ ”

Table 2.ModBus data items in RTU master mode.

Name	Default scaling Device = ModBus	Scaleable	Default ModBus	Active by default address	Default dead band	Direction
Bus alive indicator (increments once in a second)	1 s = 1	no	402001	YES	-	to bus
Digital inputs (positive logic) DI1 = bit0 DI11 = bit10 DI2 = bit1 DI12 = bit11 DI3 = bit2 DI13 = bit12 DI4 = bit3 DI14 = bit13 DI5 = bit4 DI15 = bit14 DI6 = bit5 DI16 = bit15 DI7 = bit6 DI19 = bit16 * DI8 = bit7 DI20 = bit17 * DI9 = bit8 DI10 = bit9	0 .. 65535 = 0 .. 65535	no	402002	YES	-	to bus
Digital inputs (positive logic) DI17 = bit0 DI18 = bit1	0 ..3 = 0 ..3	No	402003	YES	-	To bus
Phase current IL1	1 A = 1	no	402004	YES	2 A	to bus
Phase current IL2	1 A = 1	no	402005	YES	2 A	to bus
Phase current IL3	1 A = 1	no	402006	YES	2 A	to bus
Residual current I0	1 A = 1	no	402007	YES	2 A	to bus
Residual current I02	1 A = 1	no	402008	YES	2 A	to bus
Line voltage U12	1 V = 1	YES	402009	YES	20 V	to bus
Line voltage U23	1 V = 1	YES	402010	YES	20 V	to bus
Line voltage U31	1 V = 1	YES	402011	YES	20 V	to bus
Phase voltage UL1	1 V = 1	YES	402012	no	20 V	to bus
Phase voltage UL2	1 V = 1	YES	402013	no	20 V	to bus
Phase voltage UL3	1 V = 1	YES	402014	no	20 V	to bus
Residual voltage U0	1 V = 1	no	402015	no	20 V	to bus
Frequency	50.00 Hz = 5000	YES	402016	YES	0.010 Hz	to bus

Name	Default scaling Device = ModBus	Scaleable	Default ModBus	Active by default address	Default dead band	Direction
Active power	1 kW = 1	YES	402017	YES	40 kW	to bus
Reactive power	1 kvar = 1	YES	402018	YES	40 kvar	to bus
Apparent power	1 kVA = 1	YES	402019	no	40 kVA	to bus
Power factor	+1.000 = 100	YES	402020	YES	-	to bus
Exported active energy, low word 0...9999 kWh	1 kWh = 1	no	402021	YES	-	to bus
Exported active energy, middle word 0...9999x10^4 kWh	10^4 kWh = 1	no	402022	YES	-	to bus
Exported active energy, high word 0...9999x10^8 kWh	10^8 kWh = 1	no	402023	YES	-	to bus
Exported reactive energy, low word	1 kvarh = 1	no	402024	YES	-	to bus
Exported reactive energy, middle word	10^4 kvarh = 1	no	402025	YES	-	to bus
Exported reactive energy, high word	10^8 kvarh = 1	no	402026	YES	-	to bus
Imported active energy, low word	1 kWh = 1	no	402027	no	-	to bus
Imported active energy, middle word	10^4 kWh = 1	no	402028	no	-	to bus
Imported active energy, high word	10^8 kWh = 1	no	402029	no	-	to bus
Imported reactive energy, low word	1 kvarh = 1	no	402030	no	-	to bus
Imported reactive energy, middle word	10^4 kvarh = 1	no	402031	no	-	to bus
Imported reactive energy, high word	10^8 kvarh = 1	no	402032	no	-	to bus
Tangent phi, -32.768 ... +32.767	1.000 = 100	YES	402033	no	-	to bus
Average of the 3 phase currents	1 A = 1	no	402034	no	2 A	to bus
Average of the 3 line voltages	1 V	YES	402035	no	20 V	to bus
Average of the 3 phase voltages	1 V	YES	402036	no	20 V	to bus
State of object 1 0 = Open 1 = Close 2 = Undefined	1 = 1	no	402037	no	-	to bus
State of object 2	1 = 1	no	402038	no	-	to bus
State of object 3	1 = 1	no	402039	no	-	to bus

Name	Default scaling Device = ModBus	Scaleable	Default ModBus	Active by default address	Default dead band	Direction
State of object 4	1 = 1	no	402040	no	-	to bus
State of object 5	1 = 1	no	402041	no	-	to bus
State of object 6	1 = 1	no	402042	no	-	to bus
Remote/Local State 0 = Remote 1 = Local	1 = 1	no	402043	no	-	to bus
Release latched relays and indicator LEDs	1 = 1	no	402101	no	-	from bus
Event request flag	1 = 1	no	402102	no	-	from bus
Event sent flag	1 = 1	no	402103	no	-	to bus
Event code Bits 15 - 6 = channel Bits 5 - 0 = code	1 = 1	no	402104	no	-	to bus
Event time stamp Bits 15 - 6 = milliseconds Bits 5 - 0 = seconds	1 = 1	no	402105	no	-	to bus
Event time stamp Upper byte = minute Lower byte = hour	1 = 1	no	402106	no	-	to bus
Event time stamp Upper byte = day Lower byte = month	1 = 1	no	402107	no	-	to bus
Event time stamp, year	1 = 1	no	402108	no	-	to bus
Select open for Object 1	1 = 1	no	402109	no	-	from bus
Select close for Object 1	1 = 1	no	402110	no	-	from bus
Select execute for Object 1	1 = 1	no	402111	no	-	from bus
Select open for Object 2	1 = 1	no	402113	no	-	from bus
Select close for Object 2	1 = 1	no	402114	no	-	from bus
Select execute for Object 2	1 = 1	no	402115	no	-	from bus
Select open for Object 3	1 = 1	no	402119	no	-	from bus
Select close for Object 3	1 = 1	no	402120	no	-	from bus

Name	Default scaling Device = ModBus	Scaleable	Default ModBus	Active by default address	Default dead band	Direction
Select execute for Object 3	1 = 1	no	402121	no	-	from bus
Select open for Object 4	1 = 1	no	402123	no	-	from bus
Select close for Object 4	1 = 1	no	402124	no	-	from bus
Select execute for Object 4	1 = 1	no	402125	no	-	from bus
Select open for Object 5	1 = 1	no	402130	no	-	from bus
Select close for Object 5	1 = 1	no	402131	no	-	from bus
Select execute for Object 5	1 = 1	no	402132	no	-	from bus
Cancel selection	1 = 1	no	402117	no	-	from bus
Real time clock minute synchronization	1 = 1	no	402118	no	-	from bus

*) DI19 and DI20 requires optional DI19/DI20 card